2018 Groundwater Monitoring Program Report

Superior, WI Terminal

Prepared for
Enbridge Energy

January 2019

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ENBRIDGE ENERGY LIMITED PARTNERSHIP
GROUNDWATER MONITORING PROGRAM - REPORT FORM
(Superior Terminal – Superior, WI)
Sample Dates: May 29 - 31 and November 14 – 16 and 19, 2018

I. Site Location

Site Name/Address: *Superior Terminal, 2800 East 21st Street, Superior, WI, 54880*
Milepost: *1098* Location Map Attached? ☒ Yes ☐ No *See Figure 1*

Legal Description: ___¼, ___ ¼, Sec *31, 36*, T *49* , R *13, 14* County: *Douglas* State: *WI*

II. Review of Physical Setting

Topography/Run-off Direction: *South*

Surrounding Land Use:

Industrial/Forest/Residential	North
Forest/Nemadji River/Golf Course	South
Industry/Forest	West
Forest/Nemadji River	East

Adjacent Water Bodies? *Yes – to the South and East*

Name of water body (if applicable): *Nemadji River*

III. Monitoring Well Data

Monitoring Wells: *28* Site Map with Monitoring Well Locations Attached? ☒ Yes ☐ No *See Figure 2*
 # Private Wells: 3 *Site Map with Private Well Locations Attached* ☒ Yes ☐ No *See Figure 2*

Key Number 3382

Well Locations (GPS Coordinates):
(add lines as necessary)

MW-1	N *46° 41' 15.577"* W *92° 4' 7.232"*	MW-2	N *46° 40' 50.491"* W *92° 4' 0.000"*	MW-5	N *46° 41' 17.485"* W *92° 3' 3.300"*
MW-5B	*46° 41' 17.419"* *-92° 3' 3.276"*	MW-6	N *46° 41' 2.130"* W *92° 3' 42.639"*	MW-6B	*46° 41' 2.101"* *-92° 3' 42.732"*
MW-10	N *46° 40' 52.450"* W *92° 3' 24.977"*	MW-11	N *46° 41' 3.405"* W *92° 3' 8.875"*	MW-11B	N *46° 41' 3.071"* W *92° 3' 24.977"*
MW-12	N *46° 41' 26.093"* W *92° 3' 2.688"*	MW-14	N *46° 41' 0.521"* W *92° 4' 0.463"*	MW-15	N *46° 41' 4.421"* W *92° 4' 1.809"*
MW-17	N *46° 41' 23.170"* W *92° 2' 53.818"*	MW-17B	N *46° 41' 23.210"* W *92° 2' 53.936"*	MW-18	N *46° 41' 26.916"* W *92° 2' 47.933"*
MW-19A	N *46° 41' 24.517*" *W 92° 3' 50.792"*	MW-19B	N *46° 41' 24.522*" W *92° 3' 50.727*"	MW-20A	N *46° 41' 8.337*" W *92° 3' 26.652*"

MW-20B	N *46° 41' 8.311"* W *92° 3' 26.584"*	MW-21A	N 46° 40' 54.784" W 92° 3' 38.863"	MW-21B	N *46° 40' 54.833"* W *92° 3' 38.848"*
MW-22B	*46° 41' 0.582"* *-92° 3' 11.2788"*	MW-23B	*46° 41' 11.6916"* *-92° 3' 2.5344"*	MW-24A	*46° 41' 25.3356"* *-92° 3' 22.4172"*
MW-24B	*46° 41' 25.386"* *-92° 3' 22.3308"*	MW-25A	*46° 41' 40.1676"* *-92° 2' 45.6936"*	MW-25B	*46° 41' 40.2036"* *-92° 2' 45.744"*
MW-26	*46° 41' 48.6024"* *46° 41' 48.6024"*				

Average Groundwater Depth (Shallow Wells): *5.24 feet below grade*
Average Groundwater Depth (Deep Wells): *13.51 feet below grade*

Groundwater Elevation and Survey Data Attached? ☒ Yes ☐ No *See Table 1 and Figure 2*

Groundwater Samples Collected? ☒ Yes ☐ No #Sampling Events: 2

Analytical Laboratory Name & Location: *Pace Analytical, Minneapolis, MN.*

Analytical Parameters Submitted:

Groundwater: petroleum volatile organic compounds (PVOCs; 1,2,4 – trimethylbenzene; 1,3,5-trimethylbenzene; benzene; ethylbenzene; toluene; total xylenes; methyl tert-butyl ether) plus naphthalene.
Private Wells: benzene; ethylbenzene; toluene; total xylenes; chloride; iron; nitrate plus nitrite; total coliform; fecal coliform as E. coli; pH.

Analytical Laboratory Reports Attached? ☒ Yes ☐ No - *See Appendix A (Monitoring Wells)/ Appendix D (Private Wells)*

Analytes Detected?

Groundwater: ☐ Yes ☒ No *See Appendix A*
Private Wells: ☒ Yes ☐ No *See Appendix D (Iron detection of 0.442 mg/L in PW-1, 0.153 mg/L in PW-2, and 1.200 mg/L in PW-3; pH detection of 8.8 in PW-1, 9.0 in PW-2, and 9.1 in PW-3.)*

Free Product Encountered? ☐ Yes ☒ No Location: *N/A*

IV. Conclusions

- Each monitoring well was photographed and the general condition of each well was documented in the spring and fall events. Photographs of each monitoring well from the spring and fall are provided in Appendix B.
- Barr measured water levels and well depths in existing wells prior to groundwater sample collection.
- Field water quality parameters were measured prior to well purging using a YSI 556 down-well probe. Field parameter and well purging documentation is provided in Appendix C.
- Groundwater samples were collected from each of the existing monitoring wells following well purging as documented on the field sampling forms in Appendix C. Groundwater samples were collected using new disposable bailers.
- Groundwater sampling in 2018 occurred between May 29 and 31 (spring event) and from November 14 – 16 and 19 (fall event).
- Samples collected from each monitoring well were analyzed for PVOCs plus Naphthalene.

- No analytes were detected above laboratory reporting limits from any of the groundwater samples collected.
- Groundwater contours of the shallow and deep wells are provided in Figures 3 through 6.
- The lock at MW-11 was unable to be relocked at the completion of sampling; powered graphite lubricant was used to assist in opening the lock.
- Private well sampling was only completed during the spring event. Sampling documentation and results are provided in Appendix D.

V. Recommendations

- Continue to check monitoring well condition and measure water levels semi-annually.
- Continue to sample monitoring wells semi-annually for PVOC + Naphthalene.
- The locks on the following wells were difficult to open during the fall event and should therefore be considered for replacement: MW-1, MW-5, MW-6, MW-11, MW-11B, MW-12, MW-19, MW-19B, MW-20A and MW-20B.
- The following wells had faded paint and/or were rusty: MW-2, MW-11, MW-11B, MW-17B, MW-19A, MW-19B, MW21A, and MW21B. Enbridge may want to consider repainting these wells in 2019 with low VOC, high visibility yellow paint.
- Continue to clear / mow the area around MW-6 and MW-6B due to overgrown burdock and thistles bushes.

VI. Monitoring Well Conditions (well by well; spring event)

- MW-1 was in good condition, recovery rate was poor, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-2 was in good condition, recovery rate was poor, purged water was clear to turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-5 was in good condition, recovery rate was poor, purged water was clear to turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-5B was in good condition, recovery rate was poor, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-6 was in good condition, recovery rate was poor, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-6B was in good condition, recovery rate was poor, purged water was clear to turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-10 was in good condition, recovery rate was poor, slight effervescence when the sample was collected, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-11 was in good condition, recovery rate was poor, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-11B was in good condition, recovery rate was poor, slight effervescence when the sample was collected, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-12 was in good condition, recovery rate was poor, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, sheen) was observed.

- MW-14 was in good condition, recovery rate was poor, purged water was clear to slightly turbid, some small brown plant roots were observed in the purge water, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-15 was in good condition, recovery rate was poor, purged water was clear, some small green plant roots were observed in the purge water, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-17 was in good condition, recovery rate was poor, purged water was clear, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-17B was in good condition, recovery rate was poor, purged water was clear, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-18 was in good condition, recovery rate was poor, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-19A was in good condition, recovery rate was poor, purged water was clear, no evidence of contamination (odor, discoloration, sheen) was observed. A duplicate sample was collected from this well. No analytes were detected in the sample or the duplicate.
- MW-19B was in good condition, recovery rate was poor, purged water was clear, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-20A was in good condition, recovery rate was poor, slight effervescence when the sample was collected, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-20B was in good condition, recovery rate was poor, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-21A was in good condition, recovery rate was poor, purged water was clear to slightly turbid, some small waxy pink flakes were observed on top of the water column during water level measurements, no evidence of contamination (odor, discoloration, sheen) was observed. A duplicate sample was collected at this well. No analytes were detected in the sample or the duplicate.
- MW-21B was in good condition, recovery rate was poor, purged water was clear to turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-22B was in good condition, but contractors are using the area around MW-22B for parking and equipment storage. Orange organic slime (possibly algae) was observed on top of the water column during water level measurements, recovery rate was poor, purged water was clear to very turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-23B was in good condition, recovery rate was poor, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-24A was in good condition, recovery rate was poor, purged water was slightly turbid to turbid, no evidence of contamination (odor, discoloration, sheen) was observed. A duplicate sample was collected from this well. No analytes were detected in the sample or the duplicate.
- MW-24B was in good condition, recovery rate was poor, purged water was slightly turbid to turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-25A was in good condition, recovery rate was poor, purged water was turbid to very turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-25B was in good condition recovery rate was poor, purged water was turbid to very turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-26 was in good condition, recovery rate was fair, purged water was clear to turbid, no evidence of contamination (odor, discoloration, sheen) was observed.

VII. Monitoring Well Conditions (well by well; fall event)

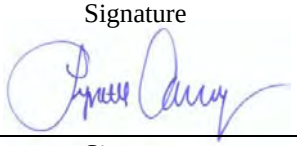
- MW-1 was in good condition, recovery rate was poor, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, or sheen) was observed.
- MW-2 was in good condition, recovery rate was poor, slight effervescence when the sample was collected, purged water was clear to turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-5 was in good condition, recovery rate was poor, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-5B was in good condition, recovery rate was poor, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-6 was in good condition, recovery rate was poor, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-6B was in good condition, recovery rate was poor, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-10 was in good condition, recovery rate was poor, purged water was clear, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-11 was in good condition, recovery rate was poor, slight effervescence when the sample was collected, purged water was clear, no evidence of contamination (odor, discoloration, sheen) was observed. Well lock was unable to be relocked at the end of sampling and was replaced.
- MW-11B was in good condition, recovery rate was poor, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-12 was in good condition, recovery rate was poor, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-14 was in good condition, recovery rate was poor, purged water was clear, some small plant roots were observed in the purge water, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-15 was in good condition, recovery rate was poor, purged water was clear, some small plant roots were observed in the purge water, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-17 was in good condition, recovery rate was poor, purged water was clear, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-17B was in good condition, recovery rate was poor, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-18 was in good condition, recovery rate was poor, purged water was clear, no evidence of contamination (odor, discoloration, sheen) was observed. A duplicate sample was collected at this well. No analytes were detected in the sample or the duplicate.
- MW-19A was in good condition, recovery rate was poor, purged water was clear and slightly gray, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-19B was in good condition, recovery rate was poor, purged water was clear and slightly gray, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-20A was in good condition, recovery rate was poor, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-20B was in good condition, recovery rate was poor, purged water was clear, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-21A was in good condition, recovery rate was poor, purged water was clear, no evidence of contamination (odor, discoloration, sheen) was observed. A duplicate sample was collected from this well. No analytes were detected in the sample or the duplicate.

- MW-21B was in good condition, recovery rate was poor, purged water was clear, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-22B was in good condition. Recovery rate was poor, purged water was clear to very turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-23B was in good condition, recovery rate was poor, purged water was clear to very turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-24A was in good condition, recovery rate was poor, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-24B was in good condition, recovery rate was poor, purged water was clear to slightly turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-25A was in good condition, recovery rate was poor, purged water was very turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-25B was in good condition, recovery rate was poor, purged water was very turbid, no evidence of contamination (odor, discoloration, sheen) was observed.
- MW-26 was in good condition, recovery rate was fair, purged water was clear to turbid, no evidence of contamination (odor, discoloration, sheen) was observed. A duplicate sample was collected from this well. No analytes were detected in the sample or the duplicate.

Company Name: Barr Engineering Co.

Prepared By: Kaitlin Johnson  1/11/2019

Printed Name | Signature | Date

Reviewed By: Lynette Carney  1/11/2019

Printed Name | Signature | Date

Tables

Table 1
Groundwater Elevations
Enbridge Energy Limited Partnership - Superior, WI Terminal

Location	Date	TOC Elevation (feet)	Grade Elevation (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)
MW-1	20-Dec-99	665.19	663.15	6.35	658.84
	14-Jan-00			6.91	658.28
	16-Feb-00			7.26	657.93
	1-Dec-03			6.94	658.25
	14-Oct-04			5.70	659.49
	15-Sep-08			9.43	655.76
	1-Oct-09			6.90	658.29
	20-Sep-10	665.22	663.46	5.61	659.61
	20-Sep-11			6.23	658.99
	26-Sep-12			7.33	657.89
	20-Nov-13			5.81	659.41
	27-Aug-14			5.67	659.55
	10-Nov-15			5.47	659.75
	16-May-16			5.63	659.59
	3-Oct-16			6.59	658.63
	22-May-17			4.47	660.75
	2-Oct-17			5.12	660.10
	29-May-18			5.13	660.09
	15-Nov-18			6.54	658.68
MW-2	20-Dec-99	659.42	656.96	4.17	655.25
	14-Jan-00			6.71	652.71
	16-Feb-00			7.49	651.93
	1-Dec-03			4.91	654.51
	14-Oct-04			4.81	654.61
	16-Oct-08			4.04	655.38
	1-Oct-09			7.25	652.17
	17-Sep-10	659.37	657.06	4.81	654.56
	20-Sep-11			6.74	652.63
	26-Sep-12			8.23	651.14
	20-Nov-13			5.31	654.06
	27-Aug-14			4.11	655.26
	10-Nov-15			3.30	656.07
	16-May-16			4.09	655.28
	3-Oct-16			5.70	653.67
	22-May-17			3.07	656.30
	2-Oct-17			3.14	656.23
	29-May-18			3.72	655.65
	14-Nov-18			3.30	656.07
MW-5	20-Dec-99	645.43	642.85	3.92	641.51
	14-Jan-00			6.33	639.10
	16-Feb-00			6.82	638.61
	1-Dec-03			7.26	638.17
	14-Oct-04			5.27	640.16
	15-Sep-08			6.32	639.11
	1-Oct-09			7.50	637.93
	17-Sep-10	645.37	642.85	6.26	639.11
	20-Sep-11			7.55	637.82
	26-Sep-12			9.75	635.62
	20-Nov-13			4.13	641.24
	29-Aug-14			3.68	641.69
	12-Nov-15			4.14	641.23
	18-May-16			3.38	641.99
	4-Oct-16			3.69	641.68
	23-May-17			2.87	642.50
	5-Oct-17			2.80	642.57
	31-May-18			2.79	642.58
	15-Nov-18			3.19	642.18

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Groundwater Elevations
Enbridge Energy Limited Partnership - Superior, WI Terminal

Location	Date	TOC Elevation (feet)	Grade Elevation (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)
MW-5B	13-Nov-15	644.199‡	640.89‡	56.33*	587.87
	18-May-16			8.12	636.08
	4-Oct-16			9.14	635.06
	23-May-17			8.15	636.05
	5-Oct-17			7.18	637.02
	31-May-18			6.53	637.67
	15-Nov-18			6.80	637.40
MW-6	20-Dec-99	648.03	646.07	21.16	626.87
	14-Jan-00			18.63	629.40
	16-Feb-00			14.12	633.91
	1-Dec-03			8.63	639.40
	14-Oct-04			8.19	639.84
	15-Sep-08			7.51	640.52
	1-Oct-09			8.98	639.05
	17-Sep-10	648.01	645.79	7.65	640.36
	20-Sep-11			7.94	640.07
	26-Sep-12			8.40	639.61
	20-Nov-13			7.42	640.59
	29-Aug-14			7.40	640.61
	11-Nov-15			7.49	640.52
	16-May-16			7.60	640.41
	6-Oct-16			8.60	639.41
	22-May-17			7.24	640.77
	3-Oct-17			6.65	641.36
	30-May-18			7.14	640.87
	16-Nov-18			7.47	640.54
MW-6B	12-Nov-15	646.77‡	644.23‡	51.56*	595.21
	17-May-16			9.92	636.85
	6-Oct-16			10.80	635.97
	22-May-17			9.12	637.65
	3-Oct-17			9.15	637.62
	30-May-18			8.91	637.86
	16-Nov-18			9.00	637.77
MW-10	20-Sep-10	662.01	660.11	6.10	655.91
	20-Sep-11			6.52	655.49
	26-Sep-12			6.86	655.15
	21-Nov-13			5.79	656.22
	29-Aug-14			4.28	657.73
	11-Nov-15			5.81	656.20
	17-May-16			6.10	655.91
	6-Oct-16			5.43	656.58
	23-May-17			5.20	656.81
	4-Oct-17			4.75	657.26
	30-May-18			6.28	655.73
	16-Nov-18			5.24	656.77
MW-11	20-Sep-10	656.33	654.06	8.31	648.02
	20-Sep-11			8.70	647.63
	26-Sep-12			8.27	648.06
	21-Nov-13			8.77	647.56
	28-Aug-14			7.86	648.47
	11-Nov-15			7.88	648.45
	17-May-16			8.22	648.11
	6-Oct-16			8.70	647.63
	23-May-17			7.80	648.53
	4-Oct-17			7.69	648.64
	30-May-18			7.75	648.58
	16-Nov-18			8.09	648.24

Table 1
Groundwater Elevations
Enbridge Energy Limited Partnership - Superior, WI Terminal

Location	Date	TOC Elevation (feet)	Grade Elevation (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)
MW-11B	5-Dec-13	655.91	653.86	54.71*	601.20
	28-Aug-14			22.66	633.25
	11-Nov-15			21.81	634.10
	17-May-16			24.28	631.63
	6-Oct-16			26.50	629.41
	23-May-17			22.94	632.97
	4-Oct-17			26.95	628.96
	30-May-18			22.31	633.60
	16-Nov-18			24.70	631.21
MW-12	20-Sep-10	649.46	645.36	6.65	642.81
	20-Sep-11			7.35	642.11
	26-Sep-12			9.81	639.65
	21-Nov-13			7.81	641.65
	29-Aug-14			8.23	641.23
	10-Nov-15			4.90	644.56
	19-May-16			4.98	644.48
	4-Oct-16			5.05	644.41
	23-May-17			4.75	644.71
	4-Oct-17	649.17		4.42	644.75
	31-May-18			4.62	644.55
	19-Nov-18			4.64	644.53
MW-14	20-Sep-10	661.15	659.27	5.57	655.58
	20-Sep-11			6.32	654.83
	26-Sep-12			6.76	654.39
	20-Nov-13			5.52	655.63
	29-Aug-14			4.67	656.48
	10-Nov-15			5.00	656.15
	16-May-16			5.77	655.38
	5-Oct-16			6.50	654.65
	22-May-17			3.40	657.75
	2-Oct-17			4.82	656.33
	29-May-18			5.25	655.90
	14-Nov-18			4.91	656.24
MW-15	20-Sep-10	660.88	659.1	3.50	657.38
	20-Sep-11			5.03	655.85
	26-Sep-12			6.53	654.35
	20-Nov-13			4.64	656.24
	29-Aug-14			3.38	657.50
	10-Nov-15			3.93	656.95
	16-May-16			3.86	657.02
	5-Oct-16			5.35	655.53
	22-May-17			2.92	657.96
	2-Oct-17			2.82	658.06
	29-May-18			3.92	656.96
	14-Nov-18			2.91	657.97
MW-17	2-Nov-12	643.19	640.7	15.99*	627.20
	20-Nov-13			5.62	637.57
	28-Aug-14			5.40	637.79
	12-Nov-15			4.80	638.39
	18-May-16			5.30	637.89
	4-Oct-16			6.15	637.04
	23-May-17			4.24	638.95
	5-Oct-17			3.93	639.26
	31-May-18			5.95	637.24
	15-Nov-18			3.88	639.31
MW-17B	17-Dec-13	643.27	640.95	44.25*	599.02
	28-Aug-14			18.41	624.86
	12-Nov-15			15.41	627.86
	18-May-16			19.07	624.20
	4-Oct-16			21.81	621.46
	23-May-17			17.78	625.49
	5-Oct-17			22.30	620.97
	31-May-18			16.50	626.77
	15-Nov-18			20.10	623.17

Table 1
Groundwater Elevations
Enbridge Energy Limited Partnership - Superior, WI Terminal

Location	Date	TOC Elevation (feet)	Grade Elevation (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)
MW-18	2-Nov-12	644.23	641.8	13.83*	630.40
	20-Nov-13			5.95	638.28
	29-Aug-14			5.31	638.92
	12-Nov-15			5.24	638.99
	18-May-16			6.10	638.13
	7-Oct-16			5.66	638.57
	23-May-17			5.55	638.68
	5-Oct-17			5.25	638.98
	31-May-18			7.64	636.59
	15-Nov-18			5.43	638.80
MW-19A	5-Dec-13	658.12	656.15	17.81*	640.31
	27-Aug-14			3.92	654.20
	10-Nov-15			3.41	654.71
	16-May-16			3.40	654.72
	3-Oct-16			3.59	654.53
	22-May-17			3.27	654.85
	5-Oct-17			3.08	655.04
	29-May-18			3.53	654.59
	14-Nov-18			3.15	654.97
MW-19B	5-Dec-13	658.22	656.19	53.90*	604.32
	27-Aug-14			13.42	644.80
	10-Nov-15			13.37	644.85
	17-May-16			13.31	644.91
	3-Oct-16			13.74	644.48
	22-May-17			12.88	645.34
	5-Oct-17			13.46	644.76
	29-May-18			12.52	645.70
	14-Nov-18			8.76	649.46
MW-20A	17-Dec-13	651.04	648.98	21.48*	629.56
	28-Aug-14			6.34	644.70
	9-Nov-15			5.84	645.20
	17-May-16			5.08	645.96
	5-Oct-16			7.50	643.54
	23-May-17			4.33	646.71
	3-Oct-17			4.67	646.37
	30-May-18			5.28	645.76
	16-Nov-18			4.46	646.58
MW-20B	26-Nov-13	651.34	649.36	56.40*	594.94
	28-Aug-14			20.47	630.87
	9-Nov-15			18.97	632.37
	17-May-16			19.24	632.10
	5-Oct-16			19.89	631.45
	22-May-17			17.72	633.62
	3-Oct-17			19.97	631.37
	30-May-18			17.04	634.30
	16-Nov-18			18.33	633.01
MW-21A	17-Dec-13	648.84	646.86	18.04*	630.80
	27-Aug-14			5.39	643.45
	11-Nov-15			4.61	644.23
	17-May-16			4.10	644.74
	6-Oct-16			6.25	642.59
	22-May-17			3.90	644.94
	3-Oct-17			4.00	644.84
	30-May-18			4.11	644.73
	16-Nov-18			3.89	644.95

Table 1
Groundwater Elevations
Enbridge Energy Limited Partnership - Superior, WI Terminal

Location	Date	TOC Elevation (feet)	Grade Elevation (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)
MW-21B	17-Dec-13	648.83	646.68	38.62*	608.06
	27-Aug-14			18.98	629.85
	11-Nov-15			18.78	630.05
	17-May-16			18.50	630.33
	6-Oct-16			19.38	629.45
	22-May-17			18.71	630.12
	3-Oct-17			20.03	628.80
	30-May-18			17.81	631.02
	16-Nov-18			18.90	629.93
MW-22B	13-Nov-15	658.35‡	655.49‡	12.23*	646.12
	17-May-16			16.11	642.24
	4-Oct-16			16.55	641.80
	23-May-17			17.19	641.16
	4-Oct-17			17.83	640.52
	30-May-18			17.91	640.44
	16-Nov-18			17.93	640.42
MW-23B	16-Nov-15	646.22‡	643.51‡	50.51*	595.71
	18-May-16			9.25	636.97
	4-Oct-16			14.07	632.15
	23-May-17			8.32	637.90
	5-Oct-17			6.36	639.86
	31-May-18			7.90	638.32
	15-Nov-18			7.23	638.99
MW-24A	13-Nov-15	651.69‡	649.09‡	16.3*	635.39
	18-May-16			4.20	647.49
	5-Oct-16			3.69	648.00
	23-May-17			3.74	647.95
	3-Oct-17			3.65	648.04
	31-May-18			4.51	647.18
	15-Nov-18			3.85	647.84
MW-24B	13-Nov-15	651.45‡	648.86‡	21.33*	630.12
	18-May-16			15.52	635.93
	5-Oct-16			15.83	635.62
	23-May-17			14.06	637.39
	3-Oct-17			13.52	637.93
	31-May-18			10.82	640.63
	15-Nov-18			11.03	640.42
MW-25A	13-Nov-15	638.31‡	635.91‡	2.71*	635.60
	19-May-16			3.05	635.26
	3-Oct-16			3.68	634.63
	23-May-17			3.03	635.28
	4-Oct-17			3.05	635.26
	31-May-18			2.99	635.32
	19-Nov-18			3.59	634.72
MW-25B	13-Nov-15	638.52‡	635.85‡	15.52*	623.00
	19-May-16			7.40	631.12
	3-Oct-16			8.38	630.14
	23-May-17			7.60	630.92
	4-Oct-17			8.50	630.02
	31-May-18			7.62	630.90
	19-Nov-18			8.69	629.83
MW-26	13-Nov-15	646.17‡	643.44‡	17.5*	628.67
	28-May-16			7.79	638.38
	4-Oct-16			6.46	639.71
	23-May-17			7.44	638.73
	4-Oct-17			7.10	639.07
	31-May-18			7.65	638.52
	19-Nov-18			6.90	639.27

Notes:
TOC = Top of Casing
* = New well construction. Steady state depth to groundwater not established.
‡ = Feet in NAVD88 (North America Verticle Datum)

Table 2
Groundwater Quality Data
Enbridge Energy Limited Partnership - Superior, WI Terminal

Location	Date	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	DRO (µg/L)	Napthalene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	1,3,5-Trimethylbenzene (ug/L)
MW-1	20-Dec-99	< 1.0	< 1.2	<1.1	< 3.7	< 100	NS	NS	NS
	2-Dec-03	<0.30	<0.60	<0.58	<1.84	<100	NS	NS	NS
	14-Oct-04	0.28*	< 0.40	< 0.36	< 1.1	< 110	NS	NS	NS
	15-Sep-08	< 1.0	< 1.0	< 1.0	< 3.0	< 500	NS	NS	NS
	1-Oct-09	< 1.0	< 1.0	< 1.0	< 3.0	<51	NS	NS	NS
	17-Sep-10	< 1.0	< 1.0	< 1.0	< 3.0	<100	NS	NS	NS
	20-Sep-11	< 1.0	< 1.0	< 1.0	< 3.0	<115	NS	NS	NS
	26-Sep-12	< 1.0	< 1.0	< 1.0	< 3.0	<120	NS	NS	NS
	22-Nov-13	< 1.0	< 1.0	< 1.0	< 3.0	NS	< 4.0	< 1.0	< 1.0
	27-Aug-14	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	10-Nov-15	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	24-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	3-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	22-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	2-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	29-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	15-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-2	20-Dec-99	< 1.0	< 1.2	<1.1	< 3.7	<100	NS	NS	NS
	2-Dec-03	<0.30	<0.60	<0.58	<1.84	<100	NS	NS	NS
	14-Oct-04	1.5*	< 0.40	< 0.36	< 1.1	< 100	NS	NS	NS
	16-Oct-08	< 1.0	< 1.0	< 1.0	< 3.0	<460	NS	NS	NS
	1-Oct-09	< 1.0	< 1.0	< 1.0	< 3.0	<51	NS	NS	NS
	17-Sep-10	< 1.0	< 1.0	< 1.0	< 3.0	<103	NS	NS	NS
	20-Sep-11	< 1.0	< 1.0	< 1.0	< 3.0	<111	NS	NS	NS
	26-Sep-12	< 1.0	< 1.0	< 1.0	< 3.0	<110	NS	NS	NS
	22-Nov-13	< 1.0	<1.0	<1.0	< 3.0	NS	<4.0	<1.0	<1.0
	27-Aug-14	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	10-Nov-15	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	24-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	3-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	22-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	2-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	29-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	14-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-5	20-Dec-99	< 1.0	< 1.2	<1.1	< 3.7	<100	NS	NS	NS
	2-Dec-03	<0.30	<0.60	<0.58	<1.84	<100	NS	NS	NS
	14-Oct-04	0.75*	< 0.40	< 0.36	< 1.1	< 100	NS	NS	NS
	15-Sep-08	< 1.0	< 1.0	< 1.0	< 3.0	< 460	NS	NS	NS
	1-Oct-09	< 1.0	< 1.0	< 1.0	< 3.0	160	NS	NS	NS
	17-Sep-10	< 1.0	< 1.0	< 1.0	< 3.0	<102	NS	NS	NS
	20-Sep-11	< 1.0	< 1.0	< 1.0	< 3.0	<110	NS	NS	NS
	26-Sep-12	< 1.0	< 1.0	< 1.0	< 3.0	<100	NS	NS	NS
	25-Nov-13	< 1.0	< 1.0	< 1.0	< 3.0	NS	< 4.0	< 1.0	< 1.0
	29-Aug-14	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	12-Nov-15 (Dup-2)	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	24-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	4-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	24-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	5-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	31-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	15-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-5B	13-Nov-15‡	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	24-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	4-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	24-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	5-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	31-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	15-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0

Table 2
Groundwater Quality Data
Enbridge Energy Limited Partnership - Superior, WI Terminal

Location	Date	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	DRO (µg/L)	Napthalene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	1,3,5-Trimethylbenzene (ug/L)
MW-6	20-Dec-99	< 1.0	< 1.2	<1.1	< 3.7	<100	NS	NS	NS
	2-Dec-03	<0.30	<0.60	<0.58	<1.84	<100	NS	NS	NS
	14-Oct-04	0.67*	< 0.40	< 0.36	< 1.1	< 100	NS	NS	NS
	15-Sep-08	< 1.0	< 1.0	< 1.0	< 3.0	< 460	NS	NS	NS
	1-Oct-09	< 1.0	< 1.0	< 1.0	< 3.0	<51	NS	NS	NS
	20-Sep-10	< 1.0	< 1.0	< 1.0	< 3.0	<108	NS	NS	NS
	20-Sep-11	< 1.0	< 1.0	< 1.0	< 3.0	<115	NS	NS	NS
	26-Sep-12	< 1.0	< 1.0	< 1.0	< 3.0	<110	NS	NS	NS
	25-Nov-13	< 1.0	< 1.0	< 1.0	< 3.0	NS	< 4.0	< 1.0	< 1.0
	29-Aug-14	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	29-Aug-14(DUP-2)	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	11-Nov-15	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	21-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	6-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	23-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	3-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	30-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	16-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-6B	12-Nov-15‡	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	21-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	6-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	23-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	3-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	30-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	16-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-10	20-Sep-10	< 1.0	< 1.0	< 1.0	< 3.0	212	NS	NS	NS
	20-Sep-11	< 1.0	< 1.0	< 1.0	< 3.0	170	NS	NS	NS
	26-Sep-12	< 1.0	< 1.0	< 1.0	< 3.0	150	NS	NS	NS
	21-Nov-13	< 1.0	< 1.0	< 1.0	< 3.0	NS	< 4.0	< 1.0	< 1.0
	29-Aug-14	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	11-Nov-15	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	21-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	6-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	23-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	4-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	30-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	16-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-11	20-Sep-10	<1.0	<1.0	2.2	<3.0	373	NS	NS	NS
	20-Sep-11	< 1.0	< 1.0	< 1.0	< 3.0	266	NS	NS	NS
	26-Sep-12	< 1.0	< 1.0	< 1.0	< 3.0	330	NS	NS	NS
	21-Nov-13	< 1.0	< 1.0	< 1.0	< 3.0	NS	< 4.0	1.2	< 1.0
	28-Aug-14	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	11-Nov-15	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	21-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	6-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	23-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	4-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	30-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	16-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-11B	5-Dec-13	< 1.0	< 1.0	< 1.0	3.1	NS	< 4.0	< 1.0	< 1.0
	28-Aug-14	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	11-Nov-15	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	21-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	6-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	23-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	4-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	30-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	16-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0

Table 2
Groundwater Quality Data
Enbridge Energy Limited Partnership - Superior, WI Terminal

Location	Date	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	DRO (µg/L)	Napthalene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	1,3,5-Trimethylbenzene (ug/L)
MW-12	17-Sep-10	< 1.0	< 1.0	< 1.0	< 3.0	<101	NS	NS	NS
	20-Sep-11	< 1.0	< 1.0	< 1.0	< 3.0	<110	NS	NS	NS
	26-Sep-12	< 1.0	< 1.0	< 1.0	< 3.0	<110	NS	NS	NS
	25-Nov-13	< 1.0	< 1.0	< 1.0	< 3.0	NS	< 4.0	< 1.0	< 1.0
	29-Aug-14	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	10-Nov-15	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	22-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	4-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	24-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	4-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	31-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	19-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-14	17-Sep-10	< 1.0	< 1.0	< 1.0	< 3.0	<111	NS	NS	NS
	20-Sep-11	< 1.0	< 1.0	< 1.0	< 3.0	<105	NS	NS	NS
	26-Sep-12	< 1.0	< 1.0	< 1.0	< 3.0	<110	NS	NS	NS
	22-Nov-13	< 1.0	< 1.0	< 1.0	< 3.0	NS	< 4.0	< 1.0	< 1.0
	29-Aug-14	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	10-Nov-15(Dup-1)	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	22-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	5-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	22-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	2-Oct-17	<1.1	<0.45	<0.57	<0.81	NS	<1.4	<0.45	<0.60
	29-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	14-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-15	17-Sep-10	< 1.0	< 1.0	< 1.0	< 3.0	<102	NS	NS	NS
	20-Sep-11	< 1.0	< 1.0	< 1.0	< 3.0	<112	NS	NS	NS
	26-Sep-12	< 1.0	< 1.0	< 1.0	< 3.0	<110	NS	NS	NS
	22-Nov-13	< 1.0	< 1.0	< 1.0	< 3.0	NS	< 4.0	< 1.0	< 1.0
	29-Aug-14	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	10-Nov-15	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	22-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	5-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	22-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	2-Oct-17	<1.1	<0.45	<0.57	<0.81	NS	<1.4	<0.45	<0.60
	29-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	14-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-17	2-Nov-12	< 1.0	< 1.0	< 1.0	< 3.0	190	NS	NS	NS
	21-Nov-13	< 1.0	< 1.0	< 1.0	< 3.0	NS	< 4.0	< 1.0	< 1.0
	28-Aug-14	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	28-Aug-14(DUP-1)	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	12-Nov-15	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	22-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	4-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	24-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	5-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	31-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	15-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-17B	17-Dec-13	< 1.0	< 1.0	< 1.0	< 3.0	NS	< 4.0	< 1.0	< 1.0
	28-Aug-14	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	12-Nov-15	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	22-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	4-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	24-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	5-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	31-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	15-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0

Table 2
Groundwater Quality Data
Enbridge Energy Limited Partnership - Superior, WI Terminal

Location	Date	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	DRO (µg/L)	Napthalene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	1,3,5-Trimethylbenzene (ug/L)
MW-18	2-Nov-12	< 1.0	< 1.0	< 1.0	< 3.0	160	NS	NS	NS
	21-Nov-13	< 1.0	< 1.0	< 1.0	< 3.0	NS	< 4.0	< 1.0	< 1.0
	29-Aug-14	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	12-Nov-15	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	22-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	7-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	24-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	5-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	31-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	15-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-19A	5-Dec-13	< 1.0	< 1.0	1.2	< 3.0	NS	< 4.0	< 1.0	< 1.0
	29-Aug-14	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	10-Nov-15	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	24-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	3-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	22-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	5-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	29-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	14-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-19B	5-Dec-13	< 1.0	< 1.0	1.0	< 3.0	NS	< 4.0	< 1.0	< 1.0
	29-Aug-14	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	10-Nov-15	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	24-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	3-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	22-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	5-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	29-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	14-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-20A	17-Dec-13	< 1.0	< 1.0	< 1.0	< 3.0	NS	< 4.0	< 1.0	< 1.0
	28-Aug-14	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	9-Nov-15	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	21-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	5-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	23-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	3-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	30-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	16-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-20B	17-Dec-13	< 1.0	< 1.0	< 1.0	< 3.0	NS	< 4.0	< 1.0	< 1.0
	28-Aug-14	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	9-Nov-15	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	21-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	5-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	23-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	3-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	30-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	16-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-21A	17-Dec-13	< 1.0	< 1.0	< 1.0	< 3.0	NS	< 4.0	< 1.0	< 1.0
	27-Aug-14	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	11-Nov-15	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	21-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	6-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	23-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	3-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	30-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	16-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0

Table 2
Groundwater Quality Data
Enbridge Energy Limited Partnership - Superior, WI Terminal

Location	Date	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	DRO (µg/L)	Napthalene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	1,3,5-Trimethylbenzene (ug/L)
MW-21B	26-Nov-13	< 2.0	< 2.0	< 2.0	< 6.0	NS	< 8.0	< 2.0	< 2.0
	27-Aug-14	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	11-Nov-15	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	21-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	6-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	23-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	3-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	30-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	16-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-22B	13-Nov-15‡	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	21-May-16	<1.0	<1.0	3.6	<3.0	NS	<5.0	<1.0	<1.0
	4-Oct-16	<1.0	<1.0	<3.0	<3.0	NS	<5.0	<1.0	<1.0
	24-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	4-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	30-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	16-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-23B	16-Nov-15‡	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	21-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	4-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	24-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	5-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	31-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	15-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-24A	13-Nov-15‡	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	22-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	5-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	24-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	3-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	31-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	15-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-24B	13-Nov-15(Dup-3)‡	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	22-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	5-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	24-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	3-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	31-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	15-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-25A	13-Nov-15‡	<5.0	<5.0	<5.0	<15.0	NS	<20.0	<5.0	<5.0
	22-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	3-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	24-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	4-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	31-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	19-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
MW-25B	13-Nov-15‡	<5.0	<5.0	<5.0	<15.0	NS	<20.0	<5.0	<5.0
	22-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	3-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	24-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	4-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	31-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	19-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0

Table 2
Groundwater Quality Data
Enbridge Energy Limited Partnership - Superior, WI Terminal

Location	Date	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	DRO (µg/L)	Napthalene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	1,3,5-Trimethylbenzene (ug/L)
MW-26	13-Nov-15‡	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	22-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	4-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	24-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	4-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	31-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	19-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
Trip Blank	2-Dec-03	<0.30	<0.60	<0.58	<1.84	---	NS	NS	NS
	14-Oct-04	1.3*	< 0.40	< 0.36	< 1.1	---	NS	NS	NS
	20-Sep-10	< 1.0	< 1.0	< 1.0	< 3.0	---	NS	NS	NS
	20-Sep-11	< 1.0	< 1.0	< 1.0	< 3.0	---	NS	NS	NS
	26-Sep-12	< 1.0	< 1.0	< 1.0	< 3.0	---	NS	NS	NS
	2-Nov-12	< 1.0	< 1.0	< 1.0	< 3.0	---	NS	NS	NS
	22-Nov-13	< 1.0	< 1.0	< 1.0	< 3.0	---	< 4.0	< 1.0	< 1.0
	27-Aug-14	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	9-Nov-15	<1.0	<1.0	1.7	<3.0	NS	<4.0	<1.0	<1.0
	10-Nov-15	<1.0	<1.0	1.6	<3.0	NS	<4.0	<1.0	<1.0
	10-Nov-15	<1.0	<1.0	1.7	<3.0	NS	<4.0	<1.0	<1.0
	11-Nov-15	<1.0	<1.0	1.3	<3.0	NS	<4.0	<1.0	<1.0
	11-Nov-15	<1.0	<1.0	1.3	<3.0	NS	<4.0	<1.0	<1.0
	12-Nov-15‡	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	13-Nov-15‡	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
	22-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	22-May-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	3-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	6-Oct-16	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	24-May-17	<1.0	<1.0	<1.0	<3.0	NS	<5.0	<1.0	<1.0
	5-Oct-17	<1.0	<1.0	<1.0	<3.0	NS	<10.0	<4.0	<1.0
	29-May-18	<0.34	<0.46	<0.28	<1.0	NS	<1.6	<0.65	<0.41
	14-Nov-18	<1.0	<1.0	<1.0	<3.0	NS	<4.0	<1.0	<1.0
Field Blank	14-Oct-04	1.9*	< 0.40	0.49*	< 1.1	---	NS	NS	NS

Notes:

µg/L = micrograms per liter (parts per billion)

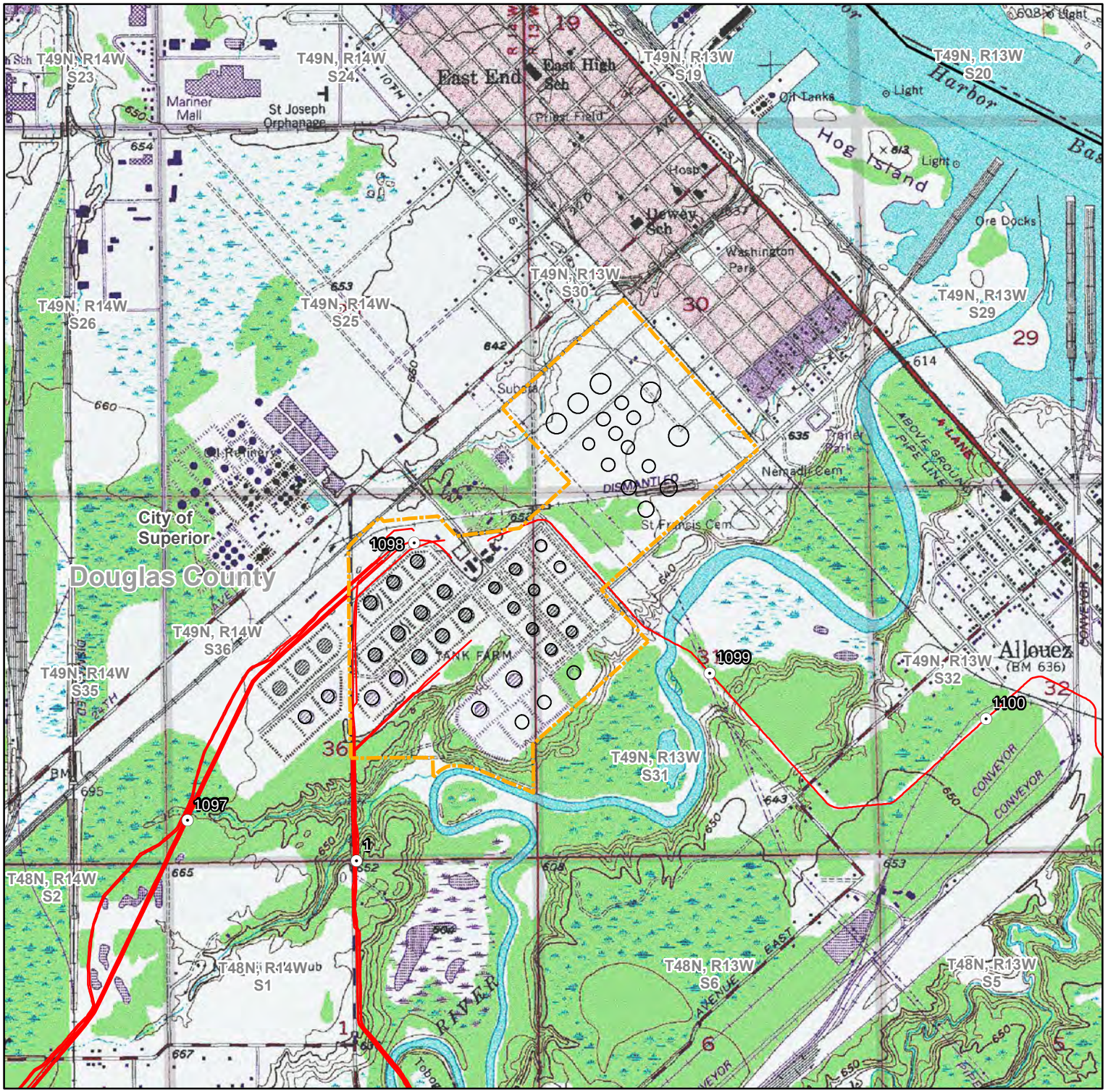
NS = Not sampled for this parameter

* Detections are likely false positives. Samples were stored at lab in refigerator at laboratory next to unrelated samples with high benzene and toluene concentrations.

‡ Well analyzed for full-list volatile organic compounds.

<1.0 = not detected above the laboratory practical quantitation limit or reporting limit

Figures



- Site Location
- Terminals
- Mile Posts (1-Mile)
- Enbridge Pipelines
- Terminal Property Boundary

N

0 2,000 4,000

Feet

1 Inch = 2,000 Feet

Figure 1

SITE LOCATION
Superior Terminal
Enbridge Energy, L.P.
Superior, Wisconsin

ENBRIDGE

Barr Footer: ArcGIS 10.6, 2019-01-02 11:51 File: I:\Client\Enbridge_Energy\Work_Orders\Spill_Response_Investigation\49161419\Maps\Reports\Figure1_SuperiorTerminal_Site_Location.mxd User: jwk

Monitoring Well Location

Private Well Location

Terminal Property Boundary

Note:
Monitoring well locations MW-5B, MW-6B, MW-11B, MW-17B, MW-19B, MW-20B, MW-21B, MW-22B, MW-23B, MW-24B and MW-25B are piezometers.

N

0 1,000 2,000

Feet

1 Inch = 1,000 Feet

Douglas County Imagery Circa May, 2016

Figure 2

MONITORING WELL LOCATIONS
Superior Terminal
Enbridge Energy, L.P.
Superior, Wisconsin

ENBRIDGE

Barr Footer: ArcGIS 10.6, 2019-01-02 12:01 File: I:\Client\Enbridge_Energy\Work_Orders\Spill_Response_Investigation\49161419\Maps\Reports\Figure2_Superior_SiteMap_2018.mxd User: iwk

Site Location

Monitoring Wells
Groundwater Elevation (ft NAVD)

Groundwater Elevation (ft)
Contour Interval = 2-Foot
(Dashed Where Inferred)

Groundwater Flow Direction

5-Foot Topographic Contours

Terminal Property Boundary

Groundwater elevations measured on
5/29/18, 5/30/18, and 5/31/18

N

0 1,000 2,000

Feet

1 Inch = 1,000 Feet

Figure 3

SPRING 2018
SHALLOW GROUNDWATER
ELEVATION CONTOURS

Superior Terminal
Enbridge Energy, L.P.
Superior, Wisconsin

ENBRIDGE

Barr Footer: ArcGIS 10.6, 2019-01-04 10:13 File: I:\Client\Enbridge_Energy\Work_Orders\Spill_Response_Investigation\49161419\Maps\Reports\01_Spring2018\Figure3_Superior_Spring_Shallow_GroundwaterElevation_Contours.mxd User: jwk

Site Location

Monitoring Wells - Piezometer
Groundwater Elevation (ft NAVD)

Groundwater Elevation (ft)
Contour Interval = 2-Foot
(Dashed Where Inferred)

Groundwater Flow Direction

5-Foot Topographic Contours

Terminal Property Boundary

Groundwater elevations measured on 5/29/18, 5/30/18, and 5/31/18

N

0 1,000 2,000

Feet

1 Inch = 1,000 Feet

Figure 4

SPRING 2018
DEEP GROUNDWATER
ELEVATION CONTOURS

Superior Terminal
Enbridge Energy, L.P.
Superior, Wisconsin

ENBRIDGE

Site Location

Monitoring Wells
Groundwater Elevation (ft NAVD)

Groundwater Elevation (ft)
Contour Interval = 2-Foot
(Dashed Where Inferred)

Groundwater Flow Direction

5-Foot Topographic Contours

Terminal Property Boundary

Groundwater elevations measured on
11/14/18, 11/15/18, 11/16/18, and 11/19/18

N

0 1,000 2,000

Feet

1 Inch = 1,000 Feet

Figure 5

FALL 2018
SHALLOW GROUNDWATER ELEVATION CONTOURS

Superior Terminal
Enbridge Energy, L.P.
Superior, Wisconsin

ENBRIDGE

Barr Footer: ArcGIS 10.6, 2019-01-04 10:17 File: I:\Client\Enbridge_Energy\Work_Orders\Spill_Response_Investigation\49161419\Maps\Reports\02_Fall2018\Figure5_Superior_Fall_Shallow_GroundwaterElevation_Contours.mxd User: jwk

Site Location

Monitoring Wells - Piezometer
Groundwater Elevation (ft NAVD)

Groundwater Elevation (ft)
Contour Interval = 2-Foot
(Dashed Where Inferred)

Groundwater Flow Direction

5-Foot Topographic Contours

Terminal Property Boundary

Groundwater elevations measured on
11/14/18, 11/15/18, 11/16/18, and 11/19/18

N

0 1,000 2,000

Feet

1 Inch = 1,000 Feet

Figure 6

FALL 2018
DEEP GROUNDWATER
ELEVATION CONTOURS

Superior Terminal
Enbridge Energy, L.P.
Superior, Wisconsin

ENBRIDGE

Barr Footer: ArcGIS 10.6, 2019-01-04 10:22 File: I:\Client\Enbridge_Energy\Work_Orders\Spill_Response_Investigation\49161419\Maps\Reports\02_Fall2018\Figure6_Superior_Fall_Deep_GroundwaterElevation_Contours.mxd User: jwk

Appendix A

Laboratory Analytical Reports

Spring 2018 Laboratory Analytical Reports

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

June 11, 2018

Jim Taraldsen
Barr Engineering Company
325 S Lake Ave
Duluth, MN 55802

RE: Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Dear Jim Taraldsen:
Enclosed are the analytical results for sample(s) received by the laboratory on June 01, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Amanda J Albrecht

Amanda Albrecht
amanda.albrecht@pacelabs.com
(612)607-6382
Project Manager

Enclosures

cc: BarrDM, Barr Engineering

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Minnesota Certification IDs

1700 Elm Street SE, Suite 200, Minneapolis, MN 55414-2485
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #:MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: MN00064
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon NwTPH Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DW Certification #: 9952 C
West Virginia DEP Certification #: 382
Wisconsin Certification #: 999407970

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10433714001	**MW-15**	Water	05/29/18 11:00	06/01/18 19:00
10433714002	**MW-14**	Water	05/29/18 12:00	06/01/18 19:00
10433714003	**MW-2**	Water	05/29/18 12:45	06/01/18 19:00
10433714004	**MW-1**	Water	05/29/18 13:45	06/01/18 19:00
10433714005	**MW-19A**	Water	05/29/18 15:00	06/01/18 19:00
10433714006	**MW-19B**	Water	05/29/18 16:30	06/01/18 19:00
10433714007	**MW-6**	Water	05/30/18 09:30	06/01/18 19:00
10433714008	**MW-6B**	Water	05/30/18 10:15	06/01/18 19:00
10433714009	**MW-21A**	Water	05/30/18 11:30	06/01/18 19:00
10433714010	**MW-21B**	Water	05/30/18 12:15	06/01/18 19:00
10433714011	**MW-10**	Water	05/30/18 12:40	06/01/18 19:00
10433714012	**MW-22B**	Water	05/30/18 13:45	06/01/18 19:00
10433714013	**MW-11**	Water	05/30/18 15:00	06/01/18 19:00
10433714014	**MW-11B**	Water	05/30/18 15:45	06/01/18 19:00
10433714015	**MW-20A**	Water	05/30/18 17:00	06/01/18 19:00
10433714016	**MW-20B**	Water	05/30/18 17:45	06/01/18 19:00
10433714017	**MW-24A**	Water	05/31/18 09:45	06/01/18 19:00
10433714018	**MW-24B**	Water	05/31/18 10:30	06/01/18 19:00
10433714019	**MW-26**	Water	05/31/18 11:00	06/01/18 19:00
10433714020	**MW-25A**	Water	05/31/18 11:45	06/01/18 19:00
10433714021	**MW-25B**	Water	05/31/18 12:30	06/01/18 19:00
10433714022	**MW-12**	Water	05/31/18 13:20	06/01/18 19:00
10433714023	**MW-18**	Water	05/31/18 14:15	06/01/18 19:00
10433714024	**MW-17**	Water	05/31/18 14:45	06/01/18 19:00
10433714025	**MW-17B**	Water	05/31/18 15:30	06/01/18 19:00
10433714026	**MW-5**	Water	05/31/18 16:00	06/01/18 19:00
10433714027	**MW-5B**	Water	05/31/18 16:45	06/01/18 19:00
10433714028	**MW-23B**	Water	05/31/18 17:45	06/01/18 19:00
10433714029	**Dup-1**	Water	05/29/18 00:00	06/01/18 19:00
10433714030	**Dup-2**	Water	05/30/18 00:00	06/01/18 19:00
10433714031	**Dup-3**	Water	05/31/18 00:00	06/01/18 19:00
10433714032	**Trip Blank**	Water	05/29/18 00:00	06/01/18 19:00

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE ANALYTE COUNT

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10433714001	MW-15	EPA 8260B	MJD	11	PASI-M
10433714002	MW-14	EPA 8260B	MJD	11	PASI-M
10433714003	MW-2	EPA 8260B	MJD	11	PASI-M
10433714004	MW-1	EPA 8260B	MJD	11	PASI-M
10433714005	MW-19A	EPA 8260B	MJD	11	PASI-M
10433714006	MW-19B	EPA 8260B	MJD	11	PASI-M
10433714007	MW-6	EPA 8260B	MJD	11	PASI-M
10433714008	MW-6B	EPA 8260B	MJD	11	PASI-M
10433714009	MW-21A	EPA 8260B	MJD	11	PASI-M
10433714010	MW-21B	EPA 8260B	MJD	11	PASI-M
10433714011	MW-10	EPA 8260B	MJD	11	PASI-M
10433714012	MW-22B	EPA 8260B	MJD	11	PASI-M
10433714013	MW-11	EPA 8260B	DS2	11	PASI-M
10433714014	MW-11B	EPA 8260B	DS2	11	PASI-M
10433714015	MW-20A	EPA 8260B	DS2	11	PASI-M
10433714016	MW-20B	EPA 8260B	DS2	11	PASI-M
10433714017	MW-24A	EPA 8260B	DS2	11	PASI-M
10433714018	MW-24B	EPA 8260B	DS2	11	PASI-M
10433714019	MW-26	EPA 8260B	DS2	11	PASI-M
10433714020	MW-25A	EPA 8260B	DS2	11	PASI-M
10433714021	MW-25B	EPA 8260B	DS2	11	PASI-M
10433714022	MW-12	EPA 8260B	DS2	11	PASI-M
10433714023	MW-18	EPA 8260B	DS2	11	PASI-M
10433714024	MW-17	EPA 8260B	DS2	11	PASI-M
10433714025	MW-17B	EPA 8260B	DS2	11	PASI-M
10433714026	MW-5	EPA 8260B	DS2	11	PASI-M
10433714027	MW-5B	EPA 8260B	DS2	11	PASI-M
10433714028	MW-23B	EPA 8260B	DS2	11	PASI-M
10433714029	Dup-1	EPA 8260B	DS2	11	PASI-M
10433714030	Dup-2	EPA 8260B	DS2	11	PASI-M
10433714031	Dup-3	EPA 8260B	DS2	11	PASI-M
10433714032	Trip Blank	EPA 8260B	DS2	11	PASI-M

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-15 **Lab ID: 10433714001** Collected: 05/29/18 11:00 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/06/18 21:06	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/06/18 21:06	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/06/18 21:06	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/06/18 21:06	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/06/18 21:06	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/06/18 21:06	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/06/18 21:06	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/06/18 21:06	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	100	%.	75-125		1		06/06/18 21:06	17060-07-0	
Toluene-d8 (S)	93	%.	75-125		1		06/06/18 21:06	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	75-125		1		06/06/18 21:06	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-14 **Lab ID: 10433714002** Collected: 05/29/18 12:00 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/06/18 21:24	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/06/18 21:24	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/06/18 21:24	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/06/18 21:24	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/06/18 21:24	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/06/18 21:24	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/06/18 21:24	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/06/18 21:24	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	102	%.	75-125		1		06/06/18 21:24	17060-07-0	
Toluene-d8 (S)	94	%.	75-125		1		06/06/18 21:24	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	75-125		1		06/06/18 21:24	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-2 **Lab ID: 10433714003** Collected: 05/29/18 12:45 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/06/18 21:41	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/06/18 21:41	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/06/18 21:41	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/06/18 21:41	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/06/18 21:41	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/06/18 21:41	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/06/18 21:41	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/06/18 21:41	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	104	%.	75-125		1		06/06/18 21:41	17060-07-0	
Toluene-d8 (S)	94	%.	75-125		1		06/06/18 21:41	2037-26-5	
4-Bromofluorobenzene (S)	100	%.	75-125		1		06/06/18 21:41	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-1 **Lab ID: 10433714004** Collected: 05/29/18 13:45 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/06/18 21:59	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/06/18 21:59	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/06/18 21:59	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/06/18 21:59	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/06/18 21:59	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/06/18 21:59	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/06/18 21:59	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/06/18 21:59	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	102	%.	75-125		1		06/06/18 21:59	17060-07-0	
Toluene-d8 (S)	95	%.	75-125		1		06/06/18 21:59	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	75-125		1		06/06/18 21:59	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-19A **Lab ID: 10433714005** Collected: 05/29/18 15:00 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/06/18 22:17	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/06/18 22:17	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/06/18 22:17	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/06/18 22:17	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/06/18 22:17	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/06/18 22:17	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/06/18 22:17	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/06/18 22:17	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	103	%.	75-125		1		06/06/18 22:17	17060-07-0	
Toluene-d8 (S)	94	%.	75-125		1		06/06/18 22:17	2037-26-5	
4-Bromofluorobenzene (S)	97	%.	75-125		1		06/06/18 22:17	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-19B **Lab ID: 10433714006** Collected: 05/29/18 16:30 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/06/18 22:34	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/06/18 22:34	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/06/18 22:34	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/06/18 22:34	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/06/18 22:34	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/06/18 22:34	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/06/18 22:34	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/06/18 22:34	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	102	%.	75-125		1		06/06/18 22:34	17060-07-0	
Toluene-d8 (S)	93	%.	75-125		1		06/06/18 22:34	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	75-125		1		06/06/18 22:34	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-6 **Lab ID: 10433714007** Collected: 05/30/18 09:30 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/06/18 22:52	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/06/18 22:52	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/06/18 22:52	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/06/18 22:52	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/06/18 22:52	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/06/18 22:52	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/06/18 22:52	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/06/18 22:52	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	102	%.	75-125		1		06/06/18 22:52	17060-07-0	HS
Toluene-d8 (S)	94	%.	75-125		1		06/06/18 22:52	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	75-125		1		06/06/18 22:52	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-6B **Lab ID: 10433714008** Collected: 05/30/18 10:15 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/06/18 23:09	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/06/18 23:09	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/06/18 23:09	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/06/18 23:09	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/06/18 23:09	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/06/18 23:09	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/06/18 23:09	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/06/18 23:09	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	104	%.	75-125		1		06/06/18 23:09	17060-07-0	
Toluene-d8 (S)	94	%.	75-125		1		06/06/18 23:09	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	75-125		1		06/06/18 23:09	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-21A **Lab ID: 10433714009** Collected: 05/30/18 11:30 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/06/18 23:27	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/06/18 23:27	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/06/18 23:27	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/06/18 23:27	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/06/18 23:27	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/06/18 23:27	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/06/18 23:27	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/06/18 23:27	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	102	%.	75-125		1		06/06/18 23:27	17060-07-0	HS
Toluene-d8 (S)	95	%.	75-125		1		06/06/18 23:27	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	75-125		1		06/06/18 23:27	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-21B **Lab ID: 10433714010** Collected: 05/30/18 12:15 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/06/18 23:44	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/06/18 23:44	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/06/18 23:44	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/06/18 23:44	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/06/18 23:44	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/06/18 23:44	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/06/18 23:44	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/06/18 23:44	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%.	75-125		1		06/06/18 23:44	17060-07-0	
Toluene-d8 (S)	93	%.	75-125		1		06/06/18 23:44	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	75-125		1		06/06/18 23:44	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-10 **Lab ID: 10433714011** Collected: 05/30/18 12:40 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/07/18 00:02	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/07/18 00:02	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/07/18 00:02	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/07/18 00:02	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/07/18 00:02	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/07/18 00:02	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/07/18 00:02	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/07/18 00:02	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	104	%.	75-125		1		06/07/18 00:02	17060-07-0	
Toluene-d8 (S)	94	%.	75-125		1		06/07/18 00:02	2037-26-5	
4-Bromofluorobenzene (S)	101	%.	75-125		1		06/07/18 00:02	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-22B **Lab ID: 10433714012** Collected: 05/30/18 13:45 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/07/18 00:19	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/07/18 00:19	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/07/18 00:19	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/07/18 00:19	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/07/18 00:19	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/07/18 00:19	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/07/18 00:19	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/07/18 00:19	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	102	%.	75-125		1		06/07/18 00:19	17060-07-0	
Toluene-d8 (S)	94	%.	75-125		1		06/07/18 00:19	2037-26-5	
4-Bromofluorobenzene (S)	100	%.	75-125		1		06/07/18 00:19	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-11 **Lab ID: 10433714013** Collected: 05/30/18 15:00 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/07/18 20:28	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/07/18 20:28	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/07/18 20:28	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/07/18 20:28	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/07/18 20:28	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/07/18 20:28	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/07/18 20:28	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/07/18 20:28	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%.	75-125		1		06/07/18 20:28	17060-07-0	
Toluene-d8 (S)	92	%.	75-125		1		06/07/18 20:28	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	75-125		1		06/07/18 20:28	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-11B **Lab ID: 10433714014** Collected: 05/30/18 15:45 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/07/18 20:45	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/07/18 20:45	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/07/18 20:45	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/07/18 20:45	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/07/18 20:45	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/07/18 20:45	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/07/18 20:45	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/07/18 20:45	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%.	75-125		1		06/07/18 20:45	17060-07-0	
Toluene-d8 (S)	91	%.	75-125		1		06/07/18 20:45	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	75-125		1		06/07/18 20:45	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-20A **Lab ID: 10433714015** Collected: 05/30/18 17:00 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/07/18 21:03	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/07/18 21:03	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/07/18 21:03	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/07/18 21:03	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/07/18 21:03	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/07/18 21:03	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/07/18 21:03	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/07/18 21:03	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	100	%.	75-125		1		06/07/18 21:03	17060-07-0	
Toluene-d8 (S)	93	%.	75-125		1		06/07/18 21:03	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	75-125		1		06/07/18 21:03	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-20B **Lab ID: 10433714016** Collected: 05/30/18 17:45 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/07/18 21:20	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/07/18 21:20	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/07/18 21:20	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/07/18 21:20	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/07/18 21:20	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/07/18 21:20	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/07/18 21:20	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/07/18 21:20	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%.	75-125		1		06/07/18 21:20	17060-07-0	
Toluene-d8 (S)	92	%.	75-125		1		06/07/18 21:20	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	75-125		1		06/07/18 21:20	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-24A **Lab ID: 10433714017** Collected: 05/31/18 09:45 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/07/18 21:38	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/07/18 21:38	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/07/18 21:38	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/07/18 21:38	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/07/18 21:38	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/07/18 21:38	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/07/18 21:38	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/07/18 21:38	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	100	%.	75-125		1		06/07/18 21:38	17060-07-0	
Toluene-d8 (S)	94	%.	75-125		1		06/07/18 21:38	2037-26-5	
4-Bromofluorobenzene (S)	97	%.	75-125		1		06/07/18 21:38	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-24B **Lab ID: 10433714018** Collected: 05/31/18 10:30 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/07/18 21:56	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/07/18 21:56	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/07/18 21:56	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/07/18 21:56	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/07/18 21:56	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/07/18 21:56	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/07/18 21:56	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/07/18 21:56	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%.	75-125		1		06/07/18 21:56	17060-07-0	
Toluene-d8 (S)	93	%.	75-125		1		06/07/18 21:56	2037-26-5	
4-Bromofluorobenzene (S)	97	%.	75-125		1		06/07/18 21:56	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-26 **Lab ID: 10433714019** Collected: 05/31/18 11:00 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/07/18 22:13	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/07/18 22:13	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/07/18 22:13	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/07/18 22:13	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/07/18 22:13	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/07/18 22:13	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/07/18 22:13	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/07/18 22:13	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%.	75-125		1		06/07/18 22:13	17060-07-0	
Toluene-d8 (S)	93	%.	75-125		1		06/07/18 22:13	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	75-125		1		06/07/18 22:13	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-25A **Lab ID: 10433714020** Collected: 05/31/18 11:45 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/07/18 22:31	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/07/18 22:31	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/07/18 22:31	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/07/18 22:31	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/07/18 22:31	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/07/18 22:31	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/07/18 22:31	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/07/18 22:31	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	100	%.	75-125		1		06/07/18 22:31	17060-07-0	
Toluene-d8 (S)	92	%.	75-125		1		06/07/18 22:31	2037-26-5	
4-Bromofluorobenzene (S)	100	%.	75-125		1		06/07/18 22:31	460-00-4	

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-25B **Lab ID: 10433714021** Collected: 05/31/18 12:30 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/07/18 22:48	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/07/18 22:48	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/07/18 22:48	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/07/18 22:48	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/07/18 22:48	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/07/18 22:48	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/07/18 22:48	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/07/18 22:48	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%.	75-125		1		06/07/18 22:48	17060-07-0	
Toluene-d8 (S)	92	%.	75-125		1		06/07/18 22:48	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	75-125		1		06/07/18 22:48	460-00-4	

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-12 **Lab ID: 10433714022** Collected: 05/31/18 13:20 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/07/18 23:05	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/07/18 23:05	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/07/18 23:05	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/07/18 23:05	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/07/18 23:05	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/07/18 23:05	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/07/18 23:05	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/07/18 23:05	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%.	75-125		1		06/07/18 23:05	17060-07-0	
Toluene-d8 (S)	93	%.	75-125		1		06/07/18 23:05	2037-26-5	
4-Bromofluorobenzene (S)	100	%.	75-125		1		06/07/18 23:05	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-18 **Lab ID: 10433714023** Collected: 05/31/18 14:15 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/07/18 23:23	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/07/18 23:23	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/07/18 23:23	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/07/18 23:23	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/07/18 23:23	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/07/18 23:23	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/07/18 23:23	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/07/18 23:23	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	102	%.	75-125		1		06/07/18 23:23	17060-07-0	
Toluene-d8 (S)	92	%.	75-125		1		06/07/18 23:23	2037-26-5	
4-Bromofluorobenzene (S)	100	%.	75-125		1		06/07/18 23:23	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-17 **Lab ID: 10433714024** Collected: 05/31/18 14:45 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/07/18 23:40	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/07/18 23:40	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/07/18 23:40	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/07/18 23:40	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/07/18 23:40	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/07/18 23:40	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/07/18 23:40	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/07/18 23:40	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%.	75-125		1		06/07/18 23:40	17060-07-0	
Toluene-d8 (S)	92	%.	75-125		1		06/07/18 23:40	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	75-125		1		06/07/18 23:40	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-17B **Lab ID: 10433714025** Collected: 05/31/18 15:30 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/07/18 23:58	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/07/18 23:58	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/07/18 23:58	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/07/18 23:58	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/07/18 23:58	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/07/18 23:58	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/07/18 23:58	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/07/18 23:58	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	102	%.	75-125		1		06/07/18 23:58	17060-07-0	
Toluene-d8 (S)	92	%.	75-125		1		06/07/18 23:58	2037-26-5	
4-Bromofluorobenzene (S)	100	%.	75-125		1		06/07/18 23:58	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-5 **Lab ID: 10433714026** Collected: 05/31/18 16:00 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/08/18 00:16	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/08/18 00:16	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/08/18 00:16	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/08/18 00:16	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/08/18 00:16	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/08/18 00:16	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/08/18 00:16	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/08/18 00:16	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	102	%.	75-125		1		06/08/18 00:16	17060-07-0	
Toluene-d8 (S)	94	%.	75-125		1		06/08/18 00:16	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	75-125		1		06/08/18 00:16	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-5B **Lab ID: 10433714027** Collected: 05/31/18 16:45 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/08/18 00:33	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/08/18 00:33	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/08/18 00:33	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/08/18 00:33	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/08/18 00:33	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/08/18 00:33	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/08/18 00:33	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/08/18 00:33	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%.	75-125		1		06/08/18 00:33	17060-07-0	
Toluene-d8 (S)	92	%.	75-125		1		06/08/18 00:33	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	75-125		1		06/08/18 00:33	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: MW-23B **Lab ID: 10433714028** Collected: 05/31/18 17:45 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/08/18 00:51	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/08/18 00:51	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/08/18 00:51	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/08/18 00:51	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/08/18 00:51	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/08/18 00:51	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/08/18 00:51	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/08/18 00:51	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%.	75-125		1		06/08/18 00:51	17060-07-0	
Toluene-d8 (S)	93	%.	75-125		1		06/08/18 00:51	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	75-125		1		06/08/18 00:51	460-00-4	

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: Dup-1 **Lab ID: 10433714029** Collected: 05/29/18 00:00 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/08/18 01:08	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/08/18 01:08	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/08/18 01:08	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/08/18 01:08	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/08/18 01:08	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/08/18 01:08	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/08/18 01:08	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/08/18 01:08	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%.	75-125		1		06/08/18 01:08	17060-07-0	
Toluene-d8 (S)	92	%.	75-125		1		06/08/18 01:08	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	75-125		1		06/08/18 01:08	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: Dup-2 **Lab ID: 10433714030** Collected: 05/30/18 00:00 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/08/18 06:06	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/08/18 06:06	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/08/18 06:06	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/08/18 06:06	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/08/18 06:06	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/08/18 06:06	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/08/18 06:06	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/08/18 06:06	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%.	75-125		1		06/08/18 06:06	17060-07-0	
Toluene-d8 (S)	91	%.	75-125		1		06/08/18 06:06	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	75-125		1		06/08/18 06:06	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: Dup-3 **Lab ID: 10433714031** Collected: 05/31/18 00:00 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/08/18 06:23	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/08/18 06:23	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/08/18 06:23	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/08/18 06:23	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/08/18 06:23	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/08/18 06:23	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/08/18 06:23	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/08/18 06:23	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%.	75-125		1		06/08/18 06:23	17060-07-0	
Toluene-d8 (S)	92	%.	75-125		1		06/08/18 06:23	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	75-125		1		06/08/18 06:23	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Sample: Trip Blank **Lab ID: 10433714032** Collected: 05/29/18 00:00 Received: 06/01/18 19:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	0.34	0.10	1		06/08/18 04:38	71-43-2	
Ethylbenzene	**<0.14**	ug/L	0.46	0.14	1		06/08/18 04:38	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	0.54	0.16	1		06/08/18 04:38	1634-04-4	
Naphthalene	**<0.48**	ug/L	1.6	0.48	1		06/08/18 04:38	91-20-3	
Toluene	**<0.083**	ug/L	0.28	0.083	1		06/08/18 04:38	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	0.65	0.20	1		06/08/18 04:38	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		06/08/18 04:38	108-67-8	
Xylene (Total)	**<0.31**	ug/L	1.0	0.31	1		06/08/18 04:38	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%.	75-125		1		06/08/18 04:38	17060-07-0	
Toluene-d8 (S)	93	%.	75-125		1		06/08/18 04:38	2037-26-5	
4-Bromofluorobenzene (S)	101	%.	75-125		1		06/08/18 04:38	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

QC Batch: 542950 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10433714001, 10433714002, 10433714003, 10433714004, 10433714005, 10433714006, 10433714007, 10433714008, 10433714009, 10433714010, 10433714011, 10433714012

METHOD BLANK: 2952202 Matrix: Water
Associated Lab Samples: 10433714001, 10433714002, 10433714003, 10433714004, 10433714005, 10433714006, 10433714007, 10433714008, 10433714009, 10433714010, 10433714011, 10433714012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.20	0.65	06/06/18 19:22	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.41	06/06/18 19:22	
Benzene	ug/L	<0.10	0.34	06/06/18 19:22	
Ethylbenzene	ug/L	<0.14	0.46	06/06/18 19:22	
Methyl-tert-butyl ether	ug/L	<0.16	0.54	06/06/18 19:22	
Naphthalene	ug/L	<0.48	1.6	06/06/18 19:22	
Toluene	ug/L	<0.083	0.28	06/06/18 19:22	
Xylene (Total)	ug/L	<0.31	1.0	06/06/18 19:22	
1,2-Dichloroethane-d4 (S)	%.	103	75-125	06/06/18 19:22	
4-Bromofluorobenzene (S)	%.	99	75-125	06/06/18 19:22	
Toluene-d8 (S)	%.	93	75-125	06/06/18 19:22	

LABORATORY CONTROL SAMPLE: 2952203

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	20.8	104	75-125	
1,3,5-Trimethylbenzene	ug/L	20	21.1	106	75-125	
Benzene	ug/L	20	23.9	120	75-126	
Ethylbenzene	ug/L	20	22.2	111	75-125	
Methyl-tert-butyl ether	ug/L	20	23.1	116	73-129	
Naphthalene	ug/L	20	19.1	95	65-126	
Toluene	ug/L	20	21.1	106	74-125	
Xylene (Total)	ug/L	60	64.6	108	75-125	
1,2-Dichloroethane-d4 (S)	%.			101	75-125	
4-Bromofluorobenzene (S)	%.			100	75-125	
Toluene-d8 (S)	%.			95	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2952216 2952217

Parameter	Units	10433739012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4-Trimethylbenzene	ug/L	881	200	200	1100	1100	108	107	67-130	0	30	
1,3,5-Trimethylbenzene	ug/L	159	200	200	369	370	105	105	63-139	0	30	
Benzene	ug/L	1630	200	200	1900	1900	137	136	62-140	0	30	
Ethylbenzene	ug/L	765	200	200	986	981	111	108	75-131	1	30	
Methyl-tert-butyl ether	ug/L	ND	200	200	233	230	116	115	65-130	1	30	
Naphthalene	ug/L	176	200	200	376	374	100	99	48-134	1	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2952216 2952217

Parameter	Units	10433739012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Toluene	ug/L	60.5	200	200	264	262	102	101	68-132	0	30	
Xylene (Total)	ug/L	971	600	600	1630	1620	110	108	69-135	1	30	
1,2-Dichloroethane-d4 (S)	%.						100	99	75-125			
4-Bromofluorobenzene (S)	%.						99	99	75-125			
Toluene-d8 (S)	%.						95	95	75-125			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

QC Batch: 543144 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10433714013, 10433714014, 10433714015, 10433714016, 10433714017, 10433714018, 10433714019, 10433714020, 10433714021, 10433714022, 10433714023, 10433714024, 10433714025, 10433714026, 10433714027, 10433714028, 10433714029

METHOD BLANK: 2953229 Matrix: Water
Associated Lab Samples: 10433714013, 10433714014, 10433714015, 10433714016, 10433714017, 10433714018, 10433714019, 10433714020, 10433714021, 10433714022, 10433714023, 10433714024, 10433714025, 10433714026, 10433714027, 10433714028, 10433714029

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.20	0.65	06/07/18 19:00	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.41	06/07/18 19:00	
Benzene	ug/L	<0.10	0.34	06/07/18 19:00	
Ethylbenzene	ug/L	<0.14	0.46	06/07/18 19:00	
Methyl-tert-butyl ether	ug/L	<0.16	0.54	06/07/18 19:00	
Naphthalene	ug/L	<0.48	1.6	06/07/18 19:00	
Toluene	ug/L	<0.083	0.28	06/07/18 19:00	
Xylene (Total)	ug/L	<0.31	1.0	06/07/18 19:00	
1,2-Dichloroethane-d4 (S)	%.	99	75-125	06/07/18 19:00	
4-Bromofluorobenzene (S)	%.	100	75-125	06/07/18 19:00	
Toluene-d8 (S)	%.	93	75-125	06/07/18 19:00	

LABORATORY CONTROL SAMPLE: 2953230

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	19.2	96	75-125	
1,3,5-Trimethylbenzene	ug/L	20	19.6	98	75-125	
Benzene	ug/L	20	23.4	117	75-126	
Ethylbenzene	ug/L	20	20.6	103	75-125	
Methyl-tert-butyl ether	ug/L	20	23.3	117	73-129	
Naphthalene	ug/L	20	18.0	90	65-126	
Toluene	ug/L	20	19.3	96	74-125	
Xylene (Total)	ug/L	60	60.7	101	75-125	
1,2-Dichloroethane-d4 (S)	%.			98	75-125	
4-Bromofluorobenzene (S)	%.			96	75-125	
Toluene-d8 (S)	%.			93	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2953231 2953232

Parameter	Units	10433739011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4-Trimethylbenzene	ug/L	1280	200	200	1510	1510	112	112	67-130	0	30	
1,3,5-Trimethylbenzene	ug/L	269	200	200	492	488	111	109	63-139	1	30	
Benzene	ug/L	90.8	200	200	338	341	124	125	62-140	1	30	
Ethylbenzene	ug/L	483	200	200	720	709	118	113	75-131	1	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2953231 2953232

Parameter	Units	10433739011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Methyl-tert-butyl ether	ug/L	ND	200	200	244	252	122	126	65-130	3	30	
Naphthalene	ug/L	243	200	200	444	446	100	102	48-134	1	30	
Toluene	ug/L	ND	200	200	212	210	104	103	68-132	1	30	
Xylene (Total)	ug/L	1220	600	600	1940	1910	120	115	69-135	2	30	
1,2-Dichloroethane-d4 (S)	%.						98	99	75-125			
4-Bromofluorobenzene (S)	%.						96	96	75-125			
Toluene-d8 (S)	%.						92	93	75-125			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

QC Batch: 543190 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10433714030, 10433714031, 10433714032

METHOD BLANK: 2953376 Matrix: Water
Associated Lab Samples: 10433714030, 10433714031, 10433714032

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.20	0.65	06/08/18 04:20	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.41	06/08/18 04:20	
Benzene	ug/L	<0.10	0.34	06/08/18 04:20	
Ethylbenzene	ug/L	<0.14	0.46	06/08/18 04:20	
Methyl-tert-butyl ether	ug/L	<0.16	0.54	06/08/18 04:20	
Naphthalene	ug/L	<0.48	1.6	06/08/18 04:20	
Toluene	ug/L	<0.083	0.28	06/08/18 04:20	
Xylene (Total)	ug/L	<0.31	1.0	06/08/18 04:20	
1,2-Dichloroethane-d4 (S)	%.	101	75-125	06/08/18 04:20	
4-Bromofluorobenzene (S)	%.	99	75-125	06/08/18 04:20	
Toluene-d8 (S)	%.	91	75-125	06/08/18 04:20	

LABORATORY CONTROL SAMPLE: 2953377

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	19.2	96	75-125	
1,3,5-Trimethylbenzene	ug/L	20	19.6	98	75-125	
Benzene	ug/L	20	24.0	120	75-126	
Ethylbenzene	ug/L	20	20.3	101	75-125	
Methyl-tert-butyl ether	ug/L	20	23.7	119	73-129	
Naphthalene	ug/L	20	17.7	89	65-126	
Toluene	ug/L	20	19.5	98	74-125	
Xylene (Total)	ug/L	60	60.1	100	75-125	
1,2-Dichloroethane-d4 (S)	%.			100	75-125	
4-Bromofluorobenzene (S)	%.			98	75-125	
Toluene-d8 (S)	%.			91	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2953547 2953548

Parameter	Units	10433926002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	12.0	16.1	60	81	67-130	29	30	M1
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	12.3	16.6	62	83	63-139	29	30	M1
Benzene	ug/L	<0.10	20	20	19.1	20.6	96	103	62-140	7	30	
Ethylbenzene	ug/L	<0.14	20	20	14.8	17.9	74	90	75-131	19	30	M1
Methyl-tert-butyl ether	ug/L	<0.16	20	20	18.8	19.8	94	99	65-130	6	30	
Naphthalene	ug/L	<0.48	20	20	12.6	14.3	63	72	48-134	13	30	
Toluene	ug/L	<0.083	20	20	14.9	17.3	75	86	68-132	15	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2953547 2953548

Parameter	Units	10433926002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Xylene (Total)	ug/L	<0.31	60	60	43.1	52.3	72	87	69-135	19	30	
1,2-Dichloroethane-d4 (S)	%.						100	98	75-125			
4-Bromofluorobenzene (S)	%.						99	97	75-125			
Toluene-d8 (S)	%.						92	91	75-125			

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

HS	Results are from sample aliquot taken from VOA vial with headspace (air bubble greater than 6 mm diameter).
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 49161419.00 100 102 ENB SPT GM
Pace Project No.: 10433714

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10433714001	**MW-15**	EPA 8260B	542950		
10433714002	**MW-14**	EPA 8260B	542950		
10433714003	**MW-2**	EPA 8260B	542950		
10433714004	**MW-1**	EPA 8260B	542950		
10433714005	**MW-19A**	EPA 8260B	542950		
10433714006	**MW-19B**	EPA 8260B	542950		
10433714007	**MW-6**	EPA 8260B	542950		
10433714008	**MW-6B**	EPA 8260B	542950		
10433714009	**MW-21A**	EPA 8260B	542950		
10433714010	**MW-21B**	EPA 8260B	542950		
10433714011	**MW-10**	EPA 8260B	542950		
10433714012	**MW-22B**	EPA 8260B	542950		
10433714013	**MW-11**	EPA 8260B	543144		
10433714014	**MW-11B**	EPA 8260B	543144		
10433714015	**MW-20A**	EPA 8260B	543144		
10433714016	**MW-20B**	EPA 8260B	543144		
10433714017	**MW-24A**	EPA 8260B	543144		
10433714018	**MW-24B**	EPA 8260B	543144		
10433714019	**MW-26**	EPA 8260B	543144		
10433714020	**MW-25A**	EPA 8260B	543144		
10433714021	**MW-25B**	EPA 8260B	543144		
10433714022	**MW-12**	EPA 8260B	543144		
10433714023	**MW-18**	EPA 8260B	543144		
10433714024	**MW-17**	EPA 8260B	543144		
10433714025	**MW-17B**	EPA 8260B	543144		
10433714026	**MW-5**	EPA 8260B	543144		
10433714027	**MW-5B**	EPA 8260B	543144		
10433714028	**MW-23B**	EPA 8260B	543144		
10433714029	**Dup-1**	EPA 8260B	543144		
10433714030	**Dup-2**	EPA 8260B	543190		
10433714031	**Dup-3**	EPA 8260B	543190		
10433714032	**Trip Blank**	EPA 8260B	543190		

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☑ Duluth ☐ Hibbing ☐ Minneapolis
☐ Bismarck ☐ Grand Rapids ☐ Jefferson City ☐ Salt Lake City

Sample Origination State: ☐ KS ☐ MO ☐ UT ☐ MI ☐ ND ☑ WI ☐ MN ☐ SD Other: ____

COC Number: 57211
COC 1 of 34

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: Same
Address: 325 S Lake Ave	Address:
Name: Lynette Carney	Name:
email: LCarney@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: ENB SPT GMP	Barr Project No: 49161419.00 100 102

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment
Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH

WO#: 10433714

	Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	8260 PVOC + Naphthalene	Preservative Code	Field Filtered Y/N	
1.	MW-15	—	—	—	5/29/2018	1100	GW	N	3	3			001
2.	MW-14					1200							002
3.	MW-2					1245							003
4.	MW-1					1345							004
5.	MW-19A					1500							005
6.	MW-19B					1630							006
7.	MW-6				5/30/2018	0930							007
8.	MW-6B					1015							008
9.	MW-21A					1130							009
10.	MW-21B					1215							010

BARR USE ONLY		Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
Sampled by:	MAB		Y N	6/1/18	1030		6/1/18	10:30
Barr Proj. Manager:	LMC	Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
Barr DQ Manager:	JET		Y N	6/1/18	1630		6-1-18	1630
Lab Name:	Pace	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☑ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	MPLS	Lab WO:	Temperature on Receipt (°C): 3.3			Custody Seal Intact? ☐ Y ☐ N ☑ None		

Requested Due Date: ☑ Standard Turn Around Time ☐ Rush ____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

Relinq: R Cu 6-1-18 1900 Rec Pace 6/1/18 1900 T=2.4

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Barr Engineering Co. Chain of Custody

BARR

☐ Ann Arbor ☑ Duluth ☐ Hibbing ☐ Minneapolis
☐ Bismarck ☐ Grand Rapids ☐ Jefferson City ☐ Salt Lake City

Sample Origination State: ☐ KS ☐ MO ☐ UT ☐ MI ☐ ND ☑ WI ☐ MN ☐ SD Other: ____

COC Number: 57220
COC 2 of 4

REPORT TO		INVOICE TO	
Company:	Barr Engineering	Company:	Same
Address:	325 S Lake Ave	Address:	
Name:	Lynette Carney	Name:	
email:	LCarney@barr.com	email:	
Copy to:	datamgt@barr.com	P.O.	
Project Name:	ENB SPT GMP	Barr Project No:	49161419.00 100 102

Analysis Requested: Water / Soil

Matrix Code: (GW) = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; (B) = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / (N)	Total Number Of Containers	PVOC + Naphthalene (Preservative Code: B; Field Filtered: N)	% Solids	
1. MW-10	–	–	–	5/30/18	1240	GW	N	3	3		011
2. MW-22B	|	|	|	|	1345	|	|	|	|		012
3. MW-11	|	|	|	|	1500	|	|	|	|		013
4. MW-11B	|	|	|	|	1545	|	|	|	|		014
5. MW-20A	|	|	|	|	1700	|	|	|	|		015
6. MW-20B	|	|	|	|	1745	|	|	|	|		016
7. MW-24A	|	|	|	5/31/18	0945	|	|	|	|		017
8. MW-24B	|	|	|	|	1030	|	|	|	|		018
9. MW-26	|	|	|	|	1100	|	|	|	|		019
10. MW-25A	|	|	|	|	1145	|	|	|	|		020

BARR USE ONLY	
Sampled by:	MAB
Barr Proj. Manager:	LMC
Barr DQ Manager:	JET
Lab Name:	Pace
Lab Location:	MPLS

Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
[signature]	(Y) N	6/1/18	1030	[signature]	6/1/18	10:30
[signature]	(Y) N	6/1/18	1630	[signature]	6-1-18	1630

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☑ Sampler ☐ Other: ____

Air Bill Number:

Requested Due Date: ☑ Standard Turn Around Time ☐ Rush ____ (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 3.3 Custody Seal Intact? ☐ Y ☐ N ☑ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

Relinq: [signature] 6-1-18 1900 [signature] Pace 6/1/18 1900 T= 2.4

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Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☑ Duluth ☐ Hibbing ☐ Minneapolis ☐ Bismarck ☐ Grand Rapids ☐ Jefferson City ☐ Salt Lake City

Sample Origination State: ☐ KS ☐ MO ☐ UT ☐ MI ☐ ND ☑ WI ☐ MN ☐ SD Other: ____

COC Number: **57221**

COC 3 of 4

REPORT TO		INVOICE TO	
Company:	Barr Engineering	Company:	Same
Address:	325 Lake Ave S	Address:	
Name:	Lynette Carney	Name:	
email:	LCarney@barr.com	email:	
Copy to: datamgt@barr.com		P.O.	
Project Name:	ENB SPT GMP	Barr Project No:	49161419.00 100 102

Analysis Requested: Water | Soil

Matrix Code: (GW) = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, (B) = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Preservative Code: B (PVOC + Naphthalene)
Field Filtered Y/(N): N

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/(N)	Total Number Of Containers	PVOC + Naphthalene	% Solids	
1. MW-25B	–	–	–	5/31/18	1230	GW	N	3	3		021
2. MW-12	|	|	|	|	1320	|	|	|	|		022
3. MW-18	|	|	|	|	1415	|	|	|	|		023
4. MW-17	|	|	|	|	1445	|	|	|	|		024
5. MW-17B	|	|	|	|	1530	|	|	|	|		025
6. MW-5	|	|	|	|	1600	|	|	|	|		026
7. MW-5B	|	|	|	|	1645	|	|	|	|		027
8. MW-23B	|	|	|	|	1745	|	|	|	|		028
9. Dup-1	|	|	|	5/29/18	–	|	|	|	|		029
10. Dup-2	|	|	|	5/30/18	–	|	|	|	|		030

BARR USE ONLY	
Sampled by:	MAB
Barr Proj. Manager:	LMC
Barr DQ Manager:	JET
Lab Name:	PACE
Lab Location:	MPLS

Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
[signature]	(Y) N	6/1/18	1030	[signature]	6/1/18	10:30
[signature]	(Y) N	6/1/18	1630	[signature]	6-1-18	1630

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☑ Sampler ☐ Other: ____

Air Bill Number:

Requested Due Date: ☑ Standard Turn Around Time ☐ Rush ____ (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 3.3 Custody Seal Intact? ☐ Y ☐ N ☐ None

Distribution - **White-Original:** Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

Relinq: [signature] 6-1-18 1900 [signature] 6/1/18 1900 T=2.4

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Barr Engineering Co. Chain of Custody

BARR

☐ Ann Arbor ☒ Duluth ☐ Hibbing ☐ Minneapolis
☐ Bismarck ☐ Grand Rapids ☐ Jefferson City ☐ Salt Lake City

Sample Origination State: ☐ KS ☐ MO ☐ UT ☐ MI ☐ ND ☒ WI ☐ MN ☐ SD Other: ____

COC Number: **57222**

COC 4 of 4

REPORT TO		INVOICE TO	
Company:	Barr Engineering	Company:	Same
Address:	325 S Lake Ave	Address:	
Name:	Lynette Carney	Name:	
email:	LCarney@barr.com	email:	
Copy to:	datamgt@barr.com	P.O.	
Project Name:	ENB SPT GMP	Barr Project No:	49161419.00 100 102

Analysis Requested: Water / Soil — PVOC + Naphthalene

Matrix Code: (GW) = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; (B) = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Preservative Code: B

Field Filtered Y/(N): N

	Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/(N)	Total Number Of Containers	PVOC + Naphthalene	% Solids	
1.	Dup-3	–	–	–	5/31/18	–	GW	N	3	3		031
2.	Trip Blank	–	–	–	–	–		N	2	2		032
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												

BARR USE ONLY	
Sampled by:	MAB
Barr Proj. Manager:	LMC
Barr DQ Manager:	JET
Lab Name:	Pace
Lab Location:	MPLS

Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
[signature]	(Y) N	6/1/18	1030	[signature]	6/1/18	10:30
[signature]	(Y) N	6/1/18	1630	R Chipp	6-1-18	1630

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☒ Sampler ☐ Other: ____

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush ____ (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 3.3 Custody Seal Intact? ☐ Y ☐ N ☒ None

Distribution - **White-Original:** Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

Relinq: R Chipp 6-1-18 1900 [signature] /Pace 6/1/18 1900 T=2.4

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Pace Analytical	Document Name: **Sample Condition Upon Receipt Form**	Document Revised: 02May2018 Page 1 of 2
	Document No.: **F-MN-L-213-rev.23**	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Barr Engineering

Project #: **WO#: 10433714**

PM: AA1 **Due Date: 06/11/18**

CLIENT: BARR

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace ☐ SpeeDee ☐ Other:

Tracking Number:

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No **Seals Intact?** ☑ Yes ☐ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☑ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other: **Temp Blank?** ☑ Yes ☐ No

Thermometer Used: ☐ G87A9170600254 ☑ G87A9155100842 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Dry ☐ Melted

Cooler Temp Read (°C): 2.4 **Cooler Temp Corrected (°C):** 2.4 **Biological Tissue Frozen?** ☐ Yes ☐ No ☒ N/A

Temp should be above freezing to 6°C **Correction Factor:** True **Date and Initials of Person Examining Contents:** 6/1/18, L.J.

USDA Regulated Soil (☑ N/A, water sample)

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present?	☑ Yes ☐ No	1.
Chain of Custody Filled Out?	☑ Yes ☐ No	2.
Chain of Custody Relinquished?	☑ Yes ☐ No	3.
Sampler Name and/or Signature on COC?	☑ Yes ☐ No ☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes ☐ No	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes ☑ No	6.
Rush Turn Around Time Requested?	☐ Yes ☑ No	7.
Sufficient Volume?	☑ Yes ☐ No	8.
Correct Containers Used? -Pace Containers Used?	☑ Yes ☐ No ☑ Yes ☐ No	9.
Containers Intact?	☑ Yes ☐ No	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes ☐ No ☒ N/A	11. Note if sediment is visible in the dissolved container
Is sufficient information available to reconcile the samples to the COC? Matrix: WT	☑ Yes ☐ No	12.
All containers needing acid/base preservation have been checked? All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide) Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☐ Yes ☐ No ☒ N/A ☐ Yes ☐ No ☒ N/A ☑ Yes ☐ No ☐ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH Positive for Res. Chlorine? Y N Sample # Initial when completed: 6/1/18 Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☑ Yes ☐ No ☐ N/A	14. See Exception
Trip Blank Present? Trip Blank Custody Seals Present? Pace Trip Blank Lot # (if purchased): 159185	☑ Yes ☐ No ☐ N/A ☑ Yes ☐ No ☐ N/A	15.

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: Amanda J. Albrecht **Date:** 6/4/18

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Pace Analytical	Document Name: Headspace Exception	Document Revised: 06Nov2017 Page 1 of 1
	Document No.: F-MN-C-276-Rev.00	Issuing Authority: Pace Minnesota Quality Office

Sample ID	Headspace > 6mm	Headspace < 6mm	No Headspace	Total Vials
MW-15	3	0	0	3
MW-14	2	0	1	3
MW-2	2	0	1	3
MW-1	2	1	0	3
MW19A	0	3	0	3
MW 19B	0	1	2	3
MW-6	0	1	2	3
MW-6D	0	1	2	3
MW-21A	0	2	1	3
MW-21B	0	1	2	3
MW20A	0	1	2	3
MW-12	0	1	2	3

Pace Analytical	Document Name: Headspace Exception	Document Revised: 06Nov2017 Page 1 of 1
	Document No.: F-MN-C-276-Rev.00	Issuing Authority: Pace Minnesota Quality Office

Sample ID	Headspace > 6mm	Headspace < 6mm	No Headspace	Total Vials
MW 23B	0	1	2	3
DUP-1	1	1	1	3
DUP-2	1	1	1	3
Trip Blank	0	1		2

Fall 2018 Laboratory Analytical Reports

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

November 29, 2018

Jim Taraldsen
Barr Engineering Company
325 S Lake Ave
Duluth, MN 55802

RE: Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Dear Jim Taraldsen:
Enclosed are the analytical results for sample(s) received by the laboratory on November 20, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Amanda J Albrecht

Amanda Albrecht
amanda.albrecht@pacelabs.com
(612)607-6382
Project Manager

Enclosures

cc: BarrDM, Barr Engineering

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon NwTPH Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DW Certification #: 9952 C
West Virginia DEP Certification #: 382
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10456291001	**MW-14**	Water	11/14/18 11:00	11/20/18 11:35
10456291002	**MW-15**	Water	11/14/18 12:04	11/20/18 11:35
10456291003	**MW-2**	Water	11/14/18 13:20	11/20/18 11:35
10456291004	**MW-19A**	Water	11/14/18 14:55	11/20/18 11:35
10456291005	**MW-19B**	Water	11/14/18 15:40	11/20/18 11:35
10456291006	**MW-1**	Water	11/15/18 09:05	11/20/18 11:35
10456291007	**MW-18**	Water	11/15/18 10:00	11/20/18 11:35
10456291008	**MW-17**	Water	11/15/18 11:05	11/20/18 11:35
10456291009	**MW-17B**	Water	11/15/18 11:30	11/20/18 11:35
10456291010	**MW-5**	Water	11/15/18 12:30	11/20/18 11:35
10456291011	**MW-5B**	Water	11/15/18 13:10	11/20/18 11:35
10456291012	**MW-23B**	Water	11/15/18 14:15	11/20/18 11:35
10456291013	**MW-24A**	Water	11/15/18 15:30	11/20/18 11:35
10456291014	**MW-24B**	Water	11/15/18 16:05	11/20/18 11:35
10456291015	**MW-20A**	Water	11/16/18 09:00	11/20/18 11:35
10456291016	**MW-20B**	Water	11/16/18 09:30	11/20/18 11:35
10456291017	**MW-10**	Water	11/16/18 10:30	11/20/18 11:35
10456291018	**MW-22B**	Water	11/16/18 11:30	11/20/18 11:35
10456291019	**MW-11**	Water	11/16/18 12:35	11/20/18 11:35
10456291020	**MW-11B**	Water	11/16/18 13:10	11/20/18 11:35
10456291021	**MW-21B**	Water	11/16/18 14:40	11/20/18 11:35
10456291022	**MW-21A**	Water	11/16/18 15:00	11/20/18 11:35
10456291023	**MW-6**	Water	11/16/18 16:00	11/20/18 11:35
10456291024	**MW-6B**	Water	11/16/18 16:30	11/20/18 11:35
10456291025	**MW-26**	Water	11/19/18 11:45	11/20/18 11:35
10456291026	**MW-25A**	Water	11/19/18 12:20	11/20/18 11:35
10456291027	**MW-25B**	Water	11/19/18 12:45	11/20/18 11:35
10456291028	**MW-12**	Water	11/19/18 13:30	11/20/18 11:35
10456291029	**Trip Blank**	Water	11/14/18 00:00	11/20/18 11:35
10456291030	**Dup-1**	Water	11/19/18 00:00	11/20/18 11:35
10456291031	**Dup-2**	Water	11/15/18 00:00	11/20/18 11:35
10456291032	**Dup-3**	Water	11/16/18 00:00	11/20/18 11:35

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SAMPLE ANALYTE COUNT

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10456291001	MW-14	EPA 8260B	DS2	11	PASI-M
10456291002	MW-15	EPA 8260B	GD1	11	PASI-M
10456291003	MW-2	EPA 8260B	GD1	11	PASI-M
10456291004	MW-19A	EPA 8260B	GD1	11	PASI-M
10456291005	MW-19B	EPA 8260B	GD1	11	PASI-M
10456291006	MW-1	EPA 8260B	GD1	11	PASI-M
10456291007	MW-18	EPA 8260B	GD1	11	PASI-M
10456291008	MW-17	EPA 8260B	GD1	11	PASI-M
10456291009	MW-17B	EPA 8260B	GD1	11	PASI-M
10456291010	MW-5	EPA 8260B	GD1	11	PASI-M
10456291011	MW-5B	EPA 8260B	GD1	11	PASI-M
10456291012	MW-23B	EPA 8260B	GD1	11	PASI-M
10456291013	MW-24A	EPA 8260B	GD1	11	PASI-M
10456291014	MW-24B	EPA 8260B	GD1	11	PASI-M
10456291015	MW-20A	EPA 8260B	GD1	11	PASI-M
10456291016	MW-20B	EPA 8260B	GD1	11	PASI-M
10456291017	MW-10	EPA 8260B	GD1	11	PASI-M
10456291018	MW-22B	EPA 8260B	GD1	11	PASI-M
10456291019	MW-11	EPA 8260B	GD1	11	PASI-M
10456291020	MW-11B	EPA 8260B	GD1	11	PASI-M
10456291021	MW-21B	EPA 8260B	GD1	11	PASI-M
10456291022	MW-21A	EPA 8260B	GD1	11	PASI-M
10456291023	MW-6	EPA 8260B	MJD	11	PASI-M
10456291024	MW-6B	EPA 8260B	MJD	11	PASI-M
10456291025	MW-26	EPA 8260B	MJD	11	PASI-M
10456291026	MW-25A	EPA 8260B	MJD	11	PASI-M
10456291027	MW-25B	EPA 8260B	MJD	11	PASI-M
10456291028	MW-12	EPA 8260B	MJD	11	PASI-M
10456291029	Trip Blank	EPA 8260B	GD1	11	PASI-M
10456291030	Dup-1	EPA 8260B	MJD	11	PASI-M
10456291031	Dup-2	EPA 8260B	MJD	11	PASI-M
10456291032	Dup-3	EPA 8260B	MJD	11	PASI-M

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-14 **Lab ID: 10456291001** Collected: 11/14/18 11:00 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/28/18 15:38	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/28/18 15:38	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/28/18 15:38	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/28/18 15:38	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/28/18 15:38	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/28/18 15:38	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/28/18 15:38	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/28/18 15:38	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%.	75-125		1		11/28/18 15:38	17060-07-0	
Toluene-d8 (S)	101	%.	75-125		1		11/28/18 15:38	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125		1		11/28/18 15:38	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-15 **Lab ID: 10456291002** Collected: 11/14/18 12:04 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/21/18 17:03	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/21/18 17:03	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/21/18 17:03	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/21/18 17:03	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/21/18 17:03	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/21/18 17:03	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/21/18 17:03	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/21/18 17:03	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	96	%.	75-125		1		11/21/18 17:03	17060-07-0	
Toluene-d8 (S)	102	%.	75-125		1		11/21/18 17:03	2037-26-5	
4-Bromofluorobenzene (S)	112	%.	75-125		1		11/21/18 17:03	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-2 **Lab ID: 10456291003** Collected: 11/14/18 13:20 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/21/18 17:20	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/21/18 17:20	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/21/18 17:20	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/21/18 17:20	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/21/18 17:20	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/21/18 17:20	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/21/18 17:20	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/21/18 17:20	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%.	75-125		1		11/21/18 17:20	17060-07-0	HS
Toluene-d8 (S)	103	%.	75-125		1		11/21/18 17:20	2037-26-5	
4-Bromofluorobenzene (S)	111	%.	75-125		1		11/21/18 17:20	460-00-4	

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-19A **Lab ID: 10456291004** Collected: 11/14/18 14:55 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/21/18 17:37	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/21/18 17:37	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/21/18 17:37	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/21/18 17:37	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/21/18 17:37	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/21/18 17:37	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/21/18 17:37	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/21/18 17:37	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	99	%.	75-125		1		11/21/18 17:37	17060-07-0	
Toluene-d8 (S)	102	%.	75-125		1		11/21/18 17:37	2037-26-5	
4-Bromofluorobenzene (S)	107	%.	75-125		1		11/21/18 17:37	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-19B **Lab ID: 10456291005** Collected: 11/14/18 15:40 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/21/18 17:54	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/21/18 17:54	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/21/18 17:54	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/21/18 17:54	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/21/18 17:54	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/21/18 17:54	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/21/18 17:54	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/21/18 17:54	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	96	%.	75-125		1		11/21/18 17:54	17060-07-0	
Toluene-d8 (S)	100	%.	75-125		1		11/21/18 17:54	2037-26-5	
4-Bromofluorobenzene (S)	112	%.	75-125		1		11/21/18 17:54	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-1 **Lab ID: 10456291006** Collected: 11/15/18 09:05 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/21/18 18:10	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/21/18 18:10	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/21/18 18:10	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/21/18 18:10	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/21/18 18:10	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/21/18 18:10	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/21/18 18:10	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/21/18 18:10	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	88	%.	75-125		1		11/21/18 18:10	17060-07-0	
Toluene-d8 (S)	100	%.	75-125		1		11/21/18 18:10	2037-26-5	
4-Bromofluorobenzene (S)	109	%.	75-125		1		11/21/18 18:10	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-18 **Lab ID: 10456291007** Collected: 11/15/18 10:00 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/21/18 18:27	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/21/18 18:27	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/21/18 18:27	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/21/18 18:27	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/21/18 18:27	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/21/18 18:27	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/21/18 18:27	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/21/18 18:27	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	99	%.	75-125		1		11/21/18 18:27	17060-07-0	
Toluene-d8 (S)	101	%.	75-125		1		11/21/18 18:27	2037-26-5	
4-Bromofluorobenzene (S)	112	%.	75-125		1		11/21/18 18:27	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-17 **Lab ID: 10456291008** Collected: 11/15/18 11:05 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/21/18 18:44	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/21/18 18:44	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/21/18 18:44	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/21/18 18:44	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/21/18 18:44	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/21/18 18:44	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/21/18 18:44	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/21/18 18:44	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%.	75-125		1		11/21/18 18:44	17060-07-0	
Toluene-d8 (S)	102	%.	75-125		1		11/21/18 18:44	2037-26-5	
4-Bromofluorobenzene (S)	112	%.	75-125		1		11/21/18 18:44	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-17B **Lab ID: 10456291009** Collected: 11/15/18 11:30 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/21/18 19:01	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/21/18 19:01	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/21/18 19:01	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/21/18 19:01	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/21/18 19:01	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/21/18 19:01	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/21/18 19:01	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/21/18 19:01	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	96	%.	75-125		1		11/21/18 19:01	17060-07-0	
Toluene-d8 (S)	101	%.	75-125		1		11/21/18 19:01	2037-26-5	
4-Bromofluorobenzene (S)	111	%.	75-125		1		11/21/18 19:01	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-5 **Lab ID: 10456291010** Collected: 11/15/18 12:30 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/21/18 19:18	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/21/18 19:18	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/21/18 19:18	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/21/18 19:18	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/21/18 19:18	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/21/18 19:18	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/21/18 19:18	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/21/18 19:18	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%.	75-125		1		11/21/18 19:18	17060-07-0	HS
Toluene-d8 (S)	101	%.	75-125		1		11/21/18 19:18	2037-26-5	
4-Bromofluorobenzene (S)	111	%.	75-125		1		11/21/18 19:18	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-5B **Lab ID: 10456291011** Collected: 11/15/18 13:10 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/21/18 19:35	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/21/18 19:35	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/21/18 19:35	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/21/18 19:35	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/21/18 19:35	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/21/18 19:35	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/21/18 19:35	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/21/18 19:35	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%.	75-125		1		11/21/18 19:35	17060-07-0	HS
Toluene-d8 (S)	101	%.	75-125		1		11/21/18 19:35	2037-26-5	
4-Bromofluorobenzene (S)	108	%.	75-125		1		11/21/18 19:35	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-23B **Lab ID: 10456291012** Collected: 11/15/18 14:15 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/21/18 19:52	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/21/18 19:52	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/21/18 19:52	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/21/18 19:52	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/21/18 19:52	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/21/18 19:52	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/21/18 19:52	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/21/18 19:52	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	99	%.	75-125		1		11/21/18 19:52	17060-07-0	HS
Toluene-d8 (S)	103	%.	75-125		1		11/21/18 19:52	2037-26-5	
4-Bromofluorobenzene (S)	109	%.	75-125		1		11/21/18 19:52	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-24A **Lab ID: 10456291013** Collected: 11/15/18 15:30 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/21/18 20:09	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/21/18 20:09	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/21/18 20:09	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/21/18 20:09	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/21/18 20:09	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/21/18 20:09	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/21/18 20:09	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/21/18 20:09	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%.	75-125		1		11/21/18 20:09	17060-07-0	
Toluene-d8 (S)	99	%.	75-125		1		11/21/18 20:09	2037-26-5	
4-Bromofluorobenzene (S)	110	%.	75-125		1		11/21/18 20:09	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-24B **Lab ID: 10456291014** Collected: 11/15/18 16:05 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/21/18 20:26	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/21/18 20:26	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/21/18 20:26	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/21/18 20:26	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/21/18 20:26	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/21/18 20:26	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/21/18 20:26	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/21/18 20:26	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	89	%.	75-125		1		11/21/18 20:26	17060-07-0	HS
Toluene-d8 (S)	98	%.	75-125		1		11/21/18 20:26	2037-26-5	
4-Bromofluorobenzene (S)	103	%.	75-125		1		11/21/18 20:26	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-20A **Lab ID: 10456291015** Collected: 11/16/18 09:00 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/21/18 20:43	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/21/18 20:43	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/21/18 20:43	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/21/18 20:43	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/21/18 20:43	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/21/18 20:43	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/21/18 20:43	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/21/18 20:43	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%.	75-125		1		11/21/18 20:43	17060-07-0	
Toluene-d8 (S)	101	%.	75-125		1		11/21/18 20:43	2037-26-5	
4-Bromofluorobenzene (S)	110	%.	75-125		1		11/21/18 20:43	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-20B **Lab ID: 10456291016** Collected: 11/16/18 09:30 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/21/18 21:00	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/21/18 21:00	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/21/18 21:00	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/21/18 21:00	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/21/18 21:00	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/21/18 21:00	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/21/18 21:00	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/21/18 21:00	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%.	75-125		1		11/21/18 21:00	17060-07-0	
Toluene-d8 (S)	102	%.	75-125		1		11/21/18 21:00	2037-26-5	
4-Bromofluorobenzene (S)	110	%.	75-125		1		11/21/18 21:00	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-10 **Lab ID: 10456291017** Collected: 11/16/18 10:30 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/22/18 03:28	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/22/18 03:28	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/22/18 03:28	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/22/18 03:28	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/22/18 03:28	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/22/18 03:28	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/22/18 03:28	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/22/18 03:28	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	95	%.	75-125		1		11/22/18 03:28	17060-07-0	
Toluene-d8 (S)	99	%.	75-125		1		11/22/18 03:28	2037-26-5	
4-Bromofluorobenzene (S)	109	%.	75-125		1		11/22/18 03:28	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-22B **Lab ID: 10456291018** Collected: 11/16/18 11:30 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/22/18 03:45	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/22/18 03:45	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/22/18 03:45	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/22/18 03:45	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/22/18 03:45	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/22/18 03:45	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/22/18 03:45	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/22/18 03:45	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	94	%.	75-125		1		11/22/18 03:45	17060-07-0	
Toluene-d8 (S)	100	%.	75-125		1		11/22/18 03:45	2037-26-5	
4-Bromofluorobenzene (S)	106	%.	75-125		1		11/22/18 03:45	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-11 **Lab ID: 10456291019** Collected: 11/16/18 12:35 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/22/18 04:02	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/22/18 04:02	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/22/18 04:02	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/22/18 04:02	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/22/18 04:02	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/22/18 04:02	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/22/18 04:02	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/22/18 04:02	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	95	%.	75-125		1		11/22/18 04:02	17060-07-0	
Toluene-d8 (S)	101	%.	75-125		1		11/22/18 04:02	2037-26-5	
4-Bromofluorobenzene (S)	108	%.	75-125		1		11/22/18 04:02	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-11B **Lab ID: 10456291020** Collected: 11/16/18 13:10 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/22/18 04:19	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/22/18 04:19	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/22/18 04:19	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/22/18 04:19	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/22/18 04:19	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/22/18 04:19	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/22/18 04:19	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/22/18 04:19	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	88	%.	75-125		1		11/22/18 04:19	17060-07-0	
Toluene-d8 (S)	95	%.	75-125		1		11/22/18 04:19	2037-26-5	
4-Bromofluorobenzene (S)	90	%.	75-125		1		11/22/18 04:19	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-21B **Lab ID: 10456291021** Collected: 11/16/18 14:40 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/22/18 04:36	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/22/18 04:36	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/22/18 04:36	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/22/18 04:36	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/22/18 04:36	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/22/18 04:36	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/22/18 04:36	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/22/18 04:36	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%.	75-125		1		11/22/18 04:36	17060-07-0	HS
Toluene-d8 (S)	100	%.	75-125		1		11/22/18 04:36	2037-26-5	
4-Bromofluorobenzene (S)	111	%.	75-125		1		11/22/18 04:36	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-21A **Lab ID: 10456291022** Collected: 11/16/18 15:00 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/22/18 04:53	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/22/18 04:53	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/22/18 04:53	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/22/18 04:53	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/22/18 04:53	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/22/18 04:53	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/22/18 04:53	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/22/18 04:53	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	96	%.	75-125		1		11/22/18 04:53	17060-07-0	HS
Toluene-d8 (S)	102	%.	75-125		1		11/22/18 04:53	2037-26-5	
4-Bromofluorobenzene (S)	108	%.	75-125		1		11/22/18 04:53	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-6 **Lab ID: 10456291023** Collected: 11/16/18 16:00 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/26/18 23:36	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/26/18 23:36	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/26/18 23:36	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/26/18 23:36	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/26/18 23:36	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/26/18 23:36	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/26/18 23:36	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/26/18 23:36	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	95	%.	75-125		1		11/26/18 23:36	17060-07-0	HS
Toluene-d8 (S)	102	%.	75-125		1		11/26/18 23:36	2037-26-5	
4-Bromofluorobenzene (S)	100	%.	75-125		1		11/26/18 23:36	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-6B **Lab ID: 10456291024** Collected: 11/16/18 16:30 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/26/18 23:53	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/26/18 23:53	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/26/18 23:53	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/26/18 23:53	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/26/18 23:53	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/26/18 23:53	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/26/18 23:53	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/26/18 23:53	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%.	75-125		1		11/26/18 23:53	17060-07-0	HS
Toluene-d8 (S)	101	%.	75-125		1		11/26/18 23:53	2037-26-5	
4-Bromofluorobenzene (S)	103	%.	75-125		1		11/26/18 23:53	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-26 **Lab ID: 10456291025** Collected: 11/19/18 11:45 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/27/18 00:10	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/27/18 00:10	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/27/18 00:10	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/27/18 00:10	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/27/18 00:10	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/27/18 00:10	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/27/18 00:10	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/27/18 00:10	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%.	75-125		1		11/27/18 00:10	17060-07-0	
Toluene-d8 (S)	103	%.	75-125		1		11/27/18 00:10	2037-26-5	
4-Bromofluorobenzene (S)	103	%.	75-125		1		11/27/18 00:10	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-25A **Lab ID: 10456291026** Collected: 11/19/18 12:20 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/27/18 00:27	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/27/18 00:27	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/27/18 00:27	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/27/18 00:27	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/27/18 00:27	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/27/18 00:27	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/27/18 00:27	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/27/18 00:27	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	95	%.	75-125		1		11/27/18 00:27	17060-07-0	
Toluene-d8 (S)	103	%.	75-125		1		11/27/18 00:27	2037-26-5	
4-Bromofluorobenzene (S)	103	%.	75-125		1		11/27/18 00:27	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-25B **Lab ID: 10456291027** Collected: 11/19/18 12:45 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/27/18 00:44	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/27/18 00:44	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/27/18 00:44	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/27/18 00:44	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/27/18 00:44	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/27/18 00:44	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/27/18 00:44	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/27/18 00:44	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%.	75-125		1		11/27/18 00:44	17060-07-0	
Toluene-d8 (S)	103	%.	75-125		1		11/27/18 00:44	2037-26-5	
4-Bromofluorobenzene (S)	104	%.	75-125		1		11/27/18 00:44	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: MW-12 **Lab ID: 10456291028** Collected: 11/19/18 13:30 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/27/18 01:01	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/27/18 01:01	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/27/18 01:01	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/27/18 01:01	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/27/18 01:01	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/27/18 01:01	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/27/18 01:01	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/27/18 01:01	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	95	%.	75-125		1		11/27/18 01:01	17060-07-0	HS
Toluene-d8 (S)	107	%.	75-125		1		11/27/18 01:01	2037-26-5	
4-Bromofluorobenzene (S)	103	%.	75-125		1		11/27/18 01:01	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: Trip Blank **Lab ID: 10456291029** Collected: 11/14/18 00:00 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/21/18 15:05	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/21/18 15:05	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/21/18 15:05	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/21/18 15:05	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/21/18 15:05	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/21/18 15:05	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/21/18 15:05	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/21/18 15:05	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	96	%.	75-125		1		11/21/18 15:05	17060-07-0	
Toluene-d8 (S)	103	%.	75-125		1		11/21/18 15:05	2037-26-5	
4-Bromofluorobenzene (S)	103	%.	75-125		1		11/21/18 15:05	460-00-4	

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: Dup-1 **Lab ID: 10456291030** Collected: 11/19/18 00:00 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/27/18 01:18	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/27/18 01:18	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/27/18 01:18	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/27/18 01:18	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/27/18 01:18	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/27/18 01:18	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/27/18 01:18	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/27/18 01:18	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	99	%.	75-125		1		11/27/18 01:18	17060-07-0	
Toluene-d8 (S)	106	%.	75-125		1		11/27/18 01:18	2037-26-5	
4-Bromofluorobenzene (S)	103	%.	75-125		1		11/27/18 01:18	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: Dup-2 **Lab ID: 10456291031** Collected: 11/15/18 00:00 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/27/18 01:35	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/27/18 01:35	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/27/18 01:35	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/27/18 01:35	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/27/18 01:35	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/27/18 01:35	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/27/18 01:35	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/27/18 01:35	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%.	75-125		1		11/27/18 01:35	17060-07-0	
Toluene-d8 (S)	107	%.	75-125		1		11/27/18 01:35	2037-26-5	
4-Bromofluorobenzene (S)	104	%.	75-125		1		11/27/18 01:35	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Sample: Dup-3 **Lab ID: 10456291032** Collected: 11/16/18 00:00 Received: 11/20/18 11:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.10**	ug/L	1.0	0.10	1		11/27/18 01:52	71-43-2	
Ethylbenzene	**<0.14**	ug/L	1.0	0.14	1		11/27/18 01:52	100-41-4	
Methyl-tert-butyl ether	**<0.16**	ug/L	1.0	0.16	1		11/27/18 01:52	1634-04-4	
Naphthalene	**<0.48**	ug/L	4.0	0.48	1		11/27/18 01:52	91-20-3	
Toluene	**<0.083**	ug/L	1.0	0.083	1		11/27/18 01:52	108-88-3	
1,2,4-Trimethylbenzene	**<0.20**	ug/L	1.0	0.20	1		11/27/18 01:52	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	1.0	0.12	1		11/27/18 01:52	108-67-8	
Xylene (Total)	**<0.31**	ug/L	3.0	0.31	1		11/27/18 01:52	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%.	75-125		1		11/27/18 01:52	17060-07-0	
Toluene-d8 (S)	107	%.	75-125		1		11/27/18 01:52	2037-26-5	
4-Bromofluorobenzene (S)	105	%.	75-125		1		11/27/18 01:52	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

QC Batch: 576854 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10456291002, 10456291003, 10456291004, 10456291005, 10456291006, 10456291007, 10456291008, 10456291009, 10456291010, 10456291011, 10456291012, 10456291013, 10456291014, 10456291015, 10456291016, 10456291029

METHOD BLANK: 3130358 Matrix: Water
Associated Lab Samples: 10456291002, 10456291003, 10456291004, 10456291005, 10456291006, 10456291007, 10456291008, 10456291009, 10456291010, 10456291011, 10456291012, 10456291013, 10456291014, 10456291015, 10456291016, 10456291029

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.20	1.0	0.20	11/21/18 14:30	
1,3,5-Trimethylbenzene	ug/L	<0.12	1.0	0.12	11/21/18 14:30	
Benzene	ug/L	<0.10	1.0	0.10	11/21/18 14:30	
Ethylbenzene	ug/L	<0.14	1.0	0.14	11/21/18 14:30	
Methyl-tert-butyl ether	ug/L	<0.16	1.0	0.16	11/21/18 14:30	
Naphthalene	ug/L	<0.48	4.0	0.48	11/21/18 14:30	
Toluene	ug/L	<0.083	1.0	0.083	11/21/18 14:30	
Xylene (Total)	ug/L	<0.31	3.0	0.31	11/21/18 14:30	
1,2-Dichloroethane-d4 (S)	%.	96	75-125		11/21/18 14:30	
4-Bromofluorobenzene (S)	%.	98	75-125		11/21/18 14:30	
Toluene-d8 (S)	%.	101	75-125		11/21/18 14:30	

LABORATORY CONTROL SAMPLE: 3130359

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	19.8	99	75-125	
1,3,5-Trimethylbenzene	ug/L	20	19.9	100	75-125	
Benzene	ug/L	20	20.9	104	75-126	
Ethylbenzene	ug/L	20	18.3	92	75-125	
Methyl-tert-butyl ether	ug/L	20	20.4	102	73-129	
Naphthalene	ug/L	20	16.8	84	65-126	
Toluene	ug/L	20	19.5	98	74-125	
Xylene (Total)	ug/L	60	58.2	97	75-125	
1,2-Dichloroethane-d4 (S)	%.			84	75-125	
4-Bromofluorobenzene (S)	%.			104	75-125	
Toluene-d8 (S)	%.			102	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3130531 3130532

Parameter	Units	10455623002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4-Trimethylbenzene	ug/L	1.1	20	20	19.6	10.3	93	46	67-130	62	30	M1,R1
1,3,5-Trimethylbenzene	ug/L	ND	20	20	18.6	8.5	93	42	63-139	75	30	M1,R1
Benzene	ug/L	156	20	20	164	169	41	64	62-140	3	30	M1
Ethylbenzene	ug/L	81.4	20	20	95.2	93.2	69	59	75-131	2	30	M1

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3130531 3130532

Parameter	Units	10455623002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Methyl-tert-butyl ether	ug/L	ND	20	20	18.3	7.1	92	36	65-130	88	30	M1,R1
Naphthalene	ug/L	120	20	20	149	163	145	215	48-134	9	30	M1
Toluene	ug/L	3.3	20	20	21.8	11.2	92	39	68-132	64	30	M1,R1
Xylene (Total)	ug/L	6.5	60	60	58.8	31.7	87	42	69-135	60	30	MS,RS
1,2-Dichloroethane-d4 (S)	%.						87	89	75-125			
4-Bromofluorobenzene (S)	%.						106	94	75-125			
Toluene-d8 (S)	%.						102	99	75-125			

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

QC Batch: 576945 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10456291017, 10456291018, 10456291019, 10456291020, 10456291021, 10456291022

METHOD BLANK: 3130924 Matrix: Water
Associated Lab Samples: 10456291017, 10456291018, 10456291019, 10456291020, 10456291021, 10456291022

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.20	1.0	0.20	11/22/18 00:40	
1,3,5-Trimethylbenzene	ug/L	<0.12	1.0	0.12	11/22/18 00:40	
Benzene	ug/L	<0.10	1.0	0.10	11/22/18 00:40	
Ethylbenzene	ug/L	<0.14	1.0	0.14	11/22/18 00:40	
Methyl-tert-butyl ether	ug/L	<0.16	1.0	0.16	11/22/18 00:40	
Naphthalene	ug/L	<0.48	4.0	0.48	11/22/18 00:40	
Toluene	ug/L	<0.083	1.0	0.083	11/22/18 00:40	
Xylene (Total)	ug/L	<0.31	3.0	0.31	11/22/18 00:40	
1,2-Dichloroethane-d4 (S)	%.	95	75-125		11/22/18 00:40	
4-Bromofluorobenzene (S)	%.	90	75-125		11/22/18 00:40	
Toluene-d8 (S)	%.	101	75-125		11/22/18 00:40	

LABORATORY CONTROL SAMPLE: 3130925

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	19.9	100	75-125	
1,3,5-Trimethylbenzene	ug/L	20	20.0	100	75-125	
Benzene	ug/L	20	21.7	108	75-126	
Ethylbenzene	ug/L	20	18.3	91	75-125	
Methyl-tert-butyl ether	ug/L	20	16.3	81	73-129	
Naphthalene	ug/L	20	17.1	86	65-126	
Toluene	ug/L	20	19.0	95	74-125	
Xylene (Total)	ug/L	60	57.0	95	75-125	
1,2-Dichloroethane-d4 (S)	%.			93	75-125	
4-Bromofluorobenzene (S)	%.			107	75-125	
Toluene-d8 (S)	%.			101	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3131634 3131635

Parameter	Units	10456504001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	32.5	22.1	162	110	67-130	38	30	M1,R1
1,3,5-Trimethylbenzene	ug/L	ND	20	20	29.5	21.9	148	110	63-139	30	30	M1
Benzene	ug/L	ND	20	20	23.4	24.6	117	123	62-140	5	30	
Ethylbenzene	ug/L	ND	20	20	19.8	19.7	99	98	75-131	0	30	
Methyl-tert-butyl ether	ug/L	ND	20	20	23.3	23.2	116	116	65-130	0	30	
Naphthalene	ug/L	ND	20	20	33.1	21.2	166	106	48-134	44	30	M1,R1
Toluene	ug/L	ND	20	20	21.1	22.1	101	106	68-132	5	30	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3131634 3131635

Parameter	Units	10456504001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Xylene (Total)	ug/L	ND	60	60	60.3	61.9	100	103	69-135	3	30	
1,2-Dichloroethane-d4 (S)	%.						91	91	75-125			
4-Bromofluorobenzene (S)	%.						163	104	75-125			S0
Toluene-d8 (S)	%.						102	105	75-125			

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

QC Batch: 577223 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10456291023, 10456291024, 10456291025, 10456291026, 10456291027, 10456291028, 10456291030, 10456291031, 10456291032

METHOD BLANK: 3132041 Matrix: Water
Associated Lab Samples: 10456291023, 10456291024, 10456291025, 10456291026, 10456291027, 10456291028, 10456291030, 10456291031, 10456291032

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.20	1.0	0.20	11/26/18 22:45	
1,3,5-Trimethylbenzene	ug/L	<0.12	1.0	0.12	11/26/18 22:45	
Benzene	ug/L	<0.10	1.0	0.10	11/26/18 22:45	
Ethylbenzene	ug/L	<0.14	1.0	0.14	11/26/18 22:45	
Methyl-tert-butyl ether	ug/L	<0.16	1.0	0.16	11/26/18 22:45	
Naphthalene	ug/L	<0.48	4.0	0.48	11/26/18 22:45	
Toluene	ug/L	<0.083	1.0	0.083	11/26/18 22:45	
Xylene (Total)	ug/L	<0.31	3.0	0.31	11/26/18 22:45	
1,2-Dichloroethane-d4 (S)	%.	96	75-125		11/26/18 22:45	
4-Bromofluorobenzene (S)	%.	102	75-125		11/26/18 22:45	
Toluene-d8 (S)	%.	98	75-125		11/26/18 22:45	

LABORATORY CONTROL SAMPLE: 3132042

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	21.9	110	75-125	
1,3,5-Trimethylbenzene	ug/L	20	21.3	107	75-125	
Benzene	ug/L	20	18.3	91	75-126	
Ethylbenzene	ug/L	20	20.7	103	75-125	
Methyl-tert-butyl ether	ug/L	20	20.0	100	73-129	
Naphthalene	ug/L	20	15.4	77	65-126	
Toluene	ug/L	20	19.4	97	74-125	
Xylene (Total)	ug/L	60	62.4	104	75-125	
1,2-Dichloroethane-d4 (S)	%.			93	75-125	
4-Bromofluorobenzene (S)	%.			103	75-125	
Toluene-d8 (S)	%.			100	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3132053 3132054

Parameter	Units	10456295011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	22.6	22.2	113	111	67-130	2	30	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	22.8	22.1	114	111	63-139	3	30	
Benzene	ug/L	ND	20	20	19.1	19.0	96	95	62-140	0	30	
Ethylbenzene	ug/L	ND	20	20	21.2	21.1	106	106	75-131	1	30	
Methyl-tert-butyl ether	ug/L	ND	20	20	19.4	19.6	97	98	65-130	1	30	
Naphthalene	ug/L	ND	20	20	15.5	15.5	77	77	48-134	0	30	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3132053 3132054

Parameter	Units	10456295011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Toluene	ug/L	ND	20	20	20.4	20.6	102	103	68-132	1	30	
Xylene (Total)	ug/L	ND	60	60	64.8	64.9	108	108	69-135	0	30	
1,2-Dichloroethane-d4 (S)	%.						91	93	75-125			
4-Bromofluorobenzene (S)	%.						101	100	75-125			
Toluene-d8 (S)	%.						99	100	75-125			

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

QC Batch: 577656 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10456291001

METHOD BLANK: 3133736 Matrix: Water
Associated Lab Samples: 10456291001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.20	1.0	0.20	11/28/18 13:14	
1,3,5-Trimethylbenzene	ug/L	<0.12	1.0	0.12	11/28/18 13:14	
Benzene	ug/L	<0.10	1.0	0.10	11/28/18 13:14	
Ethylbenzene	ug/L	<0.14	1.0	0.14	11/28/18 13:14	
Methyl-tert-butyl ether	ug/L	<0.16	1.0	0.16	11/28/18 13:14	
Naphthalene	ug/L	<0.48	4.0	0.48	11/28/18 13:14	
Toluene	ug/L	<0.083	1.0	0.083	11/28/18 13:14	
Xylene (Total)	ug/L	<0.31	3.0	0.31	11/28/18 13:14	
1,2-Dichloroethane-d4 (S)	%.	103	75-125		11/28/18 13:14	
4-Bromofluorobenzene (S)	%.	100	75-125		11/28/18 13:14	
Toluene-d8 (S)	%.	102	75-125		11/28/18 13:14	

LABORATORY CONTROL SAMPLE: 3133737

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	21.2	106	75-125	
1,3,5-Trimethylbenzene	ug/L	20	20.7	103	75-125	
Benzene	ug/L	20	20.4	102	75-126	
Ethylbenzene	ug/L	20	20.3	102	75-125	
Methyl-tert-butyl ether	ug/L	20	21.2	106	73-129	
Naphthalene	ug/L	20	21.6	108	65-126	
Toluene	ug/L	20	20.0	100	74-125	
Xylene (Total)	ug/L	60	61.4	102	75-125	
1,2-Dichloroethane-d4 (S)	%.			101	75-125	
4-Bromofluorobenzene (S)	%.			101	75-125	
Toluene-d8 (S)	%.			100	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3134208 3134209

Parameter	Units	10456776001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	21.4	22.4	107	112	67-130	5	30	
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	21.2	22.2	106	111	63-139	5	30	
Benzene	ug/L	<0.10	20	20	20.6	22.2	103	111	62-140	7	30	
Ethylbenzene	ug/L	<0.14	20	20	21.1	22.1	105	111	75-131	5	30	
Methyl-tert-butyl ether	ug/L	<0.16	20	20	19.6	20.8	98	104	65-130	6	30	
Naphthalene	ug/L	<0.48	20	20	19.9	21.0	99	105	48-134	6	30	
Toluene	ug/L	<0.083	20	20	20.5	21.7	102	109	68-132	6	30	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3134208 3134209

Parameter	Units	10456776001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Xylene (Total)	ug/L	<0.31	60	60	63.8	66.8	106	111	69-135	5	30	
1,2-Dichloroethane-d4 (S)	%.						102	101	75-125			
4-Bromofluorobenzene (S)	%.						100	100	75-125			
Toluene-d8 (S)	%.						101	99	75-125			

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALIFIERS

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

HS	Results are from sample aliquot taken from VOA vial with headspace (air bubble greater than 6 mm diameter).
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
MS	Analyte recovery in the matrix spike was outside QC limits for one or more of the constituent analytes used in the calculated result.
R1	RPD value was outside control limits.
RS	The RPD value in one of the constituent analytes was outside the control limits.
S0	Surrogate recovery outside laboratory control limits.

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 49161419.00 100 102 ENBSPT GMP
Pace Project No.: 10456291

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10456291001	MW-14	EPA 8260B	577656		
10456291002	MW-15	EPA 8260B	576854		
10456291003	MW-2	EPA 8260B	576854		
10456291004	MW-19A	EPA 8260B	576854		
10456291005	MW-19B	EPA 8260B	576854		
10456291006	MW-1	EPA 8260B	576854		
10456291007	MW-18	EPA 8260B	576854		
10456291008	MW-17	EPA 8260B	576854		
10456291009	MW-17B	EPA 8260B	576854		
10456291010	MW-5	EPA 8260B	576854		
10456291011	MW-5B	EPA 8260B	576854		
10456291012	MW-23B	EPA 8260B	576854		
10456291013	MW-24A	EPA 8260B	576854		
10456291014	MW-24B	EPA 8260B	576854		
10456291015	MW-20A	EPA 8260B	576854		
10456291016	MW-20B	EPA 8260B	576854		
10456291017	MW-10	EPA 8260B	576945		
10456291018	MW-22B	EPA 8260B	576945		
10456291019	MW-11	EPA 8260B	576945		
10456291020	MW-11B	EPA 8260B	576945		
10456291021	MW-21B	EPA 8260B	576945		
10456291022	MW-21A	EPA 8260B	576945		
10456291023	MW-6	EPA 8260B	577223		
10456291024	MW-6B	EPA 8260B	577223		
10456291025	MW-26	EPA 8260B	577223		
10456291026	MW-25A	EPA 8260B	577223		
10456291027	MW-25B	EPA 8260B	577223		
10456291028	MW-12	EPA 8260B	577223		
10456291029	Trip Blank	EPA 8260B	576854		
10456291030	Dup-1	EPA 8260B	577223		
10456291031	Dup-2	EPA 8260B	577223		
10456291032	Dup-3	EPA 8260B	577223		

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☒ Duluth ☐ Hibbing ☐ Minneapolis
☐ Bismarck ☐ Grand Rapids ☐ Jefferson City ☐ Salt Lake City

Sample Origination State: ☐ KS ☐ MO ☐ UT ☐ MI ☐ ND ☒ WI ☐ MN ☐ SD Other: ____

COC Number: 57723
COC 1 of 4

WO# : 10456291

10456291

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: Barr
Address: 325 S. Lake Ave Duluth	Address:
Name: Lynette Carney	Name:
email: lcarney@barr.com	email:
Copy to: datamgt@barr.com	P.O. —
Project Name: ENBSPT GMP 2018	Barr Project No: 49161419.00 100102

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	B	W	% Solids	Preservative Code / Field Filtered Y/N
1. MW-14	—			11/14/18	1100	GW	W	3	3			001
2. MW-15	—				1204							002
3. MW-2	—				1320							003
4. MW-19A	—				1455							004
5. MW-19B	—				1540							005
6. MW-1	—			11/15/18	0905							006
7. MW-18	—				1000							007
8. MW-17	—				1105							008
9. MW-17B	—				1130							009
10. MW-5	—				1230							010

Analysis Requested — Water / Soil
PVOC + Naphthalene

O = Other
G = $NaHSO_4$
H = $Na_2S_2O_3$
I = Ascorbic Acid
J = NH_4Cl
K = Zn Acetate
O = Other

BARR USE ONLY	
Sampled by: WMT3	
Barr Proj. Manager: LMC	
Barr DQ Manager: JET	
Lab Name: Pace	
Lab Location:	

Relinquished by	On Ice?	Date	Time	Received by	Date	Time
[signature]	Y N	11/19/18	1420	[signature]	11/19/18	14:21
[signature]	On Ice? Y N	11/19/18	14:30	[signature] PACE	11/20/18	1135

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☒ Sampler ☐ Other: _____
Air Bill Number:
Lab WO: Temperature on Receipt (°C): 24 Custody Seal Intact? ☐ Y ☐ N ☒ None

Requested Due Date:
☒ Standard Turn Around Time
☐ Rush _____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

Table

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 01/02/18

Barr Engineering Co. Chain of Custody

BARR

☐ Ann Arbor ☑ Duluth ☐ Hibbing ☐ Minneapolis
☐ Bismarck ☐ Grand Rapids ☐ Jefferson City ☐ Salt Lake City

Sample Origination State: ☐ KS ☐ MO ☐ UT ☐ MI ☐ ND ☑ WI ☐ MN ☐ SD Other: ____

COC Number: 57720

COC 2 of 4

REPORT TO		INVOICE TO	
Company:	Barr Engineering	Company:	Barr
Address:	325 S. Lake Ave Duluth	Address:	
Name:	Lynette Carney	Name:	
email:	lcarney@barr.com	email:	
Copy to:	datamgt@barr.com	P.O.	—
Project Name:	ENB SPT Gmp 2018	Barr Project No:	49161419.00 100 102

Analysis Requested: Water / Soil — PVOC + Naphthalene; % Solids

Preservative Code: B; Field Filtered Y/N: N

#	Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	PVOC + Naphthalene	% Solids	
1.	mw-5B	—	—	—	11/15/18	1310	GW	N	3	3		011
2.	mw-23B	—	—	—	↓	1415	↓	↓	↓	↓		012
3.	mw-24A	—	—	—	↓	1530	↓	↓	↓	↓		013
4.	mw-24B	—	—	—	↓	1605	↓	↓	↓	↓		014
5.	mw-20A	—	—	—	11/16/18	0900	↓	↓	↓	↓		015
6.	mw-20B	—	—	—	↓	0930	↓	↓	↓	↓		016
7.	mw-10	—	—	—	↓	1030	↓	↓	↓	↓		017
8.	MW-22B	—	—	—	↓	1130	↓	↓	↓	↓		018
9.	mw-11	—	—	—	↓	1235	↓	↓	↓	↓		019
10.	mw-11B	—	—	—	↓	1310	↓	↓	↓	↓		020

Matrix Code:
GW = Groundwater
SW = Surface Water
WW = Waste Water
DW = Drinking Water
S = Soil/Solid
SD = Sediment
O = Other

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
I = Ascorbic Acid
J = NH_4Cl
K = Zn Acetate
O = Other

BARR USE ONLY	
Sampled by:	KMJB
Barr Proj. Manager:	LMC
Barr DQ Manager:	JET
Lab Name:	Pace
Lab Location:	

Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
[signature]	Ⓨ N	11/19/18	1420	[signature]	11/19/18	14:20
[signature]	Ⓨ N	11/19/18	14:30	[signature] PACE	11/20/18	1135

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☑ Sampler ☐ Other: ____

Air Bill Number:

Requested Due Date: ☑ Standard Turn Around Time ☐ Rush ____ (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 2.4 Custody Seal Intact? ☐ Y ☐ N ☑ None

Distribution - **White-Original:** Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

T=1.6

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 01/02/18

Barr Engineering Co. Chain of Custody

BARR

☐ Ann Arbor ☑ Duluth ☐ Hibbing ☐ Minneapolis
☐ Bismarck ☐ Grand Rapids ☐ Jefferson City ☐ Salt Lake City

Sample Origination State: ☐ KS ☐ MO ☐ UT ☐ MI ☐ ND ☑ WI ☐ MN ☐ SD Other: ____

COC Number: 57721

COC 3 of 4

REPORT TO		INVOICE TO	
Company:	Barr Engineering	Company:	Barr
Address:	325 S. Lake Ave Duluth	Address:	
Name:	Lynette Carney	Name:	
email:	lcarney@barr.com	email:	
Copy to:	datamgt@barr.com	P.O.	—
Project Name:	ENB SPT GMP 2018	Barr Project No:	49161419.00 100 102

Matrix Code:
GW = Groundwater
SW = Surface Water
WW = Waste Water
DW = Drinking Water
S = Soil/Solid
SD = Sediment
O = Other

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
I = Ascorbic Acid
J = NH_4Cl
K = Zn Acetate
O = Other

Analysis Requested: Water / Soil

#	Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	VOC + Naphthalene (Preservative Code B; Field Filtered N)	% Solids	Lab ID
1.	MW-21B	—	—		11/16/18	1440	GW	N	3	3		021
2.	MW-21A	—	—		↓	1500	↓	↓	↓	↓		022
3.	MW-6	—	—		↓	1600	↓	↓	↓	↓		023
4.	MW-6B	—	—		↓	1630	↓	↓	↓	↓		024
5.	MW-26				11/19/18	1145	↓	↓	↓	↓		025
6.	MW-25A				↓	1220	↓	↓	↓	↓		026
7.	MW-25B				↓	1245	↓	↓	↓	↓		027
8.	MW-12				↓	1330	↓	↓	↓	↓		028
9.	Trip Blank	—	—		—	—	—	N	2	2		029
10.	Dup-1	—	—		11/19/18	—	GW	N	3	3		030

BARR USE ONLY	
Sampled by:	KMT3
Barr Proj. Manager:	LMC
Barr DQ Manager:	JET
Lab Name:	Pace
Lab Location:	

Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
[signature]	Ⓨ N	11/19/18	1420	[signature]	11/19/18	14:20
[signature]	Ⓨ N	11/19/18	14:30	[signature] PACE	11/20/18	1135

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☑ Sampler ☐ Other: ____

Air Bill Number:

Requested Due Date: ☑ Standard Turn Around Time ☐ Rush ____ (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 2.4 Custody Seal Intact? ☐ Y ☐ N ☑ None

Distribution - White-Original: Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

T=1.6

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 01/02/18

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☑ Duluth ☐ Hibbing ☐ Minneapolis
☐ Bismarck ☐ Grand Rapids ☐ Jefferson City ☐ Salt Lake City

Sample Origination State: ☐ KS ☐ MO ☐ UT ☐ MI ☐ ND ☑ WI ☐ MN ☐ SD Other: ____

COC Number: 57722
COC 4 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: Barr
Address: 325 S. Lake Ave. Ste 1228	Address:
Name: Lynette Cowney	Name:
email: lcowney@barr.com	email:
Copy to: datamgt@barr.com	P.O. —
Project Name: EMB SPT GMP 2018	Barr Project No: 49161419.00 100 102

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / ⊘	Total Number Of Containers	Analysis Requested: Water: PVOC + Naphthalene	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. Dup-2	—			11/15/18	—	GW	N	3	3			031
2. Dup-3	—			11/16/18	—	GW	N	3	3			032
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

BARR USE ONLY

Sampled by: KMTJ
Barr Proj. Manager: LMC
Barr DQ Manager: JET
Lab Name: Pace
Lab Location:

Relinquished by: [signature] On Ice? ☑ Y ☐ N Date 11/19/18 Time 1420 Received by: [signature] Date 11/19/18 Time 14:20

Relinquished by: [signature] On Ice? ☑ Y ☐ N Date 11/19/18 Time 14:30 Received by: [signature] PACE Date 11/20/18 Time 1135

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☑ Sampler ☐ Other: _____ Air Bill Number:

Lab WO: Temperature on Receipt (°C): 2.4 Custody Seal Intact? ☐ Y ☐ N ☑ None

Requested Due Date: ☑ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - **White-Original:** Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

T=1.6

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 01/02/18

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 31Oct2018 Page 1 of 2
	Document No.: F-MN-L-213-rev.24	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Barr Engineering

Project #: **WO#: 10456291**

PM: AA1 **Due Date: 11/29/18**

CLIENT: BARR

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ SpeeDee ☐ Other:

Tracking Number: 677988968407

Custody Seal on Cooler/Box Present? ☐ Yes ☒ No **Seals Intact?** ☐ Yes ☒ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☒ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other: **Temp Blank?** ☒ Yes ☐ No

Thermometer Used: ☐ G87A9170600254 ☒ G87A9155100842 **Type of Ice:** ☒ Wet ☐ Blue ☐ None ☐ Dry ☐ Melted

Cooler Temp Read (°C): 1.6 **Cooler Temp Corrected (°C):** 1.6 **Biological Tissue Frozen?** ☐ Yes ☐ No ☒ N/A

Temp should be above freezing to 6°C **Correction Factor:** True **Date and Initials of Person Examining Contents:** AS 11/26/18

USDA Regulated Soil (☒ N/A, water sample)

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present?	☒ Yes	☐ No		1.
Chain of Custody Filled Out?	☒ Yes	☐ No		2.
Chain of Custody Relinquished?	☒ Yes	☐ No		3.
Sampler Name and/or Signature on COC?	☒ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☒ Yes	☐ No		5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☒ No		6.
Rush Turn Around Time Requested?	☐ Yes	☒ No		7.
Sufficient Volume?	☒ Yes	☐ No		8.
Correct Containers Used? -Pace Containers Used?	☒ Yes ☒ Yes	☐ No ☐ No		9.
Containers Intact?	☒ Yes	☐ No		10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☒ N/A	11. Note if sediment is visible in the dissolved container
Is sufficient information available to reconcile the samples to the COC? Matrix: WT	☒ Yes	☐ No		12.
All containers needing acid/base preservation have been checked? All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide) Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☐ Yes ☐ Yes ☒ Yes	☐ No ☐ No ☐ No	☒ N/A ☒ N/A ☐ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH Positive for Res. Chlorine? Y N Sample # Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☒ Yes	☐ No	☐ N/A	14. See Exceptions
Trip Blank Present? Trip Blank Custody Seals Present? Pace Trip Blank Lot # (if purchased): 183705	☒ Yes ☒ Yes	☐ No ☐ No	☐ N/A ☐ N/A	15. 2 TB

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: Date: 11/21/18

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: AS

Pace Analytical	Document Name: **Headspace Exception**	Document Revised: 06Nov2017 Page 1 of 1
	Document No.: **F-MN-C-276-Rev.00**	Issuing Authority: Pace Minnesota Quality Office

Sample ID	Headspace > 6mm	Headspace < 6mm	No Headspace	Total Vials
MW-14	0	3	0	3
MW-15	0	3	0	3
MW-2	0	3	0	3
MW-19A	0	2	1	3
MW-19B	0	3	0	3
MW-1	0	3	0	3
MW-18	0	2	1	3
MW-17	0	3	0	3
MW-17B	0	2	1	3
MW-5	0	3	0	3
MW-5B	0	3	0	3
MW-23B	0	3	0	3

Pace Analytical	Document Name: **Headspace Exception**	Document Revised: 06Nov2017 Page 1 of 1
	Document No.: **F-MN-C-276-Rev.00**	Issuing Authority: Pace Minnesota Quality Office

Sample ID	Headspace > 6mm	Headspace < 6mm	No Headspace	Total Vials
MW-24A	0	3	0	3
MW-24B	0	3	0	3
MW-20A	0	3	0	3
MW-20B	0	3	0	3
MW-10	1	2	0	3
MW-22B	0	3	0	3
MW-11	0	3	0	3
MW-11B	0	3	0	3
MW-21B	0	3	0	3
MW-21A	0	3	0	3
MW-6	0	3	0	3
MW-6B	0	3	0	3

Pace Analytical	Document Name: **Headspace Exception**	Document Revised: 06Nov2017 Page 1 of 1
	Document No.: **F-MN-C-276-Rev.00**	Issuing Authority: Pace Minnesota Quality Office

Sample ID	Headspace >6mm	Headspace <6mm	No Headspace	Total Vials
mw-25A	0	2	1	3
mw-12	0	3	0	3
mw-25B	0	1	2	3
Blank	0	2	0	2
Dup-3	0	3	0	3
Dup-2	0	1	2	3
Dup-1	0	1	2	3

Appendix B

Well Photos

Spring 2018 Well Photos

Superior Terminal Well Photos Spring - 2018

MW-1

MW-2

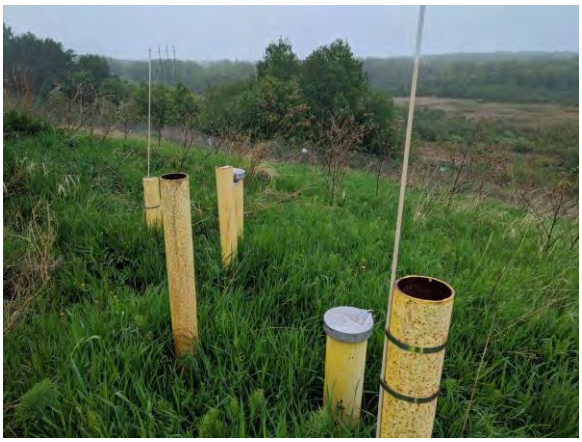
MW-5 & MW-5B

Superior Terminal Well Photos Spring - 2018

MW-6 & MW-6B

MW-10

MW-11 & MW-11B



Superior Terminal Well Photos Spring - 2018

MW-12

MW-14

MW-15

Superior Terminal Well Photos Spring - 2018

MW-17 & MW-17B

MW-18

MW-19A & MW-19B

Superior Terminal Well Photos Spring - 2018

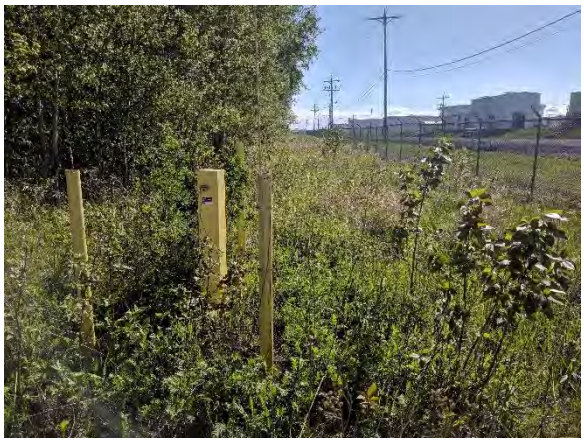
MW-20A & MW-20B

MW-21A & MW-21B

MW-22B

Superior Terminal Well Photos Spring - 2018

MW-23B



MW-24A & MW-24B

MW-25A & 25B

Superior Terminal Well Photos Spring - 2018

MW-26

Fall 2018 Well Photos

Superior Terminal Well Photos Fall - 2018

MW-1

MW-2

MW-5 & MW-5B

Superior Terminal Well Photos Fall - 2018

MW-6 & MW-6B

MW-10

MW-11 & MW-11B

Superior Terminal Well Photos Fall - 2018

MW-12

MW-14

MW-15

Superior Terminal Well Photos Fall - 2018

MW-17 & MW-17B

MW-18

MW-19A & MW-19B

Superior Terminal Well Photos Fall - 2018

MW-20A & MW-20B

MW-21A & MW-21B

MW-22B

Superior Terminal Well Photos Fall - 2018

MW-23B

MW-24A & MW-24B

MW-25A & 25B

Superior Terminal Well Photos Fall - 2018

MW-26

Appendix C

Field Notes

Spring 2018 Field Notes

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-1
Location: Superior Terminal, WI	**Date:** 5/29/18
Project #: 49161419.00 100 102	**Sample Time:** 1345

GENERAL DATA		**STABILIZATION TEST**						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	22.28'	1325	5.89	873	7.02	3.21	1.71	
Static water level *(ft.)*:*	5.13'							
Water depth *(ft.)*:*	17.45'							
Well volume *(gal.)*:	2.8 gal							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear, colorless → slightly pink						
Duration *(hh:mm:ss)*:		Sample Appearance: slightly pink						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	dry @ 8 gal							
Duplicate collected?	NO							
Sample collection by:	MAB	CO2-		Mn2-		Fe(T)-		Fe2-

Others present: none

Well Condition: good - minor rust

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene - 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-2
Location: Superior Terminal, WI	**Date:** 5/29/18
Project #: 49161419.00 100 102	**Sample Time:** 1245

GENERAL DATA		STABILIZATION TEST						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	27.18	1220	6.58	1289	6.99	316.5	1.52	
Static water level *(ft.)*:*	3.72							
Water depth *(ft.)*:*	23.46							
Well volume *(gal.)*:	3.8							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear, colorless → slightly pink						
Duration *(hh:mm:ss)*:		Sample Appearance: slightly pink						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	dry @ 11 gal							
Duplicate collected?	no							
Sample collection by:	MAB	CO2-		Mn2-		Fe(T)-		Fe2-

Others present: none

Well Condition: good

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene - 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-5
Location: Superior Terminal, WI	**Date:** 5/31/18
Project #: 49161419.00 100 102	**Sample Time:** 1600

GENERAL DATA		STABILIZATION TEST						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	27.02	1535	6.93	1078	7.29	282.3	2.06	
Static water level *(ft.)*:*	2.79							
Water depth *(ft.)*:*								
Well volume *(gal.)*:								
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear → grey/pink						
Duration *(hh:mm:ss)*:		Sample Appearance: light grey/pink						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	dry ~ 13 gal							
Duplicate collected?	no							
Sample collection by:	(MAB)	CO2-		Mn2-		Fe(T)-		Fe2-
Others present:	none	Well Condition:	good					

~~MW~~: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene – 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-5B
Location: Superior Terminal, WI	**Date:** 5/31/18
Project #: 49161419.00 100 102	**Sample Time:** 1645

GENERAL DATA		**STABILIZATION TEST**						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	57.91	1605	6.68	T35	7.37	238.1	1.46	
Static water level *(ft.)*:*	6.53							
Water depth *(ft.)*:*								
Well volume *(gal.)*:								
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear → gray/pink						
Duration *(hh:mm:ss)*:		Sample Appearance: gray/pink						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	dry at 12 gal							
Duplicate collected?	NO							
Sample collection by:	MAB	CO2-		Mn2-		Fe(T)-		Fe2-

Others present: none — Well Condition: good

MW: groundwater monitoring well — WS: water supply well — SW: surface water — SE: sediment — other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-6A
Location: Superior Terminal, WI	**Date:** 5/30/18
Project #: 49161419.00 100 102	**Sample Time:** 0930

GENERAL DATA		STABILIZATION TEST						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	26.68	~~7.59~~ 0930	7.55	1485	6.98	232.2	6.17	
Static water level *(ft.)*:*	7.14							
Water depth *(ft.)*:*	19.54							
Well volume *(gal.)*:	3.2							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear → slightly pink						
Duration *(hh:mm:ss)*:		Sample Appearance: slightly pink						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	dry @ 10.5 gal							
Duplicate collected?	no							
Sample collection by:	MAB	CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:	none	Well Condition:	good, minor rust					

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene - 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-6B
Location: Superior Terminal, WI	**Date:** 5/30/18
Project #: 49161419.00 100 102	**Sample Time:** 1015

GENERAL DATA		STABILIZATION TEST						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	58.23	0935	7.83	829	7.26	219.2	3.06	
Static water level *(ft.)*:*	8.91							
Water depth *(ft.)*:*	49.3							
Well volume *(gal.)*:	8.0							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear → gray → pink						
Duration *(hh:mm:ss)*:		Sample Appearance: pink						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	one 8 11gal	YSI @ 17m						
Duplicate collected?	N							
Sample collection by:	MAB	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present: None

Well Condition: good

(MW): groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-10
Location: Superior Terminal, WI	**Date:** ~~5/29/18~~ 5/30/18
Project #: 49161419.00 100 102	**Sample Time:** 1240

GENERAL DATA		STABILIZATION TEST						
		Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
~~Barr lock:~~ Enbridge lock	3382							
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	30.43'	1715	7.63	1833	6.52	16.4	0.44	
Static water level *(ft.)*:*	6.28							
Water depth *(ft.)*:*	24.1							
Well volume *(gal.)*:	3.9							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: light yellow color						
Duration *(hh:mm:ss)*:		Sample Appearance: yellow						
Rate, gpm:		Comments: bailed 12 gal 5/29; day cut short by lightning. bailed 4 add'l gallons 5/30 prior to sample						
Volume, purged: *(note units)*	16 gal							
Duplicate collected?	no	- Sample fizzing w/ apparent carbonate. collected 2nd unpreserved set.						
Sample collection by:	MAB	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present: none

Well Condition: good

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-11
Location: Superior Terminal, WI	**Date:** 5/30/18
Project #: 49161419.00 100 102	**Sample Time:** 1500

GENERAL DATA		**STABILIZATION TEST**						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	18.18	1430	6.11	1916	6.35	-60	1.17	
Static water level *(ft.)*:*	7.75							
Water depth *(ft.)*:*	10.43							
Well volume *(gal.)*:	1.7							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear → pink						
Duration *(hh:mm:ss)*:		Sample Appearance: pink						
Rate, gpm:		Comments: ~~lock~~ lock very sticky/rusty - replace						
Volume, purged: *(note units)*	drywell 4.5 gal							
Duplicate collected?	no							
Sample collection by:	MAB	CO2-		Mn2-		Fe(T)-		Fe2-

Others present: none

Well Condition: good

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-11B
Location: Superior Terminal, WI	**Date:** 5/30/17
Project #: 49161419.00 100 102	**Sample Time:** 1545

GENERAL DATA		STABILIZATION TEST						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	57.50'	1450	7.42	740	7.27	16.8	1.93	
Static water level *(ft.)*:*	22.31							
Water depth *(ft.)*:*	35.19							
Well volume *(gal.)*:	5.7							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear → pink						
Duration *(hh:mm:ss)*:		Sample Appearance: pink						
Rate, gpm:		Comments: - lock very sticky/rusty - replace						
Volume, purged: *(note units)*	dry @ 9 gal	- slight effervescence when vials filled						
Duplicate collected?	no							
Sample collection by: MAB		CO2- Mn2- Fe(T)- Fe2-						

Others present: none

Well Condition: good

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene - 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-12
Location: Superior Terminal, WI	**Date:** 5/31/18
Project #: 49161419.00 100 102	**Sample Time:** 1320

GENERAL DATA		STABILIZATION TEST						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	22.47	1300	5.51	1422	7.28	241.6	5.55	
Static water level *(ft.)*:*	4.62							
Water depth *(ft.)*:*	17.85							
Well volume *(gal.)*:	2.9							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear						
Duration *(hh:mm:ss)*:		Sample Appearance: "						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	any @ 4gpm							
Duplicate collected?	no							
Sample collection by:	MAB	CO2-		Mn2-		Fe(T)-		Fe2-
Others present:	none	Well Condition: good						

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-14
Location: Superior Terminal, WI	**Date:** 5/29/18
Project #: 49161419.00 100 102	**Sample Time:** 1200

GENERAL DATA		STABILIZATION TEST						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	18.35	1130	5.59	964	6.93	318.9	3.49	
Static water level *(ft.)*:*	5.25							
Water depth *(ft.)*:*	13.1							
Well volume *(gal.)*:	2.1							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear, colorless → slightly pink						
Duration *(hh:mm:ss)*:		Sample Appearance: slightly pink						
Rate, gpm:		Comments: ~5x 2" brown, fuzzy, thin apparent root hairs in purge						
Volume, purged: *(note units)*	7 gal - dry							
Duplicate collected?	no							
Sample collection by:	MAB	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present: none

Well Condition: good

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene – 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-15
Location: Superior Terminal, WI	**Date:** 5/29/18
Project #: 49161419.00 100 102	**Sample Time:** 1100

GENERAL DATA		STABILIZATION TEST						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	17.32	1039	5.91	~~326.0~~ 785	5.94	328.0	3.06	
Static water level *(ft.)*:*	3.92							
Water depth *(ft.)*:*	13.4							
Well volume *(gal.)*:	2.2							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear, w/ bubbles						
Duration *(hh:mm:ss)*:		Sample Appearance: as above						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	~~dry @ 0.5 gal~~ 9 gal	~ 10x fuzzy green thin ~ 2" long apparent roots/plants in purge water						
Duplicate collected?	no							
Sample collection by:	MAB	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present: none

Well Condition: good. slight rust

~~MW~~: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene - 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-17
Location: Superior Terminal, WI	**Date:** 5/31/18
Project #: 49161419.00 100 102	**Sample Time:** 1445

GENERAL DATA		STABILIZATION TEST						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	17.46	1430	5.21	1221	7.31	269.2	3.20	
Static water level *(ft.)*:*	5.95							
Water depth *(ft.)*:*	11.51							
Well volume *(gal.)*:	1.9							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear						
Duration *(hh:mm:ss)*:		Sample Appearance: as above						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	about 4 gal							
Duplicate collected?	no							
Sample collection by:	MAB	CO2-		Mn2-		Fe(T)-		Fe2-
Others present:	none	Well Condition:	good					

~~MW~~: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene - 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW - 17B
Location: Superior Terminal, WI	**Date:** 5/31/18
Project #: 49161419.00 100 102	**Sample Time:** 1530

GENERAL DATA		STABILIZATION TEST						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	~~47.46~~ 44.88	1450	7.33	495	7.63	224.9	3.15	
Static water level *(ft.)*:*	16.50							
Water depth *(ft.)*:*	28.36							
Well volume *(gal.)*:	4.6							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear						
Duration *(hh:mm:ss)*:		Sample Appearance: clear						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	dry @ 6 gal							
Duplicate collected?	no							
Sample collection by:	MAB	CO2-		Mn2-		Fe(T)-		Fe2-

Others present: none — Well Condition: good

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene - 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-18
Location: Superior Terminal, WI	**Date:** 5/31/18
Project #: 49161419.00 100 102	**Sample Time:** 1415

GENERAL DATA		STABILIZATION TEST						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	17.22	1350	6.02	1046	7.44	279.5	3.83	
Static water level *(ft.)*:*	7.64							
Water depth *(ft.)*:*	9.58							
Well volume *(gal.)*:	1.6							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear — pink/gray						
Duration *(hh:mm:ss)*:		Sample Appearance: light pink/gray						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	4 out 3 gal							
Duplicate collected?	no							
Sample collection by:	MAB	CO2-		Mn2-		Fe(T)-		Fe2-

Others present: none — Well Condition: good

MW: groundwater monitoring well — WS: water supply well — SW: surface water — SE: sediment — other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene - 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-19A
Location: Superior Terminal, WI	**Date:** 5/29/18
Project #: 49161419.00 100 102	**Sample Time:** 1500

GENERAL DATA		STABILIZATION TEST						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	24.14	1420	6.87	628	7.22	305.7	0.62	
Static water level *(ft.)*:*	3.53							
Water depth *(ft.)*:*								
Well volume *(gal.)*:								
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear, colorless						
Duration *(hh:mm:ss)*:		Sample Appearance: as above						
Rate, gpm:		Comments: lock lubricated w/ graphite						
Volume, purged: *(note units)*	dry @ 8 gal							
Duplicate collected?	Dup-1							
Sample collection by:	MAB	CO2-		Mn2-		Fe(T)-		Fe2-

Others present: none	Well Condition: good

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene - 6

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-19B
Location: Superior Terminal, WI	**Date:** 5/29/18
Project #: 49161419.00 100 102	**Sample Time:** 1630

GENERAL DATA		**STABILIZATION TEST**						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	59.93	1450	7.21	215	7.23	275.7	2.27	
Static water level *(ft.)*:*	12.52							
Water depth *(ft.)*:*								
Well volume *(gal.)*:								
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear, colorless						
Duration *(hh:mm:ss)*:		Sample Appearance: ~~cy~~ clear						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	dry @ 10.5 gal							
Duplicate collected?	N							
Sample collection by:	MAB	CO2-		Mn2-		Fe(T)-		Fe2-
Others present:	none	Well Condition:	good					

~~MW~~: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-20A
Location: Superior Terminal, WI	**Date:** 5/30/18
Project #: 49161419.00 100 102	**Sample Time:** 1700

GENERAL DATA		STABILIZATION TEST						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	24.18	1625	6.48	1449	7.12	138.0	1.06	
Static water level *(ft.)*:*	5.28							
Water depth *(ft.)*:*	18.9							
Well volume *(gal.)*:	3.1							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear → light pink						
Duration *(hh:mm:ss)*:		Sample Appearance: light pink						
Rate, gpm:		Comments: slight effervescences						
Volume, purged: *(note units)*	dry @ 8 gal							
Duplicate collected?	no							
Sample collection by: MAB		CO2- Mn2- Fe(T)- Fe2-						

Others present: none

Well Condition: good

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-20B
Location: Superior Terminal, WI	**Date:** 5/30/18
Project #: 49161419.00 100 102	**Sample Time:** 1745

GENERAL DATA		STABILIZATION TEST						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	60.16	1700	6.95	480	7.39	134.5	2.23	
Static water level *(ft.)*:*	17.04							
Water depth *(ft.)*:*	43.12							
Well volume *(gal.)*:	7.02							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear → light pink						
Duration *(hh:mm:ss)*:		Sample Appearance: light pink						
Rate, gpm:		Comments: foamy water						
Volume, purged: *(note units)*	dry @ 9.5							
Duplicate collected?	no							
Sample collection by:	MAB	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present: none

Well Condition: good

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-21A
Location: Superior Terminal, WI	**Date:** 5/30/18
Project #: 49161419.00 100 102	**Sample Time:** 1130

GENERAL DATA		**STABILIZATION TEST**						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	24.55	1105	6.58	1595	7.00	268.8	2.92	
Static water level *(ft.)*:*	4.11							
Water depth *(ft.)*:*	20.44							
Well volume *(gal.)*:	3.3							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear → light gray						
Duration *(hh:mm:ss)*:		Sample Appearance: light gray						
Rate, gpm:		Comments: many pink flakes on water surface						
Volume, purged: *(note units)*	dry @ 8.5 gal							
Duplicate collected?	Dup-2							
Sample collection by:	(MAB)	CO2-		Mn2-		Fe(T)-		Fe2-
Others present:	none	Well Condition:		great - minor rust				

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene – 6

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-21B
Location: Superior Terminal, WI	**Date:** 5/30/18
Project #: 49161419.00 100 102	**Sample Time:** 12:15

GENERAL DATA		STABILIZATION TEST						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	60.65	1135	6.82	645	7.39	249.4	2.30	
Static water level *(ft.)*:*	17.81							
Water depth *(ft.)*:*	42.84							
Well volume *(gal.)*:	7.0							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear → grey/pink						
Duration *(hh:mm:ss)*:		Sample Appearance: grey/pink						
Rate, gpm:		Comments: ~~Waxy pink flakes in water surface~~						
Volume, purged: *(note units)*	~~do C~~ 11 gal							
Duplicate collected?	~~Yes~~ ~~Dup-2~~							
Sample collection by:	MAB	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present: none	Well Condition: good, min rust

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene ~~6~~ 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-22B
Location: Superior Terminal, WI	**Date:** 5/30/18
Project #: 49161419.00 100 102	**Sample Time:** 1345

GENERAL DATA		STABILIZATION TEST						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	57.70'	1315	7.54	955	7.17	-31	0.34	
Static water level *(ft.)*:*	17.91							
Water depth *(ft.)*:*	39.79							
Well volume *(gal.)*:	6.5							
Purge method:	Bailer							
Sample method:	Bailer							

Start time *(hh:mm:ss)*:	Odor: none detected
Stop time *(hh:mm:ss)*:	Purge Appearance: clear → dark pink
Duration *(hh:mm:ss)*:	Sample Appearance: dark pink
Rate, gpm:	Comments: VSI @ 17.4m
Volume, purged: *(note units)*	dry @ 9.5 gal Orange apparent algae slime on water level probe
Duplicate collected?	no
Sample collection by: MAB	CO2- Mn2- Fe(T)- Fe2-

Others present: none

Well Condition: good

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene - 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-23B
Location: Superior Terminal, WI	**Date:** 5/31/18
Project #: 49161419.00 100 102	**Sample Time:** 1745

GENERAL DATA		STABILIZATION TEST						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	58.27	1700	7.06	789	7.45	270.7	1.35	
Static water level *(ft.)*:*	7.90							
Water depth *(ft.)*:*								
Well volume *(gal.)*:								
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear → peach						
Duration *(hh:mm:ss)*:		Sample Appearance: light peach						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	dry @ 10 gal							
Duplicate collected?	no							
Sample collection by: MAB		CO2- Mn2- Fe(T)- Fe2-						
Others present: none		Well Condition: good						

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene - 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-24A
Location: Superior Terminal, WI	**Date:** 5/31/18
Project #: 49161419.00 100 102	**Sample Time:** 0945

GENERAL DATA		STABILIZATION TEST						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	19.03'	0915	5.72	806	6.92	221.0	1.86	
Static water level *(ft.)*:*	4.51							
Water depth *(ft.)*:*	14.52							
Well volume *(gal.)*:	2.4							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: gray → pink						
Duration *(hh:mm:ss)*:		Sample Appearance: light pink						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	Dry @ 6 gal							
Duplicate collected?	Dup-3							
Sample collection by:	MAB	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present: none — Well Condition: good

MW: groundwater monitoring well — WS: water supply well — SW: surface water — SE: sediment — other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene – 6

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-24B
Location: Superior Terminal, WI	**Date:** 5/31/18
Project #: 49161419.00 100 102	**Sample Time:** 1030

GENERAL DATA		STABILIZATION TEST						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	49.35'	0940	7.43	669	7.40	156.7	0.56	
Static water level *(ft.)*:*	10.82							
Water depth *(ft.)*:*	38.53							
Well volume *(gal.)*:	6.3							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: gray → pink						
Duration *(hh:mm:ss)*:		Sample Appearance: light pink						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	~~11~~ 12 gal							
Duplicate collected?	no							
Sample collection by:	MAB	CO2-		Mn2-		Fe(T)-		Fe2-
Others present:	none	Well Condition: good						

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene - 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-25A
Location: Superior Terminal, WI	**Date:** 5/31/18
Project #: 49161419.00 100 102	**Sample Time:** 1145

GENERAL DATA		**STABILIZATION TEST**						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	19.22	1115	6.52	827	7.23	~21.9	0.27	
Static water level *(ft.)*:*	2.99							
Water depth *(ft.)*:*	16.23							
Well volume *(gal.)*:	2.6							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: very turbid mud-brown						
Duration *(hh:mm:ss)*:		Sample Appearance: oily sheen						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	dry @ 4 gal							
Duplicate collected?	no							
Sample collection by:	MAB	CO2-		Mn2-		Fe(T)-		Fe2-
Others present:		Well Condition: good						

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-25B
Location: Superior Terminal, WI	**Date:** 5/31/18
Project #: 49161419.00 100 102	**Sample Time:** 1230

GENERAL DATA		STABILIZATION TEST						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	49.43	1145	7.18	379	7.57	197.0	4.81	
Static water level *(ft.)*:*	7.62							
Water depth *(ft.)*:*	41.81							
Well volume *(gal.)*:	6.8							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: very turbid med-brown						
Duration *(hh:mm:ss)*:		Sample Appearance: as above						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	dry @ 8 gal							
Duplicate collected?	no							
Sample collection by:	MAB	CO2-		Mn2-		Fe(T)-		Fe2-

Others present: none — Well Condition: good

MW: groundwater monitoring well — WS: water supply well — SW: surface water — SE: sediment — other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene- 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-26
Location: Superior Terminal, WI	**Date:** 5/31/18
Project #: 49161419.00 100 102	**Sample Time:** 1100

GENERAL DATA		**STABILIZATION TEST**						
~~Barr lock:~~ Enbridge lock	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	18.90'	1040	6.36	915	7.23	221.0	1.38	
Static water level *(ft.)*:*	7.65'							
Water depth *(ft.)*:*	11.25							
Well volume *(gal.)*:	1.8							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none detected						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear → pink						
Duration *(hh:mm:ss)*:		Sample Appearance: pink						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	dry @ 6 gal							
Duplicate collected?	no							
Sample collection by:	MAB	CO2-		Mn2-		Fe(T)-		Fe2-
Others present:	none	Well Condition: good						

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene – 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Fall 2018 Field Notes

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client:	Enbridge Energy	**Monitoring Point:**	MW-1
Location:	Superior Terminal, WI	**Date:**	11/15/18
Project #:	49161419.00 100 102	**Sample Time:**	0905

GENERAL DATA		**STABILIZATION TEST**						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	22.31		8.71	1074	6.73	223.6	3.05	
Static water level *(ft.)*:*	6.54							
Water depth *(ft.)*:*	15.77							
Well volume *(gal.)*:	2.6							
Purge method:	Bailer							
Sample method:	Bailer							

Start time *(hh:mm:ss)*:		Odor: none
Stop time *(hh:mm:ss)*:		Purge Appearance: clear colorless
Duration *(hh:mm:ss)*:		Sample Appearance: light pink, some sediment
Rate, gpm:		Comments:
Volume, purged: *(note units)* gal	7 - dry	
Duplicate collected?	no	
Sample collection by:	KMJ3	CO2- Mn2- Fe(T)- Fe2-

Others present: none

Well Condition: [illegible], rusty, had to use powdered graphite to undo lock

MW: groundwater monitoring well (circled) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene . 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-2
Location: Superior Terminal, WI	**Date:** 11/14/18
Project #: 49161419.00 100 102	**Sample Time:** 1320

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	27.19		7.59	1552	7.40	191.1	2.35	
Static water level *(ft.)*:*	3.30							
Water depth *(ft.)*:*	23.89							
Well volume *(gal.)*:	3.9							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none						
Stop time *(hh:mm:ss)*:		Purge Appearance: none						
Duration *(hh:mm:ss)*:		Sample Appearance: clear, some sediment at bottom						
Rate, gpm:		Comments: a few very small headspace bubbles						
Volume, purged: *(note units)*	9gal - Dry							
Duplicate collected?	no							
Sample collection by: KMJ3		CO2- Mn2- Fe(T)- Fe2-						

Others present: no

Well Condition: good, paint faised on well

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene - 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-5
Location: Superior Terminal, WI	**Date:** 11/15/18
Project #: 49161419.00 100 102	**Sample Time:** 1230

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	27.30		8.03	1220	7.38	205.3	6.71	
Static water level *(ft.)*:*	3.19							
Water depth *(ft.)*:*	24.11							
Well volume *(gal.)*:	3.9							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none						
Stop time *(hh:mm:ss)*:		Purge Appearance: light gray						
Duration *(hh:mm:ss)*:		Sample Appearance: light pink - possible sediment present						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	12 gal - dry							
Duplicate collected?	no							
Sample collection by:	KMJ3	CO2-		Mn2-		Fe(T)-		Fe2-
Others present:	none	Well Condition:	okay, rusty locks					

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** mw-53
Location: Superior Terminal, WI	**Date:** 11/15/18
Project #: 49161419.00 100 102	**Sample Time:** 1310

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	59.30 top of silt 59.79 bottom		6.96	782	7.50	209.1	3.25	
Static water level *(ft.)*:*	6.80							
Water depth *(ft.)*:*	50.5							
Well volume *(gal.)*:	8.2							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none						
Stop time *(hh:mm:ss)*:		Purge Appearance: light gray						
Duration *(hh:mm:ss)*:		Sample Appearance: light gray						
Rate, gpm:		Comments:						
Volume, purged: *(note units)* gal	10.5-dry							
Duplicate collected?	no							
Sample collection by:	KMJ3	CO2-		Mn2-		Fe(T)-		Fe2-

Others present: none — Well Condition: good

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-6
Location: Superior Terminal, WI	**Date:** 11/16/18
Project #: 49161419.00 100 102	**Sample Time:** 1600

GENERAL DATA	
Enbridge lock:	3382
Casing diameter *(in.)*:	2" PVC
Total well depth *(ft.)*:*	26.69
Static water level *(ft.)*:*	7.47
Water depth *(ft.)*:*	19.22
Well volume *(gal.)*:	3.1
Purge method:	Bailer
Sample method:	Bailer
Start time *(hh:mm:ss)*:	
Stop time *(hh:mm:ss)*:	
Duration *(hh:mm:ss)*:	
Rate, gpm:	
Volume, purged: *(note units)*	9.5 gal - dry
Duplicate collected?	N/O
Sample collection by:	KMJ3

STABILIZATION TEST

Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
1533	8.21	1521	7.23	149.4	5.94	

Odor: none

Purge Appearance: light pink

Sample Appearance: light pink

Comments:

CO2- Mn2- Fe(T)- Fe2-

Others present: none

Well Condition: okay, rusty lock

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW - 6B
Location: Superior Terminal, WI	**Date:** 11/16/18
Project #: 49161419.00 100 102	**Sample Time:** 1630

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	58.26	1540	8.16	842	7.50	146.6	3.13	
Static water level *(ft.)*:*	9.00							
Water depth *(ft.)*:*	49.26							
Well volume *(gal.)*:	8.0							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: None						
Stop time *(hh:mm:ss)*:		Purge Appearance: light pink / tan						
Duration *(hh:mm:ss)*:		Sample Appearance: light pink / tan						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	10.5 gal - dry							
Duplicate collected?	no							
Sample collection by: KMJ3		CO2- Mn2- Fe(T)- Fe2-						

Others present: None | Well Condition: good

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-10
Location: Superior Terminal, WI	**Date:** 11/16/18
Project #: 49161419.00 100 102	**Sample Time:** 1030

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	30.43	1006	8.22	2123	6.75	41.1	6.77	
Static water level *(ft.)*:*	5.24							
Water depth *(ft.)*:*	25.19							
Well volume *(gal.)*:	4.1							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear, colorless						
Duration *(hh:mm:ss)*:		Sample Appearance: clear, colorless						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	13 gal-dry							
Duplicate collected?	no							
Sample collection by: KMJ3		CO2- Mn2- Fe(T)- Fe2-						

Others present: none | Well Condition: good

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-11
Location: Superior Terminal, WI	**Date:** 11/16/18
Project #: 49161419.00 100 102	**Sample Time:** 1235

GENERAL DATA		STABILIZATION TEST							
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	18.18	1207	9.18	1918	6.90	-75.7	1.10	
Static water level *(ft.)*:*	8.09							
Water depth *(ft.)*:*	10.09							
Well volume *(gal.)*:	1.6							
Purge method:	Bailer							
Sample method:	Bailer							

Start time *(hh:mm:ss)*:		Odor: none
Stop time *(hh:mm:ss)*:		Purge Appearance: clear, colorless
Duration *(hh:mm:ss)*:		Sample Appearance: clear, colorless
Rate, gpm:		Comments: slight overturnce - lock is broken - won't lock again. I notified Craig.
Volume, purged: *(note units)*	4 gal dry	
Duplicate collected?	no	
Sample collection by:	KMJ3	CO2- Mn2- Fe(T)- Fe2-

Others present: none

Well Condition: Very rusty lock, faded paint

MW: groundwater monitoring well (circled) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-11B
Location: Superior Terminal, WI	**Date:** 11/16/18
Project #: 49161419.00 100 102	**Sample Time:** 1310

GENERAL DATA		STABILIZATION TEST						
		Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Enbridge lock:	3382							
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	57.52 top of casing / 55.50 surface	1218	7.45	751	7.45	-1.8	3.19	
Static water level *(ft.)*:*	24.70							
Water depth *(ft.)*:*	32.82							
Well volume *(gal.)*:	5.3							
Purge method:	Bailer							
Sample method:	Bailer							

Start time *(hh:mm:ss)*:		Odor: none
Stop time *(hh:mm:ss)*:		Purge Appearance: none
Duration *(hh:mm:ss)*:		Sample Appearance: light tan
Rate, gpm:		Comments:
Volume, purged: *(note units)*	8-gal dry	
Duplicate collected?	no	
Sample collection by:	KMJ3	CO2- Mn2- Fe(T)- Fe2-

Others present: none | Well Condition: very rusty lock, faded paint

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene – 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-12
Location: Superior Terminal, WI	**Date:** 11/19/18
Project #: 49161419.00 100 102	**Sample Time:** 1330

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	22.18	1222	7.75	1588	7.37	202.0	6.18	
Static water level *(ft.)*:*	4.64							
Water depth *(ft.)*:*	17.54							
Well volume *(gal.)*:	2.8							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear						
Duration *(hh:mm:ss)*:		Sample Appearance: light gray						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	5 gal - dry							
Duplicate collected?	no							
Sample collection by:	KMJ3	CO2-		Mn2-		Fe(T)-		Fe2-

Others present: none

Well Condition: good

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** mw14
Location: Superior Terminal, WI	**Date:** 11/14/18
Project #: 49161419.00 100 102	**Sample Time:** 1100

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	18.35		9.35	1205	7.11	201.9	4.11	
Static water level *(ft.)*:*	4.91							
Water depth *(ft.)*:*	13.44							
Well volume *(gal.)*:	2.19							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear, colorless						
Duration *(hh:mm:ss)*:		Sample Appearance: clear, colorless						
Rate, gpm:		Comments: some roots present when purged ~2in.						
Volume, purged: *(note units)*	7gal-dry							
Duplicate collected?	no							
Sample collection by: KMJ3		CO2- Mn2- Fe(T)- Fe2-						

Others present: no

Well Condition: good

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW15
Location: Superior Terminal, WI	**Date:** 11/14/18
Project #: 49161419.00 100 102	**Sample Time:** 1204

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	17.31		8.56	969	7.19	198.1	2.69	clear
Static water level *(ft.)*:*	2.91							
Water depth *(ft.)*:*	14.4							
Well volume *(gal.)*:	2.3							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear, colorless						
Duration *(hh:mm:ss)*:		Sample Appearance: clear, colorless						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	6 gal - dry							
Duplicate collected?	—							
Sample collection by:	KMJ3	CO2-		Mn2-		Fe(T)-		Fe2-

Others present: —

Well Condition: good

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-17
Location: Superior Terminal, WI	**Date:** 11/15/18
Project #: 49161419.00 100 102	**Sample Time:** 1105

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	17.49		8.43	1369	7.38	207.1	3.19	
Static water level *(ft.)*:*	3.88							
Water depth *(ft.)*:*	13.61							
Well volume *(gal.)*:	2.2							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear, colorless						
Duration *(hh:mm:ss)*:		Sample Appearance: clear colorless						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	4 gal dry							
Duplicate collected?	no							
Sample collection by:	KMJ3	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present: none

Well Condition: good

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-17B
Location: Superior Terminal, WI	**Date:** 11/15/18
Project #: 49161419.00 100 102	**Sample Time:** 1130

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	44.97		7.25	5.52	7.55	208.7	3.49	
Static water level *(ft.)*:*	20.10							
Water depth *(ft.)*:*	24.87							
Well volume *(gal.)*:	4.0							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear, colorless						
Duration *(hh:mm:ss)*:		Sample Appearance: clear, colorless						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	4.5 gal dry							
Duplicate collected?	NO							
Sample collection by: KMJ3		CO2- Mn2- Fe(T)- Fe2-						

Others present: none

Well Condition: good, faded paint

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** mw-18
Location: Superior Terminal, WI	**Date:** 11/15/18
Project #: 49161419.00 100 102	**Sample Time:** 1000

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	17.23		10.45	1176	7.59	201.3	7.15	
Static water level *(ft.)*:*	5.43							
Water depth *(ft.)*:*	11.8							
Well volume *(gal.)*:	1.9							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear, colorless						
Duration *(hh:mm:ss)*:		Sample Appearance: clear, colorless						
Rate, gpm:		Comments:						
Volume, purged: *(note units)* gal	4.5 - dry							
Duplicate collected?	yes + Dup-2							
Sample collection by:	KMJ3	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present: no	Well Condition: good

MW: groundwater monitoring well (circled) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -6

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** 19A
Location: Superior Terminal, WI	**Date:** 11/14/18
Project #: 49161419.00 100 102	**Sample Time:** 1455

GENERAL DATA	
Enbridge lock:	3382
Casing diameter *(in.)*:	2" PVC
Total well depth *(ft.)*:*	24.15
Static water level *(ft.)*:*	3.15
Water depth *(ft.)*:*	21.00
Well volume *(gal.)*:	3.4
Purge method:	Bailer
Sample method:	Bailer
Start time *(hh:mm:ss)*:	
Stop time *(hh:mm:ss)*:	
Duration *(hh:mm:ss)*:	
Rate, gpm:	
Volume, purged: *(note units)* gal	9 - Dry
Duplicate collected?	No
Sample collection by:	KMJ3

STABILIZATION TEST

Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
	8.08	772	7.39	315.3	1.48	

Odor: none

Purge Appearance: clear, colorless

Sample Appearance: clear, colorless

Comments: - plant chipping on well pad
- construction of new power transformer station ~ 50 ft from wells.

CO2- Mn2- Fe(T)- Fe2-

Others present: - 4-5 for construction - building power transformer nearby

Well Condition: good

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene - 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-19B
Location: Superior Terminal, WI	**Date:** 11/19/18
Project #: 49161419.00 100 102	**Sample Time:** 1540

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	59.93		7.23	256	7.50	205.7	1.19	
Static water level *(ft.)*:*	8.76							
Water depth *(ft.)*:*	51.17							
Well volume *(gal.)*:	8.3							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear, colorless						
Duration *(hh:mm:ss)*:		Sample Appearance: clear, colorless						
Rate, gpm:		Comments: construction site ~ 50 ft away						
Volume, purged: *(note units)*	11.5 gal - dry							
Duplicate collected?	no							
Sample collection by: KMJ3		CO2- Mn2- Fe(T)- Fe2-						

Others present: 4 star construction

Well Condition: good - rusty lock, faded & chipped paint

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-20A
Location: Superior Terminal, WI	**Date:** 11/16/18
Project #: 49161419.00 100 102	**Sample Time:** 0900

GENERAL DATA	
Enbridge lock:	3382
Casing diameter *(in.)*:	2" PVC
Total well depth *(ft.)*:*	24.20
Static water level *(ft.)*:*	4.46
Water depth *(ft.)*:*	19.74
Well volume *(gal.)*:	3.2
Purge method:	Bailer
Sample method:	Bailer
Start time *(hh:mm:ss)*:	
Stop time *(hh:mm:ss)*:	
Duration *(hh:mm:ss)*:	
Rate, gpm:	
Volume, purged: *(note units)*	~9 gal-dry
Duplicate collected?	no
Sample collection by:	KMJ3

STABILIZATION TEST

Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
0918	8.07	1520	6.42	277.9	2.70	

Odor: none

Purge Appearance: clear, colorless

Sample Appearance: clear - light tan

Comments:

CO2- Mn2- Fe(T)- Fe2-

Others present: none

Well Condition: okay, had to use power surge tube

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene ✓3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-20B
Location: Superior Terminal, WI	**Date:** 11/16/18
Project #: 49161419.00 100 102	**Sample Time:** 0930

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	60.05	0838	7.15	497	7.47	239.9	2.78	
Static water level *(ft.)*:*	18.33							
Water depth *(ft.)*:*	41.72							
Well volume *(gal.)*:	6.8							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: None						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear, colorless						
Duration *(hh:mm:ss)*:		Sample Appearance: clear, colorless						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	9.5 gal dry							
Duplicate collected?	no							
Sample collection by:	KMJ3	CO2-		Mn2-		Fe(T)-		Fe2-

Others present: none

Well Condition: rusty locks

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-2117
Location: Superior Terminal, WI	**Date:** 11/16/18
Project #: 49161419.00 100 102	**Sample Time:** 1500

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	24.55	1358	7.37	1594	7.25	10.3	5.07	
Static water level *(ft.)*:*	3.89							
Water depth *(ft.)*:*	20.66							
Well volume *(gal.)*:	3.4							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear, colorless						
Duration *(hh:mm:ss)*:		Sample Appearance: clear, colorless						
Rate, gpm:	7.5-dwy ↓	Comments:						
Volume, purged: *(note units)* gal								
Duplicate collected?	Yes-Dup3							
Sample collection by: KMJ3		CO2- Mn2- Fe(T)- Fe2-						

Others present: no

Well Condition: good, murky + faded.

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene - 6

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-21B
Location: Superior Terminal, WI	**Date:** 11/16/18
Project #: 49161419.00 100 102	**Sample Time:** 1440

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	61.60	1403	6.76	665	7.48	110.0	7.48	
Static water level *(ft.)*:*	18.90							
Water depth *(ft.)*:*	42.7							
Well volume *(gal.)*:	6.9							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: None						
Stop time *(hh:mm:ss)*:		Purge Appearance: clear, colorless						
Duration *(hh:mm:ss)*:		Sample Appearance: clear, colorless						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	8 gal-dry							
Duplicate collected?	no							
Sample collection by:	KMJ3	CO2-		Mn2-		Fe(T)-		Fe2-

Others present: none	Well Condition: good, rusty + faded

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-22B
Location: Superior Terminal, WI	**Date:** 11/16/18
Project #: 49161419.00 100 102	**Sample Time:** 1130

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	57.74 top of silt 58.30 bottom	1058	7.62	988	7.29	-53.6	0.72	
Static water level *(ft.)*:*	17.93							
Water depth *(ft.)*:*	39.81							
Well volume *(gal.)*:	6.5							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none						
Stop time *(hh:mm:ss)*:		Purge Appearance: pink / grey						
Duration *(hh:mm:ss)*:		Sample Appearance: pink / grey						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	10 gal - dry							
Duplicate collected?	no							
Sample collection by: KMJ3		CO2- Mn2- Fe(T)- Fe2-						

Others present: no — Well Condition: good

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-23B
Location: Superior Terminal, WI	**Date:** 11/15/18
Project #: 49161419.00 100 102	**Sample Time:** 1415

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	57.30		6.99	855	7.49	206.8	2.50	
Static water level *(ft.)*:*	7.23							
Water depth *(ft.)*:*	50.07							
Well volume *(gal.)*:	8.16							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none						
Stop time *(hh:mm:ss)*:		Purge Appearance: tan						
Duration *(hh:mm:ss)*:		Sample Appearance: pink/tan - segment present						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	10.5 gal - DRY							
Duplicate collected?	no							
Sample collection by:	KMJ3	CO2-		Mn2-		Fe(T)-		Fe2-

Others present: none	Well Condition: good

MW: groundwater monitoring well (circled) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene - 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-24A
Location: Superior Terminal, WI	**Date:** 11/15/18
Project #: 49161419.00 100 102	**Sample Time:** 1530

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	19.05	1504	8.48	913	7.25	202.1	2.13	
Static water level *(ft.)*:*	3.85							
Water depth *(ft.)*:*	15.2							
Well volume *(gal.)*:	2.4							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none						
Stop time *(hh:mm:ss)*:		Purge Appearance: light gray						
Duration *(hh:mm:ss)*:		Sample Appearance: light gray						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	6 gal - dry							
Duplicate collected?	no							
Sample collection by: KMJ3		CO2- Mn2- Fe(T)- Fe2-						
Others present: none		Well Condition: good						

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-14B
Location: Superior Terminal, WI	**Date:** 11/15/18
Project #: 49161419.00 100 102	**Sample Time:** 1605

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	49.01	1515	7.55	713	7.73	202.2	1.48	
Static water level *(ft.)*:*	11.03							
Water depth *(ft.)*:*	37.98							
Well volume *(gal.)*:	6.2							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none						
Stop time *(hh:mm:ss)*:		Purge Appearance: light grey						
Duration *(hh:mm:ss)*:		Sample Appearance: light grey						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	10.5 gal							
Duplicate collected?	no							
Sample collection by:	KMJ3	CO2-		Mn2-		Fe(T)-		Fe2-

Others present: none

Well Condition: good

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene - 3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-25A
Location: Superior Terminal, WI	**Date:** 11/19/18
Project #: 49161419.00 100 102	**Sample Time:** 1220

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	19.22	1207	9.42	922	7.33	184.5	4.76	
Static water level *(ft.)*:*	3.59							
Water depth *(ft.)*:*	15.63							
Well volume *(gal.)*:	2.5							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none						
Stop time *(hh:mm:ss)*:		Purge Appearance: very turbid - ~~tan~~ reddish tan						
Duration *(hh:mm:ss)*:		Sample Appearance: reddish tan						
Rate, gpm:		Comments: very turbid						
Volume, purged: *(note units)*	4 gal - dry							
Duplicate collected?	no							
Sample collection by:	KMJ3	CO2-		Mn2-		Fe(T)-		Fe2-

Others present: none

Well Condition: good

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** MW-25B
Location: Superior Terminal, WI	**Date:** 11/19/18
Project #: 49161419.00 100 102	**Sample Time:** 1245

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	49.45	1213	7.20	411	7.32	176.1	3.16	
Static water level *(ft.)*:*	8.69							
Water depth *(ft.)*:*	40.76							
Well volume *(gal.)*:	6.6							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor: none						
Stop time *(hh:mm:ss)*:		Purge Appearance: reddish brown, very turbid						
Duration *(hh:mm:ss)*:		Sample Appearance: reddish brown, very turbid						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	8 gal - dry							
Duplicate collected?	no							
Sample collection by:	KMJ3	CO2-		Mn2-		Fe(T)-		Fe2-

Others present: none

Well Condition: good

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -3

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Well Sampling/Stabilization Data Sheet

Client: Enbridge Energy	**Monitoring Point:** mw-26
Location: Superior Terminal, WI	**Date:** 11/19/18
Project #: 49161419.00 100 102	**Sample Time:** 1145

GENERAL DATA		STABILIZATION TEST						
Enbridge lock:	3382	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter *(in.)*:	2" PVC							
Total well depth *(ft.)*:*	18.92	1130	9.45	1035	7.14	193.0	2.36	
Static water level *(ft.)*:*	6.90							
Water depth *(ft.)*:*	12.02							
Well volume *(gal.)*:	1.9							
Purge method:	Bailer							
Sample method:	Bailer							
Start time *(hh:mm:ss)*:		Odor:						
Stop time *(hh:mm:ss)*:		Purge Appearance: turbid - tan						
Duration *(hh:mm:ss)*:		Sample Appearance: tan / light pink						
Rate, gpm:		Comments:						
Volume, purged: *(note units)*	5.5 gal - dry							
Duplicate collected?	Yes - dup-1							
Sample collection by:	KMJ3	CO2-	Mn2-	Fe(T)-	Fe2-			
Others present: none		Well Condition: good						

(MW: groundwater monitoring well) WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: PVOC + Naphthalene -6

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Appendix D

Private Well Memo

resourceful. naturally.
engineering and environmental consultants

BARR

June 29, 2018

Mr. Karl F. Beaster, PG
Sr. Environmental Advisor
Enbridge Energy Environment Department
26 East Superior Street, Suite 309
Duluth, Minnesota 55802

Sent Via Email

Re: Potable Well Sampling Results – Superior Terminal
Midwest Region Groundwater Monitoring Program – 2018

Dear Mr. Beaster:

On May 29, 2018, Barr Engineering Co. completed potable well sampling at the referenced location. Prior to sample collection at the spigot next to the pressure tank, water was purged for approximately 25 minutes at PW-1 and 19 minutes at PW-2 to allow for the potable well to cycle. Prior to sample collection at the outside spigot, water was purged for approximately 12 minutes at PW-3 to allow for the potable well to cycle. A water sample was then collected from each well into laboratory supplied containers and submitted to Pace Analytical, Minneapolis, MN, for chemical analyses of benzene, toluene, ethylbenzene, xylenes (BTEX), iron, chloride, and pH, nitrate, and total and fecal coliform. A copy of the analytical laboratory reports are attached.

Superior Terminal – Sampled May 29, 2018

		Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	Chloride (mg/L)	Iron (mg/L)	Nitrate as N (mg/L)	Total Coliform	Fecal Coliform as E. coli	pH
Results	PW-1	<1.0	<1.0	<1.0	<3.0	72.7	**0.442**	<0.020	Absent	Absent	**8.8**
	PW-2	<1.0	<1.0	<1.0	<3.0	108	**0.153**	<0.020	Absent	Absent	**9.0**
	PW-3	<1.0	<1.0	<1.0	<3.0	59.5	**1.200**	<0.020	Absent	Absent	**9.1**
Criteria	NR 140 ES	5	800	700	2,000	250	0.3	10	--	--	--
	NR 140 PAL	0.5	140	160	400	125	0.15	2	--	--	--
	EPA Primary DW	5	1000	700	10,000	--	--	10	Pos/Neg	0	--
	EPA Secondary DW	--	--	--	--	250	0.3	--	--	--	6.5-8.5

-- = No standard established.

If you have any questions or require additional information, please contact me at (218) 529-7133 or Lynette Carney at (218) 529-7141.

Sincerely,
Barr Engineering Co.

Kaitlin Johnson
Geologist

Enclosure: Analytical Laboratory Reports

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 742-1042

June 18, 2018

Lynnette Carney
Barr Engineering
325 S Lake Ave
Duluth, MN 55802

RE: Project: GMP Superior Terminal
Pace Project No.: 12109232

Dear Lynnette Carney:
Enclosed are the analytical results for sample(s) received by the laboratory on May 29, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Melisa M Woods
melisa.woods@pacelabs.com
(218)735-6700
Project Manager

Enclosures

cc: Accounts Payable, Barr Engineering

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 742-1042

CERTIFICATIONS

Project: GMP Superior Terminal
Pace Project No.: 12109232

Minnesota Certification IDs

1700 Elm Street SE, Suite 200, Minneapolis, MN 55414-2485
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #:MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: MN00064
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon NwTPH Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DW Certification #: 9952 C
West Virginia DEP Certification #: 382
Wisconsin Certification #: 999407970

Virginia Minnesota Certification ID's

315 Chestnut Street, Virginia, MN 55792
Alaska Certification UST-107
Montana Certificate #CERT0103
California Certification #2973
Alaska Certification UST-107
California Certification #2973
Alaska Certification #MN01084
Arizona Department of Health Certification #AZ0785
Minnesota Dept of Health Certification #: 027-137-445
North Dakota Certification: # R-203
Wisconsin DNR Certification # : 998027470
WA Department of Ecology Lab ID# C1007
Nevada DNR #MN010842018-1
Oklahoma Department of Environmental Quality
California Certification #2973

Duluth Minnesota Cerification ID's

4730 Oneota St., Duluth, MN 55807
Montana DHHS Certification #: CERT0102
Minnesota Dept of Health Certification #: 1420586
Nevada DCNR Certification #: MN000372018-1
Wisconsin DNR Certification # : 999446800
North Dakota Certification #: R-105

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 742-1042

SAMPLE SUMMARY

Project: GMP Superior Terminal
Pace Project No.: 12109232

Lab ID	Sample ID	Matrix	Date Collected	Date Received
12109232001	**PW-1**	Water	05/29/18 12:10	05/29/18 15:00
12109232002	**PW-2**	Water	05/29/18 11:30	05/29/18 15:00
12109232003	**PW-3**	Water	05/29/18 10:30	05/29/18 15:00
12109232004	**Trip Blank**	Water	05/29/18 00:00	05/29/18 15:00

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SAMPLE ANALYTE COUNT

Project: GMP Superior Terminal
Pace Project No.: 12109232

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
12109232001	**PW-1**	EPA 353.2 rev. 2 (1993)	AXP	1	PASI-DUL
		SM 4500-H+B (1996)	DW1	1	PASI-DUL
		SM 4500-Cl E (1997)	BT1	1	PASI-DUL
		SM 9223B (1997)	DV1	2	PASI-DUL
		EPA 200.7	MAR	1	PASI-V
		EPA 8260B	MJD	7	PASI-M
12109232002	**PW-2**	EPA 353.2 rev. 2 (1993)	AXP	1	PASI-DUL
		SM 4500-H+B (1996)	DW1	1	PASI-DUL
		SM 4500-Cl E (1997)	BT1	1	PASI-DUL
		SM 9223B (1997)	DV1	2	PASI-DUL
		EPA 200.7	MAR	1	PASI-V
		EPA 8260B	MJD	7	PASI-M
12109232003	**PW-3**	EPA 353.2 rev. 2 (1993)	AXP	1	PASI-DUL
		SM 4500-H+B (1996)	DW1	1	PASI-DUL
		SM 4500-Cl E (1997)	BT1	1	PASI-DUL
		SM 9223B (1997)	DV1	2	PASI-DUL
		EPA 200.7	MAR	1	PASI-V
		EPA 8260B	MJD	7	PASI-M
12109232004	**Trip Blank**	EPA 8260B	MJD	7	PASI-M

Pace Analytical Services, LLC
315 Chestnut Street
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(218) 742-1042

ANALYTICAL RESULTS

Project: GMP Superior Terminal
Pace Project No.: 12109232

Sample: PW-1 **Lab ID: 12109232001** Collected: 05/29/18 12:10 Received: 05/29/18 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrate + Nitrite pres.	Analytical Method: EPA 353.2 rev. 2 (1993)								
Nitrate as N	ND	mg/L	0.020	0.0047	1		06/08/18 09:51	14797-55-8	
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B (1996)								
pH at 25 Degrees C	**8.8**	Std. Units	0.10	0.10	1		06/01/18 09:52		H6
SM4500Cl-E Chloride	Analytical Method: SM 4500-Cl E (1997)								
Chloride	**72.7**	mg/L	6.0	0.77	1		05/30/18 12:28	16887-00-6	
Colilert Coliform 18Hr	Analytical Method: SM 9223B (1997) Preparation Method: SM 9223B (1997)								
Total Coliforms	**Absent**		1.0	1.0	1	05/29/18 17:00	05/30/18 11:30		
E.coli, Bacteria	**Absent**		1.0	1.0	1	05/29/18 17:00	05/30/18 11:30		
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Iron	**442**	ug/L	50.0	5.9	1	05/31/18 14:17	06/06/18 16:03	7439-89-6	
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	ND	ug/L	1.0	0.10	1		06/05/18 15:43	71-43-2	
Ethylbenzene	ND	ug/L	1.0	0.14	1		06/05/18 15:43	100-41-4	
Toluene	ND	ug/L	1.0	0.083	1		06/05/18 15:43	108-88-3	
Xylene (Total)	ND	ug/L	3.0	0.31	1		06/05/18 15:43	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	103	%.	75-125		1		06/05/18 15:43	17060-07-0	
Toluene-d8 (S)	96	%.	75-125		1		06/05/18 15:43	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	75-125		1		06/05/18 15:43	460-00-4	

Sample: PW-2 **Lab ID: 12109232002** Collected: 05/29/18 11:30 Received: 05/29/18 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrate + Nitrite pres.	Analytical Method: EPA 353.2 rev. 2 (1993)								
Nitrate as N	ND	mg/L	0.020	0.0047	1		06/08/18 09:54	14797-55-8	
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B (1996)								
pH at 25 Degrees C	**9.0**	Std. Units	0.10	0.10	1		06/01/18 09:51		H6
SM4500Cl-E Chloride	Analytical Method: SM 4500-Cl E (1997)								
Chloride	**108**	mg/L	6.0	0.77	1		05/30/18 12:29	16887-00-6	
Colilert Coliform 18Hr	Analytical Method: SM 9223B (1997) Preparation Method: SM 9223B (1997)								
Total Coliforms	**Absent**		1.0	1.0	1	05/29/18 17:00	05/30/18 11:30		
E.coli, Bacteria	**Absent**		1.0	1.0	1	05/29/18 17:00	05/30/18 11:30		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 742-1042

ANALYTICAL RESULTS

Project: GMP Superior Terminal
Pace Project No.: 12109232

Sample: PW-2 **Lab ID: 12109232002** Collected: 05/29/18 11:30 Received: 05/29/18 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Iron	**153**	ug/L	50.0	5.9	1	05/31/18 14:17	06/06/18 16:41	7439-89-6	
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	ND	ug/L	1.0	0.10	1		06/06/18 03:40	71-43-2	
Ethylbenzene	ND	ug/L	1.0	0.14	1		06/06/18 03:40	100-41-4	
Toluene	ND	ug/L	1.0	0.083	1		06/06/18 03:40	108-88-3	
Xylene (Total)	ND	ug/L	3.0	0.31	1		06/06/18 03:40	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	104	%.	75-125		1		06/06/18 03:40	17060-07-0	
Toluene-d8 (S)	96	%.	75-125		1		06/06/18 03:40	2037-26-5	
4-Bromofluorobenzene (S)	101	%.	75-125		1		06/06/18 03:40	460-00-4	

Sample: PW-3 **Lab ID: 12109232003** Collected: 05/29/18 10:30 Received: 05/29/18 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrate + Nitrite pres.	Analytical Method: EPA 353.2 rev. 2 (1993)								
Nitrate as N	ND	mg/L	0.020	0.0047	1		06/08/18 09:55	14797-55-8	
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B (1996)								
pH at 25 Degrees C	**9.1**	Std. Units	0.10	0.10	1		06/01/18 09:49		H6
SM4500Cl-E Chloride	Analytical Method: SM 4500-Cl E (1997)								
Chloride	**59.5**	mg/L	6.0	0.77	1		05/30/18 12:30	16887-00-6	
Colilert Coliform 18Hr	Analytical Method: SM 9223B (1997) Preparation Method: SM 9223B (1997)								
Total Coliforms	**Absent**		1.0	1.0	1	05/29/18 17:00	05/30/18 11:30		
E.coli, Bacteria	**Absent**		1.0	1.0	1	05/29/18 17:00	05/30/18 11:30		
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Iron	**1200**	ug/L	50.0	5.9	1	05/31/18 14:17	06/06/18 16:24	7439-89-6	
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	ND	ug/L	1.0	0.10	1		06/06/18 03:58	71-43-2	
Ethylbenzene	ND	ug/L	1.0	0.14	1		06/06/18 03:58	100-41-4	
Toluene	ND	ug/L	1.0	0.083	1		06/06/18 03:58	108-88-3	
Xylene (Total)	ND	ug/L	3.0	0.31	1		06/06/18 03:58	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	103	%.	75-125		1		06/06/18 03:58	17060-07-0	
Toluene-d8 (S)	96	%.	75-125		1		06/06/18 03:58	2037-26-5	
4-Bromofluorobenzene (S)	101	%.	75-125		1		06/06/18 03:58	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
315 Chestnut Street
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(218) 742-1042

ANALYTICAL RESULTS

Project: GMP Superior Terminal
Pace Project No.: 12109232

Sample: Trip Blank **Lab ID: 12109232004** Collected: 05/29/18 00:00 Received: 05/29/18 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	ND	ug/L	1.0	0.10	1		06/05/18 11:56	71-43-2	
Ethylbenzene	ND	ug/L	1.0	0.14	1		06/05/18 11:56	100-41-4	
Toluene	ND	ug/L	1.0	0.083	1		06/05/18 11:56	108-88-3	
Xylene (Total)	ND	ug/L	3.0	0.31	1		06/05/18 11:56	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	102	%.	75-125		1		06/05/18 11:56	17060-07-0	HS
Toluene-d8 (S)	95	%.	75-125		1		06/05/18 11:56	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	75-125		1		06/05/18 11:56	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 742-1042

QUALITY CONTROL DATA

Project: GMP Superior Terminal
Pace Project No.: 12109232

QC Batch: 144151 Analysis Method: SM 4500-H+B (1996)
QC Batch Method: SM 4500-H+B (1996) Analysis Description: 4500H+B pH Electrometric
Associated Lab Samples: 12109232001, 12109232002, 12109232003

LABORATORY CONTROL SAMPLE: 569227

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
pH at 25 Degrees C	Std. Units	7	7.0	101	98-102	H6

SAMPLE DUPLICATE: 569228

Parameter	Units	12109200001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.0	8.0	0	10	H6

SAMPLE DUPLICATE: 569229

Parameter	Units	12109406002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	5.3	5.2	1	10	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Virginia, MN 55792
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QUALITY CONTROL DATA

Project: GMP Superior Terminal
Pace Project No.: 12109232

QC Batch: 144007 Analysis Method: SM 4500-Cl E (1997)
QC Batch Method: SM 4500-Cl E (1997) Analysis Description: SM4500Cl-E Chloride
Associated Lab Samples: 12109232001, 12109232002, 12109232003

METHOD BLANK: 568600 Matrix: Water
Associated Lab Samples: 12109232001, 12109232002, 12109232003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	6.0	0.77	05/30/18 12:21	

LABORATORY CONTROL SAMPLE: 568599

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	120	119	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 568601 568602

Parameter	Units	12109118001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	ND	60	60	60.8	61.4	97	98	90-110	1	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Virginia, MN 55792
(218) 742-1042

QUALITY CONTROL DATA

Project: GMP Superior Terminal
Pace Project No.: 12109232

QC Batch: 144079 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 MET
Associated Lab Samples: 12109232001, 12109232002, 12109232003

METHOD BLANK: 568923 Matrix: Water
Associated Lab Samples: 12109232001, 12109232002, 12109232003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	ug/L	ND	50.0	5.9	06/06/18 15:47	

LABORATORY CONTROL SAMPLE: 568924

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	5000	5220	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 568925 568926

Parameter	Units	12109244001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	3950	5000	5000	8990	9050	101	102	70-130	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 568927 568928

Parameter	Units	12109232003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	1200	5000	5000	6410	6440	104	105	70-130	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 742-1042

QUALITY CONTROL DATA

Project: GMP Superior Terminal
Pace Project No.: 12109232

QC Batch: 542572 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 12109232001, 12109232004

METHOD BLANK: 2950370 Matrix: Water
Associated Lab Samples: 12109232001, 12109232004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	0.10	06/05/18 11:21	
Ethylbenzene	ug/L	ND	1.0	0.14	06/05/18 11:21	
Toluene	ug/L	ND	1.0	0.083	06/05/18 11:21	
Xylene (Total)	ug/L	ND	3.0	0.31	06/05/18 11:21	
1,2-Dichloroethane-d4 (S)	%.	104	75-125		06/05/18 11:21	
4-Bromofluorobenzene (S)	%.	98	75-125		06/05/18 11:21	
Toluene-d8 (S)	%.	96	75-125		06/05/18 11:21	

LABORATORY CONTROL SAMPLE: 2950371

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	22.4	112	75-126	
Ethylbenzene	ug/L	20	20.2	101	75-125	
Toluene	ug/L	20	19.3	97	74-125	
Xylene (Total)	ug/L	60	60.2	100	75-125	
1,2-Dichloroethane-d4 (S)	%.			101	75-125	
4-Bromofluorobenzene (S)	%.			101	75-125	
Toluene-d8 (S)	%.			96	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2950372 2950373

Parameter	Units	10433769001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	32.8	28.1	164	140	62-140	16	30	M1
Ethylbenzene	ug/L	ND	20	20	28.1	24.2	141	121	75-131	15	30	M1
Toluene	ug/L	ND	20	20	27.6	23.6	138	118	68-132	16	30	M1
Xylene (Total)	ug/L	ND	60	60	82.0	71.8	137	120	69-135	13	30	MS
1,2-Dichloroethane-d4 (S)	%.						103	101	75-125			
4-Bromofluorobenzene (S)	%.						99	99	75-125			
Toluene-d8 (S)	%.						96	95	75-125			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 742-1042

QUALITY CONTROL DATA

Project: GMP Superior Terminal
Pace Project No.: 12109232

QC Batch: 542682 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 12109232002, 12109232003

METHOD BLANK: 2950905 Matrix: Water
Associated Lab Samples: 12109232002, 12109232003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	0.10	06/05/18 23:17	
Ethylbenzene	ug/L	ND	1.0	0.14	06/05/18 23:17	
Toluene	ug/L	ND	1.0	0.083	06/05/18 23:17	
Xylene (Total)	ug/L	ND	3.0	0.31	06/05/18 23:17	
1,2-Dichloroethane-d4 (S)	%.	102	75-125		06/05/18 23:17	
4-Bromofluorobenzene (S)	%.	99	75-125		06/05/18 23:17	
Toluene-d8 (S)	%.	95	75-125		06/05/18 23:17	

LABORATORY CONTROL SAMPLE: 2950906

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	22.1	111	75-126	
Ethylbenzene	ug/L	20	20.4	102	75-125	
Toluene	ug/L	20	19.4	97	74-125	
Xylene (Total)	ug/L	60	60.3	100	75-125	
1,2-Dichloroethane-d4 (S)	%.			102	75-125	
4-Bromofluorobenzene (S)	%.			99	75-125	
Toluene-d8 (S)	%.			96	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2950907 2950908

Parameter	Units	10433549011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	22.4	23.4	112	117	62-140	4	30	
Ethylbenzene	ug/L	ND	20	20	20.4	21.6	102	108	75-131	6	30	
Toluene	ug/L	ND	20	20	19.7	20.4	98	101	68-132	3	30	
Xylene (Total)	ug/L	ND	60	60	59.8	63.9	100	107	69-135	7	30	
1,2-Dichloroethane-d4 (S)	%.						100	99	75-125			
4-Bromofluorobenzene (S)	%.						98	99	75-125			
Toluene-d8 (S)	%.						96	96	75-125			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 742-1042

QUALIFIERS

Project: GMP Superior Terminal
Pace Project No.: 12109232

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-DUL	Pace Analytical Services - Duluth
PASI-M	Pace Analytical Services - Minneapolis
PASI-V	Pace Analytical Services - Virginia

ANALYTE QUALIFIERS

H6	Analysis initiated outside of the 15 minute EPA required holding time.
HS	Results are from sample aliquot taken from VOA vial with headspace (air bubble greater than 6 mm diameter).
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
MS	Analyte recovery in the matrix spike was outside QC limits for one or more of the constituent analytes used in the calculated result.

Pace Analytical Services, LLC
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Virginia, MN 55792
(218) 742-1042

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: GMP Superior Terminal
Pace Project No.: 12109232

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
12109232001	**PW-1**	EPA 353.2 rev. 2 (1993)	144694		
12109232002	**PW-2**	EPA 353.2 rev. 2 (1993)	144694		
12109232003	**PW-3**	EPA 353.2 rev. 2 (1993)	144694		
12109232001	**PW-1**	SM 4500-H+B (1996)	144151		
12109232002	**PW-2**	SM 4500-H+B (1996)	144151		
12109232003	**PW-3**	SM 4500-H+B (1996)	144151		
12109232001	**PW-1**	SM 4500-Cl E (1997)	144007		
12109232002	**PW-2**	SM 4500-Cl E (1997)	144007		
12109232003	**PW-3**	SM 4500-Cl E (1997)	144007		
12109232001	**PW-1**	SM 9223B (1997)	143952	SM 9223B (1997)	143990
12109232002	**PW-2**	SM 9223B (1997)	143952	SM 9223B (1997)	143990
12109232003	**PW-3**	SM 9223B (1997)	143952	SM 9223B (1997)	143990
12109232001	**PW-1**	EPA 200.7	144079	EPA 200.7	144134
12109232002	**PW-2**	EPA 200.7	144079	EPA 200.7	144134
12109232003	**PW-3**	EPA 200.7	144079	EPA 200.7	144134
12109232001	**PW-1**	EPA 8260B	542572		
12109232002	**PW-2**	EPA 8260B	542682		
12109232003	**PW-3**	EPA 8260B	542682		
12109232004	**Trip Blank**	EPA 8260B	542572		

Barr Engineering Co. Chain of Custody

Sample Origination State: ☐ KS ☐ MO ☐ UT ☐ MI ☐ ND ☒ WI ☐ MN ☐ SD Other: ____

BARR ☐ Ann Arbor ☒ Duluth ☐ Hibbing ☐ Minneapolis ☐ Bismarck ☐ Grand Rapids ☐ Jefferson City ☐ Salt Lake City

WO#: 12109232

PM: MMW **Due Date: 06/12/18**

CLIENT: BARR

REPORT TO	INVOICE TO
Company: Barr Engineering	Company:
Address: 325 S. Lake Ave. Duluth	Address: -same-
Name: Lynette Carney	Name:
email: lcarney@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: GMP Superior Terminal	Barr Project No: 49/61419

WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Sample Depth Stop	Sample Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/(N)	Total Number Of Containers	Analysis Requested: Water: BTEX (EPA method 8260)	Water: total Fe (EPA method 200.7)	Water: Cl, NO3, pH	Water: TColi/EColi (9223B) colilert-P/A	Soi	% Solids	Preservative Code	Field Filtered Y/(N)	
									B	C	A	H					
									2	2	2	2					
1. PW-1	—	—	—	5/29/18	1210	DW	N	6	3	1	1	1					BTEX (EPA 8260);
2. PW-2	—	—	—	5/29/18	1130	DW			↓	↓	↓	↓					total Fe (EPA 200.7);
3. PW-3	—	—	—	5/29/18	1030	DW			↓	↓	↓	↓					TColi/EColi (9223B) colilert-P/A
4. Trip Blank	—	—	—	—	—	—	↓	2	2								Cl, NO3, pH
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

BARR USE ONLY						
Sampled by: KMJ3	Relinquished by:	On Ice? (Y) N	Date 5/29/18	Time 1500	Received by:	Date 5/29/18	Time 15:00
Barr Proj. Manager: LMC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager: JET	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:		Air Bill Number:		Requested Due Date: ☒ Standard Turn Around Time ☐ Rush ____ (mm/dd/yyyy)	
Lab Name: Pace						
Lab Location:	Lab WO:	Temperature on Receipt (°C): 1.5	Custody Seal Intact? ☐ Y ☐ N ☒ None			

Distribution - White-Original: Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custodv Form 2015 RLG Rev. 01/02/18

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 7Mar2018 Page 1 of 1
	Document No.: F-DUL-C-001-rev.05	Issuing Authority: Pace Duluth Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: BARR ENGINEERING

Project #: **WO#: 12109232**

PM: MMW Due Date: 06/12/18

CLIENT: BARR

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☑ Client ☐ Commercial ☐ Pace ☐ Other:

Tracking Number:

Custody Seal on Cooler/Box Present? ☐ Yes ☑ No Seals Intact? ☐ Yes ☐ No Optional: Proj. Due Date: Proj. Name:

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other: Temp Blank? ☑ Yes ☐ No

Thermometer Used: ☐ 01339252/1710 ☑ IR-1 Type of Ice: ☑ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read °C: 2.0 Cooler Temp Corrected °C: 1.5 Biological Tissue Frozen? ☐ Yes ☐ No ☑ NA

Temp should be above freezing to 6°C Correction Factor: -0.5 Date and Initials of Person Examining Contents: 5/29/18 AP

If temperature is ≤0°C, is there evidence of ice formation? ☐ Yes ☐ No ☑ NA

				Comments:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5. If Fecal: ☐ <8 hours ☐ >8, <24 hours ☐ >24 hours
Short Hold Time Analysis (<72 hr)?	☑ Yes	☐ No	☐ N/A	6. E-COLI, pH
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	7.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	12.
-Includes Date/Time/ID/Analysis Matrix: WT				
All containers needing acid/base preservation will be checked and documented in the pH logbook.	☐ Yes	☐ No	☐ N/A	See pH log for results and additional preservation documentation
Headspace in Methyl Mercury Container	☐ Yes	☐ No	☐ N/A	13.
Headspace in VOA Vials (>6mm)?	☐ Yes	☑ No	☐ N/A	14.
Trip Blank Present?	☐ Yes	☐ No	☐ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☐ N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION Field Data Required? ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

FECAL WAIVER ON FILE Y N TEMPERATURE WAIVER ON FILE Y N

Project Manager Review: Melissa Woods Date: 5/30/18

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)