Bristol
ENVIRONMENTAL
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# TECHNICAL MEMORANDUM

DATE: September 23, 2016
TO: Bob Egan, SME, EPA Region 5
FROM: Matt Faust, Project Manager
Bristol Environmental Remediation Services, LLC
RE: EPA Contract No. EP-W-12-009, Task Order (TO) 3012
Tower Standard Site, Lac du Flambeau Reservation, Wisconsin
August 2016 Site Investigation, Rev 0

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The U.S. Environmental Protection Agency (EPA) retained Bristol Environmental Remediation Services, LLC (Bristol) to prepare this technical memorandum (tech memo) under EPA Contract EP-W-12-009, Task Order (TO) 3012. This tech memo briefly summarizes site activities conducted in August 2016, at a leaking underground storage tank (LUST) site in Lac du Flambeau, Wisconsin, on the Lac du Flambeau (LDF) Reservation (Figure 1). The site is referred to as the Tower Standard Site.

Unless otherwise noted, all work was performed in compliance with the Quality Assurance Project Plan (Bristol, 2016a), Site Investigation Work Plan (Bristol, 2016b), and Site Safety and Health Plan (Bristol, 2016c).

Figures are included as Attachment 1, field notes and forms are included as Attachment 2, well construction diagrams are included as Attachment 3, tabulated laboratory analytical results are included as Attachment 4, the laboratory analytical report is included as Attachment 5, the data verification report is included as Attachment 6, and waste disposal paperwork is included as Attachment 7.

## SITE ACTIVITIES

On August 3, 2016 to August 5, 2016, Bristol subcontractor Coleman Engineering Company (CEC) installed two monitoring wells (MW-16E and MW-21M) using hollow stem auger drilling technology. In order to minimize issues with flowing sands, and because lithology at the site is relatively well established, CEC drilled to depth without collecting soil samples for lithology characterization or laboratory analysis. The wells were installed in monitoring well nests MW16 and MW21 (Figure 2), resulting in two monitoring well nests consisting of three monitoring wells each. Prior to the August 2016 activity, each monitoring well nest consisted of two monitoring wells.

The first well, MW-16E, was installed to a depth of 60 feet below the ground surface (bgs) and the screen was set from 55 to 60 feet bgs (Attachment 3). The second monitoring well, MW-21M, was installed near the MW-21 well nest to a depth of 30 feet bgs; the screen was set from 25 to 30 feet bgs based on consultation with the EPA Subject Matter Expert (Bob Egan) and LDF tribal representative (Kristen Hanson) who were both on site during the site activities.

Following installation, the two new monitoring wells were developed by CEC using a surge and purge technique.

On August 8 and 9, Bristol collected groundwater samples from all six monitoring wells in the MW-16 and MW-21 well nests (including the two new wells and four previously existing wells) using a bladder pump and low flow sampling techniques. Groundwater sampling forms are included in Attachment 2.

Bristol delivered the samples to Pace Analytical Services, Inc. (Pace) in Minneapolis, Minnesota, for analysis of volatile organic compounds (VOCs), ethylene dibromide (EDB), sulfate, sulfide, hydrogen sulfide, nitrate, nitrite and the eight Resource Conservation and

Recovery Act (RCRA) metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) plus iron and manganese. Groundwater sample information is presented in Table 1.

**Table 1 Laboratory Analytical Groundwater Sample Information**

| Date Collected | Time Collected | Well ID | Screen Depth (feet BTOC) | Sample ID |
|---|---|---|---|---|
| 8/8/2016 | 1055 | MW-16 | 1.4 - 11.4 | 1608TOWERMW16 |
| 8/8/2016 | 1300 | MW-16D | 37 – 42 | 1608TOWERMW16D |
| 8/8/2016 | 1330 | | | 1608TOWERMW18D† |
| 8/9/2016 | 0900 | MW-16E | 55 – 60 | 1608TOWERMW16E |
| 8/9/2016 | 1120 | MW-21 | 4.5 – 14.5 | 1608TOWERMW21 |
| 8/9/2016 | 1300 | MW-21M | 25 – 30 | 1608TOWERMW21M |
| 8/9/2016 | 1450 | MW-21D | 35 - 40 | 1608TOWERMW21D |

Notes:
† = indicates duplicate sample
BTOC = below the top of casing
ID = identification

All soil cuttings and well development and purge water were containerized in 55-gallon drums (four soil drums and 11 water drums) and temporarily staged behind the bait shop (former service station building) located on the site. On August 8, the property owner contacted the EPA to inform them that the drums had been placed on top of a shallow septic system and to request that the drums be moved as soon as possible. Bristol contracted with SGS Environmental Contracting, LLC (SGS) of Merrill, Wisconsin, to transport the drums off site for proper disposal. SGS mobilized to the site on August 9 and transported the drums to their facility to await analytical results. Once analytical results were received, SGS disposed of the soil drums at the Lincoln County Landfill in Merrill. The drums of purge and development water are still staged at SGS's facility along with waste from other projects; once SGS has accumulated sufficient aqueous waste, they will arrange for Covanta

Environmental Solutions of Winneconne, Wisconsin, to dispose of the purge and development water. Waste disposal paperwork for the soil drums is included as Attachment 7.

## RESULTS

Select groundwater analytical results are presented on Figure 3 in Attachment 1. Full analytical results are summarized on the table included as Attachment 4, the laboratory analytical report is included as Attachment 5, and the data verification report is included as Attachment 6.

The primary evaluation criteria to which groundwater results were compared were the LDF Tribe's Groundwater Cleanup Standards (LDF, 2008). For analytes for which LDF Groundwater Cleanup Standards are not established, results were compared to EPA Maximum Contaminant Levels (MCLs) established by the Safe Drinking Water Act (EPA, 1974). Preventative Action Limits established by Wisconsin Administrative Code are also presented on figures and tables, for reference purposes only.

Groundwater samples collected in August 2016 exceeded evaluation criteria for benzene, ethylbenzene, naphthalene, toluene, and total trimethylbenzenes.

Benzene was detected in samples collected from all six wells, ranging in concentration from an estimated 0.75 micrograms per liter (µg/L) at MW-16 to 2,150 µg/L at MW-21M. Benzene exceeded evaluation criteria (5 µg/L) in samples collected from five of the six wells (MW-16D, MW-16E, MW-21, MW-21M, and MW-21D).

Ethylbenzene was detected in samples collected from five of the six wells, ranging in concentration from 8.1 µg/L at MW-21D to 1,700 µg/L at MW-21. Ethylbenzene exceeded evaluation criteria (700 µg/L) in samples collected from two of the six wells (MW-21 and MW-21M).

Naphthalene was detected in samples collected from five of the six wells, ranging in concentration from 4.9 µg/L at MW-21D to 703 µg/L at MW-21. Naphthalene exceeded evaluation criteria (40 µg/L) in samples collected from three of the six wells (MW-16D, MW-21, and MW-21M).

Toluene was detected in samples collected from five of the six wells, ranging in concentration from 6.1 µg/L at MW-16E to 3,280 µg/L at MW-21. Toluene exceeded evaluation criteria (1,000 µg/L) in samples collected from two of the six wells (MW-21 and MW-21M).

Trimethylbenzenes were detected in samples collected from five of the six wells. Total trimethylbenzenes ranged in concentration from 38.8 µg/L at MW-21D to 3,664 µg/L at MW-21. Total trimethylbenznes exceeded evaluation criteria (480 µg/L) in samples collected from two of the six wells (MW-21 and MW-21M).

## NATURE AND EXTENT OF CONTAMINATION

The groundwater flow direction at the site is generally towards the south-southeast (at the water table) or south-southwest (at depth) (Bristol, 2016d).

As only wells from the MW-16 and MW-21 well nests were sampled in August 2016, it is difficult to make conclusions regarding the lateral extent of groundwater contamination that exceeds evaluation criteria. However, historically samples collected from the MW-17, MW-18, and MW-22 wells nests have been below evaluation criteria, thus the extent of contamination towards the northwest (cross gradient) is fairly well defined. The extent of contamination to the northeast (up-gradient), east (cross gradient), and south (down gradient) remains poorly defined.

At the MW-21 well nest, contaminant concentrations were generally highest in samples collected from MW-21 (screened across the water table from 4.5 to 14.5 feet bgs), followed

by MW-21M (screened from 25 to 30 feet bgs), and lowest in samples collected from MW-21D (the deepest well, screened from 35 to 40 feet bgs). A notable exception to this distribution is benzene, which was detected at the highest concentration in the sample collected from MW-21M and the lowest in the sample collected from MW-21D.

At the MW-16 well nest, contaminant concentrations were generally highest in samples collected from MW-16D (the middle depth well, screened from 37 to 42 feet bgs), followed by MW-16E (screened from 55 to 60 feet bgs), and lowest in samples collected from MW-16 (screened across the water table from 1.4 to 11.4 feet bgs).

Though they were not sampled in August 2016, during previous sampling events at the MW-19 and MW-20 well nests, contaminant concentrations have been higher in the wells screened at depth (35 to 40 and 20 to 25 feet bgs, respectively) than in shallow wells screened across the water table.

## RECOMMENDATIONS

The State of Wisconsin's Petroleum Environmental Cleanup Fund Award (PECFA) contractor performed a membrane interface probe/hydraulic profiling tool (MiHpt) investigation at the site between July 11 and 14, 2016. The LDF Tribe performed a laser-induced fluorescence (LIF) investigation at the site on September 7 and 8, 2016. Bristol has contracted with $S_2C_2$, Inc. of Raritan, New Jersey, to generate a three-dimensional model of the contaminant plume at the site, incorporating data collected during the MiHPT and LIF investigations, as well as soil and groundwater analytical data. Bristol is currently preparing another technical memorandum that will present the results of the modeling activities, as well as recommendations for remedial activities for the site.

Additional site characterization is also recommended for this site. The northern, eastern, and southern extents of the groundwater plume are poorly defined at this time. The results of the

MiHpt study may help define the plume, though it is presumed that a number of additional monitoring wells will be required. Given the nature of the "diving" groundwater plume at the site, well nests should be installed with wells (at least two) screened at multiple depths.

It is likely not possible to define the down gradient extent of the groundwater plume with permanent monitoring wells, as the plume has been shown to extend at least to the shore of Haskell Lake. Potential impacts to Haskell Lake can be investigated by collected pore water samples in the lake sediment. It is recommended that this work be performed in the winter when ice thickness is sufficient to support drilling equipment.

## REFERENCES

Bristol Environmental Remediation Services, LLC (Bristol). (2016a). Quality Assurance Project Plan. Revision 0. LUST Sites in Indian Country, EPA Region 5: EPA.

Bristol. (2016b). Site Investigation Work Plan, Tower Standard LUST Site. Revision 1. Task Order 3012. Lac du Flambeau Reservation: EPA.

Bristol. (2016c). Site Safety and Health Plan, Tower Standard LUST Site. Revision 1. Task Order 3012. Lac du Flambeau Reservation: EPA.

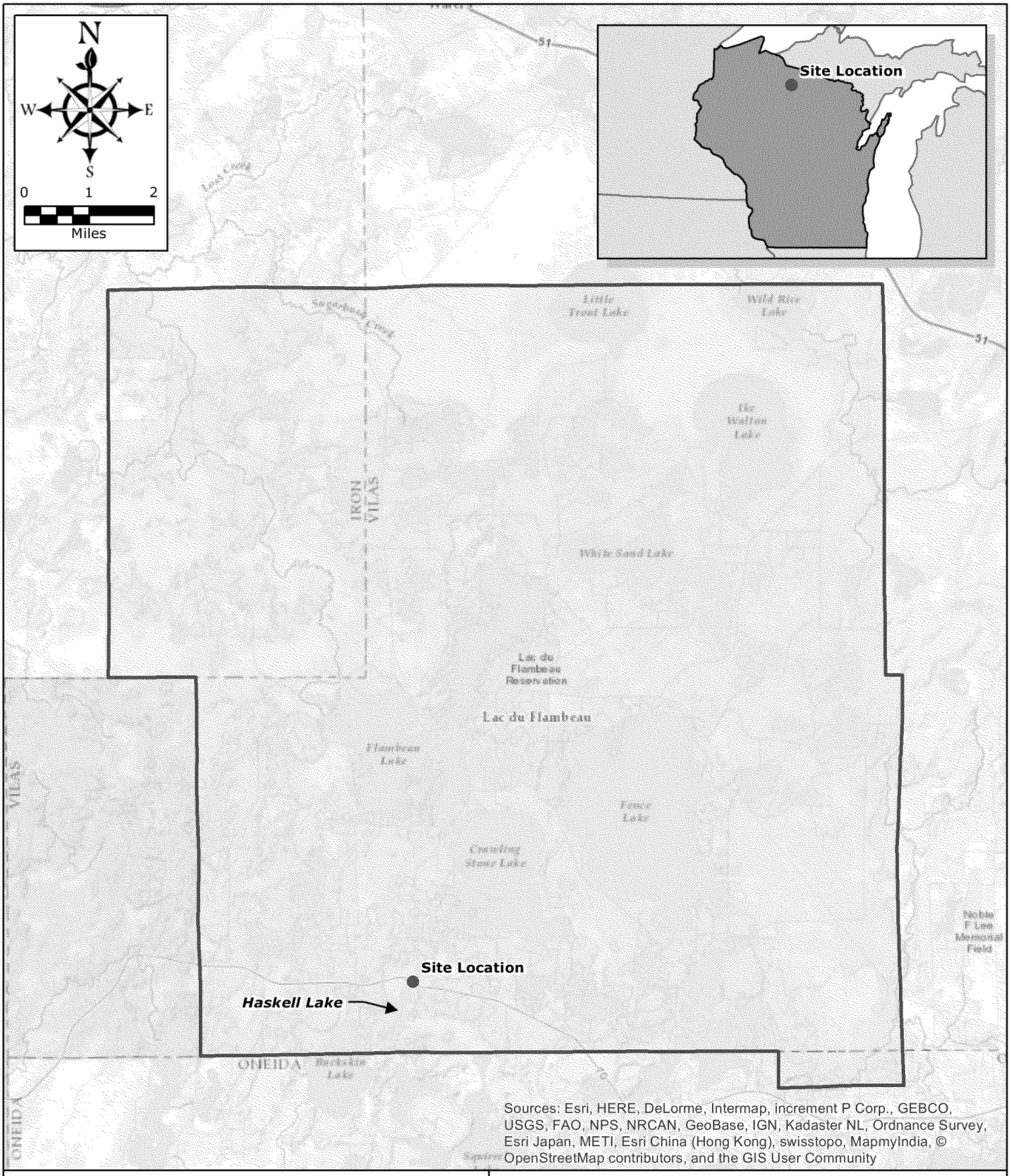
Bristol. (2016d). Tower Standard Site Groundwater Contour Maps. Revision 0. Task Order 2012. Lac du Flambeau Reservation: EPA.

Lac du Flambeau Tribe. (2008). Tribal Code, Section 2, Chapter 200, Hazardous Substance Control Code. Website: https://www.ldftribe.com/Court%20Ordinances.php.

U.S. Environmental Protection Agency (EPA). (1974). Safe Drinking Water Act. 42 United States Code 6A.

**ATTACHMENT 1**

Figures




**Legend**

- Site Location
- Lac du Flambeau Indian Reservation

FIGURE 1
LAC DU FLAMBEAU, WI
EPA TASK ORDER 3012 TOWER STANDARD LUST SITE
**LOCATION MAP**

Bristol
ENVIRONMENTAL REMEDIATION SERVICES, LLC
Phone (907)563-0013 Fax (907)563-6713

| DATUM: | Date: 7/28/2016 | SHEET 1 |
|---|---|---|
| NAD83 PROJECTION: | DWN. NAP | of |
| SP WI ZN FT Project No. | SCALE 1" = 2 mi | 1 |
| 34170026 | APPRVD. MF | |

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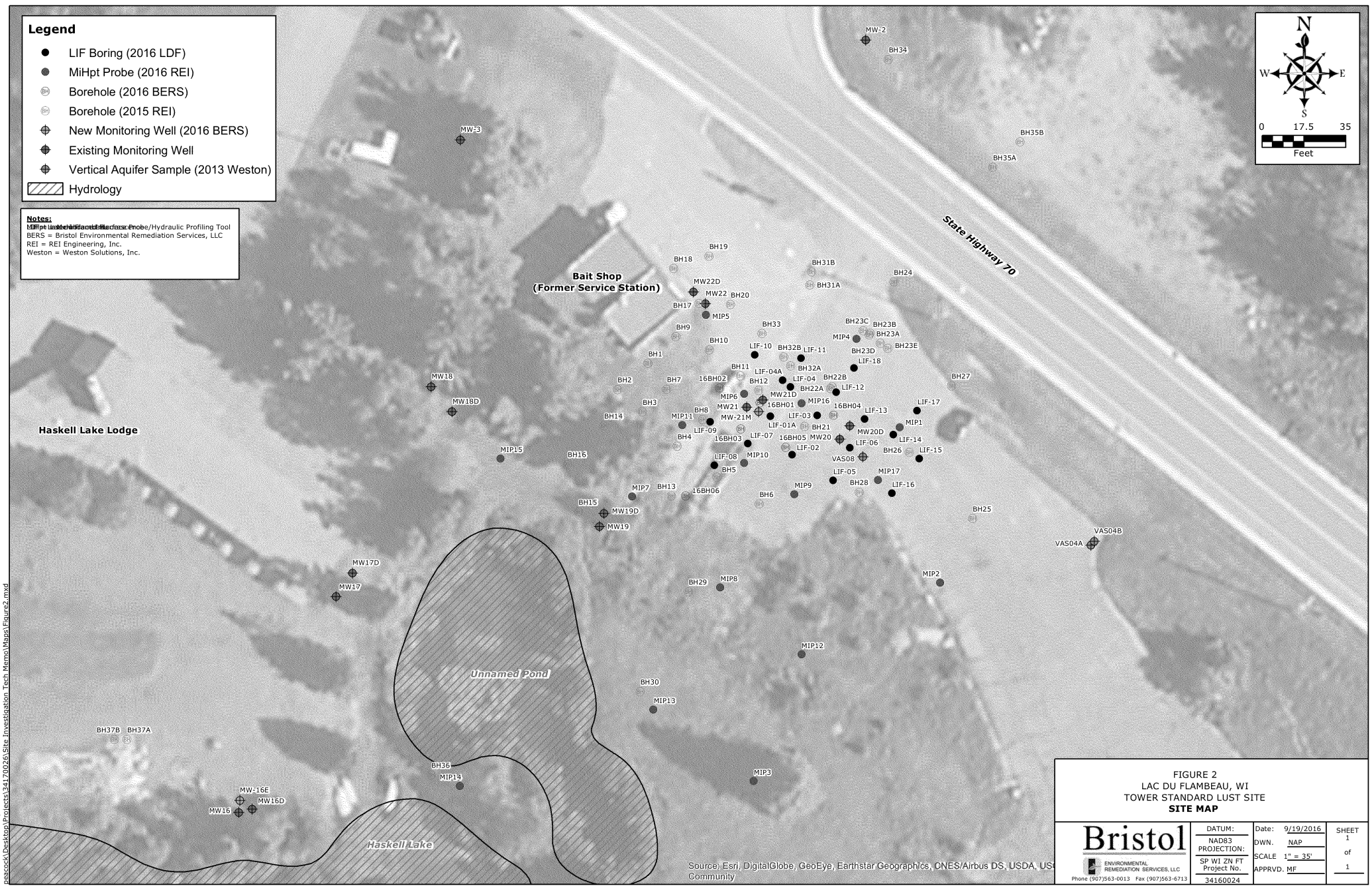


FIGURE 2
LAC DU FLAMBEAU, WI
TOWER STANDARD LUST SITE
**SITE MAP**

Bristol
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Phone (907)563-0013 Fax (907)563-6713

| | | | |
|---|---|---|---|
| DATUM: NAD83 PROJECTION: SP WI ZN FT Project No. 34160024 | Date: 9/19/2016 | SHEET 1 of 1 |
| | DWN. NAP | |
| | SCALE 1" = 35' | |
| | APPRVD. MF | |

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**Notes:**

[1]The Groundwater Cleanup Standards from Appenedix A of the LDF Tribe's *Hazardous Substances Control Code* are the primary project action levels
[2]When LDF Groundwater Cleanup Standards are not available, EPA MCLs established by the Safe Drinking Water Act apply
[3]Preventative Action Limits from Wisconsin Administrative Code, Chapter NR 140, Groundwater Quality are provided for reference purposes only
All results in ug/L except anions (sulfate, sulfide, nitrate, and nitrite) which are in mg/L
**Bolded** results exceed project action levels

1,2-DCA = 1,2-dichloroethane
B = Analytical result considered a high estimated value due to contamination present in the blank
bgs = below the ground surface
EDB = ethylene dibromide
EPA = U.S. Environmental Protection Agency
ft = feet
H = Sample was extracted or analyzed outside of hold time
ID = identification
J = Positive result is less than the LOQ and considered an estimate
LDF = Lac du Flambeau
LOD = Limit of detection
LOQ = Limit of quantitation
MCL = Maximum Contaminant Level
mg/L = milligrams per liter
MH = Analytical result is considered a high estimated value due to matrix effects
ML = Analytical result is considered a low estimated value due to matrix effects
MTBE = methyl tertiary-butyl ehter
ND = Analytical result not detected above the LOD (LOQ in parantheses)
NE = not established
PAL = preventative action limit
QH = Analytical result is considered a high estimated value due to laboratory quality control failure
QL = Analytical result is considered a low estimated value due to laboratory quality control failure
RSL = Risk-Based Screening Level
ug/L = micrograms per liter

| Project Action Levels | | | |
|---|---|---|---|
| **Analyte** | **Groundwater Cleanup Standards [1]** | **EPA MCLs[2]** | **PALs[3]** |
| Benzene | 5 | 5 | 0.5 |
| Toluene | 1,000 | 1,000 | 160 |
| Ethylbenzene | 700 | 700 | 140 |
| Total Xylenes | 10,000 | 10,000 | 400 |
| MTBE | 60 | NE | 12 |
| EDB | 0.05 | NE | 0.005 |
| 1,2-DCA | 5 | NE | 0.5 |
| Naphthalene | 40 | NE | 10 |
| Sulfate | NE | NE | NE |
| Sulfide | NE | NE | NE |
| Nitrate | 10,000 | NE | 2,000 |
| Nitrite | 1,000 | NE | 200 |
| Cadmium | 5 | 5 | 0.5 |
| Chromium | 50 | 100 | 10 |
| Iron | NE | NE | NE |
| Lead | 15 | NE | 1.5 |
| Manganese | NE | NE | 60 |

| **Monitoring Well:** | MW-21 |
|---|---|
| **Screen (ft bgs):** | 4.5-14.5 |
| **Sample ID:** | 1608TOWER |
| **Collection Date:** | 8/8/2016 |
| Benzene | **458** |
| Toluene | **3,280 B** |
| Ethylbenzene | **1,700** |
| Total Xylenes | 9,060 |
| MTBE | 0.24 J |
| EDB | 0.0072 J |
| 1,2-DCA | ND (1.0) |
| Naphthalene | **703** |
| Sulfate | 1.5 J |
| Sulfide | 0.022 J |
| Nitrate | 0.047 J |
| Nitrite | ND (0.012) H |
| Cadmium | 0.078 J |
| Chromium | 8.5 |
| Iron | 19,200 |
| Lead | 8.6 B |
| Manganese | 6,550 |

| **Monitoring Well:** | MW-21D |
|---|---|
| **Screen (ft bgs):** | 35-40 |
| **Sample ID:** | 1608TOWERM |
| **Collection Date:** | 8/9/2016 |
| Benzene | **45.9 MH** |
| Toluene | 7.3 |
| Ethylbenzene | 8.1 |
| Total Xylenes | 64.5 |
| MTBE | ND (1.0) |
| EDB | ND (0.0099) |
| 1,2-DCA | ND (1.0) |
| Naphthalene | 4.9 |
| Sulfate | 1.1 J |
| Sulfide | 0.014 J |
| Nitrate | 0.063 |
| Nitrite | ND (0.012) H |
| Cadmium | ND (0.080) |
| Chromium | 4.4 |
| Iron | 65,700 ML |
| Lead | 0.41 B |
| Manganese | 1,580 ML |

| **Monitoring Well:** | MW-16 |
|---|---|
| **Screen (ft bgs):** | 1.4-11.4 |
| **Sample ID:** | 1608TOWER |
| **Collection Date:** | 8/8/2016 |
| Benzene | 0.75 J |
| Toluene | ND (1.0) |
| Ethylbenzene | ND (1.0) |
| Total Xylenes | ND (3.0) |
| MTBE | ND (1.0) |
| EDB | ND (0.0097) |
| 1,2-DCA | ND (1.0) |
| Naphthalene | ND (4.0) |
| Sulfate | 7.2 |
| Sulfide | ND (0.10) |
| Nitrate | ND (0.058) |
| Nitrite | ND (0.012) H |
| Cadmium | ND (0.080) |
| Chromium | 7.3 |
| Iron | 17,000 |
| Lead | 1.7 |
| Manganese | 1,760 |

| **Monitoring Well:** | MW-16E |
|---|---|
| **Screen (ft bgs):** | 55-60 |
| **Sample ID:** | 1608TOWERM |
| **Collection Date:** | 8/9/2016 |
| Benzene | **768** |
| Toluene | 6.1 B |
| Ethylbenzene | 8.9 |
| Total Xylenes | 506 |
| MTBE | 10.0 |
| EDB | ND (0.0098) |
| 1,2-DCA | ND (1.0) |
| Naphthalene | 28.2 |
| Sulfate | 1.2 J |
| Sulfide | 0.024 J |
| Nitrate | ND (0.058) |
| Nitrite | 0.0044 J H |
| Cadmium | ND (0.080) |
| Chromium | 2.3 |
| Iron | 1,460 |
| Lead | 0.29 B |
| Manganese | 1,650 |

| **Monitoring Well:** | MW-16D | |
|---|---|---|
| **Screen (ft bgs):** | 37-42 | |
| **Sample ID:** | 1608TOWERM | 1608TOWERM |
| **Collection Date:** | 8/8/2016 | 8/8/2016 |
| Benzene | **1,240** | **1,300** |
| Toluene | 22.2 | 23.0 |
| Ethylbenzene | 61.8 | 65.3 |
| Total Xylenes | 1,610 | 1,410 |
| MTBE | 1.9 | 2.3 |
| EDB | ND (0.0098) | ND (0.010) |
| 1,2-DCA | ND (1.0) | ND (1.0) |
| Naphthalene | **109** | **114** |
| Sulfate | ND (3.5) | ND (3.5) |
| Sulfide | ND (0.10) | 0.40 |
| Nitrate | ND (0.058) | ND (0.058) |
| Nitrite | ND (0.012) H | ND (0.012) H |
| Cadmium | ND (0.080) | ND (0.080) |
| Chromium | 2.5 | 2.3 |
| Iron | 7,220 | 7,200 |
| Lead | 0.41 | 0.42 |
| Manganese | 2,260 | 2,250 |

| **Monitoring Well:** | MW-21M |
|---|---|
| **Screen (ft bgs):** | 25-30 |
| **Sample ID:** | 1608TOWERM |
| **Collection Date:** | 8/9/2016 |
| Benzene | **2,150** |
| Toluene | **1,320 B** |
| Ethylbenzene | **1,660** |
| Total Xylenes | 4,340 |
| MTBE | 7.4 |
| EDB | 0.011 |
| 1,2-DCA | ND (1.0) |
| Naphthalene | **470** |
| Sulfate | ND (3.5) |
| Sulfide | ND (0.10) |
| Nitrate | 0.12 |
| Nitrite | ND (0.012) H |
| Cadmium | 0.057 J |
| Chromium | 9.5 |
| Iron | 8,830 |
| Lead | 2.8 B |
| Manganese | 3,170 |

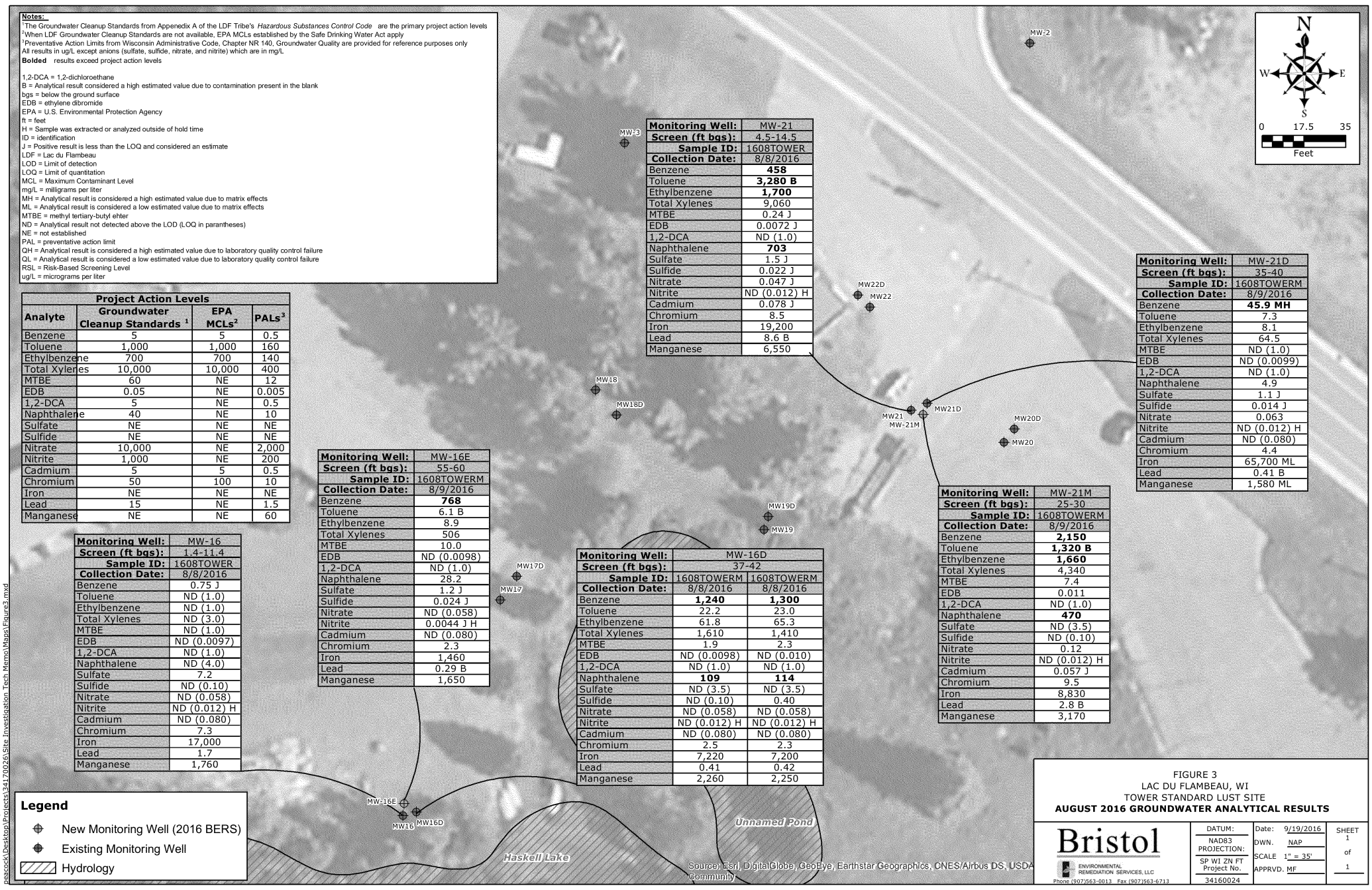


FIGURE 3
LAC DU FLAMBEAU, WI
TOWER STANDARD LUST SITE
**AUGUST 2016 GROUNDWATER ANALYTICAL RESULTS**

Bristol
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| DATUM: NAD83 PROJECTION: SP WI ZN FT Project No. 34160024 | Date: 9/19/2016 DWN. NAP SCALE 1" = 35' APPRVD. MF | SHEET 1 of 1 |
|---|---|---|

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**ATTACHMENT 2**

Field Book and Field Forms

INCH

Rite in the Rain®
ALL-WEATHER WRITING PAPER

Name Robert Beckman
Bristol Environmental
Address 111 W. 10th Ave
Anchorage, AK 99501
Phone 907-830-7105

Project EPA Tower Standard Site
Lac du Flambeau, Wisconsin
EPA Contract # EP.W.12-009
TO 3012 Bristol PA 34170024

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CONTENTS

| PAGE | REFERENCE | DATE |
|---|---|---|

2

P# 341700216
TOWER

August 2, 2016 R. Beckman

0315 - @ Anchorage Airport, flying to Minneapolis, MN then driving to Minocqua, WI to install 2 MW's & sample 4 MW's.

1400 - (MN time) picked up rental car, headed to Minocqua.

1930 - Checked into Quality Inn, meeting drillers onsite between 1030-1100, tomorrow, 8/3/16.

End of day.

KB 8/2/16.

R. Beckman P# 341700216
TOWER

3

75°F, sunny August 3, 2016

0915 - Gathering supplies, headed to site to locate well locations, wait for drillers.

0945 - Introduced self to lodge operators, found well locations, waiting for subs. USTS & Kristen Hansen w/ GAF tribe onsite.

1015 - Toured site w/ Kristen, located wells & proposed well locations.

1045 - Walked site w/ drillers (CEC). Will start w/ less contaminated well (assumed MW16E) ~ 60' bgs, to top of bedrock.

1215 - Setting up @ MW16E

1245 - Began drilling
0-5 - Sand /w organics & some cobble.
5-10 - Sandy, Gravel. Brown. dry.

KB 8/3/16

Rite in the Rain

8/3/14

Tower

P# 34170024

0-10 - Sandy, moist w/ occasional gravel. Brown
8-10' slight refusal
10-15' = Sand w/ gravel, wet. Brownish-grey.
15'-26'- Sand w/ gravel. wet, brown. w/ cobbles / boulders (?) Drilling slowed, hitting refusal.
@ 20' hit refusal.
20-25' = Sandy w/ gravel, moist, greybrown.
25-30' = Same, as ↑. Broke second "Key", first one broke @ ~15' bgs.
"Key" = drive key

1510 - Ordered from CEC additional drive keys, will be down today. Only 2 keys left onsite. Pulling auger, replacing bit. Will see if less aggressive bit will drill through boulders better.

TK 8/3/14

P# 34170024

Tower



8/3/14

1630 - Pulled auger, large rock stuck in bit. Approaching end of day. Will re-drill 30' of auger in existing boring and finish well in the a.m.

1800 - End of day, will cont. drilling @ 30' bgs in the a.m.

RK 8/3/14

Rite in the Rain

PI# 341700226 R Rockman

August 4, 2014 TOWER Cloudy, 70°F

0700- Onsite, calibrated YSI #1, w/in range. See equipment log for details

0730- Continuing to drill @ MW14E.
30-35' = Sandy, w/ gravel moist. Very Rocky
35-40' = same ↑, very little cuttings produced. Mostly cobbles / boulders (assumed).
40-45' = Mostly rock, no cuttings

0735- Bob Egan onsite.
45'-50' = mostly rock, no cuttings
50'-55' = ⇑ same ⇑
55'-60' = ⇑ same ⇑
60-65' = ⇑ same ⇑

0920 - @ 65.2' (±) hit assumed bedrock, drill will not advance further. Prepping to set well. Completing with 5' screen. ☆ No cuttings produced from this well today.

1040- Thunder & rain. Stop work until weather

RR 8/4/14



PI# 341700226

Tower 8/4/14

lets up. Per Kristen, thunder storm warning in effect for next 3 hours.

1230- ~10' of fill @ bottom of well, using split spoon to remove sand @ bottom of well. Split spoon recovered ~2.5' of coarse sand.

1300- Two full split spoons removed, sand keeps filling holes. drillers flushing hole w/ water to remove sediment. Proposed flushing 50 gallons of water.

1405- Split spoon stuck @ 5' from bottom of hole. CEC attempting to dislodge.

1630- Got split spoon removed w/ flattened PVC + ~10 gallons of water.

RR 8/4/14

Rite in the Rain

8

8/4/16 P# 34170026

Tower

Currently 60' of auger in the ground ~ w/ 3' of sand in the bottom of the auger.

1740 - Flushed out sand from well and was able to push out plate @ bottom (which had been pushed up ~ 3'). ~200 gallons flushed.

1930 - Set well @ 60' bgs, placed sand and some bentonite chips. Will mix grout tomorrow morning and complete well. Produced ~250 gallons of IDW water installing well. End of day.

RB 8/4/16

R Beckman P# 34170026

9

Sunny, 65°F Tower 8/5/16

0645 - Onsite. Drillers arrive @ 0700. Will begin grouting this morning.

0730 - Cannot get grout rod down past 47' bgs, drillers pulling auger up, hoping sand slides down.

0835 - Pulled 5' of auger up and occluded sand fell out of auger.

1045 - All auger pieces removed, well grouted. Will complete w/ flush mount finish after MW-21 is installed.

1115 - Moving north to ~~MW21D~~ MW21M location.

1200 - Kristen taking drillers to refill water tank up.

1330 - Drillers back onsite, filled 500 gallon water tank. Setting up @ MW21M.

1405 - Began drilling.

0-5' = ~~sandy gravel~~ gravelly sand, dry, Brown

RB 8/5/16

Rite in the Rain

10

P#34170026

8/5/16 Tower 8/5/16

5'-10' = ~~Gravelly~~ sandy gravel, dry, red-brown,
@ 8-10' => fine sand, dry, brown.
10-15' => Gravelly sand w/ fines, light brown, ~~dr~~ moist. Mod. HC odor.
KB 8/5
@12-15' silty sand, grey brown
15'-20' => silty sand w/ gravel grey-brown.
@19-20 = more grey. strong odor, HC.
20'-25' => 20-23 = silty sand, moist, grey.
23'-25' = silty sand, ~~saturated~~ wet, brown.
25'-30' => silty sand w/ gravel. Brown. Wet. HC odor
1545 - Setting well. Placing screen from 25'-30' bgs, per request of Kristen Hanusch.

KB 8/5/16

P#34170026

TOWER 8/5/16

1700 - Well placed, and grouted in place. Will allow both wells to sit for @ least 12 hours before developing. Will develop wells on 8/6/16.
1735 - CEC decoming augers and cleaning up site. Left site.

8/5/16
KB

Rite in the Rain

EPA-R5-2017-010506_0002778

12

P# 341700216 Sunny, 70°F

8/6/16 Tower R. Beckman

0650 - Onsite, drillers arrive @ 0700. Will begin developing wells installed yesterday. MW16E = TD = 58.65' DTW = 2.66'

0745 - Began purge / surge of MW16E. Water dark brown.

0750 - DTW = 5.5' btoc water cleared significantly in first 5 minutes, will continue cycle for a minimum of 25 more minutes. 20 gallons purged so far.

0755 - DTW = 4.52 btoc. Purged 5 minutes.

0810 - Water clear, while surging + purging. Pumped 20 gallons.

0815 - Surging well. DTW = 4.46' btoc

0820 - Purged 20 gallons, water clear for all 20 gallons. Development complete @ MW16E.

RB 8/6/16

P# 341700216

13

Tower 8/6/16

0830 - @ MW21N. TD = 30.5' btoc DTW = 7.41' btoc Surging well.

0835 - began purging, water orange, semi-turbid.

0840 - DTW = 5.23' btoc Purged 20 gallons. Surging for ~2-5 minutes.

0845 - Water still turbid, red. DTW = 5.02' btoc. Began purging.

0850 - Purged 10 gallons, still red, turbid. Surging.

0855 - Began purging.

0905 - Purged 20 gallons, still red, turbid. Surging.

0910 - Purging. Slightly turbid, orange.

0915 - Surging well, still orange + turbid. Clearing up.

0930 - 10 gallons purged. DTW = 5.15' btoc.

RB 8/6/16

Rite in the Rain

EPA-R5-2017-010506_0002778

p# 341700026

8/6/14 TOWER

0940 - Surging well. Water light orange, slightly turbid.

0945 - Purged 15 gallons. Clear, slightly turbid. Surging not generating additional turbidity. DTW = 6.89' btoc. Continuing purging.

0955 - Almost clear, purged 10 gallons.

1005 - Purged 10 gallons, clear. Finished developing.
MW11E = TD = 59.50' Final (BTOC)
DTW = 5.38' Final
MW21M = TD = 39.38', Final
DTW = 9.73' Final
Development water from both wells smells of HCs, MW21M = strong, MW11E = moderate.
MW11E = 60 gallons purged
MW21M = 95 gallons purged.

8/6/14
RVS



p# 341700026

TOWER 8/6/14

1230 - All wells installed, CEC packed up equipment + left site. NRC begin sampling on 8/8/14. See bore logs for details.

NRC
8/6/14

Rite in the Rain

65°F Sunny PA#34170026

8/8/14 TOWER R. Redman

0650- On site, calibrated YSI #1 & turbidity meter w/in range, see equipment log for details. Waiting for surveyor to arrive. Should be onsite @ 0730.

0740- Surveyor onsite, setting up to sample MW14 wells.

0945- Began purging MW14.

1115- Collected samples from MW14. Purged 1 hour w/out turbidity meeting criteria.
Sample ID = 140STOWERMW14
Date/Time = 8/8/14/1055-

1125- Purging MW14D

1320- Collected samples from MW14D.
Sample ID = 140STOWERMW14D
Date/Time = 8/8/14/1300.
Dup ID = 140STOWERMW18D
Date/Time = 8/8/14/1330.
Collected the following

RB 8/8/14



PA#34170026

TOWER 8/8/14

from all samples:
- VOCs
- Metals
- Nitrite
- GRO
- Sulfate
- Sulfide
- EDB
- Nitrate

1420- Decanning pumps, cleaning up site. Only have 1 trip blank set, will hold VOCs until final shipment.
Will pick up samples and ship to Pace in MN.

1025- Samples FedEx to Pace.

1700 End of day

RB 8/8/14

Rite in the Rain

18

PF 34170026

8/9/16 TOWER R. Beckman

0700 Onsite, setting up @ MW16E.

0750 Began purging.

0930 - Collected sample. All parameters stable but turbidity, purged 1 hour.
Sample ID = 1608TOWERMW16E
Date/Time = 8/9/16 / 0900.
Deconning pump, headed to MW21 well nest.

0930 Collected Equipment blank.
Blank ID = 1608TOWEREQB
Date/Time = 8/9/16 / 0930

1010 - @ MW21, began purging.

1130 - Collected samples. Purged 1 hour, all parameters stable but turbidity.
Sample ID = 1608TOWERMW21
Date/Time = 8/9/16 / 1120.
Deconned pump.

1150 - Began purging MW21M.

1300 - Collecting sample.
Sample ID = 1608TOWERMW21M
Date/Time = 8/9/16 / 1300.

KB 8/9/16

19

PF 34170026

TOWER 8/9/16

1315 - Deconned pump, will sample MW21D next.

1340 - Began purging MW21D.

1355 - Landowner onsite. 55-gallon drums from well installation + sampling are on owners septic system. EPA/Bristol working to find contractor to move drums. 15 drums onsite.

1450 - Collected samples, plus MS/MSD.
Sample ID = 1608TOWERMW21D
Date/Time = 8/9/16 / 1450.
Collected following parameters from all wells:
- VOCs
- EDB
- Sulfide
- Metals
- Nitrate/Nitrite
- GRO
- Sulfate

1530 - Deconned pump, packing up equipment. Will reach samples, ship

PB 8/9/16

8/9/14 PA 341700216
Tower

pump, then come back to site to meet PA contractor to move drums.

1730 - SBS onsite, moving drums off septic system. Landowner onsite also.

1800 - leaving site. Will drive samples to Pace Minneapolis tomorrow morning.

Note: Soil IDW sample collected on 8/5/14 from MW21M cuttings. Sample ID = 1608TOWERIDWSS Date/Time: 8/5/14 | 1430. Collected for lead (6020) & BTEX (8260). Will drop off w/ groundwater samples tomorrow.

RPB 8/9/14



Sunny, 70°F PA341700216
R. Beckman Tower 8/10/14

0700 - Samples re-iced, 8, 1-gallon bags, 2 wet ice in each cooler (2 coolers total). Headed to Minneapolis, MN. Checked out of hotel.

1230 - In Minneapolis, dropping samples @ Pace.

1435 - Dropped rental car @ airport, checked in for flight to Anchorage, AK. Plane leaves ~1800.

2000 - In Anchorage, AK. Called out home.

RPB 8/10/14

Rain on the Rain

# GROUNDWATER SAMPLING REPORT

CLIENT: EPA
SITE: Tower
DATE: 8/8/16
MONITORING WELL ID: MW16
SHEET 1 OF 1

1 in = 0.083 ft; 2 in = 0.167 ft; 3 in = 0.25 ft; 4 in = 0.333 ft

SAMPLER(S) NAME: Robert Bedoman
WEATHER: Cloudy ~ 75°F
SAMPLE ID ON COC: 16081TOWERMW16
PURGE METHOD: low flow
SAMPLE METHOD: low flow
PRODUCT PRESENT: no
WATER LEVEL MEASURING DEVICE: Interface probe
TYPE OF PUMP: Bladder
WELL INTEGRITY: good
REQUIRED REPAIRS: none
PUMP INTAKE DEPTH: ~ 9' btoc

DIAMETER OF WELL: 0.167 (FT)
RADIUS OF WELL (R): 0.083 (FT)
TOTAL DEPTH OF WELL BELOW MEASURING POINT (D): 11.69 (FT)
DEPTH TO GW BELOW MEASURING POINT (d): 2.28 (FT)
LENGTH OF WATER COLUMN (L): (D-d)= 9.41 (FT)
VOLUME OF WATER COLUMN (V): (3.14xRxRxL) 0.20 (CUBIC FT)
WELL VOLUME: (7.48xV)= 1.5 (GAL) X 3= 4.5 (GAL)
Min Purge Volume — Max Purge Volume

Note: Groundwater volumes above were calculated in the field and used for approximate purge volumes; rounded values are shown for informational purposes only.

| TIME | VOLUME (GAL) | WATER LEVEL (ft BTOC) | pH | TEMP (deg C) | ORP (mV) | DO (mg/L) | SPECIFIC COND. (uS/cm) | TURBIDITY (NTU) | VISUAL APPEARANCE OF WATER | STABILIZATION ACHIEVED (YES/NO) (1) |
|---|---|---|---|---|---|---|---|---|---|---|
| Start = 0945 | | | — | — | — | — | — | — | — | — |
| 0950 | 1.25 | 2.35 | 6.85 | 15.02 | -65.7 | 0.87 | 511 | 580 | Brown | N |
| 0955 | 1.50 | 2.38 | 6.85 | 15.54 | -64.4 | 1.68 | 519 | 418 | " " | N |
| 1000 | 1.75 | 2.36 | 6.86 | 15.15 | -64.1 | 1.32 | 515 | 316 | Light Brn | N |
| 1005 | 2.00 | 2.36 | 6.88 | 15.18 | -75.1 | 0.62 | 523 | 96 | Milky | N |
| 1010 | 2.25 | 2.36 | 6.90 | 15.19 | -84.7 | 0.86 | 537 | 15 | Clear | N |
| 1015 | 2.50 | 2.35 | 6.89 | 15.25 | -86.8 | 0.93 | 541 | 29 | Clear | N |
| 1020 | 2.75 | 2.36 | 6.87 | 15.28 | -86.8 | 0.88 | 539 | 29 | Clear | N |
| 1025 | 3.00 | 2.36 | 6.87 | 15.29 | -87.4 | 0.90 | 540 | 18 | Clear | N |
| 1030 | 3.25 | 2.38 | 6.87 | 15.31 | -87.7 | 0.91 | 547 | 18 | " " | N |
| 1035 | 3.50 | 2.36 | 6.87 | 15.45 | -85.9 | 0.92 | 550 | 27 | " " | N |
| 1040 | 3.75 | 2.36 | 6.87 | 15.50 | -85.0 | 0.90 | 552 | 17 | " " | N |
| 1045 | 4.00 | 2.34 | 6.87 | 15.51 | -85.3 | 0.95 | 556 | 15 | " " | Y |

(1) STABILIZATION is achieved when three (3) consecutive readings of field indicator parameters collected in 3 to 5 minute intervals meet the following criteria:

- ±0.1 standard units for pH
- ±10% for temperature
- ±3% for specific conductance (conductivity)
- ±10 mV for ORP or ±10% if between -100 mV and +100 mV
- ±10% for DO > 0.50 mg/L. Three DO readings < 0.50 mg/L can be considered stabile.
- ±10% for turbidity > 10 ntu. Three turbidity readings < 10 NTU can be considered stabile.

Purge Until All Parameters Stablize or after 3 Well Volumes Are Removed for Low-Flow Minimal Drawdown Procedure

TOTAL VOLUME PURGED: 4.0 (GAL) FLOW RATE (desired range is 100 to 500 mL/min): 252 mL/min.

SAMPLE TIME: 1055

QC SAMPLES COLLECTED: —

ANALYSIS (fill in correct method if not provided and the number of bottles collected for each parameter)

| | | |
|---|---|---|
| VOCs (in water) by SW8260B X | Lead by SW6010B or SW6020 ____ (metals) | Sulfate by E300.0 X |
| BTEX only by SW8260B ____ | TOC by SW9020 ____ | Chloride by E300.0 ~~X~~ RB |
| PAHs by SW8310 or SW8270 ____ | DOC by SW9020 ____ | Nitrate/Nitrite by E353.1 X |
| GRO by WDNR X | MEE by RSK-175 or Lab SOP ____ | Other (Specify) EDB |
| DRO by WDNR ____ | Alkalinity by E310.1 ____ | Other (Specify) Sulfide |

COMMENTS:

Purged 1 hour

*Stability criteria and purging criteria established by EPA Low-flow (Minimal Drawdown) Ground-water Sampling Procedures. Robert W. Puls and Michael J Barcelona. EPA/540/S-95/504. April 1996.*

# GROUNDWATER SAMPLING REPORT

CLIENT: EPA
SITE: Tower
DATE: 8/8/16
MONITORING WELL ID: MW16D
SHEET 1 OF 2

1 in = 0.083 ft; 2 in = 0.167 ft; 3 in = 0.25 ft; 4 in = 0.333 ft

SAMPLER(S) NAME: Robert Beckman
WEATHER: Cloudy, ~75°F
SAMPLE ID ON COC: 1608TOWERMW16D
PURGE METHOD: low flow
SAMPLE METHOD: low flow
PRODUCT PRESENT: No
WATER LEVEL MEASURING DEVICE: Interface Probe
TYPE OF PUMP: Bladder
WELL INTEGRITY: Good
REQUIRED REPAIRS: none
PUMP INTAKE DEPTH: ~38' btoc

DIAMETER OF WELL: 0.167 (FT)
RADIUS OF WELL (R): 0.083 (FT)
TOTAL DEPTH OF WELL BELOW MEASURING POINT (D): 41.25 (FT)
DEPTH TO GW BELOW MEASURING POINT (d): 2.10 (FT)
LENGTH OF WATER COLUMN (L): (D-d)= 39.15 (FT)
VOLUME OF WATER COLUMN (V): (3.14xRxRxL) 0.85 (CUBIC FT)
WELL VOLUME: (7.48xV)= 6.33 (GAL) X 3= 19.00 (GAL)
Min Purge Volume — Max Purge Volume

Note: Groundwater volumes above were calculated in the field and used for approximate purge volumes; rounded values are shown for informational purposes only.

| TIME | VOLUME (GAL) | WATER LEVEL (ft BTOC) | pH | TEMP (deg C) | ORP (mV) | DO (mg/L) | SPECIFIC COND. (uS/cm) | TURBIDITY (NTU) | VISUAL APPEARANCE OF WATER | STABILIZATION ACHIEVED (YES/NO) (1) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1025 | Start | | | | | | | | | |
| 1030 | 0.25 | 2.31 | 7.09 | 12.57 | -105.7 | 4.44 | 655 | >1000 | Pink | N |
| stopped | Pumping | @ 1035, | Began | again | @ 1150 | | | | | — |
| 1035 | 0.50 | 2.20 | 7.29 | 11.79 | -136.3 | 0.51 | 717 | >1000 | Pink | N |
| 1100 | 0.75 | 2.20 | 7.27 | 12.07 | -130.5 | 0.37 | 718 | >1000 | " " | N |
| 1205 | 1.00 | 2.18 | 7.28 | 12.03 | -117.5 | 0.31 | 713 | 345 | light Pink | N |
| 1210 | 1.25 | 2.18 | 7.28 | 11.88 | -116.3 | 0.28 | 710 | 239 | " " | N |
| 1215 | 1.50 | 2.21 | 7.26 | 11.63 | -117.7 | 0.24 | 708 | 147 | " " | N |
| 1220 | 1.75 | 2.20 | 7.25 | 11.63 | -113.3 | 0.23 | 706 | 112 | " " | N |
| 1225 | 2.00 | 2.21 | 7.24 | 11.55 | -115.0 | 0.22 | 705 | 89 | Clear | N |
| 1230 | 2.25 | 2.21 | 7.23 | 11.50 | -111.4 | 0.23 | 704 | 75 | Clear | N |
| 1235 | 2.50 | 2.20 | 7.21 | 11.46 | -111.9 | 0.23 | 705 | 71 | " " | N |
| 1240 | 2.75 | 2.21 | 7.21 | 11.43 | -112.5 | 0.20 | 703 | 69 | " " | N |

(1) STABILIZATION is achieved when three (3) consecutive readings of field indicator parameters collected in 3 to 5 minute intervals meet the following criteria:

- ±0.1 standard units for pH
- ±10% for temperature
- ±3% for specific conductance (conductivity)
- ±10 mV for ORP or ±10% if between -100 mV and +100 mV
- ±10% for DO > 0.50 mg/L. Three DO readings < 0.50 mg/L can be considered stabile.
- ±10% for turbidity > 10 ntu. Three turbidity readings < 10 NTU can be considered stabile.

Purge Until All Parameters Stablize or after 3 Well Volumes Are Removed for Low-Flow Minimal Drawdown Procedure

TOTAL VOLUME PURGED: 3.50 (GAL) FLOW RATE (desired range is 100 to 500 mL/min): 220 ml/min

SAMPLE TIME: 1300

QC SAMPLES COLLECTED: 1608TOWERMW18D = duplicate @ 1330

ANALYSIS (fill in correct method if not provided and the number of bottles collected for each parameter)

| | | |
|---|---|---|
| VOCs (in water) by SW8260B X | Lead by SW6010B or SW6020 X Metals | Sulfate by E300.0 X |
| BTEX only by SW8260B ____ | TOC by SW9020 ____ | Chloride by E300.0 ____ |
| PAHs by SW8310 or SW8270 ____ | DOC by SW9020 ____ | Nitrate/Nitrite by E353.1 X |
| GRO by WDNR X | MEE by RSK-175 or Lab SOP ____ | Other (Specify) Sulfide |
| DRO by WDNR ____ | Alkalinity by E310.1 ____ | Other (Specify) EDB |

COMMENTS:

Moderate HC odor, Purged 1 hour

*Stability criteria and purging criteria established by EPA Low-flow (Minimal Drawdown) Ground-water Sampling Procedures. Robert W. Puls and Michael J Barcelona. EPA/540/S-95/504. April 1996.*

# GROUNDWATER SAMPLING REPORT

CLIENT: EPA
SITE: TOWE
DATE: 8/8/14
MONITORING WELL ID: MW14D
SHEET 2 OF 2

1 in = 0.083 ft; 2 in = 0.167 ft; 3 in = 0.25 ft; 4 in = 0.333 ft

SAMPLER(S) NAME: Robert Beckman
WEATHER: Cloudy, 75°F
SAMPLE ID ON COC: 1608 TOWERMW14D
PURGE METHOD: low flow
SAMPLE METHOD: low flow
PRODUCT PRESENT: no
WATER LEVEL MEASURING DEVICE: Interface
TYPE OF PUMP: Bladder
WELL INTEGRITY: good
REQUIRED REPAIRS: none
PUMP INTAKE DEPTH: ~38' btoc

DIAMETER OF WELL: 0.167 (FT)
RADIUS OF WELL (R): 0.083 (FT)
TOTAL DEPTH OF WELL BELOW MEASURING POINT (D): 41.25 (FT)
DEPTH TO GW BELOW MEASURING POINT (d): 2.10 (FT)
LENGTH OF WATER COLUMN (L): (D-d)= 39.15 (FT)
VOLUME OF WATER COLUMN (V): (3.14xRxRxL) 0.85 (CUBIC FT)
WELL VOLUME: (7.48xV)= 6.33 (GAL) X 3= 19.00 (GAL)
Min Purge Volume Max Purge Volume

Note: Groundwater volumes above were calculated in the field and used for approximate purge volumes; rounded values are shown for informational purposes only.

| TIME | VOLUME (GAL) | WATER LEVEL (ft BTOC) | pH | TEMP (deg C) | ORP (mV) | DO (mg/L) | SPECIFIC COND. (uS/cm) | TURBIDITY (NTU) | VISUAL APPEARANCE OF WATER | STABILIZATION ACHIEVED (YES/NO) (1) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1245 | 3.0 | 2.21 | 7.21 | 11.48 | -116.2 | 0.21 | 705 | 62 | Clear | N |
| 1250 | 3.25 | 2.21 | 7.24 | 11.72 | -114.2 | 0.20 | 710 | 58 | Clear | N |
| 1255 | 3.50 | 2.20 | 7.25 | 11.52 | -119.4 | 0.19 | 706 | 55 | Clear | Y |
| | | | | | | | | | | |
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(1) STABILIZATION is achieved when three (3) consecutive readings of field indicator parameters collected in 3 to 5 minute intervals meet the following criteria:

- ±0.1 standard units for pH
- ±10% for temperature
- ±3% for specific conductance (conductivity)
- ±10 mV for ORP or ±10% if between -100 mV and +100 mV
- ±10% for DO > 0.50 mg/L. Three DO readings < 0.50 mg/L can be considered stabile.
- ±10% for turbidity > 10 ntu. Three turbidity readings < 10 NTU can be considered stabile.

**Purge Until All Parameters Stablize or after 3 Well Volumes Are Removed for Low-Flow Minimal Drawdown Procedure**

TOTAL VOLUME PURGED: 3.50 (GAL) FLOW RATE (desired range is 100 to 500 mL/min): 220 ml/min

SAMPLE TIME: 1300

QC SAMPLES COLLECTED: 1608TOWERMW18D = duplicate @ 1330

**ANALYSIS (fill in correct method if not provided and the number of bottles collected for each parameter)**

VOCs (in water) by SW8260B X
BTEX only by SW8260B ____
PAHs by SW8310 or SW8270 ____
GRO by WDNR X
DRO by WDNR ____

Lead by SW6010B or SW6020 X
metals
TOC by SW9020 ____
DOC by SW9020 ____
MEE by RSK-175 or Lab SOP ____
Alkalinity by E310.1 ____

Sulfate by E300.0 X
Chloride by E300.0 ____
Nitrate/Nitrite by E353.1 X
Other (Specify) Sulfide
Other (Specify) EDB

COMMENTS:

Purged 1 hr

*Stability criteria and purging criteria established by EPA Low-flow (Minimal Drawdown) Ground-water Sampling Procedures. Robert W. Puls and Michael J Barcelona. EPA/540/S-95/504. April 1996.*

# GROUNDWATER SAMPLING REPORT

CLIENT: EPA
SITE: Tower
DATE: 8/9/16
MONITORING WELL ID: MW16E
SHEET 1 OF 1

1 in = 0.083 ft; 2 in = 0.167 ft; 3 in = 0.25 ft; 4 in = 0.333 ft

SAMPLER(S) NAME: Robert Beckman
WEATHER: Cloudy, 70°F
SAMPLE ID ON COC: 1608TOWERMW16E
PURGE METHOD: Low flow
SAMPLE METHOD: low flow
PRODUCT PRESENT: No
WATER LEVEL MEASURING DEVICE: Interface probe
TYPE OF PUMP: Bladder
WELL INTEGRITY: Good
REQUIRED REPAIRS: none
PUMP INTAKE DEPTH: ~56'

DIAMETER OF WELL: 0.167 (FT)
RADIUS OF WELL (R): 0.083 (FT)
TOTAL DEPTH OF WELL BELOW MEASURING POINT (D): 59.50 (FT)
DEPTH TO GW BELOW MEASURING POINT (d): 2.73 (FT)
LENGTH OF WATER COLUMN (L): (D-d)= 56.77 (FT)
VOLUME OF WATER COLUMN (V): (3.14xRxRxL) 1.23 (CUBIC FT)
WELL VOLUME: (7.48xV)= 9.2 (GAL) X 3= 27.56 (GAL)
Min Purge Volume — Max Purge Volume

Note: Groundwater volumes above were calculated in the field and used for approximate purge volumes; rounded values are shown for informational purposes only.

| TIME | VOLUME (GAL) | WATER LEVEL (ft BTOC) | pH | TEMP (deg C) | ORP (mV) | DO (mg/L) | SPECIFIC COND. (uS/cm) | TURBIDITY (NTU) | VISUAL APPEARANCE OF WATER | STABILIZATION ACHIEVED (YES/NO) (1) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0750 | 0.25 | 2.72 | 6.42 | 13.71 | 57.3 | 3.42 | 723 | 249 | Clear | N |
| 0755 | 0.50 | 2.81 | 6.24 | 12.38 | -27.2 | 2.14 | 914 | 438 | Clear | N |
| 0800 | 0.75 | 2.80 | 6.61 | 12.04 | -115.3 | 0.69 | 944 | 337 | Clear | N |
| 0805 | 1.00 | 2.80 | 6.80 | 12.41 | -157.1 | 0.36 | 971 | 253 | Clear | N |
| 0810 | 1.25 | 2.80 | 6.78 | 12.14 | -159.2 | 0.33 | 988 | 136 | Clear | N |
| 0815 | 1.50 | 2.80 | 6.88 | 12.49 | -164.9 | 0.31 | 1013 | 88 | Clear | N |
| 0820 | 1.75 | 2.81 | 7.01 | 12.56 | -175.1 | 0.28 | 1030 | 73 | Clear | N |
| 0825 | 2.00 | 2.80 | 7.10 | 12.91 | -179.3 | 0.28 | 1049 | 65 | Clear | N |
| 0830 | 2.50 | 2.81 | 7.04 | 12.12 | -192.3 | 0.23 | 1045 | 54 | Clear | N |
| 0835 | 2.75 | 2.81 | 7.09 | 12.64 | -193.0 | 0.23 | 1072 | 42 | Clear | N |
| 0840 | 3.00 | 2.80 | 7.18 | 12.79 | -203.0 | 0.25 | 1089 | 38 | Clear | N |
| 0845 | 3.50 | 2.80 | 7.21 | 12.70 | -166.9 | 0.27 | 1086 | 25 | Clear | N |
| 0850 | 3.75 | 2.80 | 7.24 | 12.81 | -155.0 | 0.24 | 1113 | 20 | Clear | Y |

(1) STABILIZATION is achieved when three (3) consecutive readings of field indicator parameters collected in 3 to 5 minute intervals meet the following criteria:

- ±0.1 standard units for pH
- ±10% for temperature
- ±3% for specific conductance (conductivity)
- ±10 mV for ORP or ±10% if between -100 mV and +100 mV
- ±10% for DO > 0.50 mg/L. Three DO readings < 0.50 mg/L can be considered stabile.
- ±10% for turbidity > 10 ntu. Three turbidity readings < 10 NTU can be considered stabile.

**Purge Until All Parameters Stablize or after 3 Well Volumes Are Removed for Low-Flow Minimal Drawdown Procedure**

TOTAL VOLUME PURGED: 3.75 (GAL) FLOW RATE (desired range is 100 to 500 mL/min): 236 ml/min.

SAMPLE TIME: 0900

QC SAMPLES COLLECTED:

**ANALYSIS (fill in correct method if not provided and the number of bottles collected for each parameter)**

VOCs (in water) by SW8260B X
BTEX only by SW8260B ____
PAHs by SW8310 or SW8270 ____
GRO by WDNR X
DRO by WDNR X
~~Lead~~ Metals by SW6010B or SW6020 ____
TOC by SW9020 ____
DOC by SW9020 ____
MEE by RSK-175 or Lab SOP ____
Alkalinity by E310.1 ____
Sulfate by E300.0 X
Chloride by E300.0 ____
Nitrate/Nitrite by E353.1 X
Other (Specify) Sulfide
Other (Specify) EDB

COMMENTS:
Purged 1 hour.
mild HC odor

*Stability criteria and purging criteria established by EPA Low-flow (Minimal Drawdown) Ground-water Sampling Procedures. Robert W. Puls and Michael J Barcelona. EPA/540/S-95/504. April 1996.*

# GROUNDWATER SAMPLING REPORT

CLIENT: EPA
SITE: TOWER
DATE: 8/9/16
MONITORING WELL ID: MW21
SHEET 1 OF 1
1 in = 0.083 ft; 2 in = 0.167 ft; 3 in = 0.25 ft; 4 in = 0.333 ft

SAMPLER(S) NAME: Robert Beckman
WEATHER: Partial Sun, ~75°F
SAMPLE ID ON COC: 1608TOWERMW21
PURGE METHOD: low flow
SAMPLE METHOD: low flow
PRODUCT PRESENT: no
WATER LEVEL MEASURING DEVICE: Interface Probe
TYPE OF PUMP: Bladder
WELL INTEGRITY: Good,
REQUIRED REPAIRS: needs new cover seal
PUMP INTAKE DEPTH:

DIAMETER OF WELL: 0.167 (FT)
RADIUS OF WELL (R): 0.083 (FT)
TOTAL DEPTH OF WELL BELOW MEASURING POINT (D): 14.88 (FT)
DEPTH TO GW BELOW MEASURING POINT (d): 7.23 (FT)
LENGTH OF WATER COLUMN (L): (D-d)= 7.65 (FT)
VOLUME OF WATER COLUMN (V): (3.14xRxRxL) 0.165 (CUBIC FT)
WELL VOLUME: (7.48xV)= 1.23 (GAL) X 3= 3.71 (GAL)
Min Purge Volume Max Purge Volume

Note: Groundwater volumes above were calculated in the field and used for approximate purge volumes; rounded values are shown for informational purposes only.

| TIME | VOLUME (GAL) | WATER LEVEL (ft BTOC) | pH | TEMP (deg C) | ORP (mV) | DO (mg/L) | SPECIFIC COND. (uS/cm) | TURBIDITY (NTU) | VISUAL APPEARANCE OF WATER | STABILIZATION ACHIEVED (YES/NO) (1) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1010 | 0.25 | 7.48 | 6.20 | 17.31 | -38.9 | 0.34 | 365 | >1000 | Red/Brn | N |
| 1015 | 0.50 | 7.52 | 6.16 | 16.41 | -38.0 | 0.44 | 355 | >1000 | " " | N |
| 1020 | 0.75 | 7.54 | 6.12 | 16.12 | -37.7 | 0.25 | 349 | 378 | Ltg. brn | N |
| 1025 | 1.00 | 7.55 | 6.18 | 15.83 | -42.3 | 0.22 | 341 | 224 | " " | N |
| 1030 | 1.50 | 7.55 | 6.23 | 15.66 | -45.8 | 0.22 | 336 | 142 | " " | N |
| 1035 | 1.75 | 7.55 | 6.23 | 15.51 | -45.4 | 0.20 | 334 | 112 | Clear | N |
| 1040 | 2.00 | 7.55 | 6.27 | 15.50 | -46.6 | 0.17 | 332 | 70 | Clear | N |
| 1045 | 2.25 | 7.54 | 6.28 | 15.49 | -47.8 | 0.18 | 332 | 56 | Clear | N |
| 1050 | 2.50 | 7.55 | 6.29 | 15.43 | -48.4 | 0.18 | 332 | 46 | Clear | N |
| 1055 | 2.75 | 7.54 | 6.27 | 15.46 | -47.2 | 0.15 | 331 | 38 | Clear | N |
| 1100 | 3.00 | 7.55 | 6.29 | 15.54 | -48.8 | 0.14 | 333 | 31 | Clear | N |
| 1105 | 3.50 | 7.53 | 6.31 | 15.53 | -50.0 | 0.13 | 333 | 24 | Clear | N |
| 1110 | 3.75 | 7.54 | 6.30 | 15.44 | -48.4 | 0.14 | 333 | 19 | Clear | N |

(1) STABILIZATION is achieved when three (3) consecutive readings of field indicator parameters collected in 3 to 5 minute intervals meet the following criteria:

- ±0.1 standard units for pH
- ±10% for temperature
- ±3% for specific conductance (conductivity)
- ±10 mV for ORP or ±10% if between -100 mV and +100 mV
- ±10% for DO > 0.50 mg/L. Three DO readings < 0.50 mg/L can be considered stabile.
- ±10% for turbidity > 10 ntu. Three turbidity readings < 10 NTU can be considered stabile.

**Purge Until All Parameters Stablize or after 3 Well Volumes Are Removed for Low-Flow Minimal Drawdown Procedure**

TOTAL VOLUME PURGED: 3.75 (GAL) FLOW RATE (desired range is 100 to 500 mL/min): 250 ml/minute

SAMPLE TIME: 1120

QC SAMPLES COLLECTED: —

**ANALYSIS (fill in correct method if not provided and the number of bottles collected for each parameter)**

| | | |
|---|---|---|
| VOCs (in water) by SW8260B X | ~~Lead~~ Metals by SW6010B or SW6020 ____ | Sulfate by E300.0 X |
| BTEX only by SW8260B ____ | TOC by SW9020 ____ | Chloride by E300.0 ____ |
| PAHs by SW8310 or SW8270 ____ | DOC by SW9020 ____ | Nitrate/Nitrite by E353.1 X |
| GRO by WDNR X | MEE by RSK-175 or Lab SOP ____ | Other (Specify) Sulfide |
| DRO by WDNR ____ | Alkalinity by E310.1 ____ | Other (Specify) EDB |

COMMENTS:

HC odor, Purged 1 hour gallon [illegible]

*Stability criteria and purging criteria established by EPA Low-flow (Minimal Drawdown) Ground-water Sampling Procedures. Robert W. Puls and Michael J Barcelona. EPA/540/S-95/504. April 1996.*

# GROUNDWATER SAMPLING REPORT

CLIENT: EPA
SITE: TOWER
DATE: 8/9/14
MONITORING WELL ID: MW21M
SHEET 1 OF 1

1 in = 0.083 ft; 2 in = 0.167 ft; 3 in = 0.25 ft; 4 in = 0.333 ft

SAMPLER(S) NAME: Robert Beckman
WEATHER: Cloudy, 75°F
SAMPLE ID ON COC: ~~1608MW21E~~ RRB 8/9/14 1608TOWERMW21M
PURGE METHOD: low flow
SAMPLE METHOD: low flow
PRODUCT PRESENT: no
WATER LEVEL MEASURING DEVICE: Interface Probe
TYPE OF PUMP: Bladder
WELL INTEGRITY: Good
REQUIRED REPAIRS: none
PUMP INTAKE DEPTH: ~27' bloc

DIAMETER OF WELL: 0.167 (FT)
RADIUS OF WELL (R): 0.083 (FT)
TOTAL DEPTH OF WELL BELOW MEASURING POINT (D): 30.16 (FT)
DEPTH TO GW BELOW MEASURING POINT (d): 7.49 (FT)
LENGTH OF WATER COLUMN (L): (D-d)= 22.67 (FT)
VOLUME OF WATER COLUMN (V): (3.14xRxRxL) 0.49 (CUBIC FT)
WELL VOLUME: (7.48xV)= 3.67 (GAL) X 3= 11 (GAL)
Min Purge Volume — Max Purge Volume

Note: Groundwater volumes above were calculated in the field and used for approximate purge volumes; rounded values are shown for informational purposes only.

| TIME | VOLUME (GAL) | WATER LEVEL (ft BTOC) | pH | TEMP (deg C) | ORP (mV) | DO (mg/L) | SPECIFIC COND. (uS/cm) | TURBIDITY (NTU) | VISUAL APPEARANCE OF WATER | STABILIZATION ACHIEVED (YES/NO) (1) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1150 | 0.25 | 7.51 | 6.50 | 17.05 | -15.3 | 4.00 | 341 | 835 | Pink | N |
| 1155 | 0.50 | 7.52 | 5.97 | 14.83 | 3.0 | 0.65 | 351 | >1000 | Pink | N |
| 1200 | 0.75 | 7.54 | 5.91 | 14.60 | 1.3 | 0.41 | 354 | 970 | Pink | N |
| 1205 | 1.00 | 7.53 | 6.07 | 14.83 | -13.1 | 0.32 | 369 | 791 | Pink | N |
| 1210 | 1.25 | 7.52 | 6.13 | 14.35 | -17.7 | 0.84 | 384 | 528 | Pink | N |
| 1215 | 1.50 | 7.53 | 6.17 | 14.77 | -21.6 | 0.32 | 392 | 386 | Pink | N |
| 1220 | 1.75 | 7.51 | 6.20 | 15.06 | -24.1 | 0.23 | 398 | 323 | Pink | N |
| 1225 | 2.00 | 7.51 | 6.20 | 15.24 | -22.9 | 0.20 | 410 | 260 | Pink | N |
| 1230 | 2.25 | 7.51 | 6.21 | 15.20 | -24.7 | 0.20 | 415 | 204 | Pink | N |
| 1235 | 2.50 | 7.52 | 6.22 | 15.49 | -25.2 | 0.17 | 424 | 154 | Clear | N |
| 1240 | 2.75 | 7.51 | 6.22 | 15.39 | -25.9 | 0.18 | 426 | 136 | Clear | N |
| 1245 | 3.00 | 7.51 | 6.23 | 15.34 | -26.5 | 0.18 | 426 | 120 | Clear | N |
| 1250 | 3.50 | 7.52 | 6.23 | 15.40 | -28.3 | 0.17 | 428 | 98 | Clear | Y |

(1) STABILIZATION is achieved when three (3) consecutive readings of field indicator parameters collected in 3 to 5 minute intervals meet the following criteria:

- ±0.1 standard units for pH
- ±10% for temperature
- ±3% for specific conductance (conductivity)
- ±10 mV for ORP or ±10% if between -100 mV and +100 mV
- ±10% for DO > 0.50 mg/L. Three DO readings < 0.50 mg/L can be considered stabile.
- ±10% for turbidity > 10 ntu. Three turbidity readings < 10 NTU can be considered stabile.

**Purge Until All Parameters Stablize or after 3 Well Volumes Are Removed for Low-Flow Minimal Drawdown Procedure**

TOTAL VOLUME PURGED: 3.50 (GAL) FLOW RATE (desired range is 100 to 500 mL/min): 220 ml/min

SAMPLE TIME: 1300

QC SAMPLES COLLECTED:

**ANALYSIS (fill in correct method if not provided and the number of bottles collected for each parameter)**

| | | |
|---|---|---|
| VOCs (in water) by SW8260B X | Lead by SW6010B or SW6020 X (Metals) | Sulfate by E300.0 X |
| BTEX only by SW8260B ___ | TOC by SW9020 ___ | Chloride by E300.0 ___ |
| PAHs by SW8310 or SW8270 ___ | DOC by SW9020 ___ | Nitrate/Nitrite by E353.1 X |
| GRO by WDNR X | MEE by RSK-175 or Lab SOP ___ | Other (Specify) ___ |
| DRO by WDNR ___ | Alkalinity by E310.1 ___ | Other (Specify) ___ |

COMMENTS:

Mild HC odor. Purged for 1 hour.

*Stability criteria and purging criteria established by EPA Low-flow (Minimal Drawdown) Ground-water Sampling Procedures. Robert W. Puls and Michael J Barcelona. EPA/540/S-95/504. April 1996.*

# GROUNDWATER SAMPLING REPORT

CLIENT: BP EPA
SITE: TOWER
DATE: 8/9/16
MONITORING WELL ID: MW21D
SHEET 1 OF 1
1 in = 0.083 ft; 2 in = 0.167 ft; 3 in = 0.25 ft; 4 in = 0.333 ft

SAMPLER(S) NAME: Robert Beckman
WEATHER: Cloudy, ~75°F
SAMPLE ID ON COC: 1608TOWERMW21D
PURGE METHOD: low flow
SAMPLE METHOD: low flow
PRODUCT PRESENT: NO
WATER LEVEL MEASURING DEVICE: Interface probe
TYPE OF PUMP: Bladder
WELL INTEGRITY: Good
REQUIRED REPAIRS: NO
PUMP INTAKE DEPTH: ~36'

DIAMETER OF WELL: 0.167 (FT)
RADIUS OF WELL (R): 0.083 (FT)
TOTAL DEPTH OF WELL BELOW MEASURING POINT (D): 39.34 (FT)
DEPTH TO GW BELOW MEASURING POINT (d): 7.62 (FT)
LENGTH OF WATER COLUMN (L): (D-d)= 31.72 (FT)
VOLUME OF WATER COLUMN (V): (3.14xRxRxL) 0.69 (CUBIC FT)
WELL VOLUME: (7.48xV)= 5.13 (GAL) X 3= 15.40 (GAL)
Min Purge Volume — Max Purge Volume

Note: Groundwater volumes above were calculated in the field and used for approximate purge volumes; rounded values are shown for informational purposes only.

| TIME | VOLUME (GAL) | WATER LEVEL (ft BTOC) | pH | TEMP (deg C) | ORP (mV) | DO (mg/L) | SPECIFIC COND. (uS/cm) | TURBIDITY (NTU) | VISUAL APPEARANCE OF WATER | STABILIZATION ACHIEVED (YES/NO) (1) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1340 | 0.25 | 7.62 | 6.43 | 18.60 | -54.3 | 5.36 | 1426 | >1000 | Brown | N |
| 1345 | 0.50 | 7.63 | 6.41 | 12.64 | -43.4 | 0.49 | 1414 | >1000 | " " | N |
| 1350 | 0.75 | 7.64 | 10.38 | 12.98 | -43.3 | 0.19 | 1604 | 872 | light BRN | N |
| 1355 | 1.00 | 7.65 | 6.52 | 15.93 | -50.0 | 0.19 | 1580 | 735 | " " | N |
| 1400 | 1.25 | 7.65 | 6.52 | 16.03 | -52.1 | 0.25 | 1588 | 128 | " " | N |
| 1405 | 1.50 | 7.66 | 6.55 | 12.25 | -50.2 | 0.15 | 1477 | 126 | " " | N |
| 1410 | 2.00 | 7.66 | 6.41 | 12.10 | -46.1 | 0.13 | 1483 | 111 | " " | N |
| 1415 | 2.25 | 7.65 | 6.49 | 12.16 | -50.9 | 0.12 | 1499 | 58 | Clear | N |
| 1420 | 2.50 | 7.65 | 6.50 | 12.13 | -52.6 | 0.16 | 1503 | 46 | " " | N |
| 1425 | 2.75 | 7.65 | 6.52 | 12.08 | -52.4 | 0.14 | 1504 | 39 | " " | N |
| 1430 | 3.25 | 7.65 | 6.52 | 11.97 | -53.8 | 0.10 | 1501 | 31 | " " | N |
| 1435 | 3.50 | 7.66 | 6.51 | 12.17 | -54.3 | 0.13 | 1504 | 22 | " " | N |
| 1440 | 4.00 | 7.65 | 6.52 | 12.20 | -55.1 | 0.10 | 1509 | 20 | " " | Y |

(1) STABILIZATION is achieved when three (3) consecutive readings of field indicator parameters collected in 3 to 5 minute intervals meet the following criteria:

- ±0.1 standard units for pH
- ±10% for temperature
- ±3% for specific conductance (conductivity)
- ±10 mV for ORP or ±10% if between -100 mV and +100 mV
- ±10% for DO > 0.50 mg/L. Three DO readings < 0.50 mg/L can be considered stabile.
- ±10% for turbidity > 10 ntu. Three turbidity readings < 10 NTU can be considered stabile.

**Purge Until All Parameters Stablize or after 3 Well Volumes Are Removed for Low-Flow Minimal Drawdown Procedure**

TOTAL VOLUME PURGED: 4.00 (GAL) FLOW RATE (desired range is 100 to 500 mL/min): 252 ml/min.

SAMPLE TIME: 1450

QC SAMPLES COLLECTED: MS/MSD

**ANALYSIS (fill in correct method if not provided and the number of bottles collected for each parameter)**

| | | |
|---|---|---|
| VOCs (in water) by SW8260B X | Lead by SW6010B or SW6020 X (Metals) | Sulfate by E300.0 X |
| BTEX only by SW8260B ____ | TOC by SW9020 ____ | Chloride by E300.0 ____ |
| PAHs by SW8310 or SW8270 ____ | DOC by SW9020 ____ | Nitrate/Nitrite by E353.1 X |
| GRO by WDNR X | MEE by RSK-175 or Lab SOP ____ | Other (Specify) EDB |
| DRO by WDNR ____ | Alkalinity by E310.1 ____ | Other (Specify) Sulfide |

COMMENTS:

Mod. HC odor. Purged 1 hour.

*Stability criteria and purging criteria established by EPA Low-flow (Minimal Drawdown) Ground-water Sampling Procedures. Robert W. Puls and Michael J Barcelona. EPA/540/S-95/504. April 1996.*

**ATTACHMENT 3**

Well Construction Diagrams

Bristol
ENVIRONMENTAL REMEDIATION SERVICES, LLC

# WELL CONSTRUCTION DIAGRAM

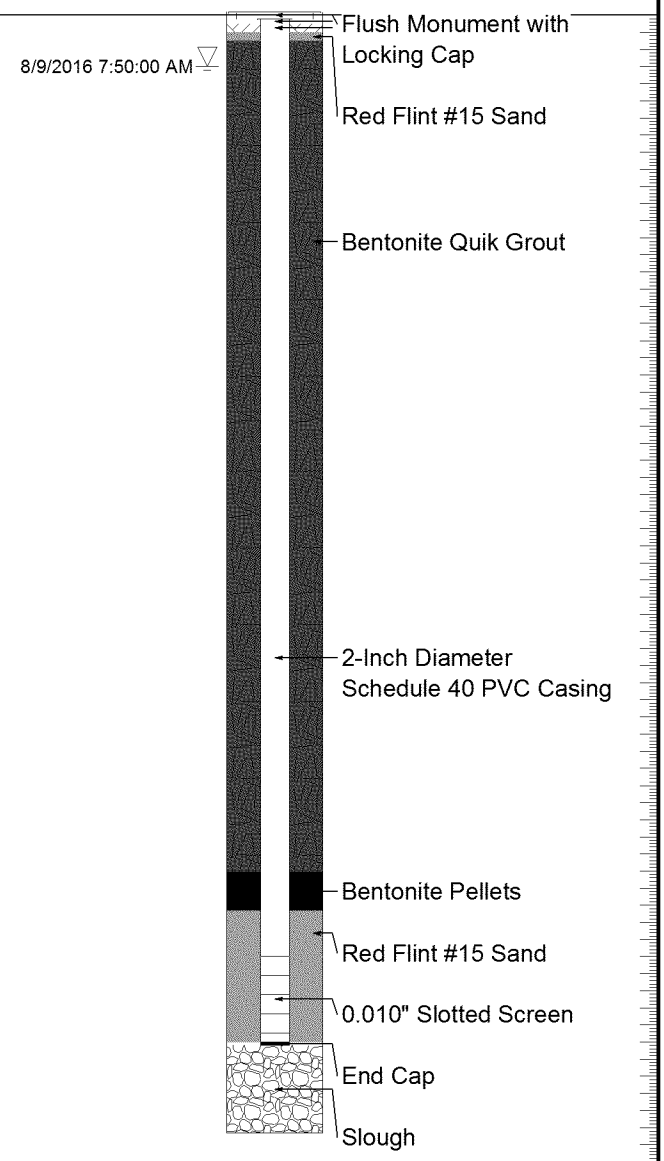
SHEET 1 OF 1 SHEETS

| | | |
|---|---|---|
| BOREHOLE LOCATION<br>N 1982979.9, E 1727927.9 | | DRILLING COMPANY<br>Coleman Engineering Company |
| COORDINATE SYSTEM AND DATUM<br>WTM, NAD 83 | | DRILL RIG<br>Diedrich D-120 |
| ELEVATION AT TOP OF HOLE<br>1570.0 feet | | DRILLING METHOD<br>Hollow Stem Auger |
| ELEVATION AT TOP OF CASING<br>1569.73 feet | | DRILLER<br>Craig Reidmer |
| ELEVATION DATUM<br>Mean Sea Level | | BOREHOLE DIAMETER<br>8 inches |
| TOTAL DEPTH<br>65.3 feet | DEPTH TO WATER<br>3 feet | LOGGED BY<br>Robert Beckman |
| GROUNDWATER ELEVATION<br>1567 feet | | DATE HOLE STARTED 8/3/2016 COMPLETED 8/5/2016 |

PROJECT: Task Order 3012
CLIENT: U.S. EPA
JOB NUMBER: 34170026
SITE: Tower Standard
LOCATION: Lac du Flambeau, Wisconsin

| DEPTH (FEET) | GRAPHIC LOG | USCS | SAMPLE INTERVAL | BLOW COUNT | RECOVERY | PID (ppm) | ANALYTICAL SAMPLE |
|---|---|---|---|---|---|---|---|
| 0.0–5.0 | | SW | | | | | |
| 5.0–6.0 | | SW | | | | | |
| 6.0–10.0 | | SW | | | | | |
| 10.0–15.0 | | SW | | | | | |
| 15.0–20.0 | | SW | | | | | |
| 20.0–25.0 | | SW | | | | | |
| 25.0–30.0 | | SW | | | | | |
| 30.0–35.0 | | SW | | | | | |
| 35.0–65.2 | | GW | | | | | |

WELL CONSTRUCTION DETAILS




**BERS Well Construction Diagram Version:** 0413

PROJECT: Task Order 3012

WELL NO.: MW-16E

Bristol
ENVIRONMENTAL REMEDIATION SERVICES, LLC

# WELL CONSTRUCTION DIAGRAM

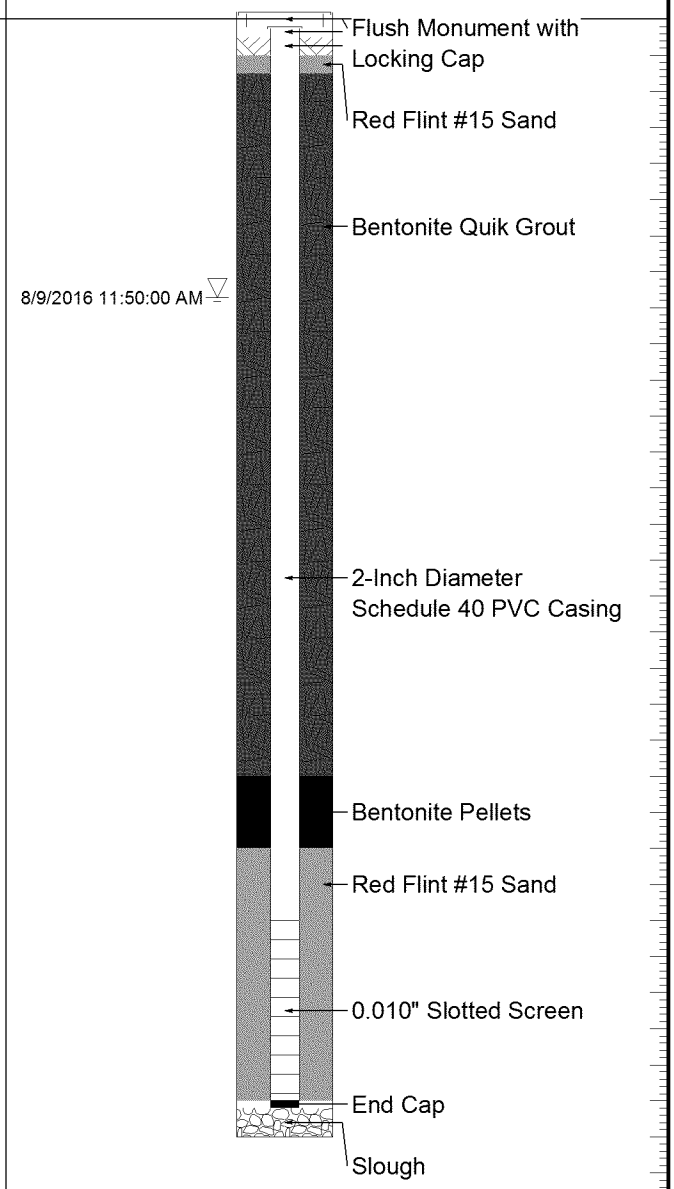
SHEET 1 OF 1 SHEETS

| | | |
|---|---|---|
| BOREHOLE LOCATION<br>N 1983142.6, E 1728145.1 | | DRILLING COMPANY<br>Coleman Engineering Company |
| COORDINATE SYSTEM AND DATUM<br>WTM, NAD 83 | | DRILL RIG<br>Diedrich D-120 |
| ELEVATION AT TOP OF HOLE<br>1575.6 feet | | DRILLING METHOD<br>Hollow Stem Auger |
| ELEVATION AT TOP OF CASING<br>1575.37 feet | | DRILLER<br>Craig Reidmer |
| ELEVATION DATUM<br>Mean Sea Level | | BOREHOLE DIAMETER<br>8 inches |
| TOTAL DEPTH<br>31 feet | DEPTH TO WATER<br>7.72 feet | LOGGED BY<br>Robert Beckman |
| GROUNDWATER ELEVATION<br>1567.88 feet | | DATE HOLE: STARTED 8/5/2016, COMPLETED 8/5/2016 |

PROJECT: Task Order 3012
CLIENT: U.S. EPA
JOB NUMBER: 34170026
SITE: Tower Standard
LOCATION: Lac du Flambeau, Wisconsin

| DEPTH (FEET) | GRAPHIC LOG | USCS | SAMPLE INTERVAL | BLOW COUNT | RECOVERY | PID (ppm) | ANALYTICAL SAMPLE |
|---|---|---|---|---|---|---|---|
| 0.0–5.0 | | SW | | | | | |
| 5.0–8.0 | | GW | | | | | |
| 8.0–10.0 | | SP | | | | | |
| 10.0–12.0 | | SW | | | | | |
| 12.0–15.0 | | SM | | | | | |
| 15.0–19.0 | | SM | | | | | |
| 19.0–20.0 | | SM | | | | | |
| 20.0–23.0 | | SM | | | | | |
| 23.0–25.0 | | SM | | | | | |
| 25.0–30.0 | | Sm | | | | | |

WELL CONSTRUCTION DETAILS




**BERS Well Construction Diagram Version:** 0413

PROJECT: Task Order 3012

WELL NO.: MW-21M

**ATTACHMENT 4**

Tabulated Analytical Results

**Attachment 4 Tabulated Analytical Results from August 2016 Sampling Event**
**Tower Standard Site, Lac du Flambeau, WI**

| | | | Monitoring Well | | | MW-16 | MW-16D | | MW-16E | MW-21 | MW-21D | MW-21M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample ID | | | 1608TOWERMW16 | 1608TOWERMW16D† | 1608TOWERMW18D† | 1608TOWERMW16E | 1608TOWERMW21 | 1608TOWERMW21D | 1608TOWERMW21M |
| | | | Laboratory ID | | | 10358621001 | 10358621002 | 10358621003 | 10358621004 | 10358621005 | 10358621007 | 10358621006 |
| | | | Collection Date | | | 8/8/2016 | 8/8/2016 | 8/8/2016 | 8/9/2016 | 8/8/2016 | 8/9/2016 | 8/9/2016 |
| **Analysis Method** | **Analytes** | **Units** | **Groundwater Cleanup Standards[1]** | **EPA MCLs[2]** | **PALs[3]** | | | | | | | |
| **Volatile Organic Compounds** | | | | | | | | | | | | |
| EPA 8260B | 1,1,1,2-Tetrachloroethane | µg/L | 70 | NE | 7 | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) |
| EPA 8260B | 1,1,1-Trichloroethane | µg/L | 200 | NE | 40 | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | 1,1,2,2-Tetrachloroethane | µg/L | 0.2 | NE | 0.02 | *ND (1.0)* | *ND (1.0)* | *ND (1.0)* | *ND (1.0)* | *ND (1.0)* | *ND (1.0)* | *ND (1.0)* |
| EPA 8260B | 1,1,2-Trichloroethane | µg/L | 5 | NE | 0.5 | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | 1,1,2-Trichlorotrifluoroethane | µg/L | NE | NE | NE | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | 1,1-Dichloroethane | µg/L | 850 | NE | 85 | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (1.0) | ND (4.0) |
| EPA 8260B | 1,1-Dichloroethene | µg/L | 7 | NE | 0.7 | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | 1,1-Dichloropropene | µg/L | NE | NE | NE | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | 1,2,3-Trichlorobenzene | µg/L | NE | NE | NE | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | 1,2,3-Trichloropropane | µg/L | 60 | NE | 12 | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) |
| EPA 8260B | 1,2,4-Trichlorobenzene | µg/L | 70 | NE | 14 | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | 1,2,4-Trimethylbenzene | µg/L | NE | NE | NE | ND (1.0) | 367 | 336 | 96.6 | 2,920 | 30.6 MH | 1,310 |
| EPA 8260B | 1,3,5-Trimethylbenzene | µg/L | NE | NE | NE | ND (1.0) | 79.5 | 84.3 | 16.9 | 744 | 8.2 | 480 |
| EPA 8260B | Total Trimethylbenzenes | µg/L | 480 | NE | 96 | ND (2.0) | 446.5 | 420.3 | 113.5 | **3,664** | 38.8 | **1,790** |
| EPA 8260B | 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | NE | 0.02 | *ND (10.0)* | *ND (10.0)* | *ND (10.0)* | *ND (10.0)* | *ND (10.0)* | *ND (10.0)* | *ND (10.0)* |
| EPA 8260B | 1,2-Dibromoethane (EDB) | µg/L | 0.05 | NE | 0.005 | *ND (1.0)* | *ND (1.0)* | *ND (1.0)* | *ND (1.0)* | *ND (1.0)* | *ND (1.0)* | *ND (1.0)* |
| EPA 8260B | 1,2-Dichlorobenzene | µg/L | 600 | NE | 60 | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | 1,2-Dichloroethane (1,2-DCA) | µg/L | 5 | NE | 0.5 | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | 1,2-Dichloropropane | µg/L | 5 | NE | 0.5 | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) |
| EPA 8260B | 1,3-Dichlorobenzene | µg/L | 1,250 | NE | 120 | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | 1,3-Dichloropropane | µg/L | NE | NE | NE | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | 1,4-Dichlorobenzene | µg/L | 75 | NE | 15 | ND (1.0) | ND (1.0) | ND (1.0) | 0.28 J | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | 2,2-Dichloropropane | µg/L | NE | NE | NE | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) |
| EPA 8260B | 2-Butanone (MEK) | µg/L | 460 | NE | 0.8 | ND (5.0) | ND (5.0) | ND (5.0) | ND (5.0) | ND (5.0) | ND (5.0) | ND (5.0) |
| EPA 8260B | 2-Chlorotoluene | µg/L | NE | NE | NE | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | 4-Chlorotoluene | µg/L | NE | NE | NE | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | 4-Methyl-2-pentanone (MIBK) | µg/L | 500 | NE | 50 | ND (5.0) | 0.69 J | 0.72 J | ND (5.0) | 9.4 | ND (5.0) | 2.6 J |
| EPA 8260B | Acetone | µg/L | 1,000 | NE | 1,800 | 2.4 J B | ND (20.0) | ND (20.0) | 10.0 J B | 37.3 B | 2.2 J | 32.1 B |
| EPA 8260B | Allyl chloride | µg/L | NE | NE | NE | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) |
| EPA 8260B | Benzene | µg/L | 5 | 5 | 0.5 | 0.75 J | **1,240** | **1,300** | **768** | **458** | **45.9 MH** | **2,150** |
| EPA 8260B | Bromobenzene | µg/L | NE | NE | NE | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | Bromochloromethane | µg/L | NE | NE | NE | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | Bromodichloromethane | µg/L | NE | 80 | 0.06 | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | Bromoform | µg/L | NE | 80 | 0.44 | ND (10.0) QL | ND (10.0) QL | ND (10.0) QL | ND (10.0) QL | ND (10.0) QL | ND (4.0) | ND (10.0) QL |
| EPA 8260B | Bromomethane | µg/L | NE | NE | 1 | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) |
| EPA 8260B | Carbon tetrachloride | µg/L | 5 | 5 | 0.5 | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) |
| EPA 8260B | Chlorobenzene | µg/L | NE | 100 | NE | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | Chloroethane | µg/L | 400 | NE | 80 | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (1.0) | ND (4.0) |
| EPA 8260B | Chloroform | µg/L | 6 | 80 | 0.6 | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | Chloromethane | µg/L | 3 | NE | 3 | *ND (4.0)* | *ND (4.0)* | *ND (4.0)* | *ND (4.0)* | *ND (4.0)* | *ND (4.0)* | *ND (4.0)* |
| EPA 8260B | cis-1,2-Dichloroethene | µg/L | 70 | 70 | 7 | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | cis-1,3-Dichloropropene | µg/L | 0.2 | NE | 0.04 | *ND (4.0)* | *ND (4.0)* | *ND (4.0)* | *ND (4.0)* | *ND (4.0)* | *ND (4.0)* | *ND (4.0)* |
| EPA 8260B | Dibromochloromethane | µg/L | NE | 80 | 6 | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) |
| EPA 8260B | Dibromomethane | µg/L | NE | NE | NE | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) |
| EPA 8260B | Dichlorodifluoromethane | µg/L | 1,000 | NE | 200 | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |

**Attachment 4 Tabulated Analytical Results from August 2016 Sampling Event**
**Tower Standard Site, Lac du Flambeau, WI**

| | | | **Monitoring Well** | | | MW-16 | MW-16D | | MW-16E | MW-21 | MW-21D | MW-21M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **Sample ID** | | | 1608TOWERMW16 | 1608TOWERMW16D[†] | 1608TOWERMW18D[†] | 1608TOWERMW16E | 1608TOWERMW21 | 1608TOWERMW21D | 1608TOWERMW21M |
| | | | **Laboratory ID** | | | 10358621001 | 10358621002 | 10358621003 | 10358621004 | 10358621005 | 10358621007 | 10358621006 |
| | | | **Collection Date** | | | 8/8/2016 | 8/8/2016 | 8/8/2016 | 8/9/2016 | 8/8/2016 | 8/9/2016 | 8/9/2016 |
| **Analysis Method** | **Analytes** | **Units** | **Groundwater Cleanup Standards[1]** | **EPA MCLs[2]** | **PALs[3]** | | | | | | | |
| **Volatile Organic Compounds (Continued)** | | | | | | | | | | | | |
| EPA 8260B | Diethyl ether (Ethyl ether) | µg/L | NE | NE | 100 | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) |
| EPA 8260B | Ethylbenzene | µg/L | 700 | 700 | 140 | ND (1.0) | 61.8 | 65.3 | 8.9 | **1,700** | 8.1 | **1,660** |
| EPA 8260B | Hexachloro-1,3-butadiene | µg/L | NE | NE | NE | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (1.0) | ND (4.0) |
| EPA 8260B | Isopropylbenzene (Cumene) | µg/L | NE | NE | NE | ND (1.0) | 26.0 | 26.7 | 9.9 | 111 | 1.2 | 81.1 |
| EPA 8260B | Methylene Chloride | µg/L | 5 | 5 | 0.5 | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) | ND (4.0) |
| EPA 8260B | Methyl tertiary-butyl ether (MTBE) | µg/L | 60 | NE | 12 | ND (1.0) | 1.9 | 2.3 | 10.0 | 0.24 J | ND (1.0) | 7.4 |
| EPA 8260B | Naphthalene | µg/L | 40 | NE | 10 | ND (4.0) | **109** | **114** | 28.2 | **703** | 4.9 | **470** |
| EPA 8260B | n-Butylbenzene | µg/L | NE | NE | NE | ND (1.0) | 3.3 | 3.5 | 0.59 J | 52.4 | 1.8 | 29.3 |
| EPA 8260B | n-Propylbenzene | µg/L | NE | NE | NE | ND (1.0) | 66.9 | 69.5 | 18.4 | 268 | 5.3 MH | 238 |
| EPA 8260B | p-Isopropyltoluene | µg/L | NE | NE | NE | ND (1.0) | 1.6 | 1.7 | 0.52 J | 15.9 | 0.44 J MH | 8.0 |
| EPA 8260B | sec-Butylbenzene | µg/L | NE | NE | NE | ND (1.0) | 4.0 | 4.3 | 1.3 | 21.6 | 0.69 J | 16.2 |
| EPA 8260B | Styrene | µg/L | 100 | 100 | 10 | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | 12.5 | ND (1.0) | 5.9 |
| EPA 8260B | tert-Butylbenzene | µg/L | NE | NE | NE | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | Tetrachloroethene | µg/L | NE | 5 | 0.5 | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | Tetrahydrofuran | µg/L | 50 | NE | 10 | ND (10.0) | ND (10.0) | ND (10.0) | ND (10.0) | ND (10.0) | ND (10.0) | ND (10.0) |
| EPA 8260B | Toluene | µg/L | 1,000 | 1,000 | 160 | ND (1.0) | 22.2 | 23.0 | 6.1 B | **3,280 B** | 7.3 | **1,320 B** |
| EPA 8260B | trans-1,2-Dichloroethene | µg/L | 100 | NE | 20 | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | trans-1,3-Dichloropropene | µg/L | 0.2 | NE | 0.04 | *ND (4.0)* | *ND (4.0)* | *ND (4.0)* | *ND (4.0)* | *ND (4.0)* | *ND (4.0)* | *ND (4.0)* |
| EPA 8260B | Trichloroethene | µg/L | 5 | NE | 0.5 | ND (0.40) | ND (0.40) | ND (0.40) | ND (0.40) | ND (0.40) | ND (0.40) | ND (0.40) |
| EPA 8260B | Trichlorofluoromethane | µg/L | 3,490 | NE | NE | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| EPA 8260B | Vinyl chloride | µg/L | 0.2 | NE | 0.02 | *ND (0.40)* | *ND (0.40)* | *ND (0.40)* | *ND (0.40)* | *ND (0.40)* | *ND (1.0)* | *ND (0.40)* |
| EPA 8260B | Xylene (Total) | µg/L | 10,000 | 10,000 | 400 | ND (3.0) | 1,610 | 1,410 | 506 | 9,060 | 64.5 | 4,340 |
| **Ethylene Dibromide** | | | | | | | | | | | | |
| EPA 8011 | 1,2-Dibromoethane (EDB) | µg/L | 0.05 | NE | 0.005 | ND (0.0097) | ND (0.0098) | ND (0.010) | ND (0.0098) | 0.0072 J | ND (0.0099) | 0.011 |
| **Anions** | | | | | | | | | | | | |
| ASTM D516 | Sulfate | mg/L | NE | NE | NE | 7.2 | ND (3.5) | ND (3.5) | 1.2 J | 1.5 J | 1.1 J | ND (3.5) |
| SM 4500-S2-D | Sulfide | mg/L | NE | NE | NE | ND (0.10) | ND (0.10) | 0.40 | 0.024 J | 0.022 J | 0.014 J | ND (0.10) |
| SM 4500-S H | Sulfide as Hydrogen Sulfide | mg/L | NE | NE | NE | ND (0.10) | ND (0.10) | 0.11 | ND (0.10) | ND (0.10) | ND (0.10) | ND (0.10) |
| SM 4500-NO3 H | Nitrate as N | mg/L | 10,000 | NE | 2,000 | ND (0.058) | ND (0.058) | ND (0.058) | ND (0.058) | 0.047 J | 0.063 | 0.12 |
| SM 4500-NO2 B | Nitrite as N | mg/L | 1,000 | NE | 200 | ND (0.012) H | ND (0.012) H | ND (0.012) H | 0.0044 J H | ND (0.012) H | ND (0.012) H | ND (0.012) H |
| SM 4500-NO3 H | Nitrogen, NO2 plus NO3 | mg/L | 10,000 | NE | 2,000 | ND (0.17) | ND (0.17) | ND (0.17) | ND (0.17) | ND (0.17) | 0.063 J ML | 0.12 J |



EPA-R5-2017-010506_0002778

**Attachment 4 Tabulated Analytical Results from August 2016 Sampling Event**
**Tower Standard Site, Lac du Flambeau, WI**

| | | | **Monitoring Well** | | | MW-16 | MW-16D | | MW-16E | MW-21 | MW-21D | MW-21M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **Sample ID** | | | 1608TOWERMW16 | 1608TOWERMW16D[†] | 1608TOWERMW18D[†] | 1608TOWERMW16E | 1608TOWERMW21 | 1608TOWERMW21D | 1608TOWERMW21M |
| | | | **Laboratory ID** | | | 10358621001 | 10358621002 | 10358621003 | 10358621004 | 10358621005 | 10358621007 | 10358621006 |
| | | | **Collection Date** | | | 8/8/2016 | 8/8/2016 | 8/8/2016 | 8/9/2016 | 8/8/2016 | 8/9/2016 | 8/9/2016 |
| **Analysis Method** | **Analytes** | **Units** | **Groundwater Cleanup Standards[1]** | **EPA MCLs[2]** | **PALs[3]** | | | | | | | |
| **Metals** | | | | | | | | | | | | |
| EPA 6020B | Arsenic | µg/L | 10 | 10 | 1 | 1.4 | 0.55 | 0.58 | 0.59 | 2.3 | 0.43 J | 1.5 |
| EPA 6020B | Barium | µg/L | 2,000 | 2,000 | 400 | 181 | 173 | 172 | 205 B | 95.9 B | 299 B | 80.9 B |
| EPA 6020B | Cadmium | µg/L | 5 | 5 | 0.5 | ND (0.080) | ND (0.080) | ND (0.080) | ND (0.080) | 0.078 J | ND (0.080) | 0.057 J |
| EPA 6020B | Chromium | µg/L | 50 | 100 | 10 | 7.3 | 2.5 | 2.3 | 2.3 | 8.5 | 4.4 | 9.5 |
| EPA 6020B | Iron | µg/L | NE | NE | NE | 17,000 | 7,220 | 7,200 | 1,460 | 19,200 | 65,700 ML | 8,830 |
| EPA 6020B | Lead | µg/L | 15 | NE | 1.5 | 1.7 | 0.41 | 0.42 | 0.29 B | 8.6 B | 0.41 B | 2.8 B |
| EPA 6020B | Manganese | µg/L | NE | NE | 60 | 1,760 | 2,260 | 2,250 | 1,650 | 6,550 | 1,580 ML | 3,170 |
| EPA 245.1 | Mercury | µg/L | 2 | 2 | 0.2 | ND (0.072) | ND (0.072) | ND (0.072) | --- | --- | --- | --- |
| EPA 7470A | Mercury | µg/L | 2 | 2 | 0.2 | --- | --- | --- | ND (0.10) | ND (0.10) | ND (0.10) | ND (0.10) |
| EPA 6020B | Selenium | µg/L | 50 | 50 | 10 | ND (0.50) | ND (0.50) | ND (0.50) | 0.18 J | 0.39 J | 0.19 J | 0.43 J |
| EPA 6020B | Silver | µg/L | 50 | NE | 10 | ND (0.50) | ND (0.50) | ND (0.50) | ND (0.50) | 0.042 J B | 0.013 J B | 0.069 J B |

Notes:
[1]The Groundwater Cleanup Standards from Appenedix A of the LDF Tribe's Hazardous Substances Control Code are the primary project action levels
[2]When LDF Groundwater Cleanup Standards are not available, EPA MCLs established by the Safe Drinking Water Act apply
[3]Preventative Action Limits from Wisconsin Administrative Code, Chapter NR 140, Groundwater Quality are provided for reference purposes only
**Bolded** results exceed project action levels
Italicized non-detects have LOQs that exceed project action levels

µg/L = micrograms per liter
B = Analytical result considered a high estimated value due to contamination present in the blank
EPA = U.S. Environmental Protection Agency
H = Sample was extracted or analyzed outside of hold time
ID = identification
J = Positive result is less than the LOQ and considered an estimate
LDF = Lac du Flambeau
LOD = Limit of detection
LOQ = Limit of quantitation
MCL = Maximum Contaminant Level
MH = Analytical result is considered a high estimated value due to matrix effects
ML = Analytical result is considered a low estimated value due to matrix effects
ND = Analytical result not detected above the LOD (LOQ in parantheses)
PAL = Preventative Action Limit
QH = Analytical result is considered a high estimated value due to laboratory quality control failure
QL = Analytical result is considered a low estimated value due to laboratory quality control failure



EPA-R5-2017-010506_0002778

**ATTACHMENT 5**

Laboratory Analytical Reports

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

August 22, 2016

Matt Faust
Bristol Environmental Remediation Services, LLC
111 W. 16th Avenue
Anchorage, AK 99501

RE: Project: Tower, WI
Pace Project No.: 10358347

Dear Matt Faust:
Enclosed are the analytical results for sample(s) received by the laboratory on August 09, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI 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,

Shawn Davis
shawn.davis@pacelabs.com
Project Manager

Enclosures



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

# CERTIFICATIONS

Project: Tower, WI
Pace Project No.: 10358347

**Minnesota Certification IDs**

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
525 N 8th Street, Salina, KS 67401
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Alabama Certification #40770
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: 8TMS-L
Florida/NELAP Certification #: E87605
Guam Certification #:14-008r
Georgia Certification #: 959
Georgia EPD #: Pace
Idaho Certification #: MN00064
Hawaii Certification #MN00064
Illinois Certification #: 200011
Indiana Certification#C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky Dept of Envi. Protection - DW #90062
Kentucky Dept of Envi. Protection - WW #:90062
Louisiana DEQ Certification #: 3086
Louisiana DHH #: LA140001
Maine Certification #: 2013011
Maryland Certification #: 322
Michigan DEPH Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Carolina State Public Health #: 27700
North Dakota Certification #: R-036
Ohio EPA #: 4150
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Saipan (CNMI) #:MP0003
South Carolina #:74003001
Texas Certification #: T104704192
Tennessee Certification #: 02818
Utah Certification #: MN000642013-4
Virginia DGS Certification #: 251
Virginia/VELAP Certification #: Pace
Washington Certification #: C486
West Virginia Certification #: 382
West Virginia DHHR #:9952C
Wisconsin Certification #: 999407970

**Montana Certification IDs**

150 N. 9th Street, Billings, MT 59101
A2LA Certification #: 3590.01
EPA Region 8 Certification #: 8TMS-L
Idaho Certification #: MT00012
Minnesota Dept of Health Certification #: 030-999-442
Montana Certification #: MT CERT0040
North Dakota Dept. Of Health #: R-209
Washington Department of Ecology #: C993



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## SAMPLE SUMMARY

Project: Tower, WI
Pace Project No.: 10358347

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **10358347001** | **1608TOWERMW16** | Water | 08/08/16 10:55 | 08/09/16 09:30 |
| **10358347002** | **1608TOWERMW16D** | Water | 08/08/16 13:00 | 08/09/16 09:30 |
| **10358347003** | **1608TOWERMW18D** | Water | 08/08/16 13:30 | 08/09/16 09:30 |



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# SAMPLE ANALYTE COUNT

Project: Tower, WI
Pace Project No.: 10358347

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| **10358347001** | **1608TOWERMW16** | EPA 6020B | TT3 | 9 | PASI-M |
| | | EPA 245.1 | LMW | 1 | PASI-M |
| | | SM 2510B | CAC | 1 | PASI-MT |
| | | SM 4500-H+B | CAC | 1 | PASI-MT |
| | | SM 4500-S2-D | JME | 1 | PASI-MT |
| | | SM 4500-S H | VRJ | 1 | PASI-MT |
| | | SM 4500-NO3 H | DCL | 2 | PASI-M |
| | | ASTM D516 | KEO | 1 | PASI-M |
| | | SM 4500-NO2 B | KEO | 1 | PASI-M |
| **10358347002** | **1608TOWERMW16D** | EPA 6020B | TT3 | 9 | PASI-M |
| | | EPA 245.1 | LMW | 1 | PASI-M |
| | | SM 2510B | CAC | 1 | PASI-MT |
| | | SM 4500-H+B | CAC | 1 | PASI-MT |
| | | SM 4500-S2-D | JME | 1 | PASI-MT |
| | | SM 4500-S H | VRJ | 1 | PASI-MT |
| | | SM 4500-NO3 H | DCL | 2 | PASI-M |
| | | ASTM D516 | KEO | 1 | PASI-M |
| | | SM 4500-NO2 B | KEO | 1 | PASI-M |
| **10358347003** | **1608TOWERMW18D** | EPA 6020B | TT3 | 9 | PASI-M |
| | | EPA 245.1 | LMW | 1 | PASI-M |
| | | SM 2510B | CAC | 1 | PASI-MT |
| | | SM 4500-H+B | CAC | 1 | PASI-MT |
| | | SM 4500-S2-D | JME | 1 | PASI-MT |
| | | SM 4500-S H | VRJ | 1 | PASI-MT |
| | | SM 4500-NO3 H | DCL | 2 | PASI-M |
| | | ASTM D516 | KEO | 1 | PASI-M |
| | | SM 4500-NO2 B | KEO | 1 | PASI-M |



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Minneapolis, MN 55414
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# SUMMARY OF DETECTION

Project: Tower, WI
Pace Project No.: 10358347

| Lab Sample ID<br>Method | Client Sample ID<br>Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **10358347001** | **1608TOWERMW16** | | | | | |
| EPA 6020B | Arsenic | 1.4 | ug/L | 0.50 | 08/19/16 13:58 | |
| EPA 6020B | Barium | 181 | ug/L | 0.30 | 08/19/16 13:58 | |
| EPA 6020B | Chromium | 7.3 | ug/L | 0.50 | 08/19/16 13:58 | |
| EPA 6020B | Iron | 17000 | ug/L | 50.0 | 08/19/16 13:58 | |
| EPA 6020B | Lead | 1.7 | ug/L | 0.10 | 08/19/16 13:58 | |
| EPA 6020B | Manganese | 1760 | ug/L | 5.0 | 08/19/16 14:35 | |
| SM 2510B | Specific Conductance | 662 | umhos/cm | 10.0 | 08/16/16 15:00 | |
| SM 4500-H+B | pH at 25 Degrees C | 6.6 | Std. Units | 0.10 | 08/15/16 18:48 | H6 |
| ASTM D516 | Sulfate | 7.2 | mg/L | 3.5 | 08/12/16 08:34 | |
| **10358347002** | **1608TOWERMW16D** | | | | | |
| EPA 6020B | Arsenic | 0.55 | ug/L | 0.50 | 08/19/16 14:01 | |
| EPA 6020B | Barium | 173 | ug/L | 0.30 | 08/19/16 14:01 | |
| EPA 6020B | Chromium | 2.5 | ug/L | 0.50 | 08/19/16 14:01 | |
| EPA 6020B | Iron | 7220 | ug/L | 50.0 | 08/19/16 14:01 | |
| EPA 6020B | Lead | 0.41 | ug/L | 0.10 | 08/19/16 14:01 | |
| EPA 6020B | Manganese | 2260 | ug/L | 5.0 | 08/19/16 14:37 | |
| SM 2510B | Specific Conductance | 1020 | umhos/cm | 10.0 | 08/16/16 15:01 | |
| SM 4500-H+B | pH at 25 Degrees C | 7.1 | Std. Units | 0.10 | 08/15/16 18:52 | H6 |
| **10358347003** | **1608TOWERMW18D** | | | | | |
| EPA 6020B | Arsenic | 0.58 | ug/L | 0.50 | 08/19/16 14:03 | |
| EPA 6020B | Barium | 172 | ug/L | 0.30 | 08/19/16 14:03 | |
| EPA 6020B | Chromium | 2.3 | ug/L | 0.50 | 08/19/16 14:03 | |
| EPA 6020B | Iron | 7200 | ug/L | 50.0 | 08/19/16 14:03 | |
| EPA 6020B | Lead | 0.42 | ug/L | 0.10 | 08/19/16 14:03 | |
| EPA 6020B | Manganese | 2250 | ug/L | 5.0 | 08/20/16 16:10 | |
| SM 2510B | Specific Conductance | 1030 | umhos/cm | 10.0 | 08/16/16 15:02 | |
| SM 4500-H+B | pH at 25 Degrees C | 7.4 | Std. Units | 0.10 | 08/15/16 19:07 | H6 |
| SM 4500-S2-D | Sulfide | 0.40 | mg/L | 0.10 | 08/10/16 14:42 | |
| SM 4500-S H | Sulfide as H2S (calc) | 0.11 | mg/L | 0.10 | 08/16/16 16:40 | AL |



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# PROJECT NARRATIVE

Project: Tower, WI
Pace Project No.: 10358347

**Method:** **EPA 6020B**
**Description:** 6020B MET ICPMS
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 22, 2016

**General Information:**
3 samples were analyzed for EPA 6020B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**
All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**
All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**
All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 429937

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10358621007

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2342797)
  - Iron
  - Manganese
- MSD (Lab ID: 2342798)
  - Iron

**Additional Comments:**

Analyte Comments:

QC Batch: 429937

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 2342797)
  - Iron



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# PROJECT NARRATIVE

Project: Tower, WI
Pace Project No.: 10358347

**Method:** **EPA 6020B**
**Description:** 6020B MET ICPMS
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 22, 2016

Analyte Comments:

QC Batch: 429937

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 2342797)
  - Manganese
- MSD (Lab ID: 2342798)
  - Iron
  - Manganese



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# PROJECT NARRATIVE

Project: Tower, WI
Pace Project No.: 10358347

**Method:** **EPA 245.1**
**Description:** 245.1 Mercury
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 22, 2016

**General Information:**
3 samples were analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**
The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**
All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**
All criteria were within method requirements with any exceptions noted below.

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**


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# PROJECT NARRATIVE

Project: Tower, WI
Pace Project No.: 10358347

**Method:** **SM 2510B**
**Description:** 2510B Specific Conductance
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 22, 2016

**General Information:**
3 samples were analyzed for SM 2510B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**
All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**
All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**
All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**
All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Duplicate Sample:**
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

**Additional Comments:**



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# PROJECT NARRATIVE

Project: Tower, WI
Pace Project No.: 10358347

**Method:** **SM 4500-H+B**
**Description:** 4500H+ pH, Electrometric
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 22, 2016

**General Information:**
3 samples were analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.
- 1608TOWERMW16 (Lab ID: 10358347001)
- 1608TOWERMW16D (Lab ID: 10358347002)
- 1608TOWERMW18D (Lab ID: 10358347003)

**Initial Calibrations (including MS Tune as applicable):**
All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**
All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**
All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**
All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Duplicate Sample:**
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

**Additional Comments:**


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# PROJECT NARRATIVE

Project: Tower, WI
Pace Project No.: 10358347

**Method:** **SM 4500-S2-D**
**Description:** 4500S2D Sulfide Water
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 22, 2016

**General Information:**
3 samples were analyzed for SM 4500-S2-D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**
All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**
All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**
All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**
All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Duplicate Sample:**
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

**Additional Comments:**



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# PROJECT NARRATIVE

Project: Tower, WI
Pace Project No.: 10358347

**Method:** **SM 4500-S H**
**Description:** 4500S2H Sulfide as H2S Calc
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 22, 2016

**General Information:**
3 samples were analyzed for SM 4500-S H. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**
All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**
All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**
All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**
All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**


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# PROJECT NARRATIVE

Project: Tower, WI
Pace Project No.: 10358347

**Method:** **SM 4500-NO3 H**
**Description:** SM4500NO3-H, NO2 + NO3 pres.
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 22, 2016

**General Information:**
3 samples were analyzed for SM 4500-NO3 H. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**
All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**
All criteria were within method requirements with any exceptions noted below.

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**



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# PROJECT NARRATIVE

Project: Tower, WI
Pace Project No.: 10358347

**Method:** **ASTM D516**
**Description:** ASTM D516 Sulfate Water
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 22, 2016

**General Information:**
3 samples were analyzed for ASTM D516. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**
All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**
All criteria were within method requirements with any exceptions noted below.

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 430254

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10358170001,10358349004

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2340924)
  - Sulfate
- MSD (Lab ID: 2340925)
  - Sulfate

**Additional Comments:**



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# PROJECT NARRATIVE

Project: Tower, WI
Pace Project No.: 10358347

**Method:** **SM 4500-NO2 B**
**Description:** SM4500NO2-B, Nitrite, unpres
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 22, 2016

**General Information:**
3 samples were analyzed for SM 4500-NO2 B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**
All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**
All criteria were within method requirements with any exceptions noted below.

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.



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# ANALYTICAL RESULTS

Project: Tower, WI
Pace Project No.: 10358347

**Sample: 1608TOWERMW16** **Lab ID: 10358347001** Collected: 08/08/16 10:55 Received: 08/09/16 09:30 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3020 | | | | | | | | |
| Arsenic | **1.4** | ug/L | 0.50 | 0.091 | 1 | 08/18/16 16:36 | 08/19/16 13:58 | 7440-38-2 | |
| Barium | **181** | ug/L | 0.30 | 0.019 | 1 | 08/18/16 16:36 | 08/19/16 13:58 | 7440-39-3 | |
| Cadmium | ND | ug/L | 0.080 | 0.013 | 1 | 08/18/16 16:36 | 08/19/16 13:58 | 7440-43-9 | |
| Chromium | **7.3** | ug/L | 0.50 | 0.14 | 1 | 08/18/16 16:36 | 08/19/16 13:58 | 7440-47-3 | |
| Iron | **17000** | ug/L | 50.0 | 18.5 | 1 | 08/18/16 16:36 | 08/19/16 13:58 | 7439-89-6 | |
| Lead | **1.7** | ug/L | 0.10 | 0.012 | 1 | 08/18/16 16:36 | 08/19/16 13:58 | 7439-92-1 | |
| Manganese | **1760** | ug/L | 5.0 | 1.3 | 10 | 08/18/16 16:36 | 08/19/16 14:35 | 7439-96-5 | |
| Selenium | ND | ug/L | 0.50 | 0.13 | 1 | 08/18/16 16:36 | 08/19/16 13:58 | 7782-49-2 | |
| Silver | ND | ug/L | 0.50 | 0.0092 | 1 | 08/18/16 16:36 | 08/19/16 13:58 | 7440-22-4 | B |
| **245.1 Mercury** | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 | | | | | | | | |
| Mercury | ND | ug/L | 0.072 | 0.031 | 1 | 08/11/16 21:00 | 08/14/16 17:59 | 7439-97-6 | |
| **2510B Specific Conductance** | Analytical Method: SM 2510B | | | | | | | | |
| Specific Conductance | **662** | umhos/cm | 10.0 | 10.0 | 1 | | 08/16/16 15:00 | | |
| **4500H+ pH, Electrometric** | Analytical Method: SM 4500-H+B | | | | | | | | |
| pH at 25 Degrees C | **6.6** | Std. Units | 0.10 | 0.10 | 1 | | 08/15/16 18:48 | | H6 |
| **4500S2D Sulfide Water** | Analytical Method: SM 4500-S2-D | | | | | | | | |
| Sulfide | ND | mg/L | 0.10 | 0.011 | 1 | | 08/10/16 14:44 | | |
| **4500S2H Sulfide as H2S Calc** | Analytical Method: SM 4500-S H | | | | | | | | |
| Sulfide as H2S (calc) | ND | mg/L | 0.10 | 0.020 | 1 | | 08/16/16 16:40 | | AL |
| **SM4500NO3-H, NO2 + NO3 pres.** | Analytical Method: SM 4500-NO3 H | | | | | | | | |
| Nitrate as N | ND | mg/L | 0.058 | 0.018 | 1 | | 08/12/16 13:23 | 14797-55-8 | |
| Nitrogen, NO2 plus NO3 | ND | mg/L | 0.17 | 0.050 | 1 | | 08/12/16 13:23 | | |
| **ASTM D516 Sulfate Water** | Analytical Method: ASTM D516 | | | | | | | | |
| Sulfate | **7.2** | mg/L | 3.5 | 1.0 | 1 | | 08/12/16 08:34 | 14808-79-8 | |
| **SM4500NO2-B, Nitrite, unpres** | Analytical Method: SM 4500-NO2 B | | | | | | | | |
| Nitrite as N | ND | mg/L | 0.012 | 0.0036 | 1 | | 08/10/16 09:17 | 14797-65-0 | |



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# ANALYTICAL RESULTS

Project: Tower, WI
Pace Project No.: 10358347

**Sample: 1608TOWERMW16D** **Lab ID: 10358347002** Collected: 08/08/16 13:00 Received: 08/09/16 09:30 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3020 | | | | | | | | |
| Arsenic | **0.55** | ug/L | 0.50 | 0.091 | 1 | 08/18/16 16:36 | 08/19/16 14:01 | 7440-38-2 | |
| Barium | **173** | ug/L | 0.30 | 0.019 | 1 | 08/18/16 16:36 | 08/19/16 14:01 | 7440-39-3 | |
| Cadmium | ND | ug/L | 0.080 | 0.013 | 1 | 08/18/16 16:36 | 08/19/16 14:01 | 7440-43-9 | |
| Chromium | **2.5** | ug/L | 0.50 | 0.14 | 1 | 08/18/16 16:36 | 08/19/16 14:01 | 7440-47-3 | |
| Iron | **7220** | ug/L | 50.0 | 18.5 | 1 | 08/18/16 16:36 | 08/19/16 14:01 | 7439-89-6 | |
| Lead | **0.41** | ug/L | 0.10 | 0.012 | 1 | 08/18/16 16:36 | 08/19/16 14:01 | 7439-92-1 | |
| Manganese | **2260** | ug/L | 5.0 | 1.3 | 10 | 08/18/16 16:36 | 08/19/16 14:37 | 7439-96-5 | |
| Selenium | ND | ug/L | 0.50 | 0.13 | 1 | 08/18/16 16:36 | 08/19/16 14:01 | 7782-49-2 | |
| Silver | ND | ug/L | 0.50 | 0.0092 | 1 | 08/18/16 16:36 | 08/19/16 14:01 | 7440-22-4 | B |
| **245.1 Mercury** | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 | | | | | | | | |
| Mercury | ND | ug/L | 0.072 | 0.031 | 1 | 08/11/16 21:00 | 08/14/16 18:01 | 7439-97-6 | |
| **2510B Specific Conductance** | Analytical Method: SM 2510B | | | | | | | | |
| Specific Conductance | **1020** | umhos/cm | 10.0 | 10.0 | 1 | | 08/16/16 15:01 | | |
| **4500H+ pH, Electrometric** | Analytical Method: SM 4500-H+B | | | | | | | | |
| pH at 25 Degrees C | **7.1** | Std. Units | 0.10 | 0.10 | 1 | | 08/15/16 18:52 | | H6 |
| **4500S2D Sulfide Water** | Analytical Method: SM 4500-S2-D | | | | | | | | |
| Sulfide | ND | mg/L | 0.10 | 0.011 | 1 | | 08/10/16 14:36 | | |
| **4500S2H Sulfide as H2S Calc** | Analytical Method: SM 4500-S H | | | | | | | | |
| Sulfide as H2S (calc) | ND | mg/L | 0.10 | 0.020 | 1 | | 08/16/16 16:40 | | AL |
| **SM4500NO3-H, NO2 + NO3 pres.** | Analytical Method: SM 4500-NO3 H | | | | | | | | |
| Nitrate as N | ND | mg/L | 0.058 | 0.018 | 1 | | 08/12/16 13:27 | 14797-55-8 | |
| Nitrogen, NO2 plus NO3 | ND | mg/L | 0.17 | 0.050 | 1 | | 08/12/16 13:27 | | |
| **ASTM D516 Sulfate Water** | Analytical Method: ASTM D516 | | | | | | | | |
| Sulfate | ND | mg/L | 3.5 | 1.0 | 1 | | 08/12/16 08:34 | 14808-79-8 | |
| **SM4500NO2-B, Nitrite, unpres** | Analytical Method: SM 4500-NO2 B | | | | | | | | |
| Nitrite as N | ND | mg/L | 0.012 | 0.0036 | 1 | | 08/10/16 09:17 | 14797-65-0 | |



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# ANALYTICAL RESULTS

Project: Tower, WI
Pace Project No.: 10358347

**Sample: 1608TOWERMW18D** **Lab ID: 10358347003** Collected: 08/08/16 13:30 Received: 08/09/16 09:30 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3020 | | | | | | | | |
| Arsenic | **0.58** | ug/L | 0.50 | 0.091 | 1 | 08/18/16 16:36 | 08/19/16 14:03 | 7440-38-2 | |
| Barium | **172** | ug/L | 0.30 | 0.019 | 1 | 08/18/16 16:36 | 08/19/16 14:03 | 7440-39-3 | |
| Cadmium | ND | ug/L | 0.080 | 0.013 | 1 | 08/18/16 16:36 | 08/19/16 14:03 | 7440-43-9 | |
| Chromium | **2.3** | ug/L | 0.50 | 0.14 | 1 | 08/18/16 16:36 | 08/19/16 14:03 | 7440-47-3 | |
| Iron | **7200** | ug/L | 50.0 | 18.5 | 1 | 08/18/16 16:36 | 08/19/16 14:03 | 7439-89-6 | |
| Lead | **0.42** | ug/L | 0.10 | 0.012 | 1 | 08/18/16 16:36 | 08/19/16 14:03 | 7439-92-1 | |
| Manganese | **2250** | ug/L | 5.0 | 1.3 | 10 | 08/18/16 16:36 | 08/20/16 16:10 | 7439-96-5 | |
| Selenium | ND | ug/L | 0.50 | 0.13 | 1 | 08/18/16 16:36 | 08/19/16 14:03 | 7782-49-2 | |
| Silver | ND | ug/L | 0.50 | 0.0092 | 1 | 08/18/16 16:36 | 08/19/16 14:03 | 7440-22-4 | B |
| **245.1 Mercury** | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 | | | | | | | | |
| Mercury | ND | ug/L | 0.072 | 0.031 | 1 | 08/11/16 21:00 | 08/14/16 18:03 | 7439-97-6 | |
| **2510B Specific Conductance** | Analytical Method: SM 2510B | | | | | | | | |
| Specific Conductance | **1030** | umhos/cm | 10.0 | 10.0 | 1 | | 08/16/16 15:02 | | |
| **4500H+ pH, Electrometric** | Analytical Method: SM 4500-H+B | | | | | | | | |
| pH at 25 Degrees C | **7.4** | Std. Units | 0.10 | 0.10 | 1 | | 08/15/16 19:07 | | H6 |
| **4500S2D Sulfide Water** | Analytical Method: SM 4500-S2-D | | | | | | | | |
| Sulfide | **0.40** | mg/L | 0.10 | 0.011 | 1 | | 08/10/16 14:42 | | |
| **4500S2H Sulfide as H2S Calc** | Analytical Method: SM 4500-S H | | | | | | | | |
| Sulfide as H2S (calc) | **0.11** | mg/L | 0.10 | 0.020 | 1 | | 08/16/16 16:40 | | AL |
| **SM4500NO3-H, NO2 + NO3 pres.** | Analytical Method: SM 4500-NO3 H | | | | | | | | |
| Nitrate as N | ND | mg/L | 0.058 | 0.018 | 1 | | 08/12/16 13:28 | 14797-55-8 | |
| Nitrogen, NO2 plus NO3 | ND | mg/L | 0.17 | 0.050 | 1 | | 08/12/16 13:28 | | |
| **ASTM D516 Sulfate Water** | Analytical Method: ASTM D516 | | | | | | | | |
| Sulfate | ND | mg/L | 3.5 | 1.0 | 1 | | 08/12/16 08:34 | 14808-79-8 | |
| **SM4500NO2-B, Nitrite, unpres** | Analytical Method: SM 4500-NO2 B | | | | | | | | |
| Nitrite as N | ND | mg/L | 0.012 | 0.0036 | 1 | | 08/10/16 09:17 | 14797-65-0 | |



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# QUALITY CONTROL DATA

Project: Tower, WI
Pace Project No.: 10358347

QC Batch: 429746 Analysis Method: EPA 245.1
QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
Associated Lab Samples: 10358347001, 10358347002, 10358347003

METHOD BLANK: 2338266 Matrix: Water
Associated Lab Samples: 10358347001, 10358347002, 10358347003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Mercury | ug/L | ND | 0.072 | 08/14/16 17:36 | |

LABORATORY CONTROL SAMPLE: 2338267

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Mercury | ug/L | 5 | 4.6 | 91 | 85-115 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2338268 2338269

| Parameter | Units | 10358348001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | <0.00020 mg/L | 5 | 5 | 4.3 | 4.4 | 87 | 87 | 70-130 | 0 | 20 | |

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## REPORT OF LABORATORY ANALYSIS

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# QUALITY CONTROL DATA

Project: Tower, WI
Pace Project No.: 10358347

QC Batch: 429937 | Analysis Method: EPA 6020B
QC Batch Method: EPA 3020 | Analysis Description: 6020B Water UPD5
Associated Lab Samples: 10358347001, 10358347002, 10358347003

METHOD BLANK: 2339230 | Matrix: Water
Associated Lab Samples: 10358347001, 10358347002, 10358347003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Arsenic | ug/L | ND | 0.50 | 08/19/16 14:16 | |
| Barium | ug/L | ND | 0.30 | 08/19/16 14:16 | |
| Cadmium | ug/L | ND | 0.080 | 08/19/16 14:16 | |
| Chromium | ug/L | ND | 0.50 | 08/19/16 14:16 | |
| Iron | ug/L | ND | 50.0 | 08/19/16 14:16 | |
| Lead | ug/L | ND | 0.10 | 08/19/16 14:16 | |
| Manganese | ug/L | ND | 0.50 | 08/19/16 14:16 | |
| Selenium | ug/L | ND | 0.50 | 08/20/16 16:08 | |
| Silver | ug/L | ND | 0.50 | 08/19/16 14:16 | |

LABORATORY CONTROL SAMPLE: 2339231

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Arsenic | ug/L | 100 | 89.0 | 89 | 80-120 | |
| Barium | ug/L | 100 | 102 | 102 | 80-120 | |
| Cadmium | ug/L | 100 | 101 | 101 | 80-120 | |
| Chromium | ug/L | 100 | 103 | 103 | 80-120 | |
| Iron | ug/L | 2000 | 1850 | 92 | 80-120 | |
| Lead | ug/L | 100 | 103 | 103 | 80-120 | |
| Manganese | ug/L | 100 | 100 | 100 | 80-120 | |
| Selenium | ug/L | 100 | 92.5 | 92 | 80-120 | |
| Silver | ug/L | 50 | 47.2 | 94 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2342797 2342798

| Parameter | Units | 10358621007 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ug/L | 0.43J | 100 | 100 | 92.4 | 86.1 | 92 | 86 | 75-125 | 7 | 20 | |
| Barium | ug/L | 299 | 100 | 100 | 399 | 401 | 100 | 102 | 75-125 | 1 | 20 | |
| Cadmium | ug/L | <0.013 | 100 | 100 | 101 | 101 | 101 | 101 | 75-125 | 1 | 20 | |
| Chromium | ug/L | 4.4 | 100 | 100 | 105 | 105 | 101 | 101 | 75-125 | 0 | 20 | |
| Iron | ug/L | 65700 | 2000 | 2000 | 60200 | 56400 | -274 | -466 | 75-125 | 7 | 20 | E,M1 |
| Lead | ug/L | 0.41 | 100 | 100 | 100 | 100 | 100 | 100 | 75-125 | 0 | 20 | |
| Manganese | ug/L | 1580 | 100 | 100 | 1660 | 1680 | 73 | 100 | 75-125 | 2 | 20 | E,M1 |
| Selenium | ug/L | 0.19J | 100 | 100 | 94.1 | 83.7 | 94 | 83 | 75-125 | 12 | 20 | |
| Silver | ug/L | 0.013J | 50 | 50 | 45.6 | 41.9 | 91 | 84 | 75-125 | 9 | 20 | |

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# QUALITY CONTROL DATA

Project: Tower, WI
Pace Project No.: 10358347

QC Batch: 430853 | Analysis Method: SM 2510B
QC Batch Method: SM 2510B | Analysis Description: 2510B Specific Conductance
Associated Lab Samples: 10358347001, 10358347002, 10358347003

METHOD BLANK: 2343818 | Matrix: Water
Associated Lab Samples: 10358347001, 10358347002, 10358347003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Specific Conductance | umhos/cm | ND | 10.0 | 08/16/16 14:58 | |

LABORATORY CONTROL SAMPLE: 2343819

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Specific Conductance | umhos/cm | 1000 | 1010 | 101 | 90-110 | |

SAMPLE DUPLICATE: 2343820

| Parameter | Units | 10358347002 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Specific Conductance | umhos/cm | 1020 | 1020 | 0 | 20 | |

SAMPLE DUPLICATE: 2343821

| Parameter | Units | 10358621007 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Specific Conductance | umhos/cm | 2100 | 2100 | 0 | 20 | |

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# QUALITY CONTROL DATA

Project: Tower, WI
Pace Project No.: 10358347

QC Batch: 430697 | Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B | Analysis Description: 4500H+B pH
Associated Lab Samples: 10358347001, 10358347002, 10358347003

LABORATORY CONTROL SAMPLE: 2343119

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| pH at 25 Degrees C | Std. Units | 7 | 7.0 | 100 | 98-102 | H6 |

SAMPLE DUPLICATE: 2343120

| Parameter | Units | 10358347002 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| pH at 25 Degrees C | Std. Units | 7.1 | 7.2 | 1 | 3 | H6 |

SAMPLE DUPLICATE: 2343121

| Parameter | Units | 10358621007 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| pH at 25 Degrees C | Std. Units | 6.5 | 6.4 | 0 | 3 | H6 |

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# QUALITY CONTROL DATA

Project: Tower, WI
Pace Project No.: 10358347

QC Batch: 429845 | Analysis Method: SM 4500-S2-D
QC Batch Method: SM 4500-S2-D | Analysis Description: 4500S2D Sulfide Water
Associated Lab Samples: 10358347001, 10358347002, 10358347003

METHOD BLANK: 2338757 | Matrix: Water
Associated Lab Samples: 10358347001, 10358347002, 10358347003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Sulfide | mg/L | ND | 0.10 | 08/10/16 14:24 | |

LABORATORY CONTROL SAMPLE: 2338758

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Sulfide | mg/L | .98 | 0.98 | 100 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2338759 2338760

| Parameter | Units | 10358288001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfide | mg/L | ND | .98 | .98 | 0.92 | 0.95 | 95 | 97 | 80-120 | 3 | 20 | |

SAMPLE DUPLICATE: 2338761

| Parameter | Units | 10358347001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Sulfide | mg/L | ND | ND | | 20 | |

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# QUALITY CONTROL DATA

Project: Tower, WI
Pace Project No.: 10358347

QC Batch: 430242 | Analysis Method: SM 4500-NO3 H
QC Batch Method: SM 4500-NO3 H | Analysis Description: SM4500NO3-H, NO2 + NO3 pres.
Associated Lab Samples: 10358347001, 10358347002, 10358347003

METHOD BLANK: 2340871 | Matrix: Water
Associated Lab Samples: 10358347001, 10358347002, 10358347003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Nitrogen, NO2 plus NO3 | mg/L | ND | 0.17 | 08/12/16 12:59 | |

LABORATORY CONTROL SAMPLE: 2340872

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Nitrogen, NO2 plus NO3 | mg/L | 2.5 | 2.5 | 99 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2340873 2340874

| Parameter | Units | 10357827002 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, NO2 plus NO3 | mg/L | 8.45 | 2.5 | 2.5 | 10.9 | 10.8 | 97 | 93 | 80-120 | 1 | 30 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2340875 2340876

| Parameter | Units | 10357853006 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, NO2 plus NO3 | mg/L | ND | 2.5 | 2.5 | 2.5 | 2.4 | 98 | 95 | 80-120 | 2 | 30 | |

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# QUALITY CONTROL DATA

Project: Tower, WI
Pace Project No.: 10358347

QC Batch: 430254 | Analysis Method: ASTM D516
QC Batch Method: ASTM D516 | Analysis Description: ASTM D516 Sulfate Water
Associated Lab Samples: 10358347001, 10358347002, 10358347003

METHOD BLANK: 2340919 | Matrix: Water
Associated Lab Samples: 10358347001, 10358347002, 10358347003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Sulfate | mg/L | ND | 3.5 | 08/12/16 08:23 | |

LABORATORY CONTROL SAMPLE & LCSD: 2340920 2340921

| Parameter | Units | Spike Conc. | LCS Result | LCSD Result | LCS % Rec | LCSD % Rec | % Rec Limits | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 7.5 | 8.3 | 8.3 | 111 | 111 | 80-120 | 0 | 20 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2340922 2340923

| Parameter | Units | 10358170001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | ND | 20 | 20 | 19.4 | 19.5 | 94 | 95 | 80-120 | 0 | 30 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2340924 2340925

| Parameter | Units | 10358349004 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 25.7 | 20 | 20 | 40.6 | 39.3 | 75 | 68 | 80-120 | 3 | 30 | M1 |

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# QUALITY CONTROL DATA

Project: Tower, WI
Pace Project No.: 10358347

QC Batch: 429639 | Analysis Method: SM 4500-NO2 B
QC Batch Method: SM 4500-NO2 B | Analysis Description: SM4500NO2-B, Nitrite, unpres
Associated Lab Samples: 10358347001, 10358347002, 10358347003

METHOD BLANK: 2337776 | Matrix: Water
Associated Lab Samples: 10358347001, 10358347002, 10358347003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Nitrite as N | mg/L | ND | 0.012 | 08/10/16 19:17 | |

LABORATORY CONTROL SAMPLE: 2337777

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Nitrite as N | mg/L | .3 | 0.31 | 102 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2337778 2337779

| Parameter | Units | 10357833008 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrite as N | mg/L | 3.48 | 3 | 3 | 6.1 | 6.2 | 89 | 89 | 80-120 | 0 | 30 | |

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# QUALIFIERS

Project: Tower, WI
Pace Project No.: 10358347

## 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 |
| PASI-MT | Pace Analytical Services - Montana |

## ANALYTE QUALIFIERS

| | |
|---|---|
| AL | The lab does not hold A2LA accreditation for this parameter. |
| B | Analyte was detected in the associated method blank. |
| E | Analyte concentration exceeded the calibration range. The reported result is estimated. |
| H6 | Analysis initiated outside of the 15 minute EPA required holding time. |
| 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: Tower, WI
Pace Project No.: 10358347

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **10358347001** | **1608TOWERMW16** | EPA 3020 | 429937 | EPA 6020B | 431485 |
| **10358347002** | **1608TOWERMW16D** | EPA 3020 | 429937 | EPA 6020B | 431485 |
| **10358347003** | **1608TOWERMW18D** | EPA 3020 | 429937 | EPA 6020B | 431485 |
| **10358347001** | **1608TOWERMW16** | EPA 245.1 | 429746 | EPA 245.1 | 430319 |
| **10358347002** | **1608TOWERMW16D** | EPA 245.1 | 429746 | EPA 245.1 | 430319 |
| **10358347003** | **1608TOWERMW18D** | EPA 245.1 | 429746 | EPA 245.1 | 430319 |
| **10358347001** | **1608TOWERMW16** | SM 2510B | 430853 | | |
| **10358347002** | **1608TOWERMW16D** | SM 2510B | 430853 | | |
| **10358347003** | **1608TOWERMW18D** | SM 2510B | 430853 | | |
| **10358347001** | **1608TOWERMW16** | SM 4500-H+B | 430697 | | |
| **10358347002** | **1608TOWERMW16D** | SM 4500-H+B | 430697 | | |
| **10358347003** | **1608TOWERMW18D** | SM 4500-H+B | 430697 | | |
| **10358347001** | **1608TOWERMW16** | SM 4500-S2-D | 429845 | | |
| **10358347002** | **1608TOWERMW16D** | SM 4500-S2-D | 429845 | | |
| **10358347003** | **1608TOWERMW18D** | SM 4500-S2-D | 429845 | | |
| **10358347001** | **1608TOWERMW16** | SM 4500-S H | 430947 | | |
| **10358347002** | **1608TOWERMW16D** | SM 4500-S H | 430947 | | |
| **10358347003** | **1608TOWERMW18D** | SM 4500-S H | 430947 | | |
| **10358347001** | **1608TOWERMW16** | SM 4500-NO3 H | 430242 | | |
| **10358347002** | **1608TOWERMW16D** | SM 4500-NO3 H | 430242 | | |
| **10358347003** | **1608TOWERMW18D** | SM 4500-NO3 H | 430242 | | |
| **10358347001** | **1608TOWERMW16** | ASTM D516 | 430254 | | |
| **10358347002** | **1608TOWERMW16D** | ASTM D516 | 430254 | | |
| **10358347003** | **1608TOWERMW18D** | ASTM D516 | 430254 | | |
| **10358347001** | **1608TOWERMW16** | SM 4500-NO2 B | 429639 | | |
| **10358347002** | **1608TOWERMW16D** | SM 4500-NO2 B | 429639 | | |
| **10358347003** | **1608TOWERMW18D** | SM 4500-NO2 B | 429639 | | |



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10358347

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

**Section A**
**Required Client Information:**

| | |
|---|---|
| Company: | Bristol Environmental Remediation Services, LLC |
| Address: | 111 W. 16th Avenue |
| | Anchorage, AK 99501 |
| Email: | mfaust@bristol-companies.com |
| Phone: | (907)743-9346 Fax: |
| Requested Due Date: | |

**Section B**
**Required Project Information:**

| | |
|---|---|
| Report To: | Matt Faust |
| Copy To: | |
| Purchase Order #: | |
| Project Name: | Tower, WI |
| Project #: | |

**Section C**
**Invoice Information:**

| | |
|---|---|
| Attention: | |
| Company Name: | |
| Address: | |
| Pace Quote: | |
| Pace Project Manager: | shawn.davis@pacelabs.com, |
| Pace Profile #: | 35445 |

Regulatory Agency

State / Location: WI

Requested Analysis Filtered (Y/N)

| ITEM # | SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique) | MATRIX CODE (see valid codes to left) | SAMPLE TYPE (G=GRAB C=COMP) | COLLECTED START DATE | COLLECTED START TIME | COLLECTED END DATE | COLLECTED END TIME | SAMPLE TEMP AT COLLECTION | # OF CONTAINERS | Unpreserved | H2SO4 | HNO3 | HCl | NaOH | Na2S2O3 | Methanol | Other | Analyses Test Y/N | VOC by 8260 | EDB 8011 | GRO by WIGRO | Sulfate/Nitrate | Nitrate + Nitrite | Metals by 6020 | DRO by WIDRO | Sulfide by SM4500-S2-D | BTEX by 8260 | 6010 - Pb | Moisture/ Dry weight | Residual Chlorine (Y/N) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1608TOWERMW16 | W | G | 8/8/16 | 1055 | ← | | | 4 | | X | X | | X | | | | | | | | X | X | X | | X | | | | | MW-16 | 001 |
| 2 | 1608TOWERMW16D | W | ↓ | ↓ | 1300 | ← | | | ↓ | | X | X | | X | | | | | | | | X | X | X | | X | | | | | MW-16D | 002 |
| 3 | 1608TOWERMW18D | W | ↓ | ↓ | 1330 | ← | | | ↓ | | X | X | | X | | | | | | | | X | X | X | | X | | | | | MW-18D | 003 |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| ADDITIONAL COMMENTS | RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | SAMPLE CONDITIONS: TEMP in C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N) |
|---|---|---|---|---|---|---|---|---|---|---|
| | [signature] / Bristol | 8/8/16 | 1430 | [signature] | 8-9-16 | 9:30 | 1.8 | Y | Y | Y |
| | Robert Beckman | | | | | | | | | |

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Robert Beckman

SIGNATURE of SAMPLER: [signature] DATE Signed: 8/8/16

| Pace Analytical® | Document Name: **Sample Condition Upon Receipt Form** | Document Revised: 04Apr2016 Page 1 of 1 |
|---|---|---|
| | Document No.: **F-MN-L-213-rev.16** | Issuing Authority: Pace Minnesota Quality Office |

**Sample Condition Upon Receipt**

**Client Name:** Bristol Enviro. Remediation **Project #:**

**WO#: 10358347**

10358347

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

**Tracking Number:** 7837 7278 4727

**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: plastic bags **Temp Blank?** ☑ Yes ☐ No

**Thermometer Used:** ☐ 151401163 ☑ 151401164 ☐ B88A912167504 ☐ B88A0143310098 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

**Cooler Temp Read (°C):** 1.8 **Cooler Temp Corrected (°C):** 1.8 **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6°C **Correction Factor:** +0.0 **Date and Initials of Person Examining Contents:** KRC 8-9-16

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

Did samples originate in a quarantine zone within the United States: AL, AR, AZ, 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 | ☐ 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/or Signature on COC? | ☑ Yes | ☐ No | ☐ N/A | 4. |
| Samples Arrived within Hold Time? | ☑ Yes | ☐ No | ☐ N/A | 5. |
| **Short Hold Time Analysis (<72 hr)?** | ☑ Yes | ☐ No | ☐ N/A | 6. |
| **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 container |
| Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT | ☑ Yes | ☐ No | ☐ N/A | 12. |
| All containers needing acid/base preservation have been checked? | ☑ Yes | ☐ No | ☐ N/A | 13. ☑ $HNO_3$ 1/1 ☑ $H_2SO_4$ 1/1 ☑ NaOH 1/1 ☐ HCl Sample # 1-3 |
| All containers needing preservation are found to be in compliance with EPA recommendation? ($HNO_3$, $H_2SO_4$, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide) | ☑ Yes | ☐ No | ☐ N/A | |
| Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC | ☐ Yes | ☐ No | ☑ N/A | Initial when completed: Lot # of added preservative: |
| 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: Matt Faust (email) Date/Time: 8/9/16

Comments/Resolution:

Double check required metals list 6020, as well as H2S test.

**Project Manager Review:** Shannon Davis **Date:** 8/9/16

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).

# Intra-Regional Chain of Custody

Pace Analytical®
www.pacelabs.com

**Workorder:** 10358347 **Workorder Name:** Tower, WI **Owner Received Date:** 8/9/2016 **Due Date:** 8/23/2016

**Received at:**
Pace Analytical Minnesota
1700 Elm Street
Suite 200
Minneapolis, MN 55414
Phone (612)607-1700

**Send To Lab:**
Pace Analytical Billings MT
150 N Ninth Street
Billings, MT 59101
Phone (406)254-7226

**Report To:**
Shawn Davis

| Item | Sample ID | Sample Type | Collect Date/Time | Lab ID | Matrix | Preserved Containers: Other | SM 4500-S2-D | SM 4500-S-H | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1608TOWERMW16 | PS | 8/8/2016 10:55 | 10358347001 | Water | 1 | X | X | |
| 2 | 1608TOWERMW16D | PS | 8/8/2016 13:00 | 10358347002 | Water | 1 | X | X | |
| 3 | 1608TOWERMW18D | PS | 8/8/2016 13:30 | 10358347003 | Water | 1 | X | X | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |

| Transfers | Released By | Date/Time | Received By | Date/Time |
|---|---|---|---|---|
| 1 | Shawn Davis/Pace Mpls | 8-9-16 1330 | | |
| 2 | Fed Ex | | M Walters Pace | 8/10/16 1000 |
| 3 | | | | |
| 4 | | | | |

**Comments**
pH, conductance done in mpls

**Cooler Temperature on Receipt** 0.6 °C **Custody Seal** Y or N **Received on Ice** Y or N **Samples Intact** Y or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.*

| Pace Analytical | Document Name: **Sample Condition Upon Receipt Form** | Document Revised: 04Aug2016 Page 1 of 1 |
|---|---|---|
| | Document No.: **F-MT-C-184-Rev.10** | Issuing Authority: Pace Montana Quality Office |

**Sample Condition Upon Receipt**

**Client Name:** Pace-MT

**Project #:** 1035 8347

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

**Tracking Number:** 6751 5818 8004

**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:** ☒ 160285052 ☐ 140279186 **Type of Ice:** ☒ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun ☐ NA

**Cooler Temp Read:** 1.1

**Date and Initials of Person Examining Contents:** MW 8/10/16

**Cooler Temp Corrected:** 0.6

**Biological Tissue Frozen?** ☐ Yes ☒ No

Temp should be above freezing to 6°C

| | | | | **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. |
| **Short Hold Time Analysis (<72 hr)?** | ☐ Yes | ☒ No | ☐ N/A | 6. |
| **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 container. |
| Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: $H_2O$ | ☒ Yes | ☐ No | ☐ N/A | 12. |
| All containers needing acid/base preservation have been checked? | ☒ Yes | ☐ No | ☐ N/A | 13. ☐ $HNO_3$ ☐ $H_2SO_4$ 3/3 ☐ NaOH ☐ HCl Sample # 001-003 |
| All containers needing preservation are found to be in compliance with EPA recommendation? ($HNO_3$, $H_2SO_4$, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide) | ☒ Yes | ☐ No | ☐ N/A | |
| Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water) | ☐ Yes | ☒ No | | Initial when completed: MW Lot # of added preservative: |
| 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): NA | | | | |

**CLIENT NOTIFICATION/RESOLUTION**

**Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

**Project Manager Review:** Shannon Davis **Date:** 8/10/16

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)

# Intra-Regional Chain of Custody

Pace Analytical®
www.pacelabs.com

**Workorder:** 10358347 **Workorder Name:** Tower, WI **Owner Received Date:** 8/9/2016 **Due Date:** 8/23/2016

| Received at: | Send To Lab: |
|---|---|
| Pace Analytical Minnesota<br>1700 Elm Street<br>Suite 200<br>Minneapolis, MN 55414<br>Phone (612)607-1700 | Pace Analytical Billings MT<br>150 N Ninth Street<br>Billings, MT 59101<br>Phone (406)254-7226 |

**Report To:**
Shawn Davis

| Item | Sample ID | Sample Type | Collect Date/Time | Lab ID | Matrix | Preserved Containers: Other | Unpreserved | | | | | Requested Analysis: SM 4500-H+B | SM 4500-S2-D | SM 4500-S-H | SM 2510B | | | | | | | | | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1608TOWERMW16 | PS | 8/8/2016 10:55 | 10358347001 | Water | 1 | | | | | | X | X | X | X | | | | | | | | | |
| 2 | 1608TOWERMW16D | PS | 8/8/2016 13:00 | 10358347002 | Water | 1 | | | | | | X | X | X | X | | | | | | | | | |
| 3 | 1608TOWERMW18D | PS | 8/8/2016 13:30 | 10358347003 | Water | 1 | | | | | | X | X | X | X | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | |

| Transfers | Released By | Date/Time | Received By | Date/Time |
|---|---|---|---|---|
| 1 | Shawn Davis/Pacesple | 8-12-16 1500 | | |
| 2 | Fed Ex | | [illegible] | 8/13/16 1030 |
| 3 | | | | |
| 4 | | | | |

**Comments**

Sulfide, H2S bottle already Sat 8/11

**Cooler Temperature on Receipt** 1.3 °C | **Custody Seal** Y or N | **Received on Ice** Y or N | **Samples Intact** Y or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.*
*This chain of custody is considered complete as is since this information is available in the owner laboratory.*

| Pace Analytical | Document Name: **Sample Condition Upon Receipt Form** | Document Revised: 04Aug2016 Page 1 of 1 |
|---|---|---|
| | Document No.: **F-MT-C-184-Rev.10** | Issuing Authority: Pace Montana Quality Office |

**Sample Condition Upon Receipt**

**Client Name:** Pace MN

**Project #:** 10358347

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

**Tracking Number:** 6751 5818 9445

**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:** ☒ 160285052 ☐ 140279186 **Type of Ice:** ☒ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun ☐ NA

**Cooler Temp Read:** 1.8 **Date and Initials of Person Examining Contents:** 8/13 MH

**Cooler Temp Corrected:** 1.3 **Biological Tissue Frozen?** ☐ Yes ☒ No

Temp should be above freezing to 6°C

| | | | | **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. |
| **Short Hold Time Analysis (<72 hr)?** | ☐ Yes | ☒ No | ☐ N/A | 6. |
| **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 container. |
| Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT | ☒ Yes | ☐ No | ☐ N/A | 12. |
| All containers needing acid/base preservation have been checked? | ☐ Yes | ☐ No | ☒ N/A | 13. ☐ $HNO_3$ ☐ $H_2SO_4$ ☐ NaOH ☐ HCl Sample # |
| All containers needing preservation are found to be in compliance with EPA recommendation? ($HNO_3$, $H_2SO_4$, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide) | ☐ Yes | ☐ No | ☒ N/A | NA |
| Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water) | ☐ Yes | ☒ No | | Initial when completed: Lot # of added preservative: |
| 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): NA | | | | |

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

Person Contacted: Date/Time:

Comments/Resolution:

**Project Manager Review:** Shannon Davis **Date:** 8/15/16

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 Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

August 29, 2016

Matt Faust
Bristol Environmental Remediation Services, LLC
111 W. 16th Avenue
Anchorage, AK 99501

RE: Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

Dear Matt Faust:
Enclosed are the analytical results for sample(s) received by the laboratory on August 10, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI 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,

Shawn Davis
shawn.davis@pacelabs.com
Project Manager

Enclosures



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

# CERTIFICATIONS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Minnesota Certification IDs**

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
525 N 8th Street, Salina, KS 67401
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Alabama Certification #40770
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: 8TMS-L
Florida/NELAP Certification #: E87605
Guam Certification #:14-008r
Georgia Certification #: 959
Georgia EPD #: Pace
Idaho Certification #: MN00064
Hawaii Certification #MN00064
Illinois Certification #: 200011
Indiana Certification#C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky Dept of Envi. Protection - DW #90062
Kentucky Dept of Envi. Protection - WW #:90062
Louisiana DEQ Certification #: 3086
Louisiana DHH #: LA140001
Maine Certification #: 2013011
Maryland Certification #: 322
Michigan DEPH Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Carolina State Public Health #: 27700
North Dakota Certification #: R-036
Ohio EPA #: 4150
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Saipan (CNMI) #:MP0003
South Carolina #:74003001
Texas Certification #: T104704192
Tennessee Certification #: 02818
Utah Certification #: MN000642013-4
Virginia DGS Certification #: 251
Virginia/VELAP Certification #: Pace
Washington Certification #: C486
West Virginia Certification #: 382
West Virginia DHHR #:9952C
Wisconsin Certification #: 999407970

**Montana Certification IDs**

150 N. 9th Street, Billings, MT 59101
A2LA Certification #: 3590.01
EPA Region 8 Certification #: 8TMS-L
Idaho Certification #: MT00012
Minnesota Dept of Health Certification #: 030-999-442
Montana Certification #: MT CERT0040
North Dakota Dept. Of Health #: R-209
Washington Department of Ecology #: C993



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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

# SAMPLE SUMMARY

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **10358621001** | **1608TOWERMW16** | Water | 08/08/16 10:55 | 08/10/16 12:23 |
| **10358621002** | **1608TOWERMW16D** | Water | 08/08/16 13:00 | 08/10/16 12:23 |
| **10358621003** | **1608TOWERMW18D** | Water | 08/08/16 13:30 | 08/10/16 12:23 |
| **10358621004** | **1608TOWERMW16E** | Water | 08/09/16 09:00 | 08/10/16 12:23 |
| **10358621005** | **1608TOWERMW21** | Water | 08/09/16 11:20 | 08/10/16 12:23 |
| **10358621006** | **1608TOWERMW21M** | Water | 08/09/16 13:00 | 08/10/16 12:23 |
| **10358621007** | **1608TOWERMW21D** | Water | 08/09/16 14:50 | 08/10/16 12:23 |
| **10358621008** | **1608TOWERTB1** | Solid | 08/05/16 08:00 | 08/10/16 12:23 |
| **10358621009** | **1608TOWERIDWSS** | Solid | 08/05/16 14:30 | 08/10/16 12:23 |
| **10358621010** | **1608TOWERTB2** | Water | 08/08/16 08:00 | 08/10/16 12:23 |
| **10358621011** | **1608TOWEREQB** | Water | 08/09/16 09:30 | 08/10/16 12:23 |



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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

# SAMPLE ANALYTE COUNT

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| **10358621001** | **1608TOWERMW16** | EPA 8011 | XV1 | 2 | PASI-M |
| | | EPA 8260B | PRD | 70 | PASI-M |
| **10358621002** | **1608TOWERMW16D** | EPA 8011 | XV1 | 2 | PASI-M |
| | | EPA 8260B | EMC, PRD | 70 | PASI-M |
| **10358621003** | **1608TOWERMW18D** | EPA 8011 | XV1 | 2 | PASI-M |
| | | EPA 8260B | EMC, PRD | 70 | PASI-M |
| **10358621004** | **1608TOWERMW16E** | EPA 8011 | XV1 | 2 | PASI-M |
| | | EPA 6020B | TT3 | 9 | PASI-M |
| | | EPA 7470A | LMW | 1 | PASI-M |
| | | EPA 8260B | EMC, PRD | 70 | PASI-M |
| | | SM 2510B | CAC | 1 | PASI-MT |
| | | SM 4500-H+B | CAC | 1 | PASI-MT |
| | | SM 4500-S2-D | JME | 1 | PASI-MT |
| | | SM 4500-S H | VRJ | 1 | PASI-MT |
| | | SM 4500-NO3 H | DCL | 2 | PASI-M |
| | | ASTM D516 | KEO | 1 | PASI-M |
| | | SM 4500-NO2 B | KEO | 1 | PASI-M |
| **10358621005** | **1608TOWERMW21** | EPA 8011 | XV1 | 2 | PASI-M |
| | | EPA 6020B | TT3 | 9 | PASI-M |
| | | EPA 7470A | LMW | 1 | PASI-M |
| | | EPA 8260B | EMC, PRD | 70 | PASI-M |
| | | SM 2510B | CAC | 1 | PASI-MT |
| | | SM 4500-H+B | CAC | 1 | PASI-MT |
| | | SM 4500-S2-D | JME | 1 | PASI-MT |
| | | SM 4500-S H | VRJ | 1 | PASI-MT |
| | | SM 4500-NO3 H | DCL | 2 | PASI-M |
| | | ASTM D516 | KEO | 1 | PASI-M |
| | | SM 4500-NO2 B | KEO | 1 | PASI-M |
| **10358621006** | **1608TOWERMW21M** | EPA 8011 | XV1 | 2 | PASI-M |
| | | EPA 6020B | TT3 | 9 | PASI-M |
| | | EPA 7470A | LMW | 1 | PASI-M |
| | | EPA 8260B | EMC, PRD | 70 | PASI-M |
| | | SM 2510B | CAC | 1 | PASI-MT |
| | | SM 4500-H+B | CAC | 1 | PASI-MT |
| | | SM 4500-S2-D | JME | 1 | PASI-MT |
| | | SM 4500-S H | VRJ | 1 | PASI-MT |
| | | SM 4500-NO3 H | DCL | 2 | PASI-M |



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# SAMPLE ANALYTE COUNT

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| | | ASTM D516 | KEO | 1 | PASI-M |
| | | SM 4500-NO2 B | KEO | 1 | PASI-M |
| **10358621007** | **1608TOWERMW21D** | EPA 8011 | XV1 | 2 | PASI-M |
| | | EPA 6020B | TT3 | 9 | PASI-M |
| | | EPA 7470A | LMW | 1 | PASI-M |
| | | EPA 8260B | EMC | 70 | PASI-M |
| | | SM 2510B | CAC | 1 | PASI-MT |
| | | SM 4500-H+B | CAC | 1 | PASI-MT |
| | | SM 4500-S2-D | JME | 1 | PASI-MT |
| | | SM 4500-S H | VRJ | 1 | PASI-MT |
| | | SM 4500-NO3 H | DCL | 2 | PASI-M |
| | | ASTM D516 | KEO | 1 | PASI-M |
| | | SM 4500-NO2 B | KEO | 1 | PASI-M |
| **10358621008** | **1608TOWERTB1** | EPA 8260B | MRB | 7 | PASI-M |
| **10358621009** | **1608TOWERIDWSS** | EPA 6020B | TT3 | 1 | PASI-M |
| | | ASTM D2974 | JDL | 1 | PASI-M |
| | | EPA 8260B | MRB | 7 | PASI-M |
| **10358621010** | **1608TOWERTB2** | EPA 8011 | XV1 | 2 | PASI-M |
| | | EPA 8260B | PRD | 70 | PASI-M |
| **10358621011** | **1608TOWEREQB** | EPA 8011 | XV1 | 2 | PASI-M |
| | | EPA 6020B | TT3 | 9 | PASI-M |
| | | EPA 7470A | LMW | 1 | PASI-M |
| | | EPA 8260B | EMC | 70 | PASI-M |
| | | SM 2510B | CAC | 1 | PASI-MT |
| | | SM 4500-H+B | CAC | 1 | PASI-MT |
| | | SM 4500-S2-D | JME | 1 | PASI-MT |
| | | SM 4500-S H | VRJ | 1 | PASI-MT |
| | | SM 4500-NO3 H | DCL | 2 | PASI-M |
| | | ASTM D516 | KEO | 1 | PASI-M |
| | | SM 4500-NO2 B | KEO | 1 | PASI-M |



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# SUMMARY OF DETECTION

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **10358621001** | **1608TOWERMW16** | | | | | |
| EPA 8260B | Acetone | 2.4J | ug/L | 20.0 | 08/11/16 21:16 | B |
| EPA 8260B | Benzene | 0.75J | ug/L | 1.0 | 08/11/16 21:16 | |
| **10358621002** | **1608TOWERMW16D** | | | | | |
| EPA 8260B | Benzene | 1240 | ug/L | 20.0 | 08/14/16 16:30 | |
| EPA 8260B | n-Butylbenzene | 3.3 | ug/L | 1.0 | 08/12/16 01:53 | |
| EPA 8260B | sec-Butylbenzene | 4.0 | ug/L | 1.0 | 08/12/16 01:53 | |
| EPA 8260B | Ethylbenzene | 61.8 | ug/L | 1.0 | 08/12/16 01:53 | |
| EPA 8260B | Isopropylbenzene (Cumene) | 26.0 | ug/L | 1.0 | 08/12/16 01:53 | |
| EPA 8260B | p-Isopropyltoluene | 1.6 | ug/L | 1.0 | 08/12/16 01:53 | |
| EPA 8260B | 4-Methyl-2-pentanone (MIBK) | 0.69J | ug/L | 5.0 | 08/12/16 01:53 | |
| EPA 8260B | Methyl-tert-butyl ether | 1.9 | ug/L | 1.0 | 08/12/16 01:53 | |
| EPA 8260B | Naphthalene | 109 | ug/L | 4.0 | 08/12/16 01:53 | |
| EPA 8260B | n-Propylbenzene | 66.9 | ug/L | 1.0 | 08/12/16 01:53 | |
| EPA 8260B | Toluene | 22.2 | ug/L | 1.0 | 08/12/16 01:53 | |
| EPA 8260B | 1,2,4-Trimethylbenzene | 367 | ug/L | 20.0 | 08/14/16 16:30 | |
| EPA 8260B | 1,3,5-Trimethylbenzene | 79.5 | ug/L | 1.0 | 08/12/16 01:53 | |
| EPA 8260B | Xylene (Total) | 1610 | ug/L | 60.0 | 08/14/16 16:30 | |
| **10358621003** | **1608TOWERMW18D** | | | | | |
| EPA 8260B | Benzene | 1300 | ug/L | 20.0 | 08/15/16 21:59 | |
| EPA 8260B | n-Butylbenzene | 3.5 | ug/L | 1.0 | 08/12/16 02:09 | |
| EPA 8260B | sec-Butylbenzene | 4.3 | ug/L | 1.0 | 08/12/16 02:09 | |
| EPA 8260B | Ethylbenzene | 65.3 | ug/L | 1.0 | 08/12/16 02:09 | |
| EPA 8260B | Isopropylbenzene (Cumene) | 26.7 | ug/L | 1.0 | 08/12/16 02:09 | |
| EPA 8260B | p-Isopropyltoluene | 1.7 | ug/L | 1.0 | 08/12/16 02:09 | |
| EPA 8260B | 4-Methyl-2-pentanone (MIBK) | 0.72J | ug/L | 5.0 | 08/12/16 02:09 | |
| EPA 8260B | Methyl-tert-butyl ether | 2.3 | ug/L | 1.0 | 08/12/16 02:09 | |
| EPA 8260B | Naphthalene | 114 | ug/L | 4.0 | 08/12/16 02:09 | |
| EPA 8260B | n-Propylbenzene | 69.5 | ug/L | 1.0 | 08/12/16 02:09 | |
| EPA 8260B | Toluene | 23.0 | ug/L | 1.0 | 08/12/16 02:09 | |
| EPA 8260B | 1,2,4-Trimethylbenzene | 336 | ug/L | 20.0 | 08/15/16 21:59 | |
| EPA 8260B | 1,3,5-Trimethylbenzene | 84.3 | ug/L | 1.0 | 08/12/16 02:09 | |
| EPA 8260B | Xylene (Total) | 1410 | ug/L | 60.0 | 08/15/16 21:59 | |
| **10358621004** | **1608TOWERMW16E** | | | | | |
| EPA 6020B | Arsenic | 0.59 | ug/L | 0.50 | 08/19/16 14:05 | |
| EPA 6020B | Barium | 205 | ug/L | 0.30 | 08/19/16 14:05 | |
| EPA 6020B | Chromium | 2.3 | ug/L | 0.50 | 08/19/16 14:05 | |
| EPA 6020B | Iron | 1460 | ug/L | 50.0 | 08/19/16 14:05 | |
| EPA 6020B | Lead | 0.29 | ug/L | 0.10 | 08/19/16 14:05 | B |
| EPA 6020B | Manganese | 1650 | ug/L | 5.0 | 08/20/16 16:13 | |
| EPA 6020B | Selenium | 0.18J | ug/L | 0.50 | 08/19/16 14:05 | |
| EPA 8260B | Acetone | 10J | ug/L | 20.0 | 08/12/16 09:19 | B |
| EPA 8260B | Benzene | 768 | ug/L | 20.0 | 08/14/16 16:46 | |
| EPA 8260B | n-Butylbenzene | 0.59J | ug/L | 1.0 | 08/12/16 09:19 | |
| EPA 8260B | sec-Butylbenzene | 1.3 | ug/L | 1.0 | 08/12/16 09:19 | |
| EPA 8260B | 1,4-Dichlorobenzene | 0.28J | ug/L | 1.0 | 08/12/16 09:19 | |
| EPA 8260B | Ethylbenzene | 8.9 | ug/L | 1.0 | 08/12/16 09:19 | |



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# SUMMARY OF DETECTION

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

| Lab Sample ID<br>Method | Client Sample ID<br>Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **10358621004** | **1608TOWERMW16E** | | | | | |
| EPA 8260B | Isopropylbenzene (Cumene) | 9.9 | ug/L | 1.0 | 08/12/16 09:19 | |
| EPA 8260B | p-Isopropyltoluene | 0.52J | ug/L | 1.0 | 08/12/16 09:19 | |
| EPA 8260B | Methyl-tert-butyl ether | 10.0 | ug/L | 1.0 | 08/12/16 09:19 | |
| EPA 8260B | Naphthalene | 28.2 | ug/L | 4.0 | 08/12/16 09:19 | |
| EPA 8260B | n-Propylbenzene | 18.4 | ug/L | 1.0 | 08/12/16 09:19 | |
| EPA 8260B | Toluene | 6.1 | ug/L | 1.0 | 08/12/16 09:19 | |
| EPA 8260B | 1,2,4-Trimethylbenzene | 96.6 | ug/L | 1.0 | 08/12/16 09:19 | |
| EPA 8260B | 1,3,5-Trimethylbenzene | 16.9 | ug/L | 1.0 | 08/12/16 09:19 | |
| EPA 8260B | Xylene (Total) | 506 | ug/L | 3.0 | 08/12/16 09:19 | |
| SM 2510B | Specific Conductance | 1570 | umhos/cm | 10.0 | 08/16/16 15:02 | |
| SM 4500-H+B | pH at 25 Degrees C | 7.7 | Std. Units | 0.10 | 08/15/16 19:10 | H6 |
| SM 4500-S2-D | Sulfide | 0.024J | mg/L | 0.10 | 08/16/16 13:29 | |
| ASTM D516 | Sulfate | 1.2J | mg/L | 3.5 | 08/12/16 09:05 | |
| SM 4500-NO2 B | Nitrite as N | 0.0044J | mg/L | 0.012 | 08/11/16 09:00 | H1 |
| **10358621005** | **1608TOWERMW21** | | | | | |
| EPA 8011 | 1,2-Dibromoethane (EDB) | 0.0072J | ug/L | 0.0098 | 08/18/16 04:37 | |
| EPA 6020B | Arsenic | 2.3 | ug/L | 0.50 | 08/19/16 14:19 | |
| EPA 6020B | Barium | 95.9 | ug/L | 0.30 | 08/19/16 14:19 | |
| EPA 6020B | Cadmium | 0.078J | ug/L | 0.080 | 08/19/16 14:19 | |
| EPA 6020B | Chromium | 8.5 | ug/L | 0.50 | 08/19/16 14:19 | |
| EPA 6020B | Iron | 19200 | ug/L | 50.0 | 08/19/16 14:19 | |
| EPA 6020B | Lead | 8.6 | ug/L | 0.10 | 08/19/16 14:19 | |
| EPA 6020B | Manganese | 6550 | ug/L | 10.0 | 08/20/16 16:15 | |
| EPA 6020B | Selenium | 0.39J | ug/L | 0.50 | 08/19/16 14:19 | |
| EPA 6020B | Silver | 0.042J | ug/L | 0.50 | 08/19/16 14:19 | B |
| EPA 8260B | Acetone | 37.3 | ug/L | 20.0 | 08/12/16 09:34 | |
| EPA 8260B | Benzene | 458 | ug/L | 25.0 | 08/14/16 17:01 | |
| EPA 8260B | n-Butylbenzene | 52.4 | ug/L | 1.0 | 08/12/16 09:34 | |
| EPA 8260B | sec-Butylbenzene | 21.6 | ug/L | 1.0 | 08/12/16 09:34 | |
| EPA 8260B | Ethylbenzene | 1700 | ug/L | 25.0 | 08/14/16 17:01 | |
| EPA 8260B | Isopropylbenzene (Cumene) | 111 | ug/L | 1.0 | 08/12/16 09:34 | |
| EPA 8260B | p-Isopropyltoluene | 15.9 | ug/L | 1.0 | 08/12/16 09:34 | |
| EPA 8260B | 4-Methyl-2-pentanone (MIBK) | 9.4 | ug/L | 5.0 | 08/12/16 09:34 | |
| EPA 8260B | Methyl-tert-butyl ether | 0.24J | ug/L | 1.0 | 08/12/16 09:34 | |
| EPA 8260B | Naphthalene | 703 | ug/L | 100 | 08/14/16 17:01 | |
| EPA 8260B | n-Propylbenzene | 268 | ug/L | 25.0 | 08/14/16 17:01 | |
| EPA 8260B | Styrene | 12.5 | ug/L | 1.0 | 08/12/16 09:34 | |
| EPA 8260B | Toluene | 3280 | ug/L | 25.0 | 08/14/16 17:01 | |
| EPA 8260B | 1,2,4-Trimethylbenzene | 2920 | ug/L | 25.0 | 08/14/16 17:01 | |
| EPA 8260B | 1,3,5-Trimethylbenzene | 744 | ug/L | 25.0 | 08/14/16 17:01 | |
| EPA 8260B | Xylene (Total) | 9060 | ug/L | 75.0 | 08/14/16 17:01 | |
| SM 2510B | Specific Conductance | 411 | umhos/cm | 10.0 | 08/16/16 15:04 | |
| SM 4500-H+B | pH at 25 Degrees C | 6.7 | Std. Units | 0.10 | 08/15/16 19:12 | H6 |
| SM 4500-S2-D | Sulfide | 0.022J | mg/L | 0.10 | 08/16/16 13:30 | |
| SM 4500-NO3 H | Nitrate as N | 0.047J | mg/L | 0.058 | 08/24/16 09:12 | |
| ASTM D516 | Sulfate | 1.5J | mg/L | 3.5 | 08/12/16 09:05 | |



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# SUMMARY OF DETECTION

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

| Lab Sample ID<br>Method | Client Sample ID<br>Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **10358621006** | **1608TOWERMW21M** | | | | | |
| EPA 8011 | 1,2-Dibromoethane (EDB) | 0.011 | ug/L | 0.0099 | 08/18/16 05:03 | |
| EPA 6020B | Arsenic | 1.5 | ug/L | 0.50 | 08/19/16 14:21 | |
| EPA 6020B | Barium | 80.9 | ug/L | 0.30 | 08/19/16 14:21 | |
| EPA 6020B | Cadmium | 0.057J | ug/L | 0.080 | 08/19/16 14:21 | |
| EPA 6020B | Chromium | 9.5 | ug/L | 0.50 | 08/19/16 14:21 | |
| EPA 6020B | Iron | 8830 | ug/L | 50.0 | 08/19/16 14:21 | |
| EPA 6020B | Lead | 2.8 | ug/L | 0.10 | 08/19/16 14:21 | |
| EPA 6020B | Manganese | 3170 | ug/L | 10.0 | 08/20/16 16:18 | |
| EPA 6020B | Selenium | 0.43J | ug/L | 0.50 | 08/19/16 14:21 | |
| EPA 6020B | Silver | 0.069J | ug/L | 0.50 | 08/19/16 14:21 | B |
| EPA 8260B | Acetone | 32.1 | ug/L | 20.0 | 08/12/16 09:50 | |
| EPA 8260B | Benzene | 2150 | ug/L | 25.0 | 08/14/16 17:17 | |
| EPA 8260B | n-Butylbenzene | 29.3 | ug/L | 1.0 | 08/12/16 09:50 | |
| EPA 8260B | sec-Butylbenzene | 16.2 | ug/L | 1.0 | 08/12/16 09:50 | |
| EPA 8260B | Ethylbenzene | 1660 | ug/L | 25.0 | 08/14/16 17:17 | |
| EPA 8260B | Isopropylbenzene (Cumene) | 81.1 | ug/L | 1.0 | 08/12/16 09:50 | |
| EPA 8260B | p-Isopropyltoluene | 8.0 | ug/L | 1.0 | 08/12/16 09:50 | |
| EPA 8260B | 4-Methyl-2-pentanone (MIBK) | 2.6J | ug/L | 5.0 | 08/12/16 09:50 | |
| EPA 8260B | Methyl-tert-butyl ether | 7.4 | ug/L | 1.0 | 08/12/16 09:50 | |
| EPA 8260B | Naphthalene | 470 | ug/L | 100 | 08/14/16 17:17 | |
| EPA 8260B | n-Propylbenzene | 238 | ug/L | 1.0 | 08/12/16 09:50 | |
| EPA 8260B | Styrene | 5.9 | ug/L | 1.0 | 08/12/16 09:50 | |
| EPA 8260B | Toluene | 1320 | ug/L | 25.0 | 08/14/16 17:17 | |
| EPA 8260B | 1,2,4-Trimethylbenzene | 1310 | ug/L | 25.0 | 08/14/16 17:17 | |
| EPA 8260B | 1,3,5-Trimethylbenzene | 480 | ug/L | 25.0 | 08/14/16 17:17 | |
| EPA 8260B | Xylene (Total) | 4340 | ug/L | 75.0 | 08/14/16 17:17 | |
| SM 2510B | Specific Conductance | 595 | umhos/cm | 10.0 | 08/16/16 15:05 | |
| SM 4500-H+B | pH at 25 Degrees C | 6.6 | Std. Units | 0.10 | 08/15/16 19:13 | H6 |
| SM 4500-NO3 H | Nitrate as N | 0.12 | mg/L | 0.058 | 08/24/16 09:13 | |
| SM 4500-NO3 H | Nitrogen, NO2 plus NO3 | 0.12J | mg/L | 0.17 | 08/24/16 09:13 | |
| **10358621007** | **1608TOWERMW21D** | | | | | |
| EPA 6020B | Arsenic | 0.43J | ug/L | 0.50 | 08/19/16 14:23 | |
| EPA 6020B | Barium | 299 | ug/L | 0.30 | 08/19/16 14:23 | |
| EPA 6020B | Chromium | 4.4 | ug/L | 0.50 | 08/19/16 14:23 | |
| EPA 6020B | Iron | 65700 | ug/L | 500 | 08/20/16 16:20 | M1 |
| EPA 6020B | Lead | 0.41 | ug/L | 0.10 | 08/19/16 14:23 | |
| EPA 6020B | Manganese | 1580 | ug/L | 5.0 | 08/20/16 16:20 | M1 |
| EPA 6020B | Selenium | 0.19J | ug/L | 0.50 | 08/19/16 14:23 | |
| EPA 6020B | Silver | 0.013J | ug/L | 0.50 | 08/19/16 14:23 | B |
| EPA 8260B | Acetone | 2.2J | ug/L | 20.0 | 08/17/16 01:09 | |
| EPA 8260B | Benzene | 45.9 | ug/L | 1.0 | 08/17/16 01:09 | |
| EPA 8260B | n-Butylbenzene | 1.8 | ug/L | 1.0 | 08/17/16 01:09 | |
| EPA 8260B | sec-Butylbenzene | 0.69J | ug/L | 1.0 | 08/17/16 01:09 | |
| EPA 8260B | Ethylbenzene | 8.1 | ug/L | 1.0 | 08/17/16 01:09 | |
| EPA 8260B | Isopropylbenzene (Cumene) | 1.2 | ug/L | 1.0 | 08/17/16 01:09 | |
| EPA 8260B | p-Isopropyltoluene | 0.44J | ug/L | 1.0 | 08/17/16 01:09 | |
| EPA 8260B | Naphthalene | 4.9 | ug/L | 4.0 | 08/17/16 01:09 | |



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# SUMMARY OF DETECTION

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

| Lab Sample ID<br>Method | Client Sample ID<br>Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **10358621007** | **1608TOWERMW21D** | | | | | |
| EPA 8260B | n-Propylbenzene | 5.3 | ug/L | 1.0 | 08/17/16 01:09 | |
| EPA 8260B | Toluene | 7.3 | ug/L | 1.0 | 08/17/16 01:09 | |
| EPA 8260B | 1,2,4-Trimethylbenzene | 30.6 | ug/L | 1.0 | 08/17/16 01:09 | |
| EPA 8260B | 1,3,5-Trimethylbenzene | 8.2 | ug/L | 1.0 | 08/17/16 01:09 | |
| EPA 8260B | Xylene (Total) | 64.5 | ug/L | 3.0 | 08/17/16 01:09 | |
| SM 2510B | Specific Conductance | 2100 | umhos/cm | 10.0 | 08/16/16 15:05 | |
| SM 4500-H+B | pH at 25 Degrees C | 6.5 | Std. Units | 0.10 | 08/15/16 19:14 | H6 |
| SM 4500-S2-D | Sulfide | 0.014J | mg/L | 0.10 | 08/16/16 13:34 | |
| SM 4500-NO3 H | Nitrate as N | 0.063 | mg/L | 0.058 | 08/24/16 09:14 | |
| SM 4500-NO3 H | Nitrogen, NO2 plus NO3 | 0.063J | mg/L | 0.17 | 08/24/16 09:14 | |
| ASTM D516 | Sulfate | 1.1J | mg/L | 3.5 | 08/12/16 09:07 | |
| **10358621009** | **1608TOWERIDWSS** | | | | | |
| EPA 6020B | Lead | 2.7 | mg/kg | 0.11 | 08/19/16 11:55 | |
| ASTM D2974 | Percent Moisture | 20.7 | % | 0.10 | 08/15/16 16:34 | |
| EPA 8260B | Benzene | 601 | ug/kg | 29.5 | 08/15/16 23:24 | |
| EPA 8260B | Ethylbenzene | 2930 | ug/kg | 31.5 | 08/15/16 23:24 | |
| EPA 8260B | Toluene | 4330 | ug/kg | 40.4 | 08/15/16 23:24 | |
| EPA 8260B | Xylene (Total) | 14500 | ug/kg | 126 | 08/15/16 23:24 | |
| **10358621010** | **1608TOWERTB2** | | | | | |
| EPA 8260B | Acetone | 2.2J | ug/L | 20.0 | 08/12/16 09:03 | B |
| EPA 8260B | Toluene | 0.17J | ug/L | 1.0 | 08/12/16 09:03 | B |
| **10358621011** | **1608TOWEREQB** | | | | | |
| EPA 6020B | Barium | 0.070J | ug/L | 0.30 | 08/19/16 14:33 | B |
| EPA 6020B | Chromium | 0.36J | ug/L | 0.50 | 08/19/16 14:33 | |
| EPA 6020B | Lead | 0.076J | ug/L | 0.10 | 08/19/16 14:33 | B |
| EPA 6020B | Manganese | 0.21J | ug/L | 0.50 | 08/19/16 14:33 | |
| EPA 6020B | Silver | 0.043J | ug/L | 0.50 | 08/19/16 14:33 | B |
| EPA 8260B | Acetone | 2.9J | ug/L | 20.0 | 08/16/16 22:58 | |
| EPA 8260B | Naphthalene | 1.6J | ug/L | 4.0 | 08/16/16 22:58 | |
| EPA 8260B | Toluene | 0.48J | ug/L | 1.0 | 08/16/16 22:58 | |
| SM 4500-H+B | pH at 25 Degrees C | 5.7 | Std. Units | 0.10 | 08/15/16 19:19 | H6 |
| SM 4500-NO3 H | Nitrate as N | 0.042J | mg/L | 0.058 | 08/24/16 09:18 | |



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# PROJECT NARRATIVE

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Method:** **EPA 8011**
**Description:** 8011 GCS EDB and DBCP
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 29, 2016

**General Information:**
9 samples were analyzed for EPA 8011. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**
The samples were prepared in accordance with EPA 8011 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**
All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**
All criteria were within method requirements with any exceptions noted below.

**Surrogates:**
All surrogates were within QC limits with any exceptions noted below.

QC Batch: 430673

S5: Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).
- 1608TOWERMW16 (Lab ID: 10358621001)
  - 4-Bromofluorobenzene (S)

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

Analyte Comments:

QC Batch: 430673

1M: Low surrogate recovery due to emulsion forming during the extraction process.
- 1608TOWERMW16 (Lab ID: 10358621001)
  - 4-Bromofluorobenzene (S)



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# PROJECT NARRATIVE

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Method:** **EPA 6020B**
**Description:** 6020B MET ICPMS
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 29, 2016

**General Information:**
6 samples were analyzed for EPA 6020B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**
The samples were prepared in accordance with EPA 3050 with any exceptions noted below.
The samples were prepared in accordance with EPA 3020 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**
All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**
All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**
All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 429937

B: Analyte was detected in the associated method blank.
- BLANK for HBN 429937 [MPRP/658 (Lab ID: 2339230)
  - Barium
  - Lead
  - Silver

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 429937

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10358621007

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- MS (Lab ID: 2342797)
  - Iron
  - Manganese
- MSD (Lab ID: 2342798)
  - Iron


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# PROJECT NARRATIVE

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Method:** **EPA 6020B**
**Description:** 6020B MET ICPMS
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 29, 2016

**Additional Comments:**

Analyte Comments:

QC Batch: 429937

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 2342797)
  - Iron
  - Manganese
- MSD (Lab ID: 2342798)
  - Iron
  - Manganese



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# PROJECT NARRATIVE

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Method:** **EPA 7470A**
**Description:** 7470A Mercury
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 29, 2016

**General Information:**
5 samples were analyzed for EPA 7470A. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**
The samples were prepared in accordance with EPA 7470A with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**
All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**
All criteria were within method requirements with any exceptions noted below.

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**



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# PROJECT NARRATIVE

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Method:** **EPA 8260B**
**Description:** 8260B MSV UST
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 29, 2016

**General Information:**
2 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**
The samples were prepared in accordance with EPA 5035/5030B with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**
All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**
All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**
All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**
All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Duplicate Sample:**
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

**Additional Comments:**


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# PROJECT NARRATIVE

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Method:** **EPA 8260B**
**Description:** 8260B VOC
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 29, 2016

**General Information:**
9 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results may be biased low.
- 1608TOWERMW16 (Lab ID: 10358621001)
- 1608TOWERMW16D (Lab ID: 10358621002)
- 1608TOWERMW16E (Lab ID: 10358621004)
- 1608TOWERMW18D (Lab ID: 10358621003)
- 1608TOWERMW21 (Lab ID: 10358621005)
- 1608TOWERMW21M (Lab ID: 10358621006)
- 1608TOWERTB2 (Lab ID: 10358621010)

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**
All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**
All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**
All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**
All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 430040

B: Analyte was detected in the associated method blank.
- BLANK for HBN 430040 [MSV/3659 (Lab ID: 2339727)
  - Acetone

QC Batch: 430041

B: Analyte was detected in the associated method blank.
- BLANK for HBN 430041 [MSV/3659 (Lab ID: 2339729)
  - Acetone
  - Toluene

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.



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# PROJECT NARRATIVE

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Method:** **EPA 8260B**
**Description:** 8260B VOC
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 29, 2016

QC Batch: 430040

L0: Analyte recovery in the laboratory control sample (LCS) was outside QC limits.

- LCS (Lab ID: 2339728)
  - Bromoform

QC Batch: 430041

L0: Analyte recovery in the laboratory control sample (LCS) was outside QC limits.

- LCS (Lab ID: 2339730)
  - Bromoform

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 430040

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10358621001

R1: RPD value was outside control limits.

- MSD (Lab ID: 2341622)
  - Tetrahydrofuran

QC Batch: 430041

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10359186001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 2343936)
  - 1,1,1,2-Tetrachloroethane
  - 1,3-Dichlorobenzene
  - 2,2-Dichloropropane
  - Carbon tetrachloride
  - Dibromochloromethane
  - Dichlorodifluoromethane
  - Tetrachloroethene
  - Trichlorofluoromethane
  - cis-1,3-Dichloropropene

R1: RPD value was outside control limits.

- MSD (Lab ID: 2343936)
  - 1,1,2-Trichlorotrifluoroethane
  - 1,1-Dichloroethane
  - 1,2,4-Trichlorobenzene
  - n-Butylbenzene

QC Batch: 430893

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10358621007

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2343944)
  - 1,1,1,2-Tetrachloroethane
  - 1,1,2-Trichloroethane
  - Bromochloromethane



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# PROJECT NARRATIVE

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Method:** **EPA 8260B**
**Description:** 8260B VOC
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 29, 2016

QC Batch: 430893

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10358621007

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- Trichlorofluoromethane
- MSD (Lab ID: 2343945)
  - 1,1,1,2-Tetrachloroethane
  - 1,1,1-Trichloroethane
  - 1,1,2,2-Tetrachloroethane
  - 1,1,2-Trichloroethane
  - 1,1,2-Trichlorotrifluoroethane
  - 1,2,3-Trichloropropane
  - 1,2,4-Trimethylbenzene
  - 1,2-Dibromoethane (EDB)
  - 1,2-Dichlorobenzene
  - 1,3-Dichloropropane
  - 2-Chlorotoluene
  - Benzene
  - Bromobenzene
  - Bromochloromethane
  - Bromodichloromethane
  - Bromomethane
  - Carbon tetrachloride
  - Chlorobenzene
  - Chloroethane
  - Chloroform
  - Chloromethane
  - Dibromomethane
  - Dichlorodifluoromethane
  - Dichlorofluoromethane
  - Hexachloro-1,3-butadiene
  - Tetrachloroethene
  - Trichloroethene
  - Trichlorofluoromethane
  - Vinyl chloride
  - cis-1,3-Dichloropropene
  - n-Butylbenzene
  - p-Isopropyltoluene
  - trans-1,2-Dichloroethene

R1: RPD value was outside control limits.

- MSD (Lab ID: 2343945)
  - Chloromethane

**Additional Comments:**



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# PROJECT NARRATIVE

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Method:** **SM 2510B**
**Description:** 2510B Specific Conductance
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 29, 2016

**General Information:**
5 samples were analyzed for SM 2510B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**
All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**
All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**
All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**
All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Duplicate Sample:**
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

**Additional Comments:**


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# PROJECT NARRATIVE

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Method:** **SM 4500-H+B**
**Description:** 4500H+ pH, Electrometric
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 29, 2016

**General Information:**
5 samples were analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.
- 1608TOWEREQB (Lab ID: 10358621011)
- 1608TOWERMW16E (Lab ID: 10358621004)
- 1608TOWERMW21 (Lab ID: 10358621005)
- 1608TOWERMW21D (Lab ID: 10358621007)
- 1608TOWERMW21M (Lab ID: 10358621006)

**Initial Calibrations (including MS Tune as applicable):**
All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**
All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**
All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**
All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Duplicate Sample:**
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

**Additional Comments:**


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# PROJECT NARRATIVE

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Method:** **SM 4500-S2-D**
**Description:** 4500S2D Sulfide Water
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 29, 2016

**General Information:**
5 samples were analyzed for SM 4500-S2-D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**
All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**
All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**
All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**
All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Duplicate Sample:**
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

**Additional Comments:**


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# PROJECT NARRATIVE

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Method:** **SM 4500-S H**
**Description:** 4500S2H Sulfide as H2S Calc
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 29, 2016

**General Information:**
5 samples were analyzed for SM 4500-S H. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**
All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**
All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**
All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**
All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**


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# PROJECT NARRATIVE

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Method:** **SM 4500-NO3 H**
**Description:** SM4500NO3-H, NO2 + NO3 pres.
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 29, 2016

**General Information:**
5 samples were analyzed for SM 4500-NO3 H. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 431923

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10358583039,10358621007

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2349008)
  - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 2349009)
  - Nitrogen, NO2 plus NO3

**Additional Comments:**



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# PROJECT NARRATIVE

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Method:** **ASTM D516**
**Description:** ASTM D516 Sulfate Water
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 29, 2016

**General Information:**
5 samples were analyzed for ASTM D516. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 430263

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10358073002,10358621007

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- MS (Lab ID: 2340954)
  - Sulfate

**Additional Comments:**



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# PROJECT NARRATIVE

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Method:** **SM 4500-NO2 B**
**Description:** SM4500NO2-B, Nitrite, unpres
**Client:** Bristol Environmental Remediation Services, LLC
**Date:** August 29, 2016

**General Information:**
5 samples were analyzed for SM 4500-NO2 B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**
The samples were analyzed within the method required hold times with any exceptions noted below.

H1: Analysis conducted outside the recognized method holding time.
- 1608TOWERMW16E (Lab ID: 10358621004)

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**
All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERMW16** **Lab ID: 10358621001** Collected: 08/08/16 10:55 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8011 GCS EDB and DBCP** | Analytical Method: EPA 8011 Preparation Method: EPA 8011 | | | | | | | | |
| 1,2-Dibromoethane (EDB) | **<0.0016** | ug/L | 0.0097 | 0.0016 | 1 | 08/15/16 15:31 | 08/18/16 02:52 | 106-93-4 | |
| ***Surrogates*** | | | | | | | | | |
| 4-Bromofluorobenzene (S) | 22 | %. | 30-150 | | 1 | 08/15/16 15:31 | 08/18/16 02:52 | 460-00-4 | 1M,S5 |
| **8260B VOC** | Analytical Method: EPA 8260B | | | | | | | | |
| Acetone | **2.4J** | ug/L | 20.0 | 0.64 | 1 | | 08/11/16 21:16 | 67-64-1 | B |
| Allyl chloride | **<0.25** | ug/L | 4.0 | 0.25 | 1 | | 08/11/16 21:16 | 107-05-1 | |
| Benzene | **0.75J** | ug/L | 1.0 | 0.16 | 1 | | 08/11/16 21:16 | 71-43-2 | |
| Bromobenzene | **<0.34** | ug/L | 1.0 | 0.34 | 1 | | 08/11/16 21:16 | 108-86-1 | |
| Bromochloromethane | **<0.19** | ug/L | 1.0 | 0.19 | 1 | | 08/11/16 21:16 | 74-97-5 | |
| Bromodichloromethane | **<0.24** | ug/L | 1.0 | 0.24 | 1 | | 08/11/16 21:16 | 75-27-4 | |
| Bromoform | **<0.27** | ug/L | 10.0 | 0.27 | 1 | | 08/11/16 21:16 | 75-25-2 | L2 |
| Bromomethane | **<0.44** | ug/L | 4.0 | 0.44 | 1 | | 08/11/16 21:16 | 74-83-9 | |
| 2-Butanone (MEK) | **<1.1** | ug/L | 5.0 | 1.1 | 1 | | 08/11/16 21:16 | 78-93-3 | |
| n-Butylbenzene | **<0.16** | ug/L | 1.0 | 0.16 | 1 | | 08/11/16 21:16 | 104-51-8 | |
| sec-Butylbenzene | **<0.19** | ug/L | 1.0 | 0.19 | 1 | | 08/11/16 21:16 | 135-98-8 | |
| tert-Butylbenzene | **<0.22** | ug/L | 1.0 | 0.22 | 1 | | 08/11/16 21:16 | 98-06-6 | |
| Carbon tetrachloride | **<0.20** | ug/L | 4.0 | 0.20 | 1 | | 08/11/16 21:16 | 56-23-5 | |
| Chlorobenzene | **<0.11** | ug/L | 1.0 | 0.11 | 1 | | 08/11/16 21:16 | 108-90-7 | |
| Chloroethane | **<0.34** | ug/L | 4.0 | 0.34 | 1 | | 08/11/16 21:16 | 75-00-3 | |
| Chloroform | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/11/16 21:16 | 67-66-3 | |
| Chloromethane | **<0.25** | ug/L | 4.0 | 0.25 | 1 | | 08/11/16 21:16 | 74-87-3 | |
| 2-Chlorotoluene | **<0.30** | ug/L | 1.0 | 0.30 | 1 | | 08/11/16 21:16 | 95-49-8 | |
| 4-Chlorotoluene | **<0.26** | ug/L | 1.0 | 0.26 | 1 | | 08/11/16 21:16 | 106-43-4 | |
| 1,2-Dibromo-3-chloropropane | **<0.60** | ug/L | 10.0 | 0.60 | 1 | | 08/11/16 21:16 | 96-12-8 | |
| Dibromochloromethane | **<0.16** | ug/L | 4.0 | 0.16 | 1 | | 08/11/16 21:16 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | **<0.20** | ug/L | 1.0 | 0.20 | 1 | | 08/11/16 21:16 | 106-93-4 | |
| Dibromomethane | **<0.19** | ug/L | 4.0 | 0.19 | 1 | | 08/11/16 21:16 | 74-95-3 | |
| 1,2-Dichlorobenzene | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/11/16 21:16 | 95-50-1 | |
| 1,3-Dichlorobenzene | **<0.12** | ug/L | 1.0 | 0.12 | 1 | | 08/11/16 21:16 | 541-73-1 | |
| 1,4-Dichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/11/16 21:16 | 106-46-7 | |
| Dichlorodifluoromethane | **<0.23** | ug/L | 1.0 | 0.23 | 1 | | 08/11/16 21:16 | 75-71-8 | |
| 1,1-Dichloroethane | **<0.17** | ug/L | 4.0 | 0.17 | 1 | | 08/11/16 21:16 | 75-34-3 | |
| 1,2-Dichloroethane | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/11/16 21:16 | 107-06-2 | |
| 1,1-Dichloroethene | **<0.28** | ug/L | 1.0 | 0.28 | 1 | | 08/11/16 21:16 | 75-35-4 | |
| cis-1,2-Dichloroethene | **<0.12** | ug/L | 1.0 | 0.12 | 1 | | 08/11/16 21:16 | 156-59-2 | |
| trans-1,2-Dichloroethene | **<0.16** | ug/L | 1.0 | 0.16 | 1 | | 08/11/16 21:16 | 156-60-5 | |
| Dichlorofluoromethane | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/11/16 21:16 | 75-43-4 | |
| 1,2-Dichloropropane | **<0.22** | ug/L | 4.0 | 0.22 | 1 | | 08/11/16 21:16 | 78-87-5 | |
| 1,3-Dichloropropane | **<0.096** | ug/L | 1.0 | 0.096 | 1 | | 08/11/16 21:16 | 142-28-9 | |
| 2,2-Dichloropropane | **<0.13** | ug/L | 4.0 | 0.13 | 1 | | 08/11/16 21:16 | 594-20-7 | |
| 1,1-Dichloropropene | **<0.23** | ug/L | 1.0 | 0.23 | 1 | | 08/11/16 21:16 | 563-58-6 | |
| cis-1,3-Dichloropropene | **<0.15** | ug/L | 4.0 | 0.15 | 1 | | 08/11/16 21:16 | 10061-01-5 | |
| trans-1,3-Dichloropropene | **<0.15** | ug/L | 4.0 | 0.15 | 1 | | 08/11/16 21:16 | 10061-02-6 | |
| Diethyl ether (Ethyl ether) | **<0.19** | ug/L | 4.0 | 0.19 | 1 | | 08/11/16 21:16 | 60-29-7 | |
| Ethylbenzene | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 08/11/16 21:16 | 100-41-4 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERMW16** **Lab ID: 10358621001** Collected: 08/08/16 10:55 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260B VOC** | Analytical Method: EPA 8260B | | | | | | | | |
| Hexachloro-1,3-butadiene | **<0.18** | ug/L | 4.0 | 0.18 | 1 | | 08/11/16 21:16 | 87-68-3 | |
| Isopropylbenzene (Cumene) | **<0.25** | ug/L | 1.0 | 0.25 | 1 | | 08/11/16 21:16 | 98-82-8 | |
| p-Isopropyltoluene | **<0.19** | ug/L | 1.0 | 0.19 | 1 | | 08/11/16 21:16 | 99-87-6 | |
| Methylene Chloride | **<0.29** | ug/L | 4.0 | 0.29 | 1 | | 08/11/16 21:16 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | **<0.43** | ug/L | 5.0 | 0.43 | 1 | | 08/11/16 21:16 | 108-10-1 | |
| Methyl-tert-butyl ether | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 08/11/16 21:16 | 1634-04-4 | |
| Naphthalene | **<0.20** | ug/L | 4.0 | 0.20 | 1 | | 08/11/16 21:16 | 91-20-3 | |
| n-Propylbenzene | **<0.23** | ug/L | 1.0 | 0.23 | 1 | | 08/11/16 21:16 | 103-65-1 | |
| Styrene | **<0.29** | ug/L | 1.0 | 0.29 | 1 | | 08/11/16 21:16 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | **<0.17** | ug/L | 4.0 | 0.17 | 1 | | 08/11/16 21:16 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | **<0.22** | ug/L | 1.0 | 0.22 | 1 | | 08/11/16 21:16 | 79-34-5 | |
| Tetrachloroethene | **<0.25** | ug/L | 1.0 | 0.25 | 1 | | 08/11/16 21:16 | 127-18-4 | |
| Tetrahydrofuran | **<1.5** | ug/L | 10.0 | 1.5 | 1 | | 08/11/16 21:16 | 109-99-9 | R1 |
| Toluene | **<0.14** | ug/L | 1.0 | 0.14 | 1 | | 08/11/16 21:16 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/11/16 21:16 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/11/16 21:16 | 120-82-1 | |
| 1,1,1-Trichloroethane | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/11/16 21:16 | 71-55-6 | |
| 1,1,2-Trichloroethane | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 08/11/16 21:16 | 79-00-5 | |
| Trichloroethene | **<0.20** | ug/L | 0.40 | 0.20 | 1 | | 08/11/16 21:16 | 79-01-6 | |
| Trichlorofluoromethane | **<0.33** | ug/L | 1.0 | 0.33 | 1 | | 08/11/16 21:16 | 75-69-4 | |
| 1,2,3-Trichloropropane | **<0.28** | ug/L | 4.0 | 0.28 | 1 | | 08/11/16 21:16 | 96-18-4 | |
| 1,1,2-Trichlorotrifluoroethane | **<0.32** | ug/L | 1.0 | 0.32 | 1 | | 08/11/16 21:16 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | **<0.18** | ug/L | 1.0 | 0.18 | 1 | | 08/11/16 21:16 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | **<0.27** | ug/L | 1.0 | 0.27 | 1 | | 08/11/16 21:16 | 108-67-8 | |
| Vinyl chloride | **<0.29** | ug/L | 0.40 | 0.29 | 1 | | 08/11/16 21:16 | 75-01-4 | |
| Xylene (Total) | **<0.32** | ug/L | 3.0 | 0.32 | 1 | | 08/11/16 21:16 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | | |
| 1,2-Dichloroethane-d4 (S) | 106 | %. | 75-125 | | 1 | | 08/11/16 21:16 | 17060-07-0 | |
| Toluene-d8 (S) | 105 | %. | 75-125 | | 1 | | 08/11/16 21:16 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 101 | %. | 75-125 | | 1 | | 08/11/16 21:16 | 460-00-4 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERMW16D** **Lab ID: 10358621002** Collected: 08/08/16 13:00 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8011 GCS EDB and DBCP** | Analytical Method: EPA 8011 Preparation Method: EPA 8011 | | | | | | | | |
| 1,2-Dibromoethane (EDB) | **<0.0016** | ug/L | 0.0098 | 0.0016 | 1 | 08/15/16 15:31 | 08/18/16 03:18 | 106-93-4 | |
| ***Surrogates*** | | | | | | | | | |
| 4-Bromofluorobenzene (S) | 78 | %. | 30-150 | | 1 | 08/15/16 15:31 | 08/18/16 03:18 | 460-00-4 | |
| **8260B VOC** | Analytical Method: EPA 8260B | | | | | | | | |
| Acetone | **<0.64** | ug/L | 20.0 | 0.64 | 1 | | 08/12/16 01:53 | 67-64-1 | |
| Allyl chloride | **<0.25** | ug/L | 4.0 | 0.25 | 1 | | 08/12/16 01:53 | 107-05-1 | |
| Benzene | **1240** | ug/L | 20.0 | 3.1 | 20 | | 08/14/16 16:30 | 71-43-2 | |
| Bromobenzene | **<0.34** | ug/L | 1.0 | 0.34 | 1 | | 08/12/16 01:53 | 108-86-1 | |
| Bromochloromethane | **<0.19** | ug/L | 1.0 | 0.19 | 1 | | 08/12/16 01:53 | 74-97-5 | |
| Bromodichloromethane | **<0.24** | ug/L | 1.0 | 0.24 | 1 | | 08/12/16 01:53 | 75-27-4 | |
| Bromoform | **<0.27** | ug/L | 10.0 | 0.27 | 1 | | 08/12/16 01:53 | 75-25-2 | L2 |
| Bromomethane | **<0.44** | ug/L | 4.0 | 0.44 | 1 | | 08/12/16 01:53 | 74-83-9 | |
| 2-Butanone (MEK) | **<1.1** | ug/L | 5.0 | 1.1 | 1 | | 08/12/16 01:53 | 78-93-3 | |
| n-Butylbenzene | **3.3** | ug/L | 1.0 | 0.16 | 1 | | 08/12/16 01:53 | 104-51-8 | |
| sec-Butylbenzene | **4.0** | ug/L | 1.0 | 0.19 | 1 | | 08/12/16 01:53 | 135-98-8 | |
| tert-Butylbenzene | **<0.22** | ug/L | 1.0 | 0.22 | 1 | | 08/12/16 01:53 | 98-06-6 | |
| Carbon tetrachloride | **<0.20** | ug/L | 4.0 | 0.20 | 1 | | 08/12/16 01:53 | 56-23-5 | |
| Chlorobenzene | **<0.11** | ug/L | 1.0 | 0.11 | 1 | | 08/12/16 01:53 | 108-90-7 | |
| Chloroethane | **<0.34** | ug/L | 4.0 | 0.34 | 1 | | 08/12/16 01:53 | 75-00-3 | |
| Chloroform | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 01:53 | 67-66-3 | |
| Chloromethane | **<0.25** | ug/L | 4.0 | 0.25 | 1 | | 08/12/16 01:53 | 74-87-3 | |
| 2-Chlorotoluene | **<0.30** | ug/L | 1.0 | 0.30 | 1 | | 08/12/16 01:53 | 95-49-8 | |
| 4-Chlorotoluene | **<0.26** | ug/L | 1.0 | 0.26 | 1 | | 08/12/16 01:53 | 106-43-4 | |
| 1,2-Dibromo-3-chloropropane | **<0.60** | ug/L | 10.0 | 0.60 | 1 | | 08/12/16 01:53 | 96-12-8 | |
| Dibromochloromethane | **<0.16** | ug/L | 4.0 | 0.16 | 1 | | 08/12/16 01:53 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | **<0.20** | ug/L | 1.0 | 0.20 | 1 | | 08/12/16 01:53 | 106-93-4 | |
| Dibromomethane | **<0.19** | ug/L | 4.0 | 0.19 | 1 | | 08/12/16 01:53 | 74-95-3 | |
| 1,2-Dichlorobenzene | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/12/16 01:53 | 95-50-1 | |
| 1,3-Dichlorobenzene | **<0.12** | ug/L | 1.0 | 0.12 | 1 | | 08/12/16 01:53 | 541-73-1 | |
| 1,4-Dichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 01:53 | 106-46-7 | |
| Dichlorodifluoromethane | **<0.23** | ug/L | 1.0 | 0.23 | 1 | | 08/12/16 01:53 | 75-71-8 | |
| 1,1-Dichloroethane | **<0.17** | ug/L | 4.0 | 0.17 | 1 | | 08/12/16 01:53 | 75-34-3 | |
| 1,2-Dichloroethane | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/12/16 01:53 | 107-06-2 | |
| 1,1-Dichloroethene | **<0.28** | ug/L | 1.0 | 0.28 | 1 | | 08/12/16 01:53 | 75-35-4 | |
| cis-1,2-Dichloroethene | **<0.12** | ug/L | 1.0 | 0.12 | 1 | | 08/12/16 01:53 | 156-59-2 | |
| trans-1,2-Dichloroethene | **<0.16** | ug/L | 1.0 | 0.16 | 1 | | 08/12/16 01:53 | 156-60-5 | |
| Dichlorofluoromethane | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 01:53 | 75-43-4 | |
| 1,2-Dichloropropane | **<0.22** | ug/L | 4.0 | 0.22 | 1 | | 08/12/16 01:53 | 78-87-5 | |
| 1,3-Dichloropropane | **<0.096** | ug/L | 1.0 | 0.096 | 1 | | 08/12/16 01:53 | 142-28-9 | |
| 2,2-Dichloropropane | **<0.13** | ug/L | 4.0 | 0.13 | 1 | | 08/12/16 01:53 | 594-20-7 | |
| 1,1-Dichloropropene | **<0.23** | ug/L | 1.0 | 0.23 | 1 | | 08/12/16 01:53 | 563-58-6 | |
| cis-1,3-Dichloropropene | **<0.15** | ug/L | 4.0 | 0.15 | 1 | | 08/12/16 01:53 | 10061-01-5 | |
| trans-1,3-Dichloropropene | **<0.15** | ug/L | 4.0 | 0.15 | 1 | | 08/12/16 01:53 | 10061-02-6 | |
| Diethyl ether (Ethyl ether) | **<0.19** | ug/L | 4.0 | 0.19 | 1 | | 08/12/16 01:53 | 60-29-7 | |
| Ethylbenzene | **61.8** | ug/L | 1.0 | 0.15 | 1 | | 08/12/16 01:53 | 100-41-4 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERMW16D** **Lab ID: 10358621002** Collected: 08/08/16 13:00 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260B VOC** | Analytical Method: EPA 8260B | | | | | | | | |
| Hexachloro-1,3-butadiene | **<0.18** | ug/L | 4.0 | 0.18 | 1 | | 08/12/16 01:53 | 87-68-3 | |
| Isopropylbenzene (Cumene) | **26.0** | ug/L | 1.0 | 0.25 | 1 | | 08/12/16 01:53 | 98-82-8 | |
| p-Isopropyltoluene | **1.6** | ug/L | 1.0 | 0.19 | 1 | | 08/12/16 01:53 | 99-87-6 | |
| Methylene Chloride | **<0.29** | ug/L | 4.0 | 0.29 | 1 | | 08/12/16 01:53 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | **0.69J** | ug/L | 5.0 | 0.43 | 1 | | 08/12/16 01:53 | 108-10-1 | |
| Methyl-tert-butyl ether | **1.9** | ug/L | 1.0 | 0.15 | 1 | | 08/12/16 01:53 | 1634-04-4 | |
| Naphthalene | **109** | ug/L | 4.0 | 0.20 | 1 | | 08/12/16 01:53 | 91-20-3 | |
| n-Propylbenzene | **66.9** | ug/L | 1.0 | 0.23 | 1 | | 08/12/16 01:53 | 103-65-1 | |
| Styrene | **<0.29** | ug/L | 1.0 | 0.29 | 1 | | 08/12/16 01:53 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | **<0.17** | ug/L | 4.0 | 0.17 | 1 | | 08/12/16 01:53 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | **<0.22** | ug/L | 1.0 | 0.22 | 1 | | 08/12/16 01:53 | 79-34-5 | |
| Tetrachloroethene | **<0.25** | ug/L | 1.0 | 0.25 | 1 | | 08/12/16 01:53 | 127-18-4 | |
| Tetrahydrofuran | **<1.5** | ug/L | 10.0 | 1.5 | 1 | | 08/12/16 01:53 | 109-99-9 | |
| Toluene | **22.2** | ug/L | 1.0 | 0.14 | 1 | | 08/12/16 01:53 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 01:53 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 01:53 | 120-82-1 | |
| 1,1,1-Trichloroethane | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/12/16 01:53 | 71-55-6 | |
| 1,1,2-Trichloroethane | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 08/12/16 01:53 | 79-00-5 | |
| Trichloroethene | **<0.20** | ug/L | 0.40 | 0.20 | 1 | | 08/12/16 01:53 | 79-01-6 | |
| Trichlorofluoromethane | **<0.33** | ug/L | 1.0 | 0.33 | 1 | | 08/12/16 01:53 | 75-69-4 | |
| 1,2,3-Trichloropropane | **<0.28** | ug/L | 4.0 | 0.28 | 1 | | 08/12/16 01:53 | 96-18-4 | |
| 1,1,2-Trichlorotrifluoroethane | **<0.32** | ug/L | 1.0 | 0.32 | 1 | | 08/12/16 01:53 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | **367** | ug/L | 20.0 | 3.6 | 20 | | 08/14/16 16:30 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | **79.5** | ug/L | 1.0 | 0.27 | 1 | | 08/12/16 01:53 | 108-67-8 | |
| Vinyl chloride | **<0.29** | ug/L | 0.40 | 0.29 | 1 | | 08/12/16 01:53 | 75-01-4 | |
| Xylene (Total) | **1610** | ug/L | 60.0 | 6.3 | 20 | | 08/14/16 16:30 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | | |
| 1,2-Dichloroethane-d4 (S) | 100 | %. | 75-125 | | 1 | | 08/12/16 01:53 | 17060-07-0 | |
| Toluene-d8 (S) | 106 | %. | 75-125 | | 1 | | 08/12/16 01:53 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 104 | %. | 75-125 | | 1 | | 08/12/16 01:53 | 460-00-4 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERMW18D** **Lab ID: 10358621003** Collected: 08/08/16 13:30 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8011 GCS EDB and DBCP** | Analytical Method: EPA 8011 Preparation Method: EPA 8011 | | | | | | | | |
| 1,2-Dibromoethane (EDB) | **<0.0016** | ug/L | 0.010 | 0.0016 | 1 | 08/15/16 15:31 | 08/18/16 03:44 | 106-93-4 | |
| ***Surrogates*** | | | | | | | | | |
| 4-Bromofluorobenzene (S) | 80 | %. | 30-150 | | 1 | 08/15/16 15:31 | 08/18/16 03:44 | 460-00-4 | |
| **8260B VOC** | Analytical Method: EPA 8260B | | | | | | | | |
| Acetone | **<0.64** | ug/L | 20.0 | 0.64 | 1 | | 08/12/16 02:09 | 67-64-1 | |
| Allyl chloride | **<0.25** | ug/L | 4.0 | 0.25 | 1 | | 08/12/16 02:09 | 107-05-1 | |
| Benzene | **1300** | ug/L | 20.0 | 3.1 | 20 | | 08/15/16 21:59 | 71-43-2 | |
| Bromobenzene | **<0.34** | ug/L | 1.0 | 0.34 | 1 | | 08/12/16 02:09 | 108-86-1 | |
| Bromochloromethane | **<0.19** | ug/L | 1.0 | 0.19 | 1 | | 08/12/16 02:09 | 74-97-5 | |
| Bromodichloromethane | **<0.24** | ug/L | 1.0 | 0.24 | 1 | | 08/12/16 02:09 | 75-27-4 | |
| Bromoform | **<0.27** | ug/L | 10.0 | 0.27 | 1 | | 08/12/16 02:09 | 75-25-2 | L2 |
| Bromomethane | **<0.44** | ug/L | 4.0 | 0.44 | 1 | | 08/12/16 02:09 | 74-83-9 | |
| 2-Butanone (MEK) | **<1.1** | ug/L | 5.0 | 1.1 | 1 | | 08/12/16 02:09 | 78-93-3 | |
| n-Butylbenzene | **3.5** | ug/L | 1.0 | 0.16 | 1 | | 08/12/16 02:09 | 104-51-8 | |
| sec-Butylbenzene | **4.3** | ug/L | 1.0 | 0.19 | 1 | | 08/12/16 02:09 | 135-98-8 | |
| tert-Butylbenzene | **<0.22** | ug/L | 1.0 | 0.22 | 1 | | 08/12/16 02:09 | 98-06-6 | |
| Carbon tetrachloride | **<0.20** | ug/L | 4.0 | 0.20 | 1 | | 08/12/16 02:09 | 56-23-5 | |
| Chlorobenzene | **<0.11** | ug/L | 1.0 | 0.11 | 1 | | 08/12/16 02:09 | 108-90-7 | |
| Chloroethane | **<0.34** | ug/L | 4.0 | 0.34 | 1 | | 08/12/16 02:09 | 75-00-3 | |
| Chloroform | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 02:09 | 67-66-3 | |
| Chloromethane | **<0.25** | ug/L | 4.0 | 0.25 | 1 | | 08/12/16 02:09 | 74-87-3 | |
| 2-Chlorotoluene | **<0.30** | ug/L | 1.0 | 0.30 | 1 | | 08/12/16 02:09 | 95-49-8 | |
| 4-Chlorotoluene | **<0.26** | ug/L | 1.0 | 0.26 | 1 | | 08/12/16 02:09 | 106-43-4 | |
| 1,2-Dibromo-3-chloropropane | **<0.60** | ug/L | 10.0 | 0.60 | 1 | | 08/12/16 02:09 | 96-12-8 | |
| Dibromochloromethane | **<0.16** | ug/L | 4.0 | 0.16 | 1 | | 08/12/16 02:09 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | **<0.20** | ug/L | 1.0 | 0.20 | 1 | | 08/12/16 02:09 | 106-93-4 | |
| Dibromomethane | **<0.19** | ug/L | 4.0 | 0.19 | 1 | | 08/12/16 02:09 | 74-95-3 | |
| 1,2-Dichlorobenzene | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/12/16 02:09 | 95-50-1 | |
| 1,3-Dichlorobenzene | **<0.12** | ug/L | 1.0 | 0.12 | 1 | | 08/12/16 02:09 | 541-73-1 | |
| 1,4-Dichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 02:09 | 106-46-7 | |
| Dichlorodifluoromethane | **<0.23** | ug/L | 1.0 | 0.23 | 1 | | 08/12/16 02:09 | 75-71-8 | |
| 1,1-Dichloroethane | **<0.17** | ug/L | 4.0 | 0.17 | 1 | | 08/12/16 02:09 | 75-34-3 | |
| 1,2-Dichloroethane | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/12/16 02:09 | 107-06-2 | |
| 1,1-Dichloroethene | **<0.28** | ug/L | 1.0 | 0.28 | 1 | | 08/12/16 02:09 | 75-35-4 | |
| cis-1,2-Dichloroethene | **<0.12** | ug/L | 1.0 | 0.12 | 1 | | 08/12/16 02:09 | 156-59-2 | |
| trans-1,2-Dichloroethene | **<0.16** | ug/L | 1.0 | 0.16 | 1 | | 08/12/16 02:09 | 156-60-5 | |
| Dichlorofluoromethane | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 02:09 | 75-43-4 | |
| 1,2-Dichloropropane | **<0.22** | ug/L | 4.0 | 0.22 | 1 | | 08/12/16 02:09 | 78-87-5 | |
| 1,3-Dichloropropane | **<0.096** | ug/L | 1.0 | 0.096 | 1 | | 08/12/16 02:09 | 142-28-9 | |
| 2,2-Dichloropropane | **<0.13** | ug/L | 4.0 | 0.13 | 1 | | 08/12/16 02:09 | 594-20-7 | |
| 1,1-Dichloropropene | **<0.23** | ug/L | 1.0 | 0.23 | 1 | | 08/12/16 02:09 | 563-58-6 | |
| cis-1,3-Dichloropropene | **<0.15** | ug/L | 4.0 | 0.15 | 1 | | 08/12/16 02:09 | 10061-01-5 | |
| trans-1,3-Dichloropropene | **<0.15** | ug/L | 4.0 | 0.15 | 1 | | 08/12/16 02:09 | 10061-02-6 | |
| Diethyl ether (Ethyl ether) | **<0.19** | ug/L | 4.0 | 0.19 | 1 | | 08/12/16 02:09 | 60-29-7 | |
| Ethylbenzene | **65.3** | ug/L | 1.0 | 0.15 | 1 | | 08/12/16 02:09 | 100-41-4 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERMW18D** **Lab ID: 10358621003** Collected: 08/08/16 13:30 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260B VOC** | Analytical Method: EPA 8260B | | | | | | | | |
| Hexachloro-1,3-butadiene | **<0.18** | ug/L | 4.0 | 0.18 | 1 | | 08/12/16 02:09 | 87-68-3 | |
| Isopropylbenzene (Cumene) | **26.7** | ug/L | 1.0 | 0.25 | 1 | | 08/12/16 02:09 | 98-82-8 | |
| p-Isopropyltoluene | **1.7** | ug/L | 1.0 | 0.19 | 1 | | 08/12/16 02:09 | 99-87-6 | |
| Methylene Chloride | **<0.29** | ug/L | 4.0 | 0.29 | 1 | | 08/12/16 02:09 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | **0.72J** | ug/L | 5.0 | 0.43 | 1 | | 08/12/16 02:09 | 108-10-1 | |
| Methyl-tert-butyl ether | **2.3** | ug/L | 1.0 | 0.15 | 1 | | 08/12/16 02:09 | 1634-04-4 | |
| Naphthalene | **114** | ug/L | 4.0 | 0.20 | 1 | | 08/12/16 02:09 | 91-20-3 | |
| n-Propylbenzene | **69.5** | ug/L | 1.0 | 0.23 | 1 | | 08/12/16 02:09 | 103-65-1 | |
| Styrene | **<0.29** | ug/L | 1.0 | 0.29 | 1 | | 08/12/16 02:09 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | **<0.17** | ug/L | 4.0 | 0.17 | 1 | | 08/12/16 02:09 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | **<0.22** | ug/L | 1.0 | 0.22 | 1 | | 08/12/16 02:09 | 79-34-5 | |
| Tetrachloroethene | **<0.25** | ug/L | 1.0 | 0.25 | 1 | | 08/12/16 02:09 | 127-18-4 | |
| Tetrahydrofuran | **<1.5** | ug/L | 10.0 | 1.5 | 1 | | 08/12/16 02:09 | 109-99-9 | |
| Toluene | **23.0** | ug/L | 1.0 | 0.14 | 1 | | 08/12/16 02:09 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 02:09 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 02:09 | 120-82-1 | |
| 1,1,1-Trichloroethane | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/12/16 02:09 | 71-55-6 | |
| 1,1,2-Trichloroethane | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 08/12/16 02:09 | 79-00-5 | |
| Trichloroethene | **<0.20** | ug/L | 0.40 | 0.20 | 1 | | 08/12/16 02:09 | 79-01-6 | |
| Trichlorofluoromethane | **<0.33** | ug/L | 1.0 | 0.33 | 1 | | 08/12/16 02:09 | 75-69-4 | |
| 1,2,3-Trichloropropane | **<0.28** | ug/L | 4.0 | 0.28 | 1 | | 08/12/16 02:09 | 96-18-4 | |
| 1,1,2-Trichlorotrifluoroethane | **<0.32** | ug/L | 1.0 | 0.32 | 1 | | 08/12/16 02:09 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | **336** | ug/L | 20.0 | 3.6 | 20 | | 08/15/16 21:59 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | **84.3** | ug/L | 1.0 | 0.27 | 1 | | 08/12/16 02:09 | 108-67-8 | |
| Vinyl chloride | **<0.29** | ug/L | 0.40 | 0.29 | 1 | | 08/12/16 02:09 | 75-01-4 | |
| Xylene (Total) | **1410** | ug/L | 60.0 | 6.3 | 20 | | 08/15/16 21:59 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | | |
| 1,2-Dichloroethane-d4 (S) | 103 | %. | 75-125 | | 1 | | 08/12/16 02:09 | 17060-07-0 | |
| Toluene-d8 (S) | 106 | %. | 75-125 | | 1 | | 08/12/16 02:09 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 101 | %. | 75-125 | | 1 | | 08/12/16 02:09 | 460-00-4 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERMW16E** **Lab ID: 10358621004** Collected: 08/09/16 09:00 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8011 GCS EDB and DBCP** | Analytical Method: EPA 8011 Preparation Method: EPA 8011 | | | | | | | | |
| 1,2-Dibromoethane (EDB) | **<0.0016** | ug/L | 0.0098 | 0.0016 | 1 | 08/15/16 15:31 | 08/18/16 04:10 | 106-93-4 | |
| ***Surrogates*** | | | | | | | | | |
| 4-Bromofluorobenzene (S) | 84 | %. | 30-150 | | 1 | 08/15/16 15:31 | 08/18/16 04:10 | 460-00-4 | |
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3020 | | | | | | | | |
| Arsenic | **0.59** | ug/L | 0.50 | 0.091 | 1 | 08/18/16 16:36 | 08/19/16 14:05 | 7440-38-2 | |
| Barium | **205** | ug/L | 0.30 | 0.019 | 1 | 08/18/16 16:36 | 08/19/16 14:05 | 7440-39-3 | |
| Cadmium | **<0.013** | ug/L | 0.080 | 0.013 | 1 | 08/18/16 16:36 | 08/19/16 14:05 | 7440-43-9 | |
| Chromium | **2.3** | ug/L | 0.50 | 0.14 | 1 | 08/18/16 16:36 | 08/19/16 14:05 | 7440-47-3 | |
| Iron | **1460** | ug/L | 50.0 | 18.5 | 1 | 08/18/16 16:36 | 08/19/16 14:05 | 7439-89-6 | |
| Lead | **0.29** | ug/L | 0.10 | 0.012 | 1 | 08/18/16 16:36 | 08/19/16 14:05 | 7439-92-1 | B |
| Manganese | **1650** | ug/L | 5.0 | 1.3 | 10 | 08/18/16 16:36 | 08/20/16 16:13 | 7439-96-5 | |
| Selenium | **0.18J** | ug/L | 0.50 | 0.13 | 1 | 08/18/16 16:36 | 08/19/16 14:05 | 7782-49-2 | |
| Silver | **<0.0092** | ug/L | 0.50 | 0.0092 | 1 | 08/18/16 16:36 | 08/19/16 14:05 | 7440-22-4 | |
| **7470A Mercury** | Analytical Method: EPA 7470A Preparation Method: EPA 7470A | | | | | | | | |
| Mercury | **<0.031** | ug/L | 0.10 | 0.031 | 1 | 08/25/16 13:15 | 08/25/16 15:16 | 7439-97-6 | |
| **8260B VOC** | Analytical Method: EPA 8260B | | | | | | | | |
| Acetone | **10J** | ug/L | 20.0 | 0.64 | 1 | | 08/12/16 09:19 | 67-64-1 | B |
| Allyl chloride | **<0.25** | ug/L | 4.0 | 0.25 | 1 | | 08/12/16 09:19 | 107-05-1 | |
| Benzene | **768** | ug/L | 20.0 | 3.1 | 20 | | 08/14/16 16:46 | 71-43-2 | |
| Bromobenzene | **<0.34** | ug/L | 1.0 | 0.34 | 1 | | 08/12/16 09:19 | 108-86-1 | |
| Bromochloromethane | **<0.19** | ug/L | 1.0 | 0.19 | 1 | | 08/12/16 09:19 | 74-97-5 | |
| Bromodichloromethane | **<0.24** | ug/L | 1.0 | 0.24 | 1 | | 08/12/16 09:19 | 75-27-4 | |
| Bromoform | **<0.27** | ug/L | 10.0 | 0.27 | 1 | | 08/12/16 09:19 | 75-25-2 | L2 |
| Bromomethane | **<0.44** | ug/L | 4.0 | 0.44 | 1 | | 08/12/16 09:19 | 74-83-9 | |
| 2-Butanone (MEK) | **<1.1** | ug/L | 5.0 | 1.1 | 1 | | 08/12/16 09:19 | 78-93-3 | |
| n-Butylbenzene | **0.59J** | ug/L | 1.0 | 0.16 | 1 | | 08/12/16 09:19 | 104-51-8 | |
| sec-Butylbenzene | **1.3** | ug/L | 1.0 | 0.19 | 1 | | 08/12/16 09:19 | 135-98-8 | |
| tert-Butylbenzene | **<0.22** | ug/L | 1.0 | 0.22 | 1 | | 08/12/16 09:19 | 98-06-6 | |
| Carbon tetrachloride | **<0.20** | ug/L | 4.0 | 0.20 | 1 | | 08/12/16 09:19 | 56-23-5 | |
| Chlorobenzene | **<0.11** | ug/L | 1.0 | 0.11 | 1 | | 08/12/16 09:19 | 108-90-7 | |
| Chloroethane | **<0.34** | ug/L | 4.0 | 0.34 | 1 | | 08/12/16 09:19 | 75-00-3 | |
| Chloroform | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 09:19 | 67-66-3 | |
| Chloromethane | **<0.25** | ug/L | 4.0 | 0.25 | 1 | | 08/12/16 09:19 | 74-87-3 | |
| 2-Chlorotoluene | **<0.30** | ug/L | 1.0 | 0.30 | 1 | | 08/12/16 09:19 | 95-49-8 | |
| 4-Chlorotoluene | **<0.26** | ug/L | 1.0 | 0.26 | 1 | | 08/12/16 09:19 | 106-43-4 | |
| 1,2-Dibromo-3-chloropropane | **<0.60** | ug/L | 10.0 | 0.60 | 1 | | 08/12/16 09:19 | 96-12-8 | |
| Dibromochloromethane | **<0.16** | ug/L | 4.0 | 0.16 | 1 | | 08/12/16 09:19 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | **<0.20** | ug/L | 1.0 | 0.20 | 1 | | 08/12/16 09:19 | 106-93-4 | |
| Dibromomethane | **<0.19** | ug/L | 4.0 | 0.19 | 1 | | 08/12/16 09:19 | 74-95-3 | |
| 1,2-Dichlorobenzene | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/12/16 09:19 | 95-50-1 | |
| 1,3-Dichlorobenzene | **<0.12** | ug/L | 1.0 | 0.12 | 1 | | 08/12/16 09:19 | 541-73-1 | |
| 1,4-Dichlorobenzene | **0.28J** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 09:19 | 106-46-7 | |
| Dichlorodifluoromethane | **<0.23** | ug/L | 1.0 | 0.23 | 1 | | 08/12/16 09:19 | 75-71-8 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERMW16E** **Lab ID: 10358621004** Collected: 08/09/16 09:00 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260B VOC** | Analytical Method: EPA 8260B | | | | | | | | |
| 1,1-Dichloroethane | **<0.17** | ug/L | 4.0 | 0.17 | 1 | | 08/12/16 09:19 | 75-34-3 | |
| 1,2-Dichloroethane | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/12/16 09:19 | 107-06-2 | |
| 1,1-Dichloroethene | **<0.28** | ug/L | 1.0 | 0.28 | 1 | | 08/12/16 09:19 | 75-35-4 | |
| cis-1,2-Dichloroethene | **<0.12** | ug/L | 1.0 | 0.12 | 1 | | 08/12/16 09:19 | 156-59-2 | |
| trans-1,2-Dichloroethene | **<0.16** | ug/L | 1.0 | 0.16 | 1 | | 08/12/16 09:19 | 156-60-5 | |
| Dichlorofluoromethane | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 09:19 | 75-43-4 | |
| 1,2-Dichloropropane | **<0.22** | ug/L | 4.0 | 0.22 | 1 | | 08/12/16 09:19 | 78-87-5 | |
| 1,3-Dichloropropane | **<0.096** | ug/L | 1.0 | 0.096 | 1 | | 08/12/16 09:19 | 142-28-9 | |
| 2,2-Dichloropropane | **<0.13** | ug/L | 4.0 | 0.13 | 1 | | 08/12/16 09:19 | 594-20-7 | |
| 1,1-Dichloropropene | **<0.23** | ug/L | 1.0 | 0.23 | 1 | | 08/12/16 09:19 | 563-58-6 | |
| cis-1,3-Dichloropropene | **<0.15** | ug/L | 4.0 | 0.15 | 1 | | 08/12/16 09:19 | 10061-01-5 | |
| trans-1,3-Dichloropropene | **<0.15** | ug/L | 4.0 | 0.15 | 1 | | 08/12/16 09:19 | 10061-02-6 | |
| Diethyl ether (Ethyl ether) | **<0.19** | ug/L | 4.0 | 0.19 | 1 | | 08/12/16 09:19 | 60-29-7 | |
| Ethylbenzene | **8.9** | ug/L | 1.0 | 0.15 | 1 | | 08/12/16 09:19 | 100-41-4 | |
| Hexachloro-1,3-butadiene | **<0.18** | ug/L | 4.0 | 0.18 | 1 | | 08/12/16 09:19 | 87-68-3 | |
| Isopropylbenzene (Cumene) | **9.9** | ug/L | 1.0 | 0.25 | 1 | | 08/12/16 09:19 | 98-82-8 | |
| p-Isopropyltoluene | **0.52J** | ug/L | 1.0 | 0.19 | 1 | | 08/12/16 09:19 | 99-87-6 | |
| Methylene Chloride | **<0.29** | ug/L | 4.0 | 0.29 | 1 | | 08/12/16 09:19 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | **<0.43** | ug/L | 5.0 | 0.43 | 1 | | 08/12/16 09:19 | 108-10-1 | |
| Methyl-tert-butyl ether | **10.0** | ug/L | 1.0 | 0.15 | 1 | | 08/12/16 09:19 | 1634-04-4 | |
| Naphthalene | **28.2** | ug/L | 4.0 | 0.20 | 1 | | 08/12/16 09:19 | 91-20-3 | |
| n-Propylbenzene | **18.4** | ug/L | 1.0 | 0.23 | 1 | | 08/12/16 09:19 | 103-65-1 | |
| Styrene | **<0.29** | ug/L | 1.0 | 0.29 | 1 | | 08/12/16 09:19 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | **<0.17** | ug/L | 4.0 | 0.17 | 1 | | 08/12/16 09:19 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | **<0.22** | ug/L | 1.0 | 0.22 | 1 | | 08/12/16 09:19 | 79-34-5 | |
| Tetrachloroethene | **<0.25** | ug/L | 1.0 | 0.25 | 1 | | 08/12/16 09:19 | 127-18-4 | |
| Tetrahydrofuran | **<1.5** | ug/L | 10.0 | 1.5 | 1 | | 08/12/16 09:19 | 109-99-9 | |
| Toluene | **6.1** | ug/L | 1.0 | 0.14 | 1 | | 08/12/16 09:19 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 09:19 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 09:19 | 120-82-1 | |
| 1,1,1-Trichloroethane | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/12/16 09:19 | 71-55-6 | |
| 1,1,2-Trichloroethane | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 08/12/16 09:19 | 79-00-5 | |
| Trichloroethene | **<0.20** | ug/L | 0.40 | 0.20 | 1 | | 08/12/16 09:19 | 79-01-6 | |
| Trichlorofluoromethane | **<0.33** | ug/L | 1.0 | 0.33 | 1 | | 08/12/16 09:19 | 75-69-4 | |
| 1,2,3-Trichloropropane | **<0.28** | ug/L | 4.0 | 0.28 | 1 | | 08/12/16 09:19 | 96-18-4 | |
| 1,1,2-Trichlorotrifluoroethane | **<0.32** | ug/L | 1.0 | 0.32 | 1 | | 08/12/16 09:19 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | **96.6** | ug/L | 1.0 | 0.18 | 1 | | 08/12/16 09:19 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | **16.9** | ug/L | 1.0 | 0.27 | 1 | | 08/12/16 09:19 | 108-67-8 | |
| Vinyl chloride | **<0.29** | ug/L | 0.40 | 0.29 | 1 | | 08/12/16 09:19 | 75-01-4 | |
| Xylene (Total) | **506** | ug/L | 3.0 | 0.32 | 1 | | 08/12/16 09:19 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | | |
| 1,2-Dichloroethane-d4 (S) | 103 | %. | 75-125 | | 1 | | 08/12/16 09:19 | 17060-07-0 | |
| Toluene-d8 (S) | 105 | %. | 75-125 | | 1 | | 08/12/16 09:19 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 101 | %. | 75-125 | | 1 | | 08/12/16 09:19 | 460-00-4 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERMW16E** **Lab ID: 10358621004** Collected: 08/09/16 09:00 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **2510B Specific Conductance** | Analytical Method: SM 2510B | | | | | | | | |
| Specific Conductance | **1570** | umhos/cm | 10.0 | 10.0 | 1 | | 08/16/16 15:02 | | |
| **4500H+ pH, Electrometric** | Analytical Method: SM 4500-H+B | | | | | | | | |
| pH at 25 Degrees C | **7.7** | Std. Units | 0.10 | 0.10 | 1 | | 08/15/16 19:10 | | H6 |
| **4500S2D Sulfide Water** | Analytical Method: SM 4500-S2-D | | | | | | | | |
| Sulfide | **0.024J** | mg/L | 0.10 | 0.011 | 1 | | 08/16/16 13:29 | | |
| **4500S2H Sulfide as H2S Calc** | Analytical Method: SM 4500-S H | | | | | | | | |
| Sulfide as H2S (calc) | **<0.020** | mg/L | 0.10 | 0.020 | 1 | | 08/16/16 16:40 | | AL |
| **SM4500NO3-H, NO2 + NO3 pres.** | Analytical Method: SM 4500-NO3 H | | | | | | | | |
| Nitrate as N | **<0.018** | mg/L | 0.058 | 0.018 | 1 | | 08/24/16 09:12 | 14797-55-8 | |
| Nitrogen, NO2 plus NO3 | **<0.050** | mg/L | 0.17 | 0.050 | 1 | | 08/24/16 09:12 | | |
| **ASTM D516 Sulfate Water** | Analytical Method: ASTM D516 | | | | | | | | |
| Sulfate | **1.2J** | mg/L | 3.5 | 1.0 | 1 | | 08/12/16 09:05 | 14808-79-8 | |
| **SM4500NO2-B, Nitrite, unpres** | Analytical Method: SM 4500-NO2 B | | | | | | | | |
| Nitrite as N | **0.0044J** | mg/L | 0.012 | 0.0036 | 1 | | 08/11/16 09:00 | 14797-65-0 | H1 |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERMW21** **Lab ID: 10358621005** Collected: 08/09/16 11:20 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8011 GCS EDB and DBCP** | Analytical Method: EPA 8011 Preparation Method: EPA 8011 | | | | | | | | |
| 1,2-Dibromoethane (EDB) | **0.0072J** | ug/L | 0.0098 | 0.0016 | 1 | 08/15/16 15:31 | 08/18/16 04:37 | 106-93-4 | |
| ***Surrogates*** | | | | | | | | | |
| 4-Bromofluorobenzene (S) | 73 | %. | 30-150 | | 1 | 08/15/16 15:31 | 08/18/16 04:37 | 460-00-4 | |
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3020 | | | | | | | | |
| Arsenic | **2.3** | ug/L | 0.50 | 0.091 | 1 | 08/18/16 16:36 | 08/19/16 14:19 | 7440-38-2 | |
| Barium | **95.9** | ug/L | 0.30 | 0.019 | 1 | 08/18/16 16:36 | 08/19/16 14:19 | 7440-39-3 | |
| Cadmium | **0.078J** | ug/L | 0.080 | 0.013 | 1 | 08/18/16 16:36 | 08/19/16 14:19 | 7440-43-9 | |
| Chromium | **8.5** | ug/L | 0.50 | 0.14 | 1 | 08/18/16 16:36 | 08/19/16 14:19 | 7440-47-3 | |
| Iron | **19200** | ug/L | 50.0 | 18.5 | 1 | 08/18/16 16:36 | 08/19/16 14:19 | 7439-89-6 | |
| Lead | **8.6** | ug/L | 0.10 | 0.012 | 1 | 08/18/16 16:36 | 08/19/16 14:19 | 7439-92-1 | |
| Manganese | **6550** | ug/L | 10.0 | 2.5 | 20 | 08/18/16 16:36 | 08/20/16 16:15 | 7439-96-5 | |
| Selenium | **0.39J** | ug/L | 0.50 | 0.13 | 1 | 08/18/16 16:36 | 08/19/16 14:19 | 7782-49-2 | |
| Silver | **0.042J** | ug/L | 0.50 | 0.0092 | 1 | 08/18/16 16:36 | 08/19/16 14:19 | 7440-22-4 | B |
| **7470A Mercury** | Analytical Method: EPA 7470A Preparation Method: EPA 7470A | | | | | | | | |
| Mercury | **<0.031** | ug/L | 0.10 | 0.031 | 1 | 08/25/16 13:15 | 08/25/16 15:18 | 7439-97-6 | |
| **8260B VOC** | Analytical Method: EPA 8260B | | | | | | | | |
| Acetone | **37.3** | ug/L | 20.0 | 0.64 | 1 | | 08/12/16 09:34 | 67-64-1 | |
| Allyl chloride | **<0.25** | ug/L | 4.0 | 0.25 | 1 | | 08/12/16 09:34 | 107-05-1 | |
| Benzene | **458** | ug/L | 25.0 | 3.9 | 25 | | 08/14/16 17:01 | 71-43-2 | |
| Bromobenzene | **<0.34** | ug/L | 1.0 | 0.34 | 1 | | 08/12/16 09:34 | 108-86-1 | |
| Bromochloromethane | **<0.19** | ug/L | 1.0 | 0.19 | 1 | | 08/12/16 09:34 | 74-97-5 | |
| Bromodichloromethane | **<0.24** | ug/L | 1.0 | 0.24 | 1 | | 08/12/16 09:34 | 75-27-4 | |
| Bromoform | **<0.27** | ug/L | 10.0 | 0.27 | 1 | | 08/12/16 09:34 | 75-25-2 | L2 |
| Bromomethane | **<0.44** | ug/L | 4.0 | 0.44 | 1 | | 08/12/16 09:34 | 74-83-9 | |
| 2-Butanone (MEK) | **<1.1** | ug/L | 5.0 | 1.1 | 1 | | 08/12/16 09:34 | 78-93-3 | |
| n-Butylbenzene | **52.4** | ug/L | 1.0 | 0.16 | 1 | | 08/12/16 09:34 | 104-51-8 | |
| sec-Butylbenzene | **21.6** | ug/L | 1.0 | 0.19 | 1 | | 08/12/16 09:34 | 135-98-8 | |
| tert-Butylbenzene | **<0.22** | ug/L | 1.0 | 0.22 | 1 | | 08/12/16 09:34 | 98-06-6 | |
| Carbon tetrachloride | **<0.20** | ug/L | 4.0 | 0.20 | 1 | | 08/12/16 09:34 | 56-23-5 | |
| Chlorobenzene | **<0.11** | ug/L | 1.0 | 0.11 | 1 | | 08/12/16 09:34 | 108-90-7 | |
| Chloroethane | **<0.34** | ug/L | 4.0 | 0.34 | 1 | | 08/12/16 09:34 | 75-00-3 | |
| Chloroform | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 09:34 | 67-66-3 | |
| Chloromethane | **<0.25** | ug/L | 4.0 | 0.25 | 1 | | 08/12/16 09:34 | 74-87-3 | |
| 2-Chlorotoluene | **<0.30** | ug/L | 1.0 | 0.30 | 1 | | 08/12/16 09:34 | 95-49-8 | |
| 4-Chlorotoluene | **<0.26** | ug/L | 1.0 | 0.26 | 1 | | 08/12/16 09:34 | 106-43-4 | |
| 1,2-Dibromo-3-chloropropane | **<0.60** | ug/L | 10.0 | 0.60 | 1 | | 08/12/16 09:34 | 96-12-8 | |
| Dibromochloromethane | **<0.16** | ug/L | 4.0 | 0.16 | 1 | | 08/12/16 09:34 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | **<0.20** | ug/L | 1.0 | 0.20 | 1 | | 08/12/16 09:34 | 106-93-4 | |
| Dibromomethane | **<0.19** | ug/L | 4.0 | 0.19 | 1 | | 08/12/16 09:34 | 74-95-3 | |
| 1,2-Dichlorobenzene | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/12/16 09:34 | 95-50-1 | |
| 1,3-Dichlorobenzene | **<0.12** | ug/L | 1.0 | 0.12 | 1 | | 08/12/16 09:34 | 541-73-1 | |
| 1,4-Dichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 09:34 | 106-46-7 | |
| Dichlorodifluoromethane | **<0.23** | ug/L | 1.0 | 0.23 | 1 | | 08/12/16 09:34 | 75-71-8 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERMW21** **Lab ID: 10358621005** Collected: 08/09/16 11:20 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260B VOC** | Analytical Method: EPA 8260B | | | | | | | | |
| 1,1-Dichloroethane | **<0.17** | ug/L | 4.0 | 0.17 | 1 | | 08/12/16 09:34 | 75-34-3 | |
| 1,2-Dichloroethane | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/12/16 09:34 | 107-06-2 | |
| 1,1-Dichloroethene | **<0.28** | ug/L | 1.0 | 0.28 | 1 | | 08/12/16 09:34 | 75-35-4 | |
| cis-1,2-Dichloroethene | **<0.12** | ug/L | 1.0 | 0.12 | 1 | | 08/12/16 09:34 | 156-59-2 | |
| trans-1,2-Dichloroethene | **<0.16** | ug/L | 1.0 | 0.16 | 1 | | 08/12/16 09:34 | 156-60-5 | |
| Dichlorofluoromethane | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 09:34 | 75-43-4 | |
| 1,2-Dichloropropane | **<0.22** | ug/L | 4.0 | 0.22 | 1 | | 08/12/16 09:34 | 78-87-5 | |
| 1,3-Dichloropropane | **<0.096** | ug/L | 1.0 | 0.096 | 1 | | 08/12/16 09:34 | 142-28-9 | |
| 2,2-Dichloropropane | **<0.13** | ug/L | 4.0 | 0.13 | 1 | | 08/12/16 09:34 | 594-20-7 | |
| 1,1-Dichloropropene | **<0.23** | ug/L | 1.0 | 0.23 | 1 | | 08/12/16 09:34 | 563-58-6 | |
| cis-1,3-Dichloropropene | **<0.15** | ug/L | 4.0 | 0.15 | 1 | | 08/12/16 09:34 | 10061-01-5 | |
| trans-1,3-Dichloropropene | **<0.15** | ug/L | 4.0 | 0.15 | 1 | | 08/12/16 09:34 | 10061-02-6 | |
| Diethyl ether (Ethyl ether) | **<0.19** | ug/L | 4.0 | 0.19 | 1 | | 08/12/16 09:34 | 60-29-7 | |
| Ethylbenzene | **1700** | ug/L | 25.0 | 3.8 | 25 | | 08/14/16 17:01 | 100-41-4 | |
| Hexachloro-1,3-butadiene | **<0.18** | ug/L | 4.0 | 0.18 | 1 | | 08/12/16 09:34 | 87-68-3 | |
| Isopropylbenzene (Cumene) | **111** | ug/L | 1.0 | 0.25 | 1 | | 08/12/16 09:34 | 98-82-8 | |
| p-Isopropyltoluene | **15.9** | ug/L | 1.0 | 0.19 | 1 | | 08/12/16 09:34 | 99-87-6 | |
| Methylene Chloride | **<0.29** | ug/L | 4.0 | 0.29 | 1 | | 08/12/16 09:34 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | **9.4** | ug/L | 5.0 | 0.43 | 1 | | 08/12/16 09:34 | 108-10-1 | |
| Methyl-tert-butyl ether | **0.24J** | ug/L | 1.0 | 0.15 | 1 | | 08/12/16 09:34 | 1634-04-4 | |
| Naphthalene | **703** | ug/L | 100 | 5.1 | 25 | | 08/14/16 17:01 | 91-20-3 | |
| n-Propylbenzene | **268** | ug/L | 25.0 | 5.8 | 25 | | 08/14/16 17:01 | 103-65-1 | |
| Styrene | **12.5** | ug/L | 1.0 | 0.29 | 1 | | 08/12/16 09:34 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | **<0.17** | ug/L | 4.0 | 0.17 | 1 | | 08/12/16 09:34 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | **<0.22** | ug/L | 1.0 | 0.22 | 1 | | 08/12/16 09:34 | 79-34-5 | |
| Tetrachloroethene | **<0.25** | ug/L | 1.0 | 0.25 | 1 | | 08/12/16 09:34 | 127-18-4 | |
| Tetrahydrofuran | **<1.5** | ug/L | 10.0 | 1.5 | 1 | | 08/12/16 09:34 | 109-99-9 | |
| Toluene | **3280** | ug/L | 25.0 | 3.6 | 25 | | 08/14/16 17:01 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 09:34 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 09:34 | 120-82-1 | |
| 1,1,1-Trichloroethane | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/12/16 09:34 | 71-55-6 | |
| 1,1,2-Trichloroethane | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 08/12/16 09:34 | 79-00-5 | |
| Trichloroethene | **<0.20** | ug/L | 0.40 | 0.20 | 1 | | 08/12/16 09:34 | 79-01-6 | |
| Trichlorofluoromethane | **<0.33** | ug/L | 1.0 | 0.33 | 1 | | 08/12/16 09:34 | 75-69-4 | |
| 1,2,3-Trichloropropane | **<0.28** | ug/L | 4.0 | 0.28 | 1 | | 08/12/16 09:34 | 96-18-4 | |
| 1,1,2-Trichlorotrifluoroethane | **<0.32** | ug/L | 1.0 | 0.32 | 1 | | 08/12/16 09:34 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | **2920** | ug/L | 25.0 | 4.4 | 25 | | 08/14/16 17:01 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | **744** | ug/L | 25.0 | 6.7 | 25 | | 08/14/16 17:01 | 108-67-8 | |
| Vinyl chloride | **<0.29** | ug/L | 0.40 | 0.29 | 1 | | 08/12/16 09:34 | 75-01-4 | |
| Xylene (Total) | **9060** | ug/L | 75.0 | 7.9 | 25 | | 08/14/16 17:01 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | | |
| 1,2-Dichloroethane-d4 (S) | 109 | %. | 75-125 | | 1 | | 08/12/16 09:34 | 17060-07-0 | |
| Toluene-d8 (S) | 102 | %. | 75-125 | | 1 | | 08/12/16 09:34 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 95 | %. | 75-125 | | 1 | | 08/12/16 09:34 | 460-00-4 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERMW21** **Lab ID: 10358621005** Collected: 08/09/16 11:20 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **2510B Specific Conductance** | Analytical Method: SM 2510B | | | | | | | | |
| Specific Conductance | **411** | umhos/cm | 10.0 | 10.0 | 1 | | 08/16/16 15:04 | | |
| **4500H+ pH, Electrometric** | Analytical Method: SM 4500-H+B | | | | | | | | |
| pH at 25 Degrees C | **6.7** | Std. Units | 0.10 | 0.10 | 1 | | 08/15/16 19:12 | | H6 |
| **4500S2D Sulfide Water** | Analytical Method: SM 4500-S2-D | | | | | | | | |
| Sulfide | **0.022J** | mg/L | 0.10 | 0.011 | 1 | | 08/16/16 13:30 | | |
| **4500S2H Sulfide as H2S Calc** | Analytical Method: SM 4500-S H | | | | | | | | |
| Sulfide as H2S (calc) | **<0.020** | mg/L | 0.10 | 0.020 | 1 | | 08/16/16 16:40 | | AL |
| **SM4500NO3-H, NO2 + NO3 pres.** | Analytical Method: SM 4500-NO3 H | | | | | | | | |
| Nitrate as N | **0.047J** | mg/L | 0.058 | 0.018 | 1 | | 08/24/16 09:12 | 14797-55-8 | |
| Nitrogen, NO2 plus NO3 | **<0.050** | mg/L | 0.17 | 0.050 | 1 | | 08/24/16 09:12 | | |
| **ASTM D516 Sulfate Water** | Analytical Method: ASTM D516 | | | | | | | | |
| Sulfate | **1.5J** | mg/L | 3.5 | 1.0 | 1 | | 08/12/16 09:05 | 14808-79-8 | |
| **SM4500NO2-B, Nitrite, unpres** | Analytical Method: SM 4500-NO2 B | | | | | | | | |
| Nitrite as N | **<0.0036** | mg/L | 0.012 | 0.0036 | 1 | | 08/11/16 09:00 | 14797-65-0 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERMW21M** **Lab ID: 10358621006** Collected: 08/09/16 13:00 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8011 GCS EDB and DBCP** | Analytical Method: EPA 8011 Preparation Method: EPA 8011 | | | | | | | | |
| 1,2-Dibromoethane (EDB) | **0.011** | ug/L | 0.0099 | 0.0016 | 1 | 08/15/16 15:31 | 08/18/16 05:03 | 106-93-4 | |
| ***Surrogates*** | | | | | | | | | |
| 4-Bromofluorobenzene (S) | 52 | %. | 30-150 | | 1 | 08/15/16 15:31 | 08/18/16 05:03 | 460-00-4 | |
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3020 | | | | | | | | |
| Arsenic | **1.5** | ug/L | 0.50 | 0.091 | 1 | 08/18/16 16:36 | 08/19/16 14:21 | 7440-38-2 | |
| Barium | **80.9** | ug/L | 0.30 | 0.019 | 1 | 08/18/16 16:36 | 08/19/16 14:21 | 7440-39-3 | |
| Cadmium | **0.057J** | ug/L | 0.080 | 0.013 | 1 | 08/18/16 16:36 | 08/19/16 14:21 | 7440-43-9 | |
| Chromium | **9.5** | ug/L | 0.50 | 0.14 | 1 | 08/18/16 16:36 | 08/19/16 14:21 | 7440-47-3 | |
| Iron | **8830** | ug/L | 50.0 | 18.5 | 1 | 08/18/16 16:36 | 08/19/16 14:21 | 7439-89-6 | |
| Lead | **2.8** | ug/L | 0.10 | 0.012 | 1 | 08/18/16 16:36 | 08/19/16 14:21 | 7439-92-1 | |
| Manganese | **3170** | ug/L | 10.0 | 2.5 | 20 | 08/18/16 16:36 | 08/20/16 16:18 | 7439-96-5 | |
| Selenium | **0.43J** | ug/L | 0.50 | 0.13 | 1 | 08/18/16 16:36 | 08/19/16 14:21 | 7782-49-2 | |
| Silver | **0.069J** | ug/L | 0.50 | 0.0092 | 1 | 08/18/16 16:36 | 08/19/16 14:21 | 7440-22-4 | B |
| **7470A Mercury** | Analytical Method: EPA 7470A Preparation Method: EPA 7470A | | | | | | | | |
| Mercury | **<0.031** | ug/L | 0.10 | 0.031 | 1 | 08/25/16 13:15 | 08/25/16 15:20 | 7439-97-6 | |
| **8260B VOC** | Analytical Method: EPA 8260B | | | | | | | | |
| Acetone | **32.1** | ug/L | 20.0 | 0.64 | 1 | | 08/12/16 09:50 | 67-64-1 | |
| Allyl chloride | **<0.25** | ug/L | 4.0 | 0.25 | 1 | | 08/12/16 09:50 | 107-05-1 | |
| Benzene | **2150** | ug/L | 25.0 | 3.9 | 25 | | 08/14/16 17:17 | 71-43-2 | |
| Bromobenzene | **<0.34** | ug/L | 1.0 | 0.34 | 1 | | 08/12/16 09:50 | 108-86-1 | |
| Bromochloromethane | **<0.19** | ug/L | 1.0 | 0.19 | 1 | | 08/12/16 09:50 | 74-97-5 | |
| Bromodichloromethane | **<0.24** | ug/L | 1.0 | 0.24 | 1 | | 08/12/16 09:50 | 75-27-4 | |
| Bromoform | **<0.27** | ug/L | 10.0 | 0.27 | 1 | | 08/12/16 09:50 | 75-25-2 | L2 |
| Bromomethane | **<0.44** | ug/L | 4.0 | 0.44 | 1 | | 08/12/16 09:50 | 74-83-9 | |
| 2-Butanone (MEK) | **<1.1** | ug/L | 5.0 | 1.1 | 1 | | 08/12/16 09:50 | 78-93-3 | |
| n-Butylbenzene | **29.3** | ug/L | 1.0 | 0.16 | 1 | | 08/12/16 09:50 | 104-51-8 | |
| sec-Butylbenzene | **16.2** | ug/L | 1.0 | 0.19 | 1 | | 08/12/16 09:50 | 135-98-8 | |
| tert-Butylbenzene | **<0.22** | ug/L | 1.0 | 0.22 | 1 | | 08/12/16 09:50 | 98-06-6 | |
| Carbon tetrachloride | **<0.20** | ug/L | 4.0 | 0.20 | 1 | | 08/12/16 09:50 | 56-23-5 | |
| Chlorobenzene | **<0.11** | ug/L | 1.0 | 0.11 | 1 | | 08/12/16 09:50 | 108-90-7 | |
| Chloroethane | **<0.34** | ug/L | 4.0 | 0.34 | 1 | | 08/12/16 09:50 | 75-00-3 | |
| Chloroform | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 09:50 | 67-66-3 | |
| Chloromethane | **<0.25** | ug/L | 4.0 | 0.25 | 1 | | 08/12/16 09:50 | 74-87-3 | |
| 2-Chlorotoluene | **<0.30** | ug/L | 1.0 | 0.30 | 1 | | 08/12/16 09:50 | 95-49-8 | |
| 4-Chlorotoluene | **<0.26** | ug/L | 1.0 | 0.26 | 1 | | 08/12/16 09:50 | 106-43-4 | |
| 1,2-Dibromo-3-chloropropane | **<0.60** | ug/L | 10.0 | 0.60 | 1 | | 08/12/16 09:50 | 96-12-8 | |
| Dibromochloromethane | **<0.16** | ug/L | 4.0 | 0.16 | 1 | | 08/12/16 09:50 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | **<0.20** | ug/L | 1.0 | 0.20 | 1 | | 08/12/16 09:50 | 106-93-4 | |
| Dibromomethane | **<0.19** | ug/L | 4.0 | 0.19 | 1 | | 08/12/16 09:50 | 74-95-3 | |
| 1,2-Dichlorobenzene | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/12/16 09:50 | 95-50-1 | |
| 1,3-Dichlorobenzene | **<0.12** | ug/L | 1.0 | 0.12 | 1 | | 08/12/16 09:50 | 541-73-1 | |
| 1,4-Dichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 09:50 | 106-46-7 | |
| Dichlorodifluoromethane | **<0.23** | ug/L | 1.0 | 0.23 | 1 | | 08/12/16 09:50 | 75-71-8 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERMW21M** **Lab ID: 10358621006** Collected: 08/09/16 13:00 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260B VOC** | Analytical Method: EPA 8260B | | | | | | | | |
| 1,1-Dichloroethane | **<0.17** | ug/L | 4.0 | 0.17 | 1 | | 08/12/16 09:50 | 75-34-3 | |
| 1,2-Dichloroethane | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/12/16 09:50 | 107-06-2 | |
| 1,1-Dichloroethene | **<0.28** | ug/L | 1.0 | 0.28 | 1 | | 08/12/16 09:50 | 75-35-4 | |
| cis-1,2-Dichloroethene | **<0.12** | ug/L | 1.0 | 0.12 | 1 | | 08/12/16 09:50 | 156-59-2 | |
| trans-1,2-Dichloroethene | **<0.16** | ug/L | 1.0 | 0.16 | 1 | | 08/12/16 09:50 | 156-60-5 | |
| Dichlorofluoromethane | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 09:50 | 75-43-4 | |
| 1,2-Dichloropropane | **<0.22** | ug/L | 4.0 | 0.22 | 1 | | 08/12/16 09:50 | 78-87-5 | |
| 1,3-Dichloropropane | **<0.096** | ug/L | 1.0 | 0.096 | 1 | | 08/12/16 09:50 | 142-28-9 | |
| 2,2-Dichloropropane | **<0.13** | ug/L | 4.0 | 0.13 | 1 | | 08/12/16 09:50 | 594-20-7 | |
| 1,1-Dichloropropene | **<0.23** | ug/L | 1.0 | 0.23 | 1 | | 08/12/16 09:50 | 563-58-6 | |
| cis-1,3-Dichloropropene | **<0.15** | ug/L | 4.0 | 0.15 | 1 | | 08/12/16 09:50 | 10061-01-5 | |
| trans-1,3-Dichloropropene | **<0.15** | ug/L | 4.0 | 0.15 | 1 | | 08/12/16 09:50 | 10061-02-6 | |
| Diethyl ether (Ethyl ether) | **<0.19** | ug/L | 4.0 | 0.19 | 1 | | 08/12/16 09:50 | 60-29-7 | |
| Ethylbenzene | **1660** | ug/L | 25.0 | 3.8 | 25 | | 08/14/16 17:17 | 100-41-4 | |
| Hexachloro-1,3-butadiene | **<0.18** | ug/L | 4.0 | 0.18 | 1 | | 08/12/16 09:50 | 87-68-3 | |
| Isopropylbenzene (Cumene) | **81.1** | ug/L | 1.0 | 0.25 | 1 | | 08/12/16 09:50 | 98-82-8 | |
| p-Isopropyltoluene | **8.0** | ug/L | 1.0 | 0.19 | 1 | | 08/12/16 09:50 | 99-87-6 | |
| Methylene Chloride | **<0.29** | ug/L | 4.0 | 0.29 | 1 | | 08/12/16 09:50 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | **2.6J** | ug/L | 5.0 | 0.43 | 1 | | 08/12/16 09:50 | 108-10-1 | |
| Methyl-tert-butyl ether | **7.4** | ug/L | 1.0 | 0.15 | 1 | | 08/12/16 09:50 | 1634-04-4 | |
| Naphthalene | **470** | ug/L | 100 | 5.1 | 25 | | 08/14/16 17:17 | 91-20-3 | |
| n-Propylbenzene | **238** | ug/L | 1.0 | 0.23 | 1 | | 08/12/16 09:50 | 103-65-1 | |
| Styrene | **5.9** | ug/L | 1.0 | 0.29 | 1 | | 08/12/16 09:50 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | **<0.17** | ug/L | 4.0 | 0.17 | 1 | | 08/12/16 09:50 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | **<0.22** | ug/L | 1.0 | 0.22 | 1 | | 08/12/16 09:50 | 79-34-5 | |
| Tetrachloroethene | **<0.25** | ug/L | 1.0 | 0.25 | 1 | | 08/12/16 09:50 | 127-18-4 | |
| Tetrahydrofuran | **<1.5** | ug/L | 10.0 | 1.5 | 1 | | 08/12/16 09:50 | 109-99-9 | |
| Toluene | **1320** | ug/L | 25.0 | 3.6 | 25 | | 08/14/16 17:17 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 09:50 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 09:50 | 120-82-1 | |
| 1,1,1-Trichloroethane | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/12/16 09:50 | 71-55-6 | |
| 1,1,2-Trichloroethane | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 08/12/16 09:50 | 79-00-5 | |
| Trichloroethene | **<0.20** | ug/L | 0.40 | 0.20 | 1 | | 08/12/16 09:50 | 79-01-6 | |
| Trichlorofluoromethane | **<0.33** | ug/L | 1.0 | 0.33 | 1 | | 08/12/16 09:50 | 75-69-4 | |
| 1,2,3-Trichloropropane | **<0.28** | ug/L | 4.0 | 0.28 | 1 | | 08/12/16 09:50 | 96-18-4 | |
| 1,1,2-Trichlorotrifluoroethane | **<0.32** | ug/L | 1.0 | 0.32 | 1 | | 08/12/16 09:50 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | **1310** | ug/L | 25.0 | 4.4 | 25 | | 08/14/16 17:17 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | **480** | ug/L | 25.0 | 6.7 | 25 | | 08/14/16 17:17 | 108-67-8 | |
| Vinyl chloride | **<0.29** | ug/L | 0.40 | 0.29 | 1 | | 08/12/16 09:50 | 75-01-4 | |
| Xylene (Total) | **4340** | ug/L | 75.0 | 7.9 | 25 | | 08/14/16 17:17 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | | |
| 1,2-Dichloroethane-d4 (S) | 102 | %. | 75-125 | | 1 | | 08/12/16 09:50 | 17060-07-0 | |
| Toluene-d8 (S) | 106 | %. | 75-125 | | 1 | | 08/12/16 09:50 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 100 | %. | 75-125 | | 1 | | 08/12/16 09:50 | 460-00-4 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERMW21M** **Lab ID: 10358621006** Collected: 08/09/16 13:00 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **2510B Specific Conductance** | Analytical Method: SM 2510B | | | | | | | | |
| Specific Conductance | **595** | umhos/cm | 10.0 | 10.0 | 1 | | 08/16/16 15:05 | | |
| **4500H+ pH, Electrometric** | Analytical Method: SM 4500-H+B | | | | | | | | |
| pH at 25 Degrees C | **6.6** | Std. Units | 0.10 | 0.10 | 1 | | 08/15/16 19:13 | | H6 |
| **4500S2D Sulfide Water** | Analytical Method: SM 4500-S2-D | | | | | | | | |
| Sulfide | **<0.011** | mg/L | 0.10 | 0.011 | 1 | | 08/16/16 13:33 | | |
| **4500S2H Sulfide as H2S Calc** | Analytical Method: SM 4500-S H | | | | | | | | |
| Sulfide as H2S (calc) | **<0.020** | mg/L | 0.10 | 0.020 | 1 | | 08/16/16 16:40 | | AL |
| **SM4500NO3-H, NO2 + NO3 pres.** | Analytical Method: SM 4500-NO3 H | | | | | | | | |
| Nitrate as N | **0.12** | mg/L | 0.058 | 0.018 | 1 | | 08/24/16 09:13 | 14797-55-8 | |
| Nitrogen, NO2 plus NO3 | **0.12J** | mg/L | 0.17 | 0.050 | 1 | | 08/24/16 09:13 | | |
| **ASTM D516 Sulfate Water** | Analytical Method: ASTM D516 | | | | | | | | |
| Sulfate | **<1.0** | mg/L | 3.5 | 1.0 | 1 | | 08/12/16 09:05 | 14808-79-8 | |
| **SM4500NO2-B, Nitrite, unpres** | Analytical Method: SM 4500-NO2 B | | | | | | | | |
| Nitrite as N | **<0.0036** | mg/L | 0.012 | 0.0036 | 1 | | 08/11/16 09:00 | 14797-65-0 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERMW21D** **Lab ID: 10358621007** Collected: 08/09/16 14:50 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8011 GCS EDB and DBCP** | Analytical Method: EPA 8011 Preparation Method: EPA 8011 | | | | | | | | |
| 1,2-Dibromoethane (EDB) | **<0.0016** | ug/L | 0.0099 | 0.0016 | 1 | 08/15/16 15:31 | 08/18/16 00:42 | 106-93-4 | |
| ***Surrogates*** | | | | | | | | | |
| 4-Bromofluorobenzene (S) | 34 | %. | 30-150 | | 1 | 08/15/16 15:31 | 08/18/16 00:42 | 460-00-4 | |
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3020 | | | | | | | | |
| Arsenic | **0.43J** | ug/L | 0.50 | 0.091 | 1 | 08/18/16 16:36 | 08/19/16 14:23 | 7440-38-2 | |
| Barium | **299** | ug/L | 0.30 | 0.019 | 1 | 08/18/16 16:36 | 08/19/16 14:23 | 7440-39-3 | |
| Cadmium | **<0.013** | ug/L | 0.080 | 0.013 | 1 | 08/18/16 16:36 | 08/19/16 14:23 | 7440-43-9 | |
| Chromium | **4.4** | ug/L | 0.50 | 0.14 | 1 | 08/18/16 16:36 | 08/19/16 14:23 | 7440-47-3 | |
| Iron | **65700** | ug/L | 500 | 185 | 10 | 08/18/16 16:36 | 08/20/16 16:20 | 7439-89-6 | M1 |
| Lead | **0.41** | ug/L | 0.10 | 0.012 | 1 | 08/18/16 16:36 | 08/19/16 14:23 | 7439-92-1 | |
| Manganese | **1580** | ug/L | 5.0 | 1.3 | 10 | 08/18/16 16:36 | 08/20/16 16:20 | 7439-96-5 | M1 |
| Selenium | **0.19J** | ug/L | 0.50 | 0.13 | 1 | 08/18/16 16:36 | 08/19/16 14:23 | 7782-49-2 | |
| Silver | **0.013J** | ug/L | 0.50 | 0.0092 | 1 | 08/18/16 16:36 | 08/19/16 14:23 | 7440-22-4 | B |
| **7470A Mercury** | Analytical Method: EPA 7470A Preparation Method: EPA 7470A | | | | | | | | |
| Mercury | **<0.031** | ug/L | 0.10 | 0.031 | 1 | 08/25/16 13:15 | 08/25/16 15:22 | 7439-97-6 | |
| **8260B VOC** | Analytical Method: EPA 8260B | | | | | | | | |
| Acetone | **2.2J** | ug/L | 20.0 | 2.0 | 1 | | 08/17/16 01:09 | 67-64-1 | |
| Allyl chloride | **<0.25** | ug/L | 4.0 | 0.25 | 1 | | 08/17/16 01:09 | 107-05-1 | |
| Benzene | **45.9** | ug/L | 1.0 | 0.16 | 1 | | 08/17/16 01:09 | 71-43-2 | |
| Bromobenzene | **<0.34** | ug/L | 1.0 | 0.34 | 1 | | 08/17/16 01:09 | 108-86-1 | |
| Bromochloromethane | **<0.19** | ug/L | 1.0 | 0.19 | 1 | | 08/17/16 01:09 | 74-97-5 | |
| Bromodichloromethane | **<0.24** | ug/L | 1.0 | 0.24 | 1 | | 08/17/16 01:09 | 75-27-4 | |
| Bromoform | **<0.27** | ug/L | 4.0 | 0.27 | 1 | | 08/17/16 01:09 | 75-25-2 | |
| Bromomethane | **<0.44** | ug/L | 4.0 | 0.44 | 1 | | 08/17/16 01:09 | 74-83-9 | |
| 2-Butanone (MEK) | **<1.1** | ug/L | 5.0 | 1.1 | 1 | | 08/17/16 01:09 | 78-93-3 | |
| n-Butylbenzene | **1.8** | ug/L | 1.0 | 0.16 | 1 | | 08/17/16 01:09 | 104-51-8 | |
| sec-Butylbenzene | **0.69J** | ug/L | 1.0 | 0.19 | 1 | | 08/17/16 01:09 | 135-98-8 | |
| tert-Butylbenzene | **<0.22** | ug/L | 1.0 | 0.22 | 1 | | 08/17/16 01:09 | 98-06-6 | |
| Carbon tetrachloride | **<0.20** | ug/L | 4.0 | 0.20 | 1 | | 08/17/16 01:09 | 56-23-5 | |
| Chlorobenzene | **<0.11** | ug/L | 1.0 | 0.11 | 1 | | 08/17/16 01:09 | 108-90-7 | |
| Chloroethane | **<0.34** | ug/L | 1.0 | 0.34 | 1 | | 08/17/16 01:09 | 75-00-3 | |
| Chloroform | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/17/16 01:09 | 67-66-3 | |
| Chloromethane | **<0.25** | ug/L | 4.0 | 0.25 | 1 | | 08/17/16 01:09 | 74-87-3 | |
| 2-Chlorotoluene | **<0.30** | ug/L | 1.0 | 0.30 | 1 | | 08/17/16 01:09 | 95-49-8 | |
| 4-Chlorotoluene | **<0.26** | ug/L | 1.0 | 0.26 | 1 | | 08/17/16 01:09 | 106-43-4 | |
| 1,2-Dibromo-3-chloropropane | **<0.60** | ug/L | 10.0 | 0.60 | 1 | | 08/17/16 01:09 | 96-12-8 | |
| Dibromochloromethane | **<0.16** | ug/L | 4.0 | 0.16 | 1 | | 08/17/16 01:09 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | **<0.20** | ug/L | 1.0 | 0.20 | 1 | | 08/17/16 01:09 | 106-93-4 | |
| Dibromomethane | **<0.19** | ug/L | 4.0 | 0.19 | 1 | | 08/17/16 01:09 | 74-95-3 | |
| 1,2-Dichlorobenzene | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/17/16 01:09 | 95-50-1 | |
| 1,3-Dichlorobenzene | **<0.12** | ug/L | 1.0 | 0.12 | 1 | | 08/17/16 01:09 | 541-73-1 | |
| 1,4-Dichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/17/16 01:09 | 106-46-7 | |
| Dichlorodifluoromethane | **<0.23** | ug/L | 1.0 | 0.23 | 1 | | 08/17/16 01:09 | 75-71-8 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERMW21D** **Lab ID: 10358621007** Collected: 08/09/16 14:50 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260B VOC** | Analytical Method: EPA 8260B | | | | | | | | |
| 1,1-Dichloroethane | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/17/16 01:09 | 75-34-3 | |
| 1,2-Dichloroethane | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/17/16 01:09 | 107-06-2 | |
| 1,1-Dichloroethene | **<0.28** | ug/L | 1.0 | 0.28 | 1 | | 08/17/16 01:09 | 75-35-4 | |
| cis-1,2-Dichloroethene | **<0.12** | ug/L | 1.0 | 0.12 | 1 | | 08/17/16 01:09 | 156-59-2 | |
| trans-1,2-Dichloroethene | **<0.16** | ug/L | 1.0 | 0.16 | 1 | | 08/17/16 01:09 | 156-60-5 | |
| Dichlorofluoromethane | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/17/16 01:09 | 75-43-4 | |
| 1,2-Dichloropropane | **<0.22** | ug/L | 4.0 | 0.22 | 1 | | 08/17/16 01:09 | 78-87-5 | |
| 1,3-Dichloropropane | **<0.096** | ug/L | 1.0 | 0.096 | 1 | | 08/17/16 01:09 | 142-28-9 | |
| 2,2-Dichloropropane | **<0.13** | ug/L | 4.0 | 0.13 | 1 | | 08/17/16 01:09 | 594-20-7 | |
| 1,1-Dichloropropene | **<0.23** | ug/L | 1.0 | 0.23 | 1 | | 08/17/16 01:09 | 563-58-6 | |
| cis-1,3-Dichloropropene | **<0.15** | ug/L | 4.0 | 0.15 | 1 | | 08/17/16 01:09 | 10061-01-5 | |
| trans-1,3-Dichloropropene | **<0.15** | ug/L | 4.0 | 0.15 | 1 | | 08/17/16 01:09 | 10061-02-6 | |
| Diethyl ether (Ethyl ether) | **<0.19** | ug/L | 4.0 | 0.19 | 1 | | 08/17/16 01:09 | 60-29-7 | |
| Ethylbenzene | **8.1** | ug/L | 1.0 | 0.15 | 1 | | 08/17/16 01:09 | 100-41-4 | |
| Hexachloro-1,3-butadiene | **<0.18** | ug/L | 1.0 | 0.18 | 1 | | 08/17/16 01:09 | 87-68-3 | |
| Isopropylbenzene (Cumene) | **1.2** | ug/L | 1.0 | 0.25 | 1 | | 08/17/16 01:09 | 98-82-8 | |
| p-Isopropyltoluene | **0.44J** | ug/L | 1.0 | 0.19 | 1 | | 08/17/16 01:09 | 99-87-6 | |
| Methylene Chloride | **<0.29** | ug/L | 4.0 | 0.29 | 1 | | 08/17/16 01:09 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | **<0.43** | ug/L | 5.0 | 0.43 | 1 | | 08/17/16 01:09 | 108-10-1 | |
| Methyl-tert-butyl ether | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 08/17/16 01:09 | 1634-04-4 | |
| Naphthalene | **4.9** | ug/L | 4.0 | 0.20 | 1 | | 08/17/16 01:09 | 91-20-3 | |
| n-Propylbenzene | **5.3** | ug/L | 1.0 | 0.23 | 1 | | 08/17/16 01:09 | 103-65-1 | |
| Styrene | **<0.29** | ug/L | 1.0 | 0.29 | 1 | | 08/17/16 01:09 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | **<0.17** | ug/L | 4.0 | 0.17 | 1 | | 08/17/16 01:09 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | **<0.22** | ug/L | 1.0 | 0.22 | 1 | | 08/17/16 01:09 | 79-34-5 | |
| Tetrachloroethene | **<0.25** | ug/L | 1.0 | 0.25 | 1 | | 08/17/16 01:09 | 127-18-4 | |
| Tetrahydrofuran | **<1.5** | ug/L | 10.0 | 1.5 | 1 | | 08/17/16 01:09 | 109-99-9 | |
| Toluene | **7.3** | ug/L | 1.0 | 0.14 | 1 | | 08/17/16 01:09 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/17/16 01:09 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/17/16 01:09 | 120-82-1 | |
| 1,1,1-Trichloroethane | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/17/16 01:09 | 71-55-6 | |
| 1,1,2-Trichloroethane | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 08/17/16 01:09 | 79-00-5 | |
| Trichloroethene | **<0.20** | ug/L | 0.40 | 0.20 | 1 | | 08/17/16 01:09 | 79-01-6 | |
| Trichlorofluoromethane | **<0.33** | ug/L | 1.0 | 0.33 | 1 | | 08/17/16 01:09 | 75-69-4 | |
| 1,2,3-Trichloropropane | **<0.28** | ug/L | 4.0 | 0.28 | 1 | | 08/17/16 01:09 | 96-18-4 | |
| 1,1,2-Trichlorotrifluoroethane | **<0.32** | ug/L | 1.0 | 0.32 | 1 | | 08/17/16 01:09 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | **30.6** | ug/L | 1.0 | 0.18 | 1 | | 08/17/16 01:09 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | **8.2** | ug/L | 1.0 | 0.27 | 1 | | 08/17/16 01:09 | 108-67-8 | |
| Vinyl chloride | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 08/17/16 01:09 | 75-01-4 | |
| Xylene (Total) | **64.5** | ug/L | 3.0 | 0.32 | 1 | | 08/17/16 01:09 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | | |
| 1,2-Dichloroethane-d4 (S) | 96 | %. | 75-125 | | 1 | | 08/17/16 01:09 | 17060-07-0 | |
| Toluene-d8 (S) | 97 | %. | 75-125 | | 1 | | 08/17/16 01:09 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 103 | %. | 75-125 | | 1 | | 08/17/16 01:09 | 460-00-4 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERMW21D** **Lab ID: 10358621007** Collected: 08/09/16 14:50 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **2510B Specific Conductance** | Analytical Method: SM 2510B | | | | | | | | |
| Specific Conductance | **2100** | umhos/cm | 10.0 | 10.0 | 1 | | 08/16/16 15:05 | | |
| **4500H+ pH, Electrometric** | Analytical Method: SM 4500-H+B | | | | | | | | |
| pH at 25 Degrees C | **6.5** | Std. Units | 0.10 | 0.10 | 1 | | 08/15/16 19:14 | | H6 |
| **4500S2D Sulfide Water** | Analytical Method: SM 4500-S2-D | | | | | | | | |
| Sulfide | **0.014J** | mg/L | 0.10 | 0.011 | 1 | | 08/16/16 13:34 | | |
| **4500S2H Sulfide as H2S Calc** | Analytical Method: SM 4500-S H | | | | | | | | |
| Sulfide as H2S (calc) | **<0.020** | mg/L | 0.10 | 0.020 | 1 | | 08/16/16 16:40 | | AL |
| **SM4500NO3-H, NO2 + NO3 pres.** | Analytical Method: SM 4500-NO3 H | | | | | | | | |
| Nitrate as N | **0.063** | mg/L | 0.058 | 0.018 | 1 | | 08/24/16 09:14 | 14797-55-8 | |
| Nitrogen, NO2 plus NO3 | **0.063J** | mg/L | 0.17 | 0.050 | 1 | | 08/24/16 09:14 | | |
| **ASTM D516 Sulfate Water** | Analytical Method: ASTM D516 | | | | | | | | |
| Sulfate | **1.1J** | mg/L | 3.5 | 1.0 | 1 | | 08/12/16 09:07 | 14808-79-8 | |
| **SM4500NO2-B, Nitrite, unpres** | Analytical Method: SM 4500-NO2 B | | | | | | | | |
| Nitrite as N | **<0.0036** | mg/L | 0.012 | 0.0036 | 1 | | 08/11/16 09:00 | 14797-65-0 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERTB1** **Lab ID: 10358621008** Collected: 08/05/16 08:00 Received: 08/10/16 12:23 Matrix: Solid

***Results reported on a "wet-weight" basis***

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260B MSV UST** | Analytical Method: EPA 8260B Preparation Method: EPA 5035/5030B | | | | | | | | |
| Benzene | **<4.3** | ug/kg | 23.3 | 4.3 | 1 | 08/15/16 12:41 | 08/15/16 20:30 | 71-43-2 | |
| Ethylbenzene | **<8.2** | ug/kg | 24.9 | 8.2 | 1 | 08/15/16 12:41 | 08/15/16 20:30 | 100-41-4 | |
| Toluene | **<8.5** | ug/kg | 31.9 | 8.5 | 1 | 08/15/16 12:41 | 08/15/16 20:30 | 108-88-3 | |
| Xylene (Total) | **<22.0** | ug/kg | 99.6 | 22.0 | 1 | 08/15/16 12:41 | 08/15/16 20:30 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | | |
| 1,2-Dichloroethane-d4 (S) | 100 | %. | 75-129 | | 1 | 08/15/16 12:41 | 08/15/16 20:30 | 17060-07-0 | |
| Toluene-d8 (S) | 102 | %. | 75-125 | | 1 | 08/15/16 12:41 | 08/15/16 20:30 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 103 | %. | 75-125 | | 1 | 08/15/16 12:41 | 08/15/16 20:30 | 460-00-4 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERIDWSS** **Lab ID: 10358621009** Collected: 08/05/16 14:30 Received: 08/10/16 12:23 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3050 | | | | | | | | |
| Lead | **2.7** | mg/kg | 0.11 | 0.020 | 20 | 08/17/16 10:01 | 08/19/16 11:55 | 7439-92-1 | |
| **Dry Weight** | Analytical Method: ASTM D2974 | | | | | | | | |
| Percent Moisture | **20.7** | % | 0.10 | 0.10 | 1 | | 08/15/16 16:34 | | |
| **8260B MSV UST** | Analytical Method: EPA 8260B Preparation Method: EPA 5035/5030B | | | | | | | | |
| Benzene | **601** | ug/kg | 29.5 | 5.5 | 1 | 08/15/16 12:41 | 08/15/16 23:24 | 71-43-2 | |
| Ethylbenzene | **2930** | ug/kg | 31.5 | 10.4 | 1 | 08/15/16 12:41 | 08/15/16 23:24 | 100-41-4 | |
| Toluene | **4330** | ug/kg | 40.4 | 10.8 | 1 | 08/15/16 12:41 | 08/15/16 23:24 | 108-88-3 | |
| Xylene (Total) | **14500** | ug/kg | 126 | 27.8 | 1 | 08/15/16 12:41 | 08/15/16 23:24 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | | |
| 1,2-Dichloroethane-d4 (S) | 101 | %. | 75-129 | | 1 | 08/15/16 12:41 | 08/15/16 23:24 | 17060-07-0 | |
| Toluene-d8 (S) | 101 | %. | 75-125 | | 1 | 08/15/16 12:41 | 08/15/16 23:24 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 102 | %. | 75-125 | | 1 | 08/15/16 12:41 | 08/15/16 23:24 | 460-00-4 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERTB2** **Lab ID: 10358621010** Collected: 08/08/16 08:00 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8011 GCS EDB and DBCP** | Analytical Method: EPA 8011 Preparation Method: EPA 8011 | | | | | | | | |
| 1,2-Dibromoethane (EDB) | **<0.0016** | ug/L | 0.010 | 0.0016 | 1 | 08/15/16 15:31 | 08/18/16 05:29 | 106-93-4 | |
| ***Surrogates*** | | | | | | | | | |
| 4-Bromofluorobenzene (S) | 74 | %. | 30-150 | | 1 | 08/15/16 15:31 | 08/18/16 05:29 | 460-00-4 | |
| **8260B VOC** | Analytical Method: EPA 8260B | | | | | | | | |
| Acetone | **2.2J** | ug/L | 20.0 | 0.64 | 1 | | 08/12/16 09:03 | 67-64-1 | B |
| Allyl chloride | **<0.25** | ug/L | 4.0 | 0.25 | 1 | | 08/12/16 09:03 | 107-05-1 | |
| Benzene | **<0.16** | ug/L | 1.0 | 0.16 | 1 | | 08/12/16 09:03 | 71-43-2 | |
| Bromobenzene | **<0.34** | ug/L | 1.0 | 0.34 | 1 | | 08/12/16 09:03 | 108-86-1 | |
| Bromochloromethane | **<0.19** | ug/L | 1.0 | 0.19 | 1 | | 08/12/16 09:03 | 74-97-5 | |
| Bromodichloromethane | **<0.24** | ug/L | 1.0 | 0.24 | 1 | | 08/12/16 09:03 | 75-27-4 | |
| Bromoform | **<0.27** | ug/L | 10.0 | 0.27 | 1 | | 08/12/16 09:03 | 75-25-2 | L2 |
| Bromomethane | **<0.44** | ug/L | 4.0 | 0.44 | 1 | | 08/12/16 09:03 | 74-83-9 | |
| 2-Butanone (MEK) | **<1.1** | ug/L | 5.0 | 1.1 | 1 | | 08/12/16 09:03 | 78-93-3 | |
| n-Butylbenzene | **<0.16** | ug/L | 1.0 | 0.16 | 1 | | 08/12/16 09:03 | 104-51-8 | |
| sec-Butylbenzene | **<0.19** | ug/L | 1.0 | 0.19 | 1 | | 08/12/16 09:03 | 135-98-8 | |
| tert-Butylbenzene | **<0.22** | ug/L | 1.0 | 0.22 | 1 | | 08/12/16 09:03 | 98-06-6 | |
| Carbon tetrachloride | **<0.20** | ug/L | 4.0 | 0.20 | 1 | | 08/12/16 09:03 | 56-23-5 | |
| Chlorobenzene | **<0.11** | ug/L | 1.0 | 0.11 | 1 | | 08/12/16 09:03 | 108-90-7 | |
| Chloroethane | **<0.34** | ug/L | 4.0 | 0.34 | 1 | | 08/12/16 09:03 | 75-00-3 | |
| Chloroform | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 09:03 | 67-66-3 | |
| Chloromethane | **<0.25** | ug/L | 4.0 | 0.25 | 1 | | 08/12/16 09:03 | 74-87-3 | |
| 2-Chlorotoluene | **<0.30** | ug/L | 1.0 | 0.30 | 1 | | 08/12/16 09:03 | 95-49-8 | |
| 4-Chlorotoluene | **<0.26** | ug/L | 1.0 | 0.26 | 1 | | 08/12/16 09:03 | 106-43-4 | |
| 1,2-Dibromo-3-chloropropane | **<0.60** | ug/L | 10.0 | 0.60 | 1 | | 08/12/16 09:03 | 96-12-8 | |
| Dibromochloromethane | **<0.16** | ug/L | 4.0 | 0.16 | 1 | | 08/12/16 09:03 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | **<0.20** | ug/L | 1.0 | 0.20 | 1 | | 08/12/16 09:03 | 106-93-4 | |
| Dibromomethane | **<0.19** | ug/L | 4.0 | 0.19 | 1 | | 08/12/16 09:03 | 74-95-3 | |
| 1,2-Dichlorobenzene | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/12/16 09:03 | 95-50-1 | |
| 1,3-Dichlorobenzene | **<0.12** | ug/L | 1.0 | 0.12 | 1 | | 08/12/16 09:03 | 541-73-1 | |
| 1,4-Dichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 09:03 | 106-46-7 | |
| Dichlorodifluoromethane | **<0.23** | ug/L | 1.0 | 0.23 | 1 | | 08/12/16 09:03 | 75-71-8 | |
| 1,1-Dichloroethane | **<0.17** | ug/L | 4.0 | 0.17 | 1 | | 08/12/16 09:03 | 75-34-3 | |
| 1,2-Dichloroethane | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/12/16 09:03 | 107-06-2 | |
| 1,1-Dichloroethene | **<0.28** | ug/L | 1.0 | 0.28 | 1 | | 08/12/16 09:03 | 75-35-4 | |
| cis-1,2-Dichloroethene | **<0.12** | ug/L | 1.0 | 0.12 | 1 | | 08/12/16 09:03 | 156-59-2 | |
| trans-1,2-Dichloroethene | **<0.16** | ug/L | 1.0 | 0.16 | 1 | | 08/12/16 09:03 | 156-60-5 | |
| Dichlorofluoromethane | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 09:03 | 75-43-4 | |
| 1,2-Dichloropropane | **<0.22** | ug/L | 4.0 | 0.22 | 1 | | 08/12/16 09:03 | 78-87-5 | |
| 1,3-Dichloropropane | **<0.096** | ug/L | 1.0 | 0.096 | 1 | | 08/12/16 09:03 | 142-28-9 | |
| 2,2-Dichloropropane | **<0.13** | ug/L | 4.0 | 0.13 | 1 | | 08/12/16 09:03 | 594-20-7 | |
| 1,1-Dichloropropene | **<0.23** | ug/L | 1.0 | 0.23 | 1 | | 08/12/16 09:03 | 563-58-6 | |
| cis-1,3-Dichloropropene | **<0.15** | ug/L | 4.0 | 0.15 | 1 | | 08/12/16 09:03 | 10061-01-5 | |
| trans-1,3-Dichloropropene | **<0.15** | ug/L | 4.0 | 0.15 | 1 | | 08/12/16 09:03 | 10061-02-6 | |
| Diethyl ether (Ethyl ether) | **<0.19** | ug/L | 4.0 | 0.19 | 1 | | 08/12/16 09:03 | 60-29-7 | |
| Ethylbenzene | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 08/12/16 09:03 | 100-41-4 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWERTB2** **Lab ID: 10358621010** Collected: 08/08/16 08:00 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260B VOC** | Analytical Method: EPA 8260B | | | | | | | | |
| Hexachloro-1,3-butadiene | **<0.18** | ug/L | 4.0 | 0.18 | 1 | | 08/12/16 09:03 | 87-68-3 | |
| Isopropylbenzene (Cumene) | **<0.25** | ug/L | 1.0 | 0.25 | 1 | | 08/12/16 09:03 | 98-82-8 | |
| p-Isopropyltoluene | **<0.19** | ug/L | 1.0 | 0.19 | 1 | | 08/12/16 09:03 | 99-87-6 | |
| Methylene Chloride | **<0.29** | ug/L | 4.0 | 0.29 | 1 | | 08/12/16 09:03 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | **<0.43** | ug/L | 5.0 | 0.43 | 1 | | 08/12/16 09:03 | 108-10-1 | |
| Methyl-tert-butyl ether | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 08/12/16 09:03 | 1634-04-4 | |
| Naphthalene | **<0.20** | ug/L | 4.0 | 0.20 | 1 | | 08/12/16 09:03 | 91-20-3 | |
| n-Propylbenzene | **<0.23** | ug/L | 1.0 | 0.23 | 1 | | 08/12/16 09:03 | 103-65-1 | |
| Styrene | **<0.29** | ug/L | 1.0 | 0.29 | 1 | | 08/12/16 09:03 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | **<0.17** | ug/L | 4.0 | 0.17 | 1 | | 08/12/16 09:03 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | **<0.22** | ug/L | 1.0 | 0.22 | 1 | | 08/12/16 09:03 | 79-34-5 | |
| Tetrachloroethene | **<0.25** | ug/L | 1.0 | 0.25 | 1 | | 08/12/16 09:03 | 127-18-4 | |
| Tetrahydrofuran | **<1.5** | ug/L | 10.0 | 1.5 | 1 | | 08/12/16 09:03 | 109-99-9 | |
| Toluene | **0.17J** | ug/L | 1.0 | 0.14 | 1 | | 08/12/16 09:03 | 108-88-3 | B |
| 1,2,3-Trichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 09:03 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/12/16 09:03 | 120-82-1 | |
| 1,1,1-Trichloroethane | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/12/16 09:03 | 71-55-6 | |
| 1,1,2-Trichloroethane | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 08/12/16 09:03 | 79-00-5 | |
| Trichloroethene | **<0.20** | ug/L | 0.40 | 0.20 | 1 | | 08/12/16 09:03 | 79-01-6 | |
| Trichlorofluoromethane | **<0.33** | ug/L | 1.0 | 0.33 | 1 | | 08/12/16 09:03 | 75-69-4 | |
| 1,2,3-Trichloropropane | **<0.28** | ug/L | 4.0 | 0.28 | 1 | | 08/12/16 09:03 | 96-18-4 | |
| 1,1,2-Trichlorotrifluoroethane | **<0.32** | ug/L | 1.0 | 0.32 | 1 | | 08/12/16 09:03 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | **<0.18** | ug/L | 1.0 | 0.18 | 1 | | 08/12/16 09:03 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | **<0.27** | ug/L | 1.0 | 0.27 | 1 | | 08/12/16 09:03 | 108-67-8 | |
| Vinyl chloride | **<0.29** | ug/L | 0.40 | 0.29 | 1 | | 08/12/16 09:03 | 75-01-4 | |
| Xylene (Total) | **<0.32** | ug/L | 3.0 | 0.32 | 1 | | 08/12/16 09:03 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | | |
| 1,2-Dichloroethane-d4 (S) | 109 | %. | 75-125 | | 1 | | 08/12/16 09:03 | 17060-07-0 | |
| Toluene-d8 (S) | 107 | %. | 75-125 | | 1 | | 08/12/16 09:03 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 105 | %. | 75-125 | | 1 | | 08/12/16 09:03 | 460-00-4 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWEREQB** **Lab ID: 10358621011** Collected: 08/09/16 09:30 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8011 GCS EDB and DBCP** | Analytical Method: EPA 8011 Preparation Method: EPA 8011 | | | | | | | | |
| 1,2-Dibromoethane (EDB) | **<0.0016** | ug/L | 0.0098 | 0.0016 | 1 | 08/15/16 15:31 | 08/18/16 05:55 | 106-93-4 | |
| ***Surrogates*** | | | | | | | | | |
| 4-Bromofluorobenzene (S) | 74 | %. | 30-150 | | 1 | 08/15/16 15:31 | 08/18/16 05:55 | 460-00-4 | |
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3020 | | | | | | | | |
| Arsenic | **<0.091** | ug/L | 0.50 | 0.091 | 1 | 08/18/16 16:36 | 08/19/16 14:33 | 7440-38-2 | |
| Barium | **0.070J** | ug/L | 0.30 | 0.019 | 1 | 08/18/16 16:36 | 08/19/16 14:33 | 7440-39-3 | B |
| Cadmium | **<0.013** | ug/L | 0.080 | 0.013 | 1 | 08/18/16 16:36 | 08/19/16 14:33 | 7440-43-9 | |
| Chromium | **0.36J** | ug/L | 0.50 | 0.14 | 1 | 08/18/16 16:36 | 08/19/16 14:33 | 7440-47-3 | |
| Iron | **<18.5** | ug/L | 50.0 | 18.5 | 1 | 08/18/16 16:36 | 08/19/16 14:33 | 7439-89-6 | |
| Lead | **0.076J** | ug/L | 0.10 | 0.012 | 1 | 08/18/16 16:36 | 08/19/16 14:33 | 7439-92-1 | B |
| Manganese | **0.21J** | ug/L | 0.50 | 0.13 | 1 | 08/18/16 16:36 | 08/19/16 14:33 | 7439-96-5 | |
| Selenium | **<0.13** | ug/L | 0.50 | 0.13 | 1 | 08/18/16 16:36 | 08/20/16 16:27 | 7782-49-2 | |
| Silver | **0.043J** | ug/L | 0.50 | 0.0092 | 1 | 08/18/16 16:36 | 08/19/16 14:33 | 7440-22-4 | B |
| **7470A Mercury** | Analytical Method: EPA 7470A Preparation Method: EPA 7470A | | | | | | | | |
| Mercury | **<0.031** | ug/L | 0.10 | 0.031 | 1 | 08/15/16 09:47 | 08/15/16 16:44 | 7439-97-6 | |
| **8260B VOC** | Analytical Method: EPA 8260B | | | | | | | | |
| Acetone | **2.9J** | ug/L | 20.0 | 2.0 | 1 | | 08/16/16 22:58 | 67-64-1 | |
| Allyl chloride | **<0.25** | ug/L | 4.0 | 0.25 | 1 | | 08/16/16 22:58 | 107-05-1 | |
| Benzene | **<0.16** | ug/L | 1.0 | 0.16 | 1 | | 08/16/16 22:58 | 71-43-2 | |
| Bromobenzene | **<0.34** | ug/L | 1.0 | 0.34 | 1 | | 08/16/16 22:58 | 108-86-1 | |
| Bromochloromethane | **<0.19** | ug/L | 1.0 | 0.19 | 1 | | 08/16/16 22:58 | 74-97-5 | |
| Bromodichloromethane | **<0.24** | ug/L | 1.0 | 0.24 | 1 | | 08/16/16 22:58 | 75-27-4 | |
| Bromoform | **<0.27** | ug/L | 4.0 | 0.27 | 1 | | 08/16/16 22:58 | 75-25-2 | |
| Bromomethane | **<0.44** | ug/L | 4.0 | 0.44 | 1 | | 08/16/16 22:58 | 74-83-9 | |
| 2-Butanone (MEK) | **<1.1** | ug/L | 5.0 | 1.1 | 1 | | 08/16/16 22:58 | 78-93-3 | |
| n-Butylbenzene | **<0.16** | ug/L | 1.0 | 0.16 | 1 | | 08/16/16 22:58 | 104-51-8 | |
| sec-Butylbenzene | **<0.19** | ug/L | 1.0 | 0.19 | 1 | | 08/16/16 22:58 | 135-98-8 | |
| tert-Butylbenzene | **<0.22** | ug/L | 1.0 | 0.22 | 1 | | 08/16/16 22:58 | 98-06-6 | |
| Carbon tetrachloride | **<0.20** | ug/L | 4.0 | 0.20 | 1 | | 08/16/16 22:58 | 56-23-5 | |
| Chlorobenzene | **<0.11** | ug/L | 1.0 | 0.11 | 1 | | 08/16/16 22:58 | 108-90-7 | |
| Chloroethane | **<0.34** | ug/L | 1.0 | 0.34 | 1 | | 08/16/16 22:58 | 75-00-3 | |
| Chloroform | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/16/16 22:58 | 67-66-3 | |
| Chloromethane | **<0.25** | ug/L | 4.0 | 0.25 | 1 | | 08/16/16 22:58 | 74-87-3 | |
| 2-Chlorotoluene | **<0.30** | ug/L | 1.0 | 0.30 | 1 | | 08/16/16 22:58 | 95-49-8 | |
| 4-Chlorotoluene | **<0.26** | ug/L | 1.0 | 0.26 | 1 | | 08/16/16 22:58 | 106-43-4 | |
| 1,2-Dibromo-3-chloropropane | **<0.60** | ug/L | 10.0 | 0.60 | 1 | | 08/16/16 22:58 | 96-12-8 | |
| Dibromochloromethane | **<0.16** | ug/L | 4.0 | 0.16 | 1 | | 08/16/16 22:58 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | **<0.20** | ug/L | 1.0 | 0.20 | 1 | | 08/16/16 22:58 | 106-93-4 | |
| Dibromomethane | **<0.19** | ug/L | 4.0 | 0.19 | 1 | | 08/16/16 22:58 | 74-95-3 | |
| 1,2-Dichlorobenzene | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/16/16 22:58 | 95-50-1 | |
| 1,3-Dichlorobenzene | **<0.12** | ug/L | 1.0 | 0.12 | 1 | | 08/16/16 22:58 | 541-73-1 | |
| 1,4-Dichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/16/16 22:58 | 106-46-7 | |
| Dichlorodifluoromethane | **<0.23** | ug/L | 1.0 | 0.23 | 1 | | 08/16/16 22:58 | 75-71-8 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWEREQB** **Lab ID: 10358621011** Collected: 08/09/16 09:30 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260B VOC** | Analytical Method: EPA 8260B | | | | | | | | |
| 1,1-Dichloroethane | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/16/16 22:58 | 75-34-3 | |
| 1,2-Dichloroethane | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/16/16 22:58 | 107-06-2 | |
| 1,1-Dichloroethene | **<0.28** | ug/L | 1.0 | 0.28 | 1 | | 08/16/16 22:58 | 75-35-4 | |
| cis-1,2-Dichloroethene | **<0.12** | ug/L | 1.0 | 0.12 | 1 | | 08/16/16 22:58 | 156-59-2 | |
| trans-1,2-Dichloroethene | **<0.16** | ug/L | 1.0 | 0.16 | 1 | | 08/16/16 22:58 | 156-60-5 | |
| Dichlorofluoromethane | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/16/16 22:58 | 75-43-4 | |
| 1,2-Dichloropropane | **<0.22** | ug/L | 4.0 | 0.22 | 1 | | 08/16/16 22:58 | 78-87-5 | |
| 1,3-Dichloropropane | **<0.096** | ug/L | 1.0 | 0.096 | 1 | | 08/16/16 22:58 | 142-28-9 | |
| 2,2-Dichloropropane | **<0.13** | ug/L | 4.0 | 0.13 | 1 | | 08/16/16 22:58 | 594-20-7 | |
| 1,1-Dichloropropene | **<0.23** | ug/L | 1.0 | 0.23 | 1 | | 08/16/16 22:58 | 563-58-6 | |
| cis-1,3-Dichloropropene | **<0.15** | ug/L | 4.0 | 0.15 | 1 | | 08/16/16 22:58 | 10061-01-5 | |
| trans-1,3-Dichloropropene | **<0.15** | ug/L | 4.0 | 0.15 | 1 | | 08/16/16 22:58 | 10061-02-6 | |
| Diethyl ether (Ethyl ether) | **<0.19** | ug/L | 4.0 | 0.19 | 1 | | 08/16/16 22:58 | 60-29-7 | |
| Ethylbenzene | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 08/16/16 22:58 | 100-41-4 | |
| Hexachloro-1,3-butadiene | **<0.18** | ug/L | 1.0 | 0.18 | 1 | | 08/16/16 22:58 | 87-68-3 | |
| Isopropylbenzene (Cumene) | **<0.25** | ug/L | 1.0 | 0.25 | 1 | | 08/16/16 22:58 | 98-82-8 | |
| p-Isopropyltoluene | **<0.19** | ug/L | 1.0 | 0.19 | 1 | | 08/16/16 22:58 | 99-87-6 | |
| Methylene Chloride | **<0.29** | ug/L | 4.0 | 0.29 | 1 | | 08/16/16 22:58 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | **<0.43** | ug/L | 5.0 | 0.43 | 1 | | 08/16/16 22:58 | 108-10-1 | |
| Methyl-tert-butyl ether | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 08/16/16 22:58 | 1634-04-4 | |
| Naphthalene | **1.6J** | ug/L | 4.0 | 0.20 | 1 | | 08/16/16 22:58 | 91-20-3 | |
| n-Propylbenzene | **<0.23** | ug/L | 1.0 | 0.23 | 1 | | 08/16/16 22:58 | 103-65-1 | |
| Styrene | **<0.29** | ug/L | 1.0 | 0.29 | 1 | | 08/16/16 22:58 | 100-42-5 | |
| 1,1,1,2-Tetrachloroethane | **<0.17** | ug/L | 4.0 | 0.17 | 1 | | 08/16/16 22:58 | 630-20-6 | |
| 1,1,2,2-Tetrachloroethane | **<0.22** | ug/L | 1.0 | 0.22 | 1 | | 08/16/16 22:58 | 79-34-5 | |
| Tetrachloroethene | **<0.25** | ug/L | 1.0 | 0.25 | 1 | | 08/16/16 22:58 | 127-18-4 | |
| Tetrahydrofuran | **<1.5** | ug/L | 10.0 | 1.5 | 1 | | 08/16/16 22:58 | 109-99-9 | |
| Toluene | **0.48J** | ug/L | 1.0 | 0.14 | 1 | | 08/16/16 22:58 | 108-88-3 | |
| 1,2,3-Trichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/16/16 22:58 | 87-61-6 | |
| 1,2,4-Trichlorobenzene | **<0.21** | ug/L | 1.0 | 0.21 | 1 | | 08/16/16 22:58 | 120-82-1 | |
| 1,1,1-Trichloroethane | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 08/16/16 22:58 | 71-55-6 | |
| 1,1,2-Trichloroethane | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 08/16/16 22:58 | 79-00-5 | |
| Trichloroethene | **<0.20** | ug/L | 0.40 | 0.20 | 1 | | 08/16/16 22:58 | 79-01-6 | |
| Trichlorofluoromethane | **<0.33** | ug/L | 1.0 | 0.33 | 1 | | 08/16/16 22:58 | 75-69-4 | |
| 1,2,3-Trichloropropane | **<0.28** | ug/L | 4.0 | 0.28 | 1 | | 08/16/16 22:58 | 96-18-4 | |
| 1,1,2-Trichlorotrifluoroethane | **<0.32** | ug/L | 1.0 | 0.32 | 1 | | 08/16/16 22:58 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | **<0.18** | ug/L | 1.0 | 0.18 | 1 | | 08/16/16 22:58 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | **<0.27** | ug/L | 1.0 | 0.27 | 1 | | 08/16/16 22:58 | 108-67-8 | |
| Vinyl chloride | **<0.15** | ug/L | 1.0 | 0.15 | 1 | | 08/16/16 22:58 | 75-01-4 | |
| Xylene (Total) | **<0.32** | ug/L | 3.0 | 0.32 | 1 | | 08/16/16 22:58 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | | |
| 1,2-Dichloroethane-d4 (S) | 96 | %. | 75-125 | | 1 | | 08/16/16 22:58 | 17060-07-0 | |
| Toluene-d8 (S) | 98 | %. | 75-125 | | 1 | | 08/16/16 22:58 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 100 | %. | 75-125 | | 1 | | 08/16/16 22:58 | 460-00-4 | |



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# ANALYTICAL RESULTS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

**Sample: 1608TOWEREQB** **Lab ID: 10358621011** Collected: 08/09/16 09:30 Received: 08/10/16 12:23 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **2510B Specific Conductance** | Analytical Method: SM 2510B | | | | | | | | |
| Specific Conductance | **<10.0** | umhos/cm | 10.0 | 10.0 | 1 | | 08/16/16 15:06 | | |
| **4500H+ pH, Electrometric** | Analytical Method: SM 4500-H+B | | | | | | | | |
| pH at 25 Degrees C | **5.7** | Std. Units | 0.10 | 0.10 | 1 | | 08/15/16 19:19 | | H6 |
| **4500S2D Sulfide Water** | Analytical Method: SM 4500-S2-D | | | | | | | | |
| Sulfide | **<0.011** | mg/L | 0.10 | 0.011 | 1 | | 08/16/16 13:37 | | |
| **4500S2H Sulfide as H2S Calc** | Analytical Method: SM 4500-S H | | | | | | | | |
| Sulfide as H2S (calc) | **<0.020** | mg/L | 0.10 | 0.020 | 1 | | 08/16/16 16:40 | | AL |
| **SM4500NO3-H, NO2 + NO3 pres.** | Analytical Method: SM 4500-NO3 H | | | | | | | | |
| Nitrate as N | **0.042J** | mg/L | 0.058 | 0.018 | 1 | | 08/24/16 09:18 | 14797-55-8 | |
| Nitrogen, NO2 plus NO3 | **<0.050** | mg/L | 0.17 | 0.050 | 1 | | 08/24/16 09:18 | | |
| **ASTM D516 Sulfate Water** | Analytical Method: ASTM D516 | | | | | | | | |
| Sulfate | **<1.0** | mg/L | 3.5 | 1.0 | 1 | | 08/12/16 09:07 | 14808-79-8 | |
| **SM4500NO2-B, Nitrite, unpres** | Analytical Method: SM 4500-NO2 B | | | | | | | | |
| Nitrite as N | **<0.0036** | mg/L | 0.012 | 0.0036 | 1 | | 08/11/16 09:00 | 14797-65-0 | |



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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

QC Batch: 430004 | Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A | Analysis Description: 7470A Mercury Water
Associated Lab Samples: 10358621011

METHOD BLANK: 2339606 | Matrix: Water
Associated Lab Samples: 10358621011

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Mercury | ug/L | <0.031 | 0.10 | 08/15/16 16:11 | |

LABORATORY CONTROL SAMPLE: 2339607

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Mercury | ug/L | 5 | 4.6 | 93 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2339608 2339609

| Parameter | Units | 10358540002 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | 0.54 | 5 | 5 | 5.3 | 5.4 | 96 | 98 | 80-120 | 2 | 20 | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

QC Batch: 432384 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470A Mercury Water
Associated Lab Samples: 10358621004, 10358621005, 10358621006, 10358621007

METHOD BLANK: 2351398 Matrix: Water
Associated Lab Samples: 10358621004, 10358621005, 10358621006, 10358621007

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Mercury | ug/L | <0.031 | 0.10 | 08/25/16 15:12 | |

LABORATORY CONTROL SAMPLE: 2351399

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Mercury | ug/L | 5 | 5.2 | 105 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2351400 2351401

| Parameter | Units | 10358621007 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | <0.031 | 5 | 5 | 5.1 | 5.2 | 101 | 105 | 80-120 | 3 | 20 | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

QC Batch: 430644 | Analysis Method: EPA 6020B
QC Batch Method: EPA 3050 | Analysis Description: 6020B Solids UPD5
Associated Lab Samples: 10358621009

METHOD BLANK: 2342888 | Matrix: Solid
Associated Lab Samples: 10358621009

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Lead | mg/kg | 0.018J | 0.092 | 08/19/16 11:50 | |

LABORATORY CONTROL SAMPLE: 2342889

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Lead | mg/kg | 49 | 52.4 | 107 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2342890 2342891

| Parameter | Units | 10358621009 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead | mg/kg | 2.7 | 53.8 | 54.9 | 58.4 | 61.5 | 103 | 107 | 75-125 | 5 | 20 | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

QC Batch: 429937 Analysis Method: EPA 6020B
QC Batch Method: EPA 3020 Analysis Description: 6020B Water UPD5
Associated Lab Samples: 10358621004, 10358621005, 10358621006, 10358621007, 10358621011

METHOD BLANK: 2339230 Matrix: Water
Associated Lab Samples: 10358621004, 10358621005, 10358621006, 10358621007, 10358621011

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Arsenic | ug/L | <0.091 | 0.50 | 08/19/16 14:16 | |
| Barium | ug/L | 0.030J | 0.30 | 08/19/16 14:16 | |
| Cadmium | ug/L | <0.013 | 0.080 | 08/19/16 14:16 | |
| Chromium | ug/L | <0.14 | 0.50 | 08/19/16 14:16 | |
| Iron | ug/L | <18.5 | 50.0 | 08/19/16 14:16 | |
| Lead | ug/L | 0.036J | 0.10 | 08/19/16 14:16 | |
| Manganese | ug/L | <0.13 | 0.50 | 08/19/16 14:16 | |
| Selenium | ug/L | <0.13 | 0.50 | 08/20/16 16:08 | |
| Silver | ug/L | 0.082J | 0.50 | 08/19/16 14:16 | |

LABORATORY CONTROL SAMPLE: 2339231

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Arsenic | ug/L | 100 | 89.0 | 89 | 80-120 | |
| Barium | ug/L | 100 | 102 | 102 | 80-120 | |
| Cadmium | ug/L | 100 | 101 | 101 | 80-120 | |
| Chromium | ug/L | 100 | 103 | 103 | 80-120 | |
| Iron | ug/L | 2000 | 1850 | 92 | 80-120 | |
| Lead | ug/L | 100 | 103 | 103 | 80-120 | |
| Manganese | ug/L | 100 | 100 | 100 | 80-120 | |
| Selenium | ug/L | 100 | 92.5 | 92 | 80-120 | |
| Silver | ug/L | 50 | 47.2 | 94 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2342797 2342798

| Parameter | Units | 10358621007 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ug/L | 0.43J | 100 | 100 | 92.4 | 86.1 | 92 | 86 | 75-125 | 7 | 20 | |
| Barium | ug/L | 299 | 100 | 100 | 399 | 401 | 100 | 102 | 75-125 | 1 | 20 | |
| Cadmium | ug/L | <0.013 | 100 | 100 | 101 | 101 | 101 | 101 | 75-125 | 1 | 20 | |
| Chromium | ug/L | 4.4 | 100 | 100 | 105 | 105 | 101 | 101 | 75-125 | 0 | 20 | |
| Iron | ug/L | 65700 | 2000 | 2000 | 60200 | 56400 | -274 | -466 | 75-125 | 7 | 20 | E,M1 |
| Lead | ug/L | 0.41 | 100 | 100 | 100 | 100 | 100 | 100 | 75-125 | 0 | 20 | |
| Manganese | ug/L | 1580 | 100 | 100 | 1660 | 1680 | 73 | 100 | 75-125 | 2 | 20 | E,M1 |
| Selenium | ug/L | 0.19J | 100 | 100 | 94.1 | 83.7 | 94 | 83 | 75-125 | 12 | 20 | |
| Silver | ug/L | 0.013J | 50 | 50 | 45.6 | 41.9 | 91 | 84 | 75-125 | 9 | 20 | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

QC Batch: 430659
QC Batch Method: ASTM D2974
Analysis Method: ASTM D2974
Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 10358621009

SAMPLE DUPLICATE: 2343005

| Parameter | Units | 10359038001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Moisture | % | 12.2 | 12.6 | 3 | 30 | |

SAMPLE DUPLICATE: 2343065

| Parameter | Units | 10358621009 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Moisture | % | 20.7 | 21.1 | 2 | 30 | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

QC Batch: 430540 | Analysis Method: EPA 8260B
QC Batch Method: EPA 5035/5030B | Analysis Description: 8260B MSV UST
Associated Lab Samples: 10358621008, 10358621009

METHOD BLANK: 2342270 | Matrix: Solid
Associated Lab Samples: 10358621008, 10358621009

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Benzene | ug/kg | <4.3 | 23.3 | 08/15/16 19:55 | |
| Ethylbenzene | ug/kg | <8.2 | 24.9 | 08/15/16 19:55 | |
| Toluene | ug/kg | <8.5 | 31.9 | 08/15/16 19:55 | |
| Xylene (Total) | ug/kg | <22.0 | 99.6 | 08/15/16 19:55 | |
| 1,2-Dichloroethane-d4 (S) | %. | 104 | 75-129 | 08/15/16 19:55 | |
| 4-Bromofluorobenzene (S) | %. | 100 | 75-125 | 08/15/16 19:55 | |
| Toluene-d8 (S) | %. | 101 | 75-125 | 08/15/16 19:55 | |

LABORATORY CONTROL SAMPLE & LCSD: 2342271 2342272

| Parameter | Units | Spike Conc. | LCS Result | LCSD Result | LCS % Rec | LCSD % Rec | % Rec Limits | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ug/kg | 1000 | 927 | 979 | 93 | 98 | 64-125 | 5 | 20 | |
| Ethylbenzene | ug/kg | 1000 | 1040 | 1050 | 104 | 105 | 70-129 | 1 | 20 | |
| Toluene | ug/kg | 1000 | 966 | 1030 | 97 | 103 | 69-125 | 6 | 20 | |
| Xylene (Total) | ug/kg | 3000 | 2960 | 3100 | 99 | 103 | 73-128 | 5 | 20 | |
| 1,2-Dichloroethane-d4 (S) | %. | | | | 101 | 104 | 75-129 | | | |
| 4-Bromofluorobenzene (S) | %. | | | | 102 | 100 | 75-125 | | | |
| Toluene-d8 (S) | %. | | | | 102 | 101 | 75-125 | | | |

MATRIX SPIKE SAMPLE: 2342799

| Parameter | Units | 10358819007 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Benzene | ug/kg | <5.3 | 1260 | 1080 | 85 | 41-134 | |
| Ethylbenzene | ug/kg | <10.1 | 1260 | 1200 | 95 | 56-141 | |
| Toluene | ug/kg | 12.6J | 1260 | 1160 | 91 | 55-134 | |
| Xylene (Total) | ug/kg | <27.1 | 3790 | 3490 | 92 | 56-137 | |
| 1,2-Dichloroethane-d4 (S) | %. | | | | 98 | 75-129 | |
| 4-Bromofluorobenzene (S) | %. | | | | 100 | 75-125 | |
| Toluene-d8 (S) | %. | | | | 103 | 75-125 | |

SAMPLE DUPLICATE: 2342800

| Parameter | Units | 10358819008 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Benzene | ug/kg | <5.5 | <5.3 | | 30 | |
| Ethylbenzene | ug/kg | <10.4 | <10.1 | | 30 | |
| Toluene | ug/kg | 11.1J | <10.5 | | 30 | |
| Xylene (Total) | ug/kg | <27.9 | <27.0 | | 30 | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

SAMPLE DUPLICATE: 2342800

| Parameter | Units | 10358819008 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 (S) | %. | 102 | 99 | 6 | | |
| 4-Bromofluorobenzene (S) | %. | 104 | 104 | 3 | | |
| Toluene-d8 (S) | %. | 101 | 104 | 0 | | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

QC Batch: 430040 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV 465 W
Associated Lab Samples: 10358621001, 10358621002, 10358621003

METHOD BLANK: 2339727 Matrix: Water
Associated Lab Samples: 10358621001, 10358621002, 10358621003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/L | <0.17 | 4.0 | 08/11/16 20:30 | |
| 1,1,1-Trichloroethane | ug/L | <0.17 | 1.0 | 08/11/16 20:30 | |
| 1,1,2,2-Tetrachloroethane | ug/L | <0.22 | 1.0 | 08/11/16 20:30 | |
| 1,1,2-Trichloroethane | ug/L | <0.15 | 1.0 | 08/11/16 20:30 | |
| 1,1,2-Trichlorotrifluoroethane | ug/L | <0.32 | 1.0 | 08/11/16 20:30 | |
| 1,1-Dichloroethane | ug/L | <0.17 | 4.0 | 08/11/16 20:30 | |
| 1,1-Dichloroethene | ug/L | <0.28 | 1.0 | 08/11/16 20:30 | |
| 1,1-Dichloropropene | ug/L | <0.23 | 1.0 | 08/11/16 20:30 | |
| 1,2,3-Trichlorobenzene | ug/L | <0.21 | 1.0 | 08/11/16 20:30 | |
| 1,2,3-Trichloropropane | ug/L | <0.28 | 4.0 | 08/11/16 20:30 | |
| 1,2,4-Trichlorobenzene | ug/L | <0.21 | 1.0 | 08/11/16 20:30 | |
| 1,2,4-Trimethylbenzene | ug/L | <0.18 | 1.0 | 08/11/16 20:30 | |
| 1,2-Dibromo-3-chloropropane | ug/L | <0.60 | 10.0 | 08/11/16 20:30 | |
| 1,2-Dibromoethane (EDB) | ug/L | <0.20 | 1.0 | 08/11/16 20:30 | |
| 1,2-Dichlorobenzene | ug/L | <0.17 | 1.0 | 08/11/16 20:30 | |
| 1,2-Dichloroethane | ug/L | <0.17 | 1.0 | 08/11/16 20:30 | |
| 1,2-Dichloropropane | ug/L | <0.22 | 4.0 | 08/11/16 20:30 | |
| 1,3,5-Trimethylbenzene | ug/L | <0.27 | 1.0 | 08/11/16 20:30 | |
| 1,3-Dichlorobenzene | ug/L | <0.12 | 1.0 | 08/11/16 20:30 | |
| 1,3-Dichloropropane | ug/L | <0.096 | 1.0 | 08/11/16 20:30 | |
| 1,4-Dichlorobenzene | ug/L | <0.21 | 1.0 | 08/11/16 20:30 | |
| 2,2-Dichloropropane | ug/L | <0.13 | 4.0 | 08/11/16 20:30 | |
| 2-Butanone (MEK) | ug/L | <1.1 | 5.0 | 08/11/16 20:30 | |
| 2-Chlorotoluene | ug/L | <0.30 | 1.0 | 08/11/16 20:30 | |
| 4-Chlorotoluene | ug/L | <0.26 | 1.0 | 08/11/16 20:30 | |
| 4-Methyl-2-pentanone (MIBK) | ug/L | <0.43 | 5.0 | 08/11/16 20:30 | |
| Acetone | ug/L | 2.9J | 20.0 | 08/11/16 20:30 | |
| Allyl chloride | ug/L | <0.25 | 4.0 | 08/11/16 20:30 | |
| Benzene | ug/L | <0.16 | 1.0 | 08/11/16 20:30 | |
| Bromobenzene | ug/L | <0.34 | 1.0 | 08/11/16 20:30 | |
| Bromochloromethane | ug/L | <0.19 | 1.0 | 08/11/16 20:30 | |
| Bromodichloromethane | ug/L | <0.24 | 1.0 | 08/11/16 20:30 | |
| Bromoform | ug/L | <0.27 | 10.0 | 08/11/16 20:30 | |
| Bromomethane | ug/L | <0.44 | 4.0 | 08/11/16 20:30 | |
| Carbon tetrachloride | ug/L | <0.20 | 4.0 | 08/11/16 20:30 | |
| Chlorobenzene | ug/L | <0.11 | 1.0 | 08/11/16 20:30 | |
| Chloroethane | ug/L | <0.34 | 4.0 | 08/11/16 20:30 | |
| Chloroform | ug/L | <0.21 | 1.0 | 08/11/16 20:30 | |
| Chloromethane | ug/L | <0.25 | 4.0 | 08/11/16 20:30 | |
| cis-1,2-Dichloroethene | ug/L | <0.12 | 1.0 | 08/11/16 20:30 | |
| cis-1,3-Dichloropropene | ug/L | <0.15 | 4.0 | 08/11/16 20:30 | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

METHOD BLANK: 2339727 Matrix: Water
Associated Lab Samples: 10358621001, 10358621002, 10358621003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Dibromochloromethane | ug/L | <0.16 | 4.0 | 08/11/16 20:30 | |
| Dibromomethane | ug/L | <0.19 | 4.0 | 08/11/16 20:30 | |
| Dichlorodifluoromethane | ug/L | <0.23 | 1.0 | 08/11/16 20:30 | |
| Dichlorofluoromethane | ug/L | <0.21 | 1.0 | 08/11/16 20:30 | |
| Diethyl ether (Ethyl ether) | ug/L | <0.19 | 4.0 | 08/11/16 20:30 | |
| Ethylbenzene | ug/L | <0.15 | 1.0 | 08/11/16 20:30 | |
| Hexachloro-1,3-butadiene | ug/L | <0.18 | 4.0 | 08/11/16 20:30 | |
| Isopropylbenzene (Cumene) | ug/L | <0.25 | 1.0 | 08/11/16 20:30 | |
| Methyl-tert-butyl ether | ug/L | <0.15 | 1.0 | 08/11/16 20:30 | |
| Methylene Chloride | ug/L | <0.29 | 4.0 | 08/11/16 20:30 | |
| n-Butylbenzene | ug/L | <0.16 | 1.0 | 08/11/16 20:30 | |
| n-Propylbenzene | ug/L | <0.23 | 1.0 | 08/11/16 20:30 | |
| Naphthalene | ug/L | <0.20 | 4.0 | 08/11/16 20:30 | |
| p-Isopropyltoluene | ug/L | <0.19 | 1.0 | 08/11/16 20:30 | |
| sec-Butylbenzene | ug/L | <0.19 | 1.0 | 08/11/16 20:30 | |
| Styrene | ug/L | <0.29 | 1.0 | 08/11/16 20:30 | |
| tert-Butylbenzene | ug/L | <0.22 | 1.0 | 08/11/16 20:30 | |
| Tetrachloroethene | ug/L | <0.25 | 1.0 | 08/11/16 20:30 | |
| Tetrahydrofuran | ug/L | <1.5 | 10.0 | 08/11/16 20:30 | |
| Toluene | ug/L | <0.14 | 1.0 | 08/11/16 20:30 | |
| trans-1,2-Dichloroethene | ug/L | <0.16 | 1.0 | 08/11/16 20:30 | |
| trans-1,3-Dichloropropene | ug/L | <0.15 | 4.0 | 08/11/16 20:30 | |
| Trichloroethene | ug/L | <0.20 | 0.40 | 08/11/16 20:30 | |
| Trichlorofluoromethane | ug/L | <0.33 | 1.0 | 08/11/16 20:30 | |
| Vinyl chloride | ug/L | <0.29 | 0.40 | 08/11/16 20:30 | |
| Xylene (Total) | ug/L | <0.32 | 3.0 | 08/11/16 20:30 | |
| 1,2-Dichloroethane-d4 (S) | %. | 106 | 75-125 | 08/11/16 20:30 | |
| 4-Bromofluorobenzene (S) | %. | 105 | 75-125 | 08/11/16 20:30 | |
| Toluene-d8 (S) | %. | 103 | 75-125 | 08/11/16 20:30 | |

LABORATORY CONTROL SAMPLE: 2339728

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/L | 20 | 18.0 | 90 | 75-125 | |
| 1,1,1-Trichloroethane | ug/L | 20 | 16.0 | 80 | 73-125 | |
| 1,1,2,2-Tetrachloroethane | ug/L | 20 | 19.2 | 96 | 75-128 | |
| 1,1,2-Trichloroethane | ug/L | 20 | 19.5 | 97 | 75-129 | |
| 1,1,2-Trichlorotrifluoroethane | ug/L | 20 | 18.6 | 93 | 69-125 | |
| 1,1-Dichloroethane | ug/L | 20 | 18.4 | 92 | 75-131 | |
| 1,1-Dichloroethene | ug/L | 20 | 17.7 | 88 | 72-125 | |
| 1,1-Dichloropropene | ug/L | 20 | 16.3 | 82 | 74-125 | |
| 1,2,3-Trichlorobenzene | ug/L | 20 | 19.4 | 97 | 68-127 | |
| 1,2,3-Trichloropropane | ug/L | 20 | 20.0 | 100 | 75-125 | |
| 1,2,4-Trichlorobenzene | ug/L | 20 | 17.8 | 89 | 70-125 | |

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EPA-R5-2017-010506_0002778

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

LABORATORY CONTROL SAMPLE: 2339728

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2,4-Trimethylbenzene | ug/L | 20 | 20.6 | 103 | 75-130 | |
| 1,2-Dibromo-3-chloropropane | ug/L | 50 | 43.0 | 86 | 74-125 | |
| 1,2-Dibromoethane (EDB) | ug/L | 20 | 18.9 | 94 | 75-125 | |
| 1,2-Dichlorobenzene | ug/L | 20 | 19.8 | 99 | 75-125 | |
| 1,2-Dichloroethane | ug/L | 20 | 17.4 | 87 | 72-129 | |
| 1,2-Dichloropropane | ug/L | 20 | 17.1 | 86 | 71-129 | |
| 1,3,5-Trimethylbenzene | ug/L | 20 | 19.8 | 99 | 75-127 | |
| 1,3-Dichlorobenzene | ug/L | 20 | 19.0 | 95 | 75-125 | |
| 1,3-Dichloropropane | ug/L | 20 | 19.3 | 97 | 75-125 | |
| 1,4-Dichlorobenzene | ug/L | 20 | 19.1 | 96 | 75-125 | |
| 2,2-Dichloropropane | ug/L | 20 | 15.0 | 75 | 71-125 | |
| 2-Butanone (MEK) | ug/L | 100 | 88.3 | 88 | 58-150 | |
| 2-Chlorotoluene | ug/L | 20 | 19.5 | 97 | 75-125 | |
| 4-Chlorotoluene | ug/L | 20 | 19.9 | 99 | 75-130 | |
| 4-Methyl-2-pentanone (MIBK) | ug/L | 100 | 95.4 | 95 | 72-140 | |
| Acetone | ug/L | 100 | 102 | 102 | 69-137 | |
| Allyl chloride | ug/L | 20 | 18.9 | 94 | 68-132 | |
| Benzene | ug/L | 20 | 18.2 | 91 | 75-125 | |
| Bromobenzene | ug/L | 20 | 20.3 | 102 | 75-125 | |
| Bromochloromethane | ug/L | 20 | 19.0 | 95 | 75-125 | |
| Bromodichloromethane | ug/L | 20 | 18.7 | 93 | 69-128 | |
| Bromoform | ug/L | 20 | 14.6 | 73 | 75-125 | L0 |
| Bromomethane | ug/L | 20 | 19.9 | 100 | 30-150 | |
| Carbon tetrachloride | ug/L | 20 | 16.8 | 84 | 74-125 | |
| Chlorobenzene | ug/L | 20 | 18.8 | 94 | 75-125 | |
| Chloroethane | ug/L | 20 | 18.7 | 94 | 60-150 | |
| Chloroform | ug/L | 20 | 18.6 | 93 | 75-126 | |
| Chloromethane | ug/L | 20 | 18.5 | 93 | 46-150 | |
| cis-1,2-Dichloroethene | ug/L | 20 | 18.9 | 94 | 75-126 | |
| cis-1,3-Dichloropropene | ug/L | 20 | 17.3 | 86 | 75-125 | |
| Dibromochloromethane | ug/L | 20 | 17.0 | 85 | 75-125 | |
| Dibromomethane | ug/L | 20 | 18.2 | 91 | 72-127 | |
| Dichlorodifluoromethane | ug/L | 20 | 17.1 | 86 | 58-135 | |
| Dichlorofluoromethane | ug/L | 20 | 19.3 | 96 | 68-149 | |
| Diethyl ether (Ethyl ether) | ug/L | 20 | 19.7 | 99 | 66-144 | |
| Ethylbenzene | ug/L | 20 | 18.0 | 90 | 75-125 | |
| Hexachloro-1,3-butadiene | ug/L | 20 | 19.7 | 98 | 73-125 | |
| Isopropylbenzene (Cumene) | ug/L | 20 | 18.8 | 94 | 69-140 | |
| Methyl-tert-butyl ether | ug/L | 20 | 16.3 | 81 | 75-126 | |
| Methylene Chloride | ug/L | 20 | 17.7 | 88 | 71-130 | |
| n-Butylbenzene | ug/L | 20 | 19.3 | 97 | 71-129 | |
| n-Propylbenzene | ug/L | 20 | 18.9 | 95 | 71-133 | |
| Naphthalene | ug/L | 20 | 18.7 | 94 | 59-137 | |
| p-Isopropyltoluene | ug/L | 20 | 21.0 | 105 | 74-127 | |
| sec-Butylbenzene | ug/L | 20 | 19.0 | 95 | 66-140 | |
| Styrene | ug/L | 20 | 20.4 | 102 | 75-125 | |
| tert-Butylbenzene | ug/L | 20 | 19.1 | 96 | 73-129 | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

LABORATORY CONTROL SAMPLE: 2339728

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Tetrachloroethene | ug/L | 20 | 18.1 | 90 | 75-125 | |
| Tetrahydrofuran | ug/L | 200 | 229 | 114 | 71-129 | |
| Toluene | ug/L | 20 | 17.8 | 89 | 75-125 | |
| trans-1,2-Dichloroethene | ug/L | 20 | 15.7 | 78 | 75-125 | |
| trans-1,3-Dichloropropene | ug/L | 20 | 17.9 | 90 | 75-125 | |
| Trichloroethene | ug/L | 20 | 18.5 | 93 | 75-125 | |
| Trichlorofluoromethane | ug/L | 20 | 17.2 | 86 | 74-128 | |
| Vinyl chloride | ug/L | 20 | 17.1 | 85 | 71-131 | |
| Xylene (Total) | ug/L | 60 | 56.2 | 94 | 75-125 | |
| 1,2-Dichloroethane-d4 (S) | %. | | | 105 | 75-125 | |
| 4-Bromofluorobenzene (S) | %. | | | 98 | 75-125 | |
| Toluene-d8 (S) | %. | | | 102 | 75-125 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2341621 2341622

| Parameter | Units | 10358621001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/L | <0.17 | 20 | 20 | 17.3 | 21.2 | 86 | 106 | 75-125 | 20 | 30 | |
| 1,1,1-Trichloroethane | ug/L | <0.17 | 20 | 20 | 18.0 | 22.5 | 90 | 112 | 71-144 | 22 | 30 | |
| 1,1,2,2-Tetrachloroethane | ug/L | <0.22 | 20 | 20 | 20.0 | 24.8 | 100 | 124 | 75-131 | 22 | 30 | |
| 1,1,2-Trichloroethane | ug/L | <0.15 | 20 | 20 | 19.6 | 24.1 | 98 | 121 | 75-125 | 21 | 30 | |
| 1,1,2-Trichlorotrifluoroethane | ug/L | <0.32 | 20 | 20 | 18.4 | 20.3 | 92 | 102 | 75-150 | 10 | 30 | |
| 1,1-Dichloroethane | ug/L | <0.17 | 20 | 20 | 24.0 | 22.0 | 120 | 110 | 64-150 | 9 | 30 | |
| 1,1-Dichloroethene | ug/L | <0.28 | 20 | 20 | 19.8 | 25.4 | 99 | 127 | 68-150 | 25 | 30 | |
| 1,1-Dichloropropene | ug/L | <0.23 | 20 | 20 | 17.7 | 20.3 | 89 | 101 | 68-145 | 14 | 30 | |
| 1,2,3-Trichlorobenzene | ug/L | <0.21 | 20 | 20 | 16.6 | 20.1 | 83 | 100 | 57-142 | 19 | 30 | |
| 1,2,3-Trichloropropane | ug/L | <0.28 | 20 | 20 | 20.0 | 24.8 | 100 | 124 | 75-125 | 21 | 30 | |
| 1,2,4-Trichlorobenzene | ug/L | <0.21 | 20 | 20 | 16.1 | 18.0 | 81 | 90 | 60-135 | 11 | 30 | |
| 1,2,4-Trimethylbenzene | ug/L | <0.18 | 20 | 20 | 18.9 | 21.8 | 95 | 109 | 67-148 | 14 | 30 | |
| 1,2-Dibromo-3-chloropropane | ug/L | <0.60 | 50 | 50 | 39.1 | 49.6 | 78 | 99 | 32-137 | 24 | 30 | |
| 1,2-Dibromoethane (EDB) | ug/L | <0.20 | 20 | 20 | 19.2 | 23.9 | 96 | 119 | 75-125 | 21 | 30 | |
| 1,2-Dichlorobenzene | ug/L | <0.17 | 20 | 20 | 18.7 | 22.2 | 93 | 111 | 75-125 | 17 | 30 | |
| 1,2-Dichloroethane | ug/L | <0.17 | 20 | 20 | 17.1 | 21.2 | 86 | 106 | 62-138 | 21 | 30 | |
| 1,2-Dichloropropane | ug/L | <0.22 | 20 | 20 | 17.4 | 22.2 | 87 | 111 | 62-144 | 25 | 30 | |
| 1,3,5-Trimethylbenzene | ug/L | <0.27 | 20 | 20 | 19.2 | 22.0 | 96 | 110 | 67-148 | 13 | 30 | |
| 1,3-Dichlorobenzene | ug/L | <0.12 | 20 | 20 | 17.7 | 20.0 | 89 | 100 | 74-131 | 12 | 30 | |
| 1,3-Dichloropropane | ug/L | <0.096 | 20 | 20 | 19.6 | 24.4 | 98 | 122 | 75-127 | 22 | 30 | |
| 1,4-Dichlorobenzene | ug/L | <0.21 | 20 | 20 | 18.0 | 20.8 | 90 | 104 | 74-126 | 15 | 30 | |
| 2,2-Dichloropropane | ug/L | <0.13 | 20 | 20 | 15.6 | 19.7 | 78 | 99 | 56-146 | 23 | 30 | |
| 2-Butanone (MEK) | ug/L | <1.1 | 100 | 100 | 79.7 | 101 | 80 | 101 | 47-150 | 23 | 30 | |
| 2-Chlorotoluene | ug/L | <0.30 | 20 | 20 | 19.1 | 22.2 | 96 | 111 | 74-137 | 15 | 30 | |
| 4-Chlorotoluene | ug/L | <0.26 | 20 | 20 | 19.0 | 21.4 | 95 | 107 | 72-138 | 12 | 30 | |
| 4-Methyl-2-pentanone (MIBK) | ug/L | <0.43 | 100 | 100 | 88.9 | 112 | 89 | 112 | 60-147 | 23 | 30 | |
| Acetone | ug/L | 2.4J | 100 | 100 | 99.9 | 126 | 98 | 123 | 61-150 | 23 | 30 | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2341621 2341622

| Parameter | Units | 10358621001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Allyl chloride | ug/L | <0.25 | 20 | 20 | 19.3 | 23.4 | 97 | 117 | 53-150 | 19 | 30 | |
| Benzene | ug/L | 0.75J | 20 | 20 | 17.8 | 22.5 | 85 | 109 | 52-147 | 23 | 30 | |
| Bromobenzene | ug/L | <0.34 | 20 | 20 | 19.8 | 23.6 | 99 | 118 | 75-129 | 17 | 30 | |
| Bromochloromethane | ug/L | <0.19 | 20 | 20 | 18.4 | 23.1 | 92 | 115 | 72-128 | 22 | 30 | |
| Bromodichloromethane | ug/L | <0.24 | 20 | 20 | 18.1 | 22.6 | 91 | 113 | 65-137 | 22 | 30 | |
| Bromoform | ug/L | <0.27 | 20 | 20 | 15.2 | 19.1 | 76 | 95 | 59-133 | 23 | 30 | |
| Bromomethane | ug/L | <0.44 | 20 | 20 | 18.5 | 24.5 | 93 | 123 | 30-150 | 28 | 30 | |
| Carbon tetrachloride | ug/L | <0.20 | 20 | 20 | 17.6 | 21.5 | 88 | 108 | 73-144 | 20 | 30 | |
| Chlorobenzene | ug/L | <0.11 | 20 | 20 | 18.0 | 21.7 | 90 | 109 | 75-126 | 19 | 30 | |
| Chloroethane | ug/L | <0.34 | 20 | 20 | 17.1 | 21.0 | 86 | 105 | 55-150 | 21 | 30 | |
| Chloroform | ug/L | <0.21 | 20 | 20 | 18.7 | 22.6 | 93 | 113 | 66-143 | 19 | 30 | |
| Chloromethane | ug/L | <0.25 | 20 | 20 | 20.3 | 23.0 | 101 | 115 | 42-150 | 12 | 30 | |
| cis-1,2-Dichloroethene | ug/L | <0.12 | 20 | 20 | 17.7 | 21.6 | 88 | 108 | 65-143 | 20 | 30 | |
| cis-1,3-Dichloropropene | ug/L | <0.15 | 20 | 20 | 16.4 | 20.4 | 82 | 102 | 75-125 | 22 | 30 | |
| Dibromochloromethane | ug/L | <0.16 | 20 | 20 | 16.6 | 20.5 | 83 | 103 | 75-125 | 21 | 30 | |
| Dibromomethane | ug/L | <0.19 | 20 | 20 | 18.1 | 22.5 | 91 | 113 | 66-133 | 22 | 30 | |
| Dichlorodifluoromethane | ug/L | <0.23 | 20 | 20 | 18.8 | 22.0 | 94 | 110 | 74-150 | 16 | 30 | |
| Dichlorofluoromethane | ug/L | <0.21 | 20 | 20 | 18.5 | 22.5 | 93 | 112 | 68-150 | 19 | 30 | |
| Diethyl ether (Ethyl ether) | ug/L | <0.19 | 20 | 20 | 18.8 | 24.7 | 94 | 124 | 57-148 | 27 | 30 | |
| Ethylbenzene | ug/L | <0.15 | 20 | 20 | 17.8 | 20.5 | 89 | 102 | 67-149 | 14 | 30 | |
| Hexachloro-1,3-butadiene | ug/L | <0.18 | 20 | 20 | 18.2 | 21.2 | 91 | 106 | 65-143 | 15 | 30 | |
| Isopropylbenzene (Cumene) | ug/L | <0.25 | 20 | 20 | 18.5 | 22.1 | 93 | 111 | 64-150 | 18 | 30 | |
| Methyl-tert-butyl ether | ug/L | <0.15 | 20 | 20 | 20.5 | 19.7 | 103 | 98 | 71-130 | 4 | 30 | |
| Methylene Chloride | ug/L | <0.29 | 20 | 20 | 21.1 | 22.9 | 106 | 114 | 67-137 | 8 | 30 | |
| n-Butylbenzene | ug/L | <0.16 | 20 | 20 | 17.8 | 19.6 | 89 | 98 | 70-138 | 10 | 30 | |
| n-Propylbenzene | ug/L | <0.23 | 20 | 20 | 19.0 | 21.4 | 95 | 107 | 70-148 | 12 | 30 | |
| Naphthalene | ug/L | <0.20 | 20 | 20 | 16.9 | 20.8 | 84 | 104 | 39-150 | 21 | 30 | |
| p-Isopropyltoluene | ug/L | <0.19 | 20 | 20 | 19.3 | 21.7 | 96 | 109 | 74-138 | 12 | 30 | |
| sec-Butylbenzene | ug/L | <0.19 | 20 | 20 | 19.5 | 22.2 | 97 | 111 | 64-150 | 13 | 30 | |
| Styrene | ug/L | <0.29 | 20 | 20 | 19.2 | 22.7 | 96 | 113 | 75-132 | 17 | 30 | |
| tert-Butylbenzene | ug/L | <0.22 | 20 | 20 | 19.7 | 23.6 | 99 | 118 | 75-138 | 18 | 30 | |
| Tetrachloroethene | ug/L | <0.25 | 20 | 20 | 17.8 | 19.5 | 89 | 98 | 73-136 | 9 | 30 | |
| Tetrahydrofuran | ug/L | <1.5 | 200 | 200 | 181 | 274 | 90 | 137 | 68-142 | 41 | 30 | R1 |
| Toluene | ug/L | <0.14 | 20 | 20 | 18.1 | 22.0 | 91 | 110 | 69-139 | 19 | 30 | |
| trans-1,2-Dichloroethene | ug/L | <0.16 | 20 | 20 | 20.5 | 19.3 | 103 | 97 | 75-135 | 6 | 30 | |
| trans-1,3-Dichloropropene | ug/L | <0.15 | 20 | 20 | 17.5 | 22.2 | 88 | 111 | 66-136 | 24 | 30 | |
| Trichloroethene | ug/L | <0.20 | 20 | 20 | 17.7 | 21.8 | 89 | 109 | 74-135 | 21 | 30 | |
| Trichlorofluoromethane | ug/L | <0.33 | 20 | 20 | 18.9 | 23.5 | 94 | 118 | 75-150 | 22 | 30 | |
| Vinyl chloride | ug/L | <0.29 | 20 | 20 | 18.3 | 22.7 | 92 | 114 | 69-150 | 22 | 30 | |
| Xylene (Total) | ug/L | <0.32 | 60 | 60 | 56.0 | 65.5 | 93 | 109 | 70-147 | 16 | 30 | |
| 1,2-Dichloroethane-d4 (S) | %. | | | | | | 106 | 106 | 75-125 | | | |
| 4-Bromofluorobenzene (S) | %. | | | | | | 102 | 99 | 75-125 | | | |
| Toluene-d8 (S) | %. | | | | | | 105 | 104 | 75-125 | | | |

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(612)607-1700

# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

QC Batch: 430041 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV 465 W
Associated Lab Samples: 10358621004, 10358621005, 10358621006, 10358621010

METHOD BLANK: 2339729 Matrix: Water
Associated Lab Samples: 10358621004, 10358621005, 10358621006, 10358621010

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/L | <0.17 | 4.0 | 08/12/16 05:28 | |
| 1,1,1-Trichloroethane | ug/L | <0.17 | 1.0 | 08/12/16 05:28 | |
| 1,1,2,2-Tetrachloroethane | ug/L | <0.22 | 1.0 | 08/12/16 05:28 | |
| 1,1,2-Trichloroethane | ug/L | <0.15 | 1.0 | 08/12/16 05:28 | |
| 1,1,2-Trichlorotrifluoroethane | ug/L | <0.32 | 1.0 | 08/12/16 05:28 | |
| 1,1-Dichloroethane | ug/L | <0.17 | 4.0 | 08/12/16 05:28 | |
| 1,1-Dichloroethene | ug/L | <0.28 | 1.0 | 08/12/16 05:28 | |
| 1,1-Dichloropropene | ug/L | <0.23 | 1.0 | 08/12/16 05:28 | |
| 1,2,3-Trichlorobenzene | ug/L | <0.21 | 1.0 | 08/12/16 05:28 | |
| 1,2,3-Trichloropropane | ug/L | <0.28 | 4.0 | 08/12/16 05:28 | |
| 1,2,4-Trichlorobenzene | ug/L | <0.21 | 1.0 | 08/12/16 05:28 | |
| 1,2,4-Trimethylbenzene | ug/L | <0.18 | 1.0 | 08/12/16 05:28 | |
| 1,2-Dibromo-3-chloropropane | ug/L | <0.60 | 10.0 | 08/12/16 05:28 | |
| 1,2-Dibromoethane (EDB) | ug/L | <0.20 | 1.0 | 08/12/16 05:28 | |
| 1,2-Dichlorobenzene | ug/L | <0.17 | 1.0 | 08/12/16 05:28 | |
| 1,2-Dichloroethane | ug/L | <0.17 | 1.0 | 08/12/16 05:28 | |
| 1,2-Dichloropropane | ug/L | <0.22 | 4.0 | 08/12/16 05:28 | |
| 1,3,5-Trimethylbenzene | ug/L | <0.27 | 1.0 | 08/12/16 05:28 | |
| 1,3-Dichlorobenzene | ug/L | <0.12 | 1.0 | 08/12/16 05:28 | |
| 1,3-Dichloropropane | ug/L | <0.096 | 1.0 | 08/12/16 05:28 | |
| 1,4-Dichlorobenzene | ug/L | <0.21 | 1.0 | 08/12/16 05:28 | |
| 2,2-Dichloropropane | ug/L | <0.13 | 4.0 | 08/12/16 05:28 | |
| 2-Butanone (MEK) | ug/L | <1.1 | 5.0 | 08/12/16 05:28 | |
| 2-Chlorotoluene | ug/L | <0.30 | 1.0 | 08/12/16 05:28 | |
| 4-Chlorotoluene | ug/L | <0.26 | 1.0 | 08/12/16 05:28 | |
| 4-Methyl-2-pentanone (MIBK) | ug/L | <0.43 | 5.0 | 08/12/16 05:28 | |
| Acetone | ug/L | 1.7J | 20.0 | 08/12/16 05:28 | |
| Allyl chloride | ug/L | <0.25 | 4.0 | 08/12/16 05:28 | |
| Benzene | ug/L | <0.16 | 1.0 | 08/12/16 05:28 | |
| Bromobenzene | ug/L | <0.34 | 1.0 | 08/12/16 05:28 | |
| Bromochloromethane | ug/L | <0.19 | 1.0 | 08/12/16 05:28 | |
| Bromodichloromethane | ug/L | <0.24 | 1.0 | 08/12/16 05:28 | |
| Bromoform | ug/L | <0.27 | 10.0 | 08/12/16 05:28 | |
| Bromomethane | ug/L | <0.44 | 4.0 | 08/12/16 05:28 | |
| Carbon tetrachloride | ug/L | <0.20 | 4.0 | 08/12/16 05:28 | |
| Chlorobenzene | ug/L | <0.11 | 1.0 | 08/12/16 05:28 | |
| Chloroethane | ug/L | <0.34 | 4.0 | 08/12/16 05:28 | |
| Chloroform | ug/L | <0.21 | 1.0 | 08/12/16 05:28 | |
| Chloromethane | ug/L | <0.25 | 4.0 | 08/12/16 05:28 | |
| cis-1,2-Dichloroethene | ug/L | <0.12 | 1.0 | 08/12/16 05:28 | |
| cis-1,3-Dichloropropene | ug/L | <0.15 | 4.0 | 08/12/16 05:28 | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

METHOD BLANK: 2339729 Matrix: Water
Associated Lab Samples: 10358621004, 10358621005, 10358621006, 10358621010

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Dibromochloromethane | ug/L | <0.16 | 4.0 | 08/12/16 05:28 | |
| Dibromomethane | ug/L | <0.19 | 4.0 | 08/12/16 05:28 | |
| Dichlorodifluoromethane | ug/L | <0.23 | 1.0 | 08/12/16 05:28 | |
| Dichlorofluoromethane | ug/L | <0.21 | 1.0 | 08/12/16 05:28 | |
| Diethyl ether (Ethyl ether) | ug/L | <0.19 | 4.0 | 08/12/16 05:28 | |
| Ethylbenzene | ug/L | <0.15 | 1.0 | 08/12/16 05:28 | |
| Hexachloro-1,3-butadiene | ug/L | <0.18 | 4.0 | 08/12/16 05:28 | |
| Isopropylbenzene (Cumene) | ug/L | <0.25 | 1.0 | 08/12/16 05:28 | |
| Methyl-tert-butyl ether | ug/L | <0.15 | 1.0 | 08/12/16 05:28 | |
| Methylene Chloride | ug/L | <0.29 | 4.0 | 08/12/16 05:28 | |
| n-Butylbenzene | ug/L | <0.16 | 1.0 | 08/12/16 05:28 | |
| n-Propylbenzene | ug/L | <0.23 | 1.0 | 08/12/16 05:28 | |
| Naphthalene | ug/L | <0.20 | 4.0 | 08/12/16 05:28 | |
| p-Isopropyltoluene | ug/L | <0.19 | 1.0 | 08/12/16 05:28 | |
| sec-Butylbenzene | ug/L | <0.19 | 1.0 | 08/12/16 05:28 | |
| Styrene | ug/L | <0.29 | 1.0 | 08/12/16 05:28 | |
| tert-Butylbenzene | ug/L | <0.22 | 1.0 | 08/12/16 05:28 | |
| Tetrachloroethene | ug/L | <0.25 | 1.0 | 08/12/16 05:28 | |
| Tetrahydrofuran | ug/L | <1.5 | 10.0 | 08/12/16 05:28 | |
| Toluene | ug/L | 0.20J | 1.0 | 08/12/16 05:28 | |
| trans-1,2-Dichloroethene | ug/L | <0.16 | 1.0 | 08/12/16 05:28 | |
| trans-1,3-Dichloropropene | ug/L | <0.15 | 4.0 | 08/12/16 05:28 | |
| Trichloroethene | ug/L | <0.20 | 0.40 | 08/12/16 05:28 | |
| Trichlorofluoromethane | ug/L | <0.33 | 1.0 | 08/12/16 05:28 | |
| Vinyl chloride | ug/L | <0.29 | 0.40 | 08/12/16 05:28 | |
| Xylene (Total) | ug/L | <0.32 | 3.0 | 08/12/16 05:28 | |
| 1,2-Dichloroethane-d4 (S) | %. | 103 | 75-125 | 08/12/16 05:28 | |
| 4-Bromofluorobenzene (S) | %. | 104 | 75-125 | 08/12/16 05:28 | |
| Toluene-d8 (S) | %. | 107 | 75-125 | 08/12/16 05:28 | |

LABORATORY CONTROL SAMPLE: 2339730

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/L | 20 | 17.3 | 87 | 75-125 | |
| 1,1,1-Trichloroethane | ug/L | 20 | 16.5 | 83 | 73-125 | |
| 1,1,2,2-Tetrachloroethane | ug/L | 20 | 20.9 | 105 | 75-128 | |
| 1,1,2-Trichloroethane | ug/L | 20 | 19.8 | 99 | 75-129 | |
| 1,1,2-Trichlorotrifluoroethane | ug/L | 20 | 20.7 | 103 | 69-125 | |
| 1,1-Dichloroethane | ug/L | 20 | 20.2 | 101 | 75-131 | |
| 1,1-Dichloroethene | ug/L | 20 | 21.1 | 105 | 72-125 | |
| 1,1-Dichloropropene | ug/L | 20 | 16.6 | 83 | 74-125 | |
| 1,2,3-Trichlorobenzene | ug/L | 20 | 19.5 | 97 | 68-127 | |
| 1,2,3-Trichloropropane | ug/L | 20 | 21.0 | 105 | 75-125 | |
| 1,2,4-Trichlorobenzene | ug/L | 20 | 19.3 | 96 | 70-125 | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

LABORATORY CONTROL SAMPLE: 2339730

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2,4-Trimethylbenzene | ug/L | 20 | 21.8 | 109 | 75-130 | |
| 1,2-Dibromo-3-chloropropane | ug/L | 50 | 42.6 | 85 | 74-125 | |
| 1,2-Dibromoethane (EDB) | ug/L | 20 | 20.1 | 101 | 75-125 | |
| 1,2-Dichlorobenzene | ug/L | 20 | 21.0 | 105 | 75-125 | |
| 1,2-Dichloroethane | ug/L | 20 | 17.1 | 86 | 72-129 | |
| 1,2-Dichloropropane | ug/L | 20 | 17.5 | 88 | 71-129 | |
| 1,3,5-Trimethylbenzene | ug/L | 20 | 21.8 | 109 | 75-127 | |
| 1,3-Dichlorobenzene | ug/L | 20 | 19.8 | 99 | 75-125 | |
| 1,3-Dichloropropane | ug/L | 20 | 20.4 | 102 | 75-125 | |
| 1,4-Dichlorobenzene | ug/L | 20 | 20.1 | 100 | 75-125 | |
| 2,2-Dichloropropane | ug/L | 20 | 16.1 | 81 | 71-125 | |
| 2-Butanone (MEK) | ug/L | 100 | 82.5 | 82 | 58-150 | |
| 2-Chlorotoluene | ug/L | 20 | 20.9 | 105 | 75-125 | |
| 4-Chlorotoluene | ug/L | 20 | 20.7 | 104 | 75-130 | |
| 4-Methyl-2-pentanone (MIBK) | ug/L | 100 | 92.9 | 93 | 72-140 | |
| Acetone | ug/L | 100 | 115 | 115 | 69-137 | |
| Allyl chloride | ug/L | 20 | 18.2 | 91 | 68-132 | |
| Benzene | ug/L | 20 | 18.3 | 92 | 75-125 | |
| Bromobenzene | ug/L | 20 | 21.1 | 106 | 75-125 | |
| Bromochloromethane | ug/L | 20 | 21.7 | 109 | 75-125 | |
| Bromodichloromethane | ug/L | 20 | 18.1 | 90 | 69-128 | |
| Bromoform | ug/L | 20 | 14.6 | 73 | 75-125 | L0 |
| Bromomethane | ug/L | 20 | 20.9 | 105 | 30-150 | |
| Carbon tetrachloride | ug/L | 20 | 17.0 | 85 | 74-125 | |
| Chlorobenzene | ug/L | 20 | 19.2 | 96 | 75-125 | |
| Chloroethane | ug/L | 20 | 19.6 | 98 | 60-150 | |
| Chloroform | ug/L | 20 | 19.0 | 95 | 75-126 | |
| Chloromethane | ug/L | 20 | 20.0 | 100 | 46-150 | |
| cis-1,2-Dichloroethene | ug/L | 20 | 23.1 | 116 | 75-126 | |
| cis-1,3-Dichloropropene | ug/L | 20 | 17.0 | 85 | 75-125 | |
| Dibromochloromethane | ug/L | 20 | 16.6 | 83 | 75-125 | |
| Dibromomethane | ug/L | 20 | 18.0 | 90 | 72-127 | |
| Dichlorodifluoromethane | ug/L | 20 | 17.4 | 87 | 58-135 | |
| Dichlorofluoromethane | ug/L | 20 | 19.7 | 99 | 68-149 | |
| Diethyl ether (Ethyl ether) | ug/L | 20 | 22.2 | 111 | 66-144 | |
| Ethylbenzene | ug/L | 20 | 18.7 | 93 | 75-125 | |
| Hexachloro-1,3-butadiene | ug/L | 20 | 20.2 | 101 | 73-125 | |
| Isopropylbenzene (Cumene) | ug/L | 20 | 19.3 | 97 | 69-140 | |
| Methyl-tert-butyl ether | ug/L | 20 | 17.3 | 87 | 75-126 | |
| Methylene Chloride | ug/L | 20 | 17.6 | 88 | 71-130 | |
| n-Butylbenzene | ug/L | 20 | 20.5 | 103 | 71-129 | |
| n-Propylbenzene | ug/L | 20 | 20.5 | 103 | 71-133 | |
| Naphthalene | ug/L | 20 | 20.3 | 102 | 59-137 | |
| p-Isopropyltoluene | ug/L | 20 | 22.5 | 113 | 74-127 | |
| sec-Butylbenzene | ug/L | 20 | 20.9 | 105 | 66-140 | |
| Styrene | ug/L | 20 | 21.1 | 106 | 75-125 | |
| tert-Butylbenzene | ug/L | 20 | 20.1 | 101 | 73-129 | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

LABORATORY CONTROL SAMPLE: 2339730

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Tetrachloroethene | ug/L | 20 | 18.2 | 91 | 75-125 | |
| Tetrahydrofuran | ug/L | 200 | 252 | 126 | 71-129 | |
| Toluene | ug/L | 20 | 19.2 | 96 | 75-125 | |
| trans-1,2-Dichloroethene | ug/L | 20 | 15.6 | 78 | 75-125 | |
| trans-1,3-Dichloropropene | ug/L | 20 | 16.7 | 83 | 75-125 | |
| Trichloroethene | ug/L | 20 | 18.6 | 93 | 75-125 | |
| Trichlorofluoromethane | ug/L | 20 | 17.6 | 88 | 74-128 | |
| Vinyl chloride | ug/L | 20 | 17.5 | 87 | 71-131 | |
| Xylene (Total) | ug/L | 60 | 59.0 | 98 | 75-125 | |
| 1,2-Dichloroethane-d4 (S) | %. | | | 104 | 75-125 | |
| 4-Bromofluorobenzene (S) | %. | | | 102 | 75-125 | |
| Toluene-d8 (S) | %. | | | 107 | 75-125 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2343935 2343936

| Parameter | Units | 10359186001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/L | ND | 20 | 20 | 16.3 | 13.8 | 81 | 69 | 75-125 | 16 | 30 | M1 |
| 1,1,1-Trichloroethane | ug/L | ND | 20 | 20 | 18.0 | 14.5 | 90 | 72 | 71-144 | 22 | 30 | |
| 1,1,2,2-Tetrachloroethane | ug/L | ND | 20 | 20 | 20.4 | 16.9 | 102 | 85 | 75-131 | 18 | 30 | |
| 1,1,2-Trichloroethane | ug/L | ND | 20 | 20 | 20.0 | 16.7 | 99 | 82 | 75-125 | 18 | 30 | |
| 1,1,2-Trichlorotrifluoroethane | ug/L | ND | 20 | 20 | 21.7 | 15.8 | 109 | 79 | 75-150 | 32 | 30 | R1 |
| 1,1-Dichloroethane | ug/L | ND | 20 | 20 | 22.3 | 16.0 | 111 | 80 | 64-150 | 33 | 30 | R1 |
| 1,1-Dichloroethene | ug/L | ND | 20 | 20 | 21.6 | 17.0 | 108 | 85 | 68-150 | 24 | 30 | |
| 1,1-Dichloropropene | ug/L | ND | 20 | 20 | 18.7 | 14.8 | 93 | 74 | 68-145 | 23 | 30 | |
| 1,2,3-Trichlorobenzene | ug/L | ND | 20 | 20 | 19.4 | 14.8 | 93 | 70 | 57-142 | 27 | 30 | |
| 1,2,3-Trichloropropane | ug/L | ND | 20 | 20 | 20.4 | 17.6 | 102 | 88 | 75-125 | 14 | 30 | |
| 1,2,4-Trichlorobenzene | ug/L | ND | 20 | 20 | 20.2 | 14.4 | 98 | 69 | 60-135 | 33 | 30 | R1 |
| 1,2,4-Trimethylbenzene | ug/L | 34.2 | 20 | 20 | 58.3 | 50.8 | 121 | 83 | 67-148 | 14 | 30 | |
| 1,2-Dibromo-3-chloropropane | ug/L | ND | 50 | 50 | 39.8 | 33.2 | 80 | 66 | 32-137 | 18 | 30 | |
| 1,2-Dibromoethane (EDB) | ug/L | ND | 20 | 20 | 18.8 | 16.1 | 94 | 80 | 75-125 | 16 | 30 | |
| 1,2-Dichlorobenzene | ug/L | ND | 20 | 20 | 20.1 | 15.6 | 100 | 78 | 75-125 | 25 | 30 | |
| 1,2-Dichloroethane | ug/L | ND | 20 | 20 | 17.6 | 14.3 | 86 | 70 | 62-138 | 20 | 30 | |
| 1,2-Dichloropropane | ug/L | ND | 20 | 20 | 17.4 | 14.9 | 87 | 75 | 62-144 | 15 | 30 | |
| 1,3,5-Trimethylbenzene | ug/L | 10.1 | 20 | 20 | 31.8 | 25.5 | 108 | 77 | 67-148 | 22 | 30 | |
| 1,3-Dichlorobenzene | ug/L | ND | 20 | 20 | 19.6 | 14.5 | 97 | 72 | 74-131 | 30 | 30 | M1 |
| 1,3-Dichloropropane | ug/L | ND | 20 | 20 | 19.3 | 16.4 | 97 | 82 | 75-127 | 16 | 30 | |
| 1,4-Dichlorobenzene | ug/L | ND | 20 | 20 | 19.8 | 15.2 | 98 | 75 | 74-126 | 27 | 30 | |
| 2,2-Dichloropropane | ug/L | ND | 20 | 20 | 12.9 | 10.6 | 64 | 53 | 56-146 | 19 | 30 | M1 |
| 2-Butanone (MEK) | ug/L | ND | 100 | 100 | 83.8 | 71.4 | 84 | 71 | 47-150 | 16 | 30 | |
| 2-Chlorotoluene | ug/L | ND | 20 | 20 | 22.1 | 17.0 | 111 | 85 | 74-137 | 26 | 30 | |
| 4-Chlorotoluene | ug/L | ND | 20 | 20 | 20.4 | 15.4 | 102 | 77 | 72-138 | 28 | 30 | |
| 4-Methyl-2-pentanone (MIBK) | ug/L | ND | 100 | 100 | 91.8 | 78.8 | 92 | 79 | 60-147 | 15 | 30 | |
| Acetone | ug/L | ND | 100 | 100 | 107 | 119 | 98 | 110 | 61-150 | 11 | 30 | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2343935 2343936

| Parameter | Units | 10359186001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Allyl chloride | ug/L | ND | 20 | 20 | 20.7 | 15.8 | 103 | 79 | 53-150 | 27 | 30 | |
| Benzene | ug/L | 43.7 | 20 | 20 | 61.9 | 56.0 | 91 | 62 | 52-147 | 10 | 30 | |
| Bromobenzene | ug/L | ND | 20 | 20 | 20.0 | 16.5 | 100 | 83 | 75-129 | 19 | 30 | |
| Bromochloromethane | ug/L | ND | 20 | 20 | 18.4 | 15.0 | 92 | 75 | 72-128 | 21 | 30 | |
| Bromodichloromethane | ug/L | ND | 20 | 20 | 17.0 | 14.3 | 85 | 71 | 65-137 | 18 | 30 | |
| Bromoform | ug/L | ND | 20 | 20 | 14.6 | 12.8 | 73 | 64 | 59-133 | 13 | 30 | |
| Bromomethane | ug/L | ND | 20 | 20 | 17.4 | 18.2 | 87 | 91 | 30-150 | 4 | 30 | |
| Carbon tetrachloride | ug/L | ND | 20 | 20 | 17.7 | 13.8 | 88 | 69 | 73-144 | 25 | 30 | M1 |
| Chlorobenzene | ug/L | ND | 20 | 20 | 19.0 | 15.5 | 95 | 77 | 75-126 | 20 | 30 | |
| Chloroethane | ug/L | ND | 20 | 20 | 16.9 | 15.7 | 84 | 78 | 55-150 | 7 | 30 | |
| Chloroform | ug/L | ND | 20 | 20 | 18.4 | 15.4 | 92 | 77 | 66-143 | 18 | 30 | |
| Chloromethane | ug/L | ND | 20 | 20 | 18.4 | 15.3 | 92 | 77 | 42-150 | 18 | 30 | |
| cis-1,2-Dichloroethene | ug/L | ND | 20 | 20 | 18.4 | 14.8 | 92 | 74 | 65-143 | 22 | 30 | |
| cis-1,3-Dichloropropene | ug/L | ND | 20 | 20 | 16.0 | 13.0 | 80 | 65 | 75-125 | 20 | 30 | M1 |
| Dibromochloromethane | ug/L | ND | 20 | 20 | 16.2 | 13.9 | 81 | 70 | 75-125 | 15 | 30 | M1 |
| Dibromomethane | ug/L | ND | 20 | 20 | 17.4 | 14.4 | 87 | 72 | 66-133 | 19 | 30 | |
| Dichlorodifluoromethane | ug/L | ND | 20 | 20 | 16.4 | 13.5 | 82 | 67 | 74-150 | 20 | 30 | M1 |
| Dichlorofluoromethane | ug/L | ND | 20 | 20 | 18.5 | 15.0 | 92 | 75 | 68-150 | 21 | 30 | |
| Diethyl ether (Ethyl ether) | ug/L | ND | 20 | 20 | 22.1 | 17.1 | 111 | 85 | 57-148 | 26 | 30 | |
| Ethylbenzene | ug/L | 7.8 | 20 | 20 | 27.3 | 22.6 | 97 | 74 | 67-149 | 19 | 30 | |
| Hexachloro-1,3-butadiene | ug/L | ND | 20 | 20 | 22.1 | 17.8 | 108 | 86 | 65-143 | 21 | 30 | |
| Isopropylbenzene (Cumene) | ug/L | 1.3 | 20 | 20 | 22.0 | 17.6 | 104 | 82 | 64-150 | 22 | 30 | |
| Methyl-tert-butyl ether | ug/L | ND | 20 | 20 | 18.3 | 17.6 | 90 | 87 | 71-130 | 4 | 30 | |
| Methylene Chloride | ug/L | ND | 20 | 20 | 19.2 | 14.7 | 96 | 74 | 67-137 | 27 | 30 | |
| n-Butylbenzene | ug/L | 2.8 | 20 | 20 | 26.6 | 19.0 | 119 | 81 | 70-138 | 33 | 30 | R1 |
| n-Propylbenzene | ug/L | 6.1 | 20 | 20 | 27.7 | 22.1 | 108 | 80 | 70-148 | 22 | 30 | |
| Naphthalene | ug/L | 7.7 | 20 | 20 | 25.9 | 21.8 | 91 | 71 | 39-150 | 17 | 30 | |
| p-Isopropyltoluene | ug/L | ND | 20 | 20 | 23.4 | 17.6 | 113 | 84 | 74-138 | 28 | 30 | |
| sec-Butylbenzene | ug/L | 1.3 | 20 | 20 | 22.8 | 18.1 | 107 | 84 | 64-150 | 23 | 30 | |
| Styrene | ug/L | ND | 20 | 20 | 20.4 | 16.8 | 102 | 83 | 75-132 | 20 | 30 | |
| tert-Butylbenzene | ug/L | ND | 20 | 20 | 22.2 | 17.3 | 110 | 85 | 75-138 | 25 | 30 | |
| Tetrachloroethene | ug/L | ND | 20 | 20 | 18.8 | 14.3 | 94 | 71 | 73-136 | 27 | 30 | M1 |
| Tetrahydrofuran | ug/L | ND | 200 | 200 | 218 | 210 | 109 | 105 | 68-142 | 4 | 30 | |
| Toluene | ug/L | 7.1 | 20 | 20 | 26.3 | 22.8 | 96 | 79 | 69-139 | 14 | 30 | |
| trans-1,2-Dichloroethene | ug/L | ND | 20 | 20 | 17.2 | 16.7 | 86 | 83 | 75-135 | 3 | 30 | |
| trans-1,3-Dichloropropene | ug/L | ND | 20 | 20 | 16.7 | 14.3 | 83 | 71 | 66-136 | 15 | 30 | |
| Trichloroethene | ug/L | ND | 20 | 20 | 18.0 | 14.7 | 90 | 74 | 74-135 | 20 | 30 | |
| Trichlorofluoromethane | ug/L | ND | 20 | 20 | 17.7 | 14.7 | 88 | 74 | 75-150 | 18 | 30 | M1 |
| Vinyl chloride | ug/L | ND | 20 | 20 | 17.5 | 14.8 | 87 | 74 | 69-150 | 16 | 30 | |
| Xylene (Total) | ug/L | 65.6 | 60 | 60 | 131 | 113 | 109 | 79 | 70-147 | 15 | 30 | |
| 1,2-Dichloroethane-d4 (S) | %. | | | | | | 106 | 103 | 75-125 | | | |
| 4-Bromofluorobenzene (S) | %. | | | | | | 104 | 100 | 75-125 | | | |
| Toluene-d8 (S) | %. | | | | | | 104 | 107 | 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.**

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

QC Batch: 430893 | Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B | Analysis Description: 8260B MSV 465 W
Associated Lab Samples: 10358621007, 10358621011

METHOD BLANK: 2343919 | Matrix: Water
Associated Lab Samples: 10358621007, 10358621011

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/L | <0.17 | 4.0 | 08/16/16 22:26 | |
| 1,1,1-Trichloroethane | ug/L | <0.17 | 1.0 | 08/16/16 22:26 | |
| 1,1,2,2-Tetrachloroethane | ug/L | <0.22 | 1.0 | 08/16/16 22:26 | |
| 1,1,2-Trichloroethane | ug/L | <0.15 | 1.0 | 08/16/16 22:26 | |
| 1,1,2-Trichlorotrifluoroethane | ug/L | <0.32 | 1.0 | 08/16/16 22:26 | |
| 1,1-Dichloroethane | ug/L | <0.17 | 1.0 | 08/16/16 22:26 | |
| 1,1-Dichloroethene | ug/L | <0.28 | 1.0 | 08/16/16 22:26 | |
| 1,1-Dichloropropene | ug/L | <0.23 | 1.0 | 08/16/16 22:26 | |
| 1,2,3-Trichlorobenzene | ug/L | <0.21 | 1.0 | 08/16/16 22:26 | |
| 1,2,3-Trichloropropane | ug/L | <0.28 | 4.0 | 08/16/16 22:26 | |
| 1,2,4-Trichlorobenzene | ug/L | <0.21 | 1.0 | 08/16/16 22:26 | |
| 1,2,4-Trimethylbenzene | ug/L | <0.18 | 1.0 | 08/16/16 22:26 | |
| 1,2-Dibromo-3-chloropropane | ug/L | <0.60 | 10.0 | 08/16/16 22:26 | |
| 1,2-Dibromoethane (EDB) | ug/L | <0.20 | 1.0 | 08/16/16 22:26 | |
| 1,2-Dichlorobenzene | ug/L | <0.17 | 1.0 | 08/16/16 22:26 | |
| 1,2-Dichloroethane | ug/L | <0.17 | 1.0 | 08/16/16 22:26 | |
| 1,2-Dichloropropane | ug/L | <0.22 | 4.0 | 08/16/16 22:26 | |
| 1,3,5-Trimethylbenzene | ug/L | <0.27 | 1.0 | 08/16/16 22:26 | |
| 1,3-Dichlorobenzene | ug/L | <0.12 | 1.0 | 08/16/16 22:26 | |
| 1,3-Dichloropropane | ug/L | <0.096 | 1.0 | 08/16/16 22:26 | |
| 1,4-Dichlorobenzene | ug/L | <0.21 | 1.0 | 08/16/16 22:26 | |
| 2,2-Dichloropropane | ug/L | <0.13 | 4.0 | 08/16/16 22:26 | |
| 2-Butanone (MEK) | ug/L | <1.1 | 5.0 | 08/16/16 22:26 | |
| 2-Chlorotoluene | ug/L | <0.30 | 1.0 | 08/16/16 22:26 | |
| 4-Chlorotoluene | ug/L | <0.26 | 1.0 | 08/16/16 22:26 | |
| 4-Methyl-2-pentanone (MIBK) | ug/L | <0.43 | 5.0 | 08/16/16 22:26 | |
| Acetone | ug/L | <2.0 | 20.0 | 08/16/16 22:26 | |
| Allyl chloride | ug/L | <0.25 | 4.0 | 08/16/16 22:26 | |
| Benzene | ug/L | <0.16 | 1.0 | 08/16/16 22:26 | |
| Bromobenzene | ug/L | <0.34 | 1.0 | 08/16/16 22:26 | |
| Bromochloromethane | ug/L | <0.19 | 1.0 | 08/16/16 22:26 | |
| Bromodichloromethane | ug/L | <0.24 | 1.0 | 08/16/16 22:26 | |
| Bromoform | ug/L | <0.27 | 4.0 | 08/16/16 22:26 | |
| Bromomethane | ug/L | <0.44 | 4.0 | 08/16/16 22:26 | |
| Carbon tetrachloride | ug/L | <0.20 | 4.0 | 08/16/16 22:26 | |
| Chlorobenzene | ug/L | <0.11 | 1.0 | 08/16/16 22:26 | |
| Chloroethane | ug/L | <0.34 | 1.0 | 08/16/16 22:26 | |
| Chloroform | ug/L | <0.21 | 1.0 | 08/16/16 22:26 | |
| Chloromethane | ug/L | <0.25 | 4.0 | 08/16/16 22:26 | |
| cis-1,2-Dichloroethene | ug/L | <0.12 | 1.0 | 08/16/16 22:26 | |
| cis-1,3-Dichloropropene | ug/L | <0.15 | 4.0 | 08/16/16 22:26 | |

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(612)607-1700

# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

METHOD BLANK: 2343919 Matrix: Water
Associated Lab Samples: 10358621007, 10358621011

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Dibromochloromethane | ug/L | <0.16 | 4.0 | 08/16/16 22:26 | |
| Dibromomethane | ug/L | <0.19 | 4.0 | 08/16/16 22:26 | |
| Dichlorodifluoromethane | ug/L | <0.23 | 1.0 | 08/16/16 22:26 | |
| Dichlorofluoromethane | ug/L | <0.21 | 1.0 | 08/16/16 22:26 | |
| Diethyl ether (Ethyl ether) | ug/L | <0.19 | 4.0 | 08/16/16 22:26 | |
| Ethylbenzene | ug/L | <0.15 | 1.0 | 08/16/16 22:26 | |
| Hexachloro-1,3-butadiene | ug/L | <0.18 | 1.0 | 08/16/16 22:26 | |
| Isopropylbenzene (Cumene) | ug/L | <0.25 | 1.0 | 08/16/16 22:26 | |
| Methyl-tert-butyl ether | ug/L | <0.15 | 1.0 | 08/16/16 22:26 | |
| Methylene Chloride | ug/L | <0.29 | 4.0 | 08/16/16 22:26 | |
| n-Butylbenzene | ug/L | <0.16 | 1.0 | 08/16/16 22:26 | |
| n-Propylbenzene | ug/L | <0.23 | 1.0 | 08/16/16 22:26 | |
| Naphthalene | ug/L | <0.20 | 4.0 | 08/16/16 22:26 | |
| p-Isopropyltoluene | ug/L | <0.19 | 1.0 | 08/16/16 22:26 | |
| sec-Butylbenzene | ug/L | <0.19 | 1.0 | 08/16/16 22:26 | |
| Styrene | ug/L | <0.29 | 1.0 | 08/16/16 22:26 | |
| tert-Butylbenzene | ug/L | <0.22 | 1.0 | 08/16/16 22:26 | |
| Tetrachloroethene | ug/L | <0.25 | 1.0 | 08/16/16 22:26 | |
| Tetrahydrofuran | ug/L | <1.5 | 10.0 | 08/16/16 22:26 | |
| Toluene | ug/L | <0.14 | 1.0 | 08/16/16 22:26 | |
| trans-1,2-Dichloroethene | ug/L | <0.16 | 1.0 | 08/16/16 22:26 | |
| trans-1,3-Dichloropropene | ug/L | <0.15 | 4.0 | 08/16/16 22:26 | |
| Trichloroethene | ug/L | <0.20 | 0.40 | 08/16/16 22:26 | |
| Trichlorofluoromethane | ug/L | <0.33 | 1.0 | 08/16/16 22:26 | |
| Vinyl chloride | ug/L | <0.15 | 1.0 | 08/16/16 22:26 | |
| Xylene (Total) | ug/L | <0.32 | 3.0 | 08/16/16 22:26 | |
| 1,2-Dichloroethane-d4 (S) | %. | 94 | 75-125 | 08/16/16 22:26 | |
| 4-Bromofluorobenzene (S) | %. | 101 | 75-125 | 08/16/16 22:26 | |
| Toluene-d8 (S) | %. | 97 | 75-125 | 08/16/16 22:26 | |

LABORATORY CONTROL SAMPLE: 2343920

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/L | 50 | 53.1 | 106 | 75-125 | |
| 1,1,1-Trichloroethane | ug/L | 50 | 51.8 | 104 | 73-125 | |
| 1,1,2,2-Tetrachloroethane | ug/L | 50 | 49.6 | 99 | 75-128 | |
| 1,1,2-Trichloroethane | ug/L | 50 | 50.9 | 102 | 75-129 | |
| 1,1,2-Trichlorotrifluoroethane | ug/L | 50 | 51.6 | 103 | 69-125 | |
| 1,1-Dichloroethane | ug/L | 50 | 49.9 | 100 | 75-131 | |
| 1,1-Dichloroethene | ug/L | 50 | 46.8 | 94 | 72-125 | |
| 1,1-Dichloropropene | ug/L | 50 | 50.8 | 102 | 74-125 | |
| 1,2,3-Trichlorobenzene | ug/L | 50 | 49.3 | 99 | 68-127 | |
| 1,2,3-Trichloropropane | ug/L | 50 | 49.9 | 100 | 75-125 | |
| 1,2,4-Trichlorobenzene | ug/L | 50 | 50.1 | 100 | 70-125 | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

LABORATORY CONTROL SAMPLE: 2343920

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2,4-Trimethylbenzene | ug/L | 50 | 51.8 | 104 | 75-130 | |
| 1,2-Dibromo-3-chloropropane | ug/L | 125 | 121 | 96 | 74-125 | |
| 1,2-Dibromoethane (EDB) | ug/L | 50 | 52.6 | 105 | 75-125 | |
| 1,2-Dichlorobenzene | ug/L | 50 | 49.6 | 99 | 75-125 | |
| 1,2-Dichloroethane | ug/L | 50 | 47.5 | 95 | 72-129 | |
| 1,2-Dichloropropane | ug/L | 50 | 51.2 | 102 | 71-129 | |
| 1,3,5-Trimethylbenzene | ug/L | 50 | 48.8 | 98 | 75-127 | |
| 1,3-Dichlorobenzene | ug/L | 50 | 47.0 | 94 | 75-125 | |
| 1,3-Dichloropropane | ug/L | 50 | 50.9 | 102 | 75-125 | |
| 1,4-Dichlorobenzene | ug/L | 50 | 44.9 | 90 | 75-125 | |
| 2,2-Dichloropropane | ug/L | 50 | 48.5 | 97 | 71-125 | |
| 2-Butanone (MEK) | ug/L | 250 | 250 | 100 | 58-150 | |
| 2-Chlorotoluene | ug/L | 50 | 49.1 | 98 | 75-125 | |
| 4-Chlorotoluene | ug/L | 50 | 47.3 | 95 | 75-130 | |
| 4-Methyl-2-pentanone (MIBK) | ug/L | 250 | 253 | 101 | 72-140 | |
| Acetone | ug/L | 250 | 249 | 100 | 69-137 | |
| Allyl chloride | ug/L | 50 | 51.8 | 104 | 68-132 | |
| Benzene | ug/L | 50 | 49.8 | 100 | 75-125 | |
| Bromobenzene | ug/L | 50 | 52.1 | 104 | 75-125 | |
| Bromochloromethane | ug/L | 50 | 53.8 | 108 | 75-125 | |
| Bromodichloromethane | ug/L | 50 | 54.6 | 109 | 69-128 | |
| Bromoform | ug/L | 50 | 41.5 | 83 | 75-125 | |
| Bromomethane | ug/L | 50 | 47.4 | 95 | 30-150 | |
| Carbon tetrachloride | ug/L | 50 | 52.8 | 106 | 74-125 | |
| Chlorobenzene | ug/L | 50 | 48.9 | 98 | 75-125 | |
| Chloroethane | ug/L | 50 | 54.8 | 110 | 60-150 | |
| Chloroform | ug/L | 50 | 53.8 | 108 | 75-126 | |
| Chloromethane | ug/L | 50 | 50.0 | 100 | 46-150 | |
| cis-1,2-Dichloroethene | ug/L | 50 | 48.8 | 98 | 75-126 | |
| cis-1,3-Dichloropropene | ug/L | 50 | 52.3 | 105 | 75-125 | |
| Dibromochloromethane | ug/L | 50 | 43.9 | 88 | 75-125 | |
| Dibromomethane | ug/L | 50 | 52.1 | 104 | 72-127 | |
| Dichlorodifluoromethane | ug/L | 50 | 53.3 | 107 | 58-135 | |
| Dichlorofluoromethane | ug/L | 50 | 56.0 | 112 | 68-149 | |
| Diethyl ether (Ethyl ether) | ug/L | 50 | 50.8 | 102 | 66-144 | |
| Ethylbenzene | ug/L | 50 | 47.8 | 96 | 75-125 | |
| Hexachloro-1,3-butadiene | ug/L | 50 | 51.8 | 104 | 73-125 | |
| Isopropylbenzene (Cumene) | ug/L | 50 | 49.3 | 99 | 69-140 | |
| Methyl-tert-butyl ether | ug/L | 50 | 50.7 | 101 | 75-126 | |
| Methylene Chloride | ug/L | 50 | 49.2 | 98 | 71-130 | |
| n-Butylbenzene | ug/L | 50 | 52.1 | 104 | 71-129 | |
| n-Propylbenzene | ug/L | 50 | 47.1 | 94 | 71-133 | |
| Naphthalene | ug/L | 50 | 44.7 | 89 | 59-137 | |
| p-Isopropyltoluene | ug/L | 50 | 52.5 | 105 | 74-127 | |
| sec-Butylbenzene | ug/L | 50 | 47.6 | 95 | 66-140 | |
| Styrene | ug/L | 50 | 49.5 | 99 | 75-125 | |
| tert-Butylbenzene | ug/L | 50 | 47.1 | 94 | 73-129 | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

LABORATORY CONTROL SAMPLE: 2343920

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Tetrachloroethene | ug/L | 50 | 49.5 | 99 | 75-125 | |
| Tetrahydrofuran | ug/L | 500 | 490 | 98 | 71-129 | |
| Toluene | ug/L | 50 | 48.3 | 97 | 75-125 | |
| trans-1,2-Dichloroethene | ug/L | 50 | 49.4 | 99 | 75-125 | |
| trans-1,3-Dichloropropene | ug/L | 50 | 45.0 | 90 | 75-125 | |
| Trichloroethene | ug/L | 50 | 51.6 | 103 | 75-125 | |
| Trichlorofluoromethane | ug/L | 50 | 59.4 | 119 | 74-128 | |
| Vinyl chloride | ug/L | 50 | 50.7 | 101 | 71-131 | |
| Xylene (Total) | ug/L | 150 | 144 | 96 | 75-125 | |
| 1,2-Dichloroethane-d4 (S) | %. | | | 103 | 75-125 | |
| 4-Bromofluorobenzene (S) | %. | | | 100 | 75-125 | |
| Toluene-d8 (S) | %. | | | 100 | 75-125 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2343944 2343945

| Parameter | Units | 10358621007 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | ug/L | <0.17 | 20 | 20 | 25.3 | 27.5 | 127 | 137 | 75-125 | 8 | 30 | M1 |
| 1,1,1-Trichloroethane | ug/L | <0.17 | 20 | 20 | 26.2 | 29.0 | 131 | 145 | 71-144 | 10 | 30 | M1 |
| 1,1,2,2-Tetrachloroethane | ug/L | <0.22 | 20 | 20 | 23.1 | 26.4 | 116 | 132 | 75-131 | 13 | 30 | M1 |
| 1,1,2-Trichloroethane | ug/L | <0.15 | 20 | 20 | 25.3 | 27.5 | 126 | 137 | 75-125 | 8 | 30 | M1 |
| 1,1,2-Trichlorotrifluoroethane | ug/L | <0.32 | 20 | 20 | 28.9 | 32.8 | 145 | 164 | 75-150 | 12 | 30 | M1 |
| 1,1-Dichloroethane | ug/L | <0.17 | 20 | 20 | 24.4 | 26.8 | 122 | 134 | 64-150 | 10 | 30 | |
| 1,1-Dichloroethene | ug/L | <0.28 | 20 | 20 | 26.4 | 28.7 | 132 | 143 | 68-150 | 8 | 30 | |
| 1,1-Dichloropropene | ug/L | <0.23 | 20 | 20 | 26.2 | 29.4 | 131 | 147 | 68-145 | 12 | 30 | |
| 1,2,3-Trichlorobenzene | ug/L | <0.21 | 20 | 20 | 22.6 | 26.0 | 113 | 130 | 57-142 | 14 | 30 | |
| 1,2,3-Trichloropropane | ug/L | <0.28 | 20 | 20 | 23.5 | 25.6 | 118 | 128 | 75-125 | 9 | 30 | M1 |
| 1,2,4-Trichlorobenzene | ug/L | <0.21 | 20 | 20 | 22.9 | 26.3 | 115 | 131 | 60-135 | 14 | 30 | |
| 1,2,4-Trimethylbenzene | ug/L | 30.6 | 20 | 20 | 57.4 | 62.2 | 134 | 158 | 67-148 | 8 | 30 | M1 |
| 1,2-Dibromo-3-chloropropane | ug/L | <0.60 | 50 | 50 | 54.6 | 60.0 | 109 | 120 | 32-137 | 9 | 30 | |
| 1,2-Dibromoethane (EDB) | ug/L | <0.20 | 20 | 20 | 24.8 | 26.8 | 124 | 134 | 75-125 | 7 | 30 | M1 |
| 1,2-Dichlorobenzene | ug/L | <0.17 | 20 | 20 | 23.6 | 26.1 | 118 | 131 | 75-125 | 10 | 30 | M1 |
| 1,2-Dichloroethane | ug/L | <0.17 | 20 | 20 | 22.6 | 25.0 | 113 | 125 | 62-138 | 10 | 30 | |
| 1,2-Dichloropropane | ug/L | <0.22 | 20 | 20 | 24.8 | 27.5 | 124 | 138 | 62-144 | 10 | 30 | |
| 1,3,5-Trimethylbenzene | ug/L | 8.2 | 20 | 20 | 33.3 | 35.4 | 125 | 136 | 67-148 | 6 | 30 | |
| 1,3-Dichlorobenzene | ug/L | <0.12 | 20 | 20 | 22.9 | 25.3 | 115 | 127 | 74-131 | 10 | 30 | |
| 1,3-Dichloropropane | ug/L | <0.096 | 20 | 20 | 24.2 | 25.9 | 121 | 130 | 75-127 | 7 | 30 | M1 |
| 1,4-Dichlorobenzene | ug/L | <0.21 | 20 | 20 | 21.8 | 24.3 | 109 | 121 | 74-126 | 11 | 30 | |
| 2,2-Dichloropropane | ug/L | <0.13 | 20 | 20 | 22.7 | 25.5 | 114 | 127 | 56-146 | 11 | 30 | |
| 2-Butanone (MEK) | ug/L | <1.1 | 100 | 100 | 109 | 124 | 109 | 124 | 47-150 | 13 | 30 | |
| 2-Chlorotoluene | ug/L | <0.30 | 20 | 20 | 26.3 | 28.0 | 131 | 140 | 74-137 | 6 | 30 | M1 |
| 4-Chlorotoluene | ug/L | <0.26 | 20 | 20 | 23.5 | 25.5 | 117 | 128 | 72-138 | 8 | 30 | |
| 4-Methyl-2-pentanone (MIBK) | ug/L | <0.43 | 100 | 100 | 114 | 125 | 114 | 125 | 60-147 | 9 | 30 | |
| Acetone | ug/L | 2.2J | 100 | 100 | 121 | 142 | 119 | 140 | 61-150 | 16 | 30 | |

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## REPORT OF LABORATORY ANALYSIS

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(612)607-1700

# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2343944 2343945

| Parameter | Units | 10358621007 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Allyl chloride | ug/L | <0.25 | 20 | 20 | 20.6 | 24.1 | 103 | 121 | 53-150 | 16 | 30 | |
| Benzene | ug/L | 45.9 | 20 | 20 | 71.9 | 80.3 | 130 | 172 | 52-147 | 11 | 30 | M1 |
| Bromobenzene | ug/L | <0.34 | 20 | 20 | 25.7 | 27.7 | 128 | 139 | 75-129 | 8 | 30 | M1 |
| Bromochloromethane | ug/L | <0.19 | 20 | 20 | 25.7 | 28.0 | 129 | 140 | 72-128 | 8 | 30 | M1 |
| Bromodichloromethane | ug/L | <0.24 | 20 | 20 | 25.5 | 28.9 | 127 | 145 | 65-137 | 13 | 30 | M1 |
| Bromoform | ug/L | <0.27 | 20 | 20 | 19.7 | 21.4 | 98 | 107 | 59-133 | 9 | 30 | |
| Bromomethane | ug/L | <0.44 | 20 | 20 | 24.6 | 31.4 | 123 | 157 | 30-150 | 24 | 30 | M1 |
| Carbon tetrachloride | ug/L | <0.20 | 20 | 20 | 27.1 | 31.0 | 136 | 155 | 73-144 | 14 | 30 | M1 |
| Chlorobenzene | ug/L | <0.11 | 20 | 20 | 24.1 | 26.5 | 121 | 133 | 75-126 | 10 | 30 | M1 |
| Chloroethane | ug/L | <0.34 | 20 | 20 | 29.5 | 37.8 | 147 | 189 | 55-150 | 25 | 30 | M1 |
| Chloroform | ug/L | <0.21 | 20 | 20 | 25.8 | 28.7 | 129 | 144 | 66-143 | 11 | 30 | M1 |
| Chloromethane | ug/L | <0.25 | 20 | 20 | 21.1 | 35.5 | 105 | 177 | 42-150 | 51 | 30 | M1,R1 |
| cis-1,2-Dichloroethene | ug/L | <0.12 | 20 | 20 | 23.6 | 26.9 | 118 | 134 | 65-143 | 13 | 30 | |
| cis-1,3-Dichloropropene | ug/L | <0.15 | 20 | 20 | 24.3 | 27.2 | 122 | 136 | 75-125 | 11 | 30 | M1 |
| Dibromochloromethane | ug/L | <0.16 | 20 | 20 | 21.2 | 23.1 | 106 | 115 | 75-125 | 9 | 30 | |
| Dibromomethane | ug/L | <0.19 | 20 | 20 | 24.6 | 27.0 | 123 | 135 | 66-133 | 9 | 30 | M1 |
| Dichlorodifluoromethane | ug/L | <0.23 | 20 | 20 | 24.3 | 31.7 | 122 | 158 | 74-150 | 26 | 30 | M1 |
| Dichlorofluoromethane | ug/L | <0.21 | 20 | 20 | 26.1 | 33.3 | 130 | 166 | 68-150 | 24 | 30 | M1 |
| Diethyl ether (Ethyl ether) | ug/L | <0.19 | 20 | 20 | 25.1 | 27.5 | 126 | 138 | 57-148 | 9 | 30 | |
| Ethylbenzene | ug/L | 8.1 | 20 | 20 | 32.5 | 35.4 | 122 | 136 | 67-149 | 8 | 30 | |
| Hexachloro-1,3-butadiene | ug/L | <0.18 | 20 | 20 | 25.9 | 31.0 | 130 | 155 | 65-143 | 18 | 30 | M1 |
| Isopropylbenzene (Cumene) | ug/L | 1.2 | 20 | 20 | 26.2 | 28.2 | 125 | 135 | 64-150 | 7 | 30 | |
| Methyl-tert-butyl ether | ug/L | <0.15 | 20 | 20 | 23.7 | 25.8 | 118 | 129 | 71-130 | 8 | 30 | |
| Methylene Chloride | ug/L | <0.29 | 20 | 20 | 23.0 | 26.1 | 115 | 131 | 67-137 | 13 | 30 | |
| n-Butylbenzene | ug/L | 1.8 | 20 | 20 | 28.2 | 31.8 | 132 | 150 | 70-138 | 12 | 30 | M1 |
| n-Propylbenzene | ug/L | 5.3 | 20 | 20 | 29.3 | 32.4 | 120 | 136 | 70-148 | 10 | 30 | |
| Naphthalene | ug/L | 4.9 | 20 | 20 | 25.0 | 28.6 | 100 | 118 | 39-150 | 13 | 30 | |
| p-Isopropyltoluene | ug/L | 0.44J | 20 | 20 | 27.5 | 30.3 | 135 | 149 | 74-138 | 9 | 30 | M1 |
| sec-Butylbenzene | ug/L | 0.69J | 20 | 20 | 24.7 | 27.2 | 120 | 133 | 64-150 | 10 | 30 | |
| Styrene | ug/L | <0.29 | 20 | 20 | 24.5 | 26.4 | 122 | 132 | 75-132 | 7 | 30 | |
| tert-Butylbenzene | ug/L | <0.22 | 20 | 20 | 23.9 | 25.9 | 120 | 130 | 75-138 | 8 | 30 | |
| Tetrachloroethene | ug/L | <0.25 | 20 | 20 | 26.3 | 27.7 | 132 | 138 | 73-136 | 5 | 30 | M1 |
| Tetrahydrofuran | ug/L | <1.5 | 200 | 200 | 246 | 278 | 123 | 139 | 68-142 | 12 | 30 | |
| Toluene | ug/L | 7.3 | 20 | 20 | 32.2 | 34.9 | 125 | 138 | 69-139 | 8 | 30 | |
| trans-1,2-Dichloroethene | ug/L | <0.16 | 20 | 20 | 25.4 | 28.0 | 127 | 140 | 75-135 | 10 | 30 | M1 |
| trans-1,3-Dichloropropene | ug/L | <0.15 | 20 | 20 | 21.7 | 23.6 | 109 | 118 | 66-136 | 8 | 30 | |
| Trichloroethene | ug/L | <0.20 | 20 | 20 | 26.2 | 29.3 | 131 | 146 | 74-135 | 11 | 30 | M1 |
| Trichlorofluoromethane | ug/L | <0.33 | 20 | 20 | 30.6 | 40.5 | 153 | 202 | 75-150 | 28 | 30 | M1 |
| Vinyl chloride | ug/L | <0.15 | 20 | 20 | 23.3 | 30.7 | 116 | 154 | 69-150 | 28 | 30 | M1 |
| Xylene (Total) | ug/L | 64.5 | 60 | 60 | 138 | 152 | 122 | 145 | 70-147 | 10 | 30 | |
| 1,2-Dichloroethane-d4 (S) | %. | | | | | | 99 | 100 | 75-125 | | | |
| 4-Bromofluorobenzene (S) | %. | | | | | | 102 | 101 | 75-125 | | | |
| Toluene-d8 (S) | %. | | | | | | 99 | 97 | 75-125 | | | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

QC Batch: 430853 Analysis Method: SM 2510B
QC Batch Method: SM 2510B Analysis Description: 2510B Specific Conductance
Associated Lab Samples: 10358621004, 10358621005, 10358621006, 10358621007, 10358621011

METHOD BLANK: 2343818 Matrix: Water
Associated Lab Samples: 10358621004, 10358621005, 10358621006, 10358621007, 10358621011

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Specific Conductance | umhos/cm | <10.0 | 10.0 | 08/16/16 14:58 | |

LABORATORY CONTROL SAMPLE: 2343819

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Specific Conductance | umhos/cm | 1000 | 1010 | 101 | 90-110 | |

SAMPLE DUPLICATE: 2343820

| Parameter | Units | 10358347002 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Specific Conductance | umhos/cm | 1020 | 1020 | 0 | 20 | |

SAMPLE DUPLICATE: 2343821

| Parameter | Units | 10358621007 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Specific Conductance | umhos/cm | 2100 | 2100 | 0 | 20 | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

QC Batch: 430697 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 10358621004, 10358621005, 10358621006, 10358621007, 10358621011

LABORATORY CONTROL SAMPLE: 2343119

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| pH at 25 Degrees C | Std. Units | 7 | 7.0 | 100 | 98-102 | H6 |

SAMPLE DUPLICATE: 2343120

| Parameter | Units | 10358347002 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| pH at 25 Degrees C | Std. Units | 7.1 | 7.2 | 1 | 3 | H6 |

SAMPLE DUPLICATE: 2343121

| Parameter | Units | 10358621007 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| pH at 25 Degrees C | Std. Units | 6.5 | 6.4 | 0 | 3 | H6 |

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EPA-R5-2017-010506_0002778

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

QC Batch: 430800 Analysis Method: SM 4500-S2-D
QC Batch Method: SM 4500-S2-D Analysis Description: 4500S2D Sulfide Water
Associated Lab Samples: 10358621004, 10358621005, 10358621006, 10358621007, 10358621011

METHOD BLANK: 2343402 Matrix: Water
Associated Lab Samples: 10358621004, 10358621005, 10358621006, 10358621007, 10358621011

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Sulfide | mg/L | <0.011 | 0.10 | 08/16/16 13:26 | |

LABORATORY CONTROL SAMPLE: 2343403

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Sulfide | mg/L | .9 | 0.89 | 99 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2343404 2343405

| Parameter | Units | 10358621007 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfide | mg/L | 0.014J | .9 | .9 | 0.86 | 0.82 | 94 | 90 | 80-120 | 4 | 20 | |

SAMPLE DUPLICATE: 2343406

| Parameter | Units | 10358621005 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Sulfide | mg/L | 0.022J | 0.024J | | 20 | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

QC Batch: 430673 | Analysis Method: EPA 8011
QC Batch Method: EPA 8011 | Analysis Description: GCS 8011 EDB DBCP
Associated Lab Samples: 10358621001, 10358621002, 10358621003, 10358621004, 10358621005, 10358621006, 10358621007, 10358621010, 10358621011

METHOD BLANK: 2343037 | Matrix: Water
Associated Lab Samples: 10358621001, 10358621002, 10358621003, 10358621004, 10358621005, 10358621006, 10358621007, 10358621010, 10358621011

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | ug/L | <0.0016 | 0.010 | 08/17/16 23:50 | |
| 4-Bromofluorobenzene (S) | %. | 102 | 30-150 | 08/17/16 23:50 | |

LABORATORY CONTROL SAMPLE: 2343038

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | ug/L | .11 | 0.11 | 105 | 60-140 | |
| 4-Bromofluorobenzene (S) | %. | | | 103 | 30-150 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2343039 2343040

| Parameter | Units | 10358621007 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | ug/L | <0.0016 | .1 | .11 | 0.11 | 0.11 | 103 | 102 | 60-140 | 0 | 20 | |
| 4-Bromofluorobenzene (S) | %. | | | | | | 48 | 45 | 30-150 | | | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

QC Batch: 431923 Analysis Method: SM 4500-NO3 H
QC Batch Method: SM 4500-NO3 H Analysis Description: SM4500NO3-H, NO2 + NO3 pres.
Associated Lab Samples: 10358621004, 10358621005, 10358621006, 10358621007, 10358621011

METHOD BLANK: 2349006 Matrix: Water
Associated Lab Samples: 10358621004, 10358621005, 10358621006, 10358621007, 10358621011

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Nitrogen, NO2 plus NO3 | mg/L | <0.050 | 0.17 | 08/24/16 08:54 | |

LABORATORY CONTROL SAMPLE: 2349007

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Nitrogen, NO2 plus NO3 | mg/L | 2.5 | 2.5 | 101 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2349008 2349009

| Parameter | Units | 10358583039 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, NO2 plus NO3 | mg/L | ND | 2.5 | 2.5 | 0.77 | 0.74 | 30 | 29 | 80-120 | 3 | 30 | M1 |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2349010 2349011

| Parameter | Units | 10358621007 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, NO2 plus NO3 | mg/L | 0.063J | 2.5 | 2.5 | 2.2 | 2.2 | 87 | 87 | 80-120 | 0 | 30 | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

QC Batch: 430263 Analysis Method: ASTM D516
QC Batch Method: ASTM D516 Analysis Description: ASTM D516 Sulfate Water
Associated Lab Samples: 10358621004, 10358621005, 10358621006, 10358621007, 10358621011

METHOD BLANK: 2340951 Matrix: Water
Associated Lab Samples: 10358621004, 10358621005, 10358621006, 10358621007, 10358621011

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Sulfate | mg/L | <1.0 | 3.5 | 08/12/16 09:12 | |

LABORATORY CONTROL SAMPLE & LCSD: 2340952 2340953

| Parameter | Units | Spike Conc. | LCS Result | LCSD Result | LCS % Rec | LCSD % Rec | % Rec Limits | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 7.5 | 7.9 | 7.8 | 106 | 105 | 80-120 | 1 | 20 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2340954 2340955

| Parameter | Units | 10358073002 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 390 | 20 | 20 | 398 | 408 | 41 | 92 | 80-120 | 3 | 30 | M6 |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2340956 2340957

| Parameter | Units | 10358621007 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 1.1J | 20 | 20 | 17.6 | 17.8 | 82 | 83 | 80-120 | 1 | 30 | |

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# QUALITY CONTROL DATA

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

QC Batch: 430036 | Analysis Method: SM 4500-NO2 B
QC Batch Method: SM 4500-NO2 B | Analysis Description: SM4500NO2-B, Nitrite, unpres
Associated Lab Samples: 10358621004, 10358621005, 10358621006, 10358621007, 10358621011

METHOD BLANK: 2339706 | Matrix: Water
Associated Lab Samples: 10358621004, 10358621005, 10358621006, 10358621007, 10358621011

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Nitrite as N | mg/L | <0.0036 | 0.012 | 08/11/16 09:00 | |

LABORATORY CONTROL SAMPLE: 2339707

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Nitrite as N | mg/L | .3 | 0.30 | 100 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2339708 2339709

| Parameter | Units | 10358621007 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrite as N | mg/L | <0.0036 | .3 | .3 | 0.30 | 0.29 | 99 | 98 | 80-120 | 1 | 30 | |

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# QUALIFIERS

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

## 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 |
| PASI-MT | Pace Analytical Services - Montana |

## WORKORDER QUALIFIERS

WO: 10358621

| | |
|---|---|
| [1] | Samples requiring thermal preservation were received outside of recommended temperature limits of 0-6 degrees Celsius. |

## ANALYTE QUALIFIERS

| | |
|---|---|
| 1M | Low surrogate recovery due to emulsion forming during the extraction process. |
| AL | The lab does not hold A2LA accreditation for this parameter. |
| B | Analyte was detected in the associated method blank. |
| E | Analyte concentration exceeded the calibration range. The reported result is estimated. |
| H1 | Analysis conducted outside the recognized method holding time. |
| H6 | Analysis initiated outside of the 15 minute EPA required holding time. |
| L0 | Analyte recovery in the laboratory control sample (LCS) was outside QC limits. |
| L2 | Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results may be biased low. |
| M1 | Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery. |
| M6 | Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution. |
| R1 | RPD value was outside control limits. |
| S5 | Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis). |



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# QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **10358621001** | **1608TOWERMW16** | EPA 8011 | 430673 | EPA 8011 | 430820 |
| **10358621002** | **1608TOWERMW16D** | EPA 8011 | 430673 | EPA 8011 | 430820 |
| **10358621003** | **1608TOWERMW18D** | EPA 8011 | 430673 | EPA 8011 | 430820 |
| **10358621004** | **1608TOWERMW16E** | EPA 8011 | 430673 | EPA 8011 | 430820 |
| **10358621005** | **1608TOWERMW21** | EPA 8011 | 430673 | EPA 8011 | 430820 |
| **10358621006** | **1608TOWERMW21M** | EPA 8011 | 430673 | EPA 8011 | 430820 |
| **10358621007** | **1608TOWERMW21D** | EPA 8011 | 430673 | EPA 8011 | 430820 |
| **10358621010** | **1608TOWERTB2** | EPA 8011 | 430673 | EPA 8011 | 430820 |
| **10358621011** | **1608TOWEREQB** | EPA 8011 | 430673 | EPA 8011 | 430820 |
| **10358621009** | **1608TOWERIDWSS** | EPA 3050 | 430644 | EPA 6020B | 431466 |
| **10358621004** | **1608TOWERMW16E** | EPA 3020 | 429937 | EPA 6020B | 431485 |
| **10358621005** | **1608TOWERMW21** | EPA 3020 | 429937 | EPA 6020B | 431485 |
| **10358621006** | **1608TOWERMW21M** | EPA 3020 | 429937 | EPA 6020B | 431485 |
| **10358621007** | **1608TOWERMW21D** | EPA 3020 | 429937 | EPA 6020B | 431485 |
| **10358621011** | **1608TOWEREQB** | EPA 3020 | 429937 | EPA 6020B | 431485 |
| **10358621004** | **1608TOWERMW16E** | EPA 7470A | 432384 | EPA 7470A | 432584 |
| **10358621005** | **1608TOWERMW21** | EPA 7470A | 432384 | EPA 7470A | 432584 |
| **10358621006** | **1608TOWERMW21M** | EPA 7470A | 432384 | EPA 7470A | 432584 |
| **10358621007** | **1608TOWERMW21D** | EPA 7470A | 432384 | EPA 7470A | 432584 |
| **10358621011** | **1608TOWEREQB** | EPA 7470A | 430004 | EPA 7470A | 430622 |
| **10358621009** | **1608TOWERIDWSS** | ASTM D2974 | 430659 | | |
| **10358621008** | **1608TOWERTB1** | EPA 5035/5030B | 430540 | EPA 8260B | 430866 |
| **10358621009** | **1608TOWERIDWSS** | EPA 5035/5030B | 430540 | EPA 8260B | 430866 |
| **10358621001** | **1608TOWERMW16** | EPA 8260B | 430040 | | |
| **10358621002** | **1608TOWERMW16D** | EPA 8260B | 430040 | | |
| **10358621003** | **1608TOWERMW18D** | EPA 8260B | 430040 | | |
| **10358621004** | **1608TOWERMW16E** | EPA 8260B | 430041 | | |
| **10358621005** | **1608TOWERMW21** | EPA 8260B | 430041 | | |
| **10358621006** | **1608TOWERMW21M** | EPA 8260B | 430041 | | |
| **10358621007** | **1608TOWERMW21D** | EPA 8260B | 430893 | | |
| **10358621010** | **1608TOWERTB2** | EPA 8260B | 430041 | | |
| **10358621011** | **1608TOWEREQB** | EPA 8260B | 430893 | | |
| **10358621004** | **1608TOWERMW16E** | SM 2510B | 430853 | | |
| **10358621005** | **1608TOWERMW21** | SM 2510B | 430853 | | |
| **10358621006** | **1608TOWERMW21M** | SM 2510B | 430853 | | |
| **10358621007** | **1608TOWERMW21D** | SM 2510B | 430853 | | |
| **10358621011** | **1608TOWEREQB** | SM 2510B | 430853 | | |
| **10358621004** | **1608TOWERMW16E** | SM 4500-H+B | 430697 | | |
| **10358621005** | **1608TOWERMW21** | SM 4500-H+B | 430697 | | |
| **10358621006** | **1608TOWERMW21M** | SM 4500-H+B | 430697 | | |
| **10358621007** | **1608TOWERMW21D** | SM 4500-H+B | 430697 | | |
| **10358621011** | **1608TOWEREQB** | SM 4500-H+B | 430697 | | |



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

# QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BERS#34170026; EPA TO 3012 Tow
Pace Project No.: 10358621

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **10358621004** | **1608TOWERMW16E** | SM 4500-S2-D | 430800 | | |
| **10358621005** | **1608TOWERMW21** | SM 4500-S2-D | 430800 | | |
| **10358621006** | **1608TOWERMW21M** | SM 4500-S2-D | 430800 | | |
| **10358621007** | **1608TOWERMW21D** | SM 4500-S2-D | 430800 | | |
| **10358621011** | **1608TOWEREQB** | SM 4500-S2-D | 430800 | | |
| **10358621004** | **1608TOWERMW16E** | SM 4500-S H | 430947 | | |
| **10358621005** | **1608TOWERMW21** | SM 4500-S H | 430947 | | |
| **10358621006** | **1608TOWERMW21M** | SM 4500-S H | 430947 | | |
| **10358621007** | **1608TOWERMW21D** | SM 4500-S H | 430947 | | |
| **10358621011** | **1608TOWEREQB** | SM 4500-S H | 430947 | | |
| **10358621004** | **1608TOWERMW16E** | SM 4500-NO3 H | 431923 | | |
| **10358621005** | **1608TOWERMW21** | SM 4500-NO3 H | 431923 | | |
| **10358621006** | **1608TOWERMW21M** | SM 4500-NO3 H | 431923 | | |
| **10358621007** | **1608TOWERMW21D** | SM 4500-NO3 H | 431923 | | |
| **10358621011** | **1608TOWEREQB** | SM 4500-NO3 H | 431923 | | |
| **10358621004** | **1608TOWERMW16E** | ASTM D516 | 430263 | | |
| **10358621005** | **1608TOWERMW21** | ASTM D516 | 430263 | | |
| **10358621006** | **1608TOWERMW21M** | ASTM D516 | 430263 | | |
| **10358621007** | **1608TOWERMW21D** | ASTM D516 | 430263 | | |
| **10358621011** | **1608TOWEREQB** | ASTM D516 | 430263 | | |
| **10358621004** | **1608TOWERMW16E** | SM 4500-NO2 B | 430036 | | |
| **10358621005** | **1608TOWERMW21** | SM 4500-NO2 B | 430036 | | |
| **10358621006** | **1608TOWERMW21M** | SM 4500-NO2 B | 430036 | | |
| **10358621007** | **1608TOWERMW21D** | SM 4500-NO2 B | 430036 | | |
| **10358621011** | **1608TOWEREQB** | SM 4500-NO2 B | 430036 | | |



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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

10858621

Page: 1 of 1

**Section A** Required Client Information:

| | |
|---|---|
| Company: | Bristol Environmental Remediation Svc |
| Address: | 111 W 16th Ave. Third Floor |
| | Anchorage, AK 99501 |
| Email To: | Matt Faust |
| Phone: 907-743-9346 | Fax: |
| Requested Due Date/TAT: | 10 business days |

**Section B** Required Project Information:

| | |
|---|---|
| Report To: | Matt Faust |
| Copy To: | Robert Beckman |
| Purchase Order No.: | |
| Project Name: | Tower Standard LUST Site |
| Project Number: | BERS# 34170026; EPA TO 3012 |

**Section C** Invoice Information:

| | |
|---|---|
| Attention: | Matt Faust |
| Company Name: | Bristol Environmental Remediation |
| Address: | See client info |
| Pace Quote Reference: | |
| Pace Project Manager: | Shawn Davis |
| Pace Profile #: | |

**REGULATORY AGENCY**

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☑ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: WI

**Section D** Required Client Information

**SAMPLE ID** (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Valid Matrix Codes

| MATRIX | CODE |
|---|---|
| DRINKING WATER | DW |
| WATER | WT |
| WASTE WATER | WW |
| PRODUCT | P |
| SOIL/SOLID | SL |
| OIL | OL |
| WIPE | WP |
| AIR | AR |
| OTHER | OT |
| TISSUE | TS |

Requested Analysis Filtered (Y/N)

| ITEM # | SAMPLE ID | MATRIX CODE (see valid codes to left) | SAMPLE TYPE (G=GRAB C=COMP) | COLLECTED Composite Start Date | Composite Start Time | Composite End/Grab Date | Composite End/Grab Time | SAMPLE TEMP AT COLLECTION | # OF CONTAINERS | Unpreserved | $H_2SO_4$ | $HNO_3$ | HCl | NaOH | $Na_2S_2O_3$ | Methanol | Other | Analysis Test (Y/N) | SW8260 VOCs | SW8011 EDB | SW6020 RCRA 8, Mn, Fe | WI DRO | WI GRO | H2S SM4500-S2D | Sulfate, Nitrate EPA 300.0 | 1851 8260 | Pb 6020 | % moisture | | | Residual Chlorine (Y/N) | Pace Project No./ Lab I.D. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1608TOWER MW16 | W | G | 8/8/16 | 1055 | ← | | | 9 | | | | X | | | | | | X | X | | | X | | | | | | | | | 001 |
| 2 | 1608TOWER MW16D | ↓ | ↓ | ↓ | 1300 | ← | | | ↓ | | | | X | | | | | | X | X | | | X | | | | | | | | | 002 |
| 3 | 1608TOWER MW18A | | | ↓ | 1330 | ← | | | ↓ | | | | X | | | | | | X | X | | ↓ | X | | | | | | | | | 003 |
| 4 | 1608TOWER MW16E | | | 8/9/16 | 0900 | ← | | | 13 | X | X | X | X | X | | | | | X | X | X | X | X | X | X | | | | | | | 004 |
| 5 | 1608TOWER MW21 | | | ↓ | 1120 | ← | | | ↓ | X | X | X | X | X | | | | | X | X | X | | X | X | X | | | | | | | 005 |
| 6 | 1608TOWER MW21M | | | ↓ | 1300 | ← | | | ↓ | X | X | X | X | X | | | | | X | X | X | | X | X | X | | | | | | | 006 |
| 7 | 1608TOWER MW21D | ↓ | ↓ | ↓ | 1430 | ← | | | 2~~8~~ | X | X | X | X | X | | | | | X | X | X | | X | X | X | | | | | | | MS/MSD 007 |
| 8 | 1608TOWER EQB | ↓ | ↓ | 8/9/16 | 0930 | ← | | | 12 | X | X | X | X | X | | | | | X | X | X | | X | X | X | | | | | | | ~~008~~ 011 |
| 9 | 1608TOWER TB1 | G | S | 8/5/16 | 0800 | ← | | | 2 | | | | | | | X | | | | | | | | | | X | | | | | | ~~009~~ 008 |
| 10 | 1608TOWER IDW SS | G | ↓ | ↓ | 1430 | ← | | | 4 | X | | | | | | X | | | | | | | | | | Y | X | X | | | | 009 |
| 11 | 1608TOWER TB2 | W | G | 8/8/16 | 0800 | ← | | | 6 | | | X | X | | | | | | X | X | | | X | | | | | | | | | 010 |
| 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| ADDITIONAL COMMENTS | RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | SAMPLE CONDITIONS | | |
|---|---|---|---|---|---|---|---|---|---|
| Report analytical results to the MDL | [signature] | 8/10/16 | 1000 | Shawn Davis / Pace | 8/10/16 | 1223 | 4.5 / 2.5 | Y | N | Y |
| Hold GRO Analysis pending PM approval | | | | | | | | | |

**SAMPLER NAME AND SIGNATURE**

PRINT Name of SAMPLER: Robert Beckman

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 8/10/16

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

| Pace Analytical® | Document Name: **Sample Condition Upon Receipt Form** | Document Revised: 04Apr2016 Page 1 of 1 |
|---|---|---|
| | Document No.: F-MN-L-213-rev.16 | Issuing Authority: Pace Minnesota Quality Office |

**Sample Condition Upon Receipt**

**Client Name:** Bristol Environmental Remediation

**Project #:** WO#: 10358621

10358621

**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:** ☐ 151401163 ☐ B88A912167504 ☑ 151401164 ☐ B88A0143310098 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☑ Samples on ice, cooling process has begun

**Cooler Temp Read (°C):** 4.5/8.5 **Cooler Temp Corrected (°C):** 4.5/8.5 **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6°C **Correction Factor:** +0.0 **Date and Initials of Person Examining Contents:** GS 8/10/16

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

Did samples originate in a quarantine zone within the United States: AL, AR, AZ, 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 | ☐ 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/or Signature on COC? | ☑ Yes | ☐ No | ☐ N/A | 4. |
| Samples Arrived within Hold Time? | ☑ Yes | ☐ No | ☐ N/A | 5. |
| **Short Hold Time Analysis (<72 hr)?** | ☑ Yes | ☐ No | ☐ N/A | 6. |
| **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 container |
| Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT/SL | ☑ Yes | ☐ No | ☐ N/A | 12. |
| All containers needing acid/base preservation have been checked? | ☑ Yes | ☐ No | ☐ N/A | 13. ☑ $HNO_3$ ☑ $H_2SO_4$ ☐ NaOH ☐ HCl Sample # 1/1 1/1 4-8 |
| All containers needing preservation are found to be in compliance with EPA recommendation? ($HNO_3$, $H_2SO_4$, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide) | ☑ Yes | ☐ No | ☐ N/A | Initial when completed: Lot # of added preservative: |
| Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC | ☑ Yes | ☐ No | ☐ N/A | |
| Headspace in VOA Vials ( >6mm)? | ☐ Yes | ☑ No | ☐ N/A | 14. |
| Trip Blank Present? | ☑ Yes | ☐ No | ☐ N/A | 15. |
| Trip Blank Custody Seals Present? 052316-3/ | ☑ Yes | ☐ No | ☐ N/A | |
| Pace Trip Blank Lot # (if purchased): 062016-3BZA | | | | |

8/10/16

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

Person Contacted: Matt Faust (email) Date/Time: 8/11/16

Comments/Resolution:

temperature of one of two coolers received above temp

**Project Manager Review:** Shannon Davis **Date:** 8/11/16

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 Container Order #157449

## Addresses

| Order By : | | Ship To : | | Return To: | |
|---|---|---|---|---|---|
| Company | Bristol Environmental Remediation | Company | Quality Inn - Guest Bobby Beckman | Company | Pace Analytical Minnesota |
| Contact | Faust, Matt | Contact | Beckman, Bobby | Contact | Davis, Shawn |
| Email | mfaust@bristol-companies.com | Email | mfaust@bristol-companies.com | Email | shawn.davis@pacelabs.com |
| Address | 111 W. 16th Avenue | Address | 111 W. 16th Avenue | Address | 1700 Elm Street |
| Address 2 | | Address 2 | 8729 US-51 | Address 2 | Suite 200 |
| City | Anchorage | City | Minocqua | City | Minneapolis |
| State | AK Zip 99501 | State | WI Zip 54548 | State | MN Zip 55414 |
| Phone | (907)743-9346 | Phone | (907) 743-9346 | Phone | 612-607-6378 |

## Info

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Project Name** | Tower, WI | **Due Date** | 08/03/2016 | **Profile** | 35445 | **Quote** | |
| **Project Manager** | Davis, Shawn | **Return** | | **Carrier** | Spee-Dee | **Location** | WI |

## Trip Blanks

- [X] Include Trip Blanks

## Bottle Labels

- [ ] Blank
- [X] Pre-Printed No Sample IDs
- [ ] Pre-Printed With Sample IDs

## Bottles

- [ ] Boxed Cases
- [X] Individually Wrapped
- [ ] Grouped By Sample

## Return Shipping Labels

- [ ] No Shipper Number
- [ ] With Shipper Number

## Misc

- [ ] Sampling Instructions
- [X] Custody Seal
- [X] Temp. Blanks
- [X] Coolers
- [ ] Syringes
- [ ] Extra Bubble Wrap
- [X] Short Hold/Rush Stickers
- [ ] DI Water Liter(s)
- [ ] USDA Regulated Soils

## COC Options

- [ ] Number of Blanks
- [X] Pre-Printed 1

| # of Samples | Matrix | Test | Container | Total | # of QC | Lot # | Notes |
|---|---|---|---|---|---|---|---|
| 8 | WT | VOC by 8260 | (3) 40 mL clear glass vials, HCL | 30 | 6 | 062016-3BZA | |
| 8 | WT | EDB 8011 | (3) 40 mL clear glass vials, HCL | 30 | 6 | 062016-3BZA | |
| 8 | WT | GRO by WIGRO | None | 30 | 6 | 062716-3BZA | |
| 8 | WT | Sulfate/Nitrate | 250mL plastic unpres | 8 | 0 | 032116-2ALL | |
| 8 | WT | Nitrate + Nitrite | None | 8 | 0 | 051616-4CFX | |
| 8 | WT | Metals by 6020 | None | 8 | 0 | 071116-2AFW | |
| 8 | WT | DRO by WIDRO | 2-1L ambers w/HCL | 16 | 0 | 071116-1JG | |
| 8 | WT | Sulfide by SM4500-S2-D | None | 8 | 0 | 110215-2BYU | H2S Calculation |
| 1 | SL | BTEX by 8260 | 2 MEOH Vials | 2 | 0 | 052316-3 | |
| 1 | SL | 6010 - Pb | 4oz clear straight side soil jars | 1 | 0 | 050216-1KM | |
| 1 | SL | Moisture/ Dry weight | 2oz plastic dry weight bottle | 1 | 0 | 051616-5 | |

**Hazard Shipping Placard In Place :** NO

*Sample receiving hours are Mon-Fri 7:30am-7:00pm and S... ...cial arrangements are made with your project manager.

Return w/ Samples

*Pace Analytical reserves the right to return hazardous, ... ...u.

*Pace Analytical reserves the right to charge for unused ... ...ol as cost associated with sample storage and disposal.

*Payment term are net 30 days.

*Please include the proposal number on the chain of custody to insure proper billing.

**Sample Notes**

Send 3 sets of water trip blanks, 1 solid trip blank.

**Ship Date :** 7-29-16

**Prepared By:** KG

**Verified By:**

# Intra-Regional Chain of Custody

Pace Analytical®
www.pacelabs.com

**Workorder:** 10358621 **Workorder Name:** BERS#34170026; EPA TO 3012 Tow **Owner Received Date:** 8/10/2016 **Due Date:** 8/24/2016

**Received at:**
Pace Analytical Minnesota
1700 Elm Street
Suite 200
Minneapolis, MN 55414
Phone (612)607-1700

**Send To Lab:**
Pace Analytical Billings MT
150 N Ninth Street
Billings, MT 59101
Phone (406)254-7226

**Report To:**
Shawn Davis

| Item | Sample ID | Sample Type | Collect Date/Time | Lab ID | Matrix | Preserved Containers: Other | SM 4500-S2-D | SM 4500-S-H | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1608TOWERMW16E | PS | 8/9/2016 09:00 | 10358621004 | Water | 1 | X | X | |
| 2 | 1608TOWERMW21 | PS | 8/9/2016 11:20 | 10358621005 | Water | 1 | X | X | |
| 3 | 1608TOWERMW21M | PS | 8/9/2016 13:00 | 10358621006 | Water | 1 | X | X | |
| 4 | 1608TOWERMW21D | RQS | 8/9/2016 14:50 | 10358621007 | Water | 1 | X | X | |
| 5 | 1608TOWEREQB | PS | 8/9/2016 09:30 | 10358621011 | Water | 1 | X | X | |

| Transfers | Released By | Date/Time | Received By | Date/Time |
|---|---|---|---|---|
| 1 | Shawn Davis/Pace MN | 8-11-16 1300 | | |
| 2 | Fed Ex | | Michael Pace | 8/12/16 0918 |
| 3 | | | | |
| 4 | | | | |

Comments

Cooler Temperature on Receipt 0.8 °C | Custody Seal Y or N | Received on Ice Y or N | Samples Intact Y or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.*

| Pace Analytical | Document Name: **Sample Condition Upon Receipt Form** | Document Revised: 04Aug2016 Page 1 of 1 |
|---|---|---|
| | Document No.: **F-MT-C-184-Rev.10** | Issuing Authority: Pace Montana Quality Office |

**Sample Condition Upon Receipt**

**Client Name:** Pace MN

**Project #:** 10358621

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

**Tracking Number:** 6751 5818 9169

**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:** ☒ 160285052 ☐ 140279186 **Type of Ice:** ☒ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun ☐ NA

**Cooler Temp Read:** 1.3 **Date and Initials of Person Examining Contents:** 8/12 NH

**Cooler Temp Corrected:** 0.8 **Biological Tissue Frozen?** ☐ Yes ☒ No

Temp should be above freezing to 6°C

| | | | | 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. |
| **Short Hold Time Analysis (<72 hr)?** | ☐ Yes | ☒ No | ☐ N/A | 6. |
| **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? 8/12 NH | ☒ Yes | ☐ No | ☐ N/A | 10. |
| Filtered Volume Received for Dissolved Tests? | ☐ Yes | ☐ No | ☒ N/A | 11. Note if sediment is visible in the dissolved container. |
| Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT | ☒ Yes | ☐ No | ☐ N/A | 12. |
| All containers needing acid/base preservation have been checked? | ☒ Yes | ☐ No | ☐ N/A | 13. ☐ $HNO_3$ ☐ $H_2SO_4$ ☒ NaOH ☐ HCl Sample # 004-007, 011 +ZnAc |
| All containers needing preservation are found to be in compliance with EPA recommendation? ($HNO_3$, $H_2SO_4$, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide) | ☒ Yes | ☐ No | ☐ N/A | |
| Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water) | ☐ Yes | ☒ No | | Initial when completed: NH Lot # of added preservative: |
| 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): NA | | | | |

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

Person Contacted: Date/Time:

Comments/Resolution:

**Project Manager Review:** Shannon Davis **Date:** 8/12/16

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)

# Intra-Regional Chain of Custody

Pace Analytical®
www.pacelabs.com

**Workorder:** 10358621 **Workorder Name:** BERS#34170026; EPA TO 3012 Tow **Owner Received Date:** 8/10/2016 **Due Date:** 8/24/2016

| Received at: | Send To Lab: |
|---|---|
| Pace Analytical Minnesota<br>1700 Elm Street<br>Suite 200<br>Minneapolis, MN 55414<br>Phone (612)607-1700 | Pace Analytical Billings MT<br>150 N Ninth Street<br>Billings, MT 59101<br>Phone (406)254-7226 |

**Report To:**
Shawn Davis

| Item | Sample ID | Sample Type | Collect Date/Time | Lab ID | Matrix | Preserved Containers: Other | Preserved Containers: Unpreserved | SM 4500-H+B | SM 4500-S2-D | SM 4500-S-H | SM 2510B | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1608TOWERMW16E | PS | 8/9/2016 09:00 | 10358621004 | Water | 1 | | X | X | X | X | |
| 2 | 1608TOWERMW21 | PS | 8/9/2016 11:20 | 10358621005 | Water | 1 | | X | X | X | X | |
| 3 | 1608TOWERMW21M | PS | 8/9/2016 13:00 | 10358621006 | Water | 1 | | X | X | X | X | |
| 4 | 1608TOWERMW21D | RQS | 8/9/2016 14:50 | 10358621007 | Water | 1 | | X | X | X | X | |
| 5 | 1608TOWEREQB | PS | 8/9/2016 09:30 | 10358621011 | Water | 1 | | X | X | X | X | |

| Transfers | Released By | Date/Time | Received By | Date/Time |
|---|---|---|---|---|
| 1 | Shawn Davis / Pace mpb | 8-12-16 1217 | | |
| 2 | Fed Ex | | N Hansen / Pace | 8/13/16 1030 |
| 3 | | | | |
| 4 | | | | |

**Comments**

Sulfide + H2S bottle Sent 8/11

**Cooler Temperature on Receipt** 1.3 °C | **Custody Seal** Y or N | **Received on Ice** Y or N | **Samples Intact** Y or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.*
*This chain of custody is considered complete as is since this information is available in the owner laboratory.*

| Pace Analytical | Document Name: **Sample Condition Upon Receipt Form** | Document Revised: 04Aug2016 Page 1 of 1 |
|---|---|---|
| | Document No.: **F-MT-C-184-Rev.10** | Issuing Authority: Pace Montana Quality Office |

**Sample Condition Upon Receipt**

**Client Name:** Pace MN

**Project #:** 10358621

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

**Tracking Number:** 6751 5818 9445

**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:** ☒ 160285052 ☐ 140279186 **Type of Ice:** ☒ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun ☐ NA

**Cooler Temp Read:** 1.8 **Date and Initials of Person Examining Contents:** 8/13 MH

**Cooler Temp Corrected:** 1.3 **Biological Tissue Frozen?** ☐ Yes ☒ No

Temp should be above freezing to 6°C

| | | | | 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. |
| **Short Hold Time Analysis (<72 hr)?** | ☐ Yes | ☒ No | ☐ N/A | 6. |
| **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 container. |
| Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT | ☒ Yes | ☐ No | ☐ N/A | 12. |
| All containers needing acid/base preservation have been checked? | ☐ Yes | ☐ No | ☒ N/A | 13. ☐ $HNO_3$ ☐ $H_2SO_4$ ☐ NaOH ☐ HCl Sample # NA |
| All containers needing preservation are found to be in compliance with EPA recommendation? ($HNO_3$, $H_2SO_4$, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide) | ☐ Yes | ☐ No | ☒ N/A | |
| Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water) | ☐ Yes | ☒ No | | Initial when completed: _____ Lot # of added preservative: _____ |
| 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): NA | | | | |

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

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

**Project Manager Review:** Shannon Davis **Date:** 8/15/16

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)

**ATTACHMENT 6**

Data Verification Report

## DATA VERIFICATION

Bristol Environmental Remediation Services, LLC (Bristol), prepared this data verification report in accordance with appropriate U.S. Environmental Protection Agency (EPA) procedural guidance documents, evaluating the completeness, correctness, consistency, compliance with method procedures and quality control (QC) requirements, and identification of anomalous data. All laboratory results relate to site investigation activities executed at the Tower Standard Site on the Lac du Flambeau (LDF) Indian Reservation in Lac Du Flambeau, Wisconsin. Bristol performed this work under EPA contract EP W-12-009, Task Order (TO) 3012.

Analytical results for project samples presented in this report were in the laboratory work order below. All analytical results reported to the reporting limit with the exception of 1,1,2,2-tetrachloroethane and chloromethane, which were slightly above the PAL due to laboratory instrument sensitivities. Results of these two analytes were all ND for the project samples.

| Sample Data Type (Date collected) | Laboratory WO# |
|---|---|
| Monitoring well groundwater sampling (August 2016) | 10358621 (6 primary samples) |
| Monitoring well groundwater sampling (August 2016) | 10358347 (3 primary samples) |

### AUGUST 2016 MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL DATA QUALITY

The analytical results for the August 2016 monitoring well groundwater samples were reported in laboratory work orders 10358621 and 10358347. The data met project data quality objectives. In general, the data verification found most data usable as delivered by the analytical laboratory. Some data required qualification, and have been flagged appropriately. Data are presented on the data tables with appropriate qualifiers.

Six primary groundwater samples, one water trip blank (TB) and one rinsate blank were analyzed by Pace Analytical Services (Pace) in Minneapolis, Minnesota. All containers in the



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sample coolers were received at the laboratory intact and in acceptable condition. The sample receipt form for laboratory work order 10358621 indicated one of two coolers was received above the sample cooler temperature range of 0-6 degrees Celsius (°C) at 8.5 °C. The other cooler in this work order was received at 4.5 °C—both coolers had been packed by Bristol personnel with similar amounts of ice and following the same procedure. Unfortunately, Pace has no record of which particular samples were associated with the warmer cooler. Pace has informed Bristol that they had some new hires in their sample receiving department who unpacked and sorted the samples before any notes were made. Bristol requested the laboratory to initiate a corrective action, including re-training of personnel. Metals data would not be affected as those tests do not require thermal preservation. Project samples for volatile organic compound results were mostly below detection limits (ND) or less than the limit of quantitation (LOQ). The slight exceedance above the optimal cooler temperature range should not significantly affect the data; therefore, sample results were determined as usable.

## Hold Time Compliance

A quality control issue impacted the SM 4500-H-B and SM 4500-NO2 B results. Aqueous samples for WO# 10358621011, 10358621004, 10358621005, 10358621007, 10358621006, and WO# 10358347001, 10358347002, and 10358347003 were analyzed 15 minutes past EPA-required hold time. Nitrite sample 10358621004 was also analyzed past the hold time. These affected samples were flagged H for pH and nitrite analysis, and considered estimated due to hold time exceedances for these analytes. Samples were considered estimated with a potential low bias.

## Laboratory Quality Assurance (QA)/QC

Method 8260B: Laboratory control sample (LCS) recovery for bromoform (73%) was below the lower QC criteria. The matrix spike/matrix spike duplicate (MS/MSD) recovery for this



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analyte recovered within the QC criteria. All associated project samples have been flagged QL and considered estimated with a potentially low bias. Affected samples include 10358621001, 10358621002, 10358621004, 10358621003, 10358621005, 10358621006, and 10358621010.

Method 8260B: Acetone and toluene were detected in the method blank (MB) for analytical batch 430040 and 430041 and at concentrations greater than limit of detection (LOD), but less than the LOQ. Associated samples were B flagged for high estimated value due to contamination present in the MB. Affected samples include 10358621001, 10358621004, 10358621005, 10358621006, and 10358621010 for acetone. 10358621004, 10358621005, 10358621006, and 10358621010 for toluene.

Method 6020B: Barium, lead, and silver were detected in the MB for batch 429937 at concentrations greater than LOD, but less than the LOQ. Associated sample concentrations greater than LOQ were flagged B for high estimated value due to contamination present in the MB. Affected project samples include: 10358621004, 10358621005, 10358621007, 10358621006, and 10358621011.

Method 6020A: MS/MSD of sample 10358621007 in batch 429937 recovered low for iron and manganese. The LCS met accuracy requirements. Results for iron and manganese were flagged ML for quality issues with potential low bias for this sample.

Method 8260B: MS/MSD relative percent difference (RPD) of parent sample 10358621001 for tetrahydrofuran did not meet QC criteria. The associated parent sample concentration for this analyte was ND, therefore the data was considered unaffected.

Method 8260B: MS/MSD recoveries for several analytes of sample 10358621007 were outside the QC criteria. The MS/MSD RPD for chloromethane was also outside of the QC control limit. The parent sample (10358621007) for these analytes were mostly ND, with the



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exception of 1,2,4-trimethylbenzene, benzene, n-propylbenzene, and p-isopropyltoluene. These analytes were flagged MH for quality issue with potential high bias.

Method SM 4500-NO3 H: MS/MSD of parent sample 10358621007 recovery for nitrogen ($NO_2$ plus $NO_3$) was below QC criteria. The LCS met accuracy requirements. Result for this analyte was flagged ML for this sample, and was considered estimated with potentially low bias.

## Data Summary

No QC issues resulted in qualifications to the mercury, sulfide as $H_2S$ (calculated), sulfide and specific conductance data, and the results were usable as reported by the laboratory. The tip blank and rinsate blank results were all less than LOQ, and showed no cross-contamination impact. The field duplicate pair submitted within this sample delivery group was 1608TOWERMW16D and 1608TOWERMW18D. The field duplicate results met precision criteria.

On the basis of this evaluation, the laboratory followed the specified analytical method. The data quality was determined acceptable. Acceptable data are associated with QC data that meet all QC criteria or with QC samples that did not meet QC criteria but data quality objectives (DQOs) were not affected. Data quality meets established DQO established for this project. All data are suitable for their intended use. All reportable results were usable for project purposes.



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**ATTACHMENT 7**

Waste Disposal Paperwork

**LINCOLN COUNTY LANDFILL 715-536-9636**
Site: N4750 Landfill Lane, Merrill, WI 54452
Mailing: 801 N Sales St, Ste 201, Merrill, WI 54452
**OPERATING HOURS:**
Monday-Friday
SUMMER (May 1 - Sept. 30) 7:00 am - 4:00 pm
WINTER (Oct. 1 - Apr. 30) 8:00 am - 4:00 pm
1st and 3rd Sat. 8:00 am - Noon

DATE: 9/16/2016 TICKET #: 219530 Vehicle #:
Time In: 12:06 PM Time Out: 12:15 PM

BILL TO: SGS Envirnomental Contracting, LLC
HAULER : SGS Envirnomental Contracting, LLC

JOB : 16 - 61 B - EPA Region 5, Lac du Flambeau
PO# :

$25 ton exempt (CON24) 1.57 tn
Gross: 34540 Tare: 31400 Net Weight: 3140

Scale Notes: Charge Transaction

HAVE A NICE DAY!

Customer Signature _____
Weighed By: Administrator

I certify that the waste in this vehicle complies with the Wisconsin Recycling law and the landfill bans. I also agree to pay 1.5% per month Late payment charge after 30 days.