

April 2015 and August 2016 Quarterly Groundwater Monitoring Report

*Former Banknote Facility
10 Dunnigan Drive
Ramapo, New York
NYSDEC BCP Number: C344047*

December 2016

ERM Project Number: 0286112

Prepared for:

Manhattan Beer Distributors
400 Walnut Avenue
Bronx, New York 10454

Prepared by:

ERM Consulting and Engineering, Inc.
5788 Widewaters Parkway
Syracuse, New York 13214

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1.0

INTRODUCTION

On behalf of Manhattan Beer Distributors (Manhattan), ERM Consulting and Engineering, Inc. (ERM) has prepared this Groundwater Monitoring Report (Report) to document the April 2015 and August 2016 groundwater sampling activities at the Former Banknote Facility. The Former Banknote Facility is a 10-acre parcel of land with buildings located at 10 Dunnigan Drive, Town of Ramapo, Rockland County, New York (the "Site"). A Site Location Map is presented on Figure 1, Appendix A.

Groundwater sampling was conducted in accordance with a Brownfield Cleanup Agreement (BCA) with an effective date of 4 June 2004, between Baker Properties, Inc. (Baker) of Pleasantville, New York (the previous Site Owners) and the New York State Department of Environmental Conservation (NYSDEC), BCA Index No.: A3-0424-0007; Site No. C00359-3, and in accordance with the following technical documents:

- NYSDEC-approved "*Remedial Action Work Plan (RAWP)*", under the Voluntary Cleanup Program (VCP); NYSDEC VCP No.: V-00359, (ERM, December, 2003);
- NYSDEC-approved "*Health and Safety Plan*", (ERM, January 2004); and
- NYSDEC-approved "*Quality Assurance Project Plan*", (ERM, October 2003);

As part of the RAWP, ERM sampled the following groundwater monitoring wells MW-1, MW-2, MW-3 MW-4, DW-1, MW-5 MW-6 MW-7, MW-8 and MW-10 for total chromium on a quarterly basis for five quarters and every fifth quarter for five years thereafter. ERM re-evaluated the data after the first three rounds of sampling and in a correspondence dated 12 September 2005, the NYSDEC agreed to remove monitoring wells MW-2, MW-3, MW-7, MW-10 and DW-1 from the sample schedule because the chromium concentrations in the samples collected from these monitoring wells were consistently below the reporting limit for chromium.

In the Quarterly Groundwater Report dated January 2011 ERM recommended removing MW-5 from the monitoring program as

detected concentrations have been below the NYSDEC's guidance values since the July 2002 sampling event. This was subsequently approved by NYSDEC.

MW-1 was destroyed during a parking lot renovation, and is therefore no longer sampled. As a result of the aforementioned changes, the approved roster of wells currently sampled includes MW-4, MW-6, and MW-8.

2.0

GROUND WATER SAMPLING METHODS

Pursuant to the NYSDEC-approved monitoring plan, ERM collected groundwater samples at the site during the following months:

- December 2004,
- March 2005,
- June 2005,
- September 2005,
- December 2005,
- March 2007,
- May 2008,
- September 2009,
- December 2010,
- March 2012,
- June 2013,
- April 2015, and
- August 2016.

On 23 April 2015 and 31 August 2016, ERM collected groundwater samples from monitoring wells MW-4, MW-6, and MW-8 at the west end of the site. A site layout map showing the locations of the groundwater monitoring wells is included as Figure 2, Appendix A.

An ERM geologist collected static water level measurements from each of the wells using an electronic water level indicator, which was washed with a Liquinox™ solution, 10% nitric acid solution and rinsed with distilled water between measurement locations. The reference point used for all water level measurements was the top of the well casing.

The low-flow purging/sampling technique was implemented by ERM for each of the sampled wells, employing a flow-through cell, probe and meter to measure water quality parameters including temperature, pH, turbidity, specific conductivity, oxidation-reduction potential, and dissolved oxygen (DO) continuously at each well during purging. Samples were collected once the groundwater parameters stabilized for three consecutive readings in accordance with the U.S. Environmental Protection Agency Low

Stress Purging and Sampling Procedure for Collection of Groundwater from Monitoring Wells, dated January 2010. For quality control requirements a blind field duplicate was collected from MW-4, and a matrix spike, matrix spike duplicate was collected from MW-6.

All samples were transferred into clean, laboratory-supplied containers and placed into a chilled, thermally insulated cooler immediately after collection. Groundwater samples collected during the 23 April 2015 sampling event were transported by courier to Spectrum Analytical, Inc. (Spectrum) in Agawam, Massachusetts for analysis. Groundwater samples collected during the 31 August 2016 sampling event were transported by courier to Alpha Analytical (Alpha) in Westborough, MA. Spectrum and Alpha are New York State Department of Health (NYSDOH) approved environmental laboratories.

3.0

GROUND WATER TABLE ELEVATIONS

ERM collected depth to groundwater measurements from the shallow wells located along the west side of the Site on 23 April 2015 and 31 August 2016 (Table 1). Water table contour maps (Figure 3A and 3B, Appendix A) were compiled using the water level data from the eight shallow monitoring wells.

The water table contour map indicates that shallow groundwater flow during these events was generally to the north-northwest consistent with earlier sampling events.

4.0 ANALYTICAL RESULTS

Groundwater samples collected from the monitoring wells were analyzed for total chromium by United States Environmental Protection Agency (EPA) Method 6010C and hexavalent chromium by SW846-7196A in accordance with the 1995 NYSDEC Analytical Services Protocol (ASP) Category B deliverable guidelines. Analytical data from the April 2015 and August 2016 sampling events is summarized in the table below. A comprehensive summary of all of the groundwater analytical data collected between January 1996 and August 2016 is included as Table 2, Appendix B. Groundwater sampling records are included in Appendix C. Laboratory analytical reports are presented as Appendix D. A Data Usability Summary Reports performed by ERM are presented as Attachment E. This data quality review concluded that the results are valid and usable for assessment of the Site groundwater quality.

Laboratory analytical data from the 23 April 2015 and 31 August 2016 sampling events indicate that total chromium was detected above the NYSDEC groundwater standard of 0.050 milligrams per liter (mg/l) in the groundwater sample collected from monitoring well MW-4. Slight fluctuations in concentration over time are noted; however the current results are generally consistent with previous sampling efforts.

The hexavalent chromium detected in monitoring wells MW-4 and MW-8 were approximately equal to the total chromium value, indicating that all chromium detected in these wells was hexavalent chromium. Whereas the hexavalent chromium detected in MW-6 makes up less than 10 percent of the total chromium concentration.

| SAMPLE IDENTIFICATION | MW-4 | | MW-6 | | MW-8 | |
|----------------------------|----------|------------------|----------|------------------|----------|------------------|
| | Total Cr | Cr ⁶⁺ | Total Cr | Cr ⁶⁺ | Total Cr | Cr ⁶⁺ |
| April-2015 Sampling Event | 1.3600 | 1.580 | 0.0106 | 0.008 J | 0.0236 | 0.023 |
| August-2016 Sampling Event | 1.6960 | 1.680 | 0.0118 | 0.009 J | 0.0137 | 0.011 |

Notes:

Concentrations reported in milligrams per liter (mg/l).

Total Cr- total chromium

Cr⁶⁺ - Hexavalent chromium

J- Estimated value. The concentration is below the quantitation limit, but above the Method Detection Limit

Static groundwater measurements indicate groundwater flow at the Site was to the north-northwest which is consistent with previous sampling events.

Analytical data from the 23 April 2015 and 31 August 2016 sampling events indicates that MW-4 contained total chromium at a concentration that exceeds the NYSDEC Groundwater Standard. A review of the analytical data from previous sampling events indicated chromium concentrations in the groundwater collected from MW-4 have shown slight fluctuations with no clear trend. Hexavalent chromium concentrations obtained during these sampling events indicate that the concentrations of total chromium detected nearly equal the concentrations of hexavalent chromium detected in MW-4 as well as MW-8.

There is a general decreasing trend in total chromium concentration in groundwater collected from MW-8 since December 2005. Data collected during the April 2015 and August 2016 sampling events indicate total chromium concentrations below the NYSDEC Groundwater Standard. Data collected during the August 2016 event also indicates the lowest concentrations reported of total chromium and hexavalent chromium since July 2002.

Total chromium concentrations in MW-6 have shown slight fluctuations, but have been below the applicable groundwater standard since July 2002. Hexavalent chromium concentrations have shown a downward trend starting with the 2013 data. Hexavalent chromium made up 7-8 percent of the total chromium concentration in three consecutive sampling events; down from 2012 data where all of the detected chromium was in the hexavalent oxidation state.

Monitoring well MW-4 has total chromium concentrations which exceeded the applicable NYSDEC groundwater standard during ERM's monitoring period as shown on Table 2. Groundwater data collected from MW-8 located within the building has been below applicable NYSDEC groundwater standard through two consecutive rounds of monitoring. Groundwater data indicates that total chromium concentration in groundwater monitored proximal to the down-gradient boundaries of the Site have been below applicable NYSDEC groundwater standards since July 2002.

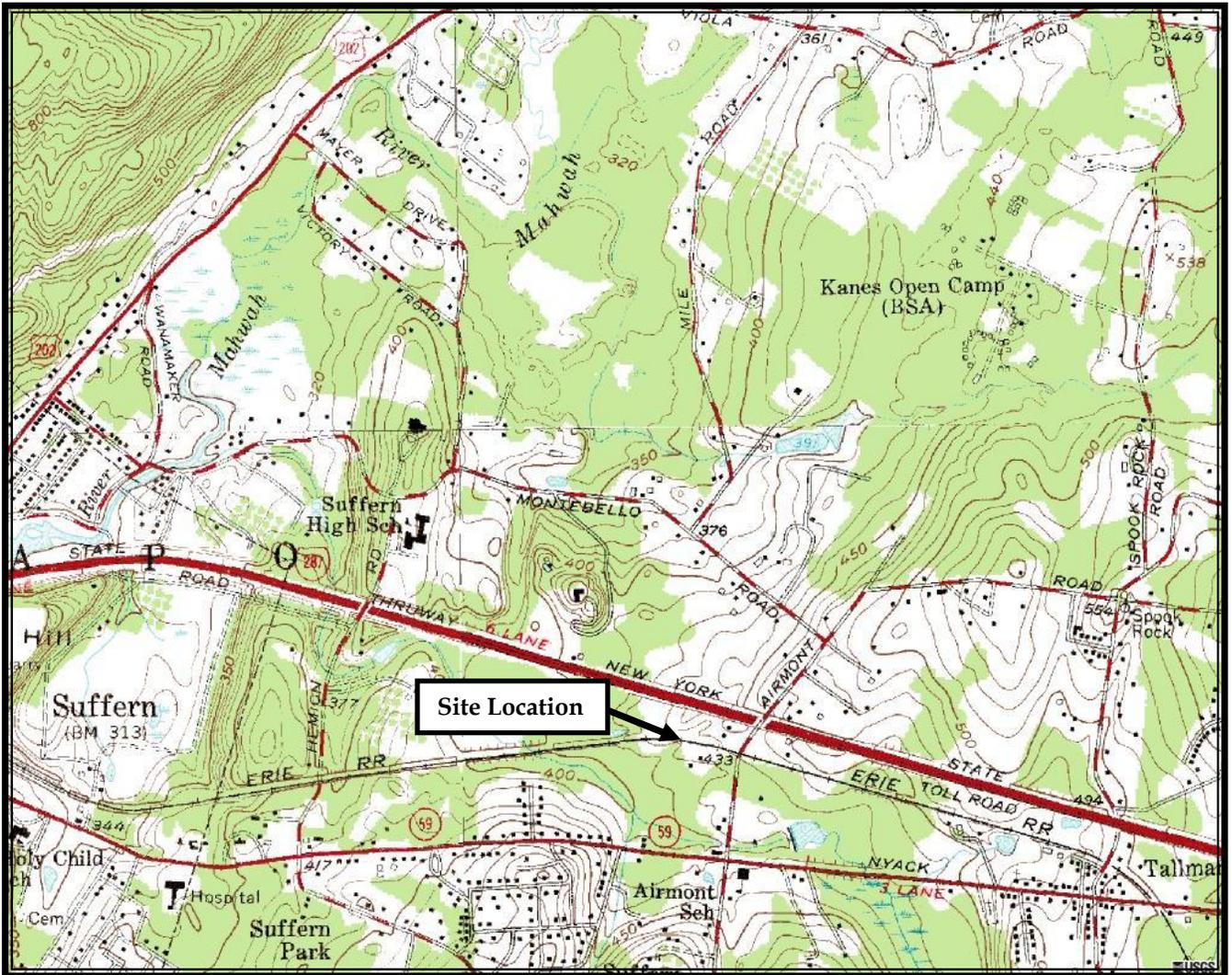
6.0

RECOMMENDATIONS

Groundwater monitoring was initiated at this site in 1996. There is currently one monitoring well (MW-4) with an exceedance of applicable NYSDEC groundwater standard. Concentrations in groundwater collected from MW-4 have only had slight fluctuation over the last decade and seems to be in a steady state. MW-8 located under the building has been below the applicable standards for two consecutive round of monitoring (i.e. three years). Monitoring well MW-6 located proximal to the property boundary and hydrogeologically downgradient of MW-4, has been below the applicable NYSDEC groundwater standard since 2002. Moreover, the data indicates a shift from the hexavalent chromium valence state to the less toxic and less mobile trivalent state. The Environmental Easement on the Site prohibits the use of water beneath the Site; unless the user first obtains permission from the NYSDEC. Groundwater in MW-4 is located approximately 20 feet below surface grade; therefore, the potential for inadvertent contact or use of the groundwater and the associated potential risk to human health and the environment is very low. ERM recommends discontinuation of groundwater monitoring at the Site due to the reasons summarized above.

As required by the NYSDEC, a Site Management Periodic Review Report (PRR) will be submitted every three years with the next PRR due September 2019.

APPENDIX A
FIGURES



SCALE 1 : 24,000



CONTOUR INTERVAL 20 FEET



| | | |
|---|-------|--|
| Site Location Former Banknote Facility Suffern, New York | | |
| Prepared For: | | Manhattan Beer Distributors |
|  ERM | Scale | As Shown |
| | Date | 14 Sept 09 |
| | | Figure 1 |



New York State Thruway

MW-6

MW-7

MW-10

MW-5

Stone Swale

Administrative Offices

DW-1

MW-4

Former Chromium Room

Loading Docks

MW-3

MW-8

Former Banknote Facility

MW-2

Electrical Transformer

Parking Lot

Parking Lot

Dunnigan Drive

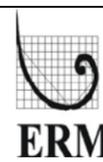
Legend

--- Fence

⊕ MW-2 Monitoring Well

Site Layout
Former Banknote Facility
Suffern, New York

Prepared For: Manhattan Beer Distributors



Scale
NTS

Date
14 Sept 09

Figure
2



New York State Thruway

MW-6
(346.96)

347
MW-7
(348.22)

MW-10
(348.06)

349

MW-5
(349.89)



351

353

MW-4
(353.44)

Loading
Docks

MW-3
(355.13)

Former
Chromium Room

355

MW-8
(356.21)

Former Banknote Facility

MW-2
(357.30)

Parking Lot

Parking Lot

Dunnigan Drive

Legend

-  Fence
-  MW-2 Monitoring Well
-  Ground Water Contour, Dashed Where Inferred

Ground Water Contour- 23 April 2015
Former Banknote Facility
Suffern, New York

Prepared For: Manhattan Beer Distributors



Scale
NTS

Date
23 April 2015

Figure
3A



New York State Thruway

MW-6
(345.63)

MW-7
(346.49)

MW-10
(346.14)

MW-5
(348.93)

347

349



351

MW-4
(352.08)

353

Loading
Docks

MW-3
(353.52)

Former
Chromium Room

MW-8
(354.49)

Former Banknote Facility

355

MW-2
355.18

Parking Lot

Parking Lot

Dunnigan Drive

Legend

-  Fence
-  MW-2 Monitoring Well
-  Ground Water Contour, Dashed Where Inferred

Ground Water Contour- 31 August 2016
Former Banknote Facility
Suffern, New York

Prepared For: Manhattan Beer Distributors



| | |
|-------|--------------|
| Scale | NTS |
| Date | 26 Sept 2016 |

Figure
3B

APPENDIX B
TABLES

TABLE 1
SUMMARY OF MONITORING WELL AND GROUND WATER ELEVATIONS- APRIL 2015 & August 2016
FORMER BANKNOTE OF AMERICA FACILITY
SUFFERN, ROCKLAND COUNTY, NEW YORK

| MONITORING WELL IDENTIFICATION | ELEVATION OF CASING (feet) | DEPTH TO GROUND WATER April 2015 (feet) | ELEVATION OF GROUND WATER April 2015 (feet) | DEPTH TO GROUND WATER August 2016 (feet) | ELEVATION OF GROUND WATER August 2016 (feet) |
|---|---|--|--|---|---|
| MW-2 | 368.19 | 10.89 | 357.30 | 13.01 | 355.18 |
| MW-3 | 369.64 | 14.51 | 355.13 | 16.12 | 353.52 |
| MW-4 | 373.14 | 19.70 | 353.44 | 21.06 | 352.08 |
| MW-5 | 366.91 | 17.02 | 349.89 | 17.98 | 348.93 |
| MW-6 | 370.02 | 23.06 | 346.96 | 24.39 | 345.63 |
| MW-7 | 371.30 | 23.08 | 348.22 | 24.81 | 346.49 |
| MW-8 | 373.66 | 17.45 | 356.21 | 19.17 | 354.49 |
| MW-10 | 368.97 | 20.91 | 348.06 | 22.83 | 346.14 |

NOTES:

Depth to ground water measured 23 April 2015 and 31 August 2016

TABLE 2
SUMMARY OF ANALYTICAL RESULTS FOR CHROMIUM IN GROUND WATER
FORMER BANKNOTE OF AMERICA FACILITY
SUFFERN, ROCKLAND COUNTY, NEW YORK

| SAMPLE IDENTIFICATION ANALYTE | MW-4 | | MW-6 | | MW-8 | |
|----------------------------------|-----------------|------------------|--------------|------------------|-----------------|------------------|
| | Total Cr | Cr ⁶⁺ | Total Cr | Cr ⁶⁺ | Total Cr | Cr ⁶⁺ |
| SAMPLE DATES | | | | | | |
| January-96 | --- | NA | --- | NA | --- | NA |
| May-96 | --- | NA | --- | NA | --- | NA |
| August-96 | 0.290 | NA | --- | NA | --- | NA |
| December-96 | 1.300 | NA | --- | NA | --- | NA |
| March-97 | 0.470 | NA | --- | NA | --- | NA |
| June-97 | 2.400 | NA | --- | NA | --- | NA |
| September-97 | 0.180 | NA | 0.210 | NA | --- | NA |
| December-97 | 0.210 | NA | 0.210 | NA | --- | NA |
| July-99 | 0.830 | NA | 0.080 | NA | --- | NA |
| July-02 | 0.550 | NA | 0.044 | NA | 0.180 | NA |
| December-04 | 0.814 J | NA | 0.047 J | NA | 0.274 J | NA |
| March-05 | 1.23 J | NA | 0.0324 J | NA | 0.274 J | NA |
| June-05 | 1.44 J | NA | 0.0132 J | NA | NS* | NA |
| September-05 | 0.0861 J | NA | 0.0357 J | NA | 0.0823 J | NA |
| December-05 | 0.885 | NA | 0.0184 | NA | 0.237 | NA |
| March-07 | 0.716 | NA | 0.0346 | NA | 0.133 | NA |
| May-08 | 1.410 | NA | 0.0347 | NA | 0.119 | NA |
| September-09 | 1.580 | NA | 0.0125 | NA | 0.073 | NA |
| November-10 | 1.5000 | NA | 0.0181 J | NA | 0.0410 | NA |
| March-12 | 1.7800 | 1.780 | 0.0167 | 0.020 | 0.0982 | 0.102 |
| June-13 | 0.6560 | 0.659 | 0.0102 | 0.008 U | 0.234 J | 0.313 J |
| April-15 | 1.3600 | 1.58 J | 0.0106 | 0.008 J | 0.0236 | 0.023 J |
| August-16 | 1.6960 | 1.680 | 0.0118 | 0.009 J | 0.0137 | 0.011 |

Notes:

Concentrations reported in mg/l.

NA -Not analyzed

BRL= Below Reporting Limit.

Bold white text with black background indicates exceedance of the NYSDEC action level in ground water of 0.05 mg/l.

J indicates an estimated value as per the DUSR or the laboratory analytical data.

U indicates hexavalent chromium was below the method detection limit

Total Cr- total chromium

Cr⁶⁺ -Hexavalent chromium

APPENDIX C
GROUND WATER SAMPLING RECORDS
APRIL 2015

APPENDIX C
GROUND WATER SAMPLING RECORDS
AUGUST 2015

APPENDIX D
LABORATORY ANALYTICAL REPORT
APRIL 2015

Report Date:
06-May-15 12:59



SPECTRUM ANALYTICAL, INC.

Laboratory Report

- Final Report
- Re-Issued Report
- Revised Report

Environmental Resources Management
5788 Widewaters Pkwy
Syracuse, NY 13214
Attn: Robert Sents

Project: Manhattan Beer Distributor - Suffern, NY
Project #: 0286112

| <u>Laboratory ID</u> | <u>Client Sample ID</u> | <u>Matrix</u> | <u>Date Sampled</u> | <u>Date Received</u> |
|----------------------|-------------------------|---------------|---------------------|----------------------|
| SC06415-01 | MW-4 (04115) | Ground Water | 23-Apr-15 12:25 | 24-Apr-15 08:15 |
| SC06415-02 | MW-6 (04115) | Ground Water | 23-Apr-15 11:25 | 24-Apr-15 08:15 |
| SC06415-03 | MW-8 (04115) | Ground Water | 23-Apr-15 13:40 | 24-Apr-15 08:15 |
| SC06415-04 | DUP (04115) | Ground Water | 23-Apr-15 17:00 | 24-Apr-15 08:15 |

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011
New York # 11393
Pennsylvania # 68-04426/68-02924
Rhode Island # LAO00098
USDA # S-51435



Authorized by:

Nicole Leja
Laboratory Director

Spectrum Analytical holds certification in the State of New York for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of New York does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.

Please note that this report contains 9 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our Quality web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey, Pennsylvania and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (PA-68-04426).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

CASE NARRATIVE:

Data has been reported to the MDL. This report includes estimated concentrations detected below the RDL and above the MDL (J-Flag).

All non-detects and all results below the detection limit are reported as "<" (less than) the detection limit in this report.

The samples were received 1.6 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

SM3500-Cr-B/7196A

Spikes:

1507887-MS1 *Source: SC06415-02*

The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

Hexavalent Chromium

1507887-MSD1 *Source: SC06415-02*

The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

Hexavalent Chromium

Samples:

SC06415-01 *MW-4 (04115)*

Sample dilution required for high concentration of target analytes to be within the instrument calibration range.

Hexavalent Chromium

SC06415-04 *DUP (04115)*

Sample dilution required for high concentration of target analytes to be within the instrument calibration range.

Hexavalent Chromium

SW846 6010C

Calibration:

S504250-CCV1

Analyte percent recovery is outside individual acceptance criteria (90-110).

Chromium (114%)

CCV1 was rerun as CCV2, which passed within the 10% method limits.

Chromium

SW846 6010C

Calibration:

S504250-CCV1

This affected the following samples:

1508400-BLK1
1508400-BS1
1508400-BSD1
1508400-DUP1
1508400-MS1
1508400-MSD1
1508400-PS1
DUP (04115)
MW-4 (04115)
MW-6 (04115)
MW-8 (04115)
S504250-CCV1
S504250-CCV2
S504250-CCV3
S504250-CCV4
S504250-CCV5

Sample Acceptance Check Form

Client: Environmental Resources Management - Syracuse, NY
 Project: Manhattan Beer Distributor - Suffern, NY / 0286112
 Work Order: SC06415
 Sample(s) received on: 4/24/2015

The following outlines the condition of samples for the attached Chain of Custody upon receipt.

| | <u>Yes</u> | <u>No</u> | <u>N/A</u> |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Were custody seals present? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Were custody seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were samples received at a temperature of $\leq 6^{\circ}\text{C}$? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Were samples cooled on ice upon transfer to laboratory representative? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Were sample containers received intact? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Were samples accompanied by a Chain of Custody document? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Did sample container labels agree with Chain of Custody document? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Were samples received within method-specific holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Sample Identification

MW-4 (04115)

SC06415-01

Client Project #

0286112

Matrix

Ground Water

Collection Date/Time

23-Apr-15 12:25

Received

24-Apr-15

| CAS No. | Analyte(s) | Result | Flag | Units | *RDL | MDL | Dilution | Method Ref. | Prepared | Analyzed | Analyst | Batch | Cert. |
|---------|------------|--------|------|-------|------|-----|----------|-------------|----------|----------|---------|-------|-------|
|---------|------------|--------|------|-------|------|-----|----------|-------------|----------|----------|---------|-------|-------|

Total Metals by EPA 200/6000 Series Methods

Preservation

Field
Preserved

N/A

1

EPA 200/6000
methods

LNB

1508019

Total Metals by EPA 6000/7000 Series Methods

| | | | | | | | | | | | | | |
|-----------|----------|------|--|------|--------|--------|---|-------------|---------------|---------------|----|---------|---|
| 7440-47-3 | Chromium | 1.36 | | mg/l | 0.0100 | 0.0021 | 1 | SW846 6010C | 05-May-1 5 | 05-May-1 5 | DA | 1508400 | X |
|-----------|----------|------|--|------|--------|--------|---|-------------|---------------|---------------|----|---------|---|

General Chemistry Parameters

| | | | | | | | | | | | | | |
|------------|---------------------|------|---------|------|-------|-------|---|-----------------------|--------------------|--------------------|-------|---------|---|
| 18540-29-9 | Hexavalent Chromium | 1.58 | GS1,LIV | mg/l | 0.125 | 0.052 | 1 | SM3500-Cr-B/71 96A | 24-Apr-15 09:01 | 24-Apr-15 09:34 | CAA/T | 1507887 | X |
|------------|---------------------|------|---------|------|-------|-------|---|-----------------------|--------------------|--------------------|-------|---------|---|

Sample Identification

MW-6 (04115)

SC06415-02

Client Project #

0286112

Matrix

Ground Water

Collection Date/Time

23-Apr-15 11:25

Received

24-Apr-15

| CAS No. | Analyte(s) | Result | Flag | Units | *RDL | MDL | Dilution | Method Ref. | Prepared | Analyzed | Analyst | Batch | Cert. |
|---------|------------|--------|------|-------|------|-----|----------|-------------|----------|----------|---------|-------|-------|
|---------|------------|--------|------|-------|------|-----|----------|-------------|----------|----------|---------|-------|-------|

Total Metals by EPA 200/6000 Series Methods

Preservation

Field
Preserved

N/A

1

EPA 200/6000
methods

LNB

1508019

Total Metals by EPA 6000/7000 Series Methods

| | | | | | | | | | | | | | |
|-----------|----------|--------|--|------|--------|--------|---|-------------|---------------|---------------|----|---------|---|
| 7440-47-3 | Chromium | 0.0106 | | mg/l | 0.0100 | 0.0021 | 1 | SW846 6010C | 05-May-1 5 | 05-May-1 5 | DA | 1508400 | X |
|-----------|----------|--------|--|------|--------|--------|---|-------------|---------------|---------------|----|---------|---|

General Chemistry Parameters

| | | | | | | | | | | | | | |
|------------|---------------------|-------|--|------|-------|-------|---|-----------------------|--------------------|--------------------|-------|---------|---|
| 18540-29-9 | Hexavalent Chromium | 0.008 | | mg/l | 0.005 | 0.002 | 1 | SM3500-Cr-B/71 96A | 24-Apr-15 09:01 | 24-Apr-15 09:35 | CAA/T | 1507887 | X |
|------------|---------------------|-------|--|------|-------|-------|---|-----------------------|--------------------|--------------------|-------|---------|---|

Sample Identification

MW-8 (04115)

SC06415-03

Client Project #

0286112

Matrix

Ground Water

Collection Date/Time

23-Apr-15 13:40

Received

24-Apr-15

| CAS No. | Analyte(s) | Result | Flag | Units | *RDL | MDL | Dilution | Method Ref. | Prepared | Analyzed | Analyst | Batch | Cert. |
|---------|------------|--------|------|-------|------|-----|----------|-------------|----------|----------|---------|-------|-------|
|---------|------------|--------|------|-------|------|-----|----------|-------------|----------|----------|---------|-------|-------|

Total Metals by EPA 200/6000 Series Methods

Preservation

Field
Preserved

N/A

1

EPA 200/6000
methods

LNB

1508019

Total Metals by EPA 6000/7000 Series Methods

| | | | | | | | | | | | | | |
|-----------|----------|--------|--|------|--------|--------|---|-------------|---------------|---------------|----|---------|---|
| 7440-47-3 | Chromium | 0.0236 | | mg/l | 0.0100 | 0.0021 | 1 | SW846 6010C | 05-May-1 5 | 05-May-1 5 | DA | 1508400 | X |
|-----------|----------|--------|--|------|--------|--------|---|-------------|---------------|---------------|----|---------|---|

General Chemistry Parameters

| | | | | | | | | | | | | | |
|------------|---------------------|-------|--|------|-------|-------|---|-----------------------|--------------------|--------------------|-------|---------|---|
| 18540-29-9 | Hexavalent Chromium | 0.023 | | mg/l | 0.005 | 0.002 | 1 | SM3500-Cr-B/71 96A | 24-Apr-15 09:01 | 24-Apr-15 09:41 | CAA/T | 1507887 | X |
|------------|---------------------|-------|--|------|-------|-------|---|-----------------------|--------------------|--------------------|-------|---------|---|

This laboratory report is not valid without an authorized signature on the cover page.

Sample Identification

DUP (04115)

SC06415-04

Client Project #

0286112

Matrix

Ground Water

Collection Date/Time

23-Apr-15 17:00

Received

24-Apr-15

| <i>CAS No.</i> | <i>Analyte(s)</i> | <i>Result</i> | <i>Flag</i> | <i>Units</i> | <i>*RDL</i> | <i>MDL</i> | <i>Dilution</i> | <i>Method Ref.</i> | <i>Prepared</i> | <i>Analyzed</i> | <i>Analyst</i> | <i>Batch</i> | <i>Cert.</i> |
|---|---------------------|-----------------|-------------|--------------|-------------|------------|-----------------|----------------------|-----------------|-----------------|----------------|--------------|--------------|
| Total Metals by EPA 200/6000 Series Methods | | | | | | | | | | | | | |
| | Preservation | Field Preserved | | N/A | | | 1 | EPA 200/6000 methods | | | LNB | 1508019 | |
| Total Metals by EPA 6000/7000 Series Methods | | | | | | | | | | | | | |
| 7440-47-3 | Chromium | 1.44 | | mg/l | 0.0100 | 0.0021 | 1 | SW846 6010C | 05-May-15 | 05-May-15 | DA | 1508400 | X |
| General Chemistry Parameters | | | | | | | | | | | | | |
| 18540-29-9 | Hexavalent Chromium | 1.45 | GS1,LIV | mg/l | 0.125 | 0.052 | 1 | SM3500-Cr-B/71 96A | 24-Apr-15 09:01 | 24-Apr-15 09:41 | CAA/T | 1507887 | X |

This laboratory report is not valid without an authorized signature on the cover page.

Total Metals by EPA 6000/7000 Series Methods - Quality Control

| Analyte(s) | Result | Flag | Units | *RDL | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---------------|------|-------|--------|---|---------------|------|-------------|-----|-----------|
| Batch 1508400 - SW846 3005A | | | | | | | | | | |
| <u>Blank (1508400-BLK1)</u> | | | | | <u>Prepared & Analyzed: 05-May-15</u> | | | | | |
| Chromium | < 0.0021 | U | mg/l | 0.0021 | | | | | | |
| <u>LCS (1508400-BS1)</u> | | | | | <u>Prepared & Analyzed: 05-May-15</u> | | | | | |
| Chromium | 2.59 | | mg/l | 0.0021 | 2.50 | | 104 | 85-115 | | |
| <u>LCS Dup (1508400-BSD1)</u> | | | | | <u>Prepared & Analyzed: 05-May-15</u> | | | | | |
| Chromium | 2.68 | | mg/l | 0.0021 | 2.50 | | 107 | 85-115 | 3 | 20 |
| <u>Duplicate (1508400-DUP1)</u> | | | | | <u>Source: SC06415-02</u> <u>Prepared & Analyzed: 05-May-15</u> | | | | | |
| Chromium | 0.0103 | | mg/l | 0.0021 | | 0.0106 | | | 3 | 20 |
| <u>Matrix Spike (1508400-MS1)</u> | | | | | <u>Source: SC06415-02</u> <u>Prepared & Analyzed: 05-May-15</u> | | | | | |
| Chromium | 2.70 | | mg/l | 0.0021 | 2.50 | 0.0106 | 107 | 75-125 | | |
| <u>Matrix Spike Dup (1508400-MSD1)</u> | | | | | <u>Source: SC06415-02</u> <u>Prepared & Analyzed: 05-May-15</u> | | | | | |
| Chromium | 2.54 | | mg/l | 0.0021 | 2.50 | 0.0106 | 101 | 75-125 | 6 | 20 |
| <u>Post Spike (1508400-PS1)</u> | | | | | <u>Source: SC06415-02</u> <u>Prepared & Analyzed: 05-May-15</u> | | | | | |
| Chromium | 2.70 | | mg/l | 0.0021 | 2.50 | 0.0106 | 108 | 80-120 | | |

This laboratory report is not valid without an authorized signature on the cover page.

General Chemistry Parameters - Quality Control

| Analyte(s) | Result | Flag | Units | *RDL | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|--------------|------|-------|-------|---|---------------|------|-------------|-----|-----------|
| Batch 1507887 - General Preparation | | | | | | | | | | |
| <u>Blank (1507887-BLK1)</u> | | | | | <u>Prepared & Analyzed: 24-Apr-15</u> | | | | | |
| Hexavalent Chromium | < 0.002 | U | mg/l | 0.002 | | | | | | |
| <u>LCS (1507887-BS1)</u> | | | | | <u>Prepared & Analyzed: 24-Apr-15</u> | | | | | |
| Hexavalent Chromium | 0.051 | | mg/l | 0.002 | 0.0500 | | 101 | 90-111 | | |
| <u>Duplicate (1507887-DUP1)</u> | | | | | <u>Prepared & Analyzed: 24-Apr-15</u> | | | | | |
| Hexavalent Chromium | 0.008 | | mg/l | 0.002 | | 0.008 | | | 1 | 20 |
| <u>Matrix Spike (1507887-MS1)</u> | | | | | <u>Prepared & Analyzed: 24-Apr-15</u> | | | | | |
| Hexavalent Chromium | 0.070 | QM7 | mg/l | 0.002 | 0.0500 | 0.008 | 125 | 85-115 | | |
| <u>Matrix Spike Dup (1507887-MSD1)</u> | | | | | <u>Prepared & Analyzed: 24-Apr-15</u> | | | | | |
| Hexavalent Chromium | 0.069 | QM7 | mg/l | 0.002 | 0.0500 | 0.008 | 122 | 85-115 | 2 | 20 |
| <u>Reference (1507887-SRM1)</u> | | | | | <u>Prepared & Analyzed: 24-Apr-15</u> | | | | | |
| Hexavalent Chromium | 0.024 | | mg/l | 0.002 | 0.0250 | | 96 | 85-115 | | |

This laboratory report is not valid without an authorized signature on the cover page.

Notes and Definitions

| | |
|-----|--|
| GS1 | Sample dilution required for high concentration of target analytes to be within the instrument calibration range. |
| QM7 | The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery. |
| U | Analyte included in the analysis, but not detected at or above the MDL. |
| Z-2 | CCV1 was rerun as CCV2, which passed within the 10% method limits. |
| dry | Sample results reported on a dry weight basis |
| NR | Not Reported |
| RPD | Relative Percent Difference |
| LIV | The initial volume for this sample has been reduced due to sample matrix and/or historical data therefore elevating the reporting limit. |

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

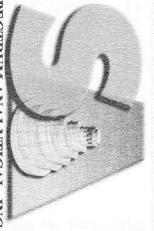
Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.

Validated by:
June O'Connor



SPECTRUM ANALYTICAL, INC.
 HANBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:

Standard TAT - 7 to 10 business days
 Rush TAT - Date Needed: _____
 All TATs subject to laboratory approval
 Min. 24-hr notification needed for rushes
 Samples disposed after 60 days unless otherwise instructed.

Report To: ERM

5788 Wadewaters Pkwy
Syracuse, NY 13214

Invoice To: SPMIE

Telephone #: 315-233-3038
 Project Mgr: Rob Sents

P.O. No.: _____

Quote/RON: _____

Project No: 028612

Site Name: Manhattan Beer Distributor

Location: Suffern State: NY
 Sampler(s): CRUSHED VOLUMES

F=Field Filtered 1=Na₂S₂O₃ 2=HCl 3=H₂SO₄ 4=HNO₃ 5=NaOH 6=Ascorbic Acid
 7=CH₃OH 8=NaHSO₄ 9=Deionized Water 10=H₂PO₄ 11=None 12= _____

DW=Drinking Water GW=Groundwater SW=Surface Water WW=Waste Water

O=Oil SO=Soil SL=Sludge A=Indoor/Ambient Air SG=Soil Gas

X1= _____ X2= _____ X3= _____

G=Grab

C=Composite

| Lab ID: | Sample ID: | Date: | Time: | Type | Matrix | Containers | | | | List Preservative Code below: | | Analysis | | Check if chlorinated | QA/QC Reporting Notes: | |
|----------|--------------|---------|-------|------|--------|----------------|------------------|------------------|--------------|-------------------------------|--|----------|--|----------------------|--------------------------------|---|
| | | | | | | # of VOA Vials | # of Amber Glass | # of Clear Glass | # of Plastic | | | | | | * additional charges may apply | |
| 06415-01 | MW-4 (04115) | 4/23/15 | 1225 | G | GW | | | | 2 | | | | | | | MA DEP MCP CAM Report? <input type="checkbox"/> Yes <input type="checkbox"/> No CT DPH RCP Report? <input type="checkbox"/> Yes <input type="checkbox"/> No Standard <input type="checkbox"/> No QC <input type="checkbox"/> <input type="checkbox"/> DOA* <input type="checkbox"/> NY <input type="checkbox"/> ASP A* <input checked="" type="checkbox"/> ASP B* <input type="checkbox"/> NJ Reduced* <input type="checkbox"/> NJ Full* <input type="checkbox"/> Tier II* <input type="checkbox"/> Tier IV* Other: _____ State-specific reporting standards: _____ |
| | MW-6 (04115) | | 1125 | G | GW | | | | 2 | | | | | | | Do not filter per client req 4/23/15 |
| | MW-8 (04115) | | 1340 | G | GW | | | | 2 | | | | | | | |
| | DUP (04115) | | 1700 | G | GW | | | | 2 | | | | | | | |

Relinquished by: _____ Received by: Rob Sents Date: 4/23/15 Time: 815

Temp °C: 2.6 Observed Correction Factor: 1.6 EDD format: E-mail to: Rob.Sents@erm.com

Condition upon receipt: Ambient Iced Refrigerated DI VOA Frozen Present Intact Broken

Custody Seals: Present Intact Broken

Soil Jar Frozen:

Sc 06415 e

APPENDIX D
LABORATORY ANALYTICAL REPORT
AUGUST 2016



ANALYTICAL REPORT

| | |
|-----------------|---|
| Lab Number: | L1627420 |
| Client: | ERM, Inc. 5788 Wide Waters Parkway Dewitt, NY 13214 |
| ATTN: | Rob Sents |
| Phone: | (315) 445-2553 |
| Project Name: | GROUNDWATER SAMPLING |
| Project Number: | 286112 |
| Report Date: | 09/06/16 |

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), VA (460195), MD (348), IL (200077), NC (666), TX (T104704476), DOD (L2217), USDA (Permit #P-330-11-00240).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: GROUNDWATER SAMPLING
Project Number: 286112

Lab Number: L1627420
Report Date: 09/06/16

| Alpha Sample ID | Client ID | Matrix | Sample Location | Collection Date/Time | Receive Date |
|-----------------|---------------|--------|-----------------|----------------------|--------------|
| L1627420-01 | MW6 (08/2016) | WATER | MBD | 08/31/16 11:10 | 08/31/16 |
| L1627420-02 | MW4 (08/2016) | WATER | MBD | 08/31/16 12:00 | 08/31/16 |
| L1627420-03 | MW8 (08/2016) | WATER | MBD | 08/31/16 13:00 | 08/31/16 |
| L1627420-04 | DUP (08/2016) | WATER | MBD | 08/31/16 14:00 | 08/31/16 |



Project Name: GROUNDWATER SAMPLING
Project Number: 286112

Lab Number: L1627420
Report Date: 09/06/16

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: GROUNDWATER SAMPLING
Project Number: 286112

Lab Number: L1627420
Report Date: 09/06/16

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L1627420-03: The sample collection time was obtained from the container label.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:



Amita Naik

Title: Technical Director/Representative

Date: 09/06/16

METALS

Project Name: GROUNDWATER SAMPLING
Project Number: 286112

Lab Number: L1627420
Report Date: 09/06/16

SAMPLE RESULTS

Lab ID: L1627420-01
 Client ID: MW6 (08/2016)
 Sample Location: MBD
 Matrix: Water

Date Collected: 08/31/16 11:10
 Date Received: 08/31/16
 Field Prep: Not Specified

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Prep Method | Analytical Method | Analyst |
|-------------------------------------|---------|-----------|-------|---------|---------|-----------------|----------------|----------------|-------------|-------------------|---------|
| Total Metals - Mansfield Lab | | | | | | | | | | | |
| Chromium, Total | 0.01118 | | mg/l | 0.00100 | 0.00020 | 1 | 09/01/16 11:05 | 09/02/16 10:59 | EPA 3005A | 3,200.8 | BV |



Project Name: GROUNDWATER SAMPLING
Project Number: 286112

Lab Number: L1627420
Report Date: 09/06/16

SAMPLE RESULTS

Lab ID: L1627420-02
 Client ID: MW4 (08/2016)
 Sample Location: MBD
 Matrix: Water

Date Collected: 08/31/16 12:00
 Date Received: 08/31/16
 Field Prep: Not Specified

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Prep Method | Analytical Method | Analyst |
|-------------------------------------|--------|-----------|-------|---------|---------|-----------------|----------------|----------------|-------------|-------------------|---------|
| Total Metals - Mansfield Lab | | | | | | | | | | | |
| Chromium, Total | 1.696 | | mg/l | 0.01000 | 0.00200 | 10 | 09/01/16 11:05 | 09/02/16 11:16 | EPA 3005A | 3,200.8 | BV |



Project Name: GROUNDWATER SAMPLING
Project Number: 286112

Lab Number: L1627420
Report Date: 09/06/16

SAMPLE RESULTS

Lab ID: L1627420-03
 Client ID: MW8 (08/2016)
 Sample Location: MBD
 Matrix: Water

Date Collected: 08/31/16 13:00
 Date Received: 08/31/16
 Field Prep: Not Specified

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Prep Method | Analytical Method | Analyst |
|-------------------------------------|---------|-----------|-------|---------|---------|-----------------|----------------|----------------|-------------|-------------------|---------|
| Total Metals - Mansfield Lab | | | | | | | | | | | |
| Chromium, Total | 0.01366 | | mg/l | 0.00100 | 0.00020 | 1 | 09/01/16 11:05 | 09/02/16 11:07 | EPA 3005A | 3,200.8 | BV |



Project Name: GROUNDWATER SAMPLING
Project Number: 286112

Lab Number: L1627420
Report Date: 09/06/16

SAMPLE RESULTS

Lab ID: L1627420-04
 Client ID: DUP (08/2016)
 Sample Location: MBD
 Matrix: Water

Date Collected: 08/31/16 14:00
 Date Received: 08/31/16
 Field Prep: Not Specified

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Prep Method | Analytical Method | Analyst |
|-------------------------------------|--------|-----------|-------|---------|---------|-----------------|----------------|----------------|-------------|-------------------|---------|
| Total Metals - Mansfield Lab | | | | | | | | | | | |
| Chromium, Total | 1.673 | | mg/l | 0.01000 | 0.00200 | 10 | 09/01/16 11:05 | 09/02/16 11:20 | EPA 3005A | 3,200.8 | BV |



Project Name: GROUNDWATER SAMPLING

Lab Number: L1627420

Project Number: 286112

Report Date: 09/06/16

Method Blank Analysis Batch Quality Control

| Parameter | Result Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|---|------------------|-------|---------|---------|-----------------|----------------|----------------|-------------------|---------|
| Total Metals - Mansfield Lab for sample(s): 01-04 Batch: WG928097-1 | | | | | | | | | |
| Chromium, Total | ND | mg/l | 0.00100 | 0.00020 | 1 | 09/01/16 11:05 | 09/02/16 10:24 | 3,200.8 | BV |

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: GROUNDWATER SAMPLING
Project Number: 286112

Lab Number: L1627420
Report Date: 09/06/16

| Parameter | LCS %Recovery | Qual | LCS %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|--|------------------|------|------------------|------|---------------------|-----|------|------------|
| Total Metals - Mansfield Lab Associated sample(s): 01-04 Batch: WG928097-2 | | | | | | | | |
| Chromium, Total | 101 | - | - | - | 85-115 | - | - | - |



Matrix Spike Analysis
Batch Quality Control

Project Name: GROUNDWATER SAMPLING
Project Number: 286112

Lab Number: L1627420
Report Date: 09/06/16

| Parameter | Native Sample | MS Added | MS Found | %Recovery | MS Found | MSD | %Recovery | MSD | Recovery Limits | RPD | Qual | RPD | Qual | RPD | Limits |
|--|---------------|----------|----------|-----------|----------|-----|-----------|-----|-----------------|-----|------|-----|------|-----|--------|
| Total Metals - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG928097-4 QC Sample: L1627306-01 Client ID: MS Sample | | | | | | | | | | | | | | | |
| Chromium, Total | 0.0007J | 0.2 | 0.2004 | 100 | - | - | - | - | 70-130 | - | - | - | - | - | 20 |



INORGANICS & MISCELLANEOUS

Project Name: GROUNDWATER SAMPLING**Lab Number:** L1627420**Project Number:** 286112**Report Date:** 09/06/16**SAMPLE RESULTS**

Lab ID: L1627420-01

Date Collected: 08/31/16 11:10

Client ID: MW6 (08/2016)

Date Received: 08/31/16

Sample Location: MBD

Field Prep: Not Specified

Matrix: Water

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|-------------------------------------|--------|-----------|-------|-------|-------|-----------------|----------------|----------------|-------------------|---------|
| General Chemistry - Westborough Lab | | | | | | | | | | |
| Chromium, Hexavalent | 0.009 | J | mg/l | 0.010 | 0.003 | 1 | 09/01/16 07:26 | 09/01/16 07:31 | 1,7196A | MC |



Project Name: GROUNDWATER SAMPLING**Lab Number:** L1627420**Project Number:** 286112**Report Date:** 09/06/16**SAMPLE RESULTS**

Lab ID: L1627420-02

Date Collected: 08/31/16 12:00

Client ID: MW4 (08/2016)

Date Received: 08/31/16

Sample Location: MBD

Field Prep: Not Specified

Matrix: Water

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|-------------------------------------|--------|-----------|-------|-------|-------|--------------------|------------------|------------------|----------------------|---------|
| General Chemistry - Westborough Lab | | | | | | | | | | |
| Chromium, Hexavalent | 1.68 | | mg/l | 0.100 | 0.030 | 10 | 09/01/16 07:26 | 09/01/16 07:34 | 1,7196A | MC |



Project Name: GROUNDWATER SAMPLING**Lab Number:** L1627420**Project Number:** 286112**Report Date:** 09/06/16**SAMPLE RESULTS**

Lab ID: L1627420-03

Date Collected: 08/31/16 13:00

Client ID: MW8 (08/2016)

Date Received: 08/31/16

Sample Location: MBD

Field Prep: Not Specified

Matrix: Water

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|-------------------------------------|--------|-----------|-------|-------|-------|--------------------|------------------|------------------|----------------------|---------|
| General Chemistry - Westborough Lab | | | | | | | | | | |
| Chromium, Hexavalent | 0.011 | | mg/l | 0.010 | 0.003 | 1 | 09/01/16 07:26 | 09/01/16 07:35 | 1,7196A | MC |



Project Name: GROUNDWATER SAMPLING

Lab Number: L1627420

Project Number: 286112

Report Date: 09/06/16

SAMPLE RESULTS

Lab ID: L1627420-04

Date Collected: 08/31/16 14:00

Client ID: DUP (08/2016)

Date Received: 08/31/16

Sample Location: MBD

Field Prep: Not Specified

Matrix: Water

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|-------------------------------------|--------|-----------|-------|-------|-------|--------------------|------------------|------------------|----------------------|---------|
| General Chemistry - Westborough Lab | | | | | | | | | | |
| Chromium, Hexavalent | 1.87 | | mg/l | 0.100 | 0.030 | 10 | 09/01/16 07:26 | 09/01/16 07:35 | 1,7196A | MC |



Project Name: GROUNDWATER SAMPLING
Project Number: 286112

Lab Number: L1627420
Report Date: 09/06/16

Method Blank Analysis
Batch Quality Control

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|--|--------|-----------|-------|-------|-------|--------------------|------------------|------------------|----------------------|---------|
| General Chemistry - Westborough Lab for sample(s): 01-04 Batch: WG927992-1 | | | | | | | | | | |
| Chromium, Hexavalent | ND | | mg/l | 0.010 | 0.003 | 1 | 09/01/16 07:26 | 09/01/16 07:30 | 1,7196A | MC |

Lab Control Sample Analysis

Batch Quality Control

Project Name: GROUNDWATER SAMPLING

Project Number: 286112

Lab Number: L1627420

Report Date: 09/06/16

| Parameter | LCS %Recovery | Qual | LCS %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|---|------------------|------|------------------|------|---------------------|-----|------|------------|
| General Chemistry - Westborough Lab Associated sample(s): 01-04 Batch: WG927992-2 | | | | | | | | |
| Chromium, Hexavalent | 96 | | - | | 85-115 | - | | 20 |



Matrix Spike Analysis
Batch Quality Control

Project Name: GROUNDWATER SAMPLING
Project Number: 286112

Lab Number: L1627420
Report Date: 09/06/16

| Parameter | Native Sample | MS Added | MS Found | %Recovery | MS Found | MSD | %Recovery | MSD | Recovery Limits | RPD | Qual | RPD | Qual | RPD | Limits |
|---|---------------|----------|----------|-----------|----------|-----|-----------|-----|-----------------|-----|------|-----|------|-----|--------|
| General Chemistry - Westborough Lab Associated sample(s): 01-04 QC Batch ID: WG927992-4 QC Sample: L1627420-01 Client ID: MW6 (08/2016) | | | | | | | | | | | | | | | |
| Chromium, Hexavalent | 0.009J | 0.1 | 0.112 | 112 | - | - | 85-115 | - | - | 20 | | | | | |



Lab Duplicate Analysis

Batch Quality Control

Project Name: GROUNDWATER SAMPLING

Lab Number: L1627420

Project Number: 286112

Report Date: 09/06/16

| Parameter | Native Sample | Duplicate Sample | Units | RPD | Qual | RPD Limits |
|---|---------------|------------------|-------|-----|------|------------|
| General Chemistry - Westborough Lab Associated sample(s): 01-04 QC Batch ID: WG927992-3 QC Sample: L1627420-01 Client ID: MW6 (08/2016) | | | | | | |
| Chromium, Hexavalent | 0.009J | 0.007J | mg/l | NC | | 20 |



Project Name: GROUNDWATER SAMPLING**Lab Number:** L1627420**Project Number:** 286112**Report Date:** 09/06/16**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

Cooler Information Custody Seal**Cooler**

A Absent

Container Information

| Container ID | Container Type | Cooler | pH | Temp deg C | Pres | Seal | Analysis(*) |
|--------------|------------------------------|--------|----|---------------|------|--------|---------------|
| L1627420-01A | Plastic 250ml unpreserved | A | 8 | 4.1 | Y | Absent | HEXCR-7196(1) |
| L1627420-01B | Plastic 250ml HNO3 preserved | A | <2 | 4.1 | Y | Absent | CR-2008T(180) |
| L1627420-02A | Plastic 250ml unpreserved | A | 7 | 4.1 | Y | Absent | HEXCR-7196(1) |
| L1627420-02B | Plastic 250ml HNO3 preserved | A | <2 | 4.1 | Y | Absent | CR-2008T(180) |
| L1627420-03A | Plastic 250ml unpreserved | A | 8 | 4.1 | Y | Absent | HEXCR-7196(1) |
| L1627420-03B | Plastic 250ml HNO3 preserved | A | <2 | 4.1 | Y | Absent | CR-2008T(180) |
| L1627420-04A | Plastic 250ml unpreserved | A | 7 | 4.1 | Y | Absent | HEXCR-7196(1) |
| L1627420-04B | Plastic 250ml HNO3 preserved | A | <2 | 4.1 | Y | Absent | CR-2008T(180) |

*Values in parentheses indicate holding time in days



Project Name: GROUNDWATER SAMPLING
Project Number: 286112

Lab Number: L1627420
Report Date: 09/06/16

GLOSSARY

Acronyms

| | |
|----------|---|
| EDL | - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME). |
| EPA | - Environmental Protection Agency. |
| LCS | - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes. |
| LCSD | - Laboratory Control Sample Duplicate: Refer to LCS. |
| LFB | - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes. |
| MDL | - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. |
| MS | - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. |
| MSD | - Matrix Spike Sample Duplicate: Refer to MS. |
| NA | - Not Applicable. |
| NC | - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit. |
| NDPA/DPA | - N-Nitrosodiphenylamine/Diphenylamine. |
| NI | - Not Ignitable. |
| NP | - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil. |
| RL | - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable. |
| RPD | - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report. |
| SRM | - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples. |
| STLP | - Semi-dynamic Tank Leaching Procedure per EPA Method 1315. |
| TIC | - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations. |

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the

Report Format: DU Report with 'J' Qualifiers



Project Name: GROUNDWATER SAMPLING
Project Number: 286112

Lab Number: L1627420
Report Date: 09/06/16

Data Qualifiers

- reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
 - D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
 - E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
 - G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
 - H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
 - I** - The lower value for the two columns has been reported due to obvious interference.
 - M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
 - NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
 - P** - The RPD between the results for the two columns exceeds the method-specified criteria.
 - Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
 - R** - Analytical results are from sample re-analysis.
 - RE** - Analytical results are from sample re-extraction.
 - S** - Analytical results are from modified screening analysis.
 - J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
 - ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Project Name: GROUNDWATER SAMPLING
Project Number: 286112

Lab Number: L1627420
Report Date: 09/06/16

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624: m/p-xylene, o-xylene

EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 300: DW: Bromide

EPA 6860: NPW and SCM: Perchlorate

EPA 9010: NPW and SCM: Amenable Cyanide Distillation

EPA 9012B: NPW: Total Cyanide

EPA 9050A: NPW: Specific Conductance

SM3500: NPW: Ferrous Iron

SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.

SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility

SM 2540D: TSS

EPA 3005A NPW

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: **EPA 3050B**

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH, EPA 350.1: Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F, EPA 353.2:** Nitrate-N, **EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**

EPA 624: Volatile Halocarbons & Aromatics,

EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF.**

Mansfield Facility:

Drinking Water

EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg.**

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

NEW YORK CHAIN OF CUSTODY
 Westborough, MA 01581
 8 Walkup Dr.
 TEL: 508-898-9220
 FAX: 508-898-9193

Service Centers
 Mahwah, NJ 07430: 35 Whitney Rd, Suite 6
 Albany, NY 12205: 14 Walker Way
 Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Project Information
 Project Name: Groundwater Sampling
 Project Location: MBD
 Project # 28612

Client Information
 Client: ERM
 Address: 5788 Widewaters Parkway
 Dewitt, NY 13214
 Phone: 315-445-2554
 Fax: 315-256-5350
 Email: Rob.Sents@ERM.com

Deliverables
 ASP-A
 ASP-B
 EQulS (1 File)
 EQulS (4 File)
 Other

Regulatory Requirement
 NY TOGS
 NY Part 375
 AWQ Standards
 NY CP-51
 NY Restricted Use
 NY Unrestricted Use
 NYC Sewer Discharge

Disposal Site Information
 Please identify below location of applicable disposal facilities.
 Disposal Facility:
 NJ
 NY
 Other: NA

Alpha Job # 11627426

Date Rec'd in Lab 9/1/16

Disposal Site Information
 Please identify below location of applicable disposal facilities.
 Disposal Facility:
 NJ
 NY
 Other: NA

Project Information
 Project name as Project #
 Project Manager: Candace Fox
 ALPHAQuote #:
 Turn-Around Time
 Standard
 Rush (only if pre approved)
 Due Date:
 # of Days:

These samples have been previously analyzed by Alpha

Other project specific requirements/comments:

Please specify Metals or TAL.

| ALPHA Lab ID (Lab Use Only) | Sample ID | Collection | | Sample Matrix | Sampler's Initials | Date/Time | Date/Time | Date/Time |
|--------------------------------|----------------|------------|-------|---------------|--------------------|-----------|-----------|---------------|
| | | Date | Time | | | | | |
| 27420-01 | MW6 (08/20/16) | 8/31/16 | 11:10 | Water | RS | 8/31/16 | 11:10 | 8/31/16 16:50 |
| -02 | MW4 (08/20/16) | 8/31/16 | 12:00 | Water | RS | 8/31/16 | 12:00 | 8/31/16 16:50 |
| -03 | MW8 (08/20/16) | 8/31/16 | | Water | RS | 8/31/16 | | 8/31/16 16:50 |
| -04 | Dup (08/20/16) | 8/31/16 | 14:00 | Water | RS | 8/31/16 | 14:00 | 8/31/16 16:50 |

| ANALYSIS | Hexachrome | T-Metals (Chromium) | Container Type | Preservative | Received By: | Date/Time |
|----------|------------|---------------------|----------------|--------------|--------------|---------------|
| | | X | P | | [Signature] | 8/31/16 16:50 |
| | | X | P | | [Signature] | 8/31/16 16:50 |
| | | X | P | | [Signature] | 8/31/16 16:50 |
| | | X | P | | [Signature] | 8/31/16 16:50 |

Sample Filtration
 Done
 Lab to do
 Preservation
 Lab to do
 (Please Specify below)

Sample Specific Comments

Westboro: Certification No: MA935
 Mansfield: Certification No: MA015

Container Code:
 P = Plastic
 A = Amber Glass
 V = Vial
 G = Glass
 B = Bacteria Cup
 C = Cube
 O = Other
 E = Encore
 D = BOD Bottle

Preservative Code:
 A = None
 B = HCl
 C = HNO₃
 D = H₂SO₄
 E = NaOH
 F = MeOH
 G = NaHSO₄
 H = Na₂S₂O₃
 K/E = Zn Ac/NaOH
 O = Other

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

APPENDIX E
DATA USABILITY SUMMARY REPORT
APRIL 2015



**DATA USABILITY SUMMARY REPORT (DUSR)
MANHATTAN BEER DISTRIBUTORS
FORMER BANKNOTE FACILITY
SUFFERN, NEW YORK
2015 APRIL GROUND WATER SAMPLE ANALYSIS
ENVIRONMENTAL RESOURCES MANAGEMENT (ERM)
PROJECT NUMBER 0286112
SPECTRUM ANALYTICAL, INC. JOB NUMBER SC06415**

Deliverables:

The above referenced data package for three (3) ground water samples, one (1) blind field duplicate sample, and one (1) set of matrix spike/matrix spike duplicate samples contains all required deliverables as stipulated under the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP) for Category B deliverables. The sample specific analysis included Chromium analyzed by United States Environmental Protection Agency (USEPA) SW-846 Method 6010C and Hexavalent Chromium analyzed by USEPA SW-846 Method 7196A. These methods follow "Test Methods for Evaluation Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions". The data have been evaluated according to the protocols and quality control (QC) requirements of the ASP, the National Functional Guidelines for Inorganic Data Review (August 2014), the USEPA Region II Data Review SOP Number HW-2a, Revision 15, December 2012: ICP-AES Data Validation and the reviewer's professional judgment.

This validation report pertains to the following ground water samples collected on 23 April 2015:

| <u>Samples</u> | <u>QC Samples</u> |
|----------------|--|
| MW-4 (04115) | DUP (04115) - blind field duplicate of sample MW-4 (04115) |
| MW-6 (04115) | MW-6 (04115) MS/MSD |
| MW-8 (04115) | |

Chain-of-Custody

- The Chain-of-Custody (COC) was reviewed for completeness and accuracy. The COC listed filtered analysis for chromium; total not filtered analysis was required for chromium. The lab inquired and the correct analysis was performed. There were no other discrepancies observed with the samples presented on the

COC, and all tests specified on the COC were performed for the designated samples.

Inorganics

The following items/criteria were reviewed:

- Case narrative and deliverable requirements
- Holding times and sample preservation
- Method Reporting Limits (MRLs)
- Method Detection Limits (MDLs)
- Inorganic Analysis Data Sheets (Form I)
- Initial and continuing calibration verifications (ICV and CCV)
- Contract Required Detection Limit (CRDL) Standard
- Lab Blank data
- ICP Interference Check Sample (ICS) analysis
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) analysis and results
- Matrix Duplicate (MD) analysis and results
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) analysis and results
- Matrix Spike / Matrix Spike Duplicate (MS/MSD) analysis and results
- Serial Dilution (SD) analysis and results
- Standard Reference Material (SRM) analysis and results
- Blind Field Duplicate analysis

The items listed above were technically and contractually in compliance with SW-846 protocols with the exceptions discussed in the text below. The data have been validated according to the procedures outlined above and qualified accordingly.

- The percent recovery (%R) for Hexavalent Chromium was above QC criteria in the MS/MSD analyzed on sample MW-6 (04115) (125% and 122% respectively; QC limits 85-115%). Results for all Hexavalent Chromium in all samples are possibly biased high and therefore qualified as estimated, "J".
- The %R for Chromium was above QC criteria (114%: QC limits 90-110%) in CCV1 in analytical sequence S504250. No qualification of the sample data is required as no samples were analyzed associated with this CCV.

- The analysis of Hexavalent Chromium in samples MW-4 (04115) and DUP (04115) was performed at a dilution in an effort to obtain results within the instrument calibration range. The dilutions were justified. No qualification of the sampler data is required.
- The concentration of hexavalent chromium was greater than the concentration of total chromium in samples MW-4 (04115) and DUP (04115). No qualification of the sample data is required as the percent difference (%D) between the two concentrations is less than 20% and the difference considered minimal.

Package Summary:

All data are valid and usable with qualifications as noted in this review.



Signed:

Andrew J. Coenen
ERM QA Officer

Dated: 31 May 2015

FORM I - INORGANIC ANALYSIS DATA SHEET

SW846 6010C

MW-6 (04115)

Laboratory: Spectrum Analytical, Inc. - Agawam, MA SDG: 06415
 Client: Environmental Resources Management - Syracuse, NY Project: Manhattan Beer Distributor - Suffern, NY
 Project Number: 0286112 Received: 04/24/15 08:15
 Matrix: Ground Water Laboratory ID: SC06415-02 File ID: 20150505-167
 Sampled: 04/23/15 11:25 Prepared: 05/05/15 13:15
 % Solids: Preparation: SW846 3005A Initial/Final: 50 ml / 50 ml
 Batch: 1508400 Sequence: S504250 Calibration: 1505021
 Instrument: ICAP2
 Reported to: MDL

| CAS NO. | Analyte | Result (mg/l) | Dilution Factor | MDL | MRL | Q |
|-----------|----------|---------------|-----------------|--------|--------|---|
| 7440-47-3 | Chromium | 0.0106 | 1 | 0.0021 | 0.0100 | |

FORM I - INORGANIC ANALYSIS DATA SHEET

SW846 6010C

MW-8 (04115)

Laboratory: Spectrum Analytical, Inc. - Agawam, MA SDG: 06415
 Client: Environmental Resources Management - Syracuse, NY Project: Manhattan Beer Distributor - Suffern, NY
 Project Number: 0286112 Received: 04/24/15 08:15
 Matrix: Ground Water Laboratory ID: SC06415-03 File ID: 20150505-174
 Sampled: 04/23/15 13:40 Prepared: 05/05/15 13:15
 % Solids: Preparation: SW846 3005A Initial/Final: 50 ml / 50 ml
 Batch: 1508400 Sequence: S504250 Calibration: 1505021
 Instrument: ICAP2
 Reported to: MDL

| CAS NO. | Analyte | Result (mg/l) | Dilution Factor | MDL | MRL | Q |
|-----------|----------|---------------|-----------------|--------|--------|---|
| 7440-47-3 | Chromium | 0.0236 | 1 | 0.0021 | 0.0100 | |

FORM I - INORGANIC ANALYSIS DATA SHEET

SM3500-Cr-B/7196A

MW-4 (04115)

Laboratory: Spectrum Analytical, Inc. - Agawam, MA SDG: 06415
 Client: Environmental Resources Management - Syracuse, NY Project: Manhattan Beer Distributor - Suffern, NY
 Project Number: 0286112 Received: 04/24/15 08:15
 Matrix: Ground Water Laboratory ID: SC06415-01 File ID: 1507887-010
 Sampled: 04/23/15 12:25 Prepared: 04/24/15 09:01 Analyzed: 04/24/15 09:34
 % Solids: Preparation: General Preparation Initial/Final: 2 ml / 50 ml
 Batch: 1507887 Sequence: S504656 Calibration: 1505054
 Instrument: Spec 1
 Reported to: MDL

| CAS NO. | Analyte | Result (mg/l) | Dilution Factor | MDL | MRL | Q |
|------------|---------------------|---------------|-----------------|-------|-------|---|
| 18540-29-9 | Hexavalent Chromium | 1.58 | 1 | 0.052 | 0.125 | J |

FORM I - INORGANIC ANALYSIS DATA SHEET

SM3500-Cr-B/7196A

DUP (04115)

| | | | |
|-----------------|--|----------------|---|
| Laboratory: | <u>Spectrum Analytical, Inc. - Agawam, MA</u> | SDG: | <u>06415</u> |
| Client: | <u>Environmental Resources Management - Syracuse, NY</u> | Project: | <u>Manhattan Beer Distributor - Suffern, NY</u> |
| Project Number: | <u>0286112</u> | Received: | <u>04/24/15 08:15</u> |
| Matrix: | <u>Ground Water</u> | Laboratory ID: | <u>SC06415-04</u> |
| | | File ID: | <u>1507887-019</u> |
| Sampled: | <u>04/23/15 17:00</u> | Prepared: | <u>04/24/15 09:01</u> |
| | | Analyzed: | <u>04/24/15 09:41</u> |
| % Solids: | | Preparation: | <u>General Preparation</u> |
| | | Initial/Final: | <u>2 ml / 50 ml</u> |
| Batch: | <u>1507887</u> | Sequence: | <u>S504656</u> |
| | | Calibration: | <u>1505054</u> |
| Instrument: | <u>Spec 1</u> | | |
| Reported to: | <u>MDL</u> | | |

| CAS NO. | Analyte | Result (mg/l) | Dilution Factor | MDL | MRL | Q |
|------------|---------------------|---------------|-----------------|-------|-------|---|
| 18540-29-9 | Hexavalent Chromium | 1.45 | 1 | 0.052 | 0.125 | J |

FORM I - INORGANIC ANALYSIS DATA SHEET

SM3500-Cr-B/7196A

MW-6 (04115)

Laboratory: Spectrum Analytical, Inc. - Agawam, MA SDG: 06415
 Client: Environmental Resources Management - Syracuse, NY Project: Manhattan Beer Distributor - Suffern, NY
 Project Number: 0286112 Received: 04/24/15 08:15
 Matrix: Ground Water Laboratory ID: SC06415-02 File ID: 1507887-011
 Sampled: 04/23/15 11:25 Prepared: 04/24/15 09:01 Analyzed: 04/24/15 09:35
 % Solids: Preparation: General Preparation Initial/Final: 50 ml / 50 ml
 Batch: 1507887 Sequence: S504656 Calibration: 1505054
 Instrument: Spec 1
 Reported to: MDL

| CAS NO. | Analyte | Result (mg/l) | Dilution Factor | MDL | MRL | Q |
|------------|---------------------|---------------|-----------------|-------|-------|---|
| 18540-29-9 | Hexavalent Chromium | 0.008 | 1 | 0.002 | 0.005 | J |

FORM I - INORGANIC ANALYSIS DATA SHEET

SM3500-Cr-B/7196A

MW-8 (04115)

Laboratory: Spectrum Analytical, Inc. - Agawam, MA SDG: 06415
 Client: Environmental Resources Management - Syracuse, NY Project: Manhattan Beer Distributor - Suffern, NY
 Project Number: 0286112 Received: 04/24/15 08:15
 Matrix: Ground Water Laboratory ID: SC06415-03 File ID: 1507887-018
 Sampled: 04/23/15 13:40 Prepared: 04/24/15 09:01 Analyzed: 04/24/15 09:41
 % Solids: Preparation: General Preparation Initial/Final: 50 ml / 50 ml
 Batch: 1507887 Sequence: S504656 Calibration: 1505054
 Instrument: Spec 1
 Reported to: MDL

| CAS NO. | Analyte | Result (mg/l) | Dilution Factor | MDL | MRL | Q |
|------------|---------------------|---------------|-----------------|-------|-------|---|
| 18540-29-9 | Hexavalent Chromium | 0.023 | 1 | 0.002 | 0.005 | J |

APPENDIX E
DATA USABILITY SUMMARY REPORT
AUGUST 2016



**DATA USABILITY SUMMARY REPORT (DUSR)
MANHATTAN BEER DISTRIBUTORS
FORMER BANKNOTE FACILITY
SUFFERN, NEW YORK
2016 AUGUST GROUND WATER SAMPLE ANALYSIS
ENVIRONMENTAL RESOURCES MANAGEMENT (ERM)
PROJECT NUMBER 0286112
ALPHA ANALYTICAL
SAMPLE DELIVERY GROUP (SDG) L1627420**

Deliverables:

The above referenced data package for three (3) ground water samples and one (1) blind field duplicate sample contains all required deliverables as stipulated under the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP) for Category B deliverables. The sample specific analysis included Chromium analyzed by United States Environmental Protection Agency (USEPA) Method 200.8 following "Methods for the Determination of Metals in Environmental Samples, Supplement I (EPA/600/R-94/1111, May 1994)". The sample specific analysis also included Hexavalent Chromium analyzed by USEPA SW-846 Method 7196A following "Test Methods for Evaluation Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions". The data have been evaluated according to the protocols and quality control (QC) requirements of the ASP, the National Functional Guidelines for Inorganic Data Review (August 2014), the USEPA Region II Data Review SOP Number HW-3a, Revision 0, July 2015: ICP-AES Data Validation and the reviewer's professional judgment.

This validation report pertains to the following ground water samples collected on 31 August 2016:

| <u>Samples</u> | <u>QC Samples</u> |
|----------------|---|
| MW4 (08/2016) | DUP (08/2016) - blind field duplicate of sample MW4 (08/2016) |
| MW6 (08/2016) | MW6 (08/2016) MS |
| MW8 (08/2016) | Batch MS |

Chain-of-Custody

- The Chain-of-Custody (COC) was reviewed for completeness and accuracy. The laboratory has noted in the case narrative that the time of sample collection for MW8 (08/2016) (L1627420-03) was not listed on the COC and has been obtained from the container

label. There were no other discrepancies observed with the samples presented on the COC, and all tests specified on the COC were performed for the designated samples.

Inorganics

The following items/criteria were reviewed:

- Case narrative and deliverable requirements
- Holding times and sample preservation
- Reporting Limits (RLs)
- Method Detection Limits (MDLs)
- Inorganic Analysis Data Sheets (Form I)
- Initial and continuing calibration verifications (ICV and CCV)
- Lab Blank data
- Interference Check Sample (ICS) analysis
- Matrix Spike (MS) analysis and results
- Matrix Duplicate (MD) analysis and results
- Laboratory Control Sample (LCS) analysis and results
- ICP-MS Internal Standards Relative Intensity Summary
- Blind Field Duplicate analysis

The items listed above were technically and contractually in compliance with SW-846 protocols with the exceptions discussed in the text below. The data have been validated according to the procedures outlined above and qualified accordingly.

- The laboratory reports positively identified results between the reporting limit (RL) and the method detection limit (MDL) with a J. These results are considered estimated, however still valid and useable for project objectives.
- Typically a matrix spike/matrix duplicate (MS/MD) set are collected and submitted to the laboratory per twenty field samples collected. In this case, no MS/MD was collected. The laboratory provided batch QC from a sample not from this data set for Chromium MS/MD analysis. The laboratory utilized sample MW6 (08/2016) for Hexavalent Chromium MS/MD analysis. No QC issues were observed.
- The analysis of Chromium and Hexavalent Chromium for samples MW4 (08/2016) and DUP (08/2016) was performed at a tenfold (10x) dilution in an effort to obtain results within the

calibration range of the instrument. The dilutions were justified. No qualification of the sample data is required.

- The concentration of hexavalent chromium was greater than the concentration of total chromium in sample DUP (08/2016). No qualification of the sample data is required as the percent difference (%D) between the two concentrations is less than 20% and the difference considered minimal.

Package Summary:

All data are valid and usable with qualifications as noted in this review.



Signed:

Andrew J. Coenen
ERM QA Officer

Dated: 13 September 2016

Form 1 METALS

Client : ERM, Inc.
 Project Name : GROUNDWATER SAMPLING
 Lab ID : L1627420-01
 Client ID : MW6 (08/2016)
 Sample Location : MBD
 Sample Matrix : WATER
 Analytical Method : 3,200.8
 Lab File ID : WG928434.pdf
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1627420
 Project Number : 286112
 Date Collected : 08/31/16 11:10
 Date Received : 08/31/16
 Date Analyzed : 09/02/16 10:59
 Dilution Factor : 1
 Analyst : BV
 Instrument ID : ICPMSX
 %Solids : N/A
 Date Digested : 09/01/16

| CAS NO. | Parameter | mg/l | | | Qualifier |
|-----------|-----------------|---------|---------|---------|-----------|
| | | Results | RL | MDL | |
| 7440-47-3 | Chromium, Total | 0.01118 | 0.00100 | 0.00020 | |



Form 1 METALS

Client : ERM, Inc.
 Project Name : GROUNDWATER SAMPLING
 Lab ID : L1627420-02
 Client ID : MW4 (08/2016)
 Sample Location : MBD
 Sample Matrix : WATER
 Analytical Method : 3,200.8
 Lab File ID : WG928434.pdf
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1627420
 Project Number : 286112
 Date Collected : 08/31/16 12:00
 Date Received : 08/31/16
 Date Analyzed : 09/02/16 11:16
 Dilution Factor : 10
 Analyst : BV
 Instrument ID : ICPMSX
 %Solids : N/A
 Date Digested : 09/01/16

| CAS NO. | Parameter | mg/l | | | Qualifier |
|-----------|-----------------|---------|---------|---------|-----------|
| | | Results | RL | MDL | |
| 7440-47-3 | Chromium, Total | 1.696 | 0.01000 | 0.00200 | |



Form 1 METALS

Client : ERM, Inc.
 Project Name : GROUNDWATER SAMPLING
 Lab ID : L1627420-03
 Client ID : MW8 (08/2016)
 Sample Location : MBD
 Sample Matrix : WATER
 Analytical Method : 3,200.8
 Lab File ID : WG928434.pdf
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1627420
 Project Number : 286112
 Date Collected : 08/31/16 13:00
 Date Received : 08/31/16
 Date Analyzed : 09/02/16 11:07
 Dilution Factor : 1
 Analyst : BV
 Instrument ID : ICPMSX
 %Solids : N/A
 Date Digested : 09/01/16

| CAS NO. | Parameter | mg/l | | | Qualifier |
|-----------|-----------------|---------|---------|---------|-----------|
| | | Results | RL | MDL | |
| 7440-47-3 | Chromium, Total | 0.01366 | 0.00100 | 0.00020 | |



Form 1 METALS

Client : ERM, Inc.
 Project Name : GROUNDWATER SAMPLING
 Lab ID : L1627420-04
 Client ID : DUP (08/2016)
 Sample Location : MBD
 Sample Matrix : WATER
 Analytical Method : 3,200.8
 Lab File ID : WG928434.pdf
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1627420
 Project Number : 286112
 Date Collected : 08/31/16 14:00
 Date Received : 08/31/16
 Date Analyzed : 09/02/16 11:20
 Dilution Factor : 10
 Analyst : BV
 Instrument ID : ICPMSX
 %Solids : N/A
 Date Digested : 09/01/16

| CAS NO. | Parameter | mg/l | | | Qualifier |
|-----------|-----------------|---------|---------|---------|-----------|
| | | Results | RL | MDL | |
| 7440-47-3 | Chromium, Total | 1.673 | 0.01000 | 0.00200 | |



Form 1 WETCHEM

Client : ERM, Inc.
 Project Name : GROUNDWATER SAMPLING
 Lab ID : L1627420-01
 Client ID : MW6 (08/2016)
 Sample Location : MBD
 Sample Matrix : WATER
 Analytical Method : 1,7196A
 Lab File ID : WG927992.csv
 Sample Amount : 50
 Digestion Method :

Lab Number : L1627420
 Project Number : 286112
 Date Collected : 08/31/16 11:10
 Date Received : 08/31/16
 Date Analyzed : 09/01/16 07:31
 Dilution Factor : 1
 Analyst : MCL/L
 Instrument ID : SPEC 3
 %Solids : N/A
 Date Digested : 09/01/16

| CAS NO. | Parameter | mg/l | | | Qualifier |
|------------|----------------------|---------|-------|-------|-----------|
| | | Results | RL | MDL | |
| 18540-29-9 | Chromium, Hexavalent | 0.009 | 0.010 | 0.003 | J |



Form 1 WETCHEM

Client : ERM, Inc.
 Project Name : GROUNDWATER SAMPLING
 Lab ID : L1627420-02
 Client ID : MW4 (08/2016)
 Sample Location : MBD
 Sample Matrix : WATER
 Analytical Method : 1,7196A
 Lab File ID : WG927992.csv
 Sample Amount : 5
 Digestion Method :

Lab Number : L1627420
 Project Number : 286112
 Date Collected : 08/31/16 12:00
 Date Received : 08/31/16
 Date Analyzed : 09/01/16 07:34
 Dilution Factor : 10
 Analyst : MCL/L
 Instrument ID : SPEC 3
 %Solids : N/A
 Date Digested : 09/01/16

| CAS NO. | Parameter | mg/l | | | Qualifier |
|------------|----------------------|---------|-------|-------|-----------|
| | | Results | RL | MDL | |
| 18540-29-9 | Chromium, Hexavalent | 1.68 | 0.100 | 0.030 | |



Form 1 WETCHEM

Client : ERM, Inc.
 Project Name : GROUNDWATER SAMPLING
 Lab ID : L1627420-03
 Client ID : MW8 (08/2016)
 Sample Location : MBD
 Sample Matrix : WATER
 Analytical Method : 1,7196A
 Lab File ID : WG927992.csv
 Sample Amount : 50
 Digestion Method :

Lab Number : L1627420
 Project Number : 286112
 Date Collected : 08/31/16 13:00
 Date Received : 08/31/16
 Date Analyzed : 09/01/16 07:35
 Dilution Factor : 1
 Analyst : MCL/L
 Instrument ID : SPEC 3
 %Solids : N/A
 Date Digested : 09/01/16

| CAS NO. | Parameter | mg/l | | | Qualifier |
|------------|----------------------|---------|-------|-------|-----------|
| | | Results | RL | MDL | |
| 18540-29-9 | Chromium, Hexavalent | 0.011 | 0.010 | 0.003 | |



Form 1 WETCHEM

Client : ERM, Inc.
 Project Name : GROUNDWATER SAMPLING
 Lab ID : L1627420-04
 Client ID : DUP (08/2016)
 Sample Location : MBD
 Sample Matrix : WATER
 Analytical Method : 1,7196A
 Lab File ID : WG927992.csv
 Sample Amount : 5
 Digestion Method :

Lab Number : L1627420
 Project Number : 286112
 Date Collected : 08/31/16 14:00
 Date Received : 08/31/16
 Date Analyzed : 09/01/16 07:35
 Dilution Factor : 10
 Analyst : MCL/L
 Instrument ID : SPEC 3
 %Solids : N/A
 Date Digested : 09/01/16

| CAS NO. | Parameter | mg/l | | | Qualifier |
|------------|----------------------|---------|-------|-------|-----------|
| | | Results | RL | MDL | |
| 18540-29-9 | Chromium, Hexavalent | 1.87 | 0.100 | 0.030 | |

