



WCI Austin Landfill, LLC.

# Coal Combustion Residuals Annual Groundwater Monitoring Report

SKB Lansing Landfill  
52563 246rd Street  
Austin, Minnesota

January 29, 2018

Final



## Coal Combustion Residuals Annual Groundwater Monitoring Report

SKB Lansing Landfill  
52563 243<sup>rd</sup> Street  
Austin, Minnesota

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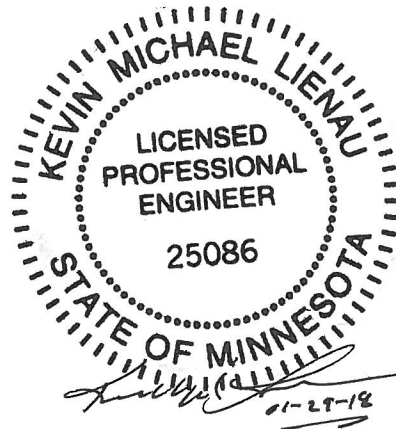
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## Acronyms

BTV	Background Threshold Values
CCR	Coal Combustion Residuals (CCR)
CFR	Code of Federal Regulations
COC	Chemicals of Concern
GES	Groundwater & Environmental Services, Inc.
ug/L	micrograms per liter
mg/l	milligrams per liter
MPCA	Minnesota Pollution Control Agency
NGVD	National Geodetic Vertical Datum
pci/l	picoCuries per liter
QA/QC	Quality Assurance/Quality Control
SAP	Sampling Analysis Plan
USL	Upper Simultaneous Limit



## 1 Introduction

The *Combustion Coal Residuals Annual Groundwater Monitoring Report* (Report) was prepared to summarize the results of 2017 groundwater monitoring events and associated analysis for Coal Combustion Residuals (CCR) at the SKB Lansing Landfill. The SKB Lansing Landfill operates under Minnesota Pollution Control Agency (MPCA) Site Permit Number SW-514. Per the CFR 40.257.90 – 257.98, 8 groundwater sampling events were conducted at the SKB Lansing Landfill in 2017 for the purpose of collecting CCR background groundwater analytical data. Using statistical evaluations, the 2017 CCR groundwater data was evaluated to determine CCR Background Threshold Values (BTVs). The SKB Lansing Landfill is located at 52563 243rd Street in Austin, Mower County, Minnesota (**Figure 1**).

### 1.1 Scope of Work

The following scope of work was conducted for the 2017 CCR background monitoring project:

- Conduct 8 gauging and sampling events of the site's monitoring wells and piezometers.
- Measure static water elevations for each monitoring well to the nearest 0.01 feet from surveyed reference point.
- Record the volume of water removed from each monitoring well (in gallons) and total well volumes removed before sampling.
- Record field parameter stabilization results from each monitoring well.
- Conduct a statistical evaluation of groundwater sampling analytical data using ProUCL 5.0.00 (Singh, 2013) to determine BTVs for each analyte.
- Select tolerance or prediction interval procedure for future statistical analysis of groundwater monitoring data.
- Prepare a CCR Annual Groundwater Monitoring Report summarizing the groundwater sampling and statistical evaluation.



## 2 Site Background

### 2.1 Site Location and Description

The site is located within a 40-acre parcel of land in Section 21, Township 103 North, Range 18 West, Lansing Township, Mower County, Minnesota. With reference to roadways, the facility is located west of State Highway 218 along Lansing Township Road T-378 (243rd Street). The facility entrance is off of Lansing Township Road T-378 (243rd Street). A Site Location and Site Plan Map are provided as **Figures 1 and 2**.

Located in the Cedar River watershed, the facility property has rolling topography ranging in elevation from 1,218 feet above the National Geodetic Vertical Datum of 1929 (NGVD 29) in the southwest corner to 1,254 feet above NGVD 29 in the north-central portion of the site. Stormwater flows to small natural depressions scattered around the site and to stormwater retention areas in the south and southwest areas of the property. Stormwater ultimately goes to a judicial ditch. The nearest open water body is the Cedar River, located approximately 3 miles east of the site.



### 3 Monitoring Network Systems And Sampling Schedule

The groundwater monitoring network at SKB Lansing Landfill was designed based on the analysis of local and regional hydrologic conditions. Currently, the groundwater monitoring network system consists of 8 monitoring wells (one set monitors the shallow till layer and one set monitors a deeper sand layer) and 5 piezometers (see **Figure 2**). Located in the future expansion area are 7 monitoring wells and 5 piezometers that are currently used for groundwater elevation only as noted below. The monitoring wells used as data collection points that have been divided into 2 groups for the purpose of this report:

#### Gauging and Sampling

- Upgradient Monitoring Points. The upgradient monitoring points consist of the monitoring wells upgradient of the compliance boundary and include MW-1 and MW-1RD.
- Downgradient Monitoring Points. The downgradient monitoring points consist of monitoring wells downgradient of the compliance boundary and include MW-2R, MW-2RD, MW-3, MW-3R, MW-3RD, and MW-4.

#### Gauging Only

- Downgradient Monitoring Points (elevations only). The downgradient monitoring points consist of monitoring wells downgradient of the compliance boundary and include MW-5S, MW-5D, MW-6S, MW-7S, MW-7D, MW-8S and MW-8D.
- Piezometer Monitoring Points. The piezometer monitoring points consist of shallow monitoring points used to collect groundwater elevations only across the site and include PIEZ-1, PIEZ-2, PIEZ-3, PIEZ-4, PIEZ-5, P-5, P-9, P-10, P-11 and P-13.

For the CCR background evaluation, a total of 8 groundwater monitoring events were conducted in 2017 on the following dates:

- February 23, 2017
- March 27-28, 2017
- April 26, 2017
- May 18, 2017
- June 31-22, 2017
- July 24, 2017
- August 17, 2017
- September 7, 2017



## 4 Groundwater Sampling Methodology

For the SKB Lansing Landfill CCR sampling events, static groundwater elevations were measured to the nearest 0.01 feet in each monitoring well with a water interface probe prior to groundwater sample collection. Using a well dedicated, pneumatic low-flow bladder pump, each well was purged and field stabilization parameters including temperature, pH, dissolved oxygen, conductance, and redox potential were measured.

Groundwater samples were placed in laboratory-prepared containers and labeled with the following information:

- Unique sample number
- Site name
- Name of sampler
- Time and date

Immediately following collection, samples were placed on ice in a field cooler and shipped with a chain of custody form to a Test America, Inc. (Test America) of Amhurst, New York.

Groundwater samples obtained during the 8 sampling events in 2017 were analyzed for parameters specified in **Appendix III** and **IV** to Part 257 and are noted below:

### Appendix III

#### *General Chemistry*

- Chloride (Method 300.0)
- Fluoride (Method 300.0)
- Sulfate as SO<sub>4</sub> (Method 300.0)
- pH (Standard Method 4500 H+ B)
- Total Dissolved Solids (Standard Method 2540C)

#### *Metals*

- Boron (Method 6010C)
- Calcium (Method 6010C)

### Appendix IV

#### *General Chemistry*

- Fluoride (Method 300.0)



## *Metals*

- Antimony
- Arsenic
- Barium
- Beryllium
- Cadmium
- Chromium
- Cobalt
- Lead
- Lithium
- Mercury
- Molybdenum
- Radium 226
- Radium 228
- Selenium
- Thallium

The above metals were analyzed by Methods 6010C, 6020A, and 7470A. Radium was analyzed by Method 901.1.

Quality assurance/quality control (QA/QC) samples including duplicate, field, and equipment samples were collected during each sampling event.



## 5 Groundwater Monitoring Results

### 5.1 Groundwater Elevation Data

Groundwater elevations recorded during the groundwater events are presented in **Table 1**. Groundwater contours maps were generated for the March 27, June 21, and September 7, 2017 monitoring events. Nine wells monitor the shallow groundwater upgradient and downgradient of the site. Water table contours based on the shallow well data indicate that the shallow groundwater flows to the southwest with a hydraulic gradient that ranges from 0.064 feet/feet on the northeast side of the site to 0.0004 feet/feet on the southwest side (**Figures 3 through 8**).

Six monitoring wells monitor a deeper water-bearing unit beneath the site. Based on the historical deeper well data, potentiometric surface contours indicates a southwest flow direction with a hydraulic gradient that ranges from 0.0026 feet/feet to 0.0006 feet/feet.

### 5.2 Groundwater Analytical Data

Groundwater analytical results for the CCR monitoring events are presented in **Table 2**. A summary of the stabilization parameter tests performed for each well prior to sampling is provided in **Table 3** and copies of field sampling data sheets are in **Appendix A**. Laboratory analytical reports are included in **Appendix B**.

A summary of the groundwater analytical concentrations for each analyte are summarized below:

#### Appendix III

##### *General Chemistry*

- Chloride = 3.4 – 97.2 milligrams per liter (mg/l)
- Fluoride = 0.091 – 0.27 mg/l
- Sulfate as SO<sub>4</sub> = 6.1 - 481 mg/l
- pH = 6.5 – 7.7 pH Units
- Total Dissolved Solids = 287 – 1,380 mg/l

##### *Metals*

- Boron = <0.020 – 0.37 mg/l
- Calcium = 67.3 - 271 mg/l

#### Appendix IV

##### *General Chemistry*

- Fluoride = 0.091 – 0.27 mg/l



## Metals

- Antimony = <1.0 micrograms per liter (ug/l)
- Arsenic = <1.0 – 4.9 ug/l
- Barium = 0.058 – 0.58 mg/l
- Beryllium = <0.70 ug/l
- Cadmium = <0.50 – 1.4 ug/l
- Chromium = <0.0040 – 0.0072 mg/l
- Cobalt = <0.30 – 6.2 ug/l
- Lead = <0.010 – 0.018 mg/l
- Lithium = <0.030 mg/l
- Mercury = <0.00020 mg/l
- Molybdenum = <1.0 – 8.3 ug/l
- Radium 226 = <0.0816 – 92.9 pci/l
- Radium 228 = <0.297 – 32.4 pci/l
- Selenium = <1.0 – 1.3 ug/l
- Thallium = <0.20 ug/l





## 6 Statistical Evaluation Data

Statistical evaluation of the 2017 CCR groundwater monitoring data was completed to determine background concentrations and included:

- 1) Establishing final background datasets for each chemical of concern (COC) using outlier testing.
- 2) Deriving statistical, upper bound estimates of the background population for each COC using the final background datasets.

To establish final background datasets for each COC, descriptive statistics, outlier analysis and comparative statistical analysis on the background datasets are typically performed to confirm whether all data in each background dataset for a given COC is representative of the 'true' background population. Descriptive statistics includes the number of samples, the number of detections, the detection frequency, the maximum and minimum detected concentrations, the mean, and the standard deviation of the background data, all of which provide a preliminary examination of data.

An outlier analysis can identify potential outliers that are not representative of the true background population. Including real outliers in a dataset can potentially lead to Type I or Type II errors (USEPA, 2002. Guidance for Comparing Background and Chemical Concentrations for CERCLA Sites). Methods of outlier analysis include statistical outlier tests such as Dixon's test, which is available in ProUCL 5.0.00 (Singh, 2013). Outliers were only attributed to those data sets that had more than 4 detections, otherwise all detections are statistically significant.

For the final background datasets after outlier analyses, summary statistics including the number of samples, number of detections, detection frequency, maximum and minimum detected concentrations, mean concentration, and the standard deviation were calculated. The final datasets were tested for the underlying distributions (e.g., normal, lognormal, gamma) using ProUCL 5.0.00 (Singh, 2013) before statistical limits were estimated in order to determine the estimates that best described the background datasets.

The following statistical limits for potential use as a background level (Background Threshold Values (BTVs)) were calculated using ProUCL 5.0.00 (Singh, 2013) for each COC when five or more detections were present:

- 95% upper simultaneous limit (USL)

The 95% USL was selected as the proposed BTVs as:

- 1) Many of the background datasets contain limited sample sizes and, therefore, are unlikely to represent the full range of natural ambient concentrations in the vicinity of the sites.
- 2) This statistic should result in lower Type I error rates (i.e., false positives) and can be used to compare many observations.



If there were no detected results, the highest detection limit was proposed as the BTV. The calculated BTVs are included in **Table 4**. The statistical evaluation data is included in **Appendix C**.



## 7 Report Summary

Per the CFR 40.257.90 – 257.98, 8 monitoring events were conducted at the SKB Lansing Landfill in 2017 for the purpose of determining background CCR concentrations. Groundwater samples were collected from the monitoring network's 8 monitoring wells located at the SKB Lansing Landfill during the monitoring events. Groundwater elevation information from the monitoring data indicates a southwesterly groundwater flow beneath the landfill. Using statistical evaluations of the groundwater sampling results, BTVs were determined (**Table 4**).



## 8 Recommendations

CCR groundwater monitoring events will be conducted in the spring and fall of 2018. Groundwater samples will be analyzed for detection monitoring parameters specified in Appendix III to Part 257. An evaluation of groundwater analytical results after each monitoring event will be completed to determine if a significant increase over BTVs (**Table 4**) for one or more parameter listed in **Appendix III** to Part 257 has occurred at any monitoring wells. The evaluation will be performed using a tolerance or prediction interval procedure (CFR 40.257.93(f)(3)). The level of each constituent in the monitoring well will be compared to an established BTV generated as the USL. Any single constituent that exceeds the BTV is considered to be an exceedance. Confirmation sampling will determine whether the BTV exceedance is statistically significant. As data from 2017 was used to generate the background data, comparison of data will begin in subsequent 2018 sampling events.

A 2018 Annual Groundwater Monitoring Report will be prepared and include sampling results from the 2018 CCR groundwater monitoring events and an evaluation of the analytical results as they pertained to BTVs.



## References

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Singh and Singh, 2013. ProUCL Version 5.0.00 *Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations*, United States Environmental Protection Agency

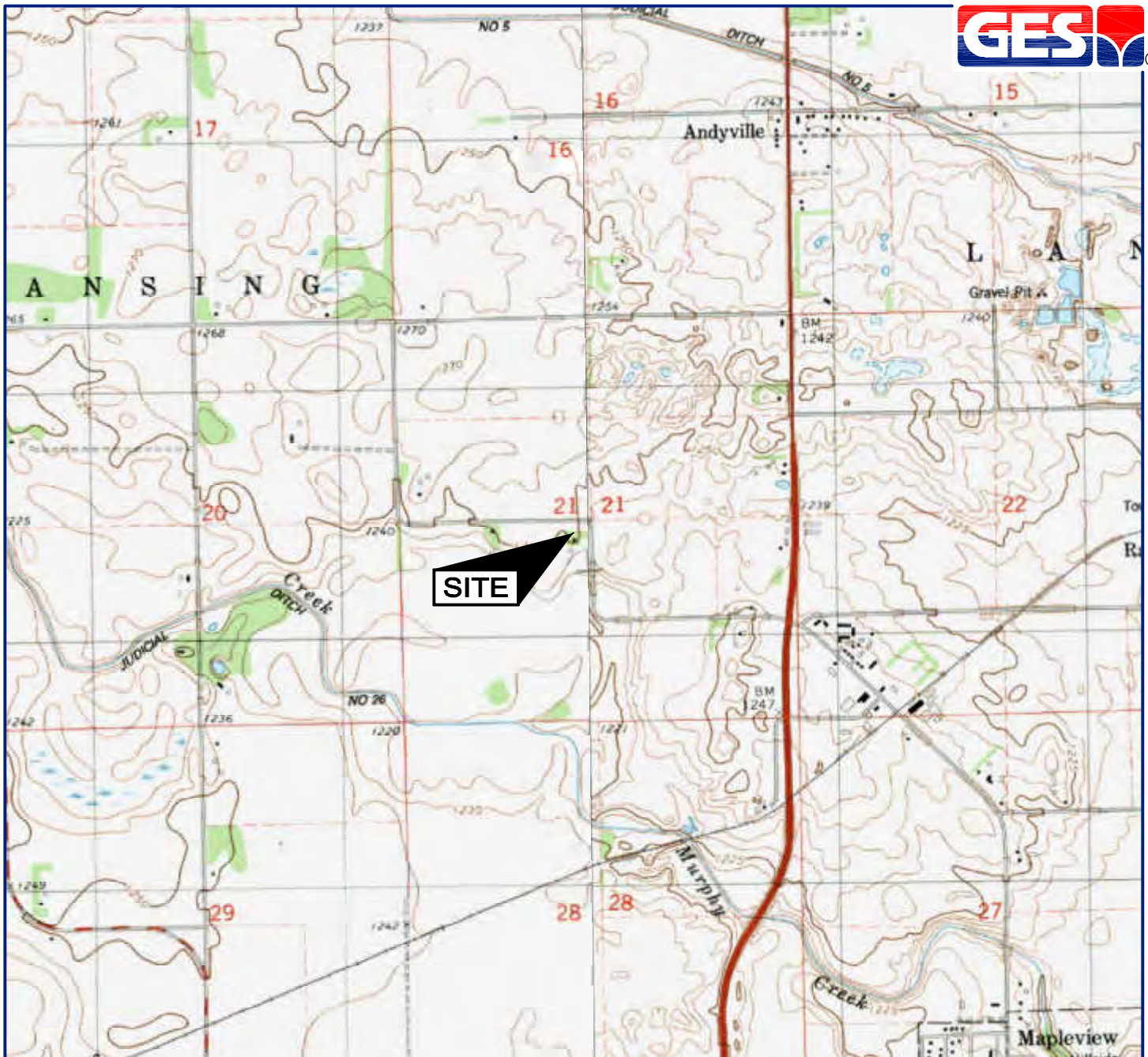
United States Environmental Protection Agency, 2002. *Guidance for Comparing Background and Chemical Concentrations for CERCLA Sites*.

United States Geological Survey, 1975. *Water Resources of The Cedar River Watershed, Southeastern Minnesota*.



## Figures

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SOURCE: USGS 7.5 MINUTE SERIES  
 TOPOGRAPHIC QUADRANGLE 1982  
 AUSTIN EAST, MINNESOTA  
 CONTOUR INTERVAL = 5'



QUADRANGLE LOCATION

DRAFTED BY: W.G.S. (N.J.)	<b>SITE LOCATION MAP</b>					
CHECKED BY:				<b>SKB ENVIRONMENTAL SKB LANSING FACILITY 52563 243rd STREET AUSTIN, MINNESOTA</b>		
REVIEWED BY:						
NORTH 	<b>Groundwater &amp; Environmental Services, Inc.</b> 1285 CORPORATE CENTER DRIVE, SUITE 120, EAGAN, MN 55121					
	SCALE IN FEET 	DATE 1-6-14	FIGURE 1			

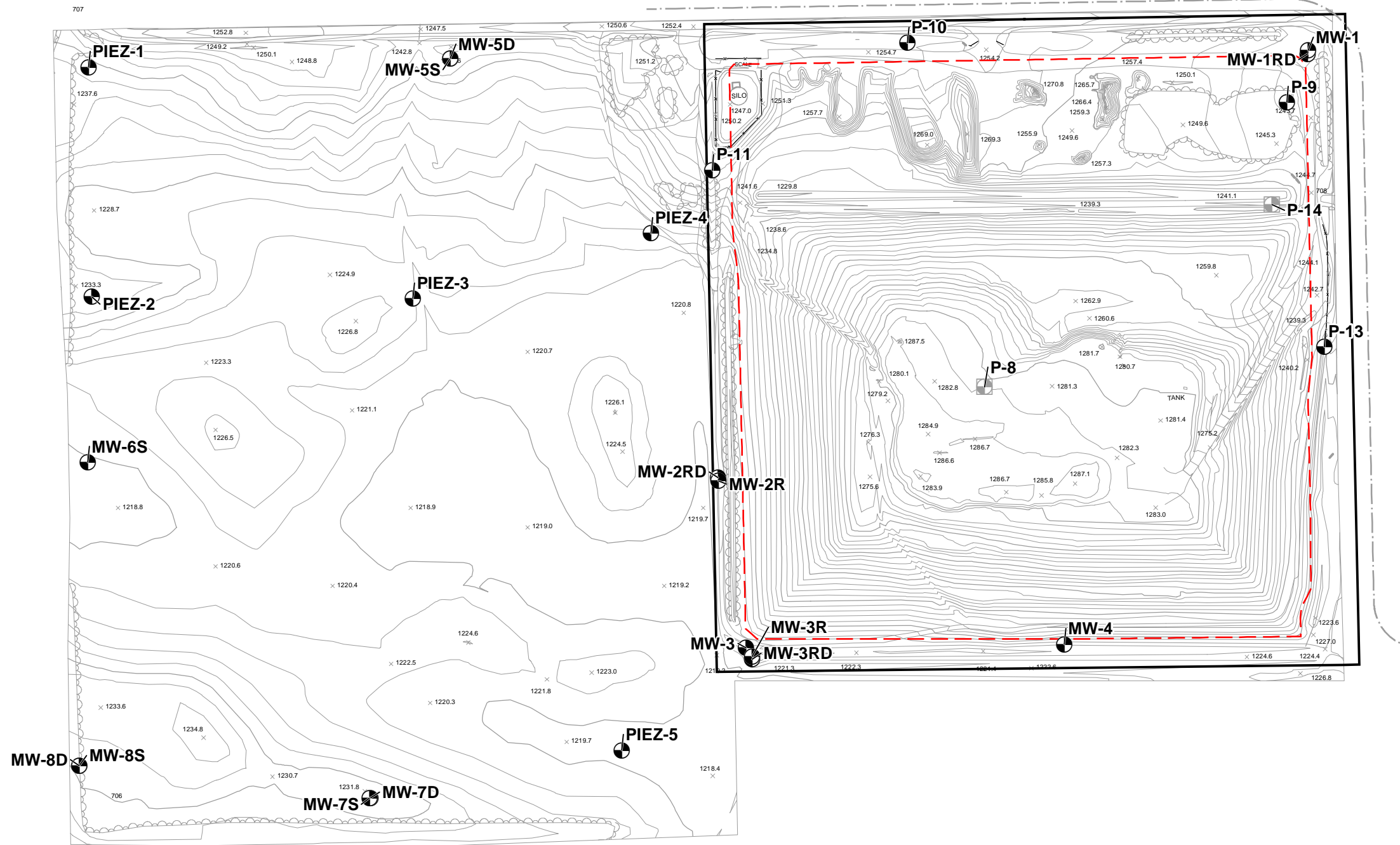
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# LEGEND

- PROPERTY BOUNDARY
- - - RIGHT OF WAY
- - - APPROXIMATE LIMITS OF WASTE
- x-x-x FENCE
- ⊙ MONITORING WELL
- ⊙ PIEZOMETER
- ⊙ DESTROYED MONITORING WELL



## SITE MAP

**SKB ENVIRONMENTAL  
SKB LANSING FACILITY  
52563 243RD STREET  
AUSTIN, MINNESOTA**

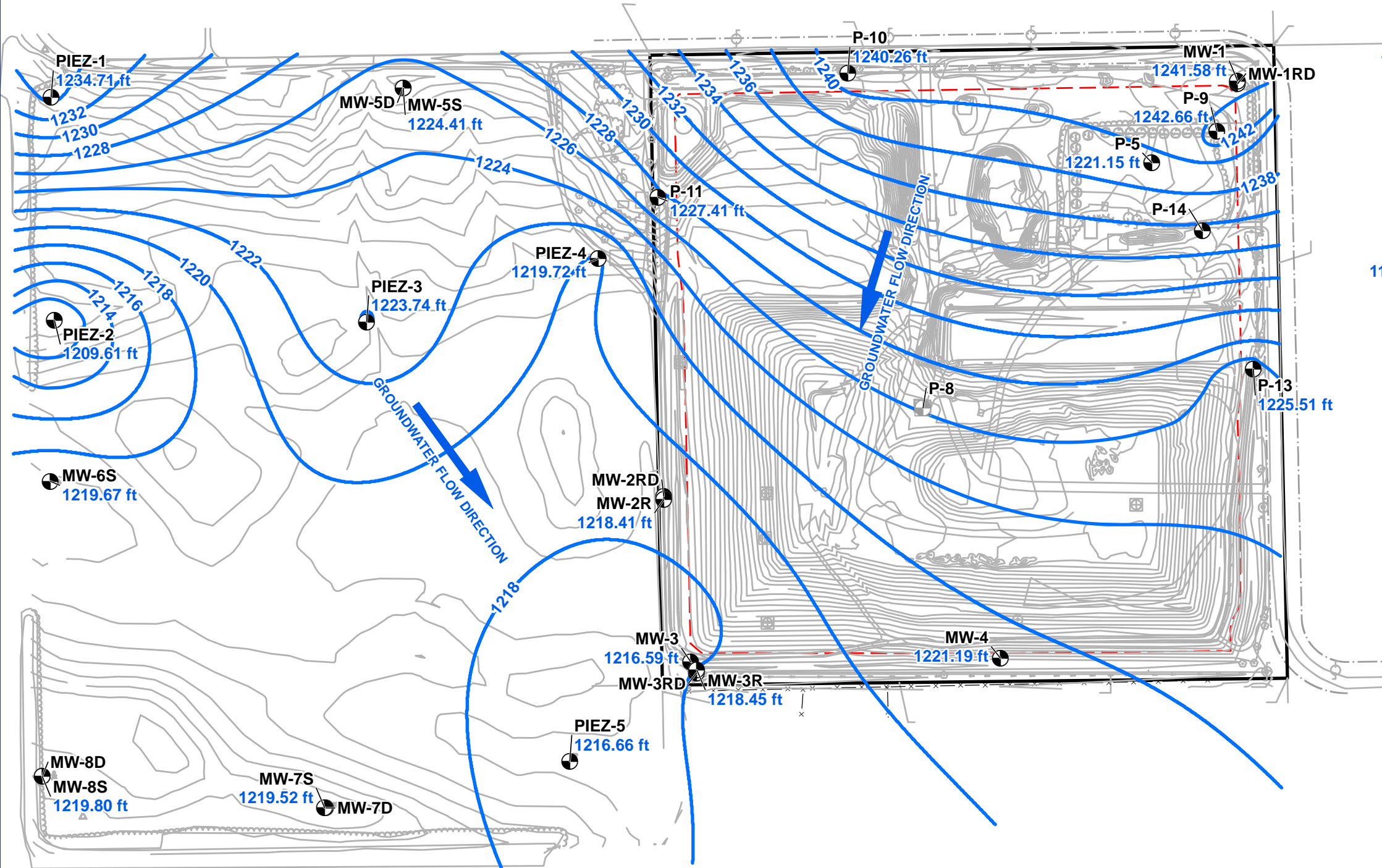
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**JTL**  
Designed  
**DMC**  
Approved



Date  
**1-5-18**  
Figure  
**2**





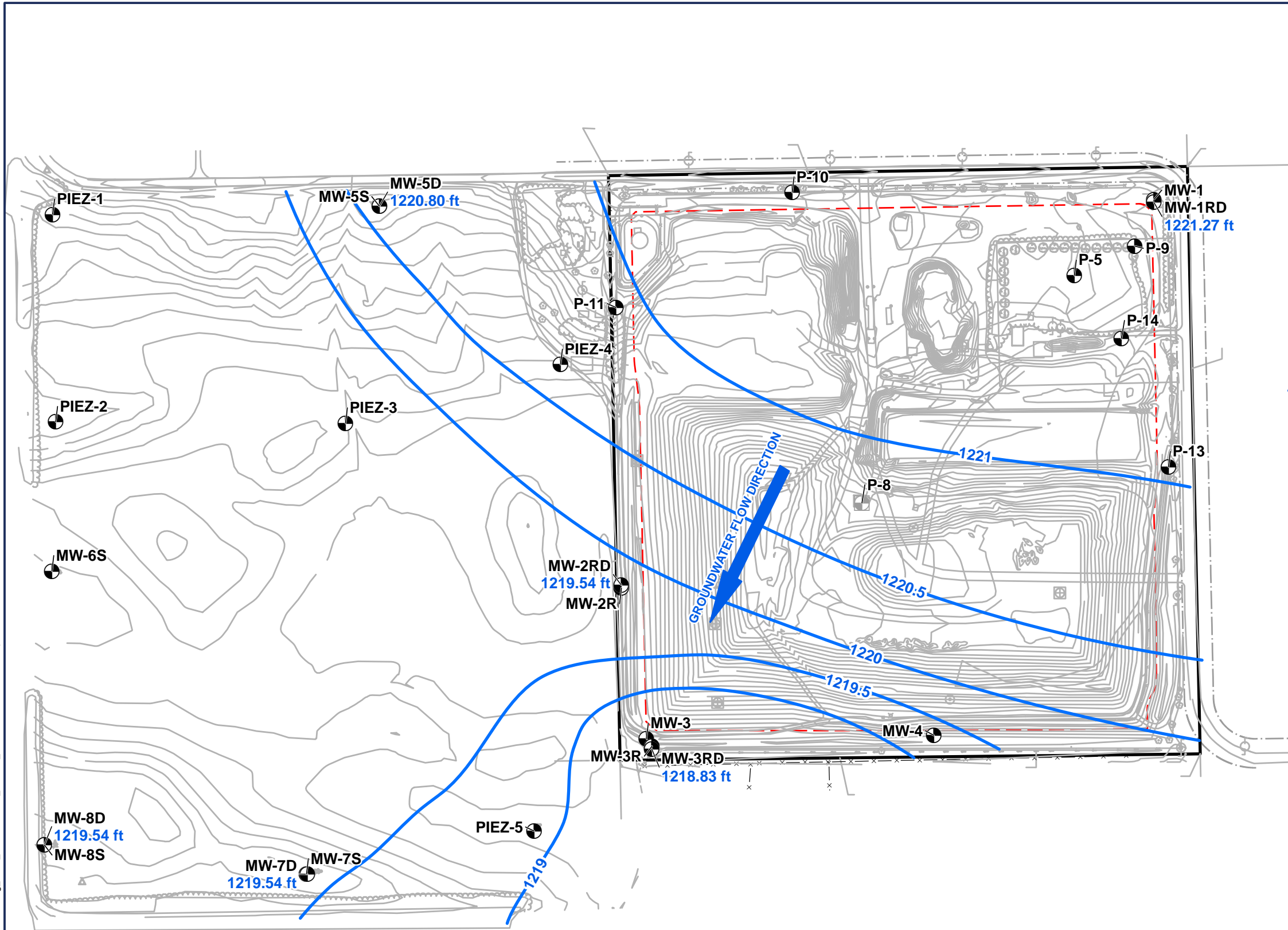


### LEGEND

- GROUNDWATER ELEVATION ISOCONTOUR (ft MSL)
- PROPERTY BOUNDARY
- RIGHT OF WAY
- APPROXIMATE LIMITS OF WASTE
- FENCE
- 1124.44** MEASURED GROUNDWATER ELEVATION (ft MSL)
- UTILITY POLE
- MONITORING WELL
- PIEZOMETER
- DESTROYED MONITORING WELL

NOTE:  
THE GROUNDWATER ELEVATION VALUE FOR P-5 WAS AN ANOMALOUS VALUE AND WAS THEREFORE EXCLUDED FROM CONTOUR ANALYSIS.

DRAFTED BY: GKS	<b>WATER TABLE CONTOUR MAP MARCH 27, 2017</b>		
CHECKED BY: DMC	<b>SKB ENVIRONMENTAL SKB LANSING FACILITY 52563 243RD STREET AUSTIN, MINNESOTA</b>		
REVIEWED BY:	Groundwater & Environmental Services, Inc. 1285 CORPORATE CENTER DRIVE, SUITE 120, EAGAN, MN 55121		
NORTH 	SCALE IN FEET 	DATE 5-12-17	FIGURE 3



**LEGEND**

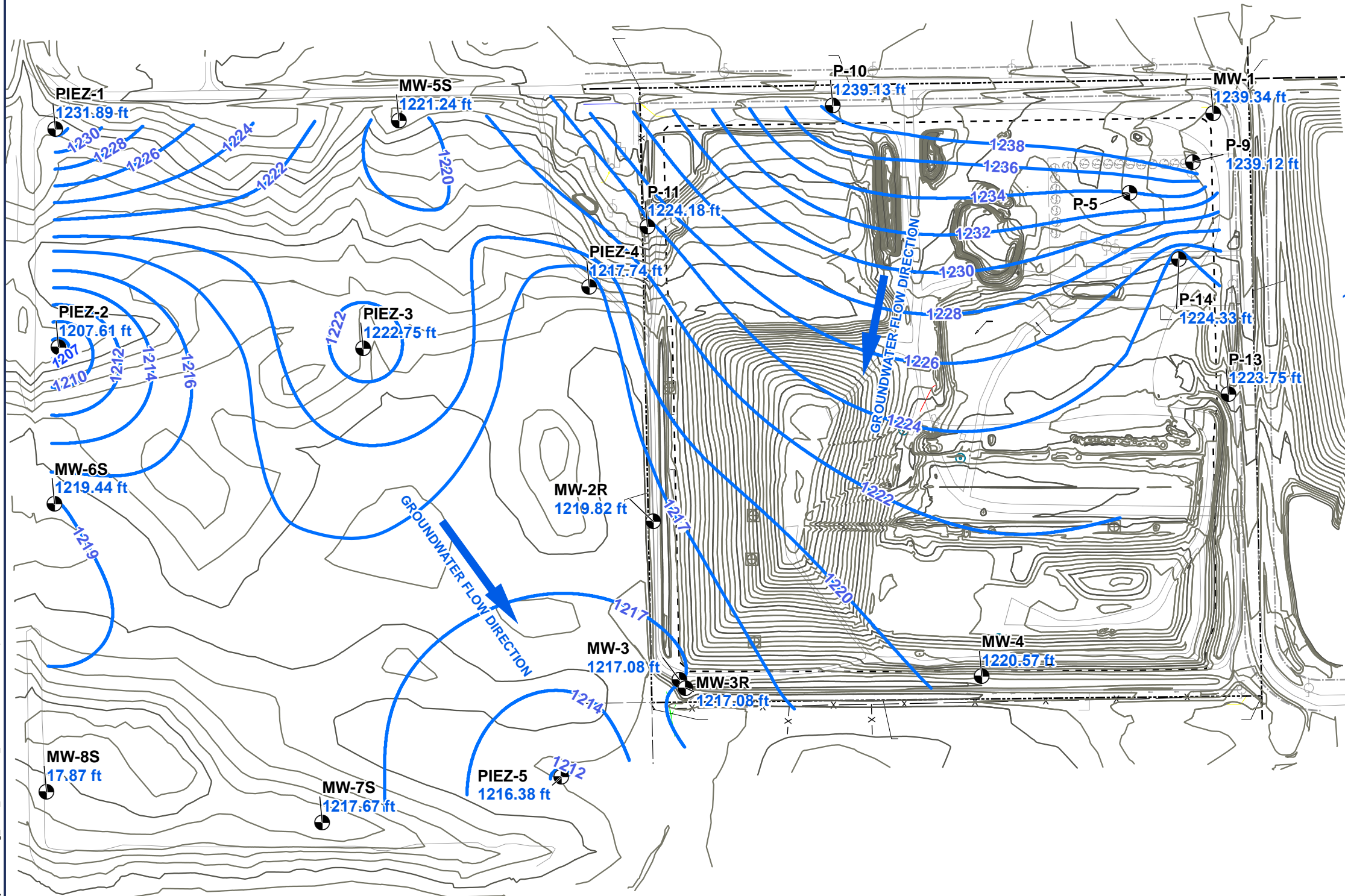
- GROUNDWATER ELEVATION ISOCONTOUR (ft MSL)
- PROPERTY BOUNDARY
- RIGHT OF WAY
- APPROXIMATE LIMITS OF WASTE
- FENCE
- 1124.44** MEASURED GROUNDWATER ELEVATION (ft MSL)
- UTILITY POLE
- MONITORING WELL
- PIEZOMETER
- DESTROYED MONITORING WELL

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DRAFTED BY:	GKS		
	<b>POTENTIOMETRIC SURFACE CONTOUR MAP</b> MARCH 27, 2017		
CHECKED BY:	DMC		
REVIEWED BY:			
	<b>SKB ENVIRONMENTAL</b> <b>SKB LANSING FACILITY</b> 52563 243RD STREET AUSTIN, MINNESOTA		
NORTH 	Groundwater & Environmental Services, Inc. 1285 CORPORATE CENTER DRIVE, SUITE 120, EAGAN, MN 55121		
	SCALE IN FEET 	DATE 5-12-17	FIGURE 4



L:\Projects\SKB Environmental\Lansing Facility\GIS\Lansing\_GWE\_WaterTable\_201507.mxd - Scale 1:3,000 - 8/28/2015 4:18:44 PM - GStewart -



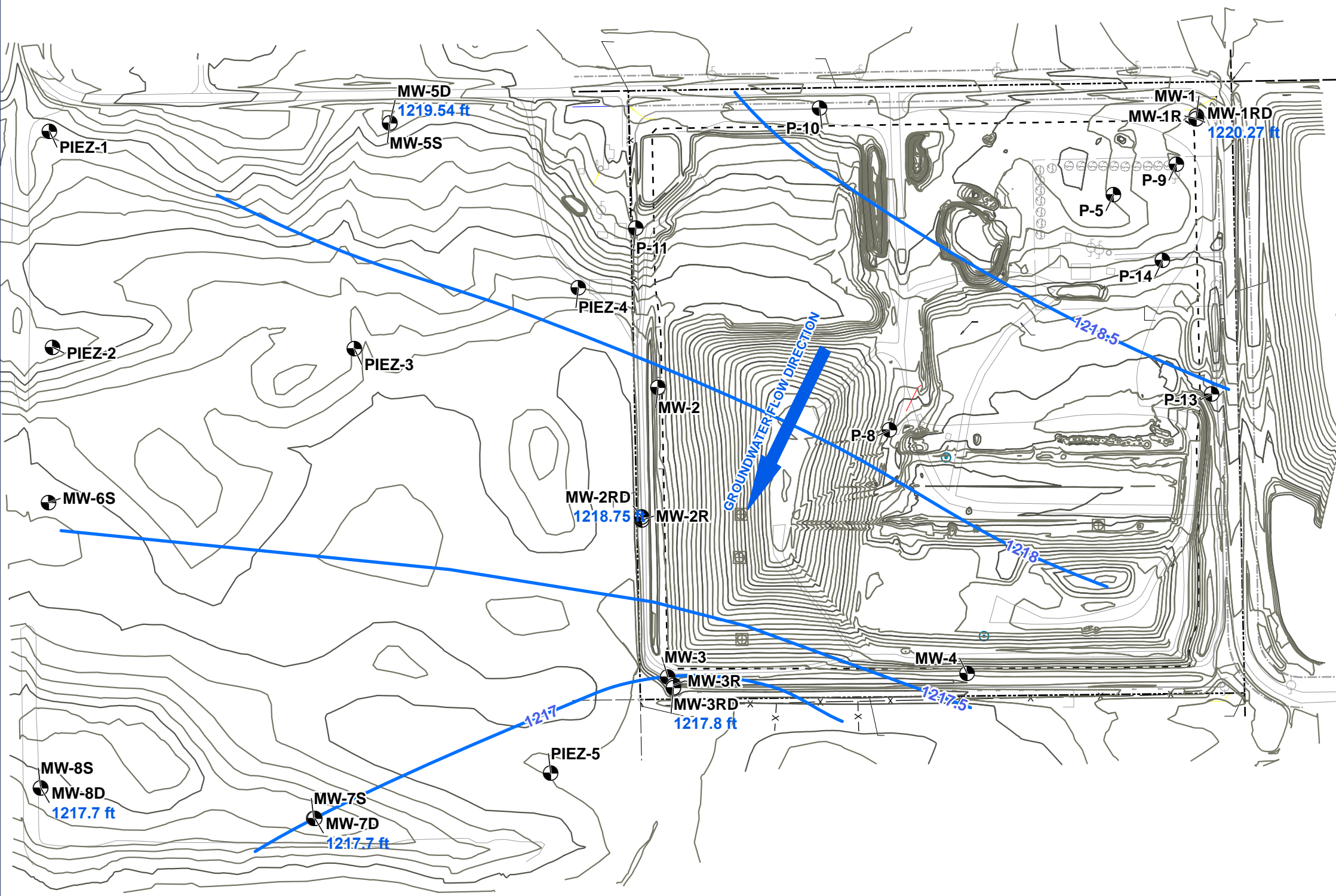
### LEGEND

- GROUNDWATER ELEVATION ISOCONTOUR (ft MSL)
- PROPERTY BOUNDARY
- HIGHWAY RIGHT OF WAY
- REVISED WASTE LIMIT
- FENCE
- MEASURED GROUNDWATER ELEVATION (ft MSL)
- UTILITY POLE
- MONITORING WELL
- PIEZOMETER
- DESTROYED MONITORING WELL

NOTE:  
P-5 WAS NOT GAUGED AND WAS NOT INCLUDED IN THE CONTOUR DELINEATION.

DRAFTED BY: GKS	WATER TABLE CONTOUR MAP <b>June 21, 2017</b>		
CHECKED BY: DMC	SKB ENVIRONMENTAL SKB LANSING FACILITY 52563 243RD STREET AUSTIN, MINNESOTA		
REVIEWED BY:	Groundwater & Environmental Services, Inc. 1285 CORPORATE CENTER DRIVE, SUITE 120, EAGAN, MN 55121		
NORTH 	SCALE IN FEET 	DATE 8-8-2017	FIGURE 5

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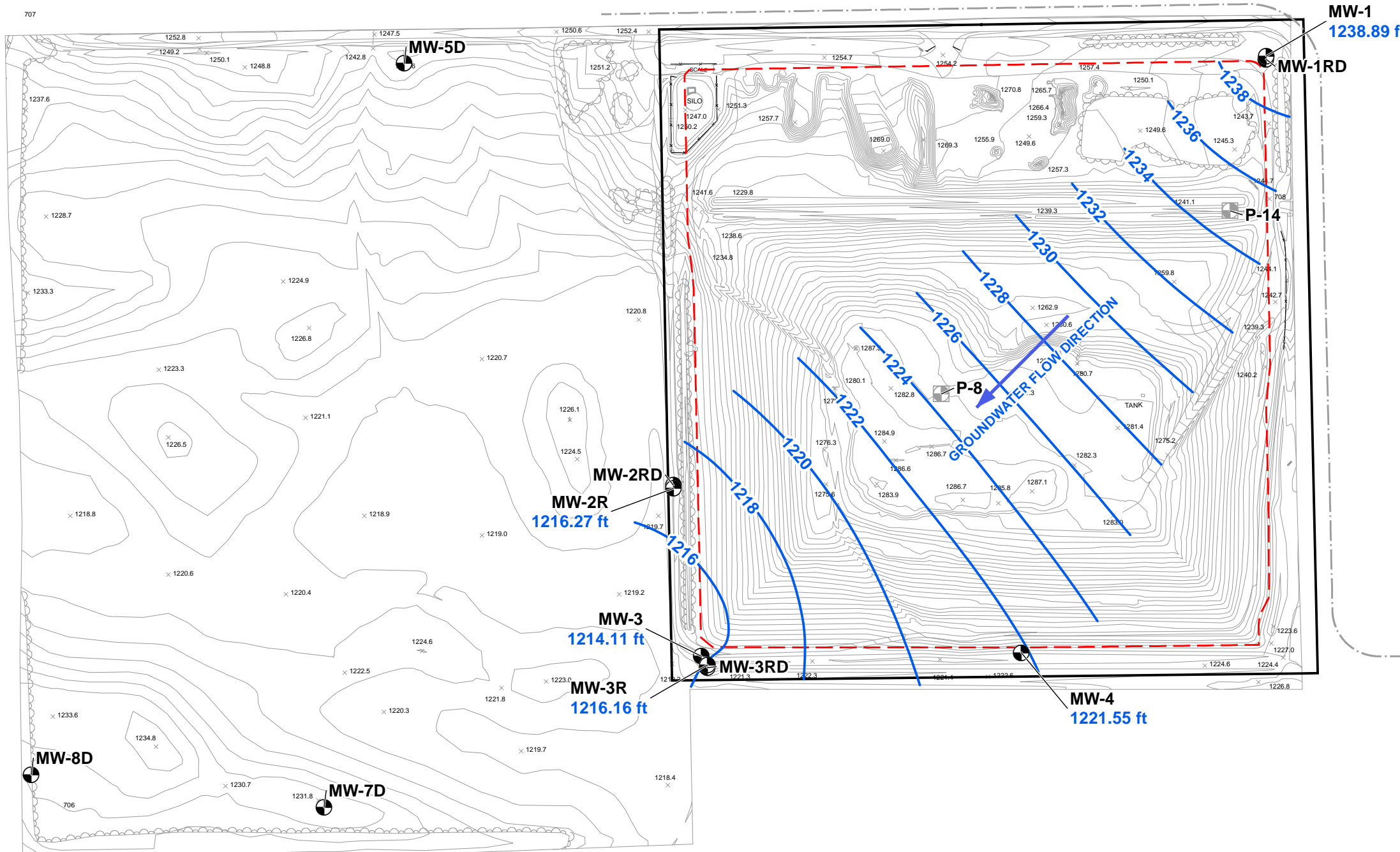


**LEGEND**









- GROUNDWATER ELEVATION ISOCONTOUR (ft MSL)
- PROPERTY BOUNDARY
- HIGHWAY RIGHT OF WAY
- REVISED WASTE LIMIT
- FENCE
- 1124.44 MEASURED GROUNDWATER ELEVATION (ft MSL)
- UTILITY POLE
- MONITORING WELL
- PIEZOMETER
- DESTROYED MONITORING WELL

DRAFTED BY: GKS	<b>POTENTIOMETRIC SURFACE CONTOURS</b> June 21, 2017		
CHECKED BY: DMC	<b>SKB ENVIRONMENTAL</b> <b>SKB LANSING FACILITY</b> 52563 243RD STREET AUSTIN, MINNESOTA		
REVIEWED BY:	Groundwater & Environmental Services, Inc. 1285 CORPORATE CENTER DRIVE, SUITE 120, EAGAN, MN 55121		
NORTH 	SCALE IN FEET 	DATE 8-8-2017	FIGURE 6





### LEGEND

-  GROUNDWATER ELEVATION ISOCONTOUR (ft MSL)
-  PROPERTY BOUNDARY
-  RIGHT OF WAY
-  APPROXIMATE LIMITS OF WASTE
-  FENCE
- 1124.44** MEASURED GROUNDWATER ELEVATION (ft MSL)
-  MONITORING WELL
-  PIEZOMETER
-  DESTROYED MONITORING WELL

### WATER TABLE CONTOUR MAP SEPTEMBER 7, 2017

SKB ENVIRONMENTAL  
SKB LANSING FACILITY  
52563 243RD STREET  
AUSTIN, MINNESOTA










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Designed  
JTL  
Approved  
DMC

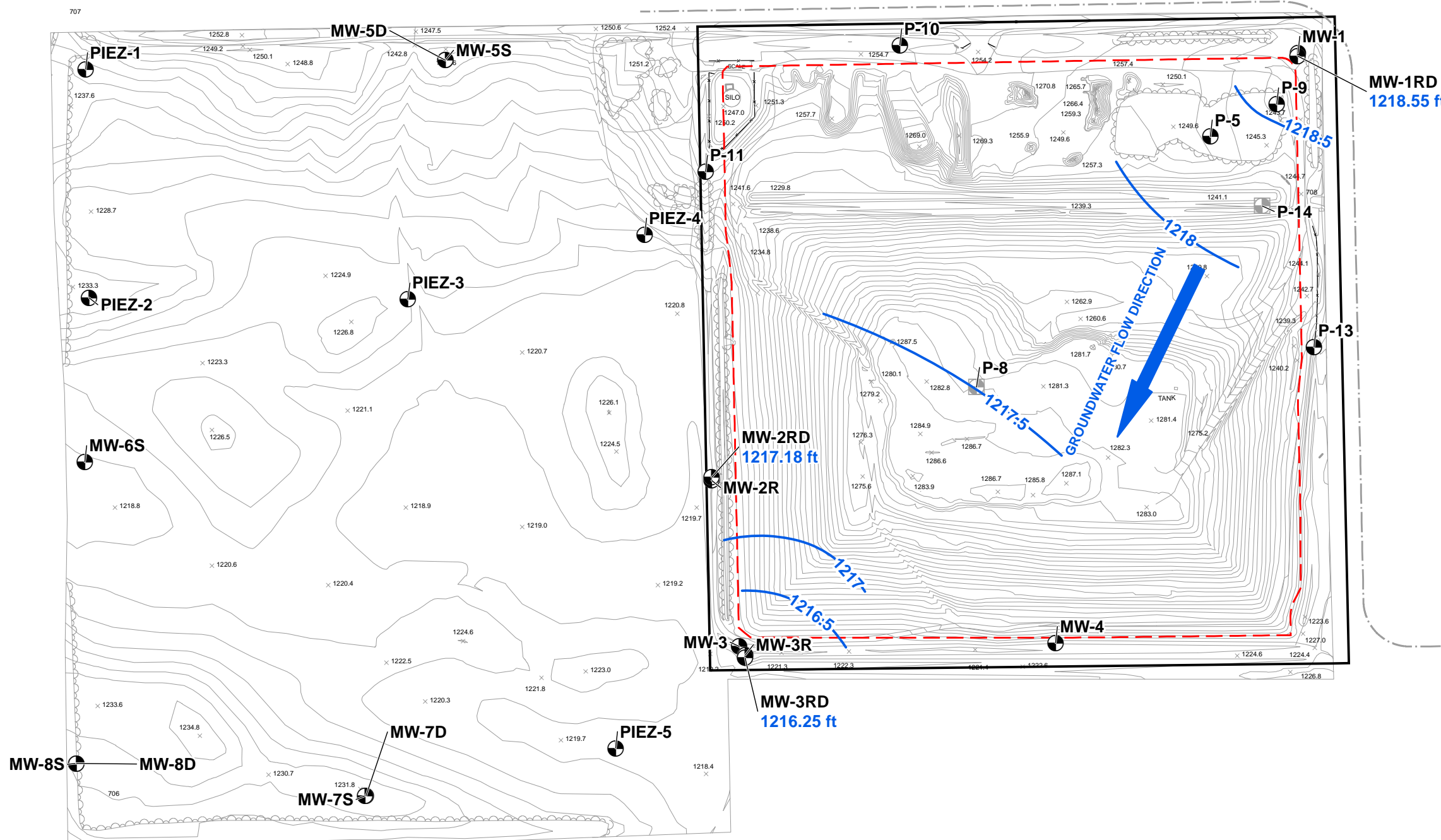


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1-29-18  
Figure  
7




### LEGEND

-  GROUNDWATER ELEVATION ISOCONTOUR (ft MSL)
-  PROPERTY BOUNDARY
-  RIGHT OF WAY
-  APPROXIMATE LIMITS OF WASTE
-  FENCE
-  MEASURED GROUNDWATER ELEVATION (ft MSL)
-  MONITORING WELL
-  PIEZOMETER
-  DESTROYED MONITORING WELL



**POTENTIOMETRIC SURFACE CONTOUR MAP  
SEPTEMBER 7, 2017**

**SKB ENVIRONMENTAL  
SKB LANSING FACILITY  
52563 243RD STREET  
AUSTIN, MINNESOTA**

Drawn <b>JTL</b>		Date <b>1-29-18</b>
Designed <b>JTL</b>		Figure <b>8</b>
Approved <b>DMC</b>		





## Tables

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**Table 1**  
**Groundwater Elevations**



Date	MW-1	MW-1RD	MW-2R	MW-2RD	MW-3	MW-3R	MW-3RD	MW-4	MW-5D	MW-5S	MW-6S	MW-7D
2/23/2017	1242.44	1220.98	1218.43	1219.67	1216.77	1218.81	1219.04	1221.37				
3/27/2017	1241.58	1221.27	1218.41	1219.54	1216.59	1218.45	1218.83	1221.19	1220.80	1224.41	1219.67	1219.54
4/26/2017	1241.39	1221.57	1218.38	1218.87	1216.53	1218.51	1218.99	1221.10				
5/18/2017	1242.58	1221.20	1216.38	1219.64	1216.75	1218.65	1218.76	1221.03				
6/21/2017	1239.34	1220.27	1217.43	1218.75	1215.04	1217.08	1217.80	1220.57	1219.54	1221.24	1219.44	1217.74
7/24/2017	1240.27	1219.86	1218.24	1218.58	1216.31	1218.26	1217.78	1221.04				
8/17/2017	1241.16	1219.09	1218.03	1217.73	1216.05	1218.16	1216.78	1221.47				
9/7/2017	1238.89	1218.55	1216.27	1217.18	1214.11	1216.16	1216.25	1221.55				



**Table 1**  
**Groundwater Elevations**



Date	MW-7S	MW-8D	MW-8S	P-10	P-11	P-13	P-5	P-9	PIEZ-1	PIEZ-2	PIEZ-3	PIEZ-4	PIEZ-5
2/23/2017													
3/27/2017	1219.52	1219.54	1219.80	1240.26	1227.41	1225.51	1221.15	1242.66	1234.71	1209.61	1223.74	1219.72	1216.66
4/26/2017													
5/18/2017													
6/21/2017	1217.67	1217.70	1217.87	1239.13	1224.18	1223.75		1239.16	1231.89	1207.61	1222.75	1217.74	1216.38
7/24/2017													
8/17/2017													
9/7/2017													

**Table 2**  
**Well Stabilization Data**



Well ID	Sample Date	Purge Rate ml/min	Field pH pH	Field Specific Conductivity umhos/cm	Field Temp deg c
MW-1	2/23/2017	1000	8.27	600	8.17
MW-1	2/23/2017	1000	8.27	565	7.55
MW-1	2/23/2017	1000	8.36	566	6.87
MW-1	2/23/2017	1000	8.35	569	6.75
MW-1	3/28/2017	1000	7.87	537	6.67
MW-1	3/28/2017	1000	7.6	515	6.07
MW-1	3/28/2017	1000	7.62	531	5.57
MW-1	3/28/2017	1000	7.62	539	5.56
MW-1	3/28/2017	1000	7.64	541	5.47
MW-1	3/28/2017		7.64	541	5.46
MW-1	4/26/2017	1000	9.6	557	9.99
MW-1	4/26/2017	1000	8.11	568	7.76
MW-1	4/26/2017	1000	8.11	566	7.57
MW-1	4/26/2017	1000	8.14	562	7.58
MW-1	5/18/2017	1000	9.13	505	13.23
MW-1	5/18/2017	1000	7.51	498	12.82
MW-1	5/18/2017	1000	7.25	503	11.86
MW-1	5/18/2017	1000	7.19	519	11.1
MW-1	6/22/2017	1000	7.4	589	15.32
MW-1	6/22/2017	1000	7.13	600	11.77
MW-1	6/22/2017	1000	7.11	607	12.36
MW-1	6/22/2017	1000	7.1	607	12.39
MW-1	6/22/2017	1000	7.11	607	12.4
MW-1	6/22/2017		7.12	606	12.42
MW-1	7/24/2017	1000	8.96	929	19.6
MW-1	7/24/2017	1000	7.49	847	16.35
MW-1	7/24/2017	1000	7.14	861	15.92
MW-1	7/24/2017	1000	7.12	856	15.89
MW-1	8/17/2017	1000	7.43	824	16.7
MW-1	8/17/2017	1000	6.95	808	14.36
MW-1	8/17/2017	1000	7	810	13.73
MW-1	8/17/2017	1000	7	816	13.71
MW-1	9/7/2017	1000	0.678	645	12.09
MW-1	9/7/2017	1000	6.77	645	12.15
MW-1	9/7/2017	1000	6.77	696	12.19
MW-1	9/7/2017	1000	6.77	696	12.22
MW-1RD	2/23/2017	1000	8.67	635	7.4
MW-1RD	2/23/2017	1000	8.48	615	8.9
MW-1RD	2/23/2017	1000	8.58	620	8.92
MW-1RD	2/23/2017	1000	8.56	624	8.92
MW-1RD	2/23/2017	1000	8.55	625	8.92
MW-1RD	3/28/2017	1000	7.87	578	9.08
MW-1RD	3/28/2017	1000	7.87	578	9.09
MW-1RD	3/28/2017	1000	7.87	578	9.08
MW-1RD	3/28/2017	1000	7.87	577	9.09
MW-1RD	3/28/2017	1000	7.87	577	9.09
MW-1RD	3/28/2017	1000	7.87	578	9.09
MW-1RD	3/28/2017		7.88	577	9.09
MW-1RD	4/26/2017	1000	8.39	615	8.74
MW-1RD	4/26/2017	1000	8.48	619	8.93
MW-1RD	4/26/2017	1000	8.45	619	8.95
MW-1RD	4/26/2017	1000	8	619	8.94
MW-1RD	4/26/2017	1000	8.01	619	
MW-1RD	5/18/2017	1000	7.37	615	8.69

Table 2

Well Stabilization Data



Well ID	Sample Date	Purge Rate ml/min	Field pH pH	Field Specific Conductivity umhos/cm	Field Temp deg c
MW-1RD	5/18/2017	1000	7.43	615	8.6
MW-1RD	5/18/2017	1000	7.46	616	8.57
MW-1RD	5/18/2017	1000	7.47	616	8.56
MW-1RD	5/18/2017	1000	7.47	615	8.56
MW-1RD	6/22/2017	1000	7.26	612	9.33
MW-1RD	6/22/2017	1000	7.34	614	9.14
MW-1RD	6/22/2017	1000	7.33	614	9.13
MW-1RD	6/22/2017	1000	7.3	614	9.13
MW-1RD	6/22/2017	1000	7.3	614	9.11
MW-1RD	6/22/2017	1000	7.36	614	9.12
MW-1RD	6/22/2017		7.37	614	9.15
MW-1RD	7/24/2017	1000	7.38	608	10.43
MW-1RD	7/24/2017	1000	7.43	608	9.84
MW-1RD	7/24/2017	1000	7.43	608	9.71
MW-1RD	7/24/2017	1000	7.43	607	9.7
MW-1RD	7/24/2017	1000	7.43	607	9.65
MW-1RD	8/17/2017	1000	7.51	583	9.49
MW-1RD	8/17/2017	1000	7.5	583	9.54
MW-1RD	8/17/2017	1000	7.49	583	9.51
MW-1RD	8/17/2017	1000	7.47	583	9.53
MW-1RD	8/17/2017	1000	7.47	583	9.52
MW-1RD	9/7/2017	1000	7.66	567	10.25
MW-1RD	9/7/2017	1000	7.23	584	9.28
MW-1RD	9/7/2017	1000	7.21	585	9.25
MW-1RD	9/7/2017	1000	7.17	586	9.22
MW-1RD	9/7/2017	1000	7.16	586	9.22
MW-2R	2/23/2017	1000	8.01	1240	8.87
MW-2R	2/23/2017	1000	8.06	1270	7.87
MW-2R	2/23/2017	1000	8.05	1270	7.93
MW-2R	2/23/2017	1000	8.05	1270	7.95
MW-2R	3/28/2017	1000	7.37	140	8.55
MW-2R	3/28/2017	1000	7.41	60	7.49
MW-2R	3/28/2017	1000	7.18	40	8.22
MW-2R	3/28/2017	1000	7.14	30	8.36
MW-2R	3/28/2017		7.14	30	8.36
MW-2R	4/26/2017	1000	7.63	1270	8.04
MW-2R	4/26/2017	1000	7.62	1260	7.64
MW-2R	4/26/2017	1000	7.54	1290	7.68
MW-2R	4/26/2017	1000	7.55	1290	7.69
MW-2R	5/18/2017	1000	7.04	1170	10.64
MW-2R	5/18/2017	1000	6.89	1190	10.47
MW-2R	5/18/2017	1000	6.87	1200	10.43
MW-2R	5/18/2017	1000	6.87	1200	10.44
MW-2R	6/22/2017	1000	6.63	1270	11.12
MW-2R	6/22/2017	1000	6.67	1270	12.08
MW-2R	6/22/2017	1000	6.67	1270	12.09
MW-2R	6/22/2017	1000	6.78	1320	11.42
MW-2R	6/22/2017		6.76	1320	11.41
MW-2R	7/24/2017	1000	6.92	1190	14.59
MW-2R	7/24/2017	1000	6.81	1170	15.33
MW-2R	7/24/2017	1000	6.8	1170	15.37
MW-2R	7/24/2017	1000	6.8	1170	15.41
MW-2R	8/17/2017	1000	6.77	1210	13.3
MW-2R	8/17/2017	1000	6.77	1210	13.82

Table 2

Well Stabilization Data



Well ID	Sample Date	Purge Rate ml/min	Field pH pH	Field Specific Conductivity umhos/cm	Field Temp deg c
MW-2R	8/17/2017	1000	6.77	1210	13.87
MW-2R	8/17/2017	1000	6.77	1210	13.89
MW-2R	9/7/2017	1000	6.83	1220	12.93
MW-2R	9/7/2017	1000	6.43	1260	13.24
MW-2R	9/7/2017	1000	6.43	1260	13.2
MW-2R	9/7/2017	1000	6.43	1260	13.27
MW-2RD	2/23/2017	1000	8.13	948	8.6
MW-2RD	2/23/2017	1000	8.39	758	10.2
MW-2RD	2/23/2017	1000	8.38	787	10.19
MW-2RD	2/23/2017	1000	8.37	786	10.26
MW-2RD	3/28/2017	1000	7.52	859	10.44
MW-2RD	3/28/2017	1000	7.53	856	10.43
MW-2RD	3/28/2017	1000	7.32	857	10.44
MW-2RD	3/28/2017	1000	7.52	858	10.44
MW-2RD	3/28/2017		7.52	858	10.44
MW-2RD	4/26/2017	1000	7.86	931	9.68
MW-2RD	4/26/2017	1000	9.86	912	9.83
MW-2RD	4/26/2017	1000	7.86	913	9.82
MW-2RD	4/26/2017	1000	7.86	911	9.01
MW-2RD	5/18/2017	1000	7.16	904	10.27
MW-2RD	5/18/2017	1000	7.16	903	10.27
MW-2RD	5/18/2017	1000	7.15	903	10.27
MW-2RD	5/18/2017	1000	7.16	904	10.28
MW-2RD	6/22/2017	1000	7.02	960	9.81
MW-2RD	6/22/2017	1000	6.98	957	9.82
MW-2RD	6/22/2017	1000	6.93	952	9.79
MW-2RD	6/22/2017	1000	7.03	957	9.81
MW-2RD	6/22/2017	1000	6.94	961	9.83
MW-2RD	6/22/2017	1000	6.92	960	9.81
MW-2RD	6/22/2017		7.02	951	9.78
MW-2RD	7/24/2017	1000	6.7	940	13.27
MW-2RD	7/24/2017	1000	7.05	916	10.34
MW-2RD	7/24/2017	1000	7.05	925	10.04
MW-2RD	7/24/2017	1000	7.04	937	10.05
MW-2RD	8/17/2017	1000	7.13	898	10.91
MW-2RD	8/17/2017	1000	7.12	899	10.74
MW-2RD	8/17/2017	1000	7.13	902	10.67
MW-2RD	8/17/2017	1000	7.12	901	10.58
MW-2RD	9/7/2017	1000	6.84	895	10.41
MW-2RD	9/7/2017	1000	6.85	896	10.36
MW-2RD	9/7/2017	1000	6.85	895	10.36
MW-2RD	9/7/2017	1000	6.85	895	10.35
MW-3	2/23/2017	1000	7.87	950	7.19
MW-3	2/23/2017	1000	7.85	929	6.82
MW-3	2/23/2017	1000	7.83	1010	6.6
MW-3	2/23/2017	1000	7.91	1100	6.65
MW-3	3/28/2017	1000	7.59	1090	9.89
MW-3	3/28/2017	1000	7.31	1100	7.09
MW-3	3/28/2017	1000	7.26	1130	7
MW-3	3/28/2017	1000	7.23	1140	6.9
MW-3	3/28/2017		7.25	1140	6.9
MW-3	4/26/2017	1000	7.74	1110	7.57
MW-3	4/26/2017	1000	7.76	1060	6.92
MW-3	4/26/2017	1000	7.76	1070	6.68

**Table 2**  
**Well Stabilization Data**



Well ID	Sample Date	Purge Rate ml/min	Field pH pH	Field Specific Conductivity umhos/cm	Field Temp deg c
MW-3	4/26/2017	1000	7.76	1090	6.65
MW-3	5/18/2017	1000	7.12	1170	8.31
MW-3	5/18/2017	1000	6.92	1170	7.18
MW-3	5/18/2017	1000	6.88	1180	7.2
MW-3	5/18/2017	1000	6.84	1190	7.21
MW-3	6/22/2017	1000	7.03	1170	15.59
MW-3	6/22/2017	1000	6.67	1320	9.61
MW-3	6/22/2017	1000	6.7	1280	9.36
MW-3	6/22/2017	1000	6.5	1300	9.3
MW-3	6/22/2017		6.62	1300	9.33
MW-3	7/24/2017	1000	6.77	1250	11.1
MW-3	7/24/2017	1000	6.74	1190	10.87
MW-3	7/24/2017	1000	6.71	1220	10.93
MW-3	7/24/2017	1000	6.67	1240	10.92
MW-3	8/17/2017	1000	6.79	1250	12.25
MW-3	8/17/2017	1000	6.79	1250	12.24
MW-3	8/17/2017	1000	6.79	1250	12.24
MW-3	8/17/2017	1000	6.79	1250	12.24
MW-3	9/7/2017	1000	6.48	1360	11.13
MW-3	9/7/2017	1000	6.48	1310	11.59
MW-3	9/7/2017	1000	6.48	1320	11.6
MW-3	9/7/2017	1000	6.47	1320	11.62
MW-3R	2/23/2017	1000	8.41	1310	8.22
MW-3R	2/23/2017	1000	8.26	1440	8.69
MW-3R	2/23/2017	1000	8.14	1450	8.8
MW-3R	2/23/2017	1000	8.09	1460	8.88
MW-3R	3/28/2017	1000	7.14	1290	9.22
MW-3R	3/28/2017	1000	7.14	1290	9.23
MW-3R	3/28/2017	1000	7.14	1290	9.23
MW-3R	3/28/2017	1000	7.13	1290	9.24
MW-3R	3/28/2017		7.13	1300	9.28
MW-3R	4/26/2017	1000	7.56	1410	8.8
MW-3R	4/26/2017	1000	7.57	1410	8.75
MW-3R	4/26/2017	1000	7.57	1410	8.74
MW-3R	4/26/2017	1000	7.57	1410	8.74
MW-3R	5/18/2017	1000	6.93	1040	9.41
MW-3R	5/18/2017	1000	6.93	1040	9.41
MW-3R	5/18/2017	1000	6.93	1040	9.41
MW-3R	5/18/2017	1000	6.93	1040	9.41
MW-3R	6/22/2017	1000	6.62	1420	8.98
MW-3R	6/22/2017	1000	6.68	1440	8.79
MW-3R	6/22/2017	1000	6.66	1440	8.77
MW-3R	6/22/2017	1000	6.66	1440	8.77
MW-3R	6/22/2017	1000	6.67	1440	8.79
MW-3R	6/22/2017		6.63	1440	8.78
MW-3R	7/24/2017	1000	6.62	1380	9.52
MW-3R	7/24/2017	1000	6.63	1400	8.82
MW-3R	7/24/2017	1000	6.61	1400	8.78
MW-3R	7/24/2017	1000	6.62	1400	8.77
MW-3R	8/17/2017	1000	6.77	1250	10.01
MW-3R	8/17/2017	1000	6.76	1260	9.95
MW-3R	8/17/2017	1000	6.76	1260	9.93
MW-3R	8/17/2017	1000	6.77	1260	9.89
MW-3R	9/7/2017	1000	6.44	1300	10.45

Table 2

Well Stabilization Data



Well ID	Sample Date	Purge Rate ml/min	Field pH pH	Field Specific Conductivity umhos/cm	Field Temp deg c
MW-3R	9/7/2017	1000	6.44	1300	10.45
MW-3R	9/7/2017	1000	6.44	1300	10.45
MW-3R	9/7/2017	1000	6.44	1300	10.44
MW-3RD	2/23/2017	1000	8.72	1020	8.77
MW-3RD	2/23/2017	1000	8.62	1020	9.3
MW-3RD	2/23/2017	1000	8.47	1020	9.36
MW-3RD	2/23/2017	1000	8.45	1020	9.35
MW-3RD	3/28/2017	1000	7.57	933	9.63
MW-3RD	3/28/2017	1000	7.57	933	9.04
MW-3RD	3/28/2017	1000	7.57	930	9.62
MW-3RD	3/28/2017	1000	7.57	934	9.12
MW-3RD	3/28/2017	1000	7.57	940	9.63
MW-3RD	3/28/2017		7.57	941	9.63
MW-3RD	4/26/2017	1000	7.99	1010	9.3
MW-3RD	4/26/2017	1000	8.02	942	9.36
MW-3RD	4/26/2017	1000	8.06	995	9.39
MW-3RD	4/26/2017	1000	8.09	997	9.4
MW-3RD	5/18/2017	1000	7.1	984	8.93
MW-3RD	5/18/2017	1000	7.1	987	8.92
MW-3RD	5/18/2017	1000	7.1	988	8.92
MW-3RD	5/18/2017	1000	7.1	988	8.92
MW-3RD	6/22/2017	1000	6.78	987	9.52
MW-3RD	6/22/2017	1000	6.97	996	9.47
MW-3RD	6/22/2017	1000	6.98	996	9.47
MW-3RD	6/22/2017	1000	6.96	995	9.47
MW-3RD	6/22/2017	1000	6.97	996	9.48
MW-3RD	6/22/2017		6.96	996	9.48
MW-3RD	7/24/2017	1000	6.95	961	9.72
MW-3RD	7/24/2017	1000	7.02	978	9.15
MW-3RD	7/24/2017	1000	7.03	975	9.17
MW-3RD	7/24/2017	1000	7.02	975	9.17
MW-3RD	8/17/2017	1000	7.2	909	10.19
MW-3RD	8/17/2017	1000	7.2	908	10.2
MW-3RD	8/17/2017	1000	7.2	908	10.21
MW-3RD	8/17/2017	1000	7.2	908	10.22
MW-3RD	9/7/2017	1000	6.84	921	9.389
MW-3RD	9/7/2017	1000	6.89	921	9.9
MW-3RD	9/7/2017	1000	6.86	921	9.7
MW-3RD	9/7/2017	1000	6.86	924	9.77
MW-4	2/23/2017	1000	9.05	1540	10.59
MW-4	2/23/2017	1000	8.78	1560	6.72
MW-4	2/23/2017	1000	8.61	1610	6.14
MW-4	2/23/2017	1000	8.61	1610	6.14
MW-4	3/28/2017	1000	7.51	1440	9.99
MW-4	3/28/2017	1000	7.39	1530	7
MW-4	3/28/2017	1000	7.37	1590	6.57
MW-4	3/28/2017	1000	7.36	1610	6.49
MW-4	3/28/2017		7.36	1610	6.47
MW-4	4/26/2017	1000	8	1710	8.04
MW-4	4/26/2017	1000	7.96	1750	7.18
MW-4	4/26/2017	1000	7.97	1750	6.92
MW-4	4/26/2017	1000	7.97	1750	6.91
MW-4	5/18/2017	1000	7.17	1650	9.37
MW-4	5/18/2017	1000	6.98	1660	9.13

**Table 2**  
**Well Stabilization Data**



Well ID	Sample Date	Purge Rate ml/min	Field pH pH	Field Specific Conductivity umhos/cm	Field Temp deg c
MW-4	5/18/2017	1000	6.93	1660	8.99
MW-4	5/18/2017	1000	6.91	1660	8.94
MW-4	6/22/2017	1000	6.93	1770	12.94
MW-4	6/22/2017	1000	6.88	1850	10.97
MW-4	6/22/2017	1000	6.88	1870	10.89
MW-4	6/22/2017	1000	6.87	1870	10.88
MW-4	6/22/2017		6.88	1880	10.86
MW-4	7/24/2017	1000	6.89	1710	11.65
MW-4	7/24/2017	1000	6.8	1680	10.69
MW-4	7/24/2017	1000	6.8	1660	11.14
MW-4	7/24/2017	1000	6.8	1640	11
MW-4	8/17/2017	1000	6.89	1480	12.54
MW-4	8/17/2017	1000	6.83	1480	12.53
MW-4	8/17/2017	1000	6.8	1480	12.54
MW-4	8/17/2017	1000	6.79	1480	12.55
MW-4	9/7/2017	1000	6.76	1450	12.55
MW-4	9/7/2017	1000	6.65	1470	12.06
MW-4	9/7/2017	1000	6.64	1470	12.26
MW-4	9/7/2017	1000	6.64	1470	12.46

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-1	02/23/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-1	03/28/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-1	04/26/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-1	05/18/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-1	06/22/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-1	07/24/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-1	08/17/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-1	09/07/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-1	02/23/2017	Arsenic	< 1.0	ug/l	7440-38-2
MW-1	03/28/2017	Arsenic	< 1.0	ug/l	7440-38-2
MW-1	04/26/2017	Arsenic	< 1.0	ug/l	7440-38-2
MW-1	05/18/2017	Arsenic	< 1.0	ug/l	7440-38-2
MW-1	06/22/2017	Arsenic	< 1.0	ug/l	7440-38-2
MW-1	07/24/2017	Arsenic	1.0	ug/l	7440-38-2
MW-1	08/17/2017	Arsenic	< 1.0	ug/l	7440-38-2
MW-1	09/07/2017	Arsenic	< 1.0	ug/l	7440-38-2
MW-1	02/23/2017	Barium	0.063	mg/l	7440-39-3
MW-1	03/28/2017	Barium	0.058	mg/l	7440-39-3
MW-1	04/26/2017	Barium	0.063	mg/l	7440-39-3
MW-1	05/18/2017	Barium	0.068	mg/l	7440-39-3
MW-1	06/22/2017	Barium	0.069	mg/l	7440-39-3
MW-1	06/22/2017	Barium	0.071	mg/l	7440-39-3
MW-1	07/24/2017	Barium	0.10	mg/l	7440-39-3
MW-1	08/17/2017	Barium	0.11	mg/l	7440-39-3
MW-1	09/07/2017	Barium	0.083	mg/l	7440-39-3
MW-1	02/23/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-1	03/28/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-1	04/26/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-1	05/18/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-1	06/22/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-1	07/24/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-1	08/17/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-1	09/07/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-1	02/23/2017	Boron	< 0.020	mg/l	7440-42-8
MW-1	03/28/2017	Boron	< 0.020	mg/l	7440-42-8
MW-1	04/26/2017	Boron	< 0.020	mg/l	7440-42-8
MW-1	05/18/2017	Boron	< 0.020	mg/l	7440-42-8
MW-1	06/22/2017	Boron	< 0.020	mg/l	7440-42-8
MW-1	07/24/2017	Boron	< 0.020	mg/l	7440-42-8
MW-1	08/17/2017	Boron	0.021	mg/l	7440-42-8
MW-1	09/07/2017	Boron	0.020	mg/l	7440-42-8
MW-1	02/23/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-1	03/28/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-1	04/26/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-1	05/18/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-1	06/22/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-1	07/24/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-1	08/17/2017	Cadmium	0.68	ug/l	7440-43-9
MW-1	09/07/2017	Cadmium	< 0.50	ug/l	7440-43-9



Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-1	02/23/2017	Calcium	67.3	mg/l	7440-70-2
MW-1	03/28/2017	Calcium	68.1	mg/l	7440-70-2
MW-1	04/26/2017	Calcium	68.5	mg/l	7440-70-2
MW-1	05/18/2017	Calcium	70.8	mg/l	7440-70-2
MW-1	06/22/2017	Calcium	72.3	mg/l	7440-70-2
MW-1	06/22/2017	Calcium	74100	ug/l	7440-70-2
MW-1	07/24/2017	Calcium	90.8	mg/l	7440-70-2
MW-1	08/17/2017	Calcium	104	mg/l	7440-70-2
MW-1	09/07/2017	Calcium	85.0	mg/l	7440-70-2
MW-1	02/23/2017	Chloride	11.7	mg/l	16887-00-6
MW-1	03/28/2017	Chloride	12.8	mg/l	16887-00-6
MW-1	04/26/2017	Chloride	15.4	mg/l	16887-00-6
MW-1	05/18/2017	Chloride	18.0	mg/l	16887-00-6
MW-1	06/22/2017	Chloride	14.4	mg/l	16887-00-6
MW-1	06/22/2017	Chloride	14.5	mg/l	16887-00-6
MW-1	07/24/2017	Chloride	85.9	mg/l	16887-00-6
MW-1	08/17/2017	Chloride	97.2	mg/l	16887-00-6
MW-1	09/07/2017	Chloride	68.2	mg/l	16887-00-6
MW-1	02/23/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-1	03/28/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-1	04/26/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-1	05/18/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-1	06/22/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-1	07/24/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-1	08/17/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-1	09/07/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-1	02/23/2017	Cobalt	< 0.30	ug/l	7440-48-4
MW-1	03/28/2017	Cobalt	< 0.30	ug/l	7440-48-4
MW-1	04/26/2017	Cobalt	< 0.30	ug/l	7440-48-4
MW-1	05/18/2017	Cobalt	< 0.30	ug/l	7440-48-4
MW-1	06/22/2017	Cobalt	< 0.30	ug/l	7440-48-4
MW-1	07/24/2017	Cobalt	0.30	ug/l	7440-48-4
MW-1	08/17/2017	Cobalt	< 0.30	ug/l	7440-48-4
MW-1	09/07/2017	Cobalt	< 0.30	ug/l	7440-48-4
MW-1	02/23/2017	Fluoride	0.15	mg/l	16984-48-8
MW-1	03/28/2017	Fluoride	0.14	mg/l	16984-48-8
MW-1	04/26/2017	Fluoride	0.19	mg/l	16984-48-8
MW-1	05/18/2017	Fluoride	0.19	mg/l	16984-48-8
MW-1	06/22/2017	Fluoride	0.20	mg/l	16984-48-8
MW-1	07/24/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-1	08/17/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-1	09/07/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-1	02/23/2017	Lead	< 0.010	mg/l	7439-92-1
MW-1	03/28/2017	Lead	< 0.010	mg/l	7439-92-1
MW-1	04/26/2017	Lead	< 0.010	mg/l	7439-92-1
MW-1	05/18/2017	Lead	< 0.010	mg/l	7439-92-1
MW-1	06/22/2017	Lead	< 0.010	mg/l	7439-92-1
MW-1	06/22/2017	Lead	< 10.0	ug/l	7439-92-1
MW-1	07/24/2017	Lead	< 0.010	mg/l	7439-92-1

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-1	08/17/2017	Lead	< 0.010	mg/l	7439-92-1
MW-1	09/07/2017	Lead	< 0.010	mg/l	7439-92-1
MW-1	02/23/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-1	03/28/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-1	04/26/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-1	05/18/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-1	06/22/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-1	07/24/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-1	08/17/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-1	09/07/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-1	02/23/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-1	03/28/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-1	04/26/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-1	05/18/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-1	06/22/2017	Mercury	< 0.00020	mg/l	7439-97-6
MW-1	06/22/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-1	07/24/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-1	08/17/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-1	09/07/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-1	02/23/2017	MOLYBDENUM	< 1.0	ug/l	7439-98-7
MW-1	03/28/2017	MOLYBDENUM	< 1.0	ug/l	7439-98-7
MW-1	04/26/2017	MOLYBDENUM	< 1.0	ug/l	7439-98-7
MW-1	05/18/2017	MOLYBDENUM	< 1.0	ug/l	7439-98-7
MW-1	06/22/2017	MOLYBDENUM	< 1.0	ug/l	7439-98-7
MW-1	07/24/2017	MOLYBDENUM	< 1.0	ug/l	7439-98-7
MW-1	08/17/2017	MOLYBDENUM	< 1.0	ug/l	7439-98-7
MW-1	09/07/2017	MOLYBDENUM	< 1.0	ug/l	7439-98-7
MW-1	02/23/2017	pH	7.2	pH UNITS	PH
MW-1	03/28/2017	pH	7.6	pH UNITS	PH
MW-1	03/28/2017	pH	7.7	pH UNITS	PH
MW-1	04/26/2017	pH	7.5	pH UNITS	PH
MW-1	05/18/2017	pH	7.0	pH UNITS	PH
MW-1	06/22/2017	pH	7.1	pH UNITS	PH
MW-1	06/22/2017	pH	7.3	pH UNITS	PH
MW-1	07/24/2017	pH	7.1	pH UNITS	PH
MW-1	08/17/2017	pH	7.2	pH UNITS	PH
MW-1	09/07/2017	pH	7.4	pH UNITS	PH
MW-1	02/23/2017	Radium (226)	53.6	pci/l	13982-63-3
MW-1	03/28/2017	Radium (226)	25.4	pci/l	13982-63-3
MW-1	04/26/2017	Radium (226)	< 56.7	pci/l	13982-63-3
MW-1	05/18/2017	Radium (226)	< 0.167	pci/l	13982-63-3
MW-1	06/22/2017	Radium (226)	< 0.0828	pci/l	13982-63-3
MW-1	07/24/2017	Radium (226)	0.185	pci/l	13982-63-3
MW-1	08/17/2017	Radium (226)	0.153	pci/l	13982-63-3
MW-1	09/07/2017	Radium (226)	0.101	pci/l	13982-63-3
MW-1	02/23/2017	Radium 228	< 31.0	pci/l	15262-20-1
MW-1	03/28/2017	Radium 228	< 29.4	pci/l	15262-20-1
MW-1	04/26/2017	Radium 228	< 59.1	pci/l	15262-20-1
MW-1	05/18/2017	Radium 228	< 0.652	pci/l	15262-20-1

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Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-1	06/22/2017	Radium 228	< 0.297	pci/l	15262-20-1
MW-1	07/24/2017	Radium 228	0.537	pci/l	15262-20-1
MW-1	08/17/2017	Radium 228	< 0.415	pci/l	15262-20-1
MW-1	09/07/2017	Radium 228	0.623	pci/l	15262-20-1
MW-1	02/23/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-1	03/28/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-1	04/26/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-1	05/18/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-1	06/22/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-1	07/24/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-1	08/17/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-1	09/07/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-1	02/23/2017	Sulfate as SO4	12.2	mg/l	14808-79-8
MW-1	03/28/2017	Sulfate as SO4	16.6	mg/l	14808-79-8
MW-1	04/26/2017	Sulfate as SO4	15.5	mg/l	14808-79-8
MW-1	05/18/2017	Sulfate as SO4	16.7	mg/l	14808-79-8
MW-1	06/22/2017	Sulfate as SO4	14.0	mg/l	14808-79-8
MW-1	06/22/2017	Sulfate as SO4	14.7	mg/l	14808-79-8
MW-1	07/24/2017	Sulfate as SO4	30.8	mg/l	14808-79-8
MW-1	08/17/2017	Sulfate as SO4	39.0	mg/l	14808-79-8
MW-1	09/07/2017	Sulfate as SO4	74.0	mg/l	14808-79-8
MW-1	02/23/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-1	03/28/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-1	04/26/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-1	05/18/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-1	06/22/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-1	07/24/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-1	08/17/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-1	09/07/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-1	02/23/2017	Total Dissolved Solids	287	mg/l	TDS
MW-1	03/28/2017	Total Dissolved Solids	323	mg/l	TDS
MW-1	04/26/2017	Total Dissolved Solids	320	mg/l	TDS
MW-1	05/18/2017	Total Dissolved Solids	320	mg/l	TDS
MW-1	06/22/2017	Total Dissolved Solids	305	mg/l	TDS
MW-1	07/24/2017	Total Dissolved Solids	475	mg/l	TDS
MW-1	08/17/2017	Total Dissolved Solids	459	mg/l	TDS
MW-1	09/07/2017	Total Dissolved Solids	382	mg/l	TDS
MW-1RD	02/23/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-1RD	03/28/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-1RD	04/26/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-1RD	05/18/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-1RD	06/22/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-1RD	07/24/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-1RD	08/17/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-1RD	09/07/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-1RD	02/23/2017	Arsenic	< 1.0	ug/l	7440-38-2
MW-1RD	03/28/2017	Arsenic	< 1.0	ug/l	7440-38-2
MW-1RD	04/26/2017	Arsenic	< 1.0	ug/l	7440-38-2
MW-1RD	05/18/2017	Arsenic	< 1.0	ug/l	7440-38-2

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-1RD	06/22/2017	Arsenic	< 1.0	ug/l	7440-38-2
MW-1RD	07/24/2017	Arsenic	< 1.0	ug/l	7440-38-2
MW-1RD	08/17/2017	Arsenic	< 1.0	ug/l	7440-38-2
MW-1RD	09/07/2017	Arsenic	< 1.0	ug/l	7440-38-2
MW-1RD	02/23/2017	Barium	0.17	mg/l	7440-39-3
MW-1RD	03/28/2017	Barium	0.16	mg/l	7440-39-3
MW-1RD	03/28/2017	Barium	0.17	mg/l	7440-39-3
MW-1RD	04/26/2017	Barium	0.17	mg/l	7440-39-3
MW-1RD	05/18/2017	Barium	0.17	mg/l	7440-39-3
MW-1RD	06/22/2017	Barium	0.16	mg/l	7440-39-3
MW-1RD	07/24/2017	Barium	0.16	mg/l	7440-39-3
MW-1RD	08/17/2017	Barium	0.16	mg/l	7440-39-3
MW-1RD	09/07/2017	Barium	0.15	mg/l	7440-39-3
MW-1RD	02/23/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-1RD	03/28/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-1RD	04/26/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-1RD	05/18/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-1RD	06/22/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-1RD	07/24/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-1RD	08/17/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-1RD	09/07/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-1RD	02/23/2017	Boron	< 0.020	mg/l	7440-42-8
MW-1RD	03/28/2017	Boron	< 0.020	mg/l	7440-42-8
MW-1RD	04/26/2017	Boron	< 0.020	mg/l	7440-42-8
MW-1RD	05/18/2017	Boron	< 0.020	mg/l	7440-42-8
MW-1RD	06/22/2017	Boron	< 0.020	mg/l	7440-42-8
MW-1RD	07/24/2017	Boron	< 0.020	mg/l	7440-42-8
MW-1RD	08/17/2017	Boron	< 0.020	mg/l	7440-42-8
MW-1RD	09/07/2017	Boron	< 0.020	mg/l	7440-42-8
MW-1RD	02/23/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-1RD	03/28/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-1RD	04/26/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-1RD	05/18/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-1RD	06/22/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-1RD	07/24/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-1RD	08/17/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-1RD	09/07/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-1RD	02/23/2017	Calcium	71.8	mg/l	7440-70-2
MW-1RD	03/28/2017	Calcium	73.5	mg/l	7440-70-2
MW-1RD	04/26/2017	Calcium	77.8	mg/l	7440-70-2
MW-1RD	05/18/2017	Calcium	75.8	mg/l	7440-70-2
MW-1RD	06/22/2017	Calcium	72.8	mg/l	7440-70-2
MW-1RD	07/24/2017	Calcium	72.6	mg/l	7440-70-2
MW-1RD	08/17/2017	Calcium	79.2	mg/l	7440-70-2
MW-1RD	09/07/2017	Calcium	72.0	mg/l	7440-70-2
MW-1RD	02/23/2017	Chloride	17.2	mg/l	16887-00-6
MW-1RD	03/28/2017	Chloride	16.8	mg/l	16887-00-6
MW-1RD	03/28/2017	Chloride	17.1	mg/l	16887-00-6
MW-1RD	04/26/2017	Chloride	18.2	mg/l	16887-00-6

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-1RD	05/18/2017	Chloride	18.2	mg/l	16887-00-6
MW-1RD	06/22/2017	Chloride	18.2	mg/l	16887-00-6
MW-1RD	06/22/2017	Chloride	19.4	mg/l	16887-00-6
MW-1RD	07/24/2017	Chloride	17.3	mg/l	16887-00-6
MW-1RD	08/17/2017	Chloride	17.2	mg/l	16887-00-6
MW-1RD	09/07/2017	Chloride	18.1	mg/l	16887-00-6
MW-1RD	02/23/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-1RD	03/28/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-1RD	04/26/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-1RD	05/18/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-1RD	06/22/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-1RD	07/24/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-1RD	08/17/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-1RD	09/07/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-1RD	02/23/2017	Cobalt	1.6	ug/l	7440-48-4
MW-1RD	03/28/2017	Cobalt	1.9	ug/l	7440-48-4
MW-1RD	04/26/2017	Cobalt	2.0	ug/l	7440-48-4
MW-1RD	05/18/2017	Cobalt	2.1	ug/l	7440-48-4
MW-1RD	06/22/2017	Cobalt	1.3	ug/l	7440-48-4
MW-1RD	07/24/2017	Cobalt	1.5	ug/l	7440-48-4
MW-1RD	08/17/2017	Cobalt	1.4	ug/l	7440-48-4
MW-1RD	09/07/2017	Cobalt	1.4	ug/l	7440-48-4
MW-1RD	02/23/2017	Fluoride	0.23	mg/l	16984-48-8
MW-1RD	03/28/2017	Fluoride	0.22	mg/l	16984-48-8
MW-1RD	04/26/2017	Fluoride	0.23	mg/l	16984-48-8
MW-1RD	05/18/2017	Fluoride	0.27	mg/l	16984-48-8
MW-1RD	06/22/2017	Fluoride	0.26	mg/l	16984-48-8
MW-1RD	07/24/2017	Fluoride	0.24	mg/l	16984-48-8
MW-1RD	08/17/2017	Fluoride	0.25	mg/l	16984-48-8
MW-1RD	09/07/2017	Fluoride	0.25	mg/l	16984-48-8
MW-1RD	02/23/2017	Lead	< 0.010	mg/l	7439-92-1
MW-1RD	03/28/2017	Lead	< 0.010	mg/l	7439-92-1
MW-1RD	03/28/2017	Lead	< 10.0	ug/l	7439-92-1
MW-1RD	04/26/2017	Lead	< 0.010	mg/l	7439-92-1
MW-1RD	05/18/2017	Lead	0.012	mg/l	7439-92-1
MW-1RD	06/22/2017	Lead	< 0.010	mg/l	7439-92-1
MW-1RD	06/22/2017	Lead	< 10.0	ug/l	7439-92-1
MW-1RD	07/24/2017	Lead	< 0.010	mg/l	7439-92-1
MW-1RD	08/17/2017	Lead	< 0.010	mg/l	7439-92-1
MW-1RD	09/07/2017	Lead	< 0.010	mg/l	7439-92-1
MW-1RD	02/23/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-1RD	03/28/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-1RD	04/26/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-1RD	05/18/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-1RD	06/22/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-1RD	07/24/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-1RD	08/17/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-1RD	09/07/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-1RD	02/23/2017	Mercury	< 0.20	ug/l	7439-97-6

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-1RD	03/28/2017	Mercury	< 0.00020	mg/l	7439-97-6
MW-1RD	03/28/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-1RD	04/26/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-1RD	05/18/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-1RD	06/22/2017	Mercury	< 0.00020	mg/l	7439-97-6
MW-1RD	06/22/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-1RD	07/24/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-1RD	08/17/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-1RD	09/07/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-1RD	02/23/2017	MOLYBDENUM	3.3	ug/l	7439-98-7
MW-1RD	03/28/2017	MOLYBDENUM	2.9	ug/l	7439-98-7
MW-1RD	04/26/2017	MOLYBDENUM	3.1	ug/l	7439-98-7
MW-1RD	05/18/2017	MOLYBDENUM	2.8	ug/l	7439-98-7
MW-1RD	06/22/2017	MOLYBDENUM	3.1	ug/l	7439-98-7
MW-1RD	07/24/2017	MOLYBDENUM	3.0	ug/l	7439-98-7
MW-1RD	08/17/2017	MOLYBDENUM	3.0	ug/l	7439-98-7
MW-1RD	09/07/2017	MOLYBDENUM	2.9	ug/l	7439-98-7
MW-1RD	02/23/2017	pH	7.4	pH UNITS	PH
MW-1RD	03/28/2017	pH	7.6	pH UNITS	PH
MW-1RD	03/28/2017	pH	7.7	pH UNITS	PH
MW-1RD	04/26/2017	pH	7.7	pH UNITS	PH
MW-1RD	05/18/2017	pH	7.3	pH UNITS	PH
MW-1RD	06/22/2017	pH	7.3	pH UNITS	PH
MW-1RD	06/22/2017	pH	7.5	pH UNITS	PH
MW-1RD	07/24/2017	pH	7.5	pH UNITS	PH
MW-1RD	08/17/2017	pH	7.6	pH UNITS	PH
MW-1RD	09/07/2017	pH	7.6	pH UNITS	PH
MW-1RD	02/23/2017	Radium (226)	< 36.9	pci/l	13982-63-3
MW-1RD	03/28/2017	Radium (226)	28.4	pci/l	13982-63-3
MW-1RD	04/26/2017	Radium (226)	< 48.7	pci/l	13982-63-3
MW-1RD	05/18/2017	Radium (226)	0.520	pci/l	13982-63-3
MW-1RD	06/22/2017	Radium (226)	0.485	pci/l	13982-63-3
MW-1RD	07/24/2017	Radium (226)	0.597	pci/l	13982-63-3
MW-1RD	08/17/2017	Radium (226)	0.462	pci/l	13982-63-3
MW-1RD	09/07/2017	Radium (226)	0.534	pci/l	13982-63-3
MW-1RD	02/23/2017	Radium 228	< 33.8	pci/l	15262-20-1
MW-1RD	03/28/2017	Radium 228	< 27.7	pci/l	15262-20-1
MW-1RD	04/26/2017	Radium 228	< 50.1	pci/l	15262-20-1
MW-1RD	05/18/2017	Radium 228	< 0.455	pci/l	15262-20-1
MW-1RD	06/22/2017	Radium 228	0.346	pci/l	15262-20-1
MW-1RD	07/24/2017	Radium 228	1.08	pci/l	15262-20-1
MW-1RD	08/17/2017	Radium 228	0.519	pci/l	15262-20-1
MW-1RD	09/07/2017	Radium 228	0.576	pci/l	15262-20-1
MW-1RD	02/23/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-1RD	03/28/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-1RD	04/26/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-1RD	05/18/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-1RD	06/22/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-1RD	07/24/2017	Selenium	< 1.0	ug/l	7782-49-2



Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-1RD	08/17/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-1RD	09/07/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-1RD	02/23/2017	Sulfate as SO4	43.9	mg/l	14808-79-8
MW-1RD	03/28/2017	Sulfate as SO4	49.4	mg/l	14808-79-8
MW-1RD	03/28/2017	Sulfate as SO4	49.9	mg/l	14808-79-8
MW-1RD	04/26/2017	Sulfate as SO4	45.7	mg/l	14808-79-8
MW-1RD	05/18/2017	Sulfate as SO4	43.0	mg/l	14808-79-8
MW-1RD	06/22/2017	Sulfate as SO4	44.9	mg/l	14808-79-8
MW-1RD	06/22/2017	Sulfate as SO4	45.1	mg/l	14808-79-8
MW-1RD	07/24/2017	Sulfate as SO4	45.5	mg/l	14808-79-8
MW-1RD	08/17/2017	Sulfate as SO4	47.0	mg/l	14808-79-8
MW-1RD	09/07/2017	Sulfate as SO4	45.0	mg/l	14808-79-8
MW-1RD	02/23/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-1RD	03/28/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-1RD	04/26/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-1RD	05/18/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-1RD	06/22/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-1RD	07/24/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-1RD	08/17/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-1RD	09/07/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-1RD	02/23/2017	Total Dissolved Solids	360	mg/l	TDS
MW-1RD	03/28/2017	Total Dissolved Solids	360	mg/l	TDS
MW-1RD	03/28/2017	Total Dissolved Solids	367	mg/l	TDS
MW-1RD	04/26/2017	Total Dissolved Solids	355	mg/l	TDS
MW-1RD	05/18/2017	Total Dissolved Solids	382	mg/l	TDS
MW-1RD	06/22/2017	Total Dissolved Solids	326	mg/l	TDS
MW-1RD	06/22/2017	Total Dissolved Solids	332	mg/l	TDS
MW-1RD	07/24/2017	Total Dissolved Solids	350	mg/l	TDS
MW-1RD	08/17/2017	Total Dissolved Solids	320	mg/l	TDS
MW-1RD	09/07/2017	Total Dissolved Solids	327	mg/l	TDS
MW-2R	02/23/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-2R	03/28/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-2R	04/26/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-2R	05/18/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-2R	06/22/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-2R	07/24/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-2R	08/17/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-2R	09/07/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-2R	02/23/2017	Arsenic	< 1.0	ug/l	7440-38-2
MW-2R	03/28/2017	Arsenic	< 1.0	ug/l	7440-38-2
MW-2R	03/28/2017	Arsenic	1.0	ug/l	7440-38-2
MW-2R	04/26/2017	Arsenic	2.1	ug/l	7440-38-2
MW-2R	05/18/2017	Arsenic	1.2	ug/l	7440-38-2
MW-2R	06/22/2017	Arsenic	< 1.0	ug/l	7440-38-2
MW-2R	06/22/2017	Arsenic	1.2	ug/l	7440-38-2
MW-2R	07/24/2017	Arsenic	< 1.0	ug/l	7440-38-2
MW-2R	08/17/2017	Arsenic	1.0	ug/l	7440-38-2
MW-2R	09/07/2017	Arsenic	< 1.0	ug/l	7440-38-2
MW-2R	02/23/2017	Barium	0.16	mg/l	7440-39-3

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-2R	03/28/2017	Barium	0.17	mg/l	7440-39-3
MW-2R	03/28/2017	Barium	0.18	mg/l	7440-39-3
MW-2R	04/26/2017	Barium	0.19	mg/l	7440-39-3
MW-2R	05/18/2017	Barium	0.18	mg/l	7440-39-3
MW-2R	06/22/2017	Barium	0.18	mg/l	7440-39-3
MW-2R	07/24/2017	Barium	0.19	mg/l	7440-39-3
MW-2R	08/17/2017	Barium	0.18	mg/l	7440-39-3
MW-2R	09/07/2017	Barium	0.19	mg/l	7440-39-3
MW-2R	02/23/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-2R	03/28/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-2R	04/26/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-2R	05/18/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-2R	06/22/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-2R	07/24/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-2R	08/17/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-2R	09/07/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-2R	02/23/2017	Boron	0.33	mg/l	7440-42-8
MW-2R	03/28/2017	Boron	0.084	mg/l	7440-42-8
MW-2R	03/28/2017	Boron	0.19	mg/l	7440-42-8
MW-2R	04/26/2017	Boron	0.086	mg/l	7440-42-8
MW-2R	05/18/2017	Boron	0.21	mg/l	7440-42-8
MW-2R	06/22/2017	Boron	0.11	mg/l	7440-42-8
MW-2R	06/22/2017	Boron	0.16	mg/l	7440-42-8
MW-2R	07/24/2017	Boron	0.34	mg/l	7440-42-8
MW-2R	08/17/2017	Boron	0.36	mg/l	7440-42-8
MW-2R	09/07/2017	Boron	0.29	mg/l	7440-42-8
MW-2R	02/23/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-2R	03/28/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-2R	04/26/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-2R	05/18/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-2R	06/22/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-2R	07/24/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-2R	08/17/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-2R	09/07/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-2R	02/23/2017	Calcium	157	mg/l	7440-70-2
MW-2R	03/28/2017	Calcium	175	mg/l	7440-70-2
MW-2R	04/26/2017	Calcium	192	mg/l	7440-70-2
MW-2R	05/18/2017	Calcium	187	mg/l	7440-70-2
MW-2R	06/22/2017	Calcium	181	mg/l	7440-70-2
MW-2R	07/24/2017	Calcium	181	mg/l	7440-70-2
MW-2R	08/17/2017	Calcium	194	mg/l	7440-70-2
MW-2R	09/07/2017	Calcium	190	mg/l	7440-70-2
MW-2R	02/23/2017	Chloride	7.5	mg/l	16887-00-6
MW-2R	03/28/2017	Chloride	37.1	mg/l	16887-00-6
MW-2R	03/28/2017	Chloride	40.4	mg/l	16887-00-6
MW-2R	04/26/2017	Chloride	42.9	mg/l	16887-00-6
MW-2R	05/18/2017	Chloride	39.8	mg/l	16887-00-6
MW-2R	06/22/2017	Chloride	33.9	mg/l	16887-00-6
MW-2R	06/22/2017	Chloride	34.7	mg/l	16887-00-6



Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-2R	07/24/2017	Chloride	50.3	mg/l	16887-00-6
MW-2R	08/17/2017	Chloride	55.7	mg/l	16887-00-6
MW-2R	09/07/2017	Chloride	67.5	mg/l	16887-00-6
MW-2R	02/23/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-2R	03/28/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-2R	04/26/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-2R	05/18/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-2R	06/22/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-2R	07/24/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-2R	08/17/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-2R	09/07/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-2R	02/23/2017	Cobalt	0.54	ug/l	7440-48-4
MW-2R	03/28/2017	Cobalt	0.90	ug/l	7440-48-4
MW-2R	04/26/2017	Cobalt	1.1	ug/l	7440-48-4
MW-2R	05/18/2017	Cobalt	1.0	ug/l	7440-48-4
MW-2R	06/22/2017	Cobalt	0.84	ug/l	7440-48-4
MW-2R	07/24/2017	Cobalt	0.63	ug/l	7440-48-4
MW-2R	08/17/2017	Cobalt	0.56	ug/l	7440-48-4
MW-2R	09/07/2017	Cobalt	0.88	ug/l	7440-48-4
MW-2R	02/23/2017	Fluoride	< 0.050	mg/l	16984-48-8
MW-2R	03/28/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-2R	04/26/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-2R	05/18/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-2R	06/22/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-2R	07/24/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-2R	08/17/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-2R	09/07/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-2R	02/23/2017	Lead	0.015	mg/l	7439-92-1
MW-2R	03/28/2017	Lead	< 0.010	mg/l	7439-92-1
MW-2R	03/28/2017	Lead	< 10.0	ug/l	7439-92-1
MW-2R	04/26/2017	Lead	< 0.010	mg/l	7439-92-1
MW-2R	05/18/2017	Lead	0.011	mg/l	7439-92-1
MW-2R	06/22/2017	Lead	< 0.010	mg/l	7439-92-1
MW-2R	06/22/2017	Lead	< 10.0	ug/l	7439-92-1
MW-2R	07/24/2017	Lead	< 0.010	mg/l	7439-92-1
MW-2R	08/17/2017	Lead	< 0.010	mg/l	7439-92-1
MW-2R	09/07/2017	Lead	< 0.010	mg/l	7439-92-1
MW-2R	02/23/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-2R	03/28/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-2R	04/26/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-2R	05/18/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-2R	06/22/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-2R	07/24/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-2R	08/17/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-2R	09/07/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-2R	02/23/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-2R	03/28/2017	Mercury	< 0.00020	mg/l	7439-97-6
MW-2R	03/28/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-2R	04/26/2017	Mercury	< 0.20	ug/l	7439-97-6

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-2R	05/18/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-2R	06/22/2017	Mercury	< 0.00020	mg/l	7439-97-6
MW-2R	06/22/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-2R	07/24/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-2R	08/17/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-2R	09/07/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-2R	02/23/2017	MOLYBDENUM	2.3	ug/l	7439-98-7
MW-2R	03/28/2017	MOLYBDENUM	1.9	ug/l	7439-98-7
MW-2R	04/26/2017	MOLYBDENUM	1.2	ug/l	7439-98-7
MW-2R	05/18/2017	MOLYBDENUM	1.9	ug/l	7439-98-7
MW-2R	06/22/2017	MOLYBDENUM	1.9	ug/l	7439-98-7
MW-2R	07/24/2017	MOLYBDENUM	1.8	ug/l	7439-98-7
MW-2R	08/17/2017	MOLYBDENUM	1.9	ug/l	7439-98-7
MW-2R	09/07/2017	MOLYBDENUM	2.0	ug/l	7439-98-7
MW-2R	02/23/2017	pH	7.0	pH UNITS	PH
MW-2R	03/28/2017	pH	7.2	pH UNITS	PH
MW-2R	03/28/2017	pH	7.3	pH UNITS	PH
MW-2R	04/26/2017	pH	7.0	pH UNITS	PH
MW-2R	05/18/2017	pH	6.8	pH UNITS	PH
MW-2R	06/22/2017	pH	6.8	pH UNITS	PH
MW-2R	06/22/2017	pH	7.1	pH UNITS	PH
MW-2R	07/24/2017	pH	6.9	pH UNITS	PH
MW-2R	08/17/2017	pH	7.0	pH UNITS	PH
MW-2R	09/07/2017	pH	7.0	pH UNITS	PH
MW-2R	02/23/2017	Radium (226)	< 49.6	pci/l	13982-63-3
MW-2R	03/28/2017	Radium (226)	< 42.5	pci/l	13982-63-3
MW-2R	04/26/2017	Radium (226)	< 59.0	pci/l	13982-63-3
MW-2R	05/18/2017	Radium (226)	0.208	pci/l	13982-63-3
MW-2R	06/22/2017	Radium (226)	< 0.0816	pci/l	13982-63-3
MW-2R	07/24/2017	Radium (226)	0.310	pci/l	13982-63-3
MW-2R	08/17/2017	Radium (226)	0.211	pci/l	13982-63-3
MW-2R	09/07/2017	Radium (226)	0.205	pci/l	13982-63-3
MW-2R	02/23/2017	Radium 228	< 36.8	pci/l	15262-20-1
MW-2R	03/28/2017	Radium 228	< 40.2	pci/l	15262-20-1
MW-2R	04/26/2017	Radium 228	< 41.8	pci/l	15262-20-1
MW-2R	05/18/2017	Radium 228	< 0.378	pci/l	15262-20-1
MW-2R	06/22/2017	Radium 228	0.579	pci/l	15262-20-1
MW-2R	07/24/2017	Radium 228	< 0.357	pci/l	15262-20-1
MW-2R	08/17/2017	Radium 228	0.348	pci/l	15262-20-1
MW-2R	09/07/2017	Radium 228	1.75	pci/l	15262-20-1
MW-2R	02/23/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-2R	03/28/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-2R	04/26/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-2R	05/18/2017	Selenium	1.3	ug/l	7782-49-2
MW-2R	06/22/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-2R	07/24/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-2R	08/17/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-2R	09/07/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-2R	02/23/2017	Sulfate as SO4	17.4	mg/l	14808-79-8

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-2R	03/28/2017	Sulfate as SO4	141	mg/l	14808-79-8
MW-2R	03/28/2017	Sulfate as SO4	153	mg/l	14808-79-8
MW-2R	04/26/2017	Sulfate as SO4	155	mg/l	14808-79-8
MW-2R	05/18/2017	Sulfate as SO4	146	mg/l	14808-79-8
MW-2R	06/22/2017	Sulfate as SO4	167	mg/l	14808-79-8
MW-2R	07/24/2017	Sulfate as SO4	121	mg/l	14808-79-8
MW-2R	08/17/2017	Sulfate as SO4	124	mg/l	14808-79-8
MW-2R	09/07/2017	Sulfate as SO4	143	mg/l	14808-79-8
MW-2R	02/23/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-2R	03/28/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-2R	04/26/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-2R	05/18/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-2R	06/22/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-2R	07/24/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-2R	08/17/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-2R	09/07/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-2R	02/23/2017	Total Dissolved Solids	765	mg/l	TDS
MW-2R	03/28/2017	Total Dissolved Solids	814	mg/l	TDS
MW-2R	03/28/2017	Total Dissolved Solids	876	mg/l	TDS
MW-2R	04/26/2017	Total Dissolved Solids	800	mg/l	TDS
MW-2R	05/18/2017	Total Dissolved Solids	819	mg/l	TDS
MW-2R	06/22/2017	Total Dissolved Solids	773	mg/l	TDS
MW-2R	06/22/2017	Total Dissolved Solids	810	mg/l	TDS
MW-2R	07/24/2017	Total Dissolved Solids	869	mg/l	TDS
MW-2R	08/17/2017	Total Dissolved Solids	821	mg/l	TDS
MW-2R	09/07/2017	Total Dissolved Solids	838	mg/l	TDS
MW-2RD	02/23/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-2RD	03/28/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-2RD	04/26/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-2RD	05/18/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-2RD	06/22/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-2RD	07/24/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-2RD	08/17/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-2RD	09/07/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-2RD	02/23/2017	Arsenic	2.0	ug/l	7440-38-2
MW-2RD	03/28/2017	Arsenic	2.6	ug/l	7440-38-2
MW-2RD	04/26/2017	Arsenic	2.2	ug/l	7440-38-2
MW-2RD	05/18/2017	Arsenic	2.1	ug/l	7440-38-2
MW-2RD	06/22/2017	Arsenic	2.0	ug/l	7440-38-2
MW-2RD	06/22/2017	Arsenic	2.4	ug/l	7440-38-2
MW-2RD	07/24/2017	Arsenic	1.8	ug/l	7440-38-2
MW-2RD	08/17/2017	Arsenic	1.8	ug/l	7440-38-2
MW-2RD	09/07/2017	Arsenic	1.8	ug/l	7440-38-2
MW-2RD	02/23/2017	Barium	0.17	mg/l	7440-39-3
MW-2RD	03/28/2017	Barium	0.17	mg/l	7440-39-3
MW-2RD	04/26/2017	Barium	0.17	mg/l	7440-39-3
MW-2RD	05/18/2017	Barium	0.17	mg/l	7440-39-3
MW-2RD	06/22/2017	Barium	0.16	mg/l	7440-39-3
MW-2RD	06/22/2017	Barium	0.17	mg/l	7440-39-3

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-2RD	07/24/2017	Barium	0.17	mg/l	7440-39-3
MW-2RD	08/17/2017	Barium	0.16	mg/l	7440-39-3
MW-2RD	09/07/2017	Barium	0.16	mg/l	7440-39-3
MW-2RD	02/23/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-2RD	03/28/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-2RD	04/26/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-2RD	05/18/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-2RD	06/22/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-2RD	07/24/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-2RD	08/17/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-2RD	09/07/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-2RD	02/23/2017	Boron	0.040	mg/l	7440-42-8
MW-2RD	03/28/2017	Boron	0.040	mg/l	7440-42-8
MW-2RD	03/28/2017	Boron	0.041	mg/l	7440-42-8
MW-2RD	04/26/2017	Boron	0.039	mg/l	7440-42-8
MW-2RD	05/18/2017	Boron	0.043	mg/l	7440-42-8
MW-2RD	06/22/2017	Boron	0.040	mg/l	7440-42-8
MW-2RD	06/22/2017	Boron	0.042	mg/l	7440-42-8
MW-2RD	07/24/2017	Boron	0.044	mg/l	7440-42-8
MW-2RD	08/17/2017	Boron	0.042	mg/l	7440-42-8
MW-2RD	09/07/2017	Boron	0.045	mg/l	7440-42-8
MW-2RD	02/23/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-2RD	03/28/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-2RD	04/26/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-2RD	05/18/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-2RD	06/22/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-2RD	07/24/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-2RD	08/17/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-2RD	09/07/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-2RD	02/23/2017	Calcium	110	mg/l	7440-70-2
MW-2RD	03/28/2017	Calcium	117	mg/l	7440-70-2
MW-2RD	04/26/2017	Calcium	122	mg/l	7440-70-2
MW-2RD	05/18/2017	Calcium	124	mg/l	7440-70-2
MW-2RD	06/22/2017	Calcium	122	mg/l	7440-70-2
MW-2RD	07/24/2017	Calcium	121	mg/l	7440-70-2
MW-2RD	08/17/2017	Calcium	128	mg/l	7440-70-2
MW-2RD	09/07/2017	Calcium	123	mg/l	7440-70-2
MW-2RD	02/23/2017	Chloride	12.7	mg/l	16887-00-6
MW-2RD	03/28/2017	Chloride	28.7	mg/l	16887-00-6
MW-2RD	03/28/2017	Chloride	29.0	mg/l	16887-00-6
MW-2RD	04/26/2017	Chloride	30.8	mg/l	16887-00-6
MW-2RD	05/18/2017	Chloride	30.7	mg/l	16887-00-6
MW-2RD	06/22/2017	Chloride	31.8	mg/l	16887-00-6
MW-2RD	06/22/2017	Chloride	31.9	mg/l	16887-00-6
MW-2RD	07/24/2017	Chloride	30.9	mg/l	16887-00-6
MW-2RD	08/17/2017	Chloride	27.3	mg/l	16887-00-6
MW-2RD	09/07/2017	Chloride	32.5	mg/l	16887-00-6
MW-2RD	02/23/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-2RD	03/28/2017	Chromium	< 0.0040	mg/l	7440-47-3

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-2RD	04/26/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-2RD	05/18/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-2RD	06/22/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-2RD	07/24/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-2RD	08/17/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-2RD	09/07/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-2RD	02/23/2017	Cobalt	1.9	ug/l	7440-48-4
MW-2RD	03/28/2017	Cobalt	2.5	ug/l	7440-48-4
MW-2RD	04/26/2017	Cobalt	2.5	ug/l	7440-48-4
MW-2RD	05/18/2017	Cobalt	2.5	ug/l	7440-48-4
MW-2RD	06/22/2017	Cobalt	2.6	ug/l	7440-48-4
MW-2RD	07/24/2017	Cobalt	2.2	ug/l	7440-48-4
MW-2RD	08/17/2017	Cobalt	2.2	ug/l	7440-48-4
MW-2RD	09/07/2017	Cobalt	2.4	ug/l	7440-48-4
MW-2RD	02/23/2017	Fluoride	0.091	mg/l	16984-48-8
MW-2RD	03/28/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-2RD	04/26/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-2RD	05/18/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-2RD	06/22/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-2RD	07/24/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-2RD	08/17/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-2RD	09/07/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-2RD	02/23/2017	Lead	< 0.010	mg/l	7439-92-1
MW-2RD	03/28/2017	Lead	< 0.010	mg/l	7439-92-1
MW-2RD	03/28/2017	Lead	< 10.0	ug/l	7439-92-1
MW-2RD	04/26/2017	Lead	< 0.010	mg/l	7439-92-1
MW-2RD	05/18/2017	Lead	< 0.010	mg/l	7439-92-1
MW-2RD	06/22/2017	Lead	< 0.010	mg/l	7439-92-1
MW-2RD	06/22/2017	Lead	< 10.0	ug/l	7439-92-1
MW-2RD	07/24/2017	Lead	< 0.010	mg/l	7439-92-1
MW-2RD	08/17/2017	Lead	< 0.010	mg/l	7439-92-1
MW-2RD	09/07/2017	Lead	< 0.010	mg/l	7439-92-1
MW-2RD	02/23/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-2RD	03/28/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-2RD	04/26/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-2RD	05/18/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-2RD	06/22/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-2RD	07/24/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-2RD	08/17/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-2RD	09/07/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-2RD	02/23/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-2RD	03/28/2017	Mercury	< 0.00020	mg/l	7439-97-6
MW-2RD	03/28/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-2RD	04/26/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-2RD	05/18/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-2RD	06/22/2017	Mercury	< 0.00020	mg/l	7439-97-6
MW-2RD	06/22/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-2RD	07/24/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-2RD	08/17/2017	Mercury	< 0.20	ug/l	7439-97-6

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-2RD	09/07/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-2RD	02/23/2017	MOLYBDENUM	3.1	ug/l	7439-98-7
MW-2RD	03/28/2017	MOLYBDENUM	2.8	ug/l	7439-98-7
MW-2RD	04/26/2017	MOLYBDENUM	2.7	ug/l	7439-98-7
MW-2RD	05/18/2017	MOLYBDENUM	2.6	ug/l	7439-98-7
MW-2RD	06/22/2017	MOLYBDENUM	2.5	ug/l	7439-98-7
MW-2RD	07/24/2017	MOLYBDENUM	2.4	ug/l	7439-98-7
MW-2RD	08/17/2017	MOLYBDENUM	2.6	ug/l	7439-98-7
MW-2RD	09/07/2017	MOLYBDENUM	2.7	ug/l	7439-98-7
MW-2RD	02/23/2017	pH	7.1	pH UNITS	PH
MW-2RD	03/28/2017	pH	7.6	pH UNITS	PH
MW-2RD	04/26/2017	pH	7.5	pH UNITS	PH
MW-2RD	05/18/2017	pH	7.1	pH UNITS	PH
MW-2RD	06/22/2017	pH	7.1	pH UNITS	PH
MW-2RD	06/22/2017	pH	7.3	pH UNITS	PH
MW-2RD	07/24/2017	pH	7.3	pH UNITS	PH
MW-2RD	08/17/2017	pH	7.4	pH UNITS	PH
MW-2RD	09/07/2017	pH	7.4	pH UNITS	PH
MW-2RD	02/23/2017	Radium (226)	92.9	pci/l	13982-63-3
MW-2RD	03/28/2017	Radium (226)	38.7	pci/l	13982-63-3
MW-2RD	04/26/2017	Radium (226)	< 45.6	pci/l	13982-63-3
MW-2RD	05/18/2017	Radium (226)	0.261	pci/l	13982-63-3
MW-2RD	06/22/2017	Radium (226)	0.301	pci/l	13982-63-3
MW-2RD	07/24/2017	Radium (226)	0.370	pci/l	13982-63-3
MW-2RD	08/17/2017	Radium (226)	0.412	pci/l	13982-63-3
MW-2RD	09/07/2017	Radium (226)	0.321	pci/l	13982-63-3
MW-2RD	02/23/2017	Radium 228	32.4	pci/l	15262-20-1
MW-2RD	03/28/2017	Radium 228	24.6	pci/l	15262-20-1
MW-2RD	04/26/2017	Radium 228	< 28.4	pci/l	15262-20-1
MW-2RD	05/18/2017	Radium 228	0.647	pci/l	15262-20-1
MW-2RD	06/22/2017	Radium 228	< 0.356	pci/l	15262-20-1
MW-2RD	07/24/2017	Radium 228	0.929	pci/l	15262-20-1
MW-2RD	08/17/2017	Radium 228	0.384	pci/l	15262-20-1
MW-2RD	09/07/2017	Radium 228	0.413	pci/l	15262-20-1
MW-2RD	02/23/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-2RD	03/28/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-2RD	04/26/2017	Selenium	1.2	ug/l	7782-49-2
MW-2RD	05/18/2017	Selenium	1.3	ug/l	7782-49-2
MW-2RD	06/22/2017	Selenium	1.2	ug/l	7782-49-2
MW-2RD	07/24/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-2RD	08/17/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-2RD	09/07/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-2RD	02/23/2017	Sulfate as SO4	22.5	mg/l	14808-79-8
MW-2RD	03/28/2017	Sulfate as SO4	56.6	mg/l	14808-79-8
MW-2RD	03/28/2017	Sulfate as SO4	60.1	mg/l	14808-79-8
MW-2RD	04/26/2017	Sulfate as SO4	55.4	mg/l	14808-79-8
MW-2RD	05/18/2017	Sulfate as SO4	52.7	mg/l	14808-79-8
MW-2RD	06/22/2017	Sulfate as SO4	58.7	mg/l	14808-79-8
MW-2RD	06/22/2017	Sulfate as SO4	60.1	mg/l	14808-79-8



Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-2RD	07/24/2017	Sulfate as SO4	63.1	mg/l	14808-79-8
MW-2RD	08/17/2017	Sulfate as SO4	59.9	mg/l	14808-79-8
MW-2RD	09/07/2017	Sulfate as SO4	66.3	mg/l	14808-79-8
MW-2RD	02/23/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-2RD	03/28/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-2RD	04/26/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-2RD	05/18/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-2RD	06/22/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-2RD	07/24/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-2RD	08/17/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-2RD	09/07/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-2RD	02/23/2017	Total Dissolved Solids	513	mg/l	TDS
MW-2RD	03/28/2017	Total Dissolved Solids	521	mg/l	TDS
MW-2RD	03/28/2017	Total Dissolved Solids	536	mg/l	TDS
MW-2RD	04/26/2017	Total Dissolved Solids	541	mg/l	TDS
MW-2RD	05/18/2017	Total Dissolved Solids	530	mg/l	TDS
MW-2RD	06/22/2017	Total Dissolved Solids	486	mg/l	TDS
MW-2RD	06/22/2017	Total Dissolved Solids	505	mg/l	TDS
MW-2RD	07/24/2017	Total Dissolved Solids	545	mg/l	TDS
MW-2RD	08/17/2017	Total Dissolved Solids	522	mg/l	TDS
MW-2RD	09/07/2017	Total Dissolved Solids	523	mg/l	TDS
MW-3	02/23/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3	03/28/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3	04/26/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3	05/18/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3	06/22/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3	07/24/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3	08/17/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3	09/07/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3	02/23/2017	Arsenic	1.6	ug/l	7440-38-2
MW-3	03/28/2017	Arsenic	2.0	ug/l	7440-38-2
MW-3	03/28/2017	Arsenic	2.5	ug/l	7440-38-2
MW-3	04/26/2017	Arsenic	1.6	ug/l	7440-38-2
MW-3	05/18/2017	Arsenic	4.9	ug/l	7440-38-2
MW-3	06/22/2017	Arsenic	1.2	ug/l	7440-38-2
MW-3	06/22/2017	Arsenic	1.6	ug/l	7440-38-2
MW-3	07/24/2017	Arsenic	2.3	ug/l	7440-38-2
MW-3	08/17/2017	Arsenic	2.8	ug/l	7440-38-2
MW-3	09/07/2017	Arsenic	2.7	ug/l	7440-38-2
MW-3	02/23/2017	Barium	0.21	mg/l	7440-39-3
MW-3	03/28/2017	Barium	0.24	mg/l	7440-39-3
MW-3	04/26/2017	Barium	0.20	mg/l	7440-39-3
MW-3	05/18/2017	Barium	0.23	mg/l	7440-39-3
MW-3	06/22/2017	Barium	0.24	mg/l	7440-39-3
MW-3	07/24/2017	Barium	0.23	mg/l	7440-39-3
MW-3	08/17/2017	Barium	0.26	mg/l	7440-39-3
MW-3	09/07/2017	Barium	0.29	mg/l	7440-39-3
MW-3	02/23/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3	03/28/2017	Beryllium	< 0.70	ug/l	7440-41-7

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-3	04/26/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3	05/18/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3	06/22/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3	07/24/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3	08/17/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3	09/07/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3	02/23/2017	Boron	0.24	mg/l	7440-42-8
MW-3	03/28/2017	Boron	0.24	mg/l	7440-42-8
MW-3	04/26/2017	Boron	0.24	mg/l	7440-42-8
MW-3	05/18/2017	Boron	0.23	mg/l	7440-42-8
MW-3	06/22/2017	Boron	0.20	mg/l	7440-42-8
MW-3	07/24/2017	Boron	0.29	mg/l	7440-42-8
MW-3	08/17/2017	Boron	0.32	mg/l	7440-42-8
MW-3	09/07/2017	Boron	0.32	mg/l	7440-42-8
MW-3	02/23/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3	03/28/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3	04/26/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3	05/18/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3	06/22/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3	07/24/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3	08/17/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3	09/07/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3	02/23/2017	Calcium	166	mg/l	7440-70-2
MW-3	03/28/2017	Calcium	173	mg/l	7440-70-2
MW-3	04/26/2017	Calcium	164	mg/l	7440-70-2
MW-3	05/18/2017	Calcium	177	mg/l	7440-70-2
MW-3	06/22/2017	Calcium	188	mg/l	7440-70-2
MW-3	06/22/2017	Calcium	199000	ug/l	7440-70-2
MW-3	07/24/2017	Calcium	171	mg/l	7440-70-2
MW-3	08/17/2017	Calcium	205	mg/l	7440-70-2
MW-3	09/07/2017	Calcium	206	mg/l	7440-70-2
MW-3	02/23/2017	Chloride	3.4	mg/l	16887-00-6
MW-3	03/28/2017	Chloride	19.9	mg/l	16887-00-6
MW-3	04/26/2017	Chloride	20.0	mg/l	16887-00-6
MW-3	05/18/2017	Chloride	20.0	mg/l	16887-00-6
MW-3	06/22/2017	Chloride	19.3	mg/l	16887-00-6
MW-3	06/22/2017	Chloride	19.4	mg/l	16887-00-6
MW-3	07/24/2017	Chloride	19.1	mg/l	16887-00-6
MW-3	08/17/2017	Chloride	22.3	mg/l	16887-00-6
MW-3	09/07/2017	Chloride	26.0	mg/l	16887-00-6
MW-3	02/23/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3	03/28/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3	04/26/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3	05/18/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3	06/22/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3	07/24/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3	08/17/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3	09/07/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3	02/23/2017	Cobalt	5.0	ug/l	7440-48-4



Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-3	03/28/2017	Cobalt	6.2	ug/l	7440-48-4
MW-3	04/26/2017	Cobalt	4.7	ug/l	7440-48-4
MW-3	05/18/2017	Cobalt	5.6	ug/l	7440-48-4
MW-3	06/22/2017	Cobalt	5.1	ug/l	7440-48-4
MW-3	07/24/2017	Cobalt	4.6	ug/l	7440-48-4
MW-3	08/17/2017	Cobalt	5.4	ug/l	7440-48-4
MW-3	09/07/2017	Cobalt	5.3	ug/l	7440-48-4
MW-3	02/23/2017	Fluoride	< 0.050	mg/l	16984-48-8
MW-3	03/28/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-3	04/26/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-3	05/18/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-3	06/22/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-3	07/24/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-3	08/17/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-3	09/07/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-3	02/23/2017	Lead	< 0.010	mg/l	7439-92-1
MW-3	03/28/2017	Lead	< 0.010	mg/l	7439-92-1
MW-3	04/26/2017	Lead	< 0.010	mg/l	7439-92-1
MW-3	05/18/2017	Lead	< 0.010	mg/l	7439-92-1
MW-3	06/22/2017	Lead	< 0.010	mg/l	7439-92-1
MW-3	06/22/2017	Lead	< 10.0	ug/l	7439-92-1
MW-3	07/24/2017	Lead	< 0.010	mg/l	7439-92-1
MW-3	08/17/2017	Lead	< 0.010	mg/l	7439-92-1
MW-3	09/07/2017	Lead	< 0.010	mg/l	7439-92-1
MW-3	02/23/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3	03/28/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3	04/26/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3	05/18/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3	06/22/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3	07/24/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3	08/17/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3	09/07/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3	02/23/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3	03/28/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3	04/26/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3	05/18/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3	06/22/2017	Mercury	< 0.00020	mg/l	7439-97-6
MW-3	06/22/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3	07/24/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3	08/17/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3	09/07/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3	02/23/2017	MOLYBDENUM	5.6	ug/l	7439-98-7
MW-3	03/28/2017	MOLYBDENUM	6.3	ug/l	7439-98-7
MW-3	04/26/2017	MOLYBDENUM	5.7	ug/l	7439-98-7
MW-3	05/18/2017	MOLYBDENUM	5.6	ug/l	7439-98-7
MW-3	06/22/2017	MOLYBDENUM	6.5	ug/l	7439-98-7
MW-3	07/24/2017	MOLYBDENUM	6.4	ug/l	7439-98-7
MW-3	08/17/2017	MOLYBDENUM	7.5	ug/l	7439-98-7
MW-3	09/07/2017	MOLYBDENUM	8.3	ug/l	7439-98-7

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-3	02/23/2017	pH	6.8	pH UNITS	PH
MW-3	03/28/2017	pH	7.3	pH UNITS	PH
MW-3	03/28/2017	pH	7.4	pH UNITS	PH
MW-3	04/26/2017	pH	7.1	pH UNITS	PH
MW-3	05/18/2017	pH	6.7	pH UNITS	PH
MW-3	06/22/2017	pH	6.7	pH UNITS	PH
MW-3	06/22/2017	pH	7.0	pH UNITS	PH
MW-3	07/24/2017	pH	6.8	pH UNITS	PH
MW-3	08/17/2017	pH	6.9	pH UNITS	PH
MW-3	09/07/2017	pH	7.0	pH UNITS	PH
MW-3	02/23/2017	Radium (226)	< 43.9	pci/l	13982-63-3
MW-3	03/28/2017	Radium (226)	< 49.2	pci/l	13982-63-3
MW-3	04/26/2017	Radium (226)	74.7	pci/l	13982-63-3
MW-3	05/18/2017	Radium (226)	0.475	pci/l	13982-63-3
MW-3	06/22/2017	Radium (226)	0.288	pci/l	13982-63-3
MW-3	07/24/2017	Radium (226)	0.452	pci/l	13982-63-3
MW-3	08/17/2017	Radium (226)	0.371	pci/l	13982-63-3
MW-3	09/07/2017	Radium (226)	0.379	pci/l	13982-63-3
MW-3	02/23/2017	Radium 228	< 33.8	pci/l	15262-20-1
MW-3	03/28/2017	Radium 228	< 41.7	pci/l	15262-20-1
MW-3	04/26/2017	Radium 228	< 31.0	pci/l	15262-20-1
MW-3	05/18/2017	Radium 228	< 0.477	pci/l	15262-20-1
MW-3	06/22/2017	Radium 228	0.795	pci/l	15262-20-1
MW-3	07/24/2017	Radium 228	0.998	pci/l	15262-20-1
MW-3	08/17/2017	Radium 228	< 0.373	pci/l	15262-20-1
MW-3	09/07/2017	Radium 228	1.56	pci/l	15262-20-1
MW-3	02/23/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3	03/28/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3	04/26/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3	05/18/2017	Selenium	1.1	ug/l	7782-49-2
MW-3	06/22/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3	07/24/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3	08/17/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3	09/07/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3	02/23/2017	Sulfate as SO4	6.1	mg/l	14808-79-8
MW-3	03/28/2017	Sulfate as SO4	46.3	mg/l	14808-79-8
MW-3	04/26/2017	Sulfate as SO4	36.5	mg/l	14808-79-8
MW-3	05/18/2017	Sulfate as SO4	27.7	mg/l	14808-79-8
MW-3	06/22/2017	Sulfate as SO4	23.9	mg/l	14808-79-8
MW-3	06/22/2017	Sulfate as SO4	24.1	mg/l	14808-79-8
MW-3	07/24/2017	Sulfate as SO4	28.9	mg/l	14808-79-8
MW-3	08/17/2017	Sulfate as SO4	30.8	mg/l	14808-79-8
MW-3	09/07/2017	Sulfate as SO4	28.6	mg/l	14808-79-8
MW-3	02/23/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3	03/28/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3	04/26/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3	05/18/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3	06/22/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3	07/24/2017	Thallium	< 0.20	ug/l	7440-28-0

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-3	08/17/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3	09/07/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3	02/23/2017	Total Dissolved Solids	682	mg/l	TDS
MW-3	03/28/2017	Total Dissolved Solids	720	mg/l	TDS
MW-3	04/26/2017	Total Dissolved Solids	638	mg/l	TDS
MW-3	05/18/2017	Total Dissolved Solids	731	mg/l	TDS
MW-3	06/22/2017	Total Dissolved Solids	758	mg/l	TDS
MW-3	07/24/2017	Total Dissolved Solids	738	mg/l	TDS
MW-3	08/17/2017	Total Dissolved Solids	802	mg/l	TDS
MW-3	09/07/2017	Total Dissolved Solids	841	mg/l	TDS
MW-3R	02/23/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3R	03/28/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3R	04/26/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3R	05/18/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3R	06/22/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3R	07/24/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3R	08/17/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3R	09/07/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3R	02/23/2017	Arsenic	3.4	ug/l	7440-38-2
MW-3R	03/28/2017	Arsenic	3.0	ug/l	7440-38-2
MW-3R	03/28/2017	Arsenic	3.2	ug/l	7440-38-2
MW-3R	04/26/2017	Arsenic	3.0	ug/l	7440-38-2
MW-3R	05/18/2017	Arsenic	2.8	ug/l	7440-38-2
MW-3R	06/22/2017	Arsenic	2.4	ug/l	7440-38-2
MW-3R	06/22/2017	Arsenic	3.0	ug/l	7440-38-2
MW-3R	07/24/2017	Arsenic	2.9	ug/l	7440-38-2
MW-3R	08/17/2017	Arsenic	2.7	ug/l	7440-38-2
MW-3R	09/07/2017	Arsenic	2.5	ug/l	7440-38-2
MW-3R	02/23/2017	Barium	0.58	mg/l	7440-39-3
MW-3R	03/28/2017	Barium	0.51	mg/l	7440-39-3
MW-3R	03/28/2017	Barium	0.52	mg/l	7440-39-3
MW-3R	04/26/2017	Barium	0.57	mg/l	7440-39-3
MW-3R	05/18/2017	Barium	0.58	mg/l	7440-39-3
MW-3R	06/22/2017	Barium	0.52	mg/l	7440-39-3
MW-3R	06/22/2017	Barium	0.54	mg/l	7440-39-3
MW-3R	07/24/2017	Barium	0.54	mg/l	7440-39-3
MW-3R	08/17/2017	Barium	0.54	mg/l	7440-39-3
MW-3R	09/07/2017	Barium	0.55	mg/l	7440-39-3
MW-3R	02/23/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3R	03/28/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3R	04/26/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3R	05/18/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3R	06/22/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3R	07/24/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3R	08/17/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3R	09/07/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3R	02/23/2017	Boron	0.042	mg/l	7440-42-8
MW-3R	03/28/2017	Boron	0.040	mg/l	7440-42-8
MW-3R	03/28/2017	Boron	0.041	mg/l	7440-42-8

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-3R	04/26/2017	Boron	0.042	mg/l	7440-42-8
MW-3R	05/18/2017	Boron	0.045	mg/l	7440-42-8
MW-3R	06/22/2017	Boron	0.041	mg/l	7440-42-8
MW-3R	07/24/2017	Boron	0.043	mg/l	7440-42-8
MW-3R	08/17/2017	Boron	0.044	mg/l	7440-42-8
MW-3R	09/07/2017	Boron	0.047	mg/l	7440-42-8
MW-3R	02/23/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3R	03/28/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3R	04/26/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3R	05/18/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3R	06/22/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3R	07/24/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3R	08/17/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3R	09/07/2017	Cadmium	1.4	ug/l	7440-43-9
MW-3R	02/23/2017	Calcium	203	mg/l	7440-70-2
MW-3R	03/28/2017	Calcium	198	mg/l	7440-70-2
MW-3R	04/26/2017	Calcium	221	mg/l	7440-70-2
MW-3R	05/18/2017	Calcium	217	mg/l	7440-70-2
MW-3R	06/22/2017	Calcium	210	mg/l	7440-70-2
MW-3R	07/24/2017	Calcium	204	mg/l	7440-70-2
MW-3R	08/17/2017	Calcium	223	mg/l	7440-70-2
MW-3R	09/07/2017	Calcium	211	mg/l	7440-70-2
MW-3R	02/23/2017	Chloride	3.9	mg/l	16887-00-6
MW-3R	03/28/2017	Chloride	17.5	mg/l	16887-00-6
MW-3R	03/28/2017	Chloride	17.7	mg/l	16887-00-6
MW-3R	04/26/2017	Chloride	19.6	mg/l	16887-00-6
MW-3R	05/18/2017	Chloride	20.0	mg/l	16887-00-6
MW-3R	06/22/2017	Chloride	17.8	mg/l	16887-00-6
MW-3R	06/22/2017	Chloride	18.3	mg/l	16887-00-6
MW-3R	07/24/2017	Chloride	18.2	mg/l	16887-00-6
MW-3R	08/17/2017	Chloride	17.7	mg/l	16887-00-6
MW-3R	09/07/2017	Chloride	19.0	mg/l	16887-00-6
MW-3R	02/23/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3R	03/28/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3R	04/26/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3R	05/18/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3R	06/22/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3R	07/24/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3R	08/17/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3R	09/07/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3R	02/23/2017	Cobalt	0.55	ug/l	7440-48-4
MW-3R	03/28/2017	Cobalt	0.62	ug/l	7440-48-4
MW-3R	04/26/2017	Cobalt	0.69	ug/l	7440-48-4
MW-3R	05/18/2017	Cobalt	0.77	ug/l	7440-48-4
MW-3R	06/22/2017	Cobalt	0.61	ug/l	7440-48-4
MW-3R	07/24/2017	Cobalt	0.82	ug/l	7440-48-4
MW-3R	08/17/2017	Cobalt	0.49	ug/l	7440-48-4
MW-3R	09/07/2017	Cobalt	0.62	ug/l	7440-48-4
MW-3R	02/23/2017	Fluoride	< 0.050	mg/l	16984-48-8

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-3R	03/28/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-3R	04/26/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-3R	05/18/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-3R	06/22/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-3R	07/24/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-3R	08/17/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-3R	09/07/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-3R	02/23/2017	Lead	0.012	mg/l	7439-92-1
MW-3R	03/28/2017	Lead	< 0.010	mg/l	7439-92-1
MW-3R	03/28/2017	Lead	< 10.0	ug/l	7439-92-1
MW-3R	04/26/2017	Lead	< 0.010	mg/l	7439-92-1
MW-3R	05/18/2017	Lead	0.018	mg/l	7439-92-1
MW-3R	06/22/2017	Lead	< 0.010	mg/l	7439-92-1
MW-3R	06/22/2017	Lead	< 10.0	ug/l	7439-92-1
MW-3R	07/24/2017	Lead	< 0.010	mg/l	7439-92-1
MW-3R	08/17/2017	Lead	< 0.010	mg/l	7439-92-1
MW-3R	09/07/2017	Lead	< 0.010	mg/l	7439-92-1
MW-3R	02/23/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3R	03/28/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3R	04/26/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3R	05/18/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3R	06/22/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3R	07/24/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3R	08/17/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3R	09/07/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3R	02/23/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3R	03/28/2017	Mercury	< 0.00020	mg/l	7439-97-6
MW-3R	03/28/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3R	04/26/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3R	05/18/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3R	06/22/2017	Mercury	< 0.00020	mg/l	7439-97-6
MW-3R	06/22/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3R	07/24/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3R	08/17/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3R	09/07/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3R	02/23/2017	MOLYBDENUM	2.2	ug/l	7439-98-7
MW-3R	03/28/2017	MOLYBDENUM	2.0	ug/l	7439-98-7
MW-3R	04/26/2017	MOLYBDENUM	2.0	ug/l	7439-98-7
MW-3R	05/18/2017	MOLYBDENUM	1.7	ug/l	7439-98-7
MW-3R	06/22/2017	MOLYBDENUM	2.0	ug/l	7439-98-7
MW-3R	07/24/2017	MOLYBDENUM	1.6	ug/l	7439-98-7
MW-3R	08/17/2017	MOLYBDENUM	1.7	ug/l	7439-98-7
MW-3R	09/07/2017	MOLYBDENUM	1.6	ug/l	7439-98-7
MW-3R	02/23/2017	pH	6.7	pH UNITS	PH
MW-3R	03/28/2017	pH	7.2	pH UNITS	PH
MW-3R	04/26/2017	pH	7.0	pH UNITS	PH
MW-3R	05/18/2017	pH	6.6	pH UNITS	PH
MW-3R	06/22/2017	pH	6.5	pH UNITS	PH
MW-3R	06/22/2017	pH	6.8	pH UNITS	PH

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-3R	07/24/2017	pH	6.8	pH UNITS	PH
MW-3R	08/17/2017	pH	6.9	pH UNITS	PH
MW-3R	09/07/2017	pH	6.9	pH UNITS	PH
MW-3R	02/23/2017	Radium (226)	38.1	pci/l	13982-63-3
MW-3R	03/28/2017	Radium (226)	< 49.6	pci/l	13982-63-3
MW-3R	04/26/2017	Radium (226)	< 49.2	pci/l	13982-63-3
MW-3R	05/18/2017	Radium (226)	0.330	pci/l	13982-63-3
MW-3R	06/22/2017	Radium (226)	0.521	pci/l	13982-63-3
MW-3R	07/24/2017	Radium (226)	0.584	pci/l	13982-63-3
MW-3R	08/17/2017	Radium (226)	0.653	pci/l	13982-63-3
MW-3R	09/07/2017	Radium (226)	0.456	pci/l	13982-63-3
MW-3R	02/23/2017	Radium 228	< 42.3	pci/l	15262-20-1
MW-3R	03/28/2017	Radium 228	< 35.4	pci/l	15262-20-1
MW-3R	04/26/2017	Radium 228	< 31.0	pci/l	15262-20-1
MW-3R	05/18/2017	Radium 228	0.518	pci/l	15262-20-1
MW-3R	06/22/2017	Radium 228	0.671	pci/l	15262-20-1
MW-3R	07/24/2017	Radium 228	0.981	pci/l	15262-20-1
MW-3R	08/17/2017	Radium 228	1.32	pci/l	15262-20-1
MW-3R	09/07/2017	Radium 228	0.848	pci/l	15262-20-1
MW-3R	02/23/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3R	03/28/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3R	04/26/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3R	05/18/2017	Selenium	1.2	ug/l	7782-49-2
MW-3R	06/22/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3R	07/24/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3R	08/17/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3R	09/07/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3R	02/23/2017	Sulfate as SO4	9.8	mg/l	14808-79-8
MW-3R	03/28/2017	Sulfate as SO4	43.1	mg/l	14808-79-8
MW-3R	03/28/2017	Sulfate as SO4	48.8	mg/l	14808-79-8
MW-3R	04/26/2017	Sulfate as SO4	41.2	mg/l	14808-79-8
MW-3R	05/18/2017	Sulfate as SO4	41.2	mg/l	14808-79-8
MW-3R	06/22/2017	Sulfate as SO4	28.3	mg/l	14808-79-8
MW-3R	06/22/2017	Sulfate as SO4	29.2	mg/l	14808-79-8
MW-3R	07/24/2017	Sulfate as SO4	35.1	mg/l	14808-79-8
MW-3R	08/17/2017	Sulfate as SO4	32.3	mg/l	14808-79-8
MW-3R	09/07/2017	Sulfate as SO4	29.4	mg/l	14808-79-8
MW-3R	02/23/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3R	03/28/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3R	04/26/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3R	05/18/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3R	06/22/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3R	07/24/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3R	08/17/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3R	09/07/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3R	02/23/2017	Total Dissolved Solids	839	mg/l	TDS
MW-3R	03/28/2017	Total Dissolved Solids	839	mg/l	TDS
MW-3R	03/28/2017	Total Dissolved Solids	843	mg/l	TDS
MW-3R	04/26/2017	Total Dissolved Solids	860	mg/l	TDS



Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-3R	05/18/2017	Total Dissolved Solids	883	mg/l	TDS
MW-3R	06/22/2017	Total Dissolved Solids	797	mg/l	TDS
MW-3R	06/22/2017	Total Dissolved Solids	808	mg/l	TDS
MW-3R	07/24/2017	Total Dissolved Solids	854	mg/l	TDS
MW-3R	08/17/2017	Total Dissolved Solids	791	mg/l	TDS
MW-3R	09/07/2017	Total Dissolved Solids	831	mg/l	TDS
MW-3RD	02/23/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3RD	03/28/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3RD	04/26/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3RD	05/18/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3RD	06/22/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3RD	07/24/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3RD	08/17/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3RD	09/07/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-3RD	02/23/2017	Arsenic	4.5	ug/l	7440-38-2
MW-3RD	03/28/2017	Arsenic	3.9	ug/l	7440-38-2
MW-3RD	03/28/2017	Arsenic	4.4	ug/l	7440-38-2
MW-3RD	04/26/2017	Arsenic	4.4	ug/l	7440-38-2
MW-3RD	05/18/2017	Arsenic	4.4	ug/l	7440-38-2
MW-3RD	06/22/2017	Arsenic	3.8	ug/l	7440-38-2
MW-3RD	06/22/2017	Arsenic	4.0	ug/l	7440-38-2
MW-3RD	07/24/2017	Arsenic	4.4	ug/l	7440-38-2
MW-3RD	08/17/2017	Arsenic	4.2	ug/l	7440-38-2
MW-3RD	09/07/2017	Arsenic	3.8	ug/l	7440-38-2
MW-3RD	02/23/2017	Barium	0.23	mg/l	7440-39-3
MW-3RD	03/28/2017	Barium	0.21	mg/l	7440-39-3
MW-3RD	03/28/2017	Barium	0.23	mg/l	7440-39-3
MW-3RD	04/26/2017	Barium	0.23	mg/l	7440-39-3
MW-3RD	05/18/2017	Barium	0.22	mg/l	7440-39-3
MW-3RD	06/22/2017	Barium	0.21	mg/l	7440-39-3
MW-3RD	07/24/2017	Barium	0.22	mg/l	7440-39-3
MW-3RD	08/17/2017	Barium	0.21	mg/l	7440-39-3
MW-3RD	09/07/2017	Barium	0.20	mg/l	7440-39-3
MW-3RD	02/23/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3RD	03/28/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3RD	04/26/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3RD	05/18/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3RD	06/22/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3RD	07/24/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3RD	08/17/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3RD	09/07/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-3RD	02/23/2017	Boron	0.030	mg/l	7440-42-8
MW-3RD	03/28/2017	Boron	0.027	mg/l	7440-42-8
MW-3RD	03/28/2017	Boron	0.031	mg/l	7440-42-8
MW-3RD	04/26/2017	Boron	0.029	mg/l	7440-42-8
MW-3RD	05/18/2017	Boron	0.031	mg/l	7440-42-8
MW-3RD	06/22/2017	Boron	0.028	mg/l	7440-42-8
MW-3RD	06/22/2017	Boron	0.029	mg/l	7440-42-8
MW-3RD	07/24/2017	Boron	0.033	mg/l	7440-42-8

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-3RD	08/17/2017	Boron	0.030	mg/l	7440-42-8
MW-3RD	09/07/2017	Boron	0.031	mg/l	7440-42-8
MW-3RD	02/23/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3RD	03/28/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3RD	04/26/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3RD	05/18/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3RD	06/22/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3RD	07/24/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3RD	08/17/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3RD	09/07/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-3RD	02/23/2017	Calcium	129	mg/l	7440-70-2
MW-3RD	03/28/2017	Calcium	132	mg/l	7440-70-2
MW-3RD	04/26/2017	Calcium	134	mg/l	7440-70-2
MW-3RD	05/18/2017	Calcium	129	mg/l	7440-70-2
MW-3RD	06/22/2017	Calcium	126	mg/l	7440-70-2
MW-3RD	07/24/2017	Calcium	123	mg/l	7440-70-2
MW-3RD	08/17/2017	Calcium	132	mg/l	7440-70-2
MW-3RD	09/07/2017	Calcium	119	mg/l	7440-70-2
MW-3RD	02/23/2017	Chloride	15.5	mg/l	16887-00-6
MW-3RD	03/28/2017	Chloride	30.6	mg/l	16887-00-6
MW-3RD	03/28/2017	Chloride	31.1	mg/l	16887-00-6
MW-3RD	04/26/2017	Chloride	32.4	mg/l	16887-00-6
MW-3RD	05/18/2017	Chloride	31.7	mg/l	16887-00-6
MW-3RD	06/22/2017	Chloride	31.6	mg/l	16887-00-6
MW-3RD	06/22/2017	Chloride	32.4	mg/l	16887-00-6
MW-3RD	07/24/2017	Chloride	28.4	mg/l	16887-00-6
MW-3RD	08/17/2017	Chloride	28.4	mg/l	16887-00-6
MW-3RD	09/07/2017	Chloride	31.7	mg/l	16887-00-6
MW-3RD	02/23/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3RD	03/28/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3RD	03/28/2017	Chromium	0.0048	mg/l	7440-47-3
MW-3RD	04/26/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3RD	05/18/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3RD	06/22/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3RD	07/24/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3RD	08/17/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3RD	09/07/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-3RD	02/23/2017	Cobalt	0.91	ug/l	7440-48-4
MW-3RD	03/28/2017	Cobalt	1.3	ug/l	7440-48-4
MW-3RD	04/26/2017	Cobalt	1.2	ug/l	7440-48-4
MW-3RD	05/18/2017	Cobalt	1.2	ug/l	7440-48-4
MW-3RD	06/22/2017	Cobalt	0.32	ug/l	7440-48-4
MW-3RD	07/24/2017	Cobalt	1.0	ug/l	7440-48-4
MW-3RD	08/17/2017	Cobalt	0.73	ug/l	7440-48-4
MW-3RD	09/07/2017	Cobalt	0.66	ug/l	7440-48-4
MW-3RD	02/23/2017	Fluoride	0.11	mg/l	16984-48-8
MW-3RD	03/28/2017	Fluoride	0.24	mg/l	16984-48-8
MW-3RD	04/26/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-3RD	05/18/2017	Fluoride	< 0.25	mg/l	16984-48-8



Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-3RD	06/22/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-3RD	07/24/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-3RD	08/17/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-3RD	09/07/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-3RD	02/23/2017	Lead	0.017	mg/l	7439-92-1
MW-3RD	03/28/2017	Lead	< 0.010	mg/l	7439-92-1
MW-3RD	03/28/2017	Lead	< 10.0	ug/l	7439-92-1
MW-3RD	04/26/2017	Lead	< 0.010	mg/l	7439-92-1
MW-3RD	05/18/2017	Lead	< 0.010	mg/l	7439-92-1
MW-3RD	06/22/2017	Lead	< 0.010	mg/l	7439-92-1
MW-3RD	06/22/2017	Lead	< 10.0	ug/l	7439-92-1
MW-3RD	07/24/2017	Lead	< 0.010	mg/l	7439-92-1
MW-3RD	08/17/2017	Lead	< 0.010	mg/l	7439-92-1
MW-3RD	09/07/2017	Lead	< 0.010	mg/l	7439-92-1
MW-3RD	02/23/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3RD	03/28/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3RD	04/26/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3RD	05/18/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3RD	06/22/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3RD	07/24/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3RD	08/17/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3RD	09/07/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-3RD	02/23/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3RD	03/28/2017	Mercury	< 0.00020	mg/l	7439-97-6
MW-3RD	03/28/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3RD	04/26/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3RD	05/18/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3RD	06/22/2017	Mercury	< 0.00020	mg/l	7439-97-6
MW-3RD	06/22/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3RD	07/24/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3RD	08/17/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3RD	09/07/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-3RD	02/23/2017	MOLYBDENUM	4.2	ug/l	7439-98-7
MW-3RD	03/28/2017	MOLYBDENUM	3.8	ug/l	7439-98-7
MW-3RD	04/26/2017	MOLYBDENUM	4.1	ug/l	7439-98-7
MW-3RD	05/18/2017	MOLYBDENUM	3.8	ug/l	7439-98-7
MW-3RD	06/22/2017	MOLYBDENUM	4.0	ug/l	7439-98-7
MW-3RD	07/24/2017	MOLYBDENUM	4.1	ug/l	7439-98-7
MW-3RD	08/17/2017	MOLYBDENUM	4.0	ug/l	7439-98-7
MW-3RD	09/07/2017	MOLYBDENUM	3.8	ug/l	7439-98-7
MW-3RD	02/23/2017	pH	7.1	pH UNITS	PH
MW-3RD	03/28/2017	pH	7.6	pH UNITS	PH
MW-3RD	04/26/2017	pH	7.4	pH UNITS	PH
MW-3RD	05/18/2017	pH	7.0	pH UNITS	PH
MW-3RD	06/22/2017	pH	7.0	pH UNITS	PH
MW-3RD	06/22/2017	pH	7.4	pH UNITS	PH
MW-3RD	07/24/2017	pH	7.2	pH UNITS	PH
MW-3RD	08/17/2017	pH	7.3	pH UNITS	PH
MW-3RD	09/07/2017	pH	7.4	pH UNITS	PH

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-3RD	02/23/2017	Radium (226)	56.4	pci/l	13982-63-3
MW-3RD	03/28/2017	Radium (226)	20.8	pci/l	13982-63-3
MW-3RD	04/26/2017	Radium (226)	< 57.7	pci/l	13982-63-3
MW-3RD	05/18/2017	Radium (226)	0.770	pci/l	13982-63-3
MW-3RD	06/22/2017	Radium (226)	0.661	pci/l	13982-63-3
MW-3RD	07/24/2017	Radium (226)	0.757	pci/l	13982-63-3
MW-3RD	08/17/2017	Radium (226)	0.754	pci/l	13982-63-3
MW-3RD	09/07/2017	Radium (226)	0.881	pci/l	13982-63-3
MW-3RD	02/23/2017	Radium 228	< 33.8	pci/l	15262-20-1
MW-3RD	03/28/2017	Radium 228	< 28.9	pci/l	15262-20-1
MW-3RD	04/26/2017	Radium 228	< 52.0	pci/l	15262-20-1
MW-3RD	05/18/2017	Radium 228	0.503	pci/l	15262-20-1
MW-3RD	06/22/2017	Radium 228	0.437	pci/l	15262-20-1
MW-3RD	07/24/2017	Radium 228	0.715	pci/l	15262-20-1
MW-3RD	08/17/2017	Radium 228	< 0.422	pci/l	15262-20-1
MW-3RD	09/07/2017	Radium 228	0.654	pci/l	15262-20-1
MW-3RD	02/23/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3RD	03/28/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3RD	04/26/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3RD	05/18/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3RD	06/22/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3RD	07/24/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3RD	08/17/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3RD	09/07/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-3RD	02/23/2017	Sulfate as SO4	49.9	mg/l	14808-79-8
MW-3RD	03/28/2017	Sulfate as SO4	107	mg/l	14808-79-8
MW-3RD	03/28/2017	Sulfate as SO4	111	mg/l	14808-79-8
MW-3RD	04/26/2017	Sulfate as SO4	108	mg/l	14808-79-8
MW-3RD	05/18/2017	Sulfate as SO4	99.8	mg/l	14808-79-8
MW-3RD	06/22/2017	Sulfate as SO4	105	mg/l	14808-79-8
MW-3RD	06/22/2017	Sulfate as SO4	108	mg/l	14808-79-8
MW-3RD	07/24/2017	Sulfate as SO4	102	mg/l	14808-79-8
MW-3RD	08/17/2017	Sulfate as SO4	106	mg/l	14808-79-8
MW-3RD	09/07/2017	Sulfate as SO4	113	mg/l	14808-79-8
MW-3RD	02/23/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3RD	03/28/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3RD	04/26/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3RD	05/18/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3RD	06/22/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3RD	07/24/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3RD	08/17/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3RD	09/07/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-3RD	02/23/2017	Total Dissolved Solids	573	mg/l	TDS
MW-3RD	03/28/2017	Total Dissolved Solids	599	mg/l	TDS
MW-3RD	03/28/2017	Total Dissolved Solids	629	mg/l	TDS
MW-3RD	04/26/2017	Total Dissolved Solids	644	mg/l	TDS
MW-3RD	05/18/2017	Total Dissolved Solids	594	mg/l	TDS
MW-3RD	06/22/2017	Total Dissolved Solids	566	mg/l	TDS
MW-3RD	06/22/2017	Total Dissolved Solids	569	mg/l	TDS

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-3RD	07/24/2017	Total Dissolved Solids	576	mg/l	TDS
MW-3RD	08/17/2017	Total Dissolved Solids	567	mg/l	TDS
MW-3RD	09/07/2017	Total Dissolved Solids	570	mg/l	TDS
MW-4	02/23/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-4	03/28/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-4	04/26/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-4	05/18/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-4	06/22/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-4	07/24/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-4	08/17/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-4	09/07/2017	Antimony	< 1.0	ug/l	7440-36-0
MW-4	02/23/2017	Arsenic	1.6	ug/l	7440-38-2
MW-4	03/28/2017	Arsenic	1.5	ug/l	7440-38-2
MW-4	03/28/2017	Arsenic	1.6	ug/l	7440-38-2
MW-4	04/26/2017	Arsenic	1.7	ug/l	7440-38-2
MW-4	05/18/2017	Arsenic	1.6	ug/l	7440-38-2
MW-4	06/22/2017	Arsenic	1.5	ug/l	7440-38-2
MW-4	06/22/2017	Arsenic	1.7	ug/l	7440-38-2
MW-4	07/24/2017	Arsenic	2.0	ug/l	7440-38-2
MW-4	08/17/2017	Arsenic	1.9	ug/l	7440-38-2
MW-4	09/07/2017	Arsenic	1.9	ug/l	7440-38-2
MW-4	02/23/2017	Barium	0.23	mg/l	7440-39-3
MW-4	03/28/2017	Barium	0.25	mg/l	7440-39-3
MW-4	04/26/2017	Barium	0.24	mg/l	7440-39-3
MW-4	05/18/2017	Barium	0.26	mg/l	7440-39-3
MW-4	06/22/2017	Barium	0.27	mg/l	7440-39-3
MW-4	06/22/2017	Barium	0.28	mg/l	7440-39-3
MW-4	07/24/2017	Barium	0.25	mg/l	7440-39-3
MW-4	08/17/2017	Barium	0.24	mg/l	7440-39-3
MW-4	09/07/2017	Barium	0.22	mg/l	7440-39-3
MW-4	02/23/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-4	03/28/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-4	04/26/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-4	05/18/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-4	06/22/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-4	07/24/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-4	08/17/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-4	09/07/2017	Beryllium	< 0.70	ug/l	7440-41-7
MW-4	02/23/2017	Boron	0.20	mg/l	7440-42-8
MW-4	03/28/2017	Boron	0.21	mg/l	7440-42-8
MW-4	03/28/2017	Boron	0.22	mg/l	7440-42-8
MW-4	04/26/2017	Boron	0.17	mg/l	7440-42-8
MW-4	05/18/2017	Boron	0.18	mg/l	7440-42-8
MW-4	06/22/2017	Boron	0.25	mg/l	7440-42-8
MW-4	06/22/2017	Boron	0.26	mg/l	7440-42-8
MW-4	07/24/2017	Boron	0.37	mg/l	7440-42-8
MW-4	08/17/2017	Boron	0.33	mg/l	7440-42-8
MW-4	09/07/2017	Boron	0.29	mg/l	7440-42-8
MW-4	02/23/2017	Cadmium	< 0.50	ug/l	7440-43-9

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-4	03/28/2017	Cadmium	0.55	ug/l	7440-43-9
MW-4	03/28/2017	Cadmium	0.57	ug/l	7440-43-9
MW-4	04/26/2017	Cadmium	0.76	ug/l	7440-43-9
MW-4	05/18/2017	Cadmium	0.68	ug/l	7440-43-9
MW-4	06/22/2017	Cadmium	0.51	ug/l	7440-43-9
MW-4	06/22/2017	Cadmium	0.59	ug/l	7440-43-9
MW-4	07/24/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-4	08/17/2017	Cadmium	0.52	ug/l	7440-43-9
MW-4	09/07/2017	Cadmium	< 0.50	ug/l	7440-43-9
MW-4	02/23/2017	Calcium	216	mg/l	7440-70-2
MW-4	03/28/2017	Calcium	250	mg/l	7440-70-2
MW-4	04/26/2017	Calcium	258	mg/l	7440-70-2
MW-4	05/18/2017	Calcium	265	mg/l	7440-70-2
MW-4	06/22/2017	Calcium	271	mg/l	7440-70-2
MW-4	07/24/2017	Calcium	239	mg/l	7440-70-2
MW-4	08/17/2017	Calcium	242	mg/l	7440-70-2
MW-4	09/07/2017	Calcium	210	mg/l	7440-70-2
MW-4	02/23/2017	Chloride	7.0	mg/l	16887-00-6
MW-4	03/28/2017	Chloride	35.3	mg/l	16887-00-6
MW-4	03/28/2017	Chloride	35.4	mg/l	16887-00-6
MW-4	04/26/2017	Chloride	39.2	mg/l	16887-00-6
MW-4	05/18/2017	Chloride	38.1	mg/l	16887-00-6
MW-4	06/22/2017	Chloride	39.4	mg/l	16887-00-6
MW-4	06/22/2017	Chloride	39.6	mg/l	16887-00-6
MW-4	07/24/2017	Chloride	29.2	mg/l	16887-00-6
MW-4	08/17/2017	Chloride	35.4	mg/l	16887-00-6
MW-4	09/07/2017	Chloride	44.4	mg/l	16887-00-6
MW-4	02/23/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-4	03/28/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-4	03/28/2017	Chromium	0.0072	mg/l	7440-47-3
MW-4	04/26/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-4	05/18/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-4	06/22/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-4	07/24/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-4	08/17/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-4	09/07/2017	Chromium	< 0.0040	mg/l	7440-47-3
MW-4	02/23/2017	Cobalt	0.55	ug/l	7440-48-4
MW-4	03/28/2017	Cobalt	0.67	ug/l	7440-48-4
MW-4	04/26/2017	Cobalt	0.79	ug/l	7440-48-4
MW-4	05/18/2017	Cobalt	0.93	ug/l	7440-48-4
MW-4	06/22/2017	Cobalt	0.75	ug/l	7440-48-4
MW-4	07/24/2017	Cobalt	0.89	ug/l	7440-48-4
MW-4	08/17/2017	Cobalt	0.58	ug/l	7440-48-4
MW-4	09/07/2017	Cobalt	0.63	ug/l	7440-48-4
MW-4	02/23/2017	Fluoride	< 0.050	mg/l	16984-48-8
MW-4	03/28/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-4	04/26/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-4	05/18/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-4	06/22/2017	Fluoride	< 0.25	mg/l	16984-48-8

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-4	07/24/2017	Fluoride	< 0.25	mg/l	16984-48-8
MW-4	08/17/2017	Fluoride	0.26	mg/l	16984-48-8
MW-4	09/07/2017	Fluoride	0.26	mg/l	16984-48-8
MW-4	02/23/2017	Lead	< 0.020	mg/l	7439-92-1
MW-4	03/28/2017	Lead	< 0.010	mg/l	7439-92-1
MW-4	03/28/2017	Lead	< 20.0	ug/l	7439-92-1
MW-4	04/26/2017	Lead	< 0.010	mg/l	7439-92-1
MW-4	05/18/2017	Lead	< 0.010	mg/l	7439-92-1
MW-4	06/22/2017	Lead	< 0.050	mg/l	7439-92-1
MW-4	06/22/2017	Lead	< 10.0	ug/l	7439-92-1
MW-4	07/24/2017	Lead	< 0.050	mg/l	7439-92-1
MW-4	08/17/2017	Lead	< 0.010	mg/l	7439-92-1
MW-4	09/07/2017	Lead	< 0.010	mg/l	7439-92-1
MW-4	02/23/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-4	03/28/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-4	04/26/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-4	05/18/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-4	06/22/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-4	07/24/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-4	08/17/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-4	09/07/2017	Lithium	< 0.030	mg/l	7439-93-2
MW-4	02/23/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-4	03/28/2017	Mercury	< 0.00020	mg/l	7439-97-6
MW-4	03/28/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-4	04/26/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-4	05/18/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-4	06/22/2017	Mercury	< 0.00020	mg/l	7439-97-6
MW-4	06/22/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-4	07/24/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-4	08/17/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-4	09/07/2017	Mercury	< 0.20	ug/l	7439-97-6
MW-4	02/23/2017	MOLYBDENUM	1.4	ug/l	7439-98-7
MW-4	03/28/2017	MOLYBDENUM	1.3	ug/l	7439-98-7
MW-4	04/26/2017	MOLYBDENUM	1.8	ug/l	7439-98-7
MW-4	05/18/2017	MOLYBDENUM	1.9	ug/l	7439-98-7
MW-4	06/22/2017	MOLYBDENUM	1.9	ug/l	7439-98-7
MW-4	07/24/2017	MOLYBDENUM	1.9	ug/l	7439-98-7
MW-4	08/17/2017	MOLYBDENUM	2.0	ug/l	7439-98-7
MW-4	09/07/2017	MOLYBDENUM	2.0	ug/l	7439-98-7
MW-4	02/23/2017	pH	6.9	pH UNITS	PH
MW-4	03/28/2017	pH	7.3	pH UNITS	PH
MW-4	03/28/2017	pH	7.4	pH UNITS	PH
MW-4	04/26/2017	pH	7.2	pH UNITS	PH
MW-4	05/18/2017	pH	6.9	pH UNITS	PH
MW-4	06/22/2017	pH	6.9	pH UNITS	PH
MW-4	06/22/2017	pH	7.0	pH UNITS	PH
MW-4	07/24/2017	pH	7.0	pH UNITS	PH
MW-4	08/17/2017	pH	7.1	pH UNITS	PH
MW-4	09/07/2017	pH	7.1	pH UNITS	PH

Table 3



Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
MW-4	02/23/2017	Radium (226)	38.7	pci/l	13982-63-3
MW-4	03/28/2017	Radium (226)	< 29.1	pci/l	13982-63-3
MW-4	04/26/2017	Radium (226)	44.2	pci/l	13982-63-3
MW-4	05/18/2017	Radium (226)	0.359	pci/l	13982-63-3
MW-4	06/22/2017	Radium (226)	0.353	pci/l	13982-63-3
MW-4	07/24/2017	Radium (226)	0.290	pci/l	13982-63-3
MW-4	08/17/2017	Radium (226)	0.373	pci/l	13982-63-3
MW-4	09/07/2017	Radium (226)	0.330	pci/l	13982-63-3
MW-4	02/23/2017	Radium 228	< 41.8	pci/l	15262-20-1
MW-4	03/28/2017	Radium 228	< 29.1	pci/l	15262-20-1
MW-4	04/26/2017	Radium 228	< 39.7	pci/l	15262-20-1
MW-4	05/18/2017	Radium 228	0.485	pci/l	15262-20-1
MW-4	06/22/2017	Radium 228	0.531	pci/l	15262-20-1
MW-4	07/24/2017	Radium 228	0.850	pci/l	15262-20-1
MW-4	08/17/2017	Radium 228	0.725	pci/l	15262-20-1
MW-4	09/07/2017	Radium 228	0.586	pci/l	15262-20-1
MW-4	02/23/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-4	03/28/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-4	04/26/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-4	05/18/2017	Selenium	1.1	ug/l	7782-49-2
MW-4	06/22/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-4	07/24/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-4	08/17/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-4	09/07/2017	Selenium	< 1.0	ug/l	7782-49-2
MW-4	02/23/2017	Sulfate as SO4	59.3	mg/l	14808-79-8
MW-4	03/28/2017	Sulfate as SO4	432	mg/l	14808-79-8
MW-4	03/28/2017	Sulfate as SO4	442	mg/l	14808-79-8
MW-4	04/26/2017	Sulfate as SO4	425	mg/l	14808-79-8
MW-4	05/18/2017	Sulfate as SO4	409	mg/l	14808-79-8
MW-4	06/22/2017	Sulfate as SO4	481	mg/l	14808-79-8
MW-4	07/24/2017	Sulfate as SO4	359	mg/l	14808-79-8
MW-4	08/17/2017	Sulfate as SO4	297	mg/l	14808-79-8
MW-4	09/07/2017	Sulfate as SO4	244	mg/l	14808-79-8
MW-4	02/23/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-4	03/28/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-4	04/26/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-4	05/18/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-4	06/22/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-4	07/24/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-4	08/17/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-4	09/07/2017	Thallium	< 0.20	ug/l	7440-28-0
MW-4	02/23/2017	Total Dissolved Solids	1030	mg/l	TDS
MW-4	03/28/2017	Total Dissolved Solids	1260	mg/l	TDS
MW-4	03/28/2017	Total Dissolved Solids	1290	mg/l	TDS
MW-4	04/26/2017	Total Dissolved Solids	1240	mg/l	TDS
MW-4	05/18/2017	Total Dissolved Solids	1380	mg/l	TDS
MW-4	06/22/2017	Total Dissolved Solids	1300	mg/l	TDS
MW-4	07/24/2017	Total Dissolved Solids	1170	mg/l	TDS
MW-4	08/17/2017	Total Dissolved Solids	1070	mg/l	TDS



**Table 3**  
**Groundwater Analytical Data**



Location	Date	Parameter	Result	Units	CAS #
MW-4	09/07/2017	Total Dissolved Solids	1030	mg/l	TDS

Background Threshold Values



Appendix III to Part 257

Parameter	Background Threshold Value (BTV)	Units	CAS #
Boron	0.32	mg/l	7440-42-8
Calcium	334.8	mg/l	7440-70-2
Chloride	79.54	mg/l	16887-00-6
Fluoride	0.26	mg/l	15984-48-8
pH	7.582	pH UNITS	PH
Sulfate as SO4	481	mg/l	14808-79-8
Total Dissolved Solids	1528	mg/l	TDS

Appendix IV to Part 257

Parameter	Background Threshold Value (BTV)	Units	CAS #
Antimony	1.0	ug/l	7440-36-0
Arsenic	5.701	ug/l	7440-38-2
Barium	0.58	mg/l	7440-39-3
Beryllium	0.7	ug/l	7440-41-7
Cadmium	0.68	ug/l	7440-43-9
Chromium	0.004	mg/l	7440-47-3
Cobalt	5.6	ug/l	7440-48-4
Lead	0.05	mg/l	7439-92-1
Lithium	0.03	mg/l	7439-93-2
Mercury	0.0002	mg/l	7439-97-6
Molybdenum	8.3	ug/l	7439-98-7
Radium 226	59	pci/l	13982-63-3
Radium 228	39.7	pci/l	15262-20-1
Radium 226/228	1.032	pci/l	EDF-206
Selenium	1.2	ug/l	7782-49-2
Thallium	0.2	ug/l	7440-28-0



## Appendix A – Field Data Sheets

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### WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKR  
 Project Number: 350(771)  
 Sampling Device: DeLorenzo Ball Valve Pump  
 Date: 2/23/17  
 Well ID: MW-1

Tubing Diameter (ID): 2 inches  
 Depth to Water: 2.40 ft, TOC  
 Depth to Bottom of Well: 25.6 ft, TOC  
 Feet of Water in Well: 23.2 ft  
 Volume of Water in Well: 3.9 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance ( $\mu$ moles/cm)	Temperature ( $^{\circ}$ F) $^{\circ}$ C	Purge Rate (L/min)
1	2.42	8.27	600	8.17	1000
5	2.42	8.27	565	7.55	1000
10	2.42	8.36	568	6.87	1000
15	2.42	8.35	569	6.75	1000

Purge Start Time: 11:35 Purge End Time: 11:50 Total Volume Purged: 4.6 gal  
 Approximate Purge Rate: 1000 mL/min Purged/Sampled by: M. Seibojed  
 Weather Conditions: 36 $^{\circ}$ F, cloudy, 10-15 mph NE  
 Comments: Dup-1 collected



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SLB Longway  
 Project Number: 3501771  
 Sampling Device: Dedicated Blocker Pump  
 Date: 2/23/17  
 Well ID: MV-12D

Tubing Diameter (ID): 2 inches  
 Depth to Water: 24.54 ft, TOC  
 Depth to Bottom of Well: 75.5 ft, TOC  
 Feet of Water in Well: 50.96 ft  
 Volume of Water in Well: 8.3 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (Micro / cm)	Temperature (°C) °C	Purge Rate (L/min)
	75.55	8.67	635	7.40	1000
<del>20.5</del>	75.55	8.48	615	8.70	1000
<del>30.10</del>	75.55	8.58	620	8.92	1000
15	75.55	8.56	624	8.92	1000
20	75.55	8.55	625	8.92	1000

Purge Start Time: 11:05      Purge End Time: 11:25      Total Volume Purged: 90 gal  
 Approximate Purge Rate: 1000 mL/min      Purged/Sampled by: N. Schmitt  
 Weather Conditions: 34°F, cloudy, 10-15 mph W  
 Comments: \_\_\_\_\_  
 \_\_\_\_\_



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lymington  
 Project Number: 3501771  
 Sampling Device: DeniLORed Bladder Pump  
 Date: 2/23/17  
 Well ID: MW-2R

Tubing Diameter (ID): 2 inches  
 Depth to Water: 7.80 ft, TOC  
 Depth to Bottom of Well: 18.35 ft, TOC  
 Feet of Water in Well: 10.55 ft  
 Volume of Water in Well: 1.7 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance ( $\mu\text{mhos/cm}$ )	Temperature ( $^{\circ}\text{F}$ ) / ( $^{\circ}\text{C}$ )	Purge Rate (L/min)
1	9.22	8.24	1,240	8.84 / 7.97	1000
5	10.53	8.26	1,270	7.97	100
10	12.83	8.25	1,270	7.93	100
15	15.69	8.25	1,270	7.95	100

Purge Start Time: 10:25 Purge End Time: 10:40 Total Volume Purged: 2.0 gal  
 Approximate Purge Rate: 1000 L/min Purged/Sampled by: JL S. Hage  
 Weather Conditions: 34°F, cloudy, 10-15 mph N  
 Comments: slow recharge





# WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: 514B Logging Tubing Diameter (ID): 2 inches  
Project Number: 35017719 Depth to Water: 6.70 ft, TOC  
Sampling Device: Dedicated Braker Pump Depth to Bottom of Well: 35.0 ft, TOC  
Date: 2/23/17 Feet of Water in Well: 28.3 ft  
Well ID: MW-2RD Volume of Water in Well: 4.6 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (micro mhos/cm)	Temperature (°X) °C	Purge Rate (L/min)
1	6.75	8.13	748	9.60	1000
3	6.75	8.39	758	10.20	1000
6	6.75	8.36	787	10.14	1000
9	6.75	8.37	786	10.26	1000

Purge Start Time: 10:00 Purge End Time: 10:10 Total Volume Purged: 5.0 gal  
Approximate Purge Rate: 1000 mL/min Purged/Sampled by: M. Schlayer  
Weather Conditions: 34 °F, cloudy, 10-15 mph N  
Comments: \_\_\_\_\_  
\_\_\_\_\_



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lining  
 Project Number: 3501771  
 Sampling Device: Peristaltic Bucket Pump  
 Date: 2/23/17  
 Well ID: MW-3

Tubing Diameter (ID): 2.1 inches  
 Depth to Water: 6.39 ft, TOC  
 Depth to Bottom of Well: 19.7 ft, TOC  
 Feet of Water in Well: 13.32 ft  
 Volume of Water in Well: 2.2 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos / cm)	Temperature (°F) °C	Purge Rate (L/min)
1	6.44	7.77	950	7.19	1000
2	6.45	7.85	929	6.62	1000
4	6.45	7.83	1,010	6.60	1000
6	6.45	7.91	1,100	6.65	1000

Purge Start Time: 9:25 Purge End Time: 9:35 Total Volume Purged: 25 gal  
 Approximate Purge Rate: 1000 mL/min Purged/Sampled by: N. Schloer  
 Weather Conditions: 34°F, cloudy, 10-15 N  
 Comments: \_\_\_\_\_  
 \_\_\_\_\_



**WELL PURGING RECORD  
LOW-FLOW SAMPLING METHOD**

Site: SKB Lansing  
Project Number: 3501771  
Sampling Device: Dedicated Bladder Pump  
Date: 2/23/17  
Well ID: MW-3R

Tubing Diameter (ID): 2 inches  
Depth to Water: 6.58 ft, TOC  
Depth to Bottom of Well: 27.5 ft, TOC  
Feet of Water in Well: 21.2 ft  
Volume of Water in Well: 3.4 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°F) °C	Purge Rate (L/min)
1	6.42	9.41	1,310	9.22	1000
2	6.42	9.26	1,440	9.69	1000
4	6.42	9.14	1,450	9.80	1000
6	6.42	9.09	1,460	9.83	1000

Purge Start Time: 9:00 Purge End Time: 9:10 Total Volume Purged: 3.5 gal  
Approximate Purge Rate: 1000 mL/min Purged/Sampled by: M. Schlegel  
Weather Conditions: 34 °F, cloudy, 10-15 mph N  
Comments: \_\_\_\_\_



WELL PURGING RECORD  
LOW-FLOW SAMPLING METHOD

Site: SLB Lansing  
Project Number: 3501771  
Sampling Device: Dedicated Bladder Pump  
Date: 2/23/17  
Well ID: MW-SRD

Tubing Diameter (ID): 2 inches  
Depth to Water: 5.97 ft, TOC  
Depth to Bottom of Well: 46.25 ft, TOC  
Feet of Water in Well: 40.28 ft  
Volume of Water in Well: 6.6 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (Microsi/cm)	Temperature (°F) °C	Purge Rate (L/min)
1	5.95	8.72	1,020	9.77	1000
2	5.95	8.62	1,020	9.30	1000
4	5.95	8.47	1,020	9.36	1000
6	5.95	8.45	1,020	9.35	2000

Purge Start Time: 8:40 Purge End Time: 8:50 Total Volume Purged: 70250 gal  
Approximate Purge Rate: 1000 mL/min Purged/Sampled by: N. Schigel  
Weather Conditions: 34 °F, cloudy, 10-15 mph  
Comments: \_\_\_\_\_



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: S&B Lansing  
 Project Number: 3501771  
 Sampling Device: Dedicated Blender Bin  
 Date: 2/23/17  
 Well ID: MVW-4

Tubing Diameter (ID): 2 inches  
 Depth to Water: 4.60 ft, TOC  
 Depth to Bottom of Well: 18.3 ft, TOC  
 Feet of Water in Well: 13.7 ft  
 Volume of Water in Well: 2.2 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (microhm / cm)	Temperature (°F) °C	Purge Rate (L/min)
1	4.65	9.05	1,546	10.59	1000
5	4.65	8.78	1,560	6.72	1000
10	4.65	8.61	1,610	6.14	1000
15	4.65	8.60	1,610	6.12	1000

Purge Start Time: 8:05     Purge End Time: 8:20     Total Volume Purged: 2.5 gal  
 Approximate Purge Rate: 1000 mL/min     Purged/Sampled by: M. Schlegel  
 Weather Conditions: 34°F, cloudy, 10-15 mph N  
 Comments: \_\_\_\_\_  
 \_\_\_\_\_

Amherst, NY 14228-2223  
phone 716.691.2600 fax 716.691.7991

TestAmerica Laboratories, Inc.

Regulatory Program:  DW  NPDES  RCRA  Other:

Client Contact: SKB Environmental  
13425 Courthouse Blvd  
Rosemount, MN 55068  
(651) 438-1500 Phone  
(651) 438-1518 FAX  
Project Name: 2017 Lansing CCR GW Event 1  
Site:  
P O # 3064 - 17 - 00114

Project Manager: Ryan Van Dette  
Tel/Fax:  
Analysis Turnaround Time  
CALENDAR DAYS WORKING DAYS  
TAT if different from Below  
 2 weeks  
 1 week  
 2 days  
 1 day

Site Contact: Nathaniel Beineman  
Date: 2/23/17  
Carrier:  
Lab Contact:

Sampler:  
For Lab Use Only:  
Walk-in Client:  
Lab Sampling:  
Job / SDG No.:

COC No. 1 of 1 COCs

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Metals (total) + Mercury	Chloride	Sulfate	Fluoride	PH	Radium 226 & 228 combined	Sample Specific Notes:
MW-1RD	2/23/17	11:25	Grab	Water	5			X	X	X	X	X		
MW-2R	2/23/17	10:40	Grab	Water	5			X	X	X	X	X		
MW-2RD	2/23/17	10:10	Grab	Water	5			X	X	X	X	X		
MW-3R	2/23/17	9:10	Grab	Water	5			X	X	X	X	X		
MW-3RD	2/23/17	9:50	Grab	Water	5			X	X	X	X	X		
MW-4	2/23/17	8:30	Grab	Water	5			X	X	X	X	X		
MW-1	2/23/17	11:50	Grab	Water	5			X	X	X	X	X		
MW-3	2/23/17	9:35	Grab	Water	5			X	X	X	X	X		
Duplicate - 1	2/23/17	-	Grab	Water	5			X	X	X	X	X		
Field Blank	2/23/17	12:00	Grab	Water	5			X	X	X	X	X		

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification: Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Flammable  Skin Irritant  Non-Hazard  Poison B  Unknown   
Return to Client  Disposed by Lab  Archive for \_\_\_\_\_ Months

Custody Seal No.:  
Custody Seals Intact:  Yes  No  
Relinquished by: *[Signature]* Company: *SKB* Date/Time: 2/23/17 15:20  
Received by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Relinquished by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Received in Laboratory by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: \_\_\_\_\_





## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing  
 Project Number: 350177  
 Sampling Device: Dedicated Bladder Pump  
 Date: 3/28/17  
 Well ID: MW-1

Tubing Diameter (ID): 2 inches  
 Depth to Water: 3.28 ft, TOC  
 Depth to Bottom of Well: 25.6 ft, TOC  
 Feet of Water in Well: 22.34 ft  
 Volume of Water in Well: 3.0 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (umhos/cm)	Temperature (°C)	Purge Rate (L/min)
1	3.28	<del>7.87</del> 7.87	537	6.87	1
5	3.28	7.62	516	6.93	1
10	3.28	7.64	513	6.24	1
15	3.28	7.60	515	6.07	1

Purge Start Time: 8:10 Purge End Time: 9:25 Total Volume Purged: 3.0 gal  
 Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlaegel  
 Weather Conditions: BW, clear, 5-10 mph E  
 Comments: \_\_\_\_\_  
 \_\_\_\_\_



### WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Leasing  
Project Number: 3501771  
Sampling Device: Dedicated Blender Pump  
Date: 3/28/17  
Well ID: MW-1RD

Tubing Diameter (ID): 2 inches  
Depth to Water: 24.25' ft, TOC  
Depth to Bottom of Well: 75.5' ft, TOC  
Feet of Water in Well: 51.25 ft  
Volume of Water in Well: 8.4 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°F)	Purge Rate (L/min)
1	24.27'	7.87	578	9.08	1
5	24.27'	7.87	578	9.07	1
10	24.27'	7.87	578	9.08	1
15	24.27'	7.87	579	9.09	1
20	24.27	7.87	577	9.08	1

Purge Start Time: 9:10 Purge End Time: 9:18 Total Volume Purged: 8.5 gal  
Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlegel  
Weather Conditions: 36°F, clear, 5-10 mph E  
Comments: \_\_\_\_\_



### WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing  
Project Number: 350771  
Sampling Device: Dedicated Bladder Pump  
Date: 3/28/17  
Well ID: MW-ZR

Tubing Diameter (ID): 2 inches  
Depth to Water: 7.82 ft, TOC  
Depth to Bottom of Well: 18.35 ft, TOC  
Feet of Water in Well: 10.53 ft  
Volume of Water in Well: 1.7 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmho/cm)	Temperature (°K) C	Purge Rate (L/min)
1	8.24	7.37	140	8.55	1
5	10.61	7.41	60	7.49	1
10	12.89	7.26	52	8.07	1
15	15.73	7.18	40	8.22	1

Purge Start Time: 10:10 Purge End Time: 10:25 Total Volume Purged: 2.0 gal  
Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlayer  
Weather Conditions: 39°F, clear, 5-10 mph E  
Comments: slow recharge



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SEB Lansing  
 Project Number: 3501771  
 Sampling Device: Dedicated bladder pump  
 Date: 3/28/11  
 Well ID: MW-ZRD

Tubing Diameter (ID): 2 inches  
 Depth to Water: 6.83 ft, TOC  
 Depth to Bottom of Well: 35.0 ft, TOC  
 Feet of Water in Well: 28.17 ft  
 Volume of Water in Well: 4.6 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (Micro mhos / cm)	Temperature (°X) C	Purge Rate (L/min)
1	6.82	7.52	859	10.44	1
3	6.83	7.53	858	10.44	1
6	6.82	7.52	857	10.44	1
9	6.82	7.52	858	10.44	1

Purge Start Time: 10:10 Purge End Time: 10:20 Total Volume Purged: 5.0 gal

Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlegel

Weather Conditions: 0F, 1- mph

Comments: \_\_\_\_\_  
 \_\_\_\_\_



**WELL PURGING RECORD  
LOW-FLOW SAMPLING METHOD**

Site: SKB Lansing  
 Project Number: 350170  
 Sampling Device: Dedicated Bladder Pump  
 Date: 3/29/17  
 Well ID: MW-3

Tubing Diameter (ID): 2 inches  
 Depth to Water: 6.56 ft, TOC  
 Depth to Bottom of Well: 19.7 ft, TOC  
 Feet of Water in Well: 10.14 ft  
 Volume of Water in Well: 1.7 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°F)	Purge Rate (L/min)
1	6.62	7.59	1,030	9.89	1
2	6.62	7.39	1,110	8.15	1
4	6.62	7.37	1,080	7.59	1
6	6.62	7.35	1,090	7.36	1

Purge Start Time: 12:20 Purge End Time: 12:30 Total Volume Purged: 2.5 gal

Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Seiberg

Weather Conditions: 41°F, clear, 5-10 mph E

Comments: \_\_\_\_\_  
 \_\_\_\_\_



**WELL PURGING RECORD**  
**LOW-FLOW SAMPLING METHOD**

Site: SKB Lansing  
Project Number: 3501771  
Sampling Device: Dedicated Backhoe Pump  
Date: 3/28/17  
Well ID: MW-3P

Tubing Diameter (ID): 2 inches  
Depth to Water: 6.74 ft, TOC  
Depth to Bottom of Well: 27.5 ft, TOC  
Feet of Water in Well: 20.76 ft  
Volume of Water in Well: 3.4 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (Microhm/cm)	Temperature (°F)	Purge Rate (L/min)
1	6.69	7.14	1,290	9.22	1
2	6.69	7.14	1,290	9.23	1
4	6.69	7.14	1,290	9.23	1
6	6.69	7.14	1,290	9.23	1

Purge Start Time: 12:20 Purge End Time: 12:25 Total Volume Purged: 3.5 gal

Approximate Purge Rate: 1 L/min Purged/Sampled by: M. Schlagerl

Weather Conditions: 50°F, Clear, 5-10 mph E

Comments: \_\_\_\_\_





## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansky      Tubing Diameter (ID): 2 inches  
 Project Number: 3501770      Depth to Water: 6.18 ft, TOC  
 Sampling Device: Dedicated Black/DP pump      Depth to Bottom of Well: 46.25 ft, TOC  
 Date: 3/28/11      Feet of Water in Well: 40.07 ft  
 Well ID: MW-3RD      Volume of Water in Well: 6.5 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (umhos / cm)	Temperature (°F)	Purge Rate (L/min)
1	6.20'	7.57	928	9.62	1
5	6.20'	7.57	933	9.63	1
10	6.20'	7.57	933	9.64	1
15	6.20'	7.57	933	9.64	1

Purge Start Time: 13 :10      Purge End Time: 13 :30      Total Volume Purged: 7.0 gal  
 Approximate Purge Rate: 1 L/min      Purged/Sampled by: N. Schlegel  
 Weather Conditions: 50°F, clear, 5-10 mph E  
 Comments: DVP-1 collected



**WELL PURGING RECORD  
LOW-FLOW SAMPLING METHOD**

Site: SKB Lansing  
Project Number: 3501770  
Sampling Device: Dedicated Bladder Pump  
Date: 3/28/17  
Well ID: MW-4

Tubing Diameter (ID): 2 inches  
Depth to Water: 4.78 ft, TOC  
Depth to Bottom of Well: 18.3 ft, TOC  
Feet of Water in Well: 10.52 ft  
Volume of Water in Well: 1.7 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (umhos/cm)	Temperature (°C)	Purge Rate (L/min)
1	4.72	7.51	1,440	9.89	1
5	4.72	7.42	1,480	8.45	1
10	4.42	7.28	1,490	7.55	1
15	4.72	7.15	1,510	7.23	1

Purge Start Time: 14:35 Purge End Time: 14:50 Total Volume Purged: 2.0 gal  
Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Seisler  
Weather Conditions: 54°F, mostly clear, 5-10 mph E  
Comments: \_\_\_\_\_

<b>Client Information</b> Client Contact: Nathaniel Beinmann Company: Waste Connections, Inc. Address: 13425 Courthouse Blvd City: Rosemount State, Zip: MN, 55068 Phone: [Redacted] Email: nathanielb@wcnx.org Project Name: SKB Lansing/ Event Desc: CCR Groundwater Site: Minnesota		Lab PM: VanDette, Ryan T E-Mail: ryan.vandette@testamericainc.com Carrier Tracking No(s): COC No: 480-94262-22509.1 Page: Page 1 of 1 Job #:		
Due Date Requested: TAT Requested (days): Standard PO #: [Redacted] Purchase Order Requested WO #: [Redacted]		<b>Analysis Requested</b> Perform MS/MSD (Yes or No) [X] [ ] Field Filtered Sample (Yes or No) [X] [ ] 501.1_Ra - Radium-226/228 [X] [ ] [ ] [ ] [ ] [ ] 300.0_28D - ClF/SO4 [X] [ ] [ ] [ ] [ ] [ ] 6010C_6020A, 7470A [X] [ ] [ ] [ ] [ ] [ ] 2540C_Calcd - Total Dissolved Solids [X] [ ] [ ] [ ] [ ] [ ] SM4500_H+ - pH [X] [ ] [ ] [ ] [ ] [ ] Total Number of Containers:		
<b>Sample Identification</b> Sample Date: 3/29/17 Sample Time: 8:25 Sample Type (C=comp, G=grab): G Preservation Code: [Redacted]		Matrix (Water, Solid, Other): Water Sample Type (C=comp, G=grab): G Preservation Code: [Redacted]		
MW-1	3/29/17	8:25	G	Water
MW-3		17:20		Water
Duplicate				Water
Field Blank		16:00		Water
Equip Blank		16:05		Water
MW-1RD		9:30		Water
MW-2RD		10:20		Water
MW-2R		10:25		Water
MW-3RD		13:30		Water
MW-3R		12:25		Water
MW-4		14:50	✓	Water
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)				
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/IOC Requirements:				
Empty Kit Relinquished by: [Signature] Relinquished by: [Signature] Date/Time: 3/29/17 15:00 Relinquished by: [Signature] Date/Time: 3/29/17 15:40 Relinquished by: [Signature] Date/Time: [Redacted]				
Custody Seals Intact: Δ Yes Δ No Custody Seal No.: [Redacted]				

- Preservation Codes:**
- A - HCl
  - B - NaOH
  - C - Zn Acetate
  - D - Nitric Acid
  - E - NaHSO4
  - F - MeOH
  - G - Amchlor
  - H - Ascorbic Acid
  - I - Ice
  - J - DI Water
  - K - EDTA
  - L - EDA
  - W - pH 4-5
  - Z - other (specify)
- Other:**

- Preservation Codes:**
- M - Hexane
  - N - None
  - O - AsH2O2
  - P - Na2CO3
  - Q - Na2SO3
  - R - Na2SO4
  - S - H2SO4
  - T - TSP Dodecahydrate
  - U - Acetone
  - V - MCAA



**WELL PURGING RECORD  
LOW-FLOW SAMPLING METHOD**

Site: SKB Lansing  
 Project Number: 350177  
 Sampling Device: Dedicated Bladder Pump  
 Date: 4/26/17  
 Well ID: MW-1

Tubing Diameter (ID): 2 inches  
 Depth to Water: 3.46 ft, TOC  
 Depth to Bottom of Well: 25.6 ft, TOC  
 Feet of Water in Well: 22.15 ft  
 Volume of Water in Well: 3.8 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°K)C	Purge Rate (L/min)
1	3.45	9.60	557	9.99	1
5	3.46	8.11	568	7.76	1
10	3.46	8.11	566	7.57	1
15	3.46	8.14	562	7.38	1

Purge Start Time: 10:05 Purge End Time: 10:20 Total Volume Purged: 4.0 gal  
 Approximate Purge Rate: 1 L/min Purged/Sampled by: M. Schryer  
 Weather Conditions: 43°F, 1/4 drizzle, cloudy, 5-10 mph N  
 Comments: \_\_\_\_\_



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Mining  
 Project Number: 3501771  
 Sampling Device: Dedicated Plunger Pump  
 Date: 4/26/17  
 Well ID: MW-1RP

Tubing Diameter (ID): 2 inches  
 Depth to Water: 23.95 ft, TOC  
 Depth to Bottom of Well: 75.5 ft, TOC  
 Feet of Water in Well: 51.55 ft  
 Volume of Water in Well: 8.4 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°F)	Purge Rate (L/min)
1	23.95	8.38	615	8.74	
5	23.95	8.48	619	8.93	
10	23.95	8.45	619	8.95	
15	23.95	8.00	619	8.94	
20	23.95	8.01	619	8.95	

Purge Start Time: 10:05 Purge End Time: 10:25 Total Volume Purged: 9.0 gal

Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlagel

Weather Conditions: 43°F, lt drizzle, cloudy, 5-10 mph N

Comments: \_\_\_\_\_  
 \_\_\_\_\_



### WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing  
Project Number: 350177J  
Sampling Device: Dedicated bladder pump  
Date: 4/26/17  
Well ID: MW-2R

Tubing Diameter (ID): 2 inches  
Depth to Water: 7.85 ft, TOC  
Depth to Bottom of Well: 10.35 ft, TOC  
Feet of Water in Well: 10.5 ft  
Volume of Water in Well: 1.7 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°F)	Purge Rate (L/min)
1	7.99	7.63	1,270	8.04	1
5	14.56	7.62	1,260	7.64	1
10	17.38	7.54	1,290	7.68	1
15	17.78	7.55	1,290	7.69	1

Purge Start Time: 10:55 Purge End Time: 11:10 Total Volume Purged: 2.0 gal  
Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schydel  
Weather Conditions: 39°F, cloudy, 5-10 mph W  
Comments: slow recharge





## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SLB Lansing  
 Project Number: 3501771  
 Sampling Device: Dedicated Blower Pump  
 Date: 4/26/17  
 Well ID: MW-ZRD

Tubing Diameter (ID): 2 inches  
 Depth to Water: 7.50 ft, TOC  
 Depth to Bottom of Well: 35.0 ft, TOC  
 Feet of Water in Well: 27.5 ft  
 Volume of Water in Well: 4.5 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (uMhos/cm)	Temperature (°F) C	Purge Rate (L/min)
1	7.51	7.86	931	9.68	1
3	7.52	7.86	912	9.83	1
6	7.52	7.86	913	9.82	1
9	7.52	7.86	911	9.81	1

Purge Start Time: 10:58      Purge End Time: 11:05      Total Volume Purged: 5.0 gal  
 Approximate Purge Rate: 1 L/min      Purged/Sampled by: N. Schlagli  
 Weather Conditions: 39°F, cloudy, 5-10 mph N  
 Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: S/KB Lansing  
 Project Number: 3501771  
 Sampling Device: Dedicated Bladder Pump  
 Date: 4/26/17  
 Well ID: MW-3

Tubing Diameter (ID): 2 inches  
 Depth to Water: 6.62 ft, TOC  
 Depth to Bottom of Well: 19.7 ft, TOC  
 Feet of Water in Well: 13.08 ft  
 Volume of Water in Well: 2.1 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°F) C	Purge Rate (L/min)
1	6.62	7.79	1,116	7.57	
2	6.63	7.76	1,060	6.92	
4	6.63	7.76	1,070	6.63	
6	6.63	7.76	1,090	6.65	

Purge Start Time: 11:40 Purge End Time: 11:45 Total Volume Purged: 2.5 gal  
 Approximate Purge Rate: 1 L/min. Purged/Sampled by: N. Schrage  
 Weather Conditions: 39°F, Cloudy, 5-10 mph NW  
 Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing  
 Project Number: 3501771  
 Sampling Device: Dedicated bladder pump  
 Date: 4/26/17  
 Well ID: MW-3

Tubing Diameter (ID): 2 inches  
 Depth to Water: 6.68 ft, TOC  
 Depth to Bottom of Well: 27.5 ft, TOC  
 Feet of Water in Well: 10.82 ft  
 Volume of Water in Well: 3.4 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (microhm/cm)	Temperature (°F)	Purge Rate (L/min)
1	6.68	7.56	1,410	8.60	1
2	6.69	7.57	1,410	8.75	1
4	6.69	7.57	1,410	8.74	1
6	6.69	7.57	1,410	8.74	1

Purge Start Time: 11:48      Purge End Time: 11:50      Total Volume Purged: 3.5 gal  
 Approximate Purge Rate: 1 L/min      Purged/Sampled by: N. Schlegel  
 Weather Conditions: 39°F, cloudy, 5-10 mph NW  
 Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**WELL PURGING RECORD  
LOW-FLOW SAMPLING METHOD**

Site: SLB Lonsley  
 Project Number: 3501771  
 Sampling Device: Dedicated Bladder Pump  
 Date: 4/26/17  
 Well ID: MW-3RP

Tubing Diameter (ID): 2 inches  
 Depth to Water: 6.02 ft, TOC  
 Depth to Bottom of Well: 46.25 ft, TOC  
 Feet of Water in Well: 40.23 ft  
 Volume of Water in Well: 6.6 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (Microhm/cm)	Temperature (°F)	Purge Rate (L/min)
1	6.02	7.99	1,010	9.50	1
5	6.02	8.02	912	9.36	1
10	6.02	8.06	995	9.39	1
15	6.02	8.09	997	9.40	1

Purge Start Time: 12:00 Purge End Time: 12:15 Total Volume Purged: 7.0 gal  
 Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlegel  
 Weather Conditions: 39°F, cloudy, 5-10 mph NW  
 Comments: DUP-1 collected



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing  
 Project Number: 3501771  
 Sampling Device: dedicated bladder pump  
 Date: 4/25/17  
 Well ID: MW-4

Tubing Diameter (ID): 2 inches  
 Depth to Water: 4.87 ft, TOC  
 Depth to Bottom of Well: 18.3 ft, TOC  
 Feet of Water in Well: 13.43 ft  
 Volume of Water in Well: 2.2 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (uMhos/cm)	Temperature (°C)	Purge Rate (L/min)
1	4.87	8.08	1,710	8.04	1
5	4.88	7.96	1,750	7.18	1
10	4.88	7.97	1,750	6.97	1
15	4.88	7.97	1,750	6.91	1

Purge Start Time: 12:50 Purge End Time: 13:05 Total Volume Purged: 2.5 gal  
 Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlegel  
 Weather Conditions: 39°F, cloudy, 5-10 mph NW  
 Comments: \_\_\_\_\_

**Chain of Custody Record**

Amherst, NY 14226-2223  
phone 716.691.2600 fax 716.691.7991

TestAmerica Laboratories, Inc.  
COC No: \_\_\_\_\_ of \_\_\_\_\_ COCs

Regulatory Program:  DW  NPDES  RCRA  Other: \_\_\_\_\_  
Project Manager: Ryan Van Dette  
Site Contact: Nathaniel Beineman Date: 4/26/17  
Carrier: \_\_\_\_\_

Client Contact  
SKB Environmental  
13425 Courthouse Blvd  
Rosemount, MN 55068  
Phone (651) 438-1500 FAX (651) 438-1518  
Project Name: Lansing 2017 CCR GW Event 3  
Site: \_\_\_\_\_  
P O # 3064-17-00222

Project Manager: Ryan Van Dette  
Tel/Fax: \_\_\_\_\_

Analysis Turnaround Time  
 CALENDAR DAYS  WORKING DAYS  
TAT if different from Below \_\_\_\_\_  
 2 weeks  
 1 week  
 2 days  
 1 day

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Performs MS/MSD (Y/N)	Metals (totals) + Mercury	Chloride	Fluoride	Sulfate	TDS	PH	Radium 226 & 228 combined	Sample Specific Notes:
MW-1RD	4/26/17	10:25	Grab	Water	5	X	X	X	X	X	X	X	X	X	
MW-2R		11:10	Grab	Water	5	X	X	X	X	X	X	X	X	X	
MW-2RD		11:05	Grab	Water	5	X	X	X	X	X	X	X	X	X	
MW-3R		11:30	Grab	Water	5	X	X	X	X	X	X	X	X	X	
MW-3RD		12:15	Grab	Water	5	X	X	X	X	X	X	X	X	X	
MW-4		13:05	Grab	Water	5	X	X	X	X	X	X	X	X	X	
MW-1		10:20	Grab	Water	5	X	X	X	X	X	X	X	X	X	
MW-3		11:45	Grab	Water	5	X	X	X	X	X	X	X	X	X	
Duplicate - 1		-	Grab	Water	5	X	X	X	X	X	X	X	X	X	
Field Blank		13:15	Grab	Water	5	X	X	X	X	X	X	X	X	X	
Equipment Blank		13:20	Grab	Water	5	X	X	X	X	X	X	X	X	X	

Preservation Used: 1=Ice, 2=HCl; 3=H2SO4; 4=HNO3; 5=NaOH; 6=Other  
Possible Hazard Identification: \_\_\_\_\_  
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazardous  Flammable  Skin Irritant  Poison B  Unknown   
\*Metals - Boron, Calcium, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium

Return to Client  Disposal by Lab  Archive for \_\_\_\_\_ Months

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Cooler Temp. (°C): Obs'd: \_\_\_\_\_ Corrd: \_\_\_\_\_  
Therm ID No.: \_\_\_\_\_

Received by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Relinquished by: *Matt Adams* Company: *SES* Date/Time: 4/26/17 12:00  
Relinquished by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Relinquished by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: \_\_\_\_\_



### WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing  
 Project Number: 3501771  
 Sampling Device: Dedicated Bladder Pump  
 Date: 5/10/17  
 Well ID: MW-1

Tubing Diameter (ID): 2 inches  
 Depth to Water: 2.26 ft, TOC  
 Depth to Bottom of Well: 25.6 ft, TOC  
 Feet of Water in Well: 23.34 ft  
 Volume of Water in Well: 3.8 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°K) C	Purge Rate (L/min)
1	2.26	8.13	505	13.23	1
5	2.27	7.51	498	12.82	1
10	2.27	7.25	503	11.86	1
15	2.27	7.19	514	11.10	1

Purge Start Time: 8:40 Purge End Time: 8:55 Total Volume Purged: 4.0 gal  
 Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlegel  
 Weather Conditions: 48°F, cloudy, N 15-20 mph  
 Comments: \_\_\_\_\_





## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: Sk. B Lamson  
 Project Number: 350771  
 Sampling Device: Dedicated Blender Pump  
 Date: 5/10/17  
 Well ID: MW-1RD

Tubing Diameter (ID): 2 inches  
 Depth to Water: 24.32 ft, TOC  
 Depth to Bottom of Well: 75.5 ft, TOC  
 Feet of Water in Well: 51.18 ft  
 Volume of Water in Well: 8.3 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (microhm/cm)	Temperature (°C)	Purge Rate (L/min)
1	24.32	7.37	615	8.69	1
5	24.32	7.43	615	8.60	1
10	24.32	7.46	616	8.57	1
15	24.32	7.47	616	8.56	1
20	24.32	7.47	615	8.56	1

Purge Start Time: 8:40 Purge End Time: 9:00 Total Volume Purged: 10.0 gal  
 Approximate Purge Rate: 1 L/min. Purged/Sampled by: N. Schlegel  
 Weather Conditions: 48°F, cloudy, N 15-20 mph

Comments: \_\_\_\_\_



WELL PURGING RECORD  
LOW-FLOW SAMPLING METHOD

Site: 51B Lansing  
Project Number: 3501771  
Sampling Device: Dedicated Bladder Pump  
Date: 5/18/17  
Well ID: MW-2R

Tubing Diameter (ID): 2 inches  
Depth to Water: 9.85 ft, TOC  
Depth to Bottom of Well: 18.35 ft, TOC  
Feet of Water in Well: 8.50 ft  
Volume of Water in Well: 1.34 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (uMhos/cm)	Temperature (°R) C	Purge Rate (L/min)
1	<del>10.85</del>	7.04	1,120	10.64	1
5	<del>10.27</del>	6.89	1,190	10.47	1
10	12.46	6.87	1,200	10.43	1
15	16.58	6.87	1,200	10.44	1

Purge Start Time: 9:55 Purge End Time: 10:10 Total Volume Purged: 1.5 gal

Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlager

Weather Conditions: 48°F, cloudy, N 10-15 mph

Comments: slow recharge



### WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing  
 Project Number: 3801771  
 Sampling Device: Dedicated Bladder Pump  
 Date: 5/10/17  
 Well ID: MW-2RD

Tubing Diameter (ID): 2 inches  
 Depth to Water: 6.73 ft, TOC  
 Depth to Bottom of Well: 35.0 ft, TOC  
 Feet of Water in Well: 28.27 ft  
 Volume of Water in Well: 4.6 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°C)	Purge Rate (L/min)
1	6.73	7.16	904	10.28	1
3	6.74	7.16	903	10.27	1
6	6.74	7.15	903	10.27	1
9	6.74	7.16	904	10.28	1

Purge Start Time: 9:55    Purge End Time: 10:05    Total Volume Purged: 5.0 gal  
 Approximate Purge Rate: 1 L/min    Purged/Sampled by: N. Schlagel  
 Weather Conditions: 48°F, cloudy, N 10-15 mph  
 Comments: \_\_\_\_\_  
 \_\_\_\_\_



**WELL PURGING RECORD  
LOW-FLOW SAMPLING METHOD**

Site: SKB Lansing  
 Project Number: 3501771  
 Sampling Device: Dedicated Bladder Pump  
 Date: 5/18/17  
 Well ID: MW-3

Tubing Diameter (ID): 2 inches  
 Depth to Water: 6.40 ft, TOC  
 Depth to Bottom of Well: 19.7 ft, TOC  
 Feet of Water in Well: 13.3 ft  
 Volume of Water in Well: 2.2 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (uMhos/cm)	Temperature (°C)	Purge Rate (L/min)
1	6.40	7.12	1,170	8.31	1
2	6.41	8.92	1,170	7.18	1
4	6.41	6.88	1,180	7.20	1
8	6.41	6.84	1,190	7.21	1

Purge Start Time: 10:30 Purge End Time: 10:35 Total Volume Purged: 2.5 gal  
 Approximate Purge Rate: 1 L/min Purged/Sampled by: M. Schlapal  
 Weather Conditions: 48°F, cloudy, W 10-15 mph  
 Comments: \_\_\_\_\_  
 \_\_\_\_\_



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SLB Lansing  
Project Number: 3501771  
Sampling Device: Dedicated Bladder Pump  
Date: 5/18/17  
Well ID: MW-372

Tubing Diameter (ID): 2 inches  
Depth to Water: 6.54 ft, TOC  
Depth to Bottom of Well: 27.5 ft, TOC  
Feet of Water in Well: 20.96 ft  
Volume of Water in Well: 3.4 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (uMhos / cm)	Temperature (°C)	Purge Rate (L/min)
1	6.54	6.93	1,040	9.41	1
2	6.55	6.93	1,040	9.41	1
4	6.55	6.93	1,040	9.41	1
5	6.55	6.93	1,040	9.41	1

Purge Start Time: 10:48      Purge End Time: 10:50      Total Volume Purged: 5.0 gal  
Approximate Purge Rate: 1 L/min      Purged/Sampled by: N. Schlegel  
Weather Conditions: 48°F, cloudy, N 10-15 mph  
Comments: \_\_\_\_\_



**WELL PURGING RECORD  
LOW-FLOW SAMPLING METHOD**

Site: S/LB Lansing  
Project Number: 3501771  
Sampling Device: Dedicated Bladder Pump  
Date: 5/18/17  
Well ID: MW-3RD

Tubing Diameter (ID): 2 inches  
Depth to Water: 6.25 ft, TOC  
Depth to Bottom of Well: 46.25 ft, TOC  
Feet of Water in Well: 14.0 ft  
Volume of Water in Well: 6.5 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°C)	Purge Rate (L/min)
1	6.25	7.10	984	8.92	1
5	6.25	7.10	987	8.92	1
10	6.25	7.10	988	8.92	1
15	6.25	7.10	989	8.92	1

Purge Start Time: 10:30 Purge End Time: 10:45 Total Volume Purged: 7.0 gal  
Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlegel  
Weather Conditions: 48°F, cloudy, N 10-15 mph  
Comments: Duplicate collected



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: 4B Lansing  
 Project Number: 3501771  
 Sampling Device: Dedicated Bladder Pump  
 Date: 5/10/17  
 Well ID: MW-4

Tubing Diameter (ID): 2 inches  
 Depth to Water: 4.94 ft, TOC  
 Depth to Bottom of Well: 19.3 ft, TOC  
 Feet of Water in Well: 13.36 ft  
 Volume of Water in Well: 2.2 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°K) C	Purge Rate (L/min)
1	4.94	7.17	1,650	9.37	1
5	4.95	6.98	1,660	9.13	1
10	4.95	6.93	1,660	9.99	1
15	4.95	6.91	1,660	9.94	1

Purge Start Time: 11:20      Purge End Time: 11:35      Total Volume Purged: 3.0 gal  
 Approximate Purge Rate: 1 L/min      Purged/Sampled by: N. Schildge  
 Weather Conditions: 48°F, cloudy, N 10-20 mph  
 Comments: \_\_\_\_\_  
 \_\_\_\_\_



**Client Information**  
 Client Contact: Nathaniel Behrman  
 Company: Waste Connections, Inc.  
 Address: 13425 Courthouse Blvd  
 City: Rosemount  
 State, Zip: MN, 55068  
 Phone: [blank]  
 Email: nathanielb@wcnx.org  
 Project Name: SKB Lansing/ Event Desc: CCR Groundwater  
 Site: Minnesota

**Sampler:** N. Schubert  
**Phone:** 651-792-1685  
**Lab P#: [blank]**  
**Vandette:** Ryan T  
**E-Mail:** ryan.vandette@testamericainc.com

**Carrier Tracking No(s): [blank]**  
**COC No:** 480-97151-22509.1  
**Page:** Page 1 of 1  
**Job #:** [blank]

**Due Date Requested:** [blank]  
**TAT Requested (days):** [blank]  
**Standards**  
**PO #:** [blank]  
**Purchase Order Requested:** [blank]  
**W/O #:** [blank]

**Sample Identification**

Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Soils, Sludge, Air, etc.)	Preservation Code	Field Filtered Sample (Yes or No)	Analysis Requested	Special Instructions/Note
MMW-1	5/18/17	8:55	G	Water		X	901.1_Ra - Radium-226/228	
MMW-3		10:35	G	Water		X	300.0_2BD - Cl/F/ISO4	
Duplicate		11:55	G	Water		X	6010C, 6020A, 7470A	
Field Blank		12:00	G	Water		X	2540C_Calcd - Total Dissolved Solids	
Equip Blank		9:05	G	Water		X	SM4500_H+ - pH	
MMW-1RD		10:05	G	Water		X		
MMW-2RD		10:10	G	Water		X		
MMW-2R		10:45	G	Water		X		
MMW-3RD		10:50	G	Water		X		
MMW-3R		11:35	G	Water		X		
MMW-4			G	Water		X		

**Field Filtered Sample (Yes or No)**  
 Perform MS450 (Yes or No)

**Total Number of containers:** [blank]

**Special Instructions/Note:** [blank]

**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**  
 Return To Client  
 Disposal By Lab  
 Archive For [blank] Months

**Special Instructions/Note:** [blank]

**Possible Hazard Identification**  
 Non-Hazard  
 Flammable  
 Skin Irritant  
 Poison B  
 Unknown  
 Radiological

**Deliverable Requested:** I, II, III, IV, Other (Specify) [blank]

**Empty Kit Relinquished by:** [blank] **Date:** [blank] **Time:** [blank] **Method of Shipment:** [blank]

**Relinquished by:** [Signature] **Date/Time:** 5/18/17 14:00 **Company:** GES

**Relinquished by:** [Signature] **Date/Time:** 5-18-17 19W **Company:** [blank]

**Relinquished by:** [Signature] **Date/Time:** [blank] **Company:** [blank]

**Relinquished by:** [Signature] **Date/Time:** [blank] **Company:** [blank]

**Custody Seals Intact:**  Yes  No **Custody Seal No.:** [blank]

**Received by:** [Signature] **Date/Time:** 5-18-17 14W **Company:** FSI

**Received by:** [Signature] **Date/Time:** [blank] **Company:** [blank]

**Cooler Temperature(s) °C and Other Remarks:** [blank]



WELL PURGING RECORD  
LOW-FLOW SAMPLING METHOD

Site: SKB Landing  
Project Number: 3501771  
Sampling Device: Dedicated Bladder Pump  
Date: 6/22/17  
Well ID: MW-1

Tubing Diameter (ID): 2 inches  
Depth to Water: 5.50 ft, TOC  
Depth to Bottom of Well: 25.6 ft, TOC  
Feet of Water in Well: 23.1 ft  
Volume of Water in Well: 3.3 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (Micros/cm)	Temperature (°C)	Purge Rate (L/min)
1	5.52	7.40	589	15.32	1
5	5.52	7.18	603	12.72	1
10	5.52	7.15	602	12.82	1
15	5.52	7.12	600	11.77	1

Purge Start Time: 7:35 Purge End Time: 7:50 Total Volume Purged: 3.5 gal  
Approximate Purge Rate: 1 L/min Purged/Sampled by: M. Santogel  
Weather Conditions: 72°F, cloudy, 5-10 mph  
Comments: \_\_\_\_\_



**WELL PURGING RECORD  
LOW-FLOW SAMPLING METHOD**

Site: SFB Lansing  
 Project Number: 3501771  
 Sampling Device: Dech20004 bladder pump  
 Date: 6/22/17  
 Well ID: MW-1RD

Tubing Diameter (ID): 2 inches  
 Depth to Water: 25.25 ft, TOC  
 Depth to Bottom of Well: 75.5 ft, TOC  
 Feet of Water in Well: 50.25 ft  
 Volume of Water in Well: 8.2 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°C)	Purge Rate (L/min)
1	25.27	7.23	611	9.43	1
5	25.27	7.33	613	9.24	1
10	25.29	7.33	613	9.22	1
15	25.27	7.36	613	9.21	1
20	25.27	7.29	613	9.20	1

Purge Start Time: 7:35 Purge End Time: 7:58 Total Volume Purged: 10.0 gal  
 Approximate Purge Rate: 1 L/min Purged/Sampled by: M. Schlegel  
 Weather Conditions: 77 °F, cloudy, 10-15 mph SW  
 Comments: \_\_\_\_\_



**WELL PURGING RECORD  
LOW-FLOW SAMPLING METHOD**

Site: SKB Lansing  
 Project Number: 3501771  
 Sampling Device: Dedicated Bladder Pump  
 Date: 6/22/17  
 Well ID: MW-2R  
 Tubing Diameter (ID): 2 inches  
 Depth to Water: 8.80 ft, TOC  
 Depth to Bottom of Well: 10.35 ft, TOC  
 Feet of Water in Well: 9.55 ft  
 Volume of Water in Well: 2.5 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°F) °C	Purge Rate (L/min)
1	8.82	6.85	1,270	11.14	1
5	10.62	6.60	1,260	12.05	1
10	12.48	6.66	1,270	11.93	1
15	14.57	6.67	1,270	11.92	1

Purge Start Time: 11:05 Purge End Time: 11:20 Total Volume Purged: 2.5 gal  
 Approximate Purge Rate: 1 L/min Purged/Sampled by: M. Schlegel  
 Weather Conditions: 72°F, cloudy, 5-10 mph west  
 Comments: slow recharge



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing  
Project Number: 3501771  
Sampling Device: Dedicated Bladder Pump  
Date: 6/22/17  
Well ID: MW-2RD

Tubing Diameter (ID): 2 inches  
Depth to Water: 7.62 ft, TOC  
Depth to Bottom of Well: 35.0 ft, TOC  
Feet of Water in Well: 27.38 ft  
Volume of Water in Well: 4.5 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°C) °F	Purge Rate (L/min)
1	7.64	7.03	951	9.79	1
3	7.64	6.87	954	9.80	1
6	7.64	7.04	953	9.80	1
9	7.64	6.47	964	9.81	1

Purge Start Time: 11:05      Purge End Time: 11:15      Total Volume Purged: 5.0 gal

Approximate Purge Rate: 1 L/min      Purged/Sampled by: N. Seibler

Weather Conditions: 70°F, cloudy, 5-10 mph W

Comments: \_\_\_\_\_  
\_\_\_\_\_



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing  
 Project Number: 3501771  
 Sampling Device: Dedicated Bladder Pump  
 Date: 6/22/17  
 Well ID: MW-3

Tubing Diameter (ID): 2 inches  
 Depth to Water: 8.17 ft, TOC  
 Depth to Bottom of Well: 19.7 ft, TOC  
 Feet of Water in Well: 11.59 ft  
 Volume of Water in Well: 1.9 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (micro S/cm)	Temperature (°F)	Purge Rate (L/min)
1	8.17	6.69	1,280	11.63	1
2	8.17	6.88	1,340	9.70	1
4	8.17	6.89	1,330	9.59	1
5	8.17	6.73	1,270	9.56	1

Purge Start Time: 13:15 Purge End Time: 13:20 Total Volume Purged: 2.0 gal

Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schloegel

Weather Conditions: 70°F, cloudy, 5 - 10 mph SE

Comments: \_\_\_\_\_  
 \_\_\_\_\_



**WELL PURGING RECORD  
LOW-FLOW SAMPLING METHOD**

Site: JKB Lansing  
Project Number: 3801771  
Sampling Device: Dedicated Bladder Pump  
Date: 6/22/17  
Well ID: MW-3R

Tubing Diameter (ID): 2 inches  
Depth to Water: 8.11 ft, TOC  
Depth to Bottom of Well: 77.5 ft, TOC  
Feet of Water in Well: 19.39 ft  
Volume of Water in Well: 3.2 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmho/cm)	Temperature (°C)	Purge Rate (L/min)
1	8.15	6.59	1,420	9.13	1
2	8.15	6.62	1,430	8.78	1
4	8.15	6.62	1,430	8.79	1
5	8.15	6.61	1,430	8.78	1

Purge Start Time: 13:15 Purge End Time: 13:25 Total Volume Purged: 5.0 gal  
Approximate Purge Rate: 1 L/min Purged/Sampled by: M. Schlopel  
Weather Conditions: 70°F, cloudy, 5-10 mph SE  
Comments: \_\_\_\_\_





# WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing Tubing Diameter (ID): 2 inches  
Project Number: 3501771 Depth to Water: 7.2 ft, TOC  
Sampling Device: Peristaltic Bladder Pump Depth to Bottom of Well: 46.26 ft, TOC  
Date: 6/22/17 Feet of Water in Well: 39.04 ft  
Well ID: MS-3RD Volume of Water in Well: 6.4 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (uMhos/cm)	Temperature (°F) %	Purge Rate (L/min)
1	7.23	6.77	987	9.50	1
5	7.23	6.99	993	9.47	1
10	7.23	6.99	993	9.47	1
15	7.23	6.98	993	9.48	1

Purge Start Time: 14:15 Purge End Time: 14:30 Total Volume Purged: 10.0 gal  
Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Smithey  
Weather Conditions: 77°F, cloudy, 5-10 mph SE  
Comments: Duplicate collected



Amherst, NY 14228-2223  
phone 716.691.2600 fax 716.691.7991

TestAmerica Laboratories, Inc.

Regulatory Program:  DW  NPDES  RCRA  Other: \_\_\_\_\_  
 Project Manager: Ryan Van Dette  
 Site Contact: Nathaniel Beineman Date: 6/22/17  
 Carrier: \_\_\_\_\_

Client Contact: \_\_\_\_\_  
 Tel/Fax: \_\_\_\_\_  
 Analysis Turnaround Time  
 CALENDAR DAYS \_\_\_\_\_ WORKING DAYS \_\_\_\_\_  
 TAT if different from Below  
 2 weeks  
 1 week  
 2 days  
 1 day  
 Project Name: Lansing 2017 CCR GW Event 5  
 Site: \_\_\_\_\_  
 P O # 3064-17-00312

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Metals (totals)* + Mercury	Chloride	Fluoride	Sulfate	TDS	pH	Radium 226 & 228 combined	Sample Specific Notes:
MW-1RD	6/22/17	7:55	Grab	Water	7			X	X	X	X	X	X	X	
MW-2R		11:20	Grab	Water	7			X	X	X	X	X	X	X	
MW-2RD		11:15	Grab	Water	7			X	X	X	X	X	X	X	
MW-3R		13:25	Grab	Water	7			X	X	X	X	X	X	X	
MW-3RD		14:30	Grab	Water	7			X	X	X	X	X	X	X	
MW-4		18:08	Grab	Water	7			X	X	X	X	X	X	X	
MW-1		7:50	Grab	Water	7			X	X	X	X	X	X	X	
MW-3		17:20	Grab	Water	7			X	X	X	X	X	X	X	
Duplicate - 1		-	Grab	Water	7			X	X	X	X	X	X	X	
Field Blank		18:00	Grab	Water	7			X	X	X	X	X	X	X	
Equipment Blank		18:05	Grab	Water	7			X	X	X	X	X	X	X	

Preservation Used: 1=Ice, 2=HCl; 3=H2SO4; 4=HNO3; 5=NaOH; 6=Other \_\_\_\_\_  
 Possible Hazard Identification: \_\_\_\_\_  
 Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.  
 Non-Hazardous  Flammable  Skin Irritant  Poison B  Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return to Client  Disposal by Lab  Archive for \_\_\_\_\_ Months

Custody Seal No.: \_\_\_\_\_  
 Relinquished by: *MW Sealy* Company: \_\_\_\_\_ Date/Time: 6/22/17  
 Relinquished by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: \_\_\_\_\_



### WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing  
 Project Number: 3501771  
 Sampling Device: Dedicated Bladder Pump  
 Date: 7/24/11  
 Well ID: MW-1

Tubing Diameter (ID): 2' inches  
 Depth to Water: 4.57 ft, TOC  
 Depth to Bottom of Well: 25.6 ft, TOC  
 Feet of Water in Well: 21.23 ft  
 Volume of Water in Well: 3.46 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°C)	Purge Rate (L/min)
1	4.38	8.96	929	19.60	
5	4.38	7.49	847	18.35	
10	4.38	7.14	861	15.92	
15	4.38	7.12	856	15.89	

Purge Start Time: 9:30 Purge End Time: 9:45 Total Volume Purged: 3.5 gal  
 Approximate Purge Rate: 1L/min Purged/Sampled by: M. Senlagel  
 Weather Conditions: 64°F, partly cloudy, 0-5 mph East  
 Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: S/LB Lansing  
 Project Number: 3501771  
 Sampling Device: dedicated bladder pump  
 Date: 7/24/17  
 Well ID: MW-120

Tubing Diameter (ID): 2" inches  
 Depth to Water: 25.66 ft, TOC  
 Depth to Bottom of Well: 75.8 ft, TOC  
 Feet of Water in Well: 49.84 ft  
 Volume of Water in Well: 8.12 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (micro / cm)	Temperature (°C)	Purge Rate (L/min)
1	26.66	7.38	608	10.43	1
5	26.67	7.43	608	9.914	1
10	25.67	7.43	608	9.71	1
15	25.67	7.43	607	9.70	1
20	25.67	7.43	607	9.65	1

Purge Start Time: 9:30 Purge End Time: 9:50 Total Volume Purged: 10.0 gal  
 Approximate Purge Rate: 1 L/min. Purged/Sampled by: N. Seligset  
 Weather Conditions: 84°F, partly cloudy, 0-6 mph East  
 Comments: \_\_\_\_\_  
 \_\_\_\_\_





## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SLB Lansing  
 Project Number: 3801771  
 Sampling Device: Dedicated Bladder Pump  
 Date: 7/24/17  
 Well ID: MW-2RP

Tubing Diameter (ID): 2 inches  
 Depth to Water: 7.79 ft, TOC  
 Depth to Bottom of Well: 35.0 ft, TOC  
 Feet of Water in Well: 77.21 ft  
 Volume of Water in Well: 9.414 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (micros/cm)	Temperature (°C)	Purge Rate (L/min)
1	7.79	6.95	940	13.27	
3	7.90	7.05	916	10.34	
6	7.90	7.05	925	10.04	
9	7.90	7.04	937	10.05	
	<del>7.90</del>				

Purge Start Time: 11:00      Purge End Time: 11:10      Total Volume Purged: 5.0 gal

Approximate Purge Rate: 1 L/min      Purged/Sampled by: N. Schlegel

Weather Conditions: 64°F, partly cloudy, 0-5 mph East

Comments: \_\_\_\_\_  
 \_\_\_\_\_



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: 5168 Longms  
Project Number: 3501771  
Sampling Device: Denitafed Bladder Pump  
Date: 7/24/17  
Well ID: MW-3

Tubing Diameter (ID): 2 inches  
Depth to Water: 6.84 ft, TOC  
Depth to Bottom of Well: 19.7 ft, TOC  
Feet of Water in Well: 12.86 ft  
Volume of Water in Well: 2.10 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (micro/cm)	Temperature (°F)	Purge Rate (L/min)
1	6.84	6.77	1,250	11.10	1
2	6.85	6.74	1,190	10.87	1
4	6.85	6.71	1,220	10.93	1
5	6.85	6.67	1,240	10.92	1

Purge Start Time: 11:45 Purge End Time: 11:50 Total Volume Purged: 2.5 gal  
Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlegel  
Weather Conditions: 66 °F, partly cloudy, 5-10 mph East  
Comments: \_\_\_\_\_





# WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing  
Project Number: 3501771  
Sampling Device: Dedicated Bladder Pump  
Date: 7/24/17  
Well ID: MW-3R

Tubing Diameter (ID): 2 inches  
Depth to Water: 6.93 ft, TOC  
Depth to Bottom of Well: 27.5 ft, TOC  
Feet of Water in Well: 20.57 ft  
Volume of Water in Well: 3.35 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°K)°C	Purge Rate (L/min)
1	6.93	6.62	1,380	9.52	1
2	6.94	6.63	1,400	9.82	1
4	6.94	6.61	1,400	9.78	1
5	6.94	6.62	1,400	9.77	1

Purge Start Time: 11:50 Purge End Time: 11:55 Total Volume Purged: 5.0 gal  
Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlegel  
Weather Conditions: 66°F, partly cloudy, 10-5 mph EWS  
Comments: \_\_\_\_\_



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing  
 Project Number: 3501771  
 Sampling Device: Dedicated Bladder Pump  
 Date: 7/24/13  
 Well ID: MW-3RD

Tubing Diameter (ID): 2 inches  
 Depth to Water: 7.23 ft, TOC  
 Depth to Bottom of Well: 39.04 ft, TOC  
 Feet of Water in Well: 31.81 ft  
 Volume of Water in Well: 5.18 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (microhm/cm)	Temperature (°K) °C	Purge Rate (L/min)
1	7.23	6.95	961	9.72	1
5	7.24	7.02	978	9.15	1
10	7.24	7.03	975	9.17	1
15	7.24	7.02	975	9.17	1

Purge Start Time: 12:15      Purge End Time: 12:30      Total Volume Purged: 6.0 gal  
 Approximate Purge Rate: 1 L/min      Purged/Sampled by: M. Schlegel  
 Weather Conditions: 66°F, partly cloudy, 5-10 mph East  
 Comments: Duplicate - 1 collected



# WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing  
Project Number: 2501771  
Sampling Device: peristaltic bladder pump  
Date: 7/24/17  
Well ID: 146-4

Tubing Diameter (ID): 2 inches  
Depth to Water: 4.93 ft, TOC  
Depth to Bottom of Well: 18.3 ft, TOC  
Feet of Water in Well: 13.37 ft  
Volume of Water in Well: 2.18 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (microhos/cm)	Temperature (°C) °F	Purge Rate (L/min)
1	4.93	6.89	1,710	11.65	1
5	4.94	6.80	1,680	10.69	1
10	4.94	6.80	1,660	11.14	1
15	4.94	6.80	1,640	11.30	1

Purge Start Time: 12:50 Purge End Time: 13:05 Total Volume Purged: 2.5 gal  
Approximate Purge Rate: 1L/min. Purged/Sampled by: N. Schlegel  
Weather Conditions: 70°F, partly cloudy, S -10 mph East  
Comments: \_\_\_\_\_

Regulatory Program:  DW  NPDES  RCRA  Other: \_\_\_\_\_

Client Contact: SKB Environmental  
13425 Courthouse Blvd  
Rosemount, MN 55068  
(651) 438-1500 Phone  
(651) 438-1518 FAX  
Project Name: Lansing 2017 CCR GW Event 6  
Site:  
P O #

Project Manager: Ryan Van Dette  
Tel/Fax: \_\_\_\_\_  
Analysis Turnaround Time  
WORKING DAYS  
CALENDAR DAYS  
TAT if different from Below  
2 weeks  
1 week  
2 days  
1 day

Site Contact: Nathaniel Beineman  
Date: 7/24/17  
Carrier: \_\_\_\_\_  
COC No: 1 of 1 COCs

Lab Contact: \_\_\_\_\_  
Sampler: \_\_\_\_\_  
For Lab Use Only:  
Walk-in Client:  
Lab Sampling:  
Job / SDG No.:

Sample Identification

Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.
7/24/17	9:30	Grab	Water	7
	11:15	Grab	Water	7
	11:10	Grab	Water	7
	11:55	Grab	Water	7
	12:30	Grab	Water	7
	13:05	Grab	Water	7
	9:45	Grab	Water	7
	11:50	Grab	Water	7
	-	Grab	Water	7
	13:25	Grab	Water	7
	13:30	Grab	Water	7

Sample Identification	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Metals (totals)* + Mercury	Chloride	Fluoride	Sulfate	TDS	pH	Radium 226 & 228 combined
MW-1RD			X	X	X	X	X	X	X
MW-2R			X	X	X	X	X	X	X
MW-2RD			X	X	X	X	X	X	X
MW-3R			X	X	X	X	X	X	X
MW-3RD			X	X	X	X	X	X	X
MW-4			X	X	X	X	X	X	X
MW-1			X	X	X	X	X	X	X
MW-3			X	X	X	X	X	X	X
Duplicate - 1			X	X	X	X	X	X	X
Field Blank			X	X	X	X	X	X	X
Equipment Blank			X	X	X	X	X	X	X

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH; 6= Other

Possible Hazard Identification: Please List any EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown

\*Metals - Boron, Calcium, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium

Return to Client  Archive for \_\_\_\_\_ Months

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Received by: \_\_\_\_\_  
Date/Time: 7/25/17 7:40  
Company: \_\_\_\_\_

Received by: \_\_\_\_\_  
Date/Time: \_\_\_\_\_  
Company: \_\_\_\_\_

Received in Laboratory by: \_\_\_\_\_  
Date/Time: \_\_\_\_\_  
Company: \_\_\_\_\_

Custody Seal No.: \_\_\_\_\_  
Company: \_\_\_\_\_  
Date/Time: \_\_\_\_\_

Cooler Temp. (°C): \_\_\_\_\_  
Obs'd: \_\_\_\_\_  
Corr'd: \_\_\_\_\_  
Company: \_\_\_\_\_

Therm ID No.: \_\_\_\_\_  
Date/Time: \_\_\_\_\_  
Company: \_\_\_\_\_

Relinquished by: \_\_\_\_\_  
Date/Time: \_\_\_\_\_  
Company: \_\_\_\_\_

Relinquished by: \_\_\_\_\_  
Date/Time: \_\_\_\_\_  
Company: \_\_\_\_\_



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing  
 Project Number: 3501771  
 Sampling Device: Dejicorles Bladder Pump  
 Date: 8/17/17  
 Well ID: WW-1

Tubing Diameter (ID): 2 inches  
 Depth to Water: 3.68 ft, TOC  
 Depth to Bottom of Well: 25.6 ft, TOC  
 Feet of Water in Well: 21.92 ft  
 Volume of Water in Well: 3.57 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°F) °C	Purge Rate (L/min)
1	3.68	7.43	824	16.70	1
5	3.69	6.95	808	14.36	1
10	3.70	7.00	810	15.73	1
15	3.70	7.00	816	12.71	1

Purge Start Time: 8:40 Purge End Time: 9:25 Total Volume Purged: 40 gal  
 Approximate Purge Rate: 1 L/min Purged/Sampled by: M. Schlegel  
 Weather Conditions: 66 °F, cloudy, 5-10 mph NW

Comments: \_\_\_\_\_



# WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing  
 Project Number: 380177  
 Sampling Device: Reid-Lyle Bladder Pump  
 Date: 8/17/17  
 Well ID: MW-1RD

Tubing Diameter (ID): 2 inches  
 Depth to Water: 26.43 ft, TOC  
 Depth to Bottom of Well: 75.5 ft, TOC  
 Feet of Water in Well: 49.07 ft  
 Volume of Water in Well: 8.00 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°F/°C)	Purge Rate (L/min)
1	26.43	7.57	583	9.49	1
5	26.44	7.50	583	9.54	1
10	26.43	7.49	583	9.51	1
15	26.45	7.47	583	9.52	1
20		7.47	583	9.52	1

Purge Start Time: 8:10 Purge End Time: 8:30 Total Volume Purged: 8.0 gal  
 Approximate Purge Rate: 1L/min. Purged/Sampled by: M. Schlegel  
 Weather Conditions: 66°F, cloudy, 5-10 mph NW  
 Comments: \_\_\_\_\_



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SK-B Lansing  
 Project Number: 3501771  
 Sampling Device: ventilated bladder pump  
 Date: 8/17/17  
 Well ID: MW-2R

Tubing Diameter (ID): 2 inches  
 Depth to Water: 8.20 ft, TOC  
 Depth to Bottom of Well: 18.35 ft, TOC  
 Feet of Water in Well: 10.15 ft  
 Volume of Water in Well: 1.68 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°F) °C	Purge Rate (L/min)
1	8.20	6.77	1,210	13.30	1
5	10.75	6.77	1,210	13.02	1
10	12.46	6.77	1,210	13.07	1
15	16.35	6.77	1,210	12.89	1

Purge Start Time: 9:20 Purge End Time: 9:35 Total Volume Purged: 2.0 gal  
 Approximate Purge Rate: 1 L/min Purged/Sampled by: M. Schlegel  
 Weather Conditions: 64°F, drizzle, 10-15 mph W  
 Comments: slow recharge



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing  
 Project Number: 3501771  
 Sampling Device: Dedicated Bladder Pump  
 Date: 8/17/17  
 Well ID: MW-ZRD

Tubing Diameter (ID): 2 inches  
 Depth to Water: 8.64 ft, TOC  
 Depth to Bottom of Well: 35.0 ft, TOC  
 Feet of Water in Well: 26.36 ft  
 Volume of Water in Well: 4.3 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°C)	Purge Rate (L/min)
1	8.64	7.13	898	10.94	1
3	8.65	7.12	894	10.74	1
6	8.66	7.13	902	10.87	1
9	8.66	7.12	901	10.58	1

Purge Start Time: 9:20     Purge End Time: 9:30     Total Volume Purged: 5.0 gal  
 Approximate Purge Rate: 1 L/min     Purged/Sampled by: N. Schlegel  
 Weather Conditions: 84°F, clear, 10-15 mph W  
 Comments: \_\_\_\_\_





**WELL PURGING RECORD  
LOW-FLOW SAMPLING METHOD**

Site: SKB Leasing  
 Project Number: 350771  
 Sampling Device: Dedicated bladder pump  
 Date: 8/17/17  
 Well ID: MW-3

Tubing Diameter (ID): 2 inches  
 Depth to Water: 7.10 ft, TOC  
 Depth to Bottom of Well: 18.9 ft, TOC  
 Feet of Water in Well: 12.8 ft  
 Volume of Water in Well: 2.09 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (micro / cm)	Temperature (°X) °C	Purge Rate (L/min)
1	7.10	6.77	1,250	12.24	1
3	7.11	6.78	1,260	12.24	1
6	7.12	6.78	1,260	12.24	1
9	7.12	6.77	1,260	12.24	1
1	7.10	6.79	1,250	12.24	1
3	7.11	6.79	1,250	12.24	1
6	7.12	6.79	1,250	12.24	1
9	7.12	6.79	1,250	12.24	1

Purge Start Time: 10:15 Purge End Time: 10:28 Total Volume Purged: 2.5 gal  
 Approximate Purge Rate: 1 L/min. Purged/Sampled by: M. Schlegel  
 Weather Conditions: 64°F, Breeze, 15-30 mph W  
 Comments: \_\_\_\_\_



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SRB Landfill  
 Project Number: 3501771  
 Sampling Device: Dedicated Bladder Pump  
 Date: 8/17/17  
 Well ID: MW-3R

Tubing Diameter (ID): 2 inches  
 Depth to Water: ~~7.0~~ 7.03 ft, TOC  
 Depth to Bottom of Well: 27.5 ft, TOC  
 Feet of Water in Well: 20.47 ft  
 Volume of Water in Well: 3.34 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°F) °C	Purge Rate (L/min)
1	7.88	6.77	1250	16.01	1
2	7.04	6.76	1260	9.95	1
4	7.05	6.76	1260	9.93	1
5	7.05	6.77	1260	9.99	1

Purge Start Time: 10:15      Purge End Time: 10:20      Total Volume Purged: 5.0 gal  
 Approximate Purge Rate: 1 L/min      Purged/Sampled by: M. Schlegel  
 Weather Conditions: 64°F, drizzle, 15-20 mph W  
 Comments: \_\_\_\_\_  
 \_\_\_\_\_





**WELL PURGING RECORD  
LOW-FLOW SAMPLING METHOD**

Site: SKB Lansing  
 Project Number: 3501771  
 Sampling Device: Dedicated Borehole Pump  
 Date: 8/17/17  
 Well ID: MW-4

Tubing Diameter (ID): 2 inches  
 Depth to Water: 4.50 ft, TOC  
 Depth to Bottom of Well: 18.3 ft, TOC  
 Feet of Water in Well: 13.8 ft  
 Volume of Water in Well: 2.25 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°F) °C	Purge Rate (L/min)
1	4.50	6.99	1,480	12.54	1
5	4.51	6.83	1,480	12.53	1
10	4.52	6.80	1,480	12.54	1
15	4.52	6.79	1,480	12.55	1

Purge Start Time: 11:30 Purge End Time: 11:45 Total Volume Purged: 2.5 gal  
 Approximate Purge Rate: 1L/min Purged/Sampled by: M. Schlegel  
 Weather Conditions: 64°F, breeze, 20-25 mph W  
 Comments: \_\_\_\_\_

Amherst, NY 14228-2223  
phone 716.691.2600 fax 716.691.7991

Regulatory Program:  DW  NPDES  RCRA  Other:

<b>Client Contact</b>		<b>Project Manager: Ryan Van Dette</b>		<b>Site Contact: Nathaniel Beineman</b>		<b>COC No.:</b>	
SKB Environmental		Tel/Fax:		Date: <u>8/17/17</u>		of / COCs	
13425 Courthouse Blvd		Analysis Turnaround Time		Carrier:		Sampler:	
Rosemount, MN 55068		CALENDAR DAYS WORKING DAYS				For Lab Use Only:	
(651) 438-1500 Phone		TAT if different from Below				Walk-in Client:	
(651) 438-1518 FAX		2 weeks				Lab Sampling:	
Project Name: Lansing 2017 CCR GW Event 7		1 week				Job / SDG No.:	
Site:		2 days					
P O # 3064-17-00369		1 day					

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Lab Contact:							Sample Specific Notes:
						Filtered Sample (Y/N)	Metals (totals)* + Mercury	Chloride	Fluoride	Sulfate	TDS	pH	
MW-1RD	8/17/17	8:30	Grab	Water	7	X	X	X	X	X	X	X	
MW-2R		9:35	Grab	Water	7	X	X	X	X	X	X	X	
MW-2RD		9:30	Grab	Water	7	X	X	X	X	X	X	X	
MW-3R		10:20	Grab	Water	7	X	X	X	X	X	X	X	
MW-3RD		10:55	Grab	Water	7	X	X	X	X	X	X	X	
MW-4		11:45	Grab	Water	7	X	X	X	X	X	X	X	
MW-1		8:25	Grab	Water	7	X	X	X	X	X	X	X	
MW-3		10:25	Grab	Water	7	X	X	X	X	X	X	X	
Duplicate - 1			Grab	Water	7	X	X	X	X	X	X	X	
Field Blank		12:00	Grab	Water	7	X	X	X	X	X	X	X	
Equipment Blank		12:05	Grab	Water	7	X	X	X	X	X	X	X	

**Preservation Used:** 1= Ice, 2= HCl; 3= H2SO4, 4= HNO3, 5= NaOH; 6= Other

**Possible Hazard Identification:** Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard  Flammable  Skin Irritant  Polson B  Unknown

\*Metals - Boron, Calcium, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium

Return to Client  Disposal by Lab  Archive for \_\_\_\_\_ Months

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Custody Seals Intact: Yes <input type="checkbox"/> No <input type="checkbox"/>	Custody Seal No.:	Cooler Temp. (°C):	Obs'd:	Therm ID No.:
Relinquished by: <i>[Signature]</i>	Company: <i>GES</i>	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Received in Laboratory by:	Company:	Date/Time:



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing  
 Project Number: 350771  
 Sampling Device: Technical D Bladder Pump  
 Date: 9/7/17  
 Well ID: MW-1

Tubing Diameter (ID): 2 inches  
 Depth to Water: 5.95 ft, TOC  
 Depth to Bottom of Well: 25.6 ft, TOC  
 Feet of Water in Well: 14.65 ft  
 Volume of Water in Well: 3.24 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmho/cm)	Temperature (°F) °C	Purge Rate (L/min)
1	5.95	6.70	645	12.09	
5	5.98	6.77	645	12.15	
10	5.97	6.77	696	12.19	
15	5.98	6.77	696	12.22	

Purge Start Time: 8:00 Purge End Time: 8:15 Total Volume Purged: 3.5 gal

Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlegel

Weather Conditions: 43°F, partly cloudy, 5-10 mph W

Comments: \_\_\_\_\_  
 \_\_\_\_\_



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing  
 Project Number: 3501771  
 Sampling Device: Dechlorinated Bubble Pump  
 Date: 9/7/17  
 Well ID: MW-12D

Tubing Diameter (ID): 2 inches  
 Depth to Water: 26.97 ft, TOC  
 Depth to Bottom of Well: 75.5 ft, TOC  
 Feet of Water in Well: 48.53 ft  
 Volume of Water in Well: 7.91 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos/cm)	Temperature (°C)	Purge Rate (L/min)
1	26.97	7.66	567	10.25	1
5	26.98	7.23	584	9.28	1
10	26.99	7.21	585	9.25	1
15	27.00	7.17	586	9.22	1
20	27.00	7.16	586	9.22	1

Purge Start Time: 8:00      Purge End Time: 8:20      Total Volume Purged: 8.0 gal  
 Approximate Purge Rate: 1 L/min      Purged/Sampled by: M. Schlotter  
 Weather Conditions: 43 °F, partly cloudy, 5-10 mph W  
 Comments: \_\_\_\_\_



WELL PURGING RECORD  
LOW-FLOW SAMPLING METHOD

Site: SK-B Lansing  
Project Number: 3501771  
Sampling Device: Perforated Bladder Pump  
Date: 9/7/17  
Well ID: MW-2R

Tubing Diameter (ID): 2 inches  
Depth to Water: 9.96 ft, TOC  
Depth to Bottom of Well: 18.35 ft, TOC  
Feet of Water in Well: 8.39 ft  
Volume of Water in Well: 1.37 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance ( $\mu\text{mhos/cm}$ )	Temperature ( $^{\circ}\text{F}$ ) $^{\circ}\text{C}$	Purge Rate (L/min)
1	9.96	6.93	1,220	12.93	1
5	12.97	6.43	1,260	13.24	1
10	14.68	6.43	1,260	13.26	1
15	16.27	6.43	1,260	13.27	1

Purge Start Time: 8:50 Purge End Time: 9:05 Total Volume Purged: 1.25 gal  
Approximate Purge Rate: 1 L/min. Purged/Sampled by: M. Schlegel  
Weather Conditions: 46<sup>o</sup>F, partly cloudy, 5-10 mph W  
Comments: slow recharge





## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing  
Project Number: 350771  
Sampling Device: Respirated Bladder Pump  
Date: 9/7/17  
Well ID: MW-ZRD

Tubing Diameter (ID): 2 inches  
Depth to Water: 9.19 ft, TOC  
Depth to Bottom of Well: 35.0 ft, TOC  
Feet of Water in Well: 25.81 ft  
Volume of Water in Well: 4.21 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance ( $\mu\text{mhos/cm}$ )	Temperature ( $^{\circ}\text{F}$ / $^{\circ}\text{C}$ )	Purge Rate (L/min)
1	9.19	6.84	895	10.41	1
3	9.20	6.85	896	10.36	1
6	9.21	6.85	895	10.36	1
10	9.22	6.85	895	10.35	1

Purge Start Time: 8:50 Purge End Time: 9:00 Total Volume Purged: 5.0 gal  
Approximate Purge Rate: 1 L/min Purged/Sampled by: M. Schlegel  
Weather Conditions: 46<sup>o</sup>F, partly cloudy, 5-10 mph W  
Comments: \_\_\_\_\_



**WELL PURGING RECORD  
LOW-FLOW SAMPLING METHOD**

Site: SKB Lansing  
 Project Number: 3501771  
 Sampling Device: Dedicated Bladder Pump  
 Date: 9/7/17  
 Well ID: MW-3

Tubing Diameter (ID): 2 inches  
 Depth to Water: 9.04 ft, TOC  
 Depth to Bottom of Well: 19.7 ft, TOC  
 Feet of Water in Well: 10.66 ft  
 Volume of Water in Well: 1.74 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (microhm/cm)	Temperature (°F) °C	Purge Rate (L/min)
1	9.04	6.48	1,360	11.13	1
3	9.05	6.48	1,310	11.59	1
6	9.06	6.48	1,320	11.60	1
10	9.07	6.47	1,320	11.62	1

Purge Start Time: 9:35      Purge End Time: 9:45      Total Volume Purged: 2.0 gal

Approximate Purge Rate: 1 L/min.      Purged/Sampled by: N. Schlegel

Weather Conditions: 45° F, partly cloudy, 0-5 mph W

Comments: \_\_\_\_\_



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SK-B Lansing  
 Project Number: 3501771  
 Sampling Device: Dechlorinated Plastic Riser Pump  
 Date: 9/7/17  
 Well ID: MW-3R

Tubing Diameter (ID): 2 inches  
 Depth to Water: 9.03 ft, TOC  
 Depth to Bottom of Well: 27.5 ft, TOC  
 Feet of Water in Well: 18.47 ft  
 Volume of Water in Well: 3.01 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (Micros/cm)	Temperature (°F) °C	Purge Rate (L/min)
1	9.03	6.42	1,300	10.45	
2	9.04	6.44	1,300	10.45	
4	9.05	6.44	1,300	10.45	
5	9.06	6.44	1,300	10.44	

Purge Start Time: 9:35 Purge End Time: 9:40 Total Volume Purged: 5.0 gal

Approximate Purge Rate: 1 L/min. Purged/Sampled by: M. Schlegel

Weather Conditions: 45°f, partly cloudy, 0 - 5 mph w

Comments: \_\_\_\_\_



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing  
 Project Number: 3501771  
 Sampling Device: Dedicated Blockwell Pump  
 Date: 9/7/17  
 Well ID: MW-3RD

Tubing Diameter (ID): 2 inches  
 Depth to Water: 8.76 ~~29.64~~ ft, TOC  
 Depth to Bottom of Well: 39.04 ft, TOC  
 Feet of Water in Well: 30.28 ft  
 Volume of Water in Well: 4.94 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance ( $\mu\text{mhos}/\text{cm}$ )	Temperature ( $^{\circ}\text{F}$ ) $^{\circ}\text{C}$	Purge Rate (L/min)
1	8.76	6.84	921	9.89	1
5	8.77	6.89	921	9.90	1
10	8.77	6.96	924	9.70	1
15	8.77	6.96	924	9.77	1

Purge Start Time: 9:55 Purge End Time: 10:10 Total Volume Purged: 5.0 gal

Approximate Purge Rate: 1 L/min Purged/Sampled by: M. Schlegel

Weather Conditions: 48°F, partly cloudy, 5-10 mph W

Comments: Duplicate 1 collected



## WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

Site: SKB Lansing  
 Project Number: 3301771  
 Sampling Device: De Nora Red Blender Pump  
 Date: 9/2/10  
 Well ID: MW-4

Tubing Diameter (ID): 2 inches  
 Depth to Water: 4.42 ft, TOC  
 Depth to Bottom of Well: 18.3 ft, TOC  
 Feet of Water in Well: 13.88 ft  
 Volume of Water in Well: 2.26 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (uMho/cm)	Temperature (°F) °C	Purge Rate (L/min)
1	4.42	6.76	1,450	72.55	1
5	4.43	6.85	1,470	72.06	1
10	4.44	6.84	1,470	72.26	1
15	4.44	6.84	1,470	72.46	1

Purge Start Time: 10:45 Purge End Time: 11:00 Total Volume Purged: 2.5 gal  
 Approximate Purge Rate: 1 L/min Purged/Sampled by: K. Schlegel  
 Weather Conditions: 55°F, partly cloudy, 5-10 mph W  
 Comments: \_\_\_\_\_

Regulatory Program:  DW  NPDES  RCRA  Other: \_\_\_\_\_

**Client Contact**  
SKB Environmental  
13425 Courthouse Blvd  
Rosemount, MN 55068  
(651) 438-1500 Phone  
(651) 438-1518 FAX  
Project Name: Lansing 2017 CCR GW Event 8  
Site:  
P O # 3064-17-00402

**Project Manager:** Ryan Van Dette  
**Tel/Fax:**

**Site Contact:** Nathaniel Beineman  
**Date:** 9/17/17  
**Carrier:**

**Lab Contact:**

**COC No.:** \_\_\_\_\_ of \_\_\_\_\_ COCs

**Sampler:** \_\_\_\_\_  
**For Lab Use Only:** \_\_\_\_\_  
**Walk-in Client:** \_\_\_\_\_  
**Lab Sampling:** \_\_\_\_\_  
**Job / SDG No.:** \_\_\_\_\_

**Analysis Turnaround Time**  
 CALENDAR DAYS  WORKING DAYS  
TAT if different from Below \_\_\_\_\_  
 2 weeks  
 1 week  
 2 days  
 1 day

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Performs MS / MSD (Y/N)	Metals (totals)* + Mercury	Chloride	Sulfate	TDS	pH	Radium 226 & 228 combined	Sample Specific Notes:
MW-1RD	9/17/17	8:20	Grab	Water	7			X	X	X	X	X	X	
MW-2R		9:05	Grab	Water	7			X	X	X	X	X	X	
MW-2RD		9:40	Grab	Water	7			X	X	X	X	X	X	
MW-3R		9:40	Grab	Water	7			X	X	X	X	X	X	
MW-3RD		10:10	Grab	Water	7			X	X	X	X	X	X	
MW-4		11:00	Grab	Water	7			X	X	X	X	X	X	
MW-1		8:15	Grab	Water	7			X	X	X	X	X	X	
MW-3		9:45	Grab	Water	7			X	X	X	X	X	X	
Duplicate - 1			Grab	Water	7			X	X	X	X	X	X	
Field Blank		11:10	Grab	Water	7			X	X	X	X	X	X	
Equipment Blank		11:15	Grab	Water	7			X	X	X	X	X	X	

**Preservation Used:** 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other \_\_\_\_\_

**Possible Hazard Identification:** Please List any EPA Waste Codes for the sample in the Are any samples from a listed EPA Hazardous Waste? \_\_\_\_\_  
Comments Section if the lab is to dispose of the sample.

Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown

Return to Client  Disposal by Lab  Archive for \_\_\_\_\_ Months

**Custody Seal No.:** \_\_\_\_\_  
Company: *SKB* Date/Time: 9/17/17 15:00  
Received by: \_\_\_\_\_  
Company: \_\_\_\_\_  
Received in Laboratory by: \_\_\_\_\_

**Therm ID No.:** \_\_\_\_\_  
Date/Time: \_\_\_\_\_  
Company: \_\_\_\_\_  
Date/Time: \_\_\_\_\_  
Company: \_\_\_\_\_  
Date/Time: \_\_\_\_\_

**Received by:** \_\_\_\_\_  
Company: \_\_\_\_\_  
Received in Laboratory by: \_\_\_\_\_



## Appendix B – Laboratory Analytical Reports

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# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-113911-1

Client Project/Site: SKB Lansing - CCR Groundwater

Sampling Event: CCR Groundwater

For:

Waste Connections, Inc.

13425 Courthouse Blvd

Rosemount, Minnesota 55068

Attn: Nathaniel Beinemann



Authorized for release by:

3/3/2017 2:39:53 PM

Denise Giglia, Project Management Assistant II

[denise.giglia@testamericainc.com](mailto:denise.giglia@testamericainc.com)

Designee for

Ryan VanDette, Project Manager II

(716)504-9830

[ryan.vandette@testamericainc.com](mailto:ryan.vandette@testamericainc.com)

### LINKS

Review your project  
results through

**TotalAccess**

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.

### General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

**Job ID: 480-113911-1**

**Laboratory: TestAmerica Buffalo**

## Narrative

### Job Narrative 480-113911-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 2/24/2017 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.8° C, 2.9° C and 3.1° C.

#### HPLC/IC

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Metals

Method(s) 6010C: The low level continuing calibration verification (CCVL 480-345528/22 and 480-345528/31) recovered above the upper control limit for Total Boron. The samples MW-1 (480-113911-7), DUP-1 (480-113911-9) and FIELD BLANK (480-113911-10) associated with this CCVL were either ND or less than the reporting limit (RL) for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCVL; therefore, re-analysis of samples was not performed.

Method(s) 6010C: The following sample was diluted due to the presence of Sulfur which interferes with Total Lead: MW-4 (480-113911-6). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### General Chemistry

Method(s) 9040C, SM 4500 H+ B: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: MW-1RD (480-113911-1), MW-2R (480-113911-2), MW-2RD (480-113911-3), MW-3R (480-113911-4), MW-3RD (480-113911-5), MW-4 (480-113911-6), MW-1 (480-113911-7), MW-3 (480-113911-8), DUP-1 (480-113911-9) and FIELD BLANK (480-113911-10).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

## Client Sample ID: MW-1RD

## Lab Sample ID: 480-113911-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.17		0.0020		mg/L	1		6010C	Total/NA
Calcium	71.8		0.50		mg/L	1		6010C	Total/NA
Cobalt	1.6		0.30		ug/L	1		6020A	Total/NA
Molybdenum	3.3		1.0		ug/L	1		6020A	Total/NA
Chloride	17.2		0.50		mg/L	1		300.0	Total/NA
Fluoride	0.23		0.050		mg/L	1		300.0	Total/NA
Sulfate	43.9		2.0		mg/L	1		300.0	Total/NA
Total Dissolved Solids	360		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.4	HF	0.1		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-2R

## Lab Sample ID: 480-113911-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.16		0.0020		mg/L	1		6010C	Total/NA
Boron	0.33		0.020		mg/L	1		6010C	Total/NA
Calcium	157		0.50		mg/L	1		6010C	Total/NA
Lead	0.015		0.010		mg/L	1		6010C	Total/NA
Cobalt	0.54		0.30		ug/L	1		6020A	Total/NA
Molybdenum	2.3		1.0		ug/L	1		6020A	Total/NA
Chloride	7.5		0.50		mg/L	1		300.0	Total/NA
Sulfate	17.4		2.0		mg/L	1		300.0	Total/NA
Total Dissolved Solids	765		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.0	HF	0.1		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-2RD

## Lab Sample ID: 480-113911-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.17		0.0020		mg/L	1		6010C	Total/NA
Boron	0.040		0.020		mg/L	1		6010C	Total/NA
Calcium	110		0.50		mg/L	1		6010C	Total/NA
Arsenic	2.0		1.0		ug/L	1		6020A	Total/NA
Cobalt	1.9		0.30		ug/L	1		6020A	Total/NA
Molybdenum	3.1		1.0		ug/L	1		6020A	Total/NA
Chloride	12.7		0.50		mg/L	1		300.0	Total/NA
Fluoride	0.091		0.050		mg/L	1		300.0	Total/NA
Sulfate	22.5		2.0		mg/L	1		300.0	Total/NA
Total Dissolved Solids	513		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.1	HF	0.1		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3R

## Lab Sample ID: 480-113911-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.58		0.0020		mg/L	1		6010C	Total/NA
Boron	0.042		0.020		mg/L	1		6010C	Total/NA
Calcium	203		0.50		mg/L	1		6010C	Total/NA
Lead	0.012		0.010		mg/L	1		6010C	Total/NA
Arsenic	3.4		1.0		ug/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Detection Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

## Client Sample ID: MW-3R (Continued)

## Lab Sample ID: 480-113911-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.55		0.30		ug/L	1		6020A	Total/NA
Molybdenum	2.2		1.0		ug/L	1		6020A	Total/NA
Chloride	3.9		0.50		mg/L	1		300.0	Total/NA
Sulfate	9.8		2.0		mg/L	1		300.0	Total/NA
Total Dissolved Solids	839		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.7	HF	0.1		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3RD

## Lab Sample ID: 480-113911-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.23		0.0020		mg/L	1		6010C	Total/NA
Boron	0.030		0.020		mg/L	1		6010C	Total/NA
Calcium	129		0.50		mg/L	1		6010C	Total/NA
Lead	0.017		0.010		mg/L	1		6010C	Total/NA
Arsenic	4.5		1.0		ug/L	1		6020A	Total/NA
Cobalt	0.91		0.30		ug/L	1		6020A	Total/NA
Molybdenum	4.2		1.0		ug/L	1		6020A	Total/NA
Chloride	15.5		0.50		mg/L	1		300.0	Total/NA
Fluoride	0.11		0.050		mg/L	1		300.0	Total/NA
Sulfate	49.9		2.0		mg/L	1		300.0	Total/NA
Total Dissolved Solids	573		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.1	HF	0.1		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-4

## Lab Sample ID: 480-113911-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.23		0.0020		mg/L	1		6010C	Total/NA
Boron	0.20		0.020		mg/L	1		6010C	Total/NA
Calcium	216		0.50		mg/L	1		6010C	Total/NA
Arsenic	1.6		1.0		ug/L	1		6020A	Total/NA
Cobalt	0.55		0.30		ug/L	1		6020A	Total/NA
Molybdenum	1.4		1.0		ug/L	1		6020A	Total/NA
Chloride	7.0		0.50		mg/L	1		300.0	Total/NA
Sulfate	59.3		2.0		mg/L	1		300.0	Total/NA
Total Dissolved Solids	1030		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.9	HF	0.1		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-1

## Lab Sample ID: 480-113911-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.063		0.0020		mg/L	1		6010C	Total/NA
Calcium	67.3		0.50		mg/L	1		6010C	Total/NA
Chloride	11.7		0.50		mg/L	1		300.0	Total/NA
Fluoride	0.15		0.050		mg/L	1		300.0	Total/NA
Sulfate	12.2		2.0		mg/L	1		300.0	Total/NA
Total Dissolved Solids	287		10.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Detection Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

## Client Sample ID: MW-1 (Continued)

Lab Sample ID: 480-113911-7

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.2	HF	0.1		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3

Lab Sample ID: 480-113911-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.21		0.0020		mg/L	1		6010C	Total/NA
Boron	0.24		0.020		mg/L	1		6010C	Total/NA
Calcium	166		0.50		mg/L	1		6010C	Total/NA
Arsenic	1.6		1.0		ug/L	1		6020A	Total/NA
Cobalt	5.0		0.30		ug/L	1		6020A	Total/NA
Molybdenum	5.6		1.0		ug/L	1		6020A	Total/NA
Chloride	3.4		0.50		mg/L	1		300.0	Total/NA
Sulfate	6.1		2.0		mg/L	1		300.0	Total/NA
Total Dissolved Solids	682		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.8	HF	0.1		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: DUP-1

Lab Sample ID: 480-113911-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.063		0.0020		mg/L	1		6010C	Total/NA
Calcium	66.6		0.50		mg/L	1		6010C	Total/NA
Chloride	11.6		0.50		mg/L	1		300.0	Total/NA
Fluoride	0.16		0.050		mg/L	1		300.0	Total/NA
Sulfate	11.9		2.0		mg/L	1		300.0	Total/NA
Total Dissolved Solids	286		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.2	HF	0.1		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: FIELD BLANK

Lab Sample ID: 480-113911-10

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	5.9	HF	0.1		SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-113911-1**

**Date Collected: 02/23/17 11:25**

**Matrix: Water**

**Date Received: 02/24/17 09:30**

**Method: 6010C - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Barium</b>	<b>0.17</b>		0.0020		mg/L		02/27/17 09:40	02/28/17 00:00	1
Boron	ND		0.020		mg/L		02/27/17 09:40	02/28/17 12:21	1
<b>Calcium</b>	<b>71.8</b>		0.50		mg/L		02/27/17 09:40	02/28/17 00:00	1
Chromium	ND		0.0040		mg/L		02/27/17 09:40	02/28/17 00:00	1
Lead	ND		0.010		mg/L		02/27/17 09:40	02/28/17 00:00	1
Lithium	ND		0.030		mg/L		02/27/17 09:40	02/28/17 00:00	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		02/27/17 10:18	02/27/17 17:08	1
Arsenic	ND		1.0		ug/L		02/27/17 10:18	02/27/17 17:08	1
Beryllium	ND		0.70		ug/L		02/27/17 10:18	02/27/17 17:08	1
Cadmium	ND		0.50		ug/L		02/27/17 10:18	02/27/17 17:08	1
<b>Cobalt</b>	<b>1.6</b>		0.30		ug/L		02/27/17 10:18	02/27/17 17:08	1
<b>Molybdenum</b>	<b>3.3</b>		1.0		ug/L		02/27/17 10:18	02/27/17 17:08	1
Selenium	ND		1.0		ug/L		02/27/17 10:18	02/27/17 17:08	1
Thallium	ND		0.20		ug/L		02/27/17 10:18	02/27/17 17:08	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		02/27/17 10:00	02/27/17 13:57	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>17.2</b>		0.50		mg/L			03/01/17 18:51	1
<b>Fluoride</b>	<b>0.23</b>		0.050		mg/L			03/01/17 18:51	1
<b>Sulfate</b>	<b>43.9</b>		2.0		mg/L			03/01/17 18:51	1
<b>Total Dissolved Solids</b>	<b>360</b>		10.0		mg/L			02/28/17 09:15	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>pH</b>	<b>7.4</b>	<b>HF</b>	0.1		SU			02/26/17 12:15	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

**Client Sample ID: MW-2R**

**Date Collected: 02/23/17 10:40**

**Date Received: 02/24/17 09:30**

**Lab Sample ID: 480-113911-2**

**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.16		0.0020		mg/L		02/27/17 09:40	02/28/17 00:03	1
Boron	0.33		0.020		mg/L		02/27/17 09:40	03/02/17 10:12	1
Calcium	157		0.50		mg/L		02/27/17 09:40	02/28/17 00:03	1
Chromium	ND		0.0040		mg/L		02/27/17 09:40	02/28/17 00:03	1
Lead	0.015		0.010		mg/L		02/27/17 09:40	02/28/17 00:03	1
Lithium	ND		0.030		mg/L		02/27/17 09:40	02/28/17 00:03	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		02/27/17 10:18	02/27/17 17:14	1
Arsenic	ND		1.0		ug/L		02/27/17 10:18	02/27/17 17:14	1
Beryllium	ND		0.70		ug/L		02/27/17 10:18	02/27/17 17:14	1
Cadmium	ND		0.50		ug/L		02/27/17 10:18	02/27/17 17:14	1
Cobalt	0.54		0.30		ug/L		02/27/17 10:18	02/27/17 17:14	1
Molybdenum	2.3		1.0		ug/L		02/27/17 10:18	02/27/17 17:14	1
Selenium	ND		1.0		ug/L		02/27/17 10:18	02/27/17 17:14	1
Thallium	ND		0.20		ug/L		02/27/17 10:18	02/27/17 17:14	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		02/27/17 10:00	02/27/17 13:58	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.5		0.50		mg/L			03/01/17 18:59	1
Fluoride	ND		0.050		mg/L			03/01/17 18:59	1
Sulfate	17.4		2.0		mg/L			03/01/17 18:59	1
Total Dissolved Solids	765		10.0		mg/L			02/28/17 09:15	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.0	HF	0.1		SU			02/26/17 12:17	1



# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-113911-3**

**Date Collected: 02/23/17 10:10**

**Matrix: Water**

**Date Received: 02/24/17 09:30**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.17		0.0020		mg/L		02/27/17 09:40	02/28/17 00:17	1
Boron	0.040		0.020		mg/L		02/27/17 09:40	02/28/17 12:25	1
Calcium	110		0.50		mg/L		02/27/17 09:40	02/28/17 00:17	1
Chromium	ND		0.0040		mg/L		02/27/17 09:40	02/28/17 00:17	1
Lead	ND		0.010		mg/L		02/27/17 09:40	02/28/17 00:17	1
Lithium	ND		0.030		mg/L		02/27/17 09:40	02/28/17 00:17	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		02/27/17 10:18	02/27/17 17:21	1
Arsenic	2.0		1.0		ug/L		02/27/17 10:18	02/27/17 17:21	1
Beryllium	ND		0.70		ug/L		02/27/17 10:18	02/27/17 17:21	1
Cadmium	ND		0.50		ug/L		02/27/17 10:18	02/27/17 17:21	1
Cobalt	1.9		0.30		ug/L		02/27/17 10:18	02/27/17 17:21	1
Molybdenum	3.1		1.0		ug/L		02/27/17 10:18	02/27/17 17:21	1
Selenium	ND		1.0		ug/L		02/27/17 10:18	02/27/17 17:21	1
Thallium	ND		0.20		ug/L		02/27/17 10:18	02/27/17 17:21	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		02/27/17 10:00	02/27/17 14:00	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12.7		0.50		mg/L			03/01/17 19:07	1
Fluoride	0.091		0.050		mg/L			03/01/17 19:07	1
Sulfate	22.5		2.0		mg/L			03/01/17 19:07	1
Total Dissolved Solids	513		10.0		mg/L			02/28/17 09:15	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.1	HF	0.1		SU			02/26/17 12:20	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

**Client Sample ID: MW-3R**

**Date Collected: 02/23/17 09:10**

**Date Received: 02/24/17 09:30**

**Lab Sample ID: 480-113911-4**

**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.58		0.0020		mg/L		02/27/17 09:40	02/28/17 00:21	1
Boron	0.042		0.020		mg/L		02/27/17 09:40	02/28/17 12:28	1
Calcium	203		0.50		mg/L		02/27/17 09:40	02/28/17 00:21	1
Chromium	ND		0.0040		mg/L		02/27/17 09:40	02/28/17 00:21	1
Lead	0.012		0.010		mg/L		02/27/17 09:40	02/28/17 00:21	1
Lithium	ND		0.030		mg/L		02/27/17 09:40	02/28/17 00:21	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		02/27/17 10:18	02/27/17 17:27	1
Arsenic	3.4		1.0		ug/L		02/27/17 10:18	02/27/17 17:27	1
Beryllium	ND		0.70		ug/L		02/27/17 10:18	02/27/17 17:27	1
Cadmium	ND		0.50		ug/L		02/27/17 10:18	02/27/17 17:27	1
Cobalt	0.55		0.30		ug/L		02/27/17 10:18	02/27/17 17:27	1
Molybdenum	2.2		1.0		ug/L		02/27/17 10:18	02/27/17 17:27	1
Selenium	ND		1.0		ug/L		02/27/17 10:18	02/27/17 17:27	1
Thallium	ND		0.20		ug/L		02/27/17 10:18	02/27/17 17:27	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		02/27/17 10:00	02/27/17 14:02	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.9		0.50		mg/L			03/01/17 20:04	1
Fluoride	ND		0.050		mg/L			03/01/17 20:04	1
Sulfate	9.8		2.0		mg/L			03/01/17 20:04	1
Total Dissolved Solids	839		10.0		mg/L			02/28/17 09:15	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.7	HF	0.1		SU			02/26/17 12:26	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-113911-5**

**Date Collected: 02/23/17 08:50**

**Matrix: Water**

**Date Received: 02/24/17 09:30**

**Method: 6010C - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.23		0.0020		mg/L		02/27/17 09:40	02/28/17 00:24	1
Boron	0.030		0.020		mg/L		02/27/17 09:40	02/28/17 12:32	1
Calcium	129		0.50		mg/L		02/27/17 09:40	02/28/17 00:24	1
Chromium	ND		0.0040		mg/L		02/27/17 09:40	02/28/17 00:24	1
Lead	0.017		0.010		mg/L		02/27/17 09:40	02/28/17 00:24	1
Lithium	ND		0.030		mg/L		02/27/17 09:40	02/28/17 00:24	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		02/27/17 10:18	02/27/17 17:34	1
Arsenic	4.5		1.0		ug/L		02/27/17 10:18	02/27/17 17:34	1
Beryllium	ND		0.70		ug/L		02/27/17 10:18	02/27/17 17:34	1
Cadmium	ND		0.50		ug/L		02/27/17 10:18	02/27/17 17:34	1
Cobalt	0.91		0.30		ug/L		02/27/17 10:18	02/27/17 17:34	1
Molybdenum	4.2		1.0		ug/L		02/27/17 10:18	02/27/17 17:34	1
Selenium	ND		1.0		ug/L		02/27/17 10:18	02/27/17 17:34	1
Thallium	ND		0.20		ug/L		02/27/17 10:18	02/27/17 17:34	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		02/27/17 10:00	02/27/17 14:03	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	15.5		0.50		mg/L			03/01/17 20:12	1
Fluoride	0.11		0.050		mg/L			03/01/17 20:12	1
Sulfate	49.9		2.0		mg/L			03/01/17 20:12	1
Total Dissolved Solids	573		10.0		mg/L			03/01/17 01:04	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.1	HF	0.1		SU			02/26/17 12:29	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

**Client Sample ID: MW-4**  
**Date Collected: 02/23/17 08:20**  
**Date Received: 02/24/17 09:30**

**Lab Sample ID: 480-113911-6**  
**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.23		0.0020		mg/L		02/27/17 09:40	02/28/17 00:28	1
Boron	0.20		0.020		mg/L		02/27/17 09:40	02/28/17 12:35	1
Calcium	216		0.50		mg/L		02/27/17 09:40	02/28/17 00:28	1
Chromium	ND		0.0040		mg/L		02/27/17 09:40	02/28/17 00:28	1
Lead	ND		0.020		mg/L		02/27/17 09:40	03/02/17 10:15	2
Lithium	ND		0.030		mg/L		02/27/17 09:40	02/28/17 00:28	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		02/27/17 10:18	02/27/17 17:40	1
Arsenic	1.6		1.0		ug/L		02/27/17 10:18	02/27/17 17:40	1
Beryllium	ND		0.70		ug/L		02/27/17 10:18	02/27/17 17:40	1
Cadmium	ND		0.50		ug/L		02/27/17 10:18	02/27/17 17:40	1
Cobalt	0.55		0.30		ug/L		02/27/17 10:18	02/27/17 17:40	1
Molybdenum	1.4		1.0		ug/L		02/27/17 10:18	02/27/17 17:40	1
Selenium	ND		1.0		ug/L		02/27/17 10:18	02/27/17 17:40	1
Thallium	ND		0.20		ug/L		02/27/17 10:18	02/27/17 17:40	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		02/27/17 10:00	02/27/17 14:05	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.0		0.50		mg/L			03/01/17 20:20	1
Fluoride	ND		0.050		mg/L			03/01/17 20:20	1
Sulfate	59.3		2.0		mg/L			03/01/17 20:20	1
Total Dissolved Solids	1030		10.0		mg/L			03/01/17 01:04	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1		SU			02/26/17 12:32	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

**Client Sample ID: MW-1**  
**Date Collected: 02/23/17 11:50**  
**Date Received: 02/24/17 09:30**

**Lab Sample ID: 480-113911-7**  
**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Barium</b>	<b>0.063</b>		0.0020		mg/L		02/27/17 09:40	02/28/17 00:31	1
Boron	ND	^	0.020		mg/L		02/27/17 09:40	02/28/17 00:31	1
<b>Calcium</b>	<b>67.3</b>		0.50		mg/L		02/27/17 09:40	02/28/17 00:31	1
Chromium	ND		0.0040		mg/L		02/27/17 09:40	02/28/17 00:31	1
Lead	ND		0.010		mg/L		02/27/17 09:40	02/28/17 00:31	1
Lithium	ND		0.030		mg/L		02/27/17 09:40	02/28/17 00:31	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		02/27/17 10:18	02/27/17 17:47	1
Arsenic	ND		1.0		ug/L		02/27/17 10:18	02/27/17 17:47	1
Beryllium	ND		0.70		ug/L		02/27/17 10:18	02/27/17 17:47	1
Cadmium	ND		0.50		ug/L		02/27/17 10:18	02/27/17 17:47	1
Cobalt	ND		0.30		ug/L		02/27/17 10:18	02/27/17 17:47	1
Molybdenum	ND		1.0		ug/L		02/27/17 10:18	02/27/17 17:47	1
Selenium	ND		1.0		ug/L		02/27/17 10:18	02/27/17 17:47	1
Thallium	ND		0.20		ug/L		02/27/17 10:18	02/27/17 17:47	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		02/27/17 10:00	02/27/17 14:07	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>11.7</b>		0.50		mg/L			03/01/17 20:28	1
<b>Fluoride</b>	<b>0.15</b>		0.050		mg/L			03/01/17 20:28	1
<b>Sulfate</b>	<b>12.2</b>		2.0		mg/L			03/01/17 20:28	1
<b>Total Dissolved Solids</b>	<b>287</b>		10.0		mg/L			03/01/17 01:04	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>pH</b>	<b>7.2</b>	<b>HF</b>	0.1		SU			02/26/17 12:34	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

**Client Sample ID: MW-3**  
**Date Collected: 02/23/17 09:35**  
**Date Received: 02/24/17 09:30**

**Lab Sample ID: 480-113911-8**  
**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.21		0.0020		mg/L		02/27/17 09:40	02/28/17 00:35	1
Boron	0.24		0.020		mg/L		02/27/17 09:40	02/28/17 12:39	1
Calcium	166		0.50		mg/L		02/27/17 09:40	02/28/17 00:35	1
Chromium	ND		0.0040		mg/L		02/27/17 09:40	02/28/17 00:35	1
Lead	ND		0.010		mg/L		02/27/17 09:40	02/28/17 00:35	1
Lithium	ND		0.030		mg/L		02/27/17 09:40	02/28/17 00:35	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		02/27/17 10:18	02/27/17 17:53	1
Arsenic	1.6		1.0		ug/L		02/27/17 10:18	02/27/17 17:53	1
Beryllium	ND		0.70		ug/L		02/27/17 10:18	02/27/17 17:53	1
Cadmium	ND		0.50		ug/L		02/27/17 10:18	02/27/17 17:53	1
Cobalt	5.0		0.30		ug/L		02/27/17 10:18	02/27/17 17:53	1
Molybdenum	5.6		1.0		ug/L		02/27/17 10:18	02/27/17 17:53	1
Selenium	ND		1.0		ug/L		02/27/17 10:18	02/27/17 17:53	1
Thallium	ND		0.20		ug/L		02/27/17 10:18	02/27/17 17:53	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		02/27/17 10:00	02/27/17 14:09	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.4		0.50		mg/L			03/01/17 20:37	1
Fluoride	ND		0.050		mg/L			03/01/17 20:37	1
Sulfate	6.1		2.0		mg/L			03/01/17 20:37	1
Total Dissolved Solids	682		10.0		mg/L			03/01/17 01:04	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.8	HF	0.1		SU			02/26/17 12:37	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

**Client Sample ID: DUP-1**

**Date Collected: 02/23/17 00:00**

**Date Received: 02/24/17 09:30**

**Lab Sample ID: 480-113911-9**

**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Barium</b>	<b>0.063</b>		0.0020		mg/L		02/27/17 09:40	02/28/17 00:38	1
Boron	ND	^	0.020		mg/L		02/27/17 09:40	02/28/17 00:38	1
<b>Calcium</b>	<b>66.6</b>		0.50		mg/L		02/27/17 09:40	02/28/17 00:38	1
Chromium	ND		0.0040		mg/L		02/27/17 09:40	02/28/17 00:38	1
Lead	ND		0.010		mg/L		02/27/17 09:40	02/28/17 00:38	1
Lithium	ND		0.030		mg/L		02/27/17 09:40	02/28/17 00:38	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		02/27/17 10:18	02/27/17 18:00	1
Arsenic	ND		1.0		ug/L		02/27/17 10:18	02/27/17 18:00	1
Beryllium	ND		0.70		ug/L		02/27/17 10:18	02/27/17 18:00	1
Cadmium	ND		0.50		ug/L		02/27/17 10:18	02/27/17 18:00	1
Cobalt	ND		0.30		ug/L		02/27/17 10:18	02/27/17 18:00	1
Molybdenum	ND		1.0		ug/L		02/27/17 10:18	02/27/17 18:00	1
Selenium	ND		1.0		ug/L		02/27/17 10:18	02/27/17 18:00	1
Thallium	ND		0.20		ug/L		02/27/17 10:18	02/27/17 18:00	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		02/27/17 10:00	02/27/17 14:10	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>11.6</b>		0.50		mg/L			03/01/17 20:45	1
<b>Fluoride</b>	<b>0.16</b>		0.050		mg/L			03/01/17 20:45	1
<b>Sulfate</b>	<b>11.9</b>		2.0		mg/L			03/01/17 20:45	1
<b>Total Dissolved Solids</b>	<b>286</b>		10.0		mg/L			03/01/17 01:04	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>pH</b>	<b>7.2</b>	<b>HF</b>	0.1		SU			02/26/17 12:40	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-113911-10**

**Date Collected: 02/23/17 12:00**

**Matrix: Water**

**Date Received: 02/24/17 09:30**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		02/27/17 09:40	02/28/17 00:42	1
Boron	ND	^	0.020		mg/L		02/27/17 09:40	02/28/17 00:42	1
Calcium	ND		0.50		mg/L		02/27/17 09:40	02/28/17 00:42	1
Chromium	ND		0.0040		mg/L		02/27/17 09:40	02/28/17 00:42	1
Lead	ND		0.010		mg/L		02/27/17 09:40	02/28/17 00:42	1
Lithium	ND		0.030		mg/L		02/27/17 09:40	02/28/17 00:42	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		02/27/17 10:18	02/27/17 18:24	1
Arsenic	ND		1.0		ug/L		02/27/17 10:18	02/27/17 18:24	1
Beryllium	ND		0.70		ug/L		02/27/17 10:18	02/27/17 18:24	1
Cadmium	ND		0.50		ug/L		02/27/17 10:18	02/27/17 18:24	1
Cobalt	ND		0.30		ug/L		02/27/17 10:18	02/27/17 18:24	1
Molybdenum	ND		1.0		ug/L		02/27/17 10:18	02/27/17 18:24	1
Selenium	ND		1.0		ug/L		02/27/17 10:18	02/27/17 18:24	1
Thallium	ND		0.20		ug/L		02/27/17 10:18	02/27/17 18:24	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		02/27/17 10:00	02/27/17 14:12	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			03/01/17 21:34	1
Fluoride	ND		0.050		mg/L			03/01/17 21:34	1
Sulfate	ND		2.0		mg/L			03/01/17 21:34	1
Total Dissolved Solids	ND		10.0		mg/L			03/01/17 01:04	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.9	HF	0.1		SU			02/26/17 12:43	1



# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 480-345381/1-A**  
**Matrix: Water**  
**Analysis Batch: 345528**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 345381**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		02/27/17 09:40	02/27/17 23:46	1
Calcium	ND		0.50		mg/L		02/27/17 09:40	02/27/17 23:46	1
Chromium	ND		0.0040		mg/L		02/27/17 09:40	02/27/17 23:46	1
Lead	ND		0.010		mg/L		02/27/17 09:40	02/27/17 23:46	1
Lithium	ND		0.030		mg/L		02/27/17 09:40	02/27/17 23:46	1

**Lab Sample ID: MB 480-345381/1-A**  
**Matrix: Water**  
**Analysis Batch: 345618**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 345381**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.020		mg/L		02/27/17 09:40	02/28/17 12:14	1

**Lab Sample ID: LCS 480-345381/2-A**  
**Matrix: Water**  
**Analysis Batch: 345528**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 345381**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	0.200	0.205		mg/L		102	80 - 120
Calcium	10.0	9.47		mg/L		95	80 - 120
Chromium	0.200	0.205		mg/L		103	80 - 120
Lead	0.200	0.204		mg/L		102	80 - 120

**Lab Sample ID: LCS 480-345381/2-A**  
**Matrix: Water**  
**Analysis Batch: 345618**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 345381**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.200	0.202		mg/L		101	80 - 120

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 480-345402/1-A**  
**Matrix: Water**  
**Analysis Batch: 345550**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 345402**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		02/27/17 10:18	02/27/17 15:35	1
Arsenic	ND		1.0		ug/L		02/27/17 10:18	02/27/17 15:35	1
Beryllium	ND		0.70		ug/L		02/27/17 10:18	02/27/17 15:35	1
Cadmium	ND		0.50		ug/L		02/27/17 10:18	02/27/17 15:35	1
Cobalt	ND		0.30		ug/L		02/27/17 10:18	02/27/17 15:35	1
Molybdenum	ND		1.0		ug/L		02/27/17 10:18	02/27/17 15:35	1
Selenium	ND		1.0		ug/L		02/27/17 10:18	02/27/17 15:35	1
Thallium	ND		0.20		ug/L		02/27/17 10:18	02/27/17 15:35	1

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# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: LCS 480-345402/2-A**  
**Matrix: Water**  
**Analysis Batch: 345550**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 345402**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Antimony	20.0	21.02		ug/L		105	80 - 120
Arsenic	20.0	21.68		ug/L		108	80 - 120
Beryllium	20.0	21.94		ug/L		110	80 - 120
Cadmium	20.0	21.16		ug/L		106	80 - 120
Cobalt	20.0	21.97		ug/L		110	80 - 120
Molybdenum	20.0	21.33		ug/L		107	80 - 120
Selenium	20.0	21.46		ug/L		107	80 - 120
Thallium	20.0	21.77		ug/L		109	80 - 120

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: MB 480-345393/1-A**  
**Matrix: Water**  
**Analysis Batch: 345441**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 345393**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		02/27/17 10:00	02/27/17 13:40	1

**Lab Sample ID: LCS 480-345393/2-A**  
**Matrix: Water**  
**Analysis Batch: 345441**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 345393**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	6.67	7.20		ug/L		108	80 - 120

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 480-345801/30**  
**Matrix: Water**  
**Analysis Batch: 345801**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			03/01/17 19:56	1
Fluoride	ND		0.050		mg/L			03/01/17 19:56	1
Sulfate	ND		2.0		mg/L			03/01/17 19:56	1

**Lab Sample ID: MB 480-345801/4**  
**Matrix: Water**  
**Analysis Batch: 345801**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			03/01/17 16:24	1
Fluoride	ND		0.050		mg/L			03/01/17 16:24	1
Sulfate	ND		2.0		mg/L			03/01/17 16:24	1

TestAmerica Buffalo

# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCS 480-345801/29**  
**Matrix: Water**  
**Analysis Batch: 345801**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	50.65		mg/L		101	90 - 110
Fluoride	5.00	4.85		mg/L		97	90 - 110
Sulfate	50.0	49.09		mg/L		98	90 - 110

**Lab Sample ID: LCS 480-345801/3**  
**Matrix: Water**  
**Analysis Batch: 345801**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	50.27		mg/L		101	90 - 110
Fluoride	5.00	4.85		mg/L		97	90 - 110
Sulfate	50.0	49.16		mg/L		98	90 - 110

**Lab Sample ID: 480-113911-3 MS**  
**Matrix: Water**  
**Analysis Batch: 345801**

**Client Sample ID: MW-2RD**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	12.7		50.0	62.43		mg/L		99	81 - 120
Fluoride	0.091		5.00	4.88		mg/L		96	82 - 120
Sulfate	22.5		50.0	70.30		mg/L		96	80 - 120

**Lab Sample ID: 480-113911-9 MS**  
**Matrix: Water**  
**Analysis Batch: 345801**

**Client Sample ID: DUP-1**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	11.6		50.0	60.11		mg/L		97	81 - 120
Fluoride	0.16		5.00	4.84		mg/L		94	82 - 120
Sulfate	11.9		50.0	59.17		mg/L		95	80 - 120

**Lab Sample ID: 480-113911-9 MSD**  
**Matrix: Water**  
**Analysis Batch: 345801**

**Client Sample ID: DUP-1**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	11.6		50.0	59.91		mg/L		97	81 - 120	0	20
Fluoride	0.16		5.00	4.84		mg/L		94	82 - 120	0	20
Sulfate	11.9		50.0	58.88		mg/L		94	80 - 120	0	20

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 480-345530/1**  
**Matrix: Water**  
**Analysis Batch: 345530**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			02/28/17 09:15	1

TestAmerica Buffalo

# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

## Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

**Lab Sample ID: LCS 480-345530/2**  
**Matrix: Water**  
**Analysis Batch: 345530**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	506	517.0		mg/L		102	85 - 115

**Lab Sample ID: MB 480-345649/1**  
**Matrix: Water**  
**Analysis Batch: 345649**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			03/01/17 01:04	1

**Lab Sample ID: LCS 480-345649/2**  
**Matrix: Water**  
**Analysis Batch: 345649**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	506	503.0		mg/L		99	85 - 115

## Method: SM 4500 H+ B - pH

**Lab Sample ID: LCS 480-345338/1**  
**Matrix: Water**  
**Analysis Batch: 345338**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99 - 101

**Lab Sample ID: LCS 480-345338/23**  
**Matrix: Water**  
**Analysis Batch: 345338**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.1		SU		101	99 - 101

# QC Association Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

## Metals

### Prep Batch: 345381

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-113911-1	MW-1RD	Total/NA	Water	3005A	
480-113911-2	MW-2R	Total/NA	Water	3005A	
480-113911-3	MW-2RD	Total/NA	Water	3005A	
480-113911-4	MW-3R	Total/NA	Water	3005A	
480-113911-5	MW-3RD	Total/NA	Water	3005A	
480-113911-6	MW-4	Total/NA	Water	3005A	
480-113911-7	MW-1	Total/NA	Water	3005A	
480-113911-8	MW-3	Total/NA	Water	3005A	
480-113911-9	DUP-1	Total/NA	Water	3005A	
480-113911-10	FIELD BLANK	Total/NA	Water	3005A	
MB 480-345381/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-345381/2-A	Lab Control Sample	Total/NA	Water	3005A	

### Prep Batch: 345393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-113911-1	MW-1RD	Total/NA	Water	7470A	
480-113911-2	MW-2R	Total/NA	Water	7470A	
480-113911-3	MW-2RD	Total/NA	Water	7470A	
480-113911-4	MW-3R	Total/NA	Water	7470A	
480-113911-5	MW-3RD	Total/NA	Water	7470A	
480-113911-6	MW-4	Total/NA	Water	7470A	
480-113911-7	MW-1	Total/NA	Water	7470A	
480-113911-8	MW-3	Total/NA	Water	7470A	
480-113911-9	DUP-1	Total/NA	Water	7470A	
480-113911-10	FIELD BLANK	Total/NA	Water	7470A	
MB 480-345393/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-345393/2-A	Lab Control Sample	Total/NA	Water	7470A	

### Prep Batch: 345402

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-113911-1	MW-1RD	Total/NA	Water	3020A	
480-113911-2	MW-2R	Total/NA	Water	3020A	
480-113911-3	MW-2RD	Total/NA	Water	3020A	
480-113911-4	MW-3R	Total/NA	Water	3020A	
480-113911-5	MW-3RD	Total/NA	Water	3020A	
480-113911-6	MW-4	Total/NA	Water	3020A	
480-113911-7	MW-1	Total/NA	Water	3020A	
480-113911-8	MW-3	Total/NA	Water	3020A	
480-113911-9	DUP-1	Total/NA	Water	3020A	
480-113911-10	FIELD BLANK	Total/NA	Water	3020A	
MB 480-345402/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-345402/2-A	Lab Control Sample	Total/NA	Water	3020A	

### Analysis Batch: 345441

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-113911-1	MW-1RD	Total/NA	Water	7470A	345393
480-113911-2	MW-2R	Total/NA	Water	7470A	345393
480-113911-3	MW-2RD	Total/NA	Water	7470A	345393
480-113911-4	MW-3R	Total/NA	Water	7470A	345393
480-113911-5	MW-3RD	Total/NA	Water	7470A	345393
480-113911-6	MW-4	Total/NA	Water	7470A	345393

TestAmerica Buffalo

# QC Association Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

## Metals (Continued)

### Analysis Batch: 345441 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-113911-7	MW-1	Total/NA	Water	7470A	345393
480-113911-8	MW-3	Total/NA	Water	7470A	345393
480-113911-9	DUP-1	Total/NA	Water	7470A	345393
480-113911-10	FIELD BLANK	Total/NA	Water	7470A	345393
MB 480-345393/1-A	Method Blank	Total/NA	Water	7470A	345393
LCS 480-345393/2-A	Lab Control Sample	Total/NA	Water	7470A	345393

### Analysis Batch: 345528

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-113911-1	MW-1RD	Total/NA	Water	6010C	345381
480-113911-2	MW-2R	Total/NA	Water	6010C	345381
480-113911-3	MW-2RD	Total/NA	Water	6010C	345381
480-113911-4	MW-3R	Total/NA	Water	6010C	345381
480-113911-5	MW-3RD	Total/NA	Water	6010C	345381
480-113911-6	MW-4	Total/NA	Water	6010C	345381
480-113911-7	MW-1	Total/NA	Water	6010C	345381
480-113911-8	MW-3	Total/NA	Water	6010C	345381
480-113911-9	DUP-1	Total/NA	Water	6010C	345381
480-113911-10	FIELD BLANK	Total/NA	Water	6010C	345381
MB 480-345381/1-A	Method Blank	Total/NA	Water	6010C	345381
LCS 480-345381/2-A	Lab Control Sample	Total/NA	Water	6010C	345381

### Analysis Batch: 345550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-113911-1	MW-1RD	Total/NA	Water	6020A	345402
480-113911-2	MW-2R	Total/NA	Water	6020A	345402
480-113911-3	MW-2RD	Total/NA	Water	6020A	345402
480-113911-4	MW-3R	Total/NA	Water	6020A	345402
480-113911-5	MW-3RD	Total/NA	Water	6020A	345402
480-113911-6	MW-4	Total/NA	Water	6020A	345402
480-113911-7	MW-1	Total/NA	Water	6020A	345402
480-113911-8	MW-3	Total/NA	Water	6020A	345402
480-113911-9	DUP-1	Total/NA	Water	6020A	345402
480-113911-10	FIELD BLANK	Total/NA	Water	6020A	345402
MB 480-345402/1-A	Method Blank	Total/NA	Water	6020A	345402
LCS 480-345402/2-A	Lab Control Sample	Total/NA	Water	6020A	345402

### Analysis Batch: 345618

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-113911-1	MW-1RD	Total/NA	Water	6010C	345381
480-113911-3	MW-2RD	Total/NA	Water	6010C	345381
480-113911-4	MW-3R	Total/NA	Water	6010C	345381
480-113911-5	MW-3RD	Total/NA	Water	6010C	345381
480-113911-6	MW-4	Total/NA	Water	6010C	345381
480-113911-8	MW-3	Total/NA	Water	6010C	345381
MB 480-345381/1-A	Method Blank	Total/NA	Water	6010C	345381
LCS 480-345381/2-A	Lab Control Sample	Total/NA	Water	6010C	345381

### Analysis Batch: 346061

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-113911-2	MW-2R	Total/NA	Water	6010C	345381

TestAmerica Buffalo

# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

## Metals (Continued)

### Analysis Batch: 346061 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-113911-6	MW-4	Total/NA	Water	6010C	345381

## General Chemistry

### Analysis Batch: 345338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-113911-1	MW-1RD	Total/NA	Water	SM 4500 H+ B	
480-113911-2	MW-2R	Total/NA	Water	SM 4500 H+ B	
480-113911-3	MW-2RD	Total/NA	Water	SM 4500 H+ B	
480-113911-4	MW-3R	Total/NA	Water	SM 4500 H+ B	
480-113911-5	MW-3RD	Total/NA	Water	SM 4500 H+ B	
480-113911-6	MW-4	Total/NA	Water	SM 4500 H+ B	
480-113911-7	MW-1	Total/NA	Water	SM 4500 H+ B	
480-113911-8	MW-3	Total/NA	Water	SM 4500 H+ B	
480-113911-9	DUP-1	Total/NA	Water	SM 4500 H+ B	
480-113911-10	FIELD BLANK	Total/NA	Water	SM 4500 H+ B	
LCS 480-345338/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 480-345338/23	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

### Analysis Batch: 345530

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-113911-1	MW-1RD	Total/NA	Water	SM 2540C	
480-113911-2	MW-2R	Total/NA	Water	SM 2540C	
480-113911-3	MW-2RD	Total/NA	Water	SM 2540C	
480-113911-4	MW-3R	Total/NA	Water	SM 2540C	
MB 480-345530/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-345530/2	Lab Control Sample	Total/NA	Water	SM 2540C	

### Analysis Batch: 345649

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-113911-5	MW-3RD	Total/NA	Water	SM 2540C	
480-113911-6	MW-4	Total/NA	Water	SM 2540C	
480-113911-7	MW-1	Total/NA	Water	SM 2540C	
480-113911-8	MW-3	Total/NA	Water	SM 2540C	
480-113911-9	DUP-1	Total/NA	Water	SM 2540C	
480-113911-10	FIELD BLANK	Total/NA	Water	SM 2540C	
MB 480-345649/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-345649/2	Lab Control Sample	Total/NA	Water	SM 2540C	

### Analysis Batch: 345801

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-113911-1	MW-1RD	Total/NA	Water	300.0	
480-113911-2	MW-2R	Total/NA	Water	300.0	
480-113911-3	MW-2RD	Total/NA	Water	300.0	
480-113911-4	MW-3R	Total/NA	Water	300.0	
480-113911-5	MW-3RD	Total/NA	Water	300.0	
480-113911-6	MW-4	Total/NA	Water	300.0	
480-113911-7	MW-1	Total/NA	Water	300.0	
480-113911-8	MW-3	Total/NA	Water	300.0	
480-113911-9	DUP-1	Total/NA	Water	300.0	

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# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

## General Chemistry (Continued)

### Analysis Batch: 345801 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-113911-10	FIELD BLANK	Total/NA	Water	300.0	
MB 480-345801/30	Method Blank	Total/NA	Water	300.0	
MB 480-345801/4	Method Blank	Total/NA	Water	300.0	
LCS 480-345801/29	Lab Control Sample	Total/NA	Water	300.0	
LCS 480-345801/3	Lab Control Sample	Total/NA	Water	300.0	
480-113911-3 MS	MW-2RD	Total/NA	Water	300.0	
480-113911-9 MS	DUP-1	Total/NA	Water	300.0	
480-113911-9 MSD	DUP-1	Total/NA	Water	300.0	



# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

**Client Sample ID: MW-1RD**

**Date Collected: 02/23/17 11:25**

**Date Received: 02/24/17 09:30**

**Lab Sample ID: 480-113911-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			345381	02/27/17 09:40	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	345528	02/28/17 00:00	SLB	TAL BUF
Total/NA	Prep	3005A			345381	02/27/17 09:40	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	345618	02/28/17 12:21	AMH	TAL BUF
Total/NA	Prep	3020A			345402	02/27/17 10:18	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	345550	02/27/17 17:08	MTM2	TAL BUF
Total/NA	Prep	7470A			345393	02/27/17 10:00	RMZ	TAL BUF
Total/NA	Analysis	7470A		1	345441	02/27/17 13:57	RMZ	TAL BUF
Total/NA	Analysis	300.0		1	345801	03/01/17 18:51	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	345530	02/28/17 09:15	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	345338	02/26/17 12:15	CEA	TAL BUF

**Client Sample ID: MW-2R**

**Date Collected: 02/23/17 10:40**

**Date Received: 02/24/17 09:30**

**Lab Sample ID: 480-113911-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			345381	02/27/17 09:40	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	345528	02/28/17 00:03	SLB	TAL BUF
Total/NA	Prep	3005A			345381	02/27/17 09:40	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	346061	03/02/17 10:12	AMH	TAL BUF
Total/NA	Prep	3020A			345402	02/27/17 10:18	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	345550	02/27/17 17:14	MTM2	TAL BUF
Total/NA	Prep	7470A			345393	02/27/17 10:00	RMZ	TAL BUF
Total/NA	Analysis	7470A		1	345441	02/27/17 13:58	RMZ	TAL BUF
Total/NA	Analysis	300.0		1	345801	03/01/17 18:59	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	345530	02/28/17 09:15	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	345338	02/26/17 12:17	CEA	TAL BUF

**Client Sample ID: MW-2RD**

**Date Collected: 02/23/17 10:10**

**Date Received: 02/24/17 09:30**

**Lab Sample ID: 480-113911-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			345381	02/27/17 09:40	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	345528	02/28/17 00:17	SLB	TAL BUF
Total/NA	Prep	3005A			345381	02/27/17 09:40	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	345618	02/28/17 12:25	AMH	TAL BUF
Total/NA	Prep	3020A			345402	02/27/17 10:18	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	345550	02/27/17 17:21	MTM2	TAL BUF
Total/NA	Prep	7470A			345393	02/27/17 10:00	RMZ	TAL BUF
Total/NA	Analysis	7470A		1	345441	02/27/17 14:00	RMZ	TAL BUF

TestAmerica Buffalo

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-113911-3**

**Date Collected: 02/23/17 10:10**

**Matrix: Water**

**Date Received: 02/24/17 09:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	345801	03/01/17 19:07	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	345530	02/28/17 09:15	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	345338	02/26/17 12:20	CEA	TAL BUF

**Client Sample ID: MW-3R**

**Lab Sample ID: 480-113911-4**

**Date Collected: 02/23/17 09:10**

**Matrix: Water**

**Date Received: 02/24/17 09:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			345381	02/27/17 09:40	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	345528	02/28/17 00:21	SLB	TAL BUF
Total/NA	Prep	3005A			345381	02/27/17 09:40	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	345618	02/28/17 12:28	AMH	TAL BUF
Total/NA	Prep	3020A			345402	02/27/17 10:18	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	345550	02/27/17 17:27	MTM2	TAL BUF
Total/NA	Prep	7470A			345393	02/27/17 10:00	RMZ	TAL BUF
Total/NA	Analysis	7470A		1	345441	02/27/17 14:02	RMZ	TAL BUF
Total/NA	Analysis	300.0		1	345801	03/01/17 20:04	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	345530	02/28/17 09:15	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	345338	02/26/17 12:26	CEA	TAL BUF

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-113911-5**

**Date Collected: 02/23/17 08:50**

**Matrix: Water**

**Date Received: 02/24/17 09:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			345381	02/27/17 09:40	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	345528	02/28/17 00:24	SLB	TAL BUF
Total/NA	Prep	3005A			345381	02/27/17 09:40	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	345618	02/28/17 12:32	AMH	TAL BUF
Total/NA	Prep	3020A			345402	02/27/17 10:18	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	345550	02/27/17 17:34	MTM2	TAL BUF
Total/NA	Prep	7470A			345393	02/27/17 10:00	RMZ	TAL BUF
Total/NA	Analysis	7470A		1	345441	02/27/17 14:03	RMZ	TAL BUF
Total/NA	Analysis	300.0		1	345801	03/01/17 20:12	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	345649	03/01/17 01:04	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	345338	02/26/17 12:29	CEA	TAL BUF

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

**Client Sample ID: MW-4**

**Date Collected: 02/23/17 08:20**

**Date Received: 02/24/17 09:30**

**Lab Sample ID: 480-113911-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			345381	02/27/17 09:40	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	345528	02/28/17 00:28	SLB	TAL BUF
Total/NA	Prep	3005A			345381	02/27/17 09:40	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	345618	02/28/17 12:35	AMH	TAL BUF
Total/NA	Prep	3005A			345381	02/27/17 09:40	MVZ	TAL BUF
Total/NA	Analysis	6010C		2	346061	03/02/17 10:15	AMH	TAL BUF
Total/NA	Prep	3020A			345402	02/27/17 10:18	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	345550	02/27/17 17:40	MTM2	TAL BUF
Total/NA	Prep	7470A			345393	02/27/17 10:00	RMZ	TAL BUF
Total/NA	Analysis	7470A		1	345441	02/27/17 14:05	RMZ	TAL BUF
Total/NA	Analysis	300.0		1	345801	03/01/17 20:20	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	345649	03/01/17 01:04	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	345338	02/26/17 12:32	CEA	TAL BUF

**Client Sample ID: MW-1**

**Date Collected: 02/23/17 11:50**

**Date Received: 02/24/17 09:30**

**Lab Sample ID: 480-113911-7**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			345381	02/27/17 09:40	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	345528	02/28/17 00:31	SLB	TAL BUF
Total/NA	Prep	3020A			345402	02/27/17 10:18	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	345550	02/27/17 17:47	MTM2	TAL BUF
Total/NA	Prep	7470A			345393	02/27/17 10:00	RMZ	TAL BUF
Total/NA	Analysis	7470A		1	345441	02/27/17 14:07	RMZ	TAL BUF
Total/NA	Analysis	300.0		1	345801	03/01/17 20:28	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	345649	03/01/17 01:04	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	345338	02/26/17 12:34	CEA	TAL BUF

**Client Sample ID: MW-3**

**Date Collected: 02/23/17 09:35**

**Date Received: 02/24/17 09:30**

**Lab Sample ID: 480-113911-8**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			345381	02/27/17 09:40	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	345528	02/28/17 00:35	SLB	TAL BUF
Total/NA	Prep	3005A			345381	02/27/17 09:40	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	345618	02/28/17 12:39	AMH	TAL BUF
Total/NA	Prep	3020A			345402	02/27/17 10:18	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	345550	02/27/17 17:53	MTM2	TAL BUF
Total/NA	Prep	7470A			345393	02/27/17 10:00	RMZ	TAL BUF
Total/NA	Analysis	7470A		1	345441	02/27/17 14:09	RMZ	TAL BUF
Total/NA	Analysis	300.0		1	345801	03/01/17 20:37	DMR	TAL BUF

TestAmerica Buffalo

# Lab Chronicle

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	345649	03/01/17 01:04	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	345338	02/26/17 12:37	CEA	TAL BUF

## Client Sample ID: DUP-1

Lab Sample ID: 480-113911-9

Date Collected: 02/23/17 00:00

Matrix: Water

Date Received: 02/24/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			345381	02/27/17 09:40	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	345528	02/28/17 00:38	SLB	TAL BUF
Total/NA	Prep	3020A			345402	02/27/17 10:18	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	345550	02/27/17 18:00	MTM2	TAL BUF
Total/NA	Prep	7470A			345393	02/27/17 10:00	RMZ	TAL BUF
Total/NA	Analysis	7470A		1	345441	02/27/17 14:10	RMZ	TAL BUF
Total/NA	Analysis	300.0		1	345801	03/01/17 20:45	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	345649	03/01/17 01:04	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	345338	02/26/17 12:40	CEA	TAL BUF

## Client Sample ID: FIELD BLANK

Lab Sample ID: 480-113911-10

Date Collected: 02/23/17 12:00

Matrix: Water

Date Received: 02/24/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			345381	02/27/17 09:40	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	345528	02/28/17 00:42	SLB	TAL BUF
Total/NA	Prep	3020A			345402	02/27/17 10:18	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	345550	02/27/17 18:24	MTM2	TAL BUF
Total/NA	Prep	7470A			345393	02/27/17 10:00	RMZ	TAL BUF
Total/NA	Analysis	7470A		1	345441	02/27/17 14:12	RMZ	TAL BUF
Total/NA	Analysis	300.0		1	345801	03/01/17 21:34	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	345649	03/01/17 01:04	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	345338	02/26/17 12:43	CEA	TAL BUF

### Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

# Certification Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

## Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Minnesota	NELAP	5	036-999-337	12-31-17

The following analytes are included in this report, but are not certified under this certification:

Analysis Method	Prep Method	Matrix	Analyte
6010C	3005A	Water	Lithium

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 H+ B		Water	pH

- 1
- 2
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# Method Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL BUF
6020A	Metals (ICP/MS)	SW846	TAL BUF
7470A	Mercury (CVAA)	SW846	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL BUF
SM 4500 H+ B	pH	SM	TAL BUF

#### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

# Sample Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-113911-1	MW-1RD	Water	02/23/17 11:25	02/24/17 09:30
480-113911-2	MW-2R	Water	02/23/17 10:40	02/24/17 09:30
480-113911-3	MW-2RD	Water	02/23/17 10:10	02/24/17 09:30
480-113911-4	MW-3R	Water	02/23/17 09:10	02/24/17 09:30
480-113911-5	MW-3RD	Water	02/23/17 08:50	02/24/17 09:30
480-113911-6	MW-4	Water	02/23/17 08:20	02/24/17 09:30
480-113911-7	MW-1	Water	02/23/17 11:50	02/24/17 09:30
480-113911-8	MW-3	Water	02/23/17 09:35	02/24/17 09:30
480-113911-9	DUP-1	Water	02/23/17 00:00	02/24/17 09:30
480-113911-10	FIELD BLANK	Water	02/23/17 12:00	02/24/17 09:30

# Chain of Custody Record



Regulatory Program:  DW  NPDES  RCRA  Other: \_\_\_\_\_

**Client Contact**  
SKB Environmental  
13425 Courthouse Blvd  
Rosemount, MN 55068  
(651) 438-1500 Phone  
(651) 438-1518 FAX  
Project Name: 2017 Lansing CCR GW Event 1  
Site:  
P O # 3064 - 17 - 00114

**Project Manager:** Ryan Van Dette  
Tel/Fax: \_\_\_\_\_

**Site Contact:** Nathaniel Beineman  
Date: 2/23/17  
Carrier: \_\_\_\_\_

**Lab Contact:** \_\_\_\_\_

COC No: \_\_\_\_\_ of \_\_\_\_\_ COCs

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	# of Cont.	Matrix	Filtered Sample (Y/N)	Performs MS/MSD (Y/N)	Metals (totals)* + Mercury	Chloride	Fluoride	Sulfate	TDS	pH	Radium 226 & 228 combined	Sample Specific Notes:	
MW-1RD	2/23/17	11:25	Grab	5	Water		X	X	X	X	X	X	X	X		
MW-2R	2/23/17	10:40	Grab	5	Water		X	X	X	X	X	X	X	X		
MW-2RD	2/23/17	10:10	Grab	5	Water		X	X	X	X	X	X	X	X		
MW-3R	2/23/17	9:10	Grab	5	Water		X	X	X	X	X	X	X	X		
MW-3RD	2/23/17	8:50	Grab	5	Water		X	X	X	X	X	X	X	X		
MW-4	2/23/17	8:30	Grab	5	Water		X	X	X	X	X	X	X	X		
MW-1	2/23/17	11:50	Grab	5	Water		X	X	X	X	X	X	X	X		
MW-3	2/23/17	9:35	Grab	5	Water		X	X	X	X	X	X	X	X		
Duplicate - 1	2/23/17	-	Grab	5	Water		X	X	X	X	X	X	X	X		
Field Blank	2/23/17	12:00	Grab	5	Water		X	X	X	X	X	X	X	X		

**Preservation Used:** 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other \_\_\_\_\_

**Possible Hazard Identification:** Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown

Return to Client  Disposal by Lab  Archive for \_\_\_\_\_ Months

**\*Metals - Boron, Calcium, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium**

Cooler Temp. (°C): Obs'd: \_\_\_\_\_ Cor'd: \_\_\_\_\_

Therm ID No.: \_\_\_\_\_

Custody Seal No.: \_\_\_\_\_

Relinquished by: *[Signature]* Date/Time: 2/23/17 15:00  
Company: *[Signature]*

Relinquished by: *[Signature]* Date/Time: 2/23/17 17:10  
Company: *[Signature]*

Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Company: \_\_\_\_\_

Received by: *[Signature]* Date/Time: 2/23/17 15:15  
Company: *[Signature]*

Received by: *[Signature]* Date/Time: 2/23/17 09:30  
Company: *[Signature]*

Received in Laboratory by: \_\_\_\_\_

Handwritten notes: *FRB 31.2.18.2.9*



## Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-113911-1

SDG Number:

**Login Number: 113911**

**List Number: 1**

**Creator: Wallace, Cameron**

**List Source: TestAmerica Buffalo**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	SKB
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-113911-2

Client Project/Site: SKB Lansing - CCR Groundwater

Sampling Event: CCR Groundwater

For:

Waste Connections, Inc.

13425 Courthouse Blvd

Rosemount, Minnesota 55068

Attn: Nathaniel Beinemann



Authorized for release by:

3/27/2017 3:25:50 PM

Denise Giglia, Project Management Assistant II

[denise.giglia@testamericainc.com](mailto:denise.giglia@testamericainc.com)

Designee for

Ryan VanDette, Project Manager II

(716)504-9830

[ryan.vandette@testamericainc.com](mailto:ryan.vandette@testamericainc.com)

### LINKS

Review your project  
results through

**TotalAccess**

Have a Question?



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[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-2

## Qualifiers

### Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.
G	The Sample MDC is greater than the requested RL.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-2

**Job ID: 480-113911-2**

**Laboratory: TestAmerica Buffalo**

## Narrative

**Job Narrative  
480-113911-2**

## Comments

No additional comments.

## Receipt

The samples were received on 2/24/2017 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.8° C, 2.9° C and 3.1° C.

## RAD

Method(s) 901.1: Gamma Prep Batch: 160-295689: The radium-226 MDC (53.3 pCi/L) for the method blank (MB) is above the requested limit of 50 pCi/L. Radium-226 activity was not observed in the MB above the MDC or RL. The MDC for the associated samples is less than the requested limit. The data have been qualified and reported with the MDC achieved. MW-1RD (480-113911-1), MW-2R (480-113911-2), MW-2RD (480-113911-3), MW-3R (480-113911-4), MW-3RD (480-113911-5), MW-4 (480-113911-6), MW-1 (480-113911-7), MW-3 (480-113911-8), DUP-1 (480-113911-9), FIELD BLANK (480-113911-10), (LCS 160-295689/2-A), (MB 160-295689/1-A) and (480-113911-A-1-B DU).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-2

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-113911-1**

No Detections.

**Client Sample ID: MW-2R**

**Lab Sample ID: 480-113911-2**

No Detections.

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-113911-3**

No Detections.

**Client Sample ID: MW-3R**

**Lab Sample ID: 480-113911-4**

No Detections.

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-113911-5**

No Detections.

**Client Sample ID: MW-4**

**Lab Sample ID: 480-113911-6**

No Detections.

**Client Sample ID: MW-1**

**Lab Sample ID: 480-113911-7**

No Detections.

**Client Sample ID: MW-3**

**Lab Sample ID: 480-113911-8**

No Detections.

**Client Sample ID: DUP-1**

**Lab Sample ID: 480-113911-9**

No Detections.

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-113911-10**

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo



# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-2

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-113911-1**

**Date Collected: 02/23/17 11:25**

**Matrix: Water**

**Date Received: 02/24/17 09:30**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	-6.49	U	21.3	21.3	50.0	36.9	pCi/L	03/02/17 13:51	03/23/17 01:55	1
Radium-228	14.8	U	20.8	20.8	50.0	33.8	pCi/L	03/02/17 13:51	03/23/17 01:55	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-2

**Client Sample ID: MW-2R**

**Date Collected: 02/23/17 10:40**

**Date Received: 02/24/17 09:30**

**Lab Sample ID: 480-113911-2**

**Matrix: Water**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	8.79	U	6.64	6.70	50.0	49.6	pCi/L	03/02/17 13:51	03/23/17 01:52	1
Radium-228	13.1	U	23.6	23.6	50.0	36.8	pCi/L	03/02/17 13:51	03/23/17 01:52	1

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# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-2

**Client Sample ID: MW-2RD**

**Date Collected: 02/23/17 10:10**

**Date Received: 02/24/17 09:30**

**Lab Sample ID: 480-113911-3**

**Matrix: Water**

## Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	92.9		21.7	23.6	50.0	23.4	pCi/L	03/02/17 13:51	03/23/17 03:14	1
Radium-228	32.4		20.7	21.0	50.0	21.4	pCi/L	03/02/17 13:51	03/23/17 03:14	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-2

**Client Sample ID: MW-3R**  
**Date Collected: 02/23/17 09:10**  
**Date Received: 02/24/17 09:30**

**Lab Sample ID: 480-113911-4**  
**Matrix: Water**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
<b>Radium-226</b>	<b>38.1</b>		18.4	18.8	50.0	21.8	pCi/L	03/02/17 13:51	03/23/17 18:04	1
Radium-228	7.33	U	18.4	18.4	50.0	42.3	pCi/L	03/02/17 13:51	03/23/17 18:04	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-2

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-113911-5**

**Date Collected: 02/23/17 08:50**

**Matrix: Water**

**Date Received: 02/24/17 09:30**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
<b>Radium-226</b>	<b>56.4</b>		23.5	24.2	50.0	24.7	pCi/L	03/02/17 13:51	03/23/17 18:05	1
Radium-228	16.7	U	25.8	25.8	50.0	33.8	pCi/L	03/02/17 13:51	03/23/17 18:05	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-2

**Client Sample ID: MW-4**  
**Date Collected: 02/23/17 08:20**  
**Date Received: 02/24/17 09:30**

**Lab Sample ID: 480-113911-6**  
**Matrix: Water**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
<b>Radium-226</b>	<b>38.7</b>		23.6	23.9	50.0	27.6	pCi/L	03/02/17 13:51	03/23/17 18:06	1
Radium-228	22.2	U	26.6	26.7	50.0	41.8	pCi/L	03/02/17 13:51	03/23/17 18:06	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-2

**Client Sample ID: MW-1**  
**Date Collected: 02/23/17 11:50**  
**Date Received: 02/24/17 09:30**

**Lab Sample ID: 480-113911-7**  
**Matrix: Water**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
<b>Radium-226</b>	<b>53.6</b>		19.4	20.1	50.0	21.5	pCi/L	03/02/17 13:51	03/23/17 04:31	1
Radium-228	10.5	U	24.9	24.9	50.0	31.0	pCi/L	03/02/17 13:51	03/23/17 04:31	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-2

**Client Sample ID: MW-3**  
**Date Collected: 02/23/17 09:35**  
**Date Received: 02/24/17 09:30**

**Lab Sample ID: 480-113911-8**  
**Matrix: Water**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	14.8	U	22.2	22.3	50.0	43.9	pCi/L	03/02/17 13:51	03/23/17 04:29	1
Radium-228	20.0	U	25.8	25.9	50.0	33.8	pCi/L	03/02/17 13:51	03/23/17 04:29	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-2

**Client Sample ID: DUP-1**

**Date Collected: 02/23/17 00:00**

**Date Received: 02/24/17 09:30**

**Lab Sample ID: 480-113911-9**

**Matrix: Water**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	26.0	U	12.2	12.5	50.0	47.0	pCi/L	03/02/17 13:51	03/24/17 12:16	1
Radium-228	14.7	U	29.4	29.5	50.0	33.8	pCi/L	03/02/17 13:51	03/24/17 12:16	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-2

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-113911-10**

**Date Collected: 02/23/17 12:00**

**Matrix: Water**

**Date Received: 02/24/17 09:30**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	7.06	U	11.5	11.5	50.0	15.8	pCi/L	03/02/17 13:51	03/26/17 20:13	1
<b>Radium-228</b>	<b>25.6</b>		17.4	17.6	50.0	18.4	pCi/L	03/02/17 13:51	03/26/17 20:13	1

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# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-2

## Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

**Lab Sample ID: MB 160-295689/1-A**  
**Matrix: Water**  
**Analysis Batch: 299271**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 295689**

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	-12.06	U G	30.2	30.2	50.0	53.3	pCi/L	03/02/17 13:51	03/23/17 01:46	1
Radium-228	24.40		18.2	18.4	50.0	22.2	pCi/L	03/02/17 13:51	03/23/17 01:46	1

**Lab Sample ID: LCS 160-295689/2-A**  
**Matrix: Water**  
**Analysis Batch: 299272**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 295689**

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Americium-241	136000	134000		15500		521	pCi/L	98	90 - 111
Cesium-137	46900	44320		4450		181	pCi/L	94	90 - 111
Cobalt-60	39300	37200		3680		102	pCi/L	95	89 - 110

**Lab Sample ID: 480-113911-1 DU**  
**Matrix: Water**  
**Analysis Batch: 299269**

**Client Sample ID: MW-1RD**  
**Prep Type: Total/NA**  
**Prep Batch: 295689**

Analyte	Sample Sample		DU DU		Total	RL	MDC	Unit	RER	RER
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					Limit
Radium-226	-6.49	U	-3.940	U	14.1	50.0	44.6	pCi/L	0.07	1
Radium-228	14.8	U	10.41	U	28.0	50.0	41.8	pCi/L	0.09	1

# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-2

## Rad

### Prep Batch: 295689

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-113911-1	MW-1RD	Total/NA	Water	Fill_Geo-21	
480-113911-2	MW-2R	Total/NA	Water	Fill_Geo-21	
480-113911-3	MW-2RD	Total/NA	Water	Fill_Geo-21	
480-113911-4	MW-3R	Total/NA	Water	Fill_Geo-21	
480-113911-5	MW-3RD	Total/NA	Water	Fill_Geo-21	
480-113911-6	MW-4	Total/NA	Water	Fill_Geo-21	
480-113911-7	MW-1	Total/NA	Water	Fill_Geo-21	
480-113911-8	MW-3	Total/NA	Water	Fill_Geo-21	
480-113911-9	DUP-1	Total/NA	Water	Fill_Geo-21	
480-113911-10	FIELD BLANK	Total/NA	Water	Fill_Geo-21	
MB 160-295689/1-A	Method Blank	Total/NA	Water	Fill_Geo-21	
LCS 160-295689/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-21	
480-113911-1 DU	MW-1RD	Total/NA	Water	Fill_Geo-21	

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-2

## Client Sample ID: MW-1RD

Date Collected: 02/23/17 11:25

Date Received: 02/24/17 09:30

Lab Sample ID: 480-113911-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			295689	03/02/17 13:51	R1S	TAL SL
Total/NA	Analysis	901.1		1	299270	03/23/17 01:55	KLS	TAL SL

## Client Sample ID: MW-2R

Date Collected: 02/23/17 10:40

Date Received: 02/24/17 09:30

Lab Sample ID: 480-113911-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			295689	03/02/17 13:51	R1S	TAL SL
Total/NA	Analysis	901.1		1	299269	03/23/17 01:52	KLS	TAL SL

## Client Sample ID: MW-2RD

Date Collected: 02/23/17 10:10

Date Received: 02/24/17 09:30

Lab Sample ID: 480-113911-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			295689	03/02/17 13:51	R1S	TAL SL
Total/NA	Analysis	901.1		1	299270	03/23/17 03:14	KLS	TAL SL

## Client Sample ID: MW-3R

Date Collected: 02/23/17 09:10

Date Received: 02/24/17 09:30

Lab Sample ID: 480-113911-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			295689	03/02/17 13:51	R1S	TAL SL
Total/NA	Analysis	901.1		1	299271	03/23/17 18:04	KLS	TAL SL

## Client Sample ID: MW-3RD

Date Collected: 02/23/17 08:50

Date Received: 02/24/17 09:30

Lab Sample ID: 480-113911-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			295689	03/02/17 13:51	R1S	TAL SL
Total/NA	Analysis	901.1		1	299270	03/23/17 18:05	KLS	TAL SL

## Client Sample ID: MW-4

Date Collected: 02/23/17 08:20

Date Received: 02/24/17 09:30

Lab Sample ID: 480-113911-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			295689	03/02/17 13:51	R1S	TAL SL
Total/NA	Analysis	901.1		1	299269	03/23/17 18:06	KLS	TAL SL

TestAmerica Buffalo

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-2

## Client Sample ID: MW-1

Date Collected: 02/23/17 11:50

Date Received: 02/24/17 09:30

## Lab Sample ID: 480-113911-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			295689	03/02/17 13:51	R1S	TAL SL
Total/NA	Analysis	901.1		1	299269	03/23/17 04:31	KLS	TAL SL

## Client Sample ID: MW-3

Date Collected: 02/23/17 09:35

Date Received: 02/24/17 09:30

## Lab Sample ID: 480-113911-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			295689	03/02/17 13:51	R1S	TAL SL
Total/NA	Analysis	901.1		1	299270	03/23/17 04:29	KLS	TAL SL

## Client Sample ID: DUP-1

Date Collected: 02/23/17 00:00

Date Received: 02/24/17 09:30

## Lab Sample ID: 480-113911-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			295689	03/02/17 13:51	R1S	TAL SL
Total/NA	Analysis	901.1		1	299437	03/24/17 12:16	KLS	TAL SL

## Client Sample ID: FIELD BLANK

Date Collected: 02/23/17 12:00

Date Received: 02/24/17 09:30

## Lab Sample ID: 480-113911-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			295689	03/02/17 13:51	R1S	TAL SL
Total/NA	Analysis	901.1		1	300099	03/26/17 20:13	RTM	TAL SL

### Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Certification Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-2

## Laboratory: TestAmerica Buffalo

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Minnesota	NELAP	5	036-999-337	12-31-17

## Laboratory: TestAmerica St. Louis

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-17
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-17 *
Florida	NELAP	4	E87689	06-30-17
Illinois	NELAP	5	200023	11-30-17
Iowa	State Program	7	373	02-01-18
Kansas	NELAP	7	E-10236	10-31-17
Kentucky (DW)	State Program	4	90125	12-31-17
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-17
Louisiana (DW)	NELAP	6	LA170011	12-31-17
Maryland	State Program	3	310	09-30-17
Missouri	State Program	7	780	06-30-17
Nevada	State Program	9	MO000542017-1	07-31-17
New Jersey	NELAP	2	MO002	06-30-17
New York	NELAP	2	11616	03-31-17 *
North Dakota	State Program	8	R207	06-30-17
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-17
Pennsylvania	NELAP	3	68-00540	02-28-18
South Carolina	State Program	4	85002001	06-30-17
Texas	NELAP	6	T104704193-16-10	07-31-17
US Fish & Wildlife	Federal		LE058448-0	10-31-17
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-17
Virginia	NELAP	3	460230	06-14-17
Washington	State Program	10	C592	08-30-17
West Virginia DEP	State Program	3	381	08-31-17 *

\* Certification renewal pending - certification considered valid.

TestAmerica Buffalo

# Method Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-2

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Method	Method Description	Protocol	Laboratory
901.1	Radium-226 & Other Gamma Emitters (GS)	EPA	TAL SL

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**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

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# Sample Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-113911-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-113911-1	MW-1RD	Water	02/23/17 11:25	02/24/17 09:30
480-113911-2	MW-2R	Water	02/23/17 10:40	02/24/17 09:30
480-113911-3	MW-2RD	Water	02/23/17 10:10	02/24/17 09:30
480-113911-4	MW-3R	Water	02/23/17 09:10	02/24/17 09:30
480-113911-5	MW-3RD	Water	02/23/17 08:50	02/24/17 09:30
480-113911-6	MW-4	Water	02/23/17 08:20	02/24/17 09:30
480-113911-7	MW-1	Water	02/23/17 11:50	02/24/17 09:30
480-113911-8	MW-3	Water	02/23/17 09:35	02/24/17 09:30
480-113911-9	DUP-1	Water	02/23/17 00:00	02/24/17 09:30
480-113911-10	FIELD BLANK	Water	02/23/17 12:00	02/24/17 09:30

# Chain of Custody Record



TestAmerica

Regulatory Program:  DW  NPDES  RCRA  Other: \_\_\_\_\_

Project Manager: Ryan Van Dette

Site Contact: Nathaniel Beineman Date: 2/23/17

Lab Contact: \_\_\_\_\_

Carrier: \_\_\_\_\_

COC No: 1 of 1 COCs

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	# of Cont.	Matrix	Filtered Sample (Y/N)	Performs MS/MSD (Y/N)	Metals (totals)* + Mercury	Chloride	Fluoride	Sulfate	TDS	pH	Radium 226 & 228 combined	Sample Specific Notes:	
MW-1RD	2/23/17	11:25	Grab	5	Water		X	X	X	X	X	X	X			
MW-2R	2/23/17	10:40	Grab	5	Water		X	X	X	X	X	X	X			
MW-2RD	2/23/17	10:10	Grab	5	Water		X	X	X	X	X	X	X			
MW-3R	2/23/17	9:10	Grab	5	Water		X	X	X	X	X	X	X			
MW-3RD	2/23/17	8:50	Grab	5	Water		X	X	X	X	X	X	X			
MW-4	2/23/17	8:30	Grab	5	Water		X	X	X	X	X	X	X			
MW-1	2/23/17	11:50	Grab	5	Water		X	X	X	X	X	X	X			
MW-3	2/23/17	9:35	Grab	5	Water		X	X	X	X	X	X	X			
Duplicate - 1	2/23/17	-	Grab	5	Water		X	X	X	X	X	X	X			
Field Blank	2/23/17	12:00	Grab	5	Water		X	X	X	X	X	X	X			

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other \_\_\_\_\_

Possible Hazard Identification: \_\_\_\_\_

Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown

\*Metals - Boron, Calcium, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium

Return to Client  Disposal by Lab  Archive for \_\_\_\_\_ Months

Cooler Temp. (°C): Obs'd: \_\_\_\_\_ Cor'd: \_\_\_\_\_ Therm ID No.: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date/Time: 2/23/17 15:00 Company: FES

Relinquished by: Thomas A. Peis Date/Time: 2/23/17 17:16 Company: TestAmerica

Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_

Received by: Nathaniel Beineman Date/Time: 2/23/17 15:15 Company: TestAmerica

Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_

Received in Laboratory by: \_\_\_\_\_ Date/Time: \_\_\_\_\_





# Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b>		Sampler: <u>VanDette, Ryan T</u>	Lab PM: <u>VanDette, Ryan T</u>
Client Contact: <u>Shipping/Receiving</u>		Phone: <u>480-113911</u>	Chain of Custody: <u>Minnesota</u>
Company: <u>TestAmerica Laboratories, Inc.</u>		E-Mail: <u>ryan.vandette@testamericainc.com</u>	Accreditations Required (See note): <u>NELAP - Minnesota</u>
Address: <u>13715 Rider Trail North, Earth City, MO, 63045</u>		Due Date Requested: <u>3/8/2017</u>	Job #: <u>480-113911-1</u>
City: <u>Earth City</u>		TAT Requested (days):	Page: <u>1 of 2</u>
State, Zip: <u>MO, 63045</u>		PO #:	Page: <u>1 of 2</u>
Phone: <u>314-298-8566(Tel) 314-298-8757(Fax)</u>		WO #:	Job #: <u>480-113911-1</u>
Email:		Project #:	Preservation Codes:
Project Name: <u>SKB Lansing</u>		48013603	A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)
Site: <u>Lansing MN</u>		SSOW#:	Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=Water, S=solid, O=soil, BI=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901.1 Ra/Fill_Geo_21 Radium-226/228	Total Number of Containers	Special Instructions/Note:
MW-1RD (480-113911-1)	2/23/17	11:25 Central	Water	Water	X	X	1		
MW-2R (480-113911-2)	2/23/17	10:40 Central	Water	Water	X	X	1		
MW-2RD (480-113911-3)	2/23/17	10:10 Central	Water	Water	X	X	1		
MW-3R (480-113911-4)	2/23/17	09:10 Central	Water	Water	X	X	1		
MW-3RD (480-113911-5)	2/23/17	08:50 Central	Water	Water	X	X	1		
MW-4 (480-113911-6)	2/23/17	08:20 Central	Water	Water	X	X	1		
MW-1 (480-113911-7)	2/23/17	11:50 Central	Water	Water	X	X	1		
MW-3 (480-113911-8)	2/23/17	09:35 Central	Water	Water	X	X	1		
DUP-1 (480-113911-9)	2/23/17	Central	Water	Water	X	X	1		

**Possible Hazard Identification**  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months  
 Special Instructions/QC Requirements:

**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**  
 Method of Shipment: \_\_\_\_\_  
 Date/Time: \_\_\_\_\_  
 Received by: Shelley Taylor  
 Date/Time: 2/28/17  
 Company: \_\_\_\_\_  
 Date/Time: \_\_\_\_\_  
 Company: \_\_\_\_\_  
 Date/Time: \_\_\_\_\_  
 Company: \_\_\_\_\_





# Chain of Custody Record

<b>Client Information (Sub Contract Lab)</b>		Lab PM: VanDette, Ryan T	Carrier Tracking No(s): 480-33553.2
Shipping/Receiving Company: TestAmerica Laboratories, Inc.		E-Mail: ryan.vandette@testamericainc.com	Page: Page 2 of 2
Address: 13715 Rider Trail North, Earth City, MO, 63045		State of Origin: Minnesota	Job #: 480-113911-1
Phone: 314-298-8566 (Tel) 314-298-8757 (Fax)		Accreditations Required (See note): INELAP - Minnesota	Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:
Project Name: SKB Lansing Site: Lansing MN		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SZO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
<b>Due Date Requested:</b> 3/8/2017		<b>Analysis Requested</b>	
<b>TAT Requested (days):</b>		Total Number of Containers: 1	
<b>PO #:</b>		Special Instructions/Note:	
<b>WO #:</b>		901.1 Ra/Fill_Geo_21 Radium-226/228	
<b>Project #:</b> 48013603		<input checked="" type="checkbox"/> Perform MS/MSD (Yes or No)	
<b>SOW#:</b>		<input checked="" type="checkbox"/> Field Filtered Sample (Yes or No)	
<b>Sample Date:</b> 2/23/17		<input checked="" type="checkbox"/> Total Number of Containers: 1	
<b>Sample Time:</b> 12:00 Central		Special Instructions/Note:	
<b>Sample Matrix:</b> Water		Special Instructions/Note:	
<b>Sample Type (C=Comp, G=grab):</b>		Special Instructions/Note:	
<b>Preservation Code:</b>		Special Instructions/Note:	
<b>Sample Identification - Client ID (Lab ID):</b> FIELD BLANK (480-113911-10)		Special Instructions/Note:	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody.

**Possible Hazard Identification**  
Unconfirmed  
Deliverables Requested: I, II, III, IV, Other (specify)

Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Method of Shipment: \_\_\_\_\_  
Relinquished by: \_\_\_\_\_ Company: \_\_\_\_\_  
Relinquished by: \_\_\_\_\_ Date/Time: 2/28/17 0915 Company: ABAL  
Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_  
Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_

Custody Seals Intact:  Yes  No  Custody Seal No.: \_\_\_\_\_  
Cooler Temperature(s) °C and Other Remarks:



## Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-113911-2

SDG Number:

**Login Number: 113911**

**List Number: 1**

**Creator: Wallace, Cameron**

**List Source: TestAmerica Buffalo**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	SKB
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

## Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-113911-2

SDG Number:

**Login Number: 113911**

**List Number: 2**

**Creator: Taylor, Kristene N**

**List Source: TestAmerica St. Louis**

**List Creation: 03/01/17 09:35 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	17.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-115322-1

Client Project/Site: SKB Lansing - CCR Groundwater

Sampling Event: CCR Groundwater

For:

Waste Connections, Inc.

13425 Courthouse Blvd

Rosemount, Minnesota 55068

Attn: Nathaniel Beinemann



Authorized for release by:

4/11/2017 7:05:14 AM

Denise Giglia, Project Management Assistant II

[denise.giglia@testamericainc.com](mailto:denise.giglia@testamericainc.com)

Designee for

Ryan VanDette, Project Manager II

(716)504-9830

[ryan.vandette@testamericainc.com](mailto:ryan.vandette@testamericainc.com)

### LINKS

Review your project  
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Have a Question?



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[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

### General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

---

## Job ID: 480-115322-1

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### Laboratory: TestAmerica Buffalo

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#### Narrative

#### Job Narrative 480-115322-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 3/30/2017 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.1° C, 2.5° C and 2.8° C.

#### HPLC/IC

Method(s) 300.0: The following samples were reported with elevated reporting limits for all analytes: MW-1 (480-115322-1), MW-3R (480-115322-2), MW-1RD (480-115322-3), MW-2RD (480-115322-4) and MW-2R (480-115322-5). The sample were analyzed at a dilution based on screening results.

Method(s) 300.0: The following samples was diluted to bring the concentration of target analytes within the calibration range: MW-3RD (480-115322-6), MW-3 (480-115322-7), MW-4 (480-115322-8) and DUP-1 (480-115322-9). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) 9040C, SM 4500 H+ B: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: MW-1 (480-115322-1), MW-3R (480-115322-2), MW-1RD (480-115322-3), MW-2RD (480-115322-4), MW-2R (480-115322-5), MW-3RD (480-115322-6), MW-3 (480-115322-7), MW-4 (480-115322-8), DUP-1 (480-115322-9), FIELD BLANK (480-115322-10) and EQUIP BLANK (480-115322-11).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

## Client Sample ID: MW-1

## Lab Sample ID: 480-115322-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.058		0.0020		mg/L	1		6010C	Total/NA
Calcium	68.1		0.50		mg/L	1		6010C	Total/NA
Chloride	12.8		1.0		mg/L	2		300.0	Total/NA
Fluoride	0.14		0.10		mg/L	2		300.0	Total/NA
Sulfate	16.6		4.0		mg/L	2		300.0	Total/NA
Total Dissolved Solids	323		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.7	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3R

## Lab Sample ID: 480-115322-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.51		0.0020		mg/L	1		6010C	Total/NA
Boron	0.041		0.020		mg/L	1		6010C	Total/NA
Calcium	198		0.50		mg/L	1		6010C	Total/NA
Arsenic	3.2		1.0		ug/L	1		6020A	Total/NA
Cobalt	0.62		0.30		ug/L	1		6020A	Total/NA
Molybdenum	2.0		1.0		ug/L	1		6020A	Total/NA
Chloride	17.7		2.5		mg/L	5		300.0	Total/NA
Sulfate	43.1		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	843		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.2	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-1RD

## Lab Sample ID: 480-115322-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.17		0.0020		mg/L	1		6010C	Total/NA
Calcium	73.5		0.50		mg/L	1		6010C	Total/NA
Cobalt	1.9		0.30		ug/L	1		6020A	Total/NA
Molybdenum	2.9		1.0		ug/L	1		6020A	Total/NA
Chloride	17.1		1.0		mg/L	2		300.0	Total/NA
Fluoride	0.22		0.10		mg/L	2		300.0	Total/NA
Sulfate	49.9		4.0		mg/L	2		300.0	Total/NA
Total Dissolved Solids	367		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.7	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.0	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-2RD

## Lab Sample ID: 480-115322-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.17		0.0020		mg/L	1		6010C	Total/NA
Boron	0.041		0.020		mg/L	1		6010C	Total/NA
Calcium	117		0.50		mg/L	1		6010C	Total/NA
Arsenic	2.6		1.0		ug/L	1		6020A	Total/NA
Cobalt	2.5		0.30		ug/L	1		6020A	Total/NA
Molybdenum	2.8		1.0		ug/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Detection Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

## Client Sample ID: MW-2RD (Continued)

## Lab Sample ID: 480-115322-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	28.7		2.5		mg/L	5		300.0	Total/NA
Sulfate	60.1		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	536		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.6	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	20.9	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-2R

## Lab Sample ID: 480-115322-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.17		0.0020		mg/L	1		6010C	Total/NA
Boron	0.19		0.020		mg/L	1		6010C	Total/NA
Calcium	175		0.50		mg/L	1		6010C	Total/NA
Arsenic	1.0		1.0		ug/L	1		6020A	Total/NA
Cobalt	0.90		0.30		ug/L	1		6020A	Total/NA
Molybdenum	1.9		1.0		ug/L	1		6020A	Total/NA
Chloride	40.4		2.5		mg/L	5		300.0	Total/NA
Sulfate	141		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	876		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.3	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	20.9	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3RD

## Lab Sample ID: 480-115322-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.23		0.0020		mg/L	1		6010C	Total/NA
Boron	0.031		0.020		mg/L	1		6010C	Total/NA
Calcium	132		0.50		mg/L	1		6010C	Total/NA
Chromium	0.0048		0.0040		mg/L	1		6010C	Total/NA
Arsenic	4.4		1.0		ug/L	1		6020A	Total/NA
Cobalt	1.3		0.30		ug/L	1		6020A	Total/NA
Molybdenum	3.8		1.0		ug/L	1		6020A	Total/NA
Chloride	31.1		1.0		mg/L	2		300.0	Total/NA
Fluoride	0.24		0.10		mg/L	2		300.0	Total/NA
Sulfate	111		4.0		mg/L	2		300.0	Total/NA
Total Dissolved Solids	629		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.6	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.0	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3

## Lab Sample ID: 480-115322-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.24		0.0020		mg/L	1		6010C	Total/NA
Boron	0.24		0.020		mg/L	1		6010C	Total/NA
Calcium	173		0.50		mg/L	1		6010C	Total/NA
Arsenic	2.5		1.0		ug/L	1		6020A	Total/NA
Cobalt	6.2		0.30		ug/L	1		6020A	Total/NA
Molybdenum	6.3		1.0		ug/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

## Client Sample ID: MW-3 (Continued)

## Lab Sample ID: 480-115322-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	19.9		2.5		mg/L	5		300.0	Total/NA
Sulfate	46.3		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	720		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.3	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-4

## Lab Sample ID: 480-115322-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.25		0.0020		mg/L	1		6010C	Total/NA
Boron	0.21		0.020		mg/L	1		6010C	Total/NA
Calcium	250		0.50		mg/L	1		6010C	Total/NA
Chromium	0.0072		0.0040		mg/L	1		6010C	Total/NA
Arsenic	1.6		1.0		ug/L	1		6020A	Total/NA
Cadmium	0.57		0.50		ug/L	1		6020A	Total/NA
Cobalt	0.67		0.30		ug/L	1		6020A	Total/NA
Molybdenum	1.3		1.0		ug/L	1		6020A	Total/NA
Chloride	35.3		2.5		mg/L	5		300.0	Total/NA
Sulfate	432		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	1260		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.4	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.4	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: DUP-1

## Lab Sample ID: 480-115322-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.23		0.0020		mg/L	1		6010C	Total/NA
Boron	0.030		0.020		mg/L	1		6010C	Total/NA
Calcium	133		0.50		mg/L	1		6010C	Total/NA
Chromium	0.0069		0.0040		mg/L	1		6010C	Total/NA
Arsenic	4.5		1.0		ug/L	1		6020A	Total/NA
Cobalt	1.3		0.30		ug/L	1		6020A	Total/NA
Molybdenum	4.0		1.0		ug/L	1		6020A	Total/NA
Chloride	30.9		1.0		mg/L	2		300.0	Total/NA
Fluoride	0.25		0.10		mg/L	2		300.0	Total/NA
Sulfate	111		4.0		mg/L	2		300.0	Total/NA
Total Dissolved Solids	610		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.6	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.0	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: FIELD BLANK

## Lab Sample ID: 480-115322-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	2.4		2.0		mg/L	1		300.0	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.1	HF	0.1		SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

## Client Sample ID: FIELD BLANK (Continued)

Lab Sample ID: 480-115322-10

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Temperature	20.7	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: EQUIP BLANK

Lab Sample ID: 480-115322-11

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	5.9	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	20.6	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

**Client Sample ID: MW-1**  
**Date Collected: 03/28/17 08:25**  
**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-1**  
**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Barium</b>	<b>0.058</b>		0.0020		mg/L		04/03/17 08:20	04/03/17 21:14	1
Boron	ND		0.020		mg/L		04/03/17 08:20	04/03/17 21:14	1
<b>Calcium</b>	<b>68.1</b>		0.50		mg/L		04/03/17 08:20	04/03/17 21:14	1
Chromium	ND		0.0040		mg/L		04/03/17 08:20	04/03/17 21:14	1
Lead	ND		0.010		mg/L		04/03/17 08:20	04/03/17 21:14	1
Lithium	ND		0.030		mg/L		04/03/17 08:20	04/03/17 21:14	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		03/31/17 10:54	03/31/17 18:11	1
Arsenic	ND		1.0		ug/L		03/31/17 10:54	03/31/17 18:11	1
Beryllium	ND		0.70		ug/L		03/31/17 10:54	03/31/17 18:11	1
Cadmium	ND		0.50		ug/L		03/31/17 10:54	03/31/17 18:11	1
Cobalt	ND		0.30		ug/L		03/31/17 10:54	03/31/17 18:11	1
Molybdenum	ND		1.0		ug/L		03/31/17 10:54	03/31/17 18:11	1
Selenium	ND		1.0		ug/L		03/31/17 10:54	03/31/17 18:11	1
Thallium	ND		0.20		ug/L		03/31/17 10:54	03/31/17 18:11	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		03/31/17 07:15	03/31/17 12:22	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>12.8</b>		1.0		mg/L			04/06/17 05:04	2
<b>Fluoride</b>	<b>0.14</b>		0.10		mg/L			04/06/17 05:04	2
<b>Sulfate</b>	<b>16.6</b>		4.0		mg/L			04/06/17 05:04	2
<b>Total Dissolved Solids</b>	<b>323</b>		10.0		mg/L			04/03/17 01:11	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>pH</b>	<b>7.7</b>	<b>HF</b>	0.1		SU			03/31/17 22:59	1
<b>Temperature</b>	<b>21.2</b>	<b>HF</b>	0.001		Degrees C			03/31/17 22:59	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

**Client Sample ID: MW-3R**

**Date Collected: 03/28/17 12:25**

**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-2**

**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.51		0.0020		mg/L		04/03/17 08:20	04/03/17 21:18	1
Boron	0.041		0.020		mg/L		04/03/17 08:20	04/03/17 21:18	1
Calcium	198		0.50		mg/L		04/03/17 08:20	04/03/17 21:18	1
Chromium	ND		0.0040		mg/L		04/03/17 08:20	04/03/17 21:18	1
Lead	ND		0.010		mg/L		04/03/17 08:20	04/03/17 21:18	1
Lithium	ND		0.030		mg/L		04/03/17 08:20	04/03/17 21:18	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		03/31/17 10:54	03/31/17 18:17	1
Arsenic	3.2		1.0		ug/L		03/31/17 10:54	03/31/17 18:17	1
Beryllium	ND		0.70		ug/L		03/31/17 10:54	03/31/17 18:17	1
Cadmium	ND		0.50		ug/L		03/31/17 10:54	03/31/17 18:17	1
Cobalt	0.62		0.30		ug/L		03/31/17 10:54	03/31/17 18:17	1
Molybdenum	2.0		1.0		ug/L		03/31/17 10:54	03/31/17 18:17	1
Selenium	ND		1.0		ug/L		03/31/17 10:54	03/31/17 18:17	1
Thallium	ND		0.20		ug/L		03/31/17 10:54	03/31/17 18:17	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		03/31/17 07:15	03/31/17 12:23	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	17.7		2.5		mg/L			04/06/17 05:19	5
Fluoride	ND		0.25		mg/L			04/06/17 05:19	5
Sulfate	43.1		10.0		mg/L			04/06/17 05:19	5
Total Dissolved Solids	843		10.0		mg/L			04/03/17 01:11	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.2	HF	0.1		SU			03/31/17 23:06	1
Temperature	21.2	HF	0.001		Degrees C			03/31/17 23:06	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-115322-3**

**Date Collected: 03/28/17 08:30**

**Matrix: Water**

**Date Received: 03/30/17 09:45**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Barium</b>	<b>0.17</b>		0.0020		mg/L		04/03/17 08:20	04/03/17 21:21	1
Boron	ND		0.020		mg/L		04/03/17 08:20	04/03/17 21:21	1
<b>Calcium</b>	<b>73.5</b>		0.50		mg/L		04/03/17 08:20	04/03/17 21:21	1
Chromium	ND		0.0040		mg/L		04/03/17 08:20	04/03/17 21:21	1
Lead	ND		0.010		mg/L		04/03/17 08:20	04/03/17 21:21	1
Lithium	ND		0.030		mg/L		04/03/17 08:20	04/03/17 21:21	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		03/31/17 10:54	03/31/17 18:22	1
Arsenic	ND		1.0		ug/L		03/31/17 10:54	03/31/17 18:22	1
Beryllium	ND		0.70		ug/L		03/31/17 10:54	03/31/17 18:22	1
Cadmium	ND		0.50		ug/L		03/31/17 10:54	03/31/17 18:22	1
<b>Cobalt</b>	<b>1.9</b>		0.30		ug/L		03/31/17 10:54	03/31/17 18:22	1
<b>Molybdenum</b>	<b>2.9</b>		1.0		ug/L		03/31/17 10:54	03/31/17 18:22	1
Selenium	ND		1.0		ug/L		03/31/17 10:54	03/31/17 18:22	1
Thallium	ND		0.20		ug/L		03/31/17 10:54	03/31/17 18:22	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		03/31/17 07:15	03/31/17 12:25	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>17.1</b>		1.0		mg/L			04/06/17 05:34	2
<b>Fluoride</b>	<b>0.22</b>		0.10		mg/L			04/06/17 05:34	2
<b>Sulfate</b>	<b>49.9</b>		4.0		mg/L			04/06/17 05:34	2
<b>Total Dissolved Solids</b>	<b>367</b>		10.0		mg/L			04/03/17 01:11	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>pH</b>	<b>7.7</b>	<b>HF</b>	0.1		SU			03/31/17 23:08	1
<b>Temperature</b>	<b>21.0</b>	<b>HF</b>	0.001		Degrees C			03/31/17 23:08	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-115322-4**

**Date Collected: 03/28/17 10:20**

**Matrix: Water**

**Date Received: 03/30/17 09:45**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.17		0.0020		mg/L		04/03/17 08:20	04/03/17 21:25	1
Boron	0.041		0.020		mg/L		04/03/17 08:20	04/03/17 21:25	1
Calcium	117		0.50		mg/L		04/03/17 08:20	04/03/17 21:25	1
Chromium	ND		0.0040		mg/L		04/03/17 08:20	04/03/17 21:25	1
Lead	ND		0.010		mg/L		04/03/17 08:20	04/03/17 21:25	1
Lithium	ND		0.030		mg/L		04/03/17 08:20	04/03/17 21:25	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		03/31/17 10:54	03/31/17 19:07	1
Arsenic	2.6		1.0		ug/L		03/31/17 10:54	03/31/17 19:07	1
Beryllium	ND		0.70		ug/L		03/31/17 10:54	03/31/17 19:07	1
Cadmium	ND		0.50		ug/L		03/31/17 10:54	03/31/17 19:07	1
Cobalt	2.5		0.30		ug/L		03/31/17 10:54	03/31/17 19:07	1
Molybdenum	2.8		1.0		ug/L		03/31/17 10:54	03/31/17 19:07	1
Selenium	ND		1.0		ug/L		03/31/17 10:54	03/31/17 19:07	1
Thallium	ND		0.20		ug/L		03/31/17 10:54	03/31/17 19:07	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		03/31/17 07:15	03/31/17 12:30	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	28.7		2.5		mg/L			04/06/17 05:48	5
Fluoride	ND		0.25		mg/L			04/06/17 05:48	5
Sulfate	60.1		10.0		mg/L			04/06/17 05:48	5
Total Dissolved Solids	536		10.0		mg/L			04/03/17 01:11	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.6	HF	0.1		SU			03/31/17 23:12	1
Temperature	20.9	HF	0.001		Degrees C			03/31/17 23:12	1



# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

**Client Sample ID: MW-2R**

**Date Collected: 03/28/17 10:25**

**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-5**

**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.17		0.0020		mg/L		04/03/17 08:20	04/03/17 21:28	1
Boron	0.19		0.020		mg/L		04/03/17 08:20	04/03/17 21:28	1
Calcium	175		0.50		mg/L		04/03/17 08:20	04/03/17 21:28	1
Chromium	ND		0.0040		mg/L		04/03/17 08:20	04/03/17 21:28	1
Lead	ND		0.010		mg/L		04/03/17 08:20	04/03/17 21:28	1
Lithium	ND		0.030		mg/L		04/03/17 08:20	04/03/17 21:28	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		03/31/17 10:54	03/31/17 19:13	1
Arsenic	1.0		1.0		ug/L		03/31/17 10:54	03/31/17 19:13	1
Beryllium	ND		0.70		ug/L		03/31/17 10:54	03/31/17 19:13	1
Cadmium	ND		0.50		ug/L		03/31/17 10:54	03/31/17 19:13	1
Cobalt	0.90		0.30		ug/L		03/31/17 10:54	03/31/17 19:13	1
Molybdenum	1.9		1.0		ug/L		03/31/17 10:54	03/31/17 19:13	1
Selenium	ND		1.0		ug/L		03/31/17 10:54	03/31/17 19:13	1
Thallium	ND		0.20		ug/L		03/31/17 10:54	03/31/17 19:13	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		03/31/17 07:15	03/31/17 12:43	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	40.4		2.5		mg/L			04/06/17 06:03	5
Fluoride	ND		0.25		mg/L			04/06/17 06:03	5
Sulfate	141		10.0		mg/L			04/06/17 06:03	5
Total Dissolved Solids	876		10.0		mg/L			04/03/17 01:11	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.3	HF	0.1		SU			03/31/17 23:16	1
Temperature	20.9	HF	0.001		Degrees C			03/31/17 23:16	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-115322-6**

**Date Collected: 03/28/17 13:30**

**Matrix: Water**

**Date Received: 03/30/17 09:45**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.23		0.0020		mg/L		04/03/17 08:20	04/03/17 21:31	1
Boron	0.031		0.020		mg/L		04/03/17 08:20	04/03/17 21:31	1
Calcium	132		0.50		mg/L		04/03/17 08:20	04/03/17 21:31	1
Chromium	0.0048		0.0040		mg/L		04/03/17 08:20	04/03/17 21:31	1
Lead	ND		0.010		mg/L		04/03/17 08:20	04/03/17 21:31	1
Lithium	ND		0.030		mg/L		04/03/17 08:20	04/03/17 21:31	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		03/31/17 10:54	03/31/17 19:18	1
Arsenic	4.4		1.0		ug/L		03/31/17 10:54	03/31/17 19:18	1
Beryllium	ND		0.70		ug/L		03/31/17 10:54	03/31/17 19:18	1
Cadmium	ND		0.50		ug/L		03/31/17 10:54	03/31/17 19:18	1
Cobalt	1.3		0.30		ug/L		03/31/17 10:54	03/31/17 19:18	1
Molybdenum	3.8		1.0		ug/L		03/31/17 10:54	03/31/17 19:18	1
Selenium	ND		1.0		ug/L		03/31/17 10:54	03/31/17 19:18	1
Thallium	ND		0.20		ug/L		03/31/17 10:54	03/31/17 19:18	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		03/31/17 07:15	03/31/17 12:44	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	31.1		1.0		mg/L			04/07/17 23:25	2
Fluoride	0.24		0.10		mg/L			04/07/17 23:25	2
Sulfate	111		4.0		mg/L			04/07/17 23:25	2
Total Dissolved Solids	629		10.0		mg/L			04/03/17 01:11	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.6	HF	0.1		SU			03/31/17 23:19	1
Temperature	21.0	HF	0.001		Degrees C			03/31/17 23:19	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

**Client Sample ID: MW-3**  
**Date Collected: 03/28/17 12:20**  
**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-7**  
**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.24		0.0020		mg/L		04/03/17 08:20	04/03/17 21:58	1
Boron	0.24		0.020		mg/L		04/03/17 08:20	04/03/17 21:58	1
Calcium	173		0.50		mg/L		04/03/17 08:20	04/03/17 21:58	1
Chromium	ND		0.0040		mg/L		04/03/17 08:20	04/03/17 21:58	1
Lead	ND		0.010		mg/L		04/03/17 08:20	04/03/17 21:58	1
Lithium	ND		0.030		mg/L		04/03/17 08:20	04/03/17 21:58	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		03/31/17 10:54	03/31/17 19:24	1
Arsenic	2.5		1.0		ug/L		03/31/17 10:54	03/31/17 19:24	1
Beryllium	ND		0.70		ug/L		03/31/17 10:54	03/31/17 19:24	1
Cadmium	ND		0.50		ug/L		03/31/17 10:54	03/31/17 19:24	1
Cobalt	6.2		0.30		ug/L		03/31/17 10:54	03/31/17 19:24	1
Molybdenum	6.3		1.0		ug/L		03/31/17 10:54	03/31/17 19:24	1
Selenium	ND		1.0		ug/L		03/31/17 10:54	03/31/17 19:24	1
Thallium	ND		0.20		ug/L		03/31/17 10:54	03/31/17 19:24	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		03/31/17 07:15	03/31/17 12:46	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	19.9		2.5		mg/L			04/07/17 23:39	5
Fluoride	ND		0.25		mg/L			04/07/17 23:39	5
Sulfate	46.3		10.0		mg/L			04/07/17 23:39	5
Total Dissolved Solids	720		10.0		mg/L			04/03/17 01:11	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.3	HF	0.1		SU			03/31/17 23:23	1
Temperature	21.2	HF	0.001		Degrees C			03/31/17 23:23	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

**Client Sample ID: MW-4**  
**Date Collected: 03/28/17 14:50**  
**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-8**  
**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.25		0.0020		mg/L		04/03/17 08:20	04/03/17 22:02	1
Boron	0.21		0.020		mg/L		04/03/17 08:20	04/03/17 22:02	1
Calcium	250		0.50		mg/L		04/03/17 08:20	04/03/17 22:02	1
Chromium	0.0072		0.0040		mg/L		04/03/17 08:20	04/03/17 22:02	1
Lead	ND		0.010		mg/L		04/03/17 08:20	04/03/17 22:02	1
Lithium	ND		0.030		mg/L		04/03/17 08:20	04/03/17 22:02	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		03/31/17 10:54	03/31/17 19:29	1
Arsenic	1.6		1.0		ug/L		03/31/17 10:54	03/31/17 19:29	1
Beryllium	ND		0.70		ug/L		03/31/17 10:54	03/31/17 19:29	1
Cadmium	0.57		0.50		ug/L		03/31/17 10:54	03/31/17 19:29	1
Cobalt	0.67		0.30		ug/L		03/31/17 10:54	03/31/17 19:29	1
Molybdenum	1.3		1.0		ug/L		03/31/17 10:54	03/31/17 19:29	1
Selenium	ND		1.0		ug/L		03/31/17 10:54	03/31/17 19:29	1
Thallium	ND		0.20		ug/L		03/31/17 10:54	03/31/17 19:29	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		03/31/17 07:15	03/31/17 12:48	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	35.3		2.5		mg/L			04/07/17 23:54	5
Fluoride	ND		0.25		mg/L			04/07/17 23:54	5
Sulfate	432		10.0		mg/L			04/07/17 23:54	5
Total Dissolved Solids	1260		10.0		mg/L			04/03/17 01:11	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.4	HF	0.1		SU			03/31/17 23:27	1
Temperature	21.4	HF	0.001		Degrees C			03/31/17 23:27	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

**Client Sample ID: DUP-1**

**Date Collected: 03/28/17 00:00**

**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-9**

**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.23		0.0020		mg/L		04/03/17 08:20	04/03/17 22:05	1
Boron	0.030		0.020		mg/L		04/03/17 08:20	04/03/17 22:05	1
Calcium	133		0.50		mg/L		04/03/17 08:20	04/03/17 22:05	1
Chromium	0.0069		0.0040		mg/L		04/03/17 08:20	04/03/17 22:05	1
Lead	ND		0.010		mg/L		04/03/17 08:20	04/03/17 22:05	1
Lithium	ND		0.030		mg/L		04/03/17 08:20	04/03/17 22:05	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		03/31/17 10:54	03/31/17 19:35	1
Arsenic	4.5		1.0		ug/L		03/31/17 10:54	03/31/17 19:35	1
Beryllium	ND		0.70		ug/L		03/31/17 10:54	03/31/17 19:35	1
Cadmium	ND		0.50		ug/L		03/31/17 10:54	03/31/17 19:35	1
Cobalt	1.3		0.30		ug/L		03/31/17 10:54	03/31/17 19:35	1
Molybdenum	4.0		1.0		ug/L		03/31/17 10:54	03/31/17 19:35	1
Selenium	ND		1.0		ug/L		03/31/17 10:54	03/31/17 19:35	1
Thallium	ND		0.20		ug/L		03/31/17 10:54	03/31/17 19:35	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		03/31/17 07:15	03/31/17 12:49	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	30.9		1.0		mg/L			04/08/17 00:09	2
Fluoride	0.25		0.10		mg/L			04/08/17 00:09	2
Sulfate	111		4.0		mg/L			04/08/17 00:09	2
Total Dissolved Solids	610		10.0		mg/L			04/03/17 01:11	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.6	HF	0.1		SU			03/31/17 23:33	1
Temperature	21.0	HF	0.001		Degrees C			03/31/17 23:33	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-115322-10**

**Date Collected: 03/28/17 16:00**

**Matrix: Water**

**Date Received: 03/30/17 09:45**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		04/03/17 08:20	04/03/17 22:08	1
Boron	ND		0.020		mg/L		04/03/17 08:20	04/03/17 22:08	1
Calcium	ND		0.50		mg/L		04/03/17 08:20	04/03/17 22:08	1
Chromium	ND		0.0040		mg/L		04/03/17 08:20	04/03/17 22:08	1
Lead	ND		0.010		mg/L		04/03/17 08:20	04/03/17 22:08	1
Lithium	ND		0.030		mg/L		04/03/17 08:20	04/03/17 22:08	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		03/31/17 10:54	03/31/17 19:58	1
Arsenic	ND		1.0		ug/L		03/31/17 10:54	03/31/17 19:58	1
Beryllium	ND		0.70		ug/L		03/31/17 10:54	03/31/17 19:58	1
Cadmium	ND		0.50		ug/L		03/31/17 10:54	03/31/17 19:58	1
Cobalt	ND		0.30		ug/L		03/31/17 10:54	03/31/17 19:58	1
Molybdenum	ND		1.0		ug/L		03/31/17 10:54	03/31/17 19:58	1
Selenium	ND		1.0		ug/L		03/31/17 10:54	03/31/17 19:58	1
Thallium	ND		0.20		ug/L		03/31/17 10:54	03/31/17 19:58	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		03/31/17 07:15	03/31/17 12:51	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			04/08/17 00:23	1
Fluoride	ND		0.050		mg/L			04/08/17 00:23	1
<b>Sulfate</b>	<b>2.4</b>		2.0		mg/L			04/08/17 00:23	1
Total Dissolved Solids	ND		10.0		mg/L			04/03/17 01:11	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>pH</b>	<b>6.1</b>	<b>HF</b>	0.1		SU			03/31/17 23:35	1
<b>Temperature</b>	<b>20.7</b>	<b>HF</b>	0.001		Degrees C			03/31/17 23:35	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

**Client Sample ID: EQUIP BLANK**

**Lab Sample ID: 480-115322-11**

**Date Collected: 03/28/17 16:05**

**Matrix: Water**

**Date Received: 03/30/17 09:45**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		04/03/17 08:20	04/03/17 22:12	1
Boron	ND		0.020		mg/L		04/03/17 08:20	04/03/17 22:12	1
Calcium	ND		0.50		mg/L		04/03/17 08:20	04/03/17 22:12	1
Chromium	ND		0.0040		mg/L		04/03/17 08:20	04/03/17 22:12	1
Lead	ND		0.010		mg/L		04/03/17 08:20	04/03/17 22:12	1
Lithium	ND		0.030		mg/L		04/03/17 08:20	04/03/17 22:12	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		03/31/17 10:54	03/31/17 20:03	1
Arsenic	ND		1.0		ug/L		03/31/17 10:54	03/31/17 20:03	1
Beryllium	ND		0.70		ug/L		03/31/17 10:54	03/31/17 20:03	1
Cadmium	ND		0.50		ug/L		03/31/17 10:54	03/31/17 20:03	1
Cobalt	ND		0.30		ug/L		03/31/17 10:54	03/31/17 20:03	1
Molybdenum	ND		1.0		ug/L		03/31/17 10:54	03/31/17 20:03	1
Selenium	ND		1.0		ug/L		03/31/17 10:54	03/31/17 20:03	1
Thallium	ND		0.20		ug/L		03/31/17 10:54	03/31/17 20:03	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		03/31/17 07:15	03/31/17 12:53	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			04/08/17 00:38	1
Fluoride	ND		0.050		mg/L			04/08/17 00:38	1
Sulfate	ND		2.0		mg/L			04/08/17 00:38	1
Total Dissolved Solids	ND		10.0		mg/L			04/03/17 01:11	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.9	HF	0.1		SU			03/31/17 23:38	1
Temperature	20.6	HF	0.001		Degrees C			03/31/17 23:38	1

# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 480-349800/1-A**  
**Matrix: Water**  
**Analysis Batch: 350181**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 349800**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		04/03/17 08:20	04/03/17 20:57	1
Boron	ND		0.020		mg/L		04/03/17 08:20	04/03/17 20:57	1
Calcium	ND		0.50		mg/L		04/03/17 08:20	04/03/17 20:57	1
Chromium	ND		0.0040		mg/L		04/03/17 08:20	04/03/17 20:57	1
Lead	ND		0.010		mg/L		04/03/17 08:20	04/03/17 20:57	1
Lithium	ND		0.030		mg/L		04/03/17 08:20	04/03/17 20:57	1

**Lab Sample ID: LCS 480-349800/2-A**  
**Matrix: Water**  
**Analysis Batch: 350181**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 349800**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Barium	0.200	0.204		mg/L		102	80 - 120
Boron	0.200	0.203		mg/L		102	80 - 120
Calcium	10.0	9.86		mg/L		99	80 - 120
Chromium	0.200	0.197		mg/L		98	80 - 120
Lead	0.200	0.200		mg/L		100	80 - 120

**Lab Sample ID: 480-115322-6 MS**  
**Matrix: Water**  
**Analysis Batch: 350181**

**Client Sample ID: MW-3RD**  
**Prep Type: Total/NA**  
**Prep Batch: 349800**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Barium	0.23		0.200	0.437		mg/L		102	75 - 125
Boron	0.031		0.200	0.239		mg/L		104	75 - 125
Calcium	132		10.0	140.6	4	mg/L		86	75 - 125
Chromium	0.0048		0.200	0.201		mg/L		98	75 - 125
Lead	ND		0.200	0.210		mg/L		102	75 - 125

**Lab Sample ID: 480-115322-6 MSD**  
**Matrix: Water**  
**Analysis Batch: 350181**

**Client Sample ID: MW-3RD**  
**Prep Type: Total/NA**  
**Prep Batch: 349800**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Barium	0.23		0.200	0.430		mg/L		99	75 - 125	2	20
Boron	0.031		0.200	0.237		mg/L		103	75 - 125	1	20
Calcium	132		10.0	138.3	4	mg/L		63	75 - 125	2	20
Chromium	0.0048		0.200	0.202		mg/L		98	75 - 125	0	20
Lead	ND		0.200	0.208		mg/L		101	75 - 125	1	20

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 480-349687/1-A**  
**Matrix: Water**  
**Analysis Batch: 349878**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 349687**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		03/31/17 10:54	03/31/17 18:00	1
Arsenic	ND		1.0		ug/L		03/31/17 10:54	03/31/17 18:00	1

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# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: MB 480-349687/1-A**  
**Matrix: Water**  
**Analysis Batch: 349878**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 349687**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.70		ug/L		03/31/17 10:54	03/31/17 18:00	1
Cadmium	ND		0.50		ug/L		03/31/17 10:54	03/31/17 18:00	1
Cobalt	ND		0.30		ug/L		03/31/17 10:54	03/31/17 18:00	1
Molybdenum	ND		1.0		ug/L		03/31/17 10:54	03/31/17 18:00	1
Selenium	ND		1.0		ug/L		03/31/17 10:54	03/31/17 18:00	1
Thallium	ND		0.20		ug/L		03/31/17 10:54	03/31/17 18:00	1

**Lab Sample ID: LCS 480-349687/2-A**  
**Matrix: Water**  
**Analysis Batch: 349878**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 349687**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	20.0	18.95		ug/L		95	80 - 120
Arsenic	20.0	18.82		ug/L		94	80 - 120
Beryllium	20.0	18.84		ug/L		94	80 - 120
Cadmium	20.0	18.67		ug/L		93	80 - 120
Cobalt	20.0	19.17		ug/L		96	80 - 120
Molybdenum	20.0	18.99		ug/L		95	80 - 120
Selenium	20.0	18.19		ug/L		91	80 - 120
Thallium	20.0	19.15		ug/L		96	80 - 120

**Lab Sample ID: 480-115322-3 MS**  
**Matrix: Water**  
**Analysis Batch: 349878**

**Client Sample ID: MW-1RD**  
**Prep Type: Total/NA**  
**Prep Batch: 349687**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND		20.0	18.43		ug/L		92	75 - 125
Arsenic	ND		20.0	20.22		ug/L		99	75 - 125
Beryllium	ND		20.0	18.20		ug/L		91	75 - 125
Cadmium	ND		20.0	18.92		ug/L		95	75 - 125
Cobalt	1.9		20.0	21.03		ug/L		95	75 - 125
Molybdenum	2.9		20.0	22.58		ug/L		98	75 - 125
Selenium	ND		20.0	18.47		ug/L		92	75 - 125
Thallium	ND		20.0	19.29		ug/L		96	75 - 125

**Lab Sample ID: 480-115322-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 349878**

**Client Sample ID: MW-1RD**  
**Prep Type: Total/NA**  
**Prep Batch: 349687**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Antimony	ND		20.0	18.03		ug/L		90	75 - 125	2	20
Arsenic	ND		20.0	19.78		ug/L		97	75 - 125	2	20
Beryllium	ND		20.0	18.01		ug/L		90	75 - 125	1	20
Cadmium	ND		20.0	18.66		ug/L		93	75 - 125	1	20
Cobalt	1.9		20.0	20.42		ug/L		92	75 - 125	3	20
Molybdenum	2.9		20.0	22.09		ug/L		96	75 - 125	2	20
Selenium	ND		20.0	18.26		ug/L		91	75 - 125	1	20
Thallium	ND		20.0	18.85		ug/L		94	75 - 125	2	20

TestAmerica Buffalo

# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: MB 480-349616/1-A**  
**Matrix: Water**  
**Analysis Batch: 349752**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 349616**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		03/31/17 07:15	03/31/17 11:34	1

**Lab Sample ID: LCS 480-349616/2-A**  
**Matrix: Water**  
**Analysis Batch: 349752**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 349616**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	6.67	6.93		ug/L		104	80 - 120

**Lab Sample ID: MB 480-349617/1-A**  
**Matrix: Water**  
**Analysis Batch: 349752**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 349617**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		03/31/17 07:15	03/31/17 12:27	1

**Lab Sample ID: LCS 480-349617/2-A**  
**Matrix: Water**  
**Analysis Batch: 349752**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 349617**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	6.67	6.82		ug/L		102	80 - 120

**Lab Sample ID: 480-115322-4 MS**  
**Matrix: Water**  
**Analysis Batch: 349752**

**Client Sample ID: MW-2RD**  
**Prep Type: Total/NA**  
**Prep Batch: 349617**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	ND		6.67	7.00		ug/L		105	80 - 120

**Lab Sample ID: 480-115322-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 349752**

**Client Sample ID: MW-2RD**  
**Prep Type: Total/NA**  
**Prep Batch: 349617**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	ND		6.67	6.92		ug/L		104	80 - 120	1	20

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 480-350475/28**  
**Matrix: Water**  
**Analysis Batch: 350475**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			04/06/17 04:50	1
Fluoride	ND		0.050		mg/L			04/06/17 04:50	1
Sulfate	ND		2.0		mg/L			04/06/17 04:50	1

TestAmerica Buffalo

# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: MB 480-350475/4**  
**Matrix: Water**  
**Analysis Batch: 350475**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			04/05/17 22:59	1
Fluoride	ND		0.050		mg/L			04/05/17 22:59	1
Sulfate	ND		2.0		mg/L			04/05/17 22:59	1

**Lab Sample ID: LCS 480-350475/27**  
**Matrix: Water**  
**Analysis Batch: 350475**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	51.07		mg/L		102	90 - 110
Fluoride	5.00	5.11		mg/L		102	90 - 110
Sulfate	50.0	50.87		mg/L		102	90 - 110

**Lab Sample ID: LCS 480-350475/3**  
**Matrix: Water**  
**Analysis Batch: 350475**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	51.01		mg/L		102	90 - 110
Fluoride	5.00	5.19		mg/L		104	90 - 110
Sulfate	50.0	52.44		mg/L		105	90 - 110

**Lab Sample ID: MB 480-350843/28**  
**Matrix: Water**  
**Analysis Batch: 350843**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			04/07/17 20:44	1
Fluoride	ND		0.050		mg/L			04/07/17 20:44	1
Sulfate	ND		2.0		mg/L			04/07/17 20:44	1

**Lab Sample ID: MB 480-350843/4**  
**Matrix: Water**  
**Analysis Batch: 350843**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			04/07/17 14:53	1
Fluoride	ND		0.050		mg/L			04/07/17 14:53	1
Sulfate	ND		2.0		mg/L			04/07/17 14:53	1

**Lab Sample ID: MB 480-350843/52**  
**Matrix: Water**  
**Analysis Batch: 350843**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			04/08/17 02:35	1
Fluoride	ND		0.050		mg/L			04/08/17 02:35	1
Sulfate	ND		2.0		mg/L			04/08/17 02:35	1

TestAmerica Buffalo

# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCS 480-350843/27**  
**Matrix: Water**  
**Analysis Batch: 350843**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.12		mg/L		98	90 - 110
Fluoride	5.00	4.89		mg/L		98	90 - 110
Sulfate	50.0	48.74		mg/L		97	90 - 110

**Lab Sample ID: LCS 480-350843/3**  
**Matrix: Water**  
**Analysis Batch: 350843**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.48		mg/L		99	90 - 110
Fluoride	5.00	5.02		mg/L		100	90 - 110
Sulfate	50.0	48.59		mg/L		97	90 - 110

**Lab Sample ID: LCS 480-350843/51**  
**Matrix: Water**  
**Analysis Batch: 350843**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.39		mg/L		99	90 - 110
Fluoride	5.00	4.89		mg/L		98	90 - 110
Sulfate	50.0	48.44		mg/L		97	90 - 110

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 480-349901/1**  
**Matrix: Water**  
**Analysis Batch: 349901**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			04/03/17 01:11	1

**Lab Sample ID: LCS 480-349901/2**  
**Matrix: Water**  
**Analysis Batch: 349901**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	529	531.0		mg/L		100	85 - 115

**Lab Sample ID: 480-115322-2 DU**  
**Matrix: Water**  
**Analysis Batch: 349901**

**Client Sample ID: MW-3R**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	843		840.0		mg/L		0.4	10

TestAmerica Buffalo

# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

## Method: SM 4500 H+ B - pH

**Lab Sample ID: LCS 480-349841/1**  
**Matrix: Water**  
**Analysis Batch: 349841**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99 - 101

**Lab Sample ID: LCS 480-349841/23**  
**Matrix: Water**  
**Analysis Batch: 349841**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99 - 101

**Lab Sample ID: 480-115322-1 DU**  
**Matrix: Water**  
**Analysis Batch: 349841**

**Client Sample ID: MW-1**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.7	HF	7.7		SU		0.5	5
Temperature	21.2	HF	21.4		Degrees C		1	10

# QC Association Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

## Metals

### Prep Batch: 349616

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-115322-1	MW-1	Total/NA	Water	7470A	
480-115322-2	MW-3R	Total/NA	Water	7470A	
480-115322-3	MW-1RD	Total/NA	Water	7470A	
MB 480-349616/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-349616/2-A	Lab Control Sample	Total/NA	Water	7470A	

### Prep Batch: 349617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-115322-4	MW-2RD	Total/NA	Water	7470A	
480-115322-5	MW-2R	Total/NA	Water	7470A	
480-115322-6	MW-3RD	Total/NA	Water	7470A	
480-115322-7	MW-3	Total/NA	Water	7470A	
480-115322-8	MW-4	Total/NA	Water	7470A	
480-115322-9	DUP-1	Total/NA	Water	7470A	
480-115322-10	FIELD BLANK	Total/NA	Water	7470A	
480-115322-11	EQUIP BLANK	Total/NA	Water	7470A	
MB 480-349617/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-349617/2-A	Lab Control Sample	Total/NA	Water	7470A	
480-115322-4 MS	MW-2RD	Total/NA	Water	7470A	
480-115322-4 MSD	MW-2RD	Total/NA	Water	7470A	

### Prep Batch: 349687

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-115322-1	MW-1	Total/NA	Water	3020A	
480-115322-2	MW-3R	Total/NA	Water	3020A	
480-115322-3	MW-1RD	Total/NA	Water	3020A	
480-115322-4	MW-2RD	Total/NA	Water	3020A	
480-115322-5	MW-2R	Total/NA	Water	3020A	
480-115322-6	MW-3RD	Total/NA	Water	3020A	
480-115322-7	MW-3	Total/NA	Water	3020A	
480-115322-8	MW-4	Total/NA	Water	3020A	
480-115322-9	DUP-1	Total/NA	Water	3020A	
480-115322-10	FIELD BLANK	Total/NA	Water	3020A	
480-115322-11	EQUIP BLANK	Total/NA	Water	3020A	
MB 480-349687/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-349687/2-A	Lab Control Sample	Total/NA	Water	3020A	
480-115322-3 MS	MW-1RD	Total/NA	Water	3020A	
480-115322-3 MSD	MW-1RD	Total/NA	Water	3020A	

### Analysis Batch: 349752

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-115322-1	MW-1	Total/NA	Water	7470A	349616
480-115322-2	MW-3R	Total/NA	Water	7470A	349616
480-115322-3	MW-1RD	Total/NA	Water	7470A	349616
480-115322-4	MW-2RD	Total/NA	Water	7470A	349617
480-115322-5	MW-2R	Total/NA	Water	7470A	349617
480-115322-6	MW-3RD	Total/NA	Water	7470A	349617
480-115322-7	MW-3	Total/NA	Water	7470A	349617
480-115322-8	MW-4	Total/NA	Water	7470A	349617
480-115322-9	DUP-1	Total/NA	Water	7470A	349617
480-115322-10	FIELD BLANK	Total/NA	Water	7470A	349617

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# QC Association Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

## Metals (Continued)

### Analysis Batch: 349752 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-115322-11	EQUIP BLANK	Total/NA	Water	7470A	349617
MB 480-349616/1-A	Method Blank	Total/NA	Water	7470A	349616
MB 480-349617/1-A	Method Blank	Total/NA	Water	7470A	349617
LCS 480-349616/2-A	Lab Control Sample	Total/NA	Water	7470A	349616
LCS 480-349617/2-A	Lab Control Sample	Total/NA	Water	7470A	349617
480-115322-4 MS	MW-2RD	Total/NA	Water	7470A	349617
480-115322-4 MSD	MW-2RD	Total/NA	Water	7470A	349617

### Prep Batch: 349800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-115322-1	MW-1	Total/NA	Water	3005A	
480-115322-2	MW-3R	Total/NA	Water	3005A	
480-115322-3	MW-1RD	Total/NA	Water	3005A	
480-115322-4	MW-2RD	Total/NA	Water	3005A	
480-115322-5	MW-2R	Total/NA	Water	3005A	
480-115322-6	MW-3RD	Total/NA	Water	3005A	
480-115322-7	MW-3	Total/NA	Water	3005A	
480-115322-8	MW-4	Total/NA	Water	3005A	
480-115322-9	DUP-1	Total/NA	Water	3005A	
480-115322-10	FIELD BLANK	Total/NA	Water	3005A	
480-115322-11	EQUIP BLANK	Total/NA	Water	3005A	
MB 480-349800/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-349800/2-A	Lab Control Sample	Total/NA	Water	3005A	
480-115322-6 MS	MW-3RD	Total/NA	Water	3005A	
480-115322-6 MSD	MW-3RD	Total/NA	Water	3005A	

### Analysis Batch: 349878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-115322-1	MW-1	Total/NA	Water	6020A	349687
480-115322-2	MW-3R	Total/NA	Water	6020A	349687
480-115322-3	MW-1RD	Total/NA	Water	6020A	349687
480-115322-4	MW-2RD	Total/NA	Water	6020A	349687
480-115322-5	MW-2R	Total/NA	Water	6020A	349687
480-115322-6	MW-3RD	Total/NA	Water	6020A	349687
480-115322-7	MW-3	Total/NA	Water	6020A	349687
480-115322-8	MW-4	Total/NA	Water	6020A	349687
480-115322-9	DUP-1	Total/NA	Water	6020A	349687
480-115322-10	FIELD BLANK	Total/NA	Water	6020A	349687
480-115322-11	EQUIP BLANK	Total/NA	Water	6020A	349687
MB 480-349687/1-A	Method Blank	Total/NA	Water	6020A	349687
LCS 480-349687/2-A	Lab Control Sample	Total/NA	Water	6020A	349687
480-115322-3 MS	MW-1RD	Total/NA	Water	6020A	349687
480-115322-3 MSD	MW-1RD	Total/NA	Water	6020A	349687

### Analysis Batch: 350181

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-115322-1	MW-1	Total/NA	Water	6010C	349800
480-115322-2	MW-3R	Total/NA	Water	6010C	349800
480-115322-3	MW-1RD	Total/NA	Water	6010C	349800
480-115322-4	MW-2RD	Total/NA	Water	6010C	349800
480-115322-5	MW-2R	Total/NA	Water	6010C	349800

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# QC Association Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

## Metals (Continued)

### Analysis Batch: 350181 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-115322-6	MW-3RD	Total/NA	Water	6010C	349800
480-115322-7	MW-3	Total/NA	Water	6010C	349800
480-115322-8	MW-4	Total/NA	Water	6010C	349800
480-115322-9	DUP-1	Total/NA	Water	6010C	349800
480-115322-10	FIELD BLANK	Total/NA	Water	6010C	349800
480-115322-11	EQUIP BLANK	Total/NA	Water	6010C	349800
MB 480-349800/1-A	Method Blank	Total/NA	Water	6010C	349800
LCS 480-349800/2-A	Lab Control Sample	Total/NA	Water	6010C	349800
480-115322-6 MS	MW-3RD	Total/NA	Water	6010C	349800
480-115322-6 MSD	MW-3RD	Total/NA	Water	6010C	349800

## General Chemistry

### Analysis Batch: 349841

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-115322-1	MW-1	Total/NA	Water	SM 4500 H+ B	
480-115322-2	MW-3R	Total/NA	Water	SM 4500 H+ B	
480-115322-3	MW-1RD	Total/NA	Water	SM 4500 H+ B	
480-115322-4	MW-2RD	Total/NA	Water	SM 4500 H+ B	
480-115322-5	MW-2R	Total/NA	Water	SM 4500 H+ B	
480-115322-6	MW-3RD	Total/NA	Water	SM 4500 H+ B	
480-115322-7	MW-3	Total/NA	Water	SM 4500 H+ B	
480-115322-8	MW-4	Total/NA	Water	SM 4500 H+ B	
480-115322-9	DUP-1	Total/NA	Water	SM 4500 H+ B	
480-115322-10	FIELD BLANK	Total/NA	Water	SM 4500 H+ B	
480-115322-11	EQUIP BLANK	Total/NA	Water	SM 4500 H+ B	
LCS 480-349841/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 480-349841/23	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
480-115322-1 DU	MW-1	Total/NA	Water	SM 4500 H+ B	

### Analysis Batch: 349901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-115322-1	MW-1	Total/NA	Water	SM 2540C	
480-115322-2	MW-3R	Total/NA	Water	SM 2540C	
480-115322-3	MW-1RD	Total/NA	Water	SM 2540C	
480-115322-4	MW-2RD	Total/NA	Water	SM 2540C	
480-115322-5	MW-2R	Total/NA	Water	SM 2540C	
480-115322-6	MW-3RD	Total/NA	Water	SM 2540C	
480-115322-7	MW-3	Total/NA	Water	SM 2540C	
480-115322-8	MW-4	Total/NA	Water	SM 2540C	
480-115322-9	DUP-1	Total/NA	Water	SM 2540C	
480-115322-10	FIELD BLANK	Total/NA	Water	SM 2540C	
480-115322-11	EQUIP BLANK	Total/NA	Water	SM 2540C	
MB 480-349901/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-349901/2	Lab Control Sample	Total/NA	Water	SM 2540C	
480-115322-2 DU	MW-3R	Total/NA	Water	SM 2540C	

### Analysis Batch: 350475

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-115322-1	MW-1	Total/NA	Water	300.0	

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# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

## General Chemistry (Continued)

### Analysis Batch: 350475 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-115322-2	MW-3R	Total/NA	Water	300.0	
480-115322-3	MW-1RD	Total/NA	Water	300.0	
480-115322-4	MW-2RD	Total/NA	Water	300.0	
480-115322-5	MW-2R	Total/NA	Water	300.0	
MB 480-350475/28	Method Blank	Total/NA	Water	300.0	
MB 480-350475/4	Method Blank	Total/NA	Water	300.0	
LCS 480-350475/27	Lab Control Sample	Total/NA	Water	300.0	
LCS 480-350475/3	Lab Control Sample	Total/NA	Water	300.0	

### Analysis Batch: 350843

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-115322-6	MW-3RD	Total/NA	Water	300.0	
480-115322-7	MW-3	Total/NA	Water	300.0	
480-115322-8	MW-4	Total/NA	Water	300.0	
480-115322-9	DUP-1	Total/NA	Water	300.0	
480-115322-10	FIELD BLANK	Total/NA	Water	300.0	
480-115322-11	EQUIP BLANK	Total/NA	Water	300.0	
MB 480-350843/28	Method Blank	Total/NA	Water	300.0	
MB 480-350843/4	Method Blank	Total/NA	Water	300.0	
MB 480-350843/52	Method Blank	Total/NA	Water	300.0	
LCS 480-350843/27	Lab Control Sample	Total/NA	Water	300.0	
LCS 480-350843/3	Lab Control Sample	Total/NA	Water	300.0	
LCS 480-350843/51	Lab Control Sample	Total/NA	Water	300.0	

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

**Client Sample ID: MW-1**  
**Date Collected: 03/28/17 08:25**  
**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-1**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			349800	04/03/17 08:20	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	350181	04/03/17 21:14	SLB	TAL BUF
Total/NA	Prep	3020A			349687	03/31/17 10:54	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	349878	03/31/17 18:11	TRB	TAL BUF
Total/NA	Prep	7470A			349616	03/31/17 07:15	JRK	TAL BUF
Total/NA	Analysis	7470A		1	349752	03/31/17 12:22	JRK	TAL BUF
Total/NA	Analysis	300.0		2	350475	04/06/17 05:04	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	349901	04/03/17 01:11	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	349841	03/31/17 22:59	DSC	TAL BUF

**Client Sample ID: MW-3R**  
**Date Collected: 03/28/17 12:25**  
**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-2**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			349800	04/03/17 08:20	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	350181	04/03/17 21:18	SLB	TAL BUF
Total/NA	Prep	3020A			349687	03/31/17 10:54	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	349878	03/31/17 18:17	TRB	TAL BUF
Total/NA	Prep	7470A			349616	03/31/17 07:15	JRK	TAL BUF
Total/NA	Analysis	7470A		1	349752	03/31/17 12:23	JRK	TAL BUF
Total/NA	Analysis	300.0		5	350475	04/06/17 05:19	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	349901	04/03/17 01:11	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	349841	03/31/17 23:06	DSC	TAL BUF

**Client Sample ID: MW-1RD**  
**Date Collected: 03/28/17 08:30**  
**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-3**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			349800	04/03/17 08:20	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	350181	04/03/17 21:21	SLB	TAL BUF
Total/NA	Prep	3020A			349687	03/31/17 10:54	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	349878	03/31/17 18:22	TRB	TAL BUF
Total/NA	Prep	7470A			349616	03/31/17 07:15	JRK	TAL BUF
Total/NA	Analysis	7470A		1	349752	03/31/17 12:25	JRK	TAL BUF
Total/NA	Analysis	300.0		2	350475	04/06/17 05:34	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	349901	04/03/17 01:11	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	349841	03/31/17 23:08	DSC	TAL BUF

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-115322-4**

**Date Collected: 03/28/17 10:20**

**Matrix: Water**

**Date Received: 03/30/17 09:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			349800	04/03/17 08:20	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	350181	04/03/17 21:25	SLB	TAL BUF
Total/NA	Prep	3020A			349687	03/31/17 10:54	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	349878	03/31/17 19:07	TRB	TAL BUF
Total/NA	Prep	7470A			349617	03/31/17 07:15	JRK	TAL BUF
Total/NA	Analysis	7470A		1	349752	03/31/17 12:30	JRK	TAL BUF
Total/NA	Analysis	300.0		5	350475	04/06/17 05:48	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	349901	04/03/17 01:11	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	349841	03/31/17 23:12	DSC	TAL BUF

**Client Sample ID: MW-2R**

**Lab Sample ID: 480-115322-5**

**Date Collected: 03/28/17 10:25**

**Matrix: Water**

**Date Received: 03/30/17 09:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			349800	04/03/17 08:20	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	350181	04/03/17 21:28	SLB	TAL BUF
Total/NA	Prep	3020A			349687	03/31/17 10:54	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	349878	03/31/17 19:13	TRB	TAL BUF
Total/NA	Prep	7470A			349617	03/31/17 07:15	JRK	TAL BUF
Total/NA	Analysis	7470A		1	349752	03/31/17 12:43	JRK	TAL BUF
Total/NA	Analysis	300.0		5	350475	04/06/17 06:03	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	349901	04/03/17 01:11	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	349841	03/31/17 23:16	DSC	TAL BUF

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-115322-6**

**Date Collected: 03/28/17 13:30**

**Matrix: Water**

**Date Received: 03/30/17 09:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			349800	04/03/17 08:20	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	350181	04/03/17 21:31	SLB	TAL BUF
Total/NA	Prep	3020A			349687	03/31/17 10:54	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	349878	03/31/17 19:18	TRB	TAL BUF
Total/NA	Prep	7470A			349617	03/31/17 07:15	JRK	TAL BUF
Total/NA	Analysis	7470A		1	349752	03/31/17 12:44	JRK	TAL BUF
Total/NA	Analysis	300.0		2	350843	04/07/17 23:25	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	349901	04/03/17 01:11	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	349841	03/31/17 23:19	DSC	TAL BUF

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

**Client Sample ID: MW-3**  
**Date Collected: 03/28/17 12:20**  
**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-7**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			349800	04/03/17 08:20	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	350181	04/03/17 21:58	SLB	TAL BUF
Total/NA	Prep	3020A			349687	03/31/17 10:54	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	349878	03/31/17 19:24	TRB	TAL BUF
Total/NA	Prep	7470A			349617	03/31/17 07:15	JRK	TAL BUF
Total/NA	Analysis	7470A		1	349752	03/31/17 12:46	JRK	TAL BUF
Total/NA	Analysis	300.0		5	350843	04/07/17 23:39	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	349901	04/03/17 01:11	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	349841	03/31/17 23:23	DSC	TAL BUF

**Client Sample ID: MW-4**  
**Date Collected: 03/28/17 14:50**  
**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-8**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			349800	04/03/17 08:20	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	350181	04/03/17 22:02	SLB	TAL BUF
Total/NA	Prep	3020A			349687	03/31/17 10:54	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	349878	03/31/17 19:29	TRB	TAL BUF
Total/NA	Prep	7470A			349617	03/31/17 07:15	JRK	TAL BUF
Total/NA	Analysis	7470A		1	349752	03/31/17 12:48	JRK	TAL BUF
Total/NA	Analysis	300.0		5	350843	04/07/17 23:54	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	349901	04/03/17 01:11	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	349841	03/31/17 23:27	DSC	TAL BUF

**Client Sample ID: DUP-1**  
**Date Collected: 03/28/17 00:00**  
**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-9**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			349800	04/03/17 08:20	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	350181	04/03/17 22:05	SLB	TAL BUF
Total/NA	Prep	3020A			349687	03/31/17 10:54	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	349878	03/31/17 19:35	TRB	TAL BUF
Total/NA	Prep	7470A			349617	03/31/17 07:15	JRK	TAL BUF
Total/NA	Analysis	7470A		1	349752	03/31/17 12:49	JRK	TAL BUF
Total/NA	Analysis	300.0		2	350843	04/08/17 00:09	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	349901	04/03/17 01:11	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	349841	03/31/17 23:33	DSC	TAL BUF

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-115322-10**

**Date Collected: 03/28/17 16:00**

**Matrix: Water**

**Date Received: 03/30/17 09:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			349800	04/03/17 08:20	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	350181	04/03/17 22:08	SLB	TAL BUF
Total/NA	Prep	3020A			349687	03/31/17 10:54	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	349878	03/31/17 19:58	TRB	TAL BUF
Total/NA	Prep	7470A			349617	03/31/17 07:15	JRK	TAL BUF
Total/NA	Analysis	7470A		1	349752	03/31/17 12:51	JRK	TAL BUF
Total/NA	Analysis	300.0		1	350843	04/08/17 00:23	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	349901	04/03/17 01:11	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	349841	03/31/17 23:35	DSC	TAL BUF

**Client Sample ID: EQUIP BLANK**

**Lab Sample ID: 480-115322-11**

**Date Collected: 03/28/17 16:05**

**Matrix: Water**

**Date Received: 03/30/17 09:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			349800	04/03/17 08:20	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	350181	04/03/17 22:12	SLB	TAL BUF
Total/NA	Prep	3020A			349687	03/31/17 10:54	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	349878	03/31/17 20:03	TRB	TAL BUF
Total/NA	Prep	7470A			349617	03/31/17 07:15	JRK	TAL BUF
Total/NA	Analysis	7470A		1	349752	03/31/17 12:53	JRK	TAL BUF
Total/NA	Analysis	300.0		1	350843	04/08/17 00:38	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	349901	04/03/17 01:11	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	349841	03/31/17 23:38	DSC	TAL BUF

**Laboratory References:**

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

# Accreditation/Certification Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

## Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	036-999-337	12-31-17

The following analytes are included in this report, but are not accredited/certified under this accreditation/certification:

Analysis Method	Prep Method	Matrix	Analyte
6010C	3005A	Water	Lithium

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 H+ B		Water	pH
SM 4500 H+ B		Water	Temperature

# Method Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL BUF
6020A	Metals (ICP/MS)	SW846	TAL BUF
7470A	Mercury (CVAA)	SW846	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL BUF
SM 4500 H+ B	pH	SM	TAL BUF

#### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

# Sample Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-115322-1	MW-1	Water	03/28/17 08:25	03/30/17 09:45
480-115322-2	MW-3R	Water	03/28/17 12:25	03/30/17 09:45
480-115322-3	MW-1RD	Water	03/28/17 08:30	03/30/17 09:45
480-115322-4	MW-2RD	Water	03/28/17 10:20	03/30/17 09:45
480-115322-5	MW-2R	Water	03/28/17 10:25	03/30/17 09:45
480-115322-6	MW-3RD	Water	03/28/17 13:30	03/30/17 09:45
480-115322-7	MW-3	Water	03/28/17 12:20	03/30/17 09:45
480-115322-8	MW-4	Water	03/28/17 14:50	03/30/17 09:45
480-115322-9	DUP-1	Water	03/28/17 00:00	03/30/17 09:45
480-115322-10	FIELD BLANK	Water	03/28/17 16:00	03/30/17 09:45
480-115322-11	EQUIP BLANK	Water	03/28/17 16:05	03/30/17 09:45



10 Hazelwood Drive  
Amherst, NY 14228-2298  
Phone (716) 691-2600 Fax (716) 691-7991

<b>Client Information</b> Client Contact: Nathaniel Beinmann Nathaniel Beinmann Company: Waste Connections, Inc. Address: 13425 Courthouse Blvd City: Rosemount State/Zip: MN, 55068 Phone: PO # Purchase Order Requested: Standard Email: nathanielb@wcnx.org Project Name: SKB Lansing/ Event Desc: CCR Groundwater Site: Minnesota		Lab PM: VanDette, Ryan T E-Mail: ryan.vandette@testamericainc.com Carrier Tracking No(s): COC No: 480-94262-22509.1 Page: Page 1 of 1 Job #	
Due Date Requested: TAT Requested (days): Matrix (W=water, S=solid, O=wastewater, B=breast-tissue, A=air) Sample Type (C=Comp, G=grab) Sample Time Sample Date Preservation Codes: Matrix Sample Type Sample Time Sample Date Preservation Codes:		Analysis Requested Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 901.1 Ra - Radium-226/228 300.0, 28D - Cl/F/SO4 6010C, 6020A, 7470A 2540C_Calcd - Total Dissolved Solids SM4500_H+ - pH	
Sample Identification MW-1 MW-3 Duplicate Field Blank Equip Blank MW-1RD MW-2RD MW-2R MW-3RD MW-3R MW-4		Total Number of Containers Special Instructions/Note: 480-115322 COC	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Empty Kit Relinquished by: Relinquished by: Thomas A. Reis Date/Time: 3/29/17 17:00 Relinquished by: Thomas A. Reis Date/Time: 3/29/17 17:00 Relinquished by: Thomas A. Reis Date/Time: 3/29/17 17:00		Method of Shipment: Date/Time: 3/29/17 15:40 Received by: Thomas A. Reis Date/Time: 3/29/17 09:45 Received by: Thomas A. Reis Date/Time: 3/29/17 09:45 Cooler Temperature(s) °C and Other Remarks: 25, 21.6, 12.1	



## Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-115322-1

SDG Number:

**Login Number: 115322**

**List Number: 1**

**Creator: Janish, Carl M**

**List Source: TestAmerica Buffalo**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GES
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-115322-2

Client Project/Site: SKB Lansing - CCR Groundwater

Sampling Event: CCR Groundwater

For:

Waste Connections, Inc.

13425 Courthouse Blvd

Rosemount, Minnesota 55068

Attn: Nathaniel Beinemann



Authorized for release by:

4/27/2017 11:59:48 AM

Denise Giglia, Project Management Assistant II

[denise.giglia@testamericainc.com](mailto:denise.giglia@testamericainc.com)

Designee for

Ryan VanDette, Project Manager II

(716)504-9830

[ryan.vandette@testamericainc.com](mailto:ryan.vandette@testamericainc.com)

### LINKS

Review your project  
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Have a Question?



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[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-2

## Qualifiers

### Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-2

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**Job ID: 480-115322-2**

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**Laboratory: TestAmerica Buffalo**

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**Narrative**

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**Job Narrative  
480-115322-2**

**Comments**

No additional comments.

**Receipt**

The samples were received on 3/30/2017 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.1° C, 2.5° C and 2.8° C.

**RAD**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-2

**Client Sample ID: MW-1**

**Lab Sample ID: 480-115322-1**

No Detections.

**Client Sample ID: MW-3R**

**Lab Sample ID: 480-115322-2**

No Detections.

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-115322-3**

No Detections.

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-115322-4**

No Detections.

**Client Sample ID: MW-2R**

**Lab Sample ID: 480-115322-5**

No Detections.

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-115322-6**

No Detections.

**Client Sample ID: MW-3**

**Lab Sample ID: 480-115322-7**

No Detections.

**Client Sample ID: MW-4**

**Lab Sample ID: 480-115322-8**

No Detections.

**Client Sample ID: DUP-1**

**Lab Sample ID: 480-115322-9**

No Detections.

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-115322-10**

No Detections.

**Client Sample ID: EQUIP BLANK**

**Lab Sample ID: 480-115322-11**

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo



# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-2

**Client Sample ID: MW-1**  
**Date Collected: 03/28/17 08:25**  
**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-1**  
**Matrix: Water**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
<b>Radium-226</b>	<b>25.4</b>		16.1	16.3	50.0	20.1	pCi/L	04/05/17 14:52	04/26/17 09:32	1
Radium-228	-4.16	U	21.8	21.8	50.0	29.4	pCi/L	04/05/17 14:52	04/26/17 09:32	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-2

**Client Sample ID: MW-3R**  
**Date Collected: 03/28/17 12:25**  
**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-2**  
**Matrix: Water**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	-6.12	U	29.6	29.6	50.0	49.6	pCi/L	04/05/17 14:52	04/26/17 09:25	1
Radium-228	33.3	U	32.2	32.3	50.0	35.4	pCi/L	04/05/17 14:52	04/26/17 09:25	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-2

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-115322-3**

**Date Collected: 03/28/17 08:30**

**Matrix: Water**

**Date Received: 03/30/17 09:45**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
<b>Radium-226</b>	<b>28.4</b>		14.3	14.6	50.0	15.1	pCi/L	04/05/17 14:52	04/26/17 09:27	1
Radium-228	17.3	U	20.1	20.1	50.0	27.7	pCi/L	04/05/17 14:52	04/26/17 09:27	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-2

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-115322-4**

**Date Collected: 03/28/17 10:20**

**Matrix: Water**

**Date Received: 03/30/17 09:45**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	38.7		17.6	18.0	50.0	16.9	pCi/L	04/05/17 14:52	04/26/17 09:26	1
Radium-228	24.6		13.5	13.7	50.0	13.2	pCi/L	04/05/17 14:52	04/26/17 09:26	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-2

**Client Sample ID: MW-2R**

**Date Collected: 03/28/17 10:25**

**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-5**

**Matrix: Water**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	13.2	U	23.7	23.7	50.0	42.5	pCi/L	04/05/17 14:52	04/26/17 09:28	1
Radium-228	4.83	U	10.7	10.7	50.0	40.2	pCi/L	04/05/17 14:52	04/26/17 09:28	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-2

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-115322-6**

**Date Collected: 03/28/17 13:30**

**Matrix: Water**

**Date Received: 03/30/17 09:45**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
<b>Radium-226</b>	<b>20.8</b>		18.1	18.2	50.0	18.1	pCi/L	04/05/17 14:52	04/26/17 22:38	1
Radium-228	16.9	U	26.3	26.4	50.0	28.9	pCi/L	04/05/17 14:52	04/26/17 22:38	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-2

**Client Sample ID: MW-3**  
**Date Collected: 03/28/17 12:20**  
**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-7**  
**Matrix: Water**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	-16.1	U	19.5	19.6	50.0	49.2	pCi/L	04/05/17 14:52	04/26/17 12:02	1
Radium-228	9.37	U	17.4	17.4	50.0	41.7	pCi/L	04/05/17 14:52	04/26/17 12:02	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-2

**Client Sample ID: MW-4**  
**Date Collected: 03/28/17 14:50**  
**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-8**  
**Matrix: Water**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	-7.26	U	17.7	17.8	50.0	29.1	pCi/L	04/05/17 14:52	04/26/17 12:08	1
Radium-228	9.43	U	15.0	15.0	50.0	29.1	pCi/L	04/05/17 14:52	04/26/17 12:08	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-2

**Client Sample ID: DUP-1**

**Date Collected: 03/28/17 00:00**

**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-9**

**Matrix: Water**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	5.46	U	19.2	19.2	50.0	16.5	pCi/L	04/05/17 14:52	04/26/17 12:10	1
Radium-228	0.430	U	2.63	2.63	50.0	32.4	pCi/L	04/05/17 14:52	04/26/17 12:10	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-2

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-115322-10**

**Date Collected: 03/28/17 16:00**

**Matrix: Water**

**Date Received: 03/30/17 09:45**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.000	U	10.7	10.7	50.0	40.6	pCi/L	04/05/17 14:52	04/26/17 12:07	1
Radium-228	12.6	U	21.0	21.1	50.0	40.2	pCi/L	04/05/17 14:52	04/26/17 12:07	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-2

**Client Sample ID: EQUIP BLANK**

**Lab Sample ID: 480-115322-11**

**Date Collected: 03/28/17 16:05**

**Matrix: Water**

**Date Received: 03/30/17 09:45**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-7.51	U	19.7	19.7	50.0	33.2	pCi/L	04/05/17 14:52	04/26/17 12:04	1
Radium-228	15.8	U	19.3	19.4	50.0	22.5	pCi/L	04/05/17 14:52	04/26/17 12:04	1

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# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-2

## Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

**Lab Sample ID: MB 160-301652/1-A**  
**Matrix: Water**  
**Analysis Batch: 305673**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 301652**

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	-8.164	U	20.0	20.0	50.0	33.9	pCi/L	04/05/17 14:52	04/26/17 09:20	1
Radium-228	13.30	U	14.8	14.9	50.0	21.4	pCi/L	04/05/17 14:52	04/26/17 09:20	1

**Lab Sample ID: LCS 160-301652/2-A**  
**Matrix: Water**  
**Analysis Batch: 305711**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 301652**

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Americium-241	136000	133100		15400		305	pCi/L	98	90 - 111
Cesium-137	46800	44780		4480		117	pCi/L	96	90 - 111
Cobalt-60	38800	37690		3720		58.9	pCi/L	97	89 - 110

**Lab Sample ID: 480-115322-1 DU**  
**Matrix: Water**  
**Analysis Batch: 305673**

**Client Sample ID: MW-1**  
**Prep Type: Total/NA**  
**Prep Batch: 301652**

Analyte	Sample Sample		DU DU		Total	RL	MDC	Unit	RER	RER
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					Limit
Radium-226	25.4		-8.125	U	16.6	50.0	28.2	pCi/L	1.02	1
Radium-228	-4.16	U	-0.2895	U	0.540	50.0	31.0	pCi/L	0.17	1

# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-2

## Rad

### Prep Batch: 301652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-115322-1	MW-1	Total/NA	Water	Fill_Geo-21	
480-115322-2	MW-3R	Total/NA	Water	Fill_Geo-21	
480-115322-3	MW-1RD	Total/NA	Water	Fill_Geo-21	
480-115322-4	MW-2RD	Total/NA	Water	Fill_Geo-21	
480-115322-5	MW-2R	Total/NA	Water	Fill_Geo-21	
480-115322-6	MW-3RD	Total/NA	Water	Fill_Geo-21	
480-115322-7	MW-3	Total/NA	Water	Fill_Geo-21	
480-115322-8	MW-4	Total/NA	Water	Fill_Geo-21	
480-115322-9	DUP-1	Total/NA	Water	Fill_Geo-21	
480-115322-10	FIELD BLANK	Total/NA	Water	Fill_Geo-21	
480-115322-11	EQUIP BLANK	Total/NA	Water	Fill_Geo-21	
MB 160-301652/1-A	Method Blank	Total/NA	Water	Fill_Geo-21	
LCS 160-301652/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-21	
480-115322-1 DU	MW-1	Total/NA	Water	Fill_Geo-21	

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-2

## Client Sample ID: MW-1

Date Collected: 03/28/17 08:25

Date Received: 03/30/17 09:45

Lab Sample ID: 480-115322-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			301652	04/05/17 14:52	MFM	TAL SL
Total/NA	Analysis	901.1		1	305715	04/26/17 09:32	CDR	TAL SL

## Client Sample ID: MW-3R

Date Collected: 03/28/17 12:25

Date Received: 03/30/17 09:45

Lab Sample ID: 480-115322-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			301652	04/05/17 14:52	MFM	TAL SL
Total/NA	Analysis	901.1		1	305712	04/26/17 09:25	CDR	TAL SL

## Client Sample ID: MW-1RD

Date Collected: 03/28/17 08:30

Date Received: 03/30/17 09:45

Lab Sample ID: 480-115322-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			301652	04/05/17 14:52	MFM	TAL SL
Total/NA	Analysis	901.1		1	305714	04/26/17 09:27	CDR	TAL SL

## Client Sample ID: MW-2RD

Date Collected: 03/28/17 10:20

Date Received: 03/30/17 09:45

Lab Sample ID: 480-115322-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			301652	04/05/17 14:52	MFM	TAL SL
Total/NA	Analysis	901.1		1	305745	04/26/17 09:26	CMA	TAL SL

## Client Sample ID: MW-2R

Date Collected: 03/28/17 10:25

Date Received: 03/30/17 09:45

Lab Sample ID: 480-115322-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			301652	04/05/17 14:52	MFM	TAL SL
Total/NA	Analysis	901.1		1	305692	04/26/17 09:28	CMA	TAL SL

## Client Sample ID: MW-3RD

Date Collected: 03/28/17 13:30

Date Received: 03/30/17 09:45

Lab Sample ID: 480-115322-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			301652	04/05/17 14:52	MFM	TAL SL
Total/NA	Analysis	901.1		1	305745	04/26/17 22:38	CMA	TAL SL

TestAmerica Buffalo

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-2

**Client Sample ID: MW-3**  
**Date Collected: 03/28/17 12:20**  
**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-7**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			301652	04/05/17 14:52	MFM	TAL SL
Total/NA	Analysis	901.1		1	305712	04/26/17 12:02	CDR	TAL SL

**Client Sample ID: MW-4**  
**Date Collected: 03/28/17 14:50**  
**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-8**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			301652	04/05/17 14:52	MFM	TAL SL
Total/NA	Analysis	901.1		1	305714	04/26/17 12:08	CDR	TAL SL

**Client Sample ID: DUP-1**  
**Date Collected: 03/28/17 00:00**  
**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-9**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			301652	04/05/17 14:52	MFM	TAL SL
Total/NA	Analysis	901.1		1	305715	04/26/17 12:10	CDR	TAL SL

**Client Sample ID: FIELD BLANK**  
**Date Collected: 03/28/17 16:00**  
**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-10**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			301652	04/05/17 14:52	MFM	TAL SL
Total/NA	Analysis	901.1		1	305692	04/26/17 12:07	CMA	TAL SL

**Client Sample ID: EQUIP BLANK**  
**Date Collected: 03/28/17 16:05**  
**Date Received: 03/30/17 09:45**

**Lab Sample ID: 480-115322-11**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			301652	04/05/17 14:52	MFM	TAL SL
Total/NA	Analysis	901.1		1	305745	04/26/17 12:04	CMA	TAL SL

**Laboratory References:**

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Accreditation/Certification Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-2

## Laboratory: TestAmerica Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	036-999-337	12-31-17

## Laboratory: TestAmerica St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-17 *
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-17 *
Florida	NELAP	4	E87689	06-30-17 *
Illinois	NELAP	5	200023	11-30-17
Iowa	State Program	7	373	02-01-18
Kansas	NELAP	7	E-10236	10-31-17
Kentucky (DW)	State Program	4	90125	12-31-17
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-17 *
Louisiana (DW)	NELAP	6	LA170011	12-31-17
Maryland	State Program	3	310	09-30-17
Missouri	State Program	7	780	06-30-17 *
Nevada	State Program	9	MO000542017-1	07-31-17
New Jersey	NELAP	2	MO002	06-30-17 *
New York	NELAP	2	11616	03-31-17 *
North Dakota	State Program	8	R207	06-30-17
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-17
Pennsylvania	NELAP	3	68-00540	02-28-18
South Carolina	State Program	4	85002001	06-30-17
Texas	NELAP	6	T104704193-16-10	07-31-17
US Fish & Wildlife	Federal		LE058448-0	10-31-17
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-17
Virginia	NELAP	3	460230	06-14-17 *
Washington	State Program	10	C592	08-30-17
West Virginia DEP	State Program	3	381	08-31-17 *

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Method Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-2

Method	Method Description	Protocol	Laboratory
901.1	Radium-226 & Other Gamma Emitters (GS)	EPA	TAL SL

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566






# Sample Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-115322-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-115322-1	MW-1	Water	03/28/17 08:25	03/30/17 09:45
480-115322-2	MW-3R	Water	03/28/17 12:25	03/30/17 09:45
480-115322-3	MW-1RD	Water	03/28/17 08:30	03/30/17 09:45
480-115322-4	MW-2RD	Water	03/28/17 10:20	03/30/17 09:45
480-115322-5	MW-2R	Water	03/28/17 10:25	03/30/17 09:45
480-115322-6	MW-3RD	Water	03/28/17 13:30	03/30/17 09:45
480-115322-7	MW-3	Water	03/28/17 12:20	03/30/17 09:45
480-115322-8	MW-4	Water	03/28/17 14:50	03/30/17 09:45
480-115322-9	DUP-1	Water	03/28/17 00:00	03/30/17 09:45
480-115322-10	FIELD BLANK	Water	03/28/17 16:00	03/30/17 09:45
480-115322-11	EQUIP BLANK	Water	03/28/17 16:05	03/30/17 09:45



<b>Client Information</b> Client Contact: Nathaniel Beinemann Nathaniel Beinemann Company: Waste Connections, Inc. Address: 13425 Courthouse Blvd City: Rosemount State/Zip: MN, 55068 Phone: [Redacted] Email: nathanielb@wcnx.org Project Name: SKB Lansing/ Event Desc: CCR Groundwater Site: Minnesota		Lab PM: VanDette, Ryan T E-Mail: ryan.vandette@testamericainc.com Carrier Tracking No(s): COC No: 480-94262-22509.1 Page: Page 1 of 1 Job #	
Due Date Requested: TAT Requested (days): Standard PO #: [Redacted] Purchase Order Requested WO #: [Redacted]		Analysis Requested Total Number of Containers: [Redacted]	
Sample Identification Sample Date: 3/28/17 Sample Time: 8:25 Matrix: Water Sample Type (C=Comp, G=grab): G Preservation Codes: [Redacted]		Field Filtered Sample (Yes or No) [X] Perform MS/MSD (Yes or No) [X] 901.1 Ra - Radium-226/228 [X] 300.0, 28D - Cl/F/SO4 [X] 6010C, 6020A, 7470A [X] 2540C_Calcd - Total Dissolved Solids [X] SM4500_H+ - pH [X]	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/Note: 480-115322 COC 	
Relinquished by: [Signature] Relinquished Date: 3/29/17 15:00 Company: America		Received by: [Signature] Received Date: 3/29/17 09:45 Company: America	
Relinquished by: [Signature] Relinquished Date: 3/29/17 17:00 Company: America		Received by: [Signature] Received Date: 3/29/17 09:45 Company: America	
Custody Seal No.: Custody Seal Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks: 25, 21.6, 12.1	



**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Lab PM: VanDette, Ryan T	480-115322 Chain of Custody							
Client Contact: Shipping/Receiving		E-Mail: ryan.vandette@testamericainc.com	Minnesota							
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Minnesota								
Address: 13715 Rider Trail North,		Due Date Requested: 4/11/2017								
City: Earth City		TAT Requested (days):								
State, Zip: MO, 63045		PO #:								
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		WO #:								
Email:		Project #: 48013603								
Project Name: SKB Lansing		SSOW#:								
Site: Lansing MN										
<b>Sample Identification - Client ID (Lab ID)</b>	<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type (C=Comp, G=grab)</b>	<b>MATRIX (W=water, S=solid, O=wastewater, BT=tissue, A=air)</b>	<b>Field Filtered Sample (Yes or No)</b>	<b>Perform MS/MSD (Yes or No)</b>	<b>901.1, Ra/Fill, Geo, 21 Radium-226/228</b>	<b>Analysis Requested</b>	<b>Total Number of Containers</b>	<b>Special Instructions/Note:</b>
MW-1 (480-115322-1)	3/28/17	08:25 Central	Water	Water	X	X			1	
MW-3R (480-115322-2)	3/28/17	12:20 Central	Water	Water	X	X			1	
MW-1RD (480-115322-3)	3/28/17	08:30 Central	Water	Water	X	X			1	
MW-2RD (480-115322-4)	3/28/17	10:20 Central	Water	Water	X	X			1	
MW-2R (480-115322-5)	3/28/17	10:25 Central	Water	Water	X	X			1	
MW-3RD (480-115322-6)	3/28/17	13:30 Central	Water	Water	X	X			1	
MW-3 (480-115322-7)	3/28/17	12:25 Central	Water	Water	X	X			1	
MW-4 (480-115322-8)	3/28/17	14:50 Central	Water	Water	X	X			1	
DUP-1 (480-115322-9)	3/28/17	Central	Water	Water	X	X			1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/rest/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

**Possible Hazard Identification**  
 Unconfirmed  
 Deliverable Requested: I, II, III, IV, Other (specify)

Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Relinquished by: *W. White* Date: 3/30/17  
 Relinquished by: *AS* Date: 3/31/17  
 Relinquished by: *Ch Clark* Date: 09/10  
 Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months  
 Special Instructions/OC Requirements:







## Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-115322-2

SDG Number:

**Login Number: 115322**

**List Number: 1**

**Creator: Janish, Carl M**

**List Source: TestAmerica Buffalo**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GES
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

## Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-115322-2

SDG Number:

**Login Number: 115322**

**List Number: 2**

**Creator: Taylor, Kristene N**

**List Source: TestAmerica St. Louis**

**List Creation: 03/31/17 02:07 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	18.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-117211-1

Client Project/Site: SKB Lansing - CCR Groundwater

Sampling Event: CCR Groundwater

For:

Waste Connections, Inc.

13425 Courthouse Blvd

Rosemount, Minnesota 55068

Attn: Nathaniel Beinemann



Authorized for release by:

5/15/2017 10:57:30 AM

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*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

### General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

**Job ID: 480-117211-1**

**Laboratory: TestAmerica Buffalo**

## Narrative

### Job Narrative 480-117211-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 4/29/2017 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.3° C and 2.6° C.

#### HPLC/IC

Method(s) 300.0: The following samples was reported with elevated reporting limits for all analytes: MW-1RD (480-117211-1), MW-2R (480-117211-2), MW-2RD (480-117211-3), MW-3R (480-117211-4) and MW-3RD (480-117211-5). The sample was analyzed at a dilution based on screening results.

Method(s) 300.0, 9056A: The following samples was reported with elevated reporting limits for all analytes: MW-4 (480-117211-6), MW-1 (480-117211-7), MW-3 (480-117211-8) and DUPLICATE-1 (480-117211-9). The sample was analyzed at a dilution based on screening results.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

Method(s) 6020A: The low level continuing calibration verification (CCVL 480-355373/12) for analytical batch 480-355373 recovered above the upper control limit for Total Selenium. The samples associated with this CCVL were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCVL; therefore, re-analysis of samples MW-1RD (480-117211-1), MW-2R (480-117211-2), MW-3R (480-117211-4), MW-3RD (480-117211-5), MW-4 (480-117211-6), MW-1 (480-117211-7), (LCS 480-355126/2-A), (LCSD 480-355126/3-A) and (MB 480-355126/1-A) was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### General Chemistry

Method(s) 9040C, SM 4500 H+ B: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: MW-1RD (480-117211-1), MW-2R (480-117211-2), MW-2RD (480-117211-3), MW-3R (480-117211-4), MW-3RD (480-117211-5), MW-4 (480-117211-6), MW-1 (480-117211-7), MW-3 (480-117211-8), DUPLICATE-1 (480-117211-9), FIELD BLANK (480-117211-10) and EQUIPMENT BLANK (480-117211-11).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Detection Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

## Client Sample ID: MW-1RD

## Lab Sample ID: 480-117211-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.17		0.0020		mg/L	1		6010C	Total/NA
Calcium	77.8		0.50		mg/L	1		6010C	Total/NA
Cobalt	2.0		0.30		ug/L	1		6020A	Total/NA
Molybdenum	3.1		1.0		ug/L	1		6020A	Total/NA
Chloride	18.2		1.0		mg/L	2		300.0	Total/NA
Fluoride	0.23		0.10		mg/L	2		300.0	Total/NA
Sulfate	45.7		4.0		mg/L	2		300.0	Total/NA
Total Dissolved Solids	355		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.7	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	20.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-2R

## Lab Sample ID: 480-117211-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.19		0.0020		mg/L	1		6010C	Total/NA
Boron	0.086		0.020		mg/L	1		6010C	Total/NA
Calcium	192		0.50		mg/L	1		6010C	Total/NA
Arsenic	2.1		1.0		ug/L	1		6020A	Total/NA
Cobalt	1.1		0.30		ug/L	1		6020A	Total/NA
Molybdenum	1.2		1.0		ug/L	1		6020A	Total/NA
Chloride	42.9		2.5		mg/L	5		300.0	Total/NA
Sulfate	155		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	800		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.0	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	20.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-2RD

## Lab Sample ID: 480-117211-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.17		0.0020		mg/L	1		6010C	Total/NA
Boron	0.039		0.020		mg/L	1		6010C	Total/NA
Calcium	122		0.50		mg/L	1		6010C	Total/NA
Arsenic	2.2		1.0		ug/L	1		6020A	Total/NA
Cobalt	2.5		0.30		ug/L	1		6020A	Total/NA
Molybdenum	2.7		1.0		ug/L	1		6020A	Total/NA
Selenium	1.2		1.0		ug/L	1		6020A	Total/NA
Chloride	30.8		2.5		mg/L	5		300.0	Total/NA
Sulfate	55.4		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	541		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.5	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	20.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3R

## Lab Sample ID: 480-117211-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.57		0.0020		mg/L	1		6010C	Total/NA
Boron	0.042		0.020		mg/L	1		6010C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

## Client Sample ID: MW-3R (Continued)

## Lab Sample ID: 480-117211-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	221		0.50		mg/L	1		6010C	Total/NA
Arsenic	3.0		1.0		ug/L	1		6020A	Total/NA
Cobalt	0.69		0.30		ug/L	1		6020A	Total/NA
Molybdenum	2.0		1.0		ug/L	1		6020A	Total/NA
Chloride	19.6		2.5		mg/L	5		300.0	Total/NA
Sulfate	41.2		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	860		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.0	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	20.3	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3RD

## Lab Sample ID: 480-117211-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.23		0.0020		mg/L	1		6010C	Total/NA
Boron	0.029		0.020		mg/L	1		6010C	Total/NA
Calcium	134		0.50		mg/L	1		6010C	Total/NA
Arsenic	4.4		1.0		ug/L	1		6020A	Total/NA
Cobalt	1.2		0.30		ug/L	1		6020A	Total/NA
Molybdenum	4.1		1.0		ug/L	1		6020A	Total/NA
Chloride	32.4		2.5		mg/L	5		300.0	Total/NA
Sulfate	108		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	644		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.4	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	20.3	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-4

## Lab Sample ID: 480-117211-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.24		0.0020		mg/L	1		6010C	Total/NA
Boron	0.17		0.020		mg/L	1		6010C	Total/NA
Calcium	258		0.50		mg/L	1		6010C	Total/NA
Arsenic	1.7		1.0		ug/L	1		6020A	Total/NA
Cadmium	0.76		0.50		ug/L	1		6020A	Total/NA
Cobalt	0.79		0.30		ug/L	1		6020A	Total/NA
Molybdenum	1.8		1.0		ug/L	1		6020A	Total/NA
Chloride	39.2		2.5		mg/L	5		300.0	Total/NA
Sulfate	425		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	1240		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.2	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	20.3	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-1

## Lab Sample ID: 480-117211-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.063		0.0020		mg/L	1		6010C	Total/NA
Calcium	68.5		0.50		mg/L	1		6010C	Total/NA
Chloride	15.4		1.0		mg/L	2		300.0	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

## Client Sample ID: MW-1 (Continued)

## Lab Sample ID: 480-117211-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.19		0.10		mg/L	2		300.0	Total/NA
Sulfate	15.5		4.0		mg/L	2		300.0	Total/NA
Total Dissolved Solids	320		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.5	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	20.3	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3

## Lab Sample ID: 480-117211-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.20		0.0020		mg/L	1		6010C	Total/NA
Boron	0.24		0.020		mg/L	1		6010C	Total/NA
Calcium	164		0.50		mg/L	1		6010C	Total/NA
Arsenic	1.6		1.0		ug/L	1		6020A	Total/NA
Cobalt	4.7		0.30		ug/L	1		6020A	Total/NA
Molybdenum	5.7		1.0		ug/L	1		6020A	Total/NA
Chloride	20.0		2.5		mg/L	5		300.0	Total/NA
Sulfate	36.5		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	638		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.1	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	20.3	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: DUPLICATE-1

## Lab Sample ID: 480-117211-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.23		0.0020		mg/L	1		6010C	Total/NA
Boron	0.028		0.020		mg/L	1		6010C	Total/NA
Calcium	132		0.50		mg/L	1		6010C	Total/NA
Chromium	0.0048		0.0040		mg/L	1		6010C	Total/NA
Arsenic	4.5		1.0		ug/L	1		6020A	Total/NA
Cobalt	1.3		0.30		ug/L	1		6020A	Total/NA
Molybdenum	4.1		1.0		ug/L	1		6020A	Total/NA
Chloride	32.6		2.5		mg/L	5		300.0	Total/NA
Fluoride	0.25		0.25		mg/L	5		300.0	Total/NA
Sulfate	108		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	582		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.4	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	20.3	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: FIELD BLANK

## Lab Sample ID: 480-117211-10

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.4	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	20.4	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: EQUIPMENT BLANK

## Lab Sample ID: 480-117211-11

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

**Client Sample ID: EQUIPMENT BLANK (Continued)**

**Lab Sample ID: 480-117211-11**

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	5.9	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	20.4	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-117211-1**

**Date Collected: 04/26/17 10:25**

**Matrix: Water**

**Date Received: 04/29/17 09:00**

**Method: 6010C - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Barium</b>	<b>0.17</b>		0.0020		mg/L		05/02/17 09:45	05/08/17 17:43	1
Boron	ND		0.020		mg/L		05/02/17 09:45	05/08/17 17:43	1
<b>Calcium</b>	<b>77.8</b>		0.50		mg/L		05/02/17 09:45	05/08/17 17:43	1
Chromium	ND		0.0040		mg/L		05/02/17 09:45	05/08/17 17:43	1
Lead	ND		0.010		mg/L		05/02/17 09:45	05/08/17 17:43	1
Lithium	ND		0.030		mg/L		05/02/17 09:45	05/08/17 17:43	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/02/17 10:34	05/03/17 00:30	1
Arsenic	ND		1.0		ug/L		05/02/17 10:34	05/03/17 00:30	1
Beryllium	ND		0.70		ug/L		05/02/17 10:34	05/03/17 00:30	1
Cadmium	ND		0.50		ug/L		05/02/17 10:34	05/03/17 00:30	1
<b>Cobalt</b>	<b>2.0</b>		0.30		ug/L		05/02/17 10:34	05/04/17 17:23	1
<b>Molybdenum</b>	<b>3.1</b>		1.0		ug/L		05/02/17 10:34	05/03/17 00:30	1
Selenium	ND	^	1.0		ug/L		05/02/17 10:34	05/03/17 00:30	1
Thallium	ND		0.20		ug/L		05/02/17 10:34	05/03/17 00:30	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/01/17 07:40	05/01/17 13:24	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>18.2</b>		1.0		mg/L			05/12/17 00:07	2
<b>Fluoride</b>	<b>0.23</b>		0.10		mg/L			05/12/17 00:07	2
<b>Sulfate</b>	<b>45.7</b>		4.0		mg/L			05/12/17 00:07	2
<b>Total Dissolved Solids</b>	<b>355</b>		10.0		mg/L			05/02/17 16:50	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>pH</b>	<b>7.7</b>	<b>HF</b>	0.1		SU			05/04/17 19:37	1
<b>Temperature</b>	<b>20.2</b>	<b>HF</b>	0.001		Degrees C			05/04/17 19:37	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

**Client Sample ID: MW-2R**

**Date Collected: 04/26/17 11:10**

**Date Received: 04/29/17 09:00**

**Lab Sample ID: 480-117211-2**

**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.19		0.0020		mg/L		05/02/17 09:45	05/08/17 17:46	1
Boron	0.086		0.020		mg/L		05/02/17 09:45	05/08/17 17:46	1
Calcium	192		0.50		mg/L		05/02/17 09:45	05/08/17 17:46	1
Chromium	ND		0.0040		mg/L		05/02/17 09:45	05/08/17 17:46	1
Lead	ND		0.010		mg/L		05/02/17 09:45	05/08/17 17:46	1
Lithium	ND		0.030		mg/L		05/02/17 09:45	05/08/17 17:46	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/02/17 10:34	05/03/17 00:36	1
Arsenic	2.1		1.0		ug/L		05/02/17 10:34	05/03/17 00:36	1
Beryllium	ND		0.70		ug/L		05/02/17 10:34	05/03/17 00:36	1
Cadmium	ND		0.50		ug/L		05/02/17 10:34	05/03/17 00:36	1
Cobalt	1.1		0.30		ug/L		05/02/17 10:34	05/04/17 17:28	1
Molybdenum	1.2		1.0		ug/L		05/02/17 10:34	05/03/17 00:36	1
Selenium	ND	^	1.0		ug/L		05/02/17 10:34	05/03/17 00:36	1
Thallium	ND		0.20		ug/L		05/02/17 10:34	05/03/17 00:36	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/01/17 07:40	05/01/17 13:31	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	42.9		2.5		mg/L			05/12/17 00:15	5
Fluoride	ND		0.25		mg/L			05/12/17 00:15	5
Sulfate	155		10.0		mg/L			05/12/17 00:15	5
Total Dissolved Solids	800		10.0		mg/L			05/02/17 16:50	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.0	HF	0.1		SU			05/04/17 19:40	1
Temperature	20.2	HF	0.001		Degrees C			05/04/17 19:40	1



# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-117211-3**

**Date Collected: 04/26/17 11:05**

**Matrix: Water**

**Date Received: 04/29/17 09:00**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.17		0.0020		mg/L		05/02/17 09:45	05/08/17 17:50	1
Boron	0.039		0.020		mg/L		05/02/17 09:45	05/08/17 17:50	1
Calcium	122		0.50		mg/L		05/02/17 09:45	05/08/17 17:50	1
Chromium	ND		0.0040		mg/L		05/02/17 09:45	05/08/17 17:50	1
Lead	ND		0.010		mg/L		05/02/17 09:45	05/08/17 17:50	1
Lithium	ND		0.030		mg/L		05/02/17 09:45	05/08/17 17:50	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/02/17 10:34	05/03/17 00:41	1
Arsenic	2.2		1.0		ug/L		05/02/17 10:34	05/03/17 00:41	1
Beryllium	ND		0.70		ug/L		05/02/17 10:34	05/03/17 00:41	1
Cadmium	ND		0.50		ug/L		05/02/17 10:34	05/03/17 00:41	1
Cobalt	2.5		0.30		ug/L		05/02/17 10:34	05/04/17 17:34	1
Molybdenum	2.7		1.0		ug/L		05/02/17 10:34	05/03/17 00:41	1
Selenium	1.2		1.0		ug/L		05/02/17 10:34	05/04/17 17:34	1
Thallium	ND		0.20		ug/L		05/02/17 10:34	05/03/17 00:41	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/01/17 07:40	05/01/17 13:33	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	30.8		2.5		mg/L			05/12/17 00:23	5
Fluoride	ND		0.25		mg/L			05/12/17 00:23	5
Sulfate	55.4		10.0		mg/L			05/12/17 00:23	5
Total Dissolved Solids	541		10.0		mg/L			05/02/17 16:50	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.5	HF	0.1		SU			05/04/17 19:43	1
Temperature	20.2	HF	0.001		Degrees C			05/04/17 19:43	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

**Client Sample ID: MW-3R**

**Date Collected: 04/26/17 11:50**

**Date Received: 04/29/17 09:00**

**Lab Sample ID: 480-117211-4**

**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.57		0.0020		mg/L		05/02/17 09:45	05/08/17 18:17	1
Boron	0.042		0.020		mg/L		05/02/17 09:45	05/08/17 18:17	1
Calcium	221		0.50		mg/L		05/02/17 09:45	05/08/17 18:17	1
Chromium	ND		0.0040		mg/L		05/02/17 09:45	05/08/17 18:17	1
Lead	ND		0.010		mg/L		05/02/17 09:45	05/08/17 18:17	1
Lithium	ND		0.030		mg/L		05/02/17 09:45	05/08/17 18:17	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/02/17 10:34	05/03/17 00:47	1
Arsenic	3.0		1.0		ug/L		05/02/17 10:34	05/03/17 00:47	1
Beryllium	ND		0.70		ug/L		05/02/17 10:34	05/03/17 00:47	1
Cadmium	ND		0.50		ug/L		05/02/17 10:34	05/03/17 00:47	1
Cobalt	0.69		0.30		ug/L		05/02/17 10:34	05/04/17 17:57	1
Molybdenum	2.0		1.0		ug/L		05/02/17 10:34	05/03/17 00:47	1
Selenium	ND	^	1.0		ug/L		05/02/17 10:34	05/03/17 00:47	1
Thallium	ND		0.20		ug/L		05/02/17 10:34	05/03/17 00:47	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/01/17 07:40	05/01/17 13:35	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	19.6		2.5		mg/L			05/12/17 00:31	5
Fluoride	ND		0.25		mg/L			05/12/17 00:31	5
Sulfate	41.2		10.0		mg/L			05/12/17 00:31	5
Total Dissolved Solids	860		10.0		mg/L			05/02/17 16:50	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.0	HF	0.1		SU			05/04/17 19:46	1
Temperature	20.3	HF	0.001		Degrees C			05/04/17 19:46	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-117211-5**

**Date Collected: 04/26/17 12:15**

**Matrix: Water**

**Date Received: 04/29/17 09:00**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.23		0.0020		mg/L		05/02/17 09:45	05/08/17 18:21	1
Boron	0.029		0.020		mg/L		05/02/17 09:45	05/08/17 18:21	1
Calcium	134		0.50		mg/L		05/02/17 09:45	05/08/17 18:21	1
Chromium	ND		0.0040		mg/L		05/02/17 09:45	05/08/17 18:21	1
Lead	ND		0.010		mg/L		05/02/17 09:45	05/08/17 18:21	1
Lithium	ND		0.030		mg/L		05/02/17 09:45	05/08/17 18:21	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/02/17 10:34	05/03/17 00:52	1
Arsenic	4.4		1.0		ug/L		05/02/17 10:34	05/03/17 00:52	1
Beryllium	ND		0.70		ug/L		05/02/17 10:34	05/03/17 00:52	1
Cadmium	ND		0.50		ug/L		05/02/17 10:34	05/03/17 00:52	1
Cobalt	1.2		0.30		ug/L		05/02/17 10:34	05/04/17 18:03	1
Molybdenum	4.1		1.0		ug/L		05/02/17 10:34	05/03/17 00:52	1
Selenium	ND	^	1.0		ug/L		05/02/17 10:34	05/03/17 00:52	1
Thallium	ND		0.20		ug/L		05/02/17 10:34	05/03/17 00:52	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/01/17 07:40	05/01/17 13:41	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	32.4		2.5		mg/L			05/12/17 00:39	5
Fluoride	ND		0.25		mg/L			05/12/17 00:39	5
Sulfate	108		10.0		mg/L			05/12/17 00:39	5
Total Dissolved Solids	644		10.0		mg/L			05/02/17 16:50	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.4	HF	0.1		SU			05/04/17 19:51	1
Temperature	20.3	HF	0.001		Degrees C			05/04/17 19:51	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

**Client Sample ID: MW-4**  
**Date Collected: 04/26/17 13:05**  
**Date Received: 04/29/17 09:00**

**Lab Sample ID: 480-117211-6**  
**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.24		0.0020		mg/L		05/02/17 09:45	05/08/17 18:24	1
Boron	0.17		0.020		mg/L		05/02/17 09:45	05/08/17 18:24	1
Calcium	258		0.50		mg/L		05/02/17 09:45	05/08/17 18:24	1
Chromium	ND		0.0040		mg/L		05/02/17 09:45	05/08/17 18:24	1
Lead	ND		0.010		mg/L		05/02/17 09:45	05/08/17 18:24	1
Lithium	ND		0.030		mg/L		05/02/17 09:45	05/08/17 18:24	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/02/17 10:34	05/03/17 00:57	1
Arsenic	1.7		1.0		ug/L		05/02/17 10:34	05/03/17 00:57	1
Beryllium	ND		0.70		ug/L		05/02/17 10:34	05/03/17 00:57	1
Cadmium	0.76		0.50		ug/L		05/02/17 10:34	05/03/17 00:57	1
Cobalt	0.79		0.30		ug/L		05/02/17 10:34	05/04/17 18:08	1
Molybdenum	1.8		1.0		ug/L		05/02/17 10:34	05/03/17 00:57	1
Selenium	ND	^	1.0		ug/L		05/02/17 10:34	05/03/17 00:57	1
Thallium	ND		0.20		ug/L		05/02/17 10:34	05/03/17 00:57	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/01/17 07:40	05/01/17 13:43	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	39.2		2.5		mg/L			05/12/17 11:36	5
Fluoride	ND		0.25		mg/L			05/12/17 11:36	5
Sulfate	425		10.0		mg/L			05/12/17 11:36	5
Total Dissolved Solids	1240		10.0		mg/L			05/02/17 16:50	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.2	HF	0.1		SU			05/04/17 19:54	1
Temperature	20.3	HF	0.001		Degrees C			05/04/17 19:54	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

**Client Sample ID: MW-1**  
**Date Collected: 04/26/17 10:20**  
**Date Received: 04/29/17 09:00**

**Lab Sample ID: 480-117211-7**  
**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Barium</b>	<b>0.063</b>		0.0020		mg/L		05/02/17 09:45	05/08/17 18:28	1
Boron	ND		0.020		mg/L		05/02/17 09:45	05/08/17 18:28	1
<b>Calcium</b>	<b>68.5</b>		0.50		mg/L		05/02/17 09:45	05/08/17 18:28	1
Chromium	ND		0.0040		mg/L		05/02/17 09:45	05/08/17 18:28	1
Lead	ND		0.010		mg/L		05/02/17 09:45	05/08/17 18:28	1
Lithium	ND		0.030		mg/L		05/02/17 09:45	05/08/17 18:28	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/02/17 10:34	05/03/17 01:03	1
Arsenic	ND		1.0		ug/L		05/02/17 10:34	05/03/17 01:03	1
Beryllium	ND		0.70		ug/L		05/02/17 10:34	05/03/17 01:03	1
Cadmium	ND		0.50		ug/L		05/02/17 10:34	05/03/17 01:03	1
Cobalt	ND		0.30		ug/L		05/02/17 10:34	05/04/17 18:14	1
Molybdenum	ND		1.0		ug/L		05/02/17 10:34	05/03/17 01:03	1
Selenium	ND	^	1.0		ug/L		05/02/17 10:34	05/03/17 01:03	1
Thallium	ND		0.20		ug/L		05/02/17 10:34	05/03/17 01:03	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/01/17 07:40	05/01/17 13:45	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>15.4</b>		1.0		mg/L			05/12/17 11:44	2
<b>Fluoride</b>	<b>0.19</b>		0.10		mg/L			05/12/17 11:44	2
<b>Sulfate</b>	<b>15.5</b>		4.0		mg/L			05/12/17 11:44	2
<b>Total Dissolved Solids</b>	<b>320</b>		10.0		mg/L			05/02/17 16:50	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>pH</b>	<b>7.5</b>	<b>HF</b>	0.1		SU			05/04/17 19:57	1
<b>Temperature</b>	<b>20.3</b>	<b>HF</b>	0.001		Degrees C			05/04/17 19:57	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

**Client Sample ID: MW-3**  
**Date Collected: 04/26/17 11:45**  
**Date Received: 04/29/17 09:00**

**Lab Sample ID: 480-117211-8**  
**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.20		0.0020		mg/L		05/02/17 09:45	05/08/17 18:31	1
Boron	0.24		0.020		mg/L		05/02/17 09:45	05/08/17 18:31	1
Calcium	164		0.50		mg/L		05/02/17 09:45	05/08/17 18:31	1
Chromium	ND		0.0040		mg/L		05/02/17 09:45	05/08/17 18:31	1
Lead	ND		0.010		mg/L		05/02/17 09:45	05/08/17 18:31	1
Lithium	ND		0.030		mg/L		05/02/17 09:45	05/08/17 18:31	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/02/17 10:34	05/03/17 01:26	1
Arsenic	1.6		1.0		ug/L		05/02/17 10:34	05/03/17 01:26	1
Beryllium	ND		0.70		ug/L		05/02/17 10:34	05/03/17 01:26	1
Cadmium	ND		0.50		ug/L		05/02/17 10:34	05/03/17 01:26	1
Cobalt	4.7		0.30		ug/L		05/02/17 10:34	05/04/17 18:19	1
Molybdenum	5.7		1.0		ug/L		05/02/17 10:34	05/03/17 01:26	1
Selenium	ND		1.0		ug/L		05/02/17 10:34	05/03/17 01:26	1
Thallium	ND		0.20		ug/L		05/02/17 10:34	05/03/17 01:26	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/01/17 07:40	05/01/17 13:47	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	20.0		2.5		mg/L			05/12/17 11:52	5
Fluoride	ND		0.25		mg/L			05/12/17 11:52	5
Sulfate	36.5		10.0		mg/L			05/12/17 11:52	5
Total Dissolved Solids	638		10.0		mg/L			05/02/17 16:50	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.1	HF	0.1		SU			05/04/17 20:00	1
Temperature	20.3	HF	0.001		Degrees C			05/04/17 20:00	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

**Client Sample ID: DUPLICATE-1**

**Lab Sample ID: 480-117211-9**

Date Collected: 04/26/17 00:00

Matrix: Water

Date Received: 04/29/17 09:00

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.23		0.0020		mg/L		05/02/17 09:45	05/08/17 18:34	1
Boron	0.028		0.020		mg/L		05/02/17 09:45	05/08/17 18:34	1
Calcium	132		0.50		mg/L		05/02/17 09:45	05/08/17 18:34	1
Chromium	0.0048		0.0040		mg/L		05/02/17 09:45	05/08/17 18:34	1
Lead	ND		0.010		mg/L		05/02/17 09:45	05/08/17 18:34	1
Lithium	ND		0.030		mg/L		05/02/17 09:45	05/08/17 18:34	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/02/17 10:34	05/03/17 01:32	1
Arsenic	4.5		1.0		ug/L		05/02/17 10:34	05/03/17 01:32	1
Beryllium	ND		0.70		ug/L		05/02/17 10:34	05/03/17 01:32	1
Cadmium	ND		0.50		ug/L		05/02/17 10:34	05/03/17 01:32	1
Cobalt	1.3		0.30		ug/L		05/02/17 10:34	05/04/17 18:24	1
Molybdenum	4.1		1.0		ug/L		05/02/17 10:34	05/03/17 01:32	1
Selenium	ND		1.0		ug/L		05/02/17 10:34	05/03/17 01:32	1
Thallium	ND		0.20		ug/L		05/02/17 10:34	05/03/17 01:32	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/01/17 07:40	05/01/17 13:49	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	32.6		2.5		mg/L			05/12/17 12:00	5
Fluoride	0.25		0.25		mg/L			05/12/17 12:00	5
Sulfate	108		10.0		mg/L			05/12/17 12:00	5
Total Dissolved Solids	582		10.0		mg/L			05/02/17 16:50	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.4	HF	0.1		SU			05/04/17 20:03	1
Temperature	20.3	HF	0.001		Degrees C			05/04/17 20:03	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-117211-10**

**Date Collected: 04/26/17 13:15**

**Matrix: Water**

**Date Received: 04/29/17 09:00**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		05/02/17 09:45	05/08/17 18:48	1
Boron	ND		0.020		mg/L		05/02/17 09:45	05/08/17 18:48	1
Calcium	ND		0.50		mg/L		05/02/17 09:45	05/08/17 18:48	1
Chromium	ND		0.0040		mg/L		05/02/17 09:45	05/08/17 18:48	1
Lead	ND		0.010		mg/L		05/02/17 09:45	05/08/17 18:48	1
Lithium	ND		0.030		mg/L		05/02/17 09:45	05/08/17 18:48	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/02/17 10:34	05/03/17 01:37	1
Arsenic	ND		1.0		ug/L		05/02/17 10:34	05/03/17 01:37	1
Beryllium	ND		0.70		ug/L		05/02/17 10:34	05/03/17 01:37	1
Cadmium	ND		0.50		ug/L		05/02/17 10:34	05/03/17 01:37	1
Cobalt	ND		0.30		ug/L		05/02/17 10:34	05/04/17 18:30	1
Molybdenum	ND		1.0		ug/L		05/02/17 10:34	05/03/17 01:37	1
Selenium	ND		1.0		ug/L		05/02/17 10:34	05/03/17 01:37	1
Thallium	ND		0.20		ug/L		05/02/17 10:34	05/03/17 01:37	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/01/17 07:40	05/01/17 13:50	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			05/12/17 12:41	1
Fluoride	ND		0.050		mg/L			05/12/17 12:41	1
Sulfate	ND		2.0		mg/L			05/12/17 12:41	1
Total Dissolved Solids	ND		10.0		mg/L			05/02/17 16:50	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.4	HF	0.1		SU			05/04/17 20:06	1
Temperature	20.4	HF	0.001		Degrees C			05/04/17 20:06	1



# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-117211-11**

**Date Collected: 04/26/17 13:20**

**Matrix: Water**

**Date Received: 04/29/17 09:00**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		05/02/17 09:45	05/08/17 18:52	1
Boron	ND		0.020		mg/L		05/02/17 09:45	05/08/17 18:52	1
Calcium	ND		0.50		mg/L		05/02/17 09:45	05/08/17 18:52	1
Chromium	ND		0.0040		mg/L		05/02/17 09:45	05/08/17 18:52	1
Lead	ND		0.010		mg/L		05/02/17 09:45	05/08/17 18:52	1
Lithium	ND		0.030		mg/L		05/02/17 09:45	05/08/17 18:52	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/02/17 10:34	05/03/17 01:42	1
Arsenic	ND		1.0		ug/L		05/02/17 10:34	05/03/17 01:42	1
Beryllium	ND		0.70		ug/L		05/02/17 10:34	05/03/17 01:42	1
Cadmium	ND		0.50		ug/L		05/02/17 10:34	05/03/17 01:42	1
Cobalt	ND		0.30		ug/L		05/02/17 10:34	05/04/17 18:35	1
Molybdenum	ND		1.0		ug/L		05/02/17 10:34	05/03/17 01:42	1
Selenium	ND		1.0		ug/L		05/02/17 10:34	05/03/17 01:42	1
Thallium	ND		0.20		ug/L		05/02/17 10:34	05/03/17 01:42	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/01/17 07:40	05/01/17 13:52	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			05/12/17 12:49	1
Fluoride	ND		0.050		mg/L			05/12/17 12:49	1
Sulfate	ND		2.0		mg/L			05/12/17 12:49	1
Total Dissolved Solids	ND		10.0		mg/L			05/02/17 16:50	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.9	HF	0.1		SU			05/04/17 20:09	1
Temperature	20.4	HF	0.001		Degrees C			05/04/17 20:09	1

# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 480-355046/1-A**  
**Matrix: Water**  
**Analysis Batch: 356308**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 355046**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		05/02/17 09:45	05/08/17 17:12	1
Boron	ND		0.020		mg/L		05/02/17 09:45	05/08/17 17:12	1
Calcium	ND		0.50		mg/L		05/02/17 09:45	05/08/17 17:12	1
Chromium	ND		0.0040		mg/L		05/02/17 09:45	05/08/17 17:12	1
Lead	ND		0.010		mg/L		05/02/17 09:45	05/08/17 17:12	1
Lithium	ND		0.030		mg/L		05/02/17 09:45	05/08/17 17:12	1

**Lab Sample ID: LCS 480-355046/2-A**  
**Matrix: Water**  
**Analysis Batch: 356308**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 355046**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Barium	0.200	0.199		mg/L		100	80 - 120
Boron	0.200	0.200		mg/L		100	80 - 120
Calcium	10.0	10.21		mg/L		102	80 - 120
Chromium	0.200	0.210		mg/L		105	80 - 120
Lead	0.200	0.204		mg/L		102	80 - 120

**Lab Sample ID: 480-117211-3 MS**  
**Matrix: Water**  
**Analysis Batch: 356308**

**Client Sample ID: MW-2RD**  
**Prep Type: Total/NA**  
**Prep Batch: 355046**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Barium	0.17		0.200	0.375		mg/L		104	75 - 125
Boron	0.039		0.200	0.250		mg/L		105	75 - 125
Calcium	122		10.0	137.6	4	mg/L		159	75 - 125
Chromium	ND		0.200	0.212		mg/L		106	75 - 125
Lead	ND		0.200	0.216		mg/L		107	75 - 125

**Lab Sample ID: 480-117211-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 356308**

**Client Sample ID: MW-2RD**  
**Prep Type: Total/NA**  
**Prep Batch: 355046**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Barium	0.17		0.200	0.376		mg/L		104	75 - 125	0	20
Boron	0.039		0.200	0.249		mg/L		105	75 - 125	0	20
Calcium	122		10.0	137.3	4	mg/L		156	75 - 125	0	20
Chromium	ND		0.200	0.211		mg/L		105	75 - 125	1	20
Lead	ND		0.200	0.214		mg/L		105	75 - 125	1	20

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 480-355126/1-A**  
**Matrix: Water**  
**Analysis Batch: 355373**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 355126**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/02/17 10:34	05/03/17 00:14	1
Arsenic	ND		1.0		ug/L		05/02/17 10:34	05/03/17 00:14	1

TestAmerica Buffalo

# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: MB 480-355126/1-A**  
**Matrix: Water**  
**Analysis Batch: 355373**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 355126**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.70		ug/L		05/02/17 10:34	05/03/17 00:14	1
Cadmium	ND		0.50		ug/L		05/02/17 10:34	05/03/17 00:14	1
Molybdenum	ND		1.0		ug/L		05/02/17 10:34	05/03/17 00:14	1
Selenium	ND	^	1.0		ug/L		05/02/17 10:34	05/03/17 00:14	1
Thallium	ND		0.20		ug/L		05/02/17 10:34	05/03/17 00:14	1

**Lab Sample ID: MB 480-355126/1-A**  
**Matrix: Water**  
**Analysis Batch: 355822**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 355126**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/02/17 10:34	05/04/17 17:05	1
Arsenic	ND		1.0		ug/L		05/02/17 10:34	05/04/17 17:05	1
Beryllium	ND		0.70		ug/L		05/02/17 10:34	05/04/17 17:05	1
Cadmium	ND		0.50		ug/L		05/02/17 10:34	05/04/17 17:05	1
Cobalt	ND		0.30		ug/L		05/02/17 10:34	05/04/17 17:05	1
Molybdenum	ND		1.0		ug/L		05/02/17 10:34	05/04/17 17:05	1
Selenium	ND		1.0		ug/L		05/02/17 10:34	05/04/17 17:05	1
Thallium	ND		0.20		ug/L		05/02/17 10:34	05/04/17 17:05	1

**Lab Sample ID: LCS 480-355126/2-A**  
**Matrix: Water**  
**Analysis Batch: 355373**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 355126**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Rec. Limits
Antimony	20.0	19.06		ug/L		95	80 - 120
Arsenic	20.0	19.38		ug/L		97	80 - 120
Beryllium	20.0	19.30		ug/L		96	80 - 120
Cadmium	20.0	19.30		ug/L		97	80 - 120
Molybdenum	20.0	20.29		ug/L		101	80 - 120
Selenium	20.0	18.96	^	ug/L		95	80 - 120
Thallium	20.0	19.52		ug/L		98	80 - 120

**Lab Sample ID: LCS 480-355126/2-A**  
**Matrix: Water**  
**Analysis Batch: 355822**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 355126**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Rec. Limits
Antimony	20.0	18.99		ug/L		95	80 - 120
Arsenic	20.0	18.93		ug/L		95	80 - 120
Beryllium	20.0	19.82		ug/L		99	80 - 120
Cadmium	20.0	18.29		ug/L		91	80 - 120
Cobalt	20.0	19.26		ug/L		96	80 - 120
Molybdenum	20.0	19.16		ug/L		96	80 - 120
Selenium	20.0	18.27		ug/L		91	80 - 120
Thallium	20.0	18.48		ug/L		92	80 - 120

TestAmerica Buffalo

# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: LCSD 480-355126/3-A**  
**Matrix: Water**  
**Analysis Batch: 355373**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 355126**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Antimony	20.0	19.88		ug/L		99	80 - 120	4	20
Arsenic	20.0	19.55		ug/L		98	80 - 120	1	20
Beryllium	20.0	20.26		ug/L		101	80 - 120	5	20
Cadmium	20.0	19.73		ug/L		99	80 - 120	2	20
Molybdenum	20.0	20.37		ug/L		102	80 - 120	0	20
Selenium	20.0	18.50	^	ug/L		93	80 - 120	2	20
Thallium	20.0	19.28		ug/L		96	80 - 120	1	20

**Lab Sample ID: LCSD 480-355126/3-A**  
**Matrix: Water**  
**Analysis Batch: 355822**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 355126**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Antimony	20.0	18.73		ug/L		94	80 - 120	1	20
Arsenic	20.0	18.66		ug/L		93	80 - 120	1	20
Beryllium	20.0	19.73		ug/L		99	80 - 120	0	20
Cadmium	20.0	18.53		ug/L		93	80 - 120	1	20
Cobalt	20.0	18.47		ug/L		92	80 - 120	4	20
Molybdenum	20.0	19.07		ug/L		95	80 - 120	0	20
Selenium	20.0	17.12		ug/L		86	80 - 120	7	20
Thallium	20.0	18.44		ug/L		92	80 - 120	0	20

**Lab Sample ID: 480-117211-11 MS**  
**Matrix: Water**  
**Analysis Batch: 355373**

**Client Sample ID: EQUIPMENT BLANK**  
**Prep Type: Total/NA**  
**Prep Batch: 355126**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Antimony	ND		20.0	20.25		ug/L		101	75 - 125
Arsenic	ND		20.0	18.54		ug/L		93	75 - 125
Beryllium	ND		20.0	20.24		ug/L		101	75 - 125
Cadmium	ND		20.0	20.12		ug/L		101	75 - 125
Molybdenum	ND		20.0	21.58		ug/L		108	75 - 125
Selenium	ND		20.0	18.11		ug/L		91	75 - 125
Thallium	ND		20.0	18.93		ug/L		95	75 - 125

**Lab Sample ID: 480-117211-11 MS**  
**Matrix: Water**  
**Analysis Batch: 355822**

**Client Sample ID: EQUIPMENT BLANK**  
**Prep Type: Total/NA**  
**Prep Batch: 355126**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Cobalt	ND		20.0	19.12		ug/L		95	75 - 125

**Lab Sample ID: 480-117211-11 MSD**  
**Matrix: Water**  
**Analysis Batch: 355373**

**Client Sample ID: EQUIPMENT BLANK**  
**Prep Type: Total/NA**  
**Prep Batch: 355126**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Antimony	ND		20.0	20.00		ug/L		100	75 - 125	1	20
Arsenic	ND		20.0	18.94		ug/L		95	75 - 125	2	20

TestAmerica Buffalo

# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: 480-117211-11 MSD**  
**Matrix: Water**  
**Analysis Batch: 355373**

**Client Sample ID: EQUIPMENT BLANK**  
**Prep Type: Total/NA**  
**Prep Batch: 355126**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits		
Beryllium	ND		20.0	20.47		ug/L		102	75 - 125	1	20
Cadmium	ND		20.0	20.17		ug/L		101	75 - 125	0	20
Molybdenum	ND		20.0	19.74		ug/L		99	75 - 125	9	20
Selenium	ND		20.0	18.71		ug/L		94	75 - 125	3	20
Thallium	ND		20.0	18.96		ug/L		95	75 - 125	0	20

**Lab Sample ID: 480-117211-11 MSD**  
**Matrix: Water**  
**Analysis Batch: 355822**

**Client Sample ID: EQUIPMENT BLANK**  
**Prep Type: Total/NA**  
**Prep Batch: 355126**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits		
Cobalt	ND		20.0	19.47		ug/L		97	75 - 125	2	20

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: MB 480-354878/1-A**  
**Matrix: Water**  
**Analysis Batch: 354978**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 354878**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil	Fac
	Result	Qualifier								
Mercury	ND		0.20		ug/L		05/01/17 07:40	05/01/17 13:21		1

**Lab Sample ID: LCS 480-354878/2-A**  
**Matrix: Water**  
**Analysis Batch: 354978**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 354878**

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
		Result	Qualifier				Limits
Mercury	6.67	6.57		ug/L		98	80 - 120

**Lab Sample ID: 480-117211-1 MS**  
**Matrix: Water**  
**Analysis Batch: 354978**

**Client Sample ID: MW-1RD**  
**Prep Type: Total/NA**  
**Prep Batch: 354878**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier		Result	Qualifier				Limits
Mercury	ND		6.67	6.62		ug/L		99	80 - 120

**Lab Sample ID: 480-117211-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 354978**

**Client Sample ID: MW-1RD**  
**Prep Type: Total/NA**  
**Prep Batch: 354878**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits		
Mercury	ND		6.67	6.67		ug/L		100	80 - 120	1	20

TestAmerica Buffalo

# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 480-356840/28**  
**Matrix: Water**  
**Analysis Batch: 356840**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			05/11/17 22:05	1
Fluoride	ND		0.050		mg/L			05/11/17 22:05	1
Sulfate	ND		2.0		mg/L			05/11/17 22:05	1

**Lab Sample ID: LCS 480-356840/27**  
**Matrix: Water**  
**Analysis Batch: 356840**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	52.57		mg/L		105	90 - 110
Fluoride	5.00	5.05		mg/L		101	90 - 110
Sulfate	50.0	50.47		mg/L		101	90 - 110

**Lab Sample ID: 480-117211-5 MS**  
**Matrix: Water**  
**Analysis Batch: 356840**

**Client Sample ID: MW-3RD**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	32.4		250	298.3		mg/L		106	81 - 120
Fluoride	ND		25.0	26.38		mg/L		105	82 - 120
Sulfate	108		250	355.4		mg/L		99	80 - 120

**Lab Sample ID: MB 480-357048/4**  
**Matrix: Water**  
**Analysis Batch: 357048**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			05/12/17 11:11	1
Fluoride	ND		0.050		mg/L			05/12/17 11:11	1
Sulfate	ND		2.0		mg/L			05/12/17 11:11	1

**Lab Sample ID: LCS 480-357048/3**  
**Matrix: Water**  
**Analysis Batch: 357048**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	51.86		mg/L		104	90 - 110
Fluoride	5.00	5.14		mg/L		103	90 - 110
Sulfate	50.0	49.48		mg/L		99	90 - 110

**Lab Sample ID: 480-117211-9 MS**  
**Matrix: Water**  
**Analysis Batch: 357048**

**Client Sample ID: DUPLICATE-1**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	32.6		250	304.3		mg/L		109	81 - 120
Fluoride	0.25		25.0	27.11		mg/L		107	82 - 120
Sulfate	108		250	361.0		mg/L		101	80 - 120

TestAmerica Buffalo

# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: 480-117211-9 MSD**  
**Matrix: Water**  
**Analysis Batch: 357048**

**Client Sample ID: DUPLICATE-1**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	32.6		250	303.5		mg/L		108	81 - 120	0	20
Fluoride	0.25		25.0	27.10		mg/L		107	82 - 120	0	20
Sulfate	108		250	359.7		mg/L		101	80 - 120	0	20

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 480-355239/1**  
**Matrix: Water**  
**Analysis Batch: 355239**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			05/02/17 16:50	1

**Lab Sample ID: LCS 480-355239/2**  
**Matrix: Water**  
**Analysis Batch: 355239**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	531	519.0		mg/L		98	85 - 115

**Lab Sample ID: 480-117211-1 DU**  
**Matrix: Water**  
**Analysis Batch: 355239**

**Client Sample ID: MW-1RD**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	355		366.0		mg/L		3	10

## Method: SM 4500 H+ B - pH

**Lab Sample ID: LCS 480-355767/1**  
**Matrix: Water**  
**Analysis Batch: 355767**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99 - 101

# QC Association Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

## Metals

### Prep Batch: 354878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-117211-1	MW-1RD	Total/NA	Water	7470A	
480-117211-2	MW-2R	Total/NA	Water	7470A	
480-117211-3	MW-2RD	Total/NA	Water	7470A	
480-117211-4	MW-3R	Total/NA	Water	7470A	
480-117211-5	MW-3RD	Total/NA	Water	7470A	
480-117211-6	MW-4	Total/NA	Water	7470A	
480-117211-7	MW-1	Total/NA	Water	7470A	
480-117211-8	MW-3	Total/NA	Water	7470A	
480-117211-9	DUPLICATE-1	Total/NA	Water	7470A	
480-117211-10	FIELD BLANK	Total/NA	Water	7470A	
480-117211-11	EQUIPMENT BLANK	Total/NA	Water	7470A	
MB 480-354878/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-354878/2-A	Lab Control Sample	Total/NA	Water	7470A	
480-117211-1 MS	MW-1RD	Total/NA	Water	7470A	
480-117211-1 MSD	MW-1RD	Total/NA	Water	7470A	

### Analysis Batch: 354978

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-117211-1	MW-1RD	Total/NA	Water	7470A	354878
480-117211-2	MW-2R	Total/NA	Water	7470A	354878
480-117211-3	MW-2RD	Total/NA	Water	7470A	354878
480-117211-4	MW-3R	Total/NA	Water	7470A	354878
480-117211-5	MW-3RD	Total/NA	Water	7470A	354878
480-117211-6	MW-4	Total/NA	Water	7470A	354878
480-117211-7	MW-1	Total/NA	Water	7470A	354878
480-117211-8	MW-3	Total/NA	Water	7470A	354878
480-117211-9	DUPLICATE-1	Total/NA	Water	7470A	354878
480-117211-10	FIELD BLANK	Total/NA	Water	7470A	354878
480-117211-11	EQUIPMENT BLANK	Total/NA	Water	7470A	354878
MB 480-354878/1-A	Method Blank	Total/NA	Water	7470A	354878
LCS 480-354878/2-A	Lab Control Sample	Total/NA	Water	7470A	354878
480-117211-1 MS	MW-1RD	Total/NA	Water	7470A	354878
480-117211-1 MSD	MW-1RD	Total/NA	Water	7470A	354878

### Prep Batch: 355046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-117211-1	MW-1RD	Total/NA	Water	3005A	
480-117211-2	MW-2R	Total/NA	Water	3005A	
480-117211-3	MW-2RD	Total/NA	Water	3005A	
480-117211-4	MW-3R	Total/NA	Water	3005A	
480-117211-5	MW-3RD	Total/NA	Water	3005A	
480-117211-6	MW-4	Total/NA	Water	3005A	
480-117211-7	MW-1	Total/NA	Water	3005A	
480-117211-8	MW-3	Total/NA	Water	3005A	
480-117211-9	DUPLICATE-1	Total/NA	Water	3005A	
480-117211-10	FIELD BLANK	Total/NA	Water	3005A	
480-117211-11	EQUIPMENT BLANK	Total/NA	Water	3005A	
MB 480-355046/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-355046/2-A	Lab Control Sample	Total/NA	Water	3005A	
480-117211-3 MS	MW-2RD	Total/NA	Water	3005A	
480-117211-3 MSD	MW-2RD	Total/NA	Water	3005A	

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# QC Association Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

## Prep Batch: 355126

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-117211-1	MW-1RD	Total/NA	Water	3020A	
480-117211-2	MW-2R	Total/NA	Water	3020A	
480-117211-3	MW-2RD	Total/NA	Water	3020A	
480-117211-4	MW-3R	Total/NA	Water	3020A	
480-117211-5	MW-3RD	Total/NA	Water	3020A	
480-117211-6	MW-4	Total/NA	Water	3020A	
480-117211-7	MW-1	Total/NA	Water	3020A	
480-117211-8	MW-3	Total/NA	Water	3020A	
480-117211-9	DUPLICATE-1	Total/NA	Water	3020A	
480-117211-10	FIELD BLANK	Total/NA	Water	3020A	
480-117211-11	EQUIPMENT BLANK	Total/NA	Water	3020A	
MB 480-355126/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-355126/2-A	Lab Control Sample	Total/NA	Water	3020A	
LCSD 480-355126/3-A	Lab Control Sample Dup	Total/NA	Water	3020A	
480-117211-11 MS	EQUIPMENT BLANK	Total/NA	Water	3020A	
480-117211-11 MSD	EQUIPMENT BLANK	Total/NA	Water	3020A	

## Analysis Batch: 355373

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-117211-1	MW-1RD	Total/NA	Water	6020A	355126
480-117211-2	MW-2R	Total/NA	Water	6020A	355126
480-117211-3	MW-2RD	Total/NA	Water	6020A	355126
480-117211-4	MW-3R	Total/NA	Water	6020A	355126
480-117211-5	MW-3RD	Total/NA	Water	6020A	355126
480-117211-6	MW-4	Total/NA	Water	6020A	355126
480-117211-7	MW-1	Total/NA	Water	6020A	355126
480-117211-8	MW-3	Total/NA	Water	6020A	355126
480-117211-9	DUPLICATE-1	Total/NA	Water	6020A	355126
480-117211-10	FIELD BLANK	Total/NA	Water	6020A	355126
480-117211-11	EQUIPMENT BLANK	Total/NA	Water	6020A	355126
MB 480-355126/1-A	Method Blank	Total/NA	Water	6020A	355126
LCS 480-355126/2-A	Lab Control Sample	Total/NA	Water	6020A	355126
LCSD 480-355126/3-A	Lab Control Sample Dup	Total/NA	Water	6020A	355126
480-117211-11 MS	EQUIPMENT BLANK	Total/NA	Water	6020A	355126
480-117211-11 MSD	EQUIPMENT BLANK	Total/NA	Water	6020A	355126

## Analysis Batch: 355822

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-117211-1	MW-1RD	Total/NA	Water	6020A	355126
480-117211-2	MW-2R	Total/NA	Water	6020A	355126
480-117211-3	MW-2RD	Total/NA	Water	6020A	355126
480-117211-4	MW-3R	Total/NA	Water	6020A	355126
480-117211-5	MW-3RD	Total/NA	Water	6020A	355126
480-117211-6	MW-4	Total/NA	Water	6020A	355126
480-117211-7	MW-1	Total/NA	Water	6020A	355126
480-117211-8	MW-3	Total/NA	Water	6020A	355126
480-117211-9	DUPLICATE-1	Total/NA	Water	6020A	355126
480-117211-10	FIELD BLANK	Total/NA	Water	6020A	355126
480-117211-11	EQUIPMENT BLANK	Total/NA	Water	6020A	355126
MB 480-355126/1-A	Method Blank	Total/NA	Water	6020A	355126
LCS 480-355126/2-A	Lab Control Sample	Total/NA	Water	6020A	355126
LCSD 480-355126/3-A	Lab Control Sample Dup	Total/NA	Water	6020A	355126
480-117211-11 MS	EQUIPMENT BLANK	Total/NA	Water	6020A	355126

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# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

## Metals (Continued)

### Analysis Batch: 355822 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-117211-11 MSD	EQUIPMENT BLANK	Total/NA	Water	6020A	355126

### Analysis Batch: 356308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-117211-1	MW-1RD	Total/NA	Water	6010C	355046
480-117211-2	MW-2R	Total/NA	Water	6010C	355046
480-117211-3	MW-2RD	Total/NA	Water	6010C	355046
480-117211-4	MW-3R	Total/NA	Water	6010C	355046
480-117211-5	MW-3RD	Total/NA	Water	6010C	355046
480-117211-6	MW-4	Total/NA	Water	6010C	355046
480-117211-7	MW-1	Total/NA	Water	6010C	355046
480-117211-8	MW-3	Total/NA	Water	6010C	355046
480-117211-9	DUPLICATE-1	Total/NA	Water	6010C	355046
480-117211-10	FIELD BLANK	Total/NA	Water	6010C	355046
480-117211-11	EQUIPMENT BLANK	Total/NA	Water	6010C	355046
MB 480-355046/1-A	Method Blank	Total/NA	Water	6010C	355046
LCS 480-355046/2-A	Lab Control Sample	Total/NA	Water	6010C	355046
480-117211-3 MS	MW-2RD	Total/NA	Water	6010C	355046
480-117211-3 MSD	MW-2RD	Total/NA	Water	6010C	355046

## General Chemistry

### Analysis Batch: 355239

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-117211-1	MW-1RD	Total/NA	Water	SM 2540C	
480-117211-2	MW-2R	Total/NA	Water	SM 2540C	
480-117211-3	MW-2RD	Total/NA	Water	SM 2540C	
480-117211-4	MW-3R	Total/NA	Water	SM 2540C	
480-117211-5	MW-3RD	Total/NA	Water	SM 2540C	
480-117211-6	MW-4	Total/NA	Water	SM 2540C	
480-117211-7	MW-1	Total/NA	Water	SM 2540C	
480-117211-8	MW-3	Total/NA	Water	SM 2540C	
480-117211-9	DUPLICATE-1	Total/NA	Water	SM 2540C	
480-117211-10	FIELD BLANK	Total/NA	Water	SM 2540C	
480-117211-11	EQUIPMENT BLANK	Total/NA	Water	SM 2540C	
MB 480-355239/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-355239/2	Lab Control Sample	Total/NA	Water	SM 2540C	
480-117211-1 DU	MW-1RD	Total/NA	Water	SM 2540C	

### Analysis Batch: 355767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-117211-1	MW-1RD	Total/NA	Water	SM 4500 H+ B	
480-117211-2	MW-2R	Total/NA	Water	SM 4500 H+ B	
480-117211-3	MW-2RD	Total/NA	Water	SM 4500 H+ B	
480-117211-4	MW-3R	Total/NA	Water	SM 4500 H+ B	
480-117211-5	MW-3RD	Total/NA	Water	SM 4500 H+ B	
480-117211-6	MW-4	Total/NA	Water	SM 4500 H+ B	
480-117211-7	MW-1	Total/NA	Water	SM 4500 H+ B	
480-117211-8	MW-3	Total/NA	Water	SM 4500 H+ B	
480-117211-9	DUPLICATE-1	Total/NA	Water	SM 4500 H+ B	

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# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

## General Chemistry (Continued)

### Analysis Batch: 355767 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-117211-10	FIELD BLANK	Total/NA	Water	SM 4500 H+ B	
480-117211-11	EQUIPMENT BLANK	Total/NA	Water	SM 4500 H+ B	
LCS 480-355767/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

### Analysis Batch: 356840

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-117211-1	MW-1RD	Total/NA	Water	300.0	
480-117211-2	MW-2R	Total/NA	Water	300.0	
480-117211-3	MW-2RD	Total/NA	Water	300.0	
480-117211-4	MW-3R	Total/NA	Water	300.0	
480-117211-5	MW-3RD	Total/NA	Water	300.0	
MB 480-356840/28	Method Blank	Total/NA	Water	300.0	
LCS 480-356840/27	Lab Control Sample	Total/NA	Water	300.0	
480-117211-5 MS	MW-3RD	Total/NA	Water	300.0	

### Analysis Batch: 357048

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-117211-6	MW-4	Total/NA	Water	300.0	
480-117211-7	MW-1	Total/NA	Water	300.0	
480-117211-8	MW-3	Total/NA	Water	300.0	
480-117211-9	DUPLICATE-1	Total/NA	Water	300.0	
480-117211-10	FIELD BLANK	Total/NA	Water	300.0	
480-117211-11	EQUIPMENT BLANK	Total/NA	Water	300.0	
MB 480-357048/4	Method Blank	Total/NA	Water	300.0	
LCS 480-357048/3	Lab Control Sample	Total/NA	Water	300.0	
480-117211-9 MS	DUPLICATE-1	Total/NA	Water	300.0	
480-117211-9 MSD	DUPLICATE-1	Total/NA	Water	300.0	

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

**Client Sample ID: MW-1RD**

**Date Collected: 04/26/17 10:25**

**Date Received: 04/29/17 09:00**

**Lab Sample ID: 480-117211-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			355046	05/02/17 09:45	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	356308	05/08/17 17:43	LMH	TAL BUF
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355373	05/03/17 00:30	TRB	TAL BUF
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355822	05/04/17 17:23	TRB	TAL BUF
Total/NA	Prep	7470A			354878	05/01/17 07:40	JRK	TAL BUF
Total/NA	Analysis	7470A		1	354978	05/01/17 13:24	JRK	TAL BUF
Total/NA	Analysis	300.0		2	356840	05/12/17 00:07	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	355239	05/02/17 16:50	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	355767	05/04/17 19:37	ALZ	TAL BUF

**Client Sample ID: MW-2R**

**Date Collected: 04/26/17 11:10**

**Date Received: 04/29/17 09:00**

**Lab Sample ID: 480-117211-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			355046	05/02/17 09:45	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	356308	05/08/17 17:46	LMH	TAL BUF
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355373	05/03/17 00:36	TRB	TAL BUF
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355822	05/04/17 17:28	TRB	TAL BUF
Total/NA	Prep	7470A			354878	05/01/17 07:40	JRK	TAL BUF
Total/NA	Analysis	7470A		1	354978	05/01/17 13:31	JRK	TAL BUF
Total/NA	Analysis	300.0		5	356840	05/12/17 00:15	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	355239	05/02/17 16:50	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	355767	05/04/17 19:40	ALZ	TAL BUF

**Client Sample ID: MW-2RD**

**Date Collected: 04/26/17 11:05**

**Date Received: 04/29/17 09:00**

**Lab Sample ID: 480-117211-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			355046	05/02/17 09:45	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	356308	05/08/17 17:50	LMH	TAL BUF
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355373	05/03/17 00:41	TRB	TAL BUF
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355822	05/04/17 17:34	TRB	TAL BUF
Total/NA	Prep	7470A			354878	05/01/17 07:40	JRK	TAL BUF
Total/NA	Analysis	7470A		1	354978	05/01/17 13:33	JRK	TAL BUF

TestAmerica Buffalo

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-117211-3**

**Date Collected: 04/26/17 11:05**

**Matrix: Water**

**Date Received: 04/29/17 09:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		5	356840	05/12/17 00:23	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	355239	05/02/17 16:50	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	355767	05/04/17 19:43	ALZ	TAL BUF

**Client Sample ID: MW-3R**

**Lab Sample ID: 480-117211-4**

**Date Collected: 04/26/17 11:50**

**Matrix: Water**

**Date Received: 04/29/17 09:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			355046	05/02/17 09:45	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	356308	05/08/17 18:17	LMH	TAL BUF
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355373	05/03/17 00:47	TRB	TAL BUF
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355822	05/04/17 17:57	TRB	TAL BUF
Total/NA	Prep	7470A			354878	05/01/17 07:40	JRK	TAL BUF
Total/NA	Analysis	7470A		1	354978	05/01/17 13:35	JRK	TAL BUF
Total/NA	Analysis	300.0		5	356840	05/12/17 00:31	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	355239	05/02/17 16:50	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	355767	05/04/17 19:46	ALZ	TAL BUF

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-117211-5**

**Date Collected: 04/26/17 12:15**

**Matrix: Water**

**Date Received: 04/29/17 09:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			355046	05/02/17 09:45	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	356308	05/08/17 18:21	LMH	TAL BUF
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355373	05/03/17 00:52	TRB	TAL BUF
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355822	05/04/17 18:03	TRB	TAL BUF
Total/NA	Prep	7470A			354878	05/01/17 07:40	JRK	TAL BUF
Total/NA	Analysis	7470A		1	354978	05/01/17 13:41	JRK	TAL BUF
Total/NA	Analysis	300.0		5	356840	05/12/17 00:39	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	355239	05/02/17 16:50	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	355767	05/04/17 19:51	ALZ	TAL BUF

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

**Client Sample ID: MW-4**  
**Date Collected: 04/26/17 13:05**  
**Date Received: 04/29/17 09:00**

**Lab Sample ID: 480-117211-6**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			355046	05/02/17 09:45	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	356308	05/08/17 18:24	LMH	TAL BUF
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355373	05/03/17 00:57	TRB	TAL BUF
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355822	05/04/17 18:08	TRB	TAL BUF
Total/NA	Prep	7470A			354878	05/01/17 07:40	JRK	TAL BUF
Total/NA	Analysis	7470A		1	354978	05/01/17 13:43	JRK	TAL BUF
Total/NA	Analysis	300.0		5	357048	05/12/17 11:36	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	355239	05/02/17 16:50	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	355767	05/04/17 19:54	ALZ	TAL BUF

**Client Sample ID: MW-1**  
**Date Collected: 04/26/17 10:20**  
**Date Received: 04/29/17 09:00**

**Lab Sample ID: 480-117211-7**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			355046	05/02/17 09:45	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	356308	05/08/17 18:28	LMH	TAL BUF
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355373	05/03/17 01:03	TRB	TAL BUF
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355822	05/04/17 18:14	TRB	TAL BUF
Total/NA	Prep	7470A			354878	05/01/17 07:40	JRK	TAL BUF
Total/NA	Analysis	7470A		1	354978	05/01/17 13:45	JRK	TAL BUF
Total/NA	Analysis	300.0		2	357048	05/12/17 11:44	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	355239	05/02/17 16:50	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	355767	05/04/17 19:57	ALZ	TAL BUF

**Client Sample ID: MW-3**  
**Date Collected: 04/26/17 11:45**  
**Date Received: 04/29/17 09:00**

**Lab Sample ID: 480-117211-8**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			355046	05/02/17 09:45	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	356308	05/08/17 18:31	LMH	TAL BUF
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355373	05/03/17 01:26	TRB	TAL BUF
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355822	05/04/17 18:19	TRB	TAL BUF
Total/NA	Prep	7470A			354878	05/01/17 07:40	JRK	TAL BUF
Total/NA	Analysis	7470A		1	354978	05/01/17 13:47	JRK	TAL BUF
Total/NA	Analysis	300.0		5	357048	05/12/17 11:52	DMR	TAL BUF

TestAmerica Buffalo

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	355239	05/02/17 16:50	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	355767	05/04/17 20:00	ALZ	TAL BUF

## Client Sample ID: DUPLICATE-1

Lab Sample ID: 480-117211-9

Date Collected: 04/26/17 00:00

Matrix: Water

Date Received: 04/29/17 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			355046	05/02/17 09:45	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	356308	05/08/17 18:34	LMH	TAL BUF
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355373	05/03/17 01:32	TRB	TAL BUF
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355822	05/04/17 18:24	TRB	TAL BUF
Total/NA	Prep	7470A			354878	05/01/17 07:40	JRK	TAL BUF
Total/NA	Analysis	7470A		1	354978	05/01/17 13:49	JRK	TAL BUF
Total/NA	Analysis	300.0		5	357048	05/12/17 12:00	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	355239	05/02/17 16:50	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	355767	05/04/17 20:03	ALZ	TAL BUF

## Client Sample ID: FIELD BLANK

Lab Sample ID: 480-117211-10

Date Collected: 04/26/17 13:15

Matrix: Water

Date Received: 04/29/17 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			355046	05/02/17 09:45	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	356308	05/08/17 18:48	LMH	TAL BUF
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355373	05/03/17 01:37	TRB	TAL BUF
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355822	05/04/17 18:30	TRB	TAL BUF
Total/NA	Prep	7470A			354878	05/01/17 07:40	JRK	TAL BUF
Total/NA	Analysis	7470A		1	354978	05/01/17 13:50	JRK	TAL BUF
Total/NA	Analysis	300.0		1	357048	05/12/17 12:41	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	355239	05/02/17 16:50	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	355767	05/04/17 20:06	ALZ	TAL BUF

## Client Sample ID: EQUIPMENT BLANK

Lab Sample ID: 480-117211-11

Date Collected: 04/26/17 13:20

Matrix: Water

Date Received: 04/29/17 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			355046	05/02/17 09:45	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	356308	05/08/17 18:52	LMH	TAL BUF
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355373	05/03/17 01:42	TRB	TAL BUF

TestAmerica Buffalo



# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-117211-11**

**Date Collected: 04/26/17 13:20**

**Matrix: Water**

**Date Received: 04/29/17 09:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3020A			355126	05/02/17 10:34	MVZ	TAL BUF
Total/NA	Analysis	6020A		1	355822	05/04/17 18:35	TRB	TAL BUF
Total/NA	Prep	7470A			354878	05/01/17 07:40	JRK	TAL BUF
Total/NA	Analysis	7470A		1	354978	05/01/17 13:52	JRK	TAL BUF
Total/NA	Analysis	300.0		1	357048	05/12/17 12:49	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	355239	05/02/17 16:50	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	355767	05/04/17 20:09	ALZ	TAL BUF

**Laboratory References:**

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600



# Accreditation/Certification Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

## Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	036-999-337	12-31-17

The following analytes are included in this report, but are not accredited/certified under this accreditation/certification:

Analysis Method	Prep Method	Matrix	Analyte
6010C	3005A	Water	Lithium

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 H+ B		Water	pH
SM 4500 H+ B		Water	Temperature

# Method Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL BUF
6020A	Metals (ICP/MS)	SW846	TAL BUF
7470A	Mercury (CVAA)	SW846	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL BUF
SM 4500 H+ B	pH	SM	TAL BUF

#### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

# Sample Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-117211-1	MW-1RD	Water	04/26/17 10:25	04/29/17 09:00
480-117211-2	MW-2R	Water	04/26/17 11:10	04/29/17 09:00
480-117211-3	MW-2RD	Water	04/26/17 11:05	04/29/17 09:00
480-117211-4	MW-3R	Water	04/26/17 11:50	04/29/17 09:00
480-117211-5	MW-3RD	Water	04/26/17 12:15	04/29/17 09:00
480-117211-6	MW-4	Water	04/26/17 13:05	04/29/17 09:00
480-117211-7	MW-1	Water	04/26/17 10:20	04/29/17 09:00
480-117211-8	MW-3	Water	04/26/17 11:45	04/29/17 09:00
480-117211-9	DUPLICATE-1	Water	04/26/17 00:00	04/29/17 09:00
480-117211-10	FIELD BLANK	Water	04/26/17 13:15	04/29/17 09:00
480-117211-11	EQUIPMENT BLANK	Water	04/26/17 13:20	04/29/17 09:00



Amherst, NY 14228-2223  
phone 716.691.2600 fax 716.691.7991

Regulatory Program:  DW  NPDES  RCRA  Other:


TestAmerica Laboratories, Inc.

**Client Contact**  
SKB Environmental  
13425 Courthouse Blvd  
Rosemount, MN 55068  
(651) 438-1500 Phone  
(651) 438-1518 FAX  
Project Name: Lansing 2017 CCR GW Event 3  
Site:  
P O # 3064-17-00222

**Project Manager: Ryan Van Dette**  
Tel/Fax:  
Analysis Turnaround Time  
 CALENDAR DAYS  WORKING DAYS  
TAT if different from Below  
 2 weeks  
 1 week  
 2 days  
 1 day

**Site Contact: Nathaniel Beineman** Date: 4/26/17  
**Lab Contact:**  
Carrier:  
COC No: \_\_\_\_\_ of \_\_\_\_\_ COCs

Sampler:  
For Lab Use Only  
Walk-in ( )  
Lab Sam ( )  
Job / SD ( )  
480-117211 COC



Sample Specific Notes:

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Performs MS/MSD (Y/N)	Metals (totals)* + Mercury	Chloride	Fluoride	Sulfate	TDS	pH	Radium 226 & 228 combined
MW-1RD	4/26/17	10:25	Grab	Water	5	X	X	X	X	X	X	X	X	X
MW-2R		11:10	Grab	Water	5	X	X	X	X	X	X	X	X	X
MW-2RD		11:05	Grab	Water	5	X	X	X	X	X	X	X	X	X
MW-3R		11:50	Grab	Water	5	X	X	X	X	X	X	X	X	X
MW-3RD		12:15	Grab	Water	5	X	X	X	X	X	X	X	X	X
MW-4		13:05	Grab	Water	5	X	X	X	X	X	X	X	X	X
MW-1		10:20	Grab	Water	5	X	X	X	X	X	X	X	X	X
MW-3		11:45	Grab	Water	5	X	X	X	X	X	X	X	X	X
Duplicate - 1		-	Grab	Water	5	X	X	X	X	X	X	X	X	X
Field Blank		13:15	Grab	Water	5	X	X	X	X	X	X	X	X	X
Equipment Blank		13:20	Grab	Water	5	X	X	X	X	X	X	X	X	X

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other

Possible Hazard Identification:  
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown  
 Return to Client  Disposal by Lab  Archive for \_\_\_\_\_ Months

Cooler Temp. (°C): Obs'd: \_\_\_\_\_ Cor'd: \_\_\_\_\_ Therm ID No.: \_\_\_\_\_

Custody Seal No.: \_\_\_\_\_

Relinquished by: *MW-1RD* Date/Time: 4/26/17 12:00 Company: *TestAmerica*

Relinquished by: *Thomas S. Ren* Date/Time: 4/28/17 0900 Company: *TestAmerica*

Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_



## Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-117211-1

SDG Number:

**Login Number: 117211**

**List Number: 1**

**Creator: Conway, Curtis R**

**List Source: TestAmerica Buffalo**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GES
Samples received within 48 hours of sampling.	False	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-117211-2

Client Project/Site: SKB Lansing - CCR Groundwater

Sampling Event: CCR Groundwater

For:

Waste Connections, Inc.

13425 Courthouse Blvd

Rosemount, Minnesota 55068

Attn: Nathaniel Beinemann



Authorized for release by:

6/2/2017 12:04:28 PM

Denise Giglia, Project Management Assistant II

[denise.giglia@testamericainc.com](mailto:denise.giglia@testamericainc.com)

Designee for

Ryan VanDette, Project Manager II

(716)504-9830

[ryan.vandette@testamericainc.com](mailto:ryan.vandette@testamericainc.com)

### LINKS

Review your project  
results through

**TotalAccess**

Have a Question?



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[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-2

## Qualifiers

### Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.
G	The Sample MDC is greater than the requested RL.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)



# Case Narrative

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-2

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**Job ID: 480-117211-2**

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**Laboratory: TestAmerica Buffalo**

## Narrative

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**Job Narrative  
480-117211-2**

## Comments

No additional comments.

## Receipt

The samples were received on 4/29/2017 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.3° C and 2.6° C.

## RAD

Method(s) 901.1: Gamma Prep Batch 160-307094: The following samples did not meet the radium-226/radium-228 detection goals. The samples were counted for 60 minutes. The data have been qualified and reported: MW-1RD (480-117211-1), MW-2R (480-117211-2), MW-3RD (480-117211-5), MW-1 (480-117211-7), (MB 160-307094/1-A) and (480-117211-A-1-B DU).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-2

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-117211-1**

No Detections.

**Client Sample ID: MW-2R**

**Lab Sample ID: 480-117211-2**

No Detections.

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-117211-3**

No Detections.

**Client Sample ID: MW-3R**

**Lab Sample ID: 480-117211-4**

No Detections.

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-117211-5**

No Detections.

**Client Sample ID: MW-4**

**Lab Sample ID: 480-117211-6**

No Detections.

**Client Sample ID: MW-1**

**Lab Sample ID: 480-117211-7**

No Detections.

**Client Sample ID: MW-3**

**Lab Sample ID: 480-117211-8**

No Detections.

**Client Sample ID: DUPLICATE-1**

**Lab Sample ID: 480-117211-9**

No Detections.

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-117211-10**

No Detections.

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-117211-11**

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-2

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-117211-1**

**Date Collected: 04/26/17 10:25**

**Matrix: Water**

**Date Received: 04/29/17 09:00**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	13.5	U	8.12	8.23	50.0	48.7	pCi/L	05/03/17 19:04	05/30/17 18:34	1
Radium-228	-5.49	U G	41.5	41.6	50.0	50.1	pCi/L	05/03/17 19:04	05/30/17 18:34	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-2

**Client Sample ID: MW-2R**

**Date Collected: 04/26/17 11:10**

**Date Received: 04/29/17 09:00**

**Lab Sample ID: 480-117211-2**

**Matrix: Water**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	3.35	U G	14.4	14.4	50.0	59.0	pCi/L	05/03/17 19:04	05/30/17 21:26	1
Radium-228	16.8	U	26.0	26.0	50.0	41.8	pCi/L	05/03/17 19:04	05/30/17 21:26	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-2

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-117211-3**

**Date Collected: 04/26/17 11:05**

**Matrix: Water**

**Date Received: 04/29/17 09:00**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	9.29	U	11.9	11.9	50.0	45.6	pCi/L	05/03/17 19:04	05/30/17 21:22	1
Radium-228	23.5	U	24.9	25.0	50.0	28.4	pCi/L	05/03/17 19:04	05/30/17 21:22	1

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# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-2

**Client Sample ID: MW-3R**

**Date Collected: 04/26/17 11:50**

**Date Received: 04/29/17 09:00**

**Lab Sample ID: 480-117211-4**

**Matrix: Water**

## Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	9.20	U	29.0	29.0	50.0	49.2	pCi/L	05/03/17 19:04	06/01/17 10:20	1
Radium-228	17.4	U	29.1	29.2	50.0	31.0	pCi/L	05/03/17 19:04	06/01/17 10:20	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-2

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-117211-5**

**Date Collected: 04/26/17 12:15**

**Matrix: Water**

**Date Received: 04/29/17 09:00**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	21.3	U G	12.9	13.0	50.0	57.7	pCi/L	05/03/17 19:04	05/30/17 21:21	1
Radium-228	12.7	U G	23.8	23.8	50.0	52.0	pCi/L	05/03/17 19:04	05/30/17 21:21	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-2

**Client Sample ID: MW-4**  
**Date Collected: 04/26/17 13:05**  
**Date Received: 04/29/17 09:00**

**Lab Sample ID: 480-117211-6**  
**Matrix: Water**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
<b>Radium-226</b>	<b>44.2</b>		14.6	15.2	50.0	11.7	pCi/L	05/03/17 19:04	05/30/17 21:58	1
Radium-228	14.8	U	27.8	27.8	50.0	39.7	pCi/L	05/03/17 19:04	05/30/17 21:58	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-2

**Client Sample ID: MW-1**  
**Date Collected: 04/26/17 10:20**  
**Date Received: 04/29/17 09:00**

**Lab Sample ID: 480-117211-7**  
**Matrix: Water**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	4.03	U G	32.6	32.6	50.0	56.7	pCi/L	05/03/17 19:04	05/30/17 21:22	1
Radium-228	20.4	U G	18.8	18.9	50.0	59.1	pCi/L	05/03/17 19:04	05/30/17 21:22	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-2

**Client Sample ID: MW-3**  
**Date Collected: 04/26/17 11:45**  
**Date Received: 04/29/17 09:00**

**Lab Sample ID: 480-117211-8**  
**Matrix: Water**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
<b>Radium-226</b>	<b>74.7</b>		15.8	17.5	50.0	6.19	pCi/L	05/03/17 19:04	05/30/17 23:00	1
Radium-228	13.9	U	25.8	25.8	50.0	31.0	pCi/L	05/03/17 19:04	05/30/17 23:00	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-2

**Client Sample ID: DUPLICATE-1**

**Lab Sample ID: 480-117211-9**

**Date Collected: 04/26/17 00:00**

**Matrix: Water**

**Date Received: 04/29/17 09:00**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
<b>Radium-226</b>	<b>82.5</b>		22.7	24.1	50.0	16.6	pCi/L	05/03/17 19:04	05/30/17 22:58	1
Radium-228	14.4	U	25.9	25.9	50.0	38.4	pCi/L	05/03/17 19:04	05/30/17 22:58	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-2

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-117211-10**

**Date Collected: 04/26/17 13:15**

**Matrix: Water**

**Date Received: 04/29/17 09:00**

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
<b>Radium-226</b>	<b>40.4</b>		20.4	20.8	50.0	24.2	pCi/L	05/03/17 19:04	05/30/17 22:56	1
Radium-228	22.1	U	42.6	42.6	50.0	49.7	pCi/L	05/03/17 19:04	05/30/17 22:56	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-2

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-117211-11**

Date Collected: 04/26/17 13:20

Matrix: Water

Date Received: 04/29/17 09:00

**Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
<b>Radium-226</b>	<b>56.6</b>		14.9	15.9	50.0	7.56	pCi/L	05/03/17 19:04	05/30/17 22:55	1
Radium-228	13.8	U	28.0	28.1	50.0	45.9	pCi/L	05/03/17 19:04	05/30/17 22:55	1

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# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-2

## Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

**Lab Sample ID: MB 160-307094/1-A**  
**Matrix: Water**  
**Analysis Batch: 311105**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 307094**

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)				Time	Time	Time	Time	
Radium-226	-4.633	U G	35.4	35.4	50.0	61.2	pCi/L	05/03/17 19:04	05/30/17 19:58			1
Radium-228	23.99	U	32.4	32.5	50.0	49.7	pCi/L	05/03/17 19:04	05/30/17 19:58			1

**Lab Sample ID: LCS 160-307094/2-A**  
**Matrix: Water**  
**Analysis Batch: 311322**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 307094**

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits	
				Uncert. (2σ+/-)					%Rec	Lower
Americium-241	136000	126400		14600		406	pCi/L	93	90	111
Cesium-137	46700	46450		4660		129	pCi/L	99	90	111
Cobalt-60	38300	37350		3690		64.9	pCi/L	98	89	110

**Lab Sample ID: 480-117211-1 DU**  
**Matrix: Water**  
**Analysis Batch: 311106**

**Client Sample ID: MW-1RD**  
**Prep Type: Total/NA**  
**Prep Batch: 307094**

Analyte	Sample Sample		DU DU		Total	RL	MDC	Unit	RER	RER
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					Limit
Radium-226	13.5	U	-15.70	U G	41.7	50.0	69.8	pCi/L	0.58	1
Radium-228	-5.49	U G	-1.630	U	27.9	50.0	33.8	pCi/L	0.06	1

# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-2

## Rad

### Prep Batch: 307094

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-117211-1	MW-1RD	Total/NA	Water	Fill_Geo-21	
480-117211-2	MW-2R	Total/NA	Water	Fill_Geo-21	
480-117211-3	MW-2RD	Total/NA	Water	Fill_Geo-21	
480-117211-4	MW-3R	Total/NA	Water	Fill_Geo-21	
480-117211-5	MW-3RD	Total/NA	Water	Fill_Geo-21	
480-117211-6	MW-4	Total/NA	Water	Fill_Geo-21	
480-117211-7	MW-1	Total/NA	Water	Fill_Geo-21	
480-117211-8	MW-3	Total/NA	Water	Fill_Geo-21	
480-117211-9	DUPLICATE-1	Total/NA	Water	Fill_Geo-21	
480-117211-10	FIELD BLANK	Total/NA	Water	Fill_Geo-21	
480-117211-11	EQUIPMENT BLANK	Total/NA	Water	Fill_Geo-21	
MB 160-307094/1-A	Method Blank	Total/NA	Water	Fill_Geo-21	
LCS 160-307094/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-21	
480-117211-1 DU	MW-1RD	Total/NA	Water	Fill_Geo-21	

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-2

## Client Sample ID: MW-1RD

Date Collected: 04/26/17 10:25

Date Received: 04/29/17 09:00

Lab Sample ID: 480-117211-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			307094	05/03/17 19:04	CMT	TAL SL
Total/NA	Analysis	901.1		1	311102	05/30/17 18:34	RTM	TAL SL

## Client Sample ID: MW-2R

Date Collected: 04/26/17 11:10

Date Received: 04/29/17 09:00

Lab Sample ID: 480-117211-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			307094	05/03/17 19:04	CMT	TAL SL
Total/NA	Analysis	901.1		1	311102	05/30/17 21:26	RTM	TAL SL

## Client Sample ID: MW-2RD

Date Collected: 04/26/17 11:05

Date Received: 04/29/17 09:00

Lab Sample ID: 480-117211-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			307094	05/03/17 19:04	CMT	TAL SL
Total/NA	Analysis	901.1		1	311106	05/30/17 21:22	RTM	TAL SL

## Client Sample ID: MW-3R

Date Collected: 04/26/17 11:50

Date Received: 04/29/17 09:00

Lab Sample ID: 480-117211-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			307094	05/03/17 19:04	CMT	TAL SL
Total/NA	Analysis	901.1		1	311516	06/01/17 10:20	CDR	TAL SL

## Client Sample ID: MW-3RD

Date Collected: 04/26/17 12:15

Date Received: 04/29/17 09:00

Lab Sample ID: 480-117211-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			307094	05/03/17 19:04	CMT	TAL SL
Total/NA	Analysis	901.1		1	311104	05/30/17 21:21	RTM	TAL SL

## Client Sample ID: MW-4

Date Collected: 04/26/17 13:05

Date Received: 04/29/17 09:00

Lab Sample ID: 480-117211-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			307094	05/03/17 19:04	CMT	TAL SL
Total/NA	Analysis	901.1		1	311107	05/30/17 21:58	RTM	TAL SL

TestAmerica Buffalo



# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-2

## Client Sample ID: MW-1

Date Collected: 04/26/17 10:20

Date Received: 04/29/17 09:00

## Lab Sample ID: 480-117211-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			307094	05/03/17 19:04	CMT	TAL SL
Total/NA	Analysis	901.1		1	311111	05/30/17 21:22	RTM	TAL SL

## Client Sample ID: MW-3

Date Collected: 04/26/17 11:45

Date Received: 04/29/17 09:00

## Lab Sample ID: 480-117211-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			307094	05/03/17 19:04	CMT	TAL SL
Total/NA	Analysis	901.1		1	311102	05/30/17 23:00	RTM	TAL SL

## Client Sample ID: DUPLICATE-1

Date Collected: 04/26/17 00:00

Date Received: 04/29/17 09:00

## Lab Sample ID: 480-117211-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			307094	05/03/17 19:04	CMT	TAL SL
Total/NA	Analysis	901.1		1	311106	05/30/17 22:58	RTM	TAL SL

## Client Sample ID: FIELD BLANK

Date Collected: 04/26/17 13:15

Date Received: 04/29/17 09:00

## Lab Sample ID: 480-117211-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			307094	05/03/17 19:04	CMT	TAL SL
Total/NA	Analysis	901.1		1	311105	05/30/17 22:56	RTM	TAL SL

## Client Sample ID: EQUIPMENT BLANK

Date Collected: 04/26/17 13:20

Date Received: 04/29/17 09:00

## Lab Sample ID: 480-117211-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			307094	05/03/17 19:04	CMT	TAL SL
Total/NA	Analysis	901.1		1	311104	05/30/17 22:55	RTM	TAL SL

### Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Accreditation/Certification Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-2

## Laboratory: TestAmerica Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	036-999-337	12-31-17

## Laboratory: TestAmerica St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-17 *
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-17 *
Illinois	NELAP	5	200023	11-30-17
Iowa	State Program	7	373	02-01-18
Kansas	NELAP	7	E-10236	10-31-17
Kentucky (DW)	State Program	4	90125	12-31-17
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-17 *
Louisiana (DW)	NELAP	6	LA170011	12-31-17
Maryland	State Program	3	310	09-30-17
Missouri	State Program	7	780	06-30-17 *
Nevada	State Program	9	MO000542017-1	07-31-17 *
New Jersey	NELAP	2	MO002	06-30-17 *
New York	NELAP	2	11616	03-31-18
North Dakota	State Program	8	R207	06-30-17 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-17
Pennsylvania	NELAP	3	68-00540	02-21-18
South Carolina	State Program	4	85002001	06-30-17 *
Texas	NELAP	6	T104704193-16-10	07-31-17 *
US Fish & Wildlife	Federal		LE058448-0	10-31-17
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-17 *
Virginia	NELAP	3	460230	06-14-17 *
Washington	State Program	10	C592	08-30-17
West Virginia DEP	State Program	3	381	08-31-17 *

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Method Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-2

Method	Method Description	Protocol	Laboratory
901.1	Radium-226 & Other Gamma Emitters (GS)	EPA	TAL SL

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



# Sample Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-117211-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-117211-1	MW-1RD	Water	04/26/17 10:25	04/29/17 09:00
480-117211-2	MW-2R	Water	04/26/17 11:10	04/29/17 09:00
480-117211-3	MW-2RD	Water	04/26/17 11:05	04/29/17 09:00
480-117211-4	MW-3R	Water	04/26/17 11:50	04/29/17 09:00
480-117211-5	MW-3RD	Water	04/26/17 12:15	04/29/17 09:00
480-117211-6	MW-4	Water	04/26/17 13:05	04/29/17 09:00
480-117211-7	MW-1	Water	04/26/17 10:20	04/29/17 09:00
480-117211-8	MW-3	Water	04/26/17 11:45	04/29/17 09:00
480-117211-9	DUPLICATE-1	Water	04/26/17 00:00	04/29/17 09:00
480-117211-10	FIELD BLANK	Water	04/26/17 13:15	04/29/17 09:00
480-117211-11	EQUIPMENT BLANK	Water	04/26/17 13:20	04/29/17 09:00



Amherst, NY 14228-2223  
phone 716.691.2600 fax 716.691.7991

Regulatory Program:  DW  NPDES  RCRA  Other:


TestAmerica Laboratories, Inc.

**Client Contact**  
SKB Environmental  
13425 Courthouse Blvd  
Rosemount, MN 55068  
(651) 438-1500 Phone  
(651) 438-1518 FAX  
Project Name: Lansing 2017 CCR GW Event 3  
Site:  
P O # 3064-17-00222

**Project Manager: Ryan Van Dette**  
Tel/Fax:  
Analysis Turnaround Time  
 CALENDAR DAYS  WORKING DAYS  
TAT if different from Below  
 2 weeks  
 1 week  
 2 days  
 1 day

**Site Contact: Nathaniel Beineman** Date: 4/26/17  
**Lab Contact:** Carrier:  
COC No: \_\_\_\_\_ of \_\_\_\_\_ COCs

Sampler:  
For Lab Use Only  
Walk-in C  
Lab Sam  
Job / SD  
480-117211 COC



Sample Specific Notes:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Performs MS/MSD (Y/N)	Metals (total)* + Mercury	Chloride	Fluoride	Sulfate	TDS	pH	Radium 226 & 228 combined
MW-1RD	4/26/17	10:25	Grab	Water	5	X	X	X	X	X	X	X	X	X
MW-2R		11:10	Grab	Water	5	X	X	X	X	X	X	X	X	X
MW-2RD		11:05	Grab	Water	5	X	X	X	X	X	X	X	X	X
MW-3R		11:50	Grab	Water	5	X	X	X	X	X	X	X	X	X
MW-3RD		12:15	Grab	Water	5	X	X	X	X	X	X	X	X	X
MW-4		13:05	Grab	Water	5	X	X	X	X	X	X	X	X	X
MW-1		10:20	Grab	Water	5	X	X	X	X	X	X	X	X	X
MW-3		11:45	Grab	Water	5	X	X	X	X	X	X	X	X	X
Duplicate - 1		-	Grab	Water	5	X	X	X	X	X	X	X	X	X
Field Blank		13:15	Grab	Water	5	X	X	X	X	X	X	X	X	X
Equipment Blank		13:20	Grab	Water	5	X	X	X	X	X	X	X	X	X

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other

Possible Hazard Identification:  
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown  
 Return to Client  Disposal by Lab  Archive for \_\_\_\_\_ Months

Cooler Temp. (°C): Obs'd: \_\_\_\_\_ Cor'd: \_\_\_\_\_ Therm ID No.: \_\_\_\_\_

Custody Seal No.: \_\_\_\_\_

Relinquished by: *MW-1RD* Company: *GES* Date/Time: *4/26/17 12:00*

Relinquished by: *Thomas S. Ren* Company: *T. America* Date/Time: *4/28/17 16:05*

Relinquished by: *W. White* Company: *W. White* Date/Time: *4/29/17 09:00*





# Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b>		Lab PM: VanDette, Ryan T	480-117211 Chain of Custody
Client Contact: Shipping/Receiving		E-Mail: ryan.vandette@testamericainc.com	Minnesota
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Minnesota	
Address: 13715 Rider Trail North, Earth City State, Zip: MO, 63045		Due Date Requested: 5/10/2017	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		TAT Requested (days):	
E-mail:		PO #:	
Project Name: SKB Lansing		WO #:	
Site: Lansing MN		Project #: 48013603	
		SSOW#:	

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wastefoil, BT=tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901.1, Ra/Pl, Geo, 21 Radium-226/228	Analysis Requested	Total Number of Containers	Special Instructions/Note:
MW-1RD (480-117211-1)	4/26/17	10:25 Central	Water	Water	X	X			1	
MW-2R (480-117211-2)	4/26/17	11:10 Central	Water	Water	X	X			1	
MW-2RD (480-117211-3)	4/26/17	11:05 Central	Water	Water	X	X			1	
MW-3R (480-117211-4)	4/26/17	11:50 Central	Water	Water	X	X			1	
MW-3RD (480-117211-5)	4/26/17	12:15 Central	Water	Water	X	X			1	
MW-4 (480-117211-6)	4/26/17	13:05 Central	Water	Water	X	X			1	
MW-1 (480-117211-7)	4/26/17	10:20 Central	Water	Water	X	X			1	
MW-3 (480-117211-8)	4/26/17	11:45 Central	Water	Water	X	X			1	
DUPLICATE-1 (480-117211-9)	4/26/17	Central	Water	Water	X	X			1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

**Possible Hazard Identification**  
 Unconfirmed  
 Deliverable Requested: I, II, III, IV, Other (specify) \_\_\_\_\_ Primary Deliverable Rank: 2  
 Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Method of Shipment: \_\_\_\_\_  
 Relinquished by: *C. Tab* Date/Time: 5/10/17 15:00 Company: TAB  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_

**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months  
 Special Instructions/QC Requirements: \_\_\_\_\_







## Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-117211-2

SDG Number:

**Login Number: 117211**

**List Number: 1**

**Creator: Conway, Curtis R**

**List Source: TestAmerica Buffalo**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GES
Samples received within 48 hours of sampling.	False	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	



## Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-117211-2

SDG Number:

**Login Number: 117211**

**List Number: 2**

**Creator: Daniels, Brian J**

**List Source: TestAmerica St. Louis**

**List Creation: 05/02/17 01:26 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	15.1,8.3
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-118333-1

Client Project/Site: SKB Lansing - CCR Groundwater

Sampling Event: CCR Groundwater

For:

Waste Connections, Inc.

13425 Courthouse Blvd

Rosemount, Minnesota 55068

Attn: Nathaniel Beinemann



Authorized for release by:

6/5/2017 10:03:15 AM

Denise Giglia, Project Management Assistant II

[denise.giglia@testamericainc.com](mailto:denise.giglia@testamericainc.com)

Designee for

Ryan VanDette, Project Manager II

(716)504-9830

[ryan.vandette@testamericainc.com](mailto:ryan.vandette@testamericainc.com)

### LINKS

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*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.

### General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
F1	MS and/or MSD Recovery is outside acceptance limits.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

**Job ID: 480-118333-1**

**Laboratory: TestAmerica Buffalo**

## Narrative

### Job Narrative 480-118333-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 5/20/2017 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.0° C.

#### HPLC/IC

Method(s) 300.0: The following sample was diluted due to the nature of the sample matrix: MW-3 (480-118333-2). Elevated reporting limits (RLs) are provided.

Method(s) 300.0: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-2RD (480-118333-4), MW-2R (480-118333-5), MW-3RD (480-118333-6), MW-3R (480-118333-7), MW-4 (480-118333-8) and DUP-1 (480-118333-9). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

Method(s) 6010C: The Low Level Continuing Calibration Verification (CCVL 480-359321/24) contained Total Boron outside the control limits. All reported samples MW-1 (480-118333-1) and MW-1RD (480-118333-3) associated with this CCVL were either below the laboratory's standard reporting limit for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCVL; therefore, re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### General Chemistry

Method(s) SM 2540C: Due to the matrix, the initial volume(s) used for the following sample deviated from the standard procedure: MW-4 (480-118333-8). The reporting limits (RLs) have been adjusted proportionately.

Method(s) SM 4500 H+ B: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: MW-1 (480-118333-1), MW-3 (480-118333-2), MW-1RD (480-118333-3), MW-2RD (480-118333-4), MW-2R (480-118333-5), MW-3RD (480-118333-6), MW-3R (480-118333-7), MW-4 (480-118333-8), DUP-1 (480-118333-9), FIELD BLANK (480-118333-10) and EQUIP BLANK (480-118333-11).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

## Client Sample ID: MW-1

## Lab Sample ID: 480-118333-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.068		0.0020		mg/L	1		6010C	Total/NA
Calcium	70.8		0.50		mg/L	1		6010C	Total/NA
Chloride	18.0		0.50		mg/L	1		300.0	Total/NA
Fluoride	0.19		0.050		mg/L	1		300.0	Total/NA
Sulfate	16.7		2.0		mg/L	1		300.0	Total/NA
Total Dissolved Solids	320		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.0	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.7	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3

## Lab Sample ID: 480-118333-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.23		0.0020		mg/L	1		6010C	Total/NA
Boron	0.23		0.020		mg/L	1		6010C	Total/NA
Calcium	177		0.50		mg/L	1		6010C	Total/NA
Arsenic	4.9		1.0		ug/L	1		6020A	Total/NA
Cobalt	5.6		0.30		ug/L	1		6020A	Total/NA
Molybdenum	5.6		1.0		ug/L	1		6020A	Total/NA
Selenium	1.1		1.0		ug/L	1		6020A	Total/NA
Chloride	20.0		2.5		mg/L	5		300.0	Total/NA
Sulfate	27.7		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	731		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.7	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.6	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-1RD

## Lab Sample ID: 480-118333-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.17		0.0020		mg/L	1		6010C	Total/NA
Calcium	75.8		0.50		mg/L	1		6010C	Total/NA
Lead	0.012		0.010		mg/L	1		6010C	Total/NA
Cobalt	2.1		0.30		ug/L	1		6020A	Total/NA
Molybdenum	2.8		1.0		ug/L	1		6020A	Total/NA
Chloride	18.2		1.0		mg/L	2		300.0	Total/NA
Fluoride	0.27		0.10		mg/L	2		300.0	Total/NA
Sulfate	43.0	F1	4.0		mg/L	2		300.0	Total/NA
Total Dissolved Solids	382		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.3	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.5	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-2RD

## Lab Sample ID: 480-118333-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.17		0.0020		mg/L	1		6010C	Total/NA
Boron	0.043		0.020		mg/L	1		6010C	Total/NA
Calcium	124		0.50		mg/L	1		6010C	Total/NA
Arsenic	2.1		1.0		ug/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

## Client Sample ID: MW-2RD (Continued)

## Lab Sample ID: 480-118333-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	2.5		0.30		ug/L	1		6020A	Total/NA
Molybdenum	2.6		1.0		ug/L	1		6020A	Total/NA
Selenium	1.3		1.0		ug/L	1		6020A	Total/NA
Chloride	30.7		2.5		mg/L	5		300.0	Total/NA
Sulfate	52.7		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	530		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.1	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.9	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-2R

## Lab Sample ID: 480-118333-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.18		0.0020		mg/L	1		6010C	Total/NA
Boron	0.21		0.020		mg/L	1		6010C	Total/NA
Calcium	187		0.50		mg/L	1		6010C	Total/NA
Lead	0.011		0.010		mg/L	1		6010C	Total/NA
Arsenic	1.2		1.0		ug/L	1		6020A	Total/NA
Cobalt	1.0		0.30		ug/L	1		6020A	Total/NA
Molybdenum	1.9		1.0		ug/L	1		6020A	Total/NA
Selenium	1.3		1.0		ug/L	1		6020A	Total/NA
Chloride	39.8		2.5		mg/L	5		300.0	Total/NA
Sulfate	146		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	819		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.8	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	19.1	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3RD

## Lab Sample ID: 480-118333-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.22		0.0020		mg/L	1		6010C	Total/NA
Boron	0.031		0.020		mg/L	1		6010C	Total/NA
Calcium	129		0.50		mg/L	1		6010C	Total/NA
Arsenic	4.4		1.0		ug/L	1		6020A	Total/NA
Cobalt	1.2		0.30		ug/L	1		6020A	Total/NA
Molybdenum	3.8		1.0		ug/L	1		6020A	Total/NA
Chloride	31.7		2.5		mg/L	5		300.0	Total/NA
Sulfate	99.8		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	594		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.0	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.4	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3R

## Lab Sample ID: 480-118333-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.58		0.0020		mg/L	1		6010C	Total/NA
Boron	0.045		0.020		mg/L	1		6010C	Total/NA
Calcium	217		0.50		mg/L	1		6010C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo



# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

## Client Sample ID: MW-3R (Continued)

## Lab Sample ID: 480-118333-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	0.018		0.010		mg/L	1		6010C	Total/NA
Arsenic	2.8		1.0		ug/L	1		6020A	Total/NA
Cobalt	0.77		0.30		ug/L	1		6020A	Total/NA
Molybdenum	1.7		1.0		ug/L	1		6020A	Total/NA
Selenium	1.2		1.0		ug/L	1		6020A	Total/NA
Chloride	20.0		2.5		mg/L	5		300.0	Total/NA
Sulfate	41.2		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	883		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.6	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-4

## Lab Sample ID: 480-118333-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.26		0.0020		mg/L	1		6010C	Total/NA
Boron	0.18		0.020		mg/L	1		6010C	Total/NA
Calcium	265		0.50		mg/L	1		6010C	Total/NA
Arsenic	1.6		1.0		ug/L	1		6020A	Total/NA
Cadmium	0.68		0.50		ug/L	1		6020A	Total/NA
Cobalt	0.93		0.30		ug/L	1		6020A	Total/NA
Molybdenum	1.9		1.0		ug/L	1		6020A	Total/NA
Selenium	1.1		1.0		ug/L	1		6020A	Total/NA
Chloride	38.1		2.5		mg/L	5		300.0	Total/NA
Sulfate	409		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	1380		20.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.9	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: DUP-1

## Lab Sample ID: 480-118333-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.23		0.0020		mg/L	1		6010C	Total/NA
Boron	0.032		0.020		mg/L	1		6010C	Total/NA
Calcium	131		0.50		mg/L	1		6010C	Total/NA
Chromium	0.0057		0.0040		mg/L	1		6010C	Total/NA
Lead	0.010		0.010		mg/L	1		6010C	Total/NA
Arsenic	4.2		1.0		ug/L	1		6020A	Total/NA
Cobalt	1.4		0.30		ug/L	1		6020A	Total/NA
Molybdenum	3.8		1.0		ug/L	1		6020A	Total/NA
Chloride	32.1		2.5		mg/L	5		300.0	Total/NA
Sulfate	104		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	579		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.1	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.4	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: FIELD BLANK

## Lab Sample ID: 480-118333-10

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo



# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

## Client Sample ID: FIELD BLANK (Continued)

Lab Sample ID: 480-118333-10

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	5.7	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.9	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: EQUIP BLANK

Lab Sample ID: 480-118333-11

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	5.3	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	19.0	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

**Client Sample ID: MW-1**  
**Date Collected: 05/18/17 08:55**  
**Date Received: 05/20/17 09:30**

**Lab Sample ID: 480-118333-1**  
**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Barium</b>	<b>0.068</b>		0.0020		mg/L		05/22/17 12:15	05/25/17 16:04	1
Boron	ND	^	0.020		mg/L		05/22/17 12:15	05/25/17 16:04	1
<b>Calcium</b>	<b>70.8</b>		0.50		mg/L		05/22/17 12:15	05/25/17 16:04	1
Chromium	ND		0.0040		mg/L		05/22/17 12:15	05/25/17 16:04	1
Lead	ND		0.010		mg/L		05/22/17 12:15	05/25/17 16:04	1
Lithium	ND		0.030		mg/L		05/22/17 12:15	05/25/17 16:04	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/22/17 09:44	05/23/17 02:40	1
Arsenic	ND		1.0		ug/L		05/22/17 09:44	05/23/17 02:40	1
Beryllium	ND		0.70		ug/L		05/22/17 09:44	05/23/17 02:40	1
Cadmium	ND		0.50		ug/L		05/22/17 09:44	05/23/17 02:40	1
Cobalt	ND		0.30		ug/L		05/22/17 09:44	05/23/17 02:40	1
Molybdenum	ND		1.0		ug/L		05/22/17 09:44	05/23/17 02:40	1
Selenium	ND		1.0		ug/L		05/22/17 09:44	05/23/17 02:40	1
Thallium	ND		0.20		ug/L		05/22/17 09:44	05/23/17 02:40	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/22/17 07:30	05/22/17 13:26	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>18.0</b>		0.50		mg/L			05/31/17 19:05	1
<b>Fluoride</b>	<b>0.19</b>		0.050		mg/L			05/31/17 19:05	1
<b>Sulfate</b>	<b>16.7</b>		2.0		mg/L			05/31/17 19:05	1
<b>Total Dissolved Solids</b>	<b>320</b>		10.0		mg/L			05/23/17 16:21	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>pH</b>	<b>7.0</b>	<b>HF</b>	0.1		SU			05/22/17 14:29	1
<b>Temperature</b>	<b>18.7</b>	<b>HF</b>	0.001		Degrees C			05/22/17 14:29	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

**Client Sample ID: MW-3**  
**Date Collected: 05/18/17 10:35**  
**Date Received: 05/20/17 09:30**

**Lab Sample ID: 480-118333-2**  
**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.23		0.0020		mg/L		05/22/17 12:15	05/25/17 16:07	1
Boron	0.23		0.020		mg/L		05/22/17 12:15	05/26/17 14:24	1
Calcium	177		0.50		mg/L		05/22/17 12:15	05/25/17 16:07	1
Chromium	ND		0.0040		mg/L		05/22/17 12:15	05/25/17 16:07	1
Lead	ND		0.010		mg/L		05/22/17 12:15	05/25/17 16:07	1
Lithium	ND		0.030		mg/L		05/22/17 12:15	05/25/17 16:07	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/22/17 09:44	05/23/17 02:45	1
Arsenic	4.9		1.0		ug/L		05/22/17 09:44	05/23/17 02:45	1
Beryllium	ND		0.70		ug/L		05/22/17 09:44	05/23/17 02:45	1
Cadmium	ND		0.50		ug/L		05/22/17 09:44	05/23/17 02:45	1
Cobalt	5.6		0.30		ug/L		05/22/17 09:44	05/23/17 02:45	1
Molybdenum	5.6		1.0		ug/L		05/22/17 09:44	05/23/17 02:45	1
Selenium	1.1		1.0		ug/L		05/22/17 09:44	05/23/17 02:45	1
Thallium	ND		0.20		ug/L		05/22/17 09:44	05/23/17 02:45	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/22/17 07:30	05/22/17 13:36	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	20.0		2.5		mg/L			06/01/17 17:42	5
Fluoride	ND		0.25		mg/L			06/01/17 17:42	5
Sulfate	27.7		10.0		mg/L			06/01/17 17:42	5
Total Dissolved Solids	731		10.0		mg/L			05/23/17 16:21	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.7	HF	0.1		SU			05/22/17 14:32	1
Temperature	18.6	HF	0.001		Degrees C			05/22/17 14:32	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-118333-3**

**Date Collected: 05/18/17 09:00**

**Matrix: Water**

**Date Received: 05/20/17 09:30**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Barium</b>	<b>0.17</b>		0.0020		mg/L		05/22/17 12:15	05/25/17 16:11	1
Boron	ND	^	0.020		mg/L		05/22/17 12:15	05/25/17 16:11	1
<b>Calcium</b>	<b>75.8</b>		0.50		mg/L		05/22/17 12:15	05/25/17 16:11	1
Chromium	ND		0.0040		mg/L		05/22/17 12:15	05/25/17 16:11	1
<b>Lead</b>	<b>0.012</b>		0.010		mg/L		05/22/17 12:15	05/25/17 16:11	1
Lithium	ND		0.030		mg/L		05/22/17 12:15	05/25/17 16:11	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/22/17 09:44	05/23/17 02:51	1
Arsenic	ND		1.0		ug/L		05/22/17 09:44	05/23/17 02:51	1
Beryllium	ND		0.70		ug/L		05/22/17 09:44	05/23/17 02:51	1
Cadmium	ND		0.50		ug/L		05/22/17 09:44	05/23/17 02:51	1
<b>Cobalt</b>	<b>2.1</b>		0.30		ug/L		05/22/17 09:44	05/23/17 02:51	1
<b>Molybdenum</b>	<b>2.8</b>		1.0		ug/L		05/22/17 09:44	05/23/17 02:51	1
Selenium	ND		1.0		ug/L		05/22/17 09:44	05/23/17 02:51	1
Thallium	ND		0.20		ug/L		05/22/17 09:44	05/23/17 02:51	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/22/17 07:30	05/22/17 13:39	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>18.2</b>		1.0		mg/L			06/01/17 17:51	2
<b>Fluoride</b>	<b>0.27</b>		0.10		mg/L			06/01/17 17:51	2
<b>Sulfate</b>	<b>43.0</b>	<b>F1</b>	4.0		mg/L			06/01/17 17:51	2
<b>Total Dissolved Solids</b>	<b>382</b>		10.0		mg/L			05/23/17 16:21	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>pH</b>	<b>7.3</b>	<b>HF</b>	0.1		SU			05/22/17 14:35	1
<b>Temperature</b>	<b>18.5</b>	<b>HF</b>	0.001		Degrees C			05/22/17 14:35	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-118333-4**

**Date Collected: 05/18/17 10:05**

**Matrix: Water**

**Date Received: 05/20/17 09:30**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.17		0.0020		mg/L		05/22/17 12:15	05/25/17 16:14	1
Boron	0.043		0.020		mg/L		05/22/17 12:15	05/26/17 14:27	1
Calcium	124		0.50		mg/L		05/22/17 12:15	05/25/17 16:14	1
Chromium	ND		0.0040		mg/L		05/22/17 12:15	05/25/17 16:14	1
Lead	ND		0.010		mg/L		05/22/17 12:15	05/25/17 16:14	1
Lithium	ND		0.030		mg/L		05/22/17 12:15	05/25/17 16:14	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/22/17 09:44	05/23/17 03:14	1
Arsenic	2.1		1.0		ug/L		05/22/17 09:44	05/23/17 03:14	1
Beryllium	ND		0.70		ug/L		05/22/17 09:44	05/23/17 03:14	1
Cadmium	ND		0.50		ug/L		05/22/17 09:44	05/23/17 03:14	1
Cobalt	2.5		0.30		ug/L		05/22/17 09:44	05/23/17 03:14	1
Molybdenum	2.6		1.0		ug/L		05/22/17 09:44	05/23/17 03:14	1
Selenium	1.3		1.0		ug/L		05/22/17 09:44	05/23/17 03:14	1
Thallium	ND		0.20		ug/L		05/22/17 09:44	05/23/17 03:14	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/22/17 07:30	05/22/17 13:41	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	30.7		2.5		mg/L			06/01/17 18:31	5
Fluoride	ND		0.25		mg/L			06/01/17 18:31	5
Sulfate	52.7		10.0		mg/L			06/01/17 18:31	5
Total Dissolved Solids	530		10.0		mg/L			05/23/17 16:21	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.1	HF	0.1		SU			05/22/17 14:38	1
Temperature	18.9	HF	0.001		Degrees C			05/22/17 14:38	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

**Client Sample ID: MW-2R**

**Date Collected: 05/18/17 10:10**

**Date Received: 05/20/17 09:30**

**Lab Sample ID: 480-118333-5**

**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.18		0.0020		mg/L		05/22/17 12:15	05/25/17 16:18	1
Boron	0.21		0.020		mg/L		05/22/17 12:15	05/26/17 14:30	1
Calcium	187		0.50		mg/L		05/22/17 12:15	05/25/17 16:18	1
Chromium	ND		0.0040		mg/L		05/22/17 12:15	05/25/17 16:18	1
Lead	0.011		0.010		mg/L		05/22/17 12:15	05/25/17 16:18	1
Lithium	ND		0.030		mg/L		05/22/17 12:15	05/25/17 16:18	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/22/17 09:44	05/23/17 03:20	1
Arsenic	1.2		1.0		ug/L		05/22/17 09:44	05/23/17 03:20	1
Beryllium	ND		0.70		ug/L		05/22/17 09:44	05/23/17 03:20	1
Cadmium	ND		0.50		ug/L		05/22/17 09:44	05/23/17 03:20	1
Cobalt	1.0		0.30		ug/L		05/22/17 09:44	05/23/17 03:20	1
Molybdenum	1.9		1.0		ug/L		05/22/17 09:44	05/23/17 03:20	1
Selenium	1.3		1.0		ug/L		05/22/17 09:44	05/23/17 03:20	1
Thallium	ND		0.20		ug/L		05/22/17 09:44	05/23/17 03:20	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/22/17 07:30	05/22/17 13:42	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	39.8		2.5		mg/L			06/01/17 18:39	5
Fluoride	ND		0.25		mg/L			06/01/17 18:39	5
Sulfate	146		10.0		mg/L			06/01/17 18:39	5
Total Dissolved Solids	819		10.0		mg/L			05/23/17 16:21	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.8	HF	0.1		SU			05/22/17 14:41	1
Temperature	19.1	HF	0.001		Degrees C			05/22/17 14:41	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-118333-6**

**Date Collected: 05/18/17 10:45**

**Matrix: Water**

**Date Received: 05/20/17 09:30**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.22		0.0020		mg/L		05/22/17 12:15	05/25/17 16:21	1
Boron	0.031		0.020		mg/L		05/22/17 12:15	05/26/17 14:34	1
Calcium	129		0.50		mg/L		05/22/17 12:15	05/25/17 16:21	1
Chromium	ND		0.0040		mg/L		05/22/17 12:15	05/25/17 16:21	1
Lead	ND		0.010		mg/L		05/22/17 12:15	05/25/17 16:21	1
Lithium	ND		0.030		mg/L		05/22/17 12:15	05/25/17 16:21	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/22/17 09:44	05/23/17 03:25	1
Arsenic	4.4		1.0		ug/L		05/22/17 09:44	05/23/17 03:25	1
Beryllium	ND		0.70		ug/L		05/22/17 09:44	05/23/17 03:25	1
Cadmium	ND		0.50		ug/L		05/22/17 09:44	05/23/17 03:25	1
Cobalt	1.2		0.30		ug/L		05/22/17 09:44	05/23/17 03:25	1
Molybdenum	3.8		1.0		ug/L		05/22/17 09:44	05/23/17 03:25	1
Selenium	ND		1.0		ug/L		05/22/17 09:44	05/23/17 03:25	1
Thallium	ND		0.20		ug/L		05/22/17 09:44	05/23/17 03:25	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/22/17 07:30	05/22/17 13:44	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	31.7		2.5		mg/L			06/01/17 18:48	5
Fluoride	ND		0.25		mg/L			06/01/17 18:48	5
Sulfate	99.8		10.0		mg/L			06/01/17 18:48	5
Total Dissolved Solids	594		10.0		mg/L			05/23/17 16:21	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.0	HF	0.1		SU			05/22/17 14:46	1
Temperature	18.4	HF	0.001		Degrees C			05/22/17 14:46	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

**Client Sample ID: MW-3R**

**Date Collected: 05/18/17 10:50**

**Date Received: 05/20/17 09:30**

**Lab Sample ID: 480-118333-7**

**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.58		0.0020		mg/L		05/22/17 12:15	05/25/17 16:25	1
Boron	0.045		0.020		mg/L		05/22/17 12:15	05/26/17 14:37	1
Calcium	217		0.50		mg/L		05/22/17 12:15	05/25/17 16:25	1
Chromium	ND		0.0040		mg/L		05/22/17 12:15	05/25/17 16:25	1
Lead	0.018		0.010		mg/L		05/22/17 12:15	05/25/17 16:25	1
Lithium	ND		0.030		mg/L		05/22/17 12:15	05/25/17 16:25	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/22/17 09:44	05/23/17 03:30	1
Arsenic	2.8		1.0		ug/L		05/22/17 09:44	05/23/17 03:30	1
Beryllium	ND		0.70		ug/L		05/22/17 09:44	05/23/17 03:30	1
Cadmium	ND		0.50		ug/L		05/22/17 09:44	05/23/17 03:30	1
Cobalt	0.77		0.30		ug/L		05/22/17 09:44	05/23/17 03:30	1
Molybdenum	1.7		1.0		ug/L		05/22/17 09:44	05/23/17 03:30	1
Selenium	1.2		1.0		ug/L		05/22/17 09:44	05/23/17 03:30	1
Thallium	ND		0.20		ug/L		05/22/17 09:44	05/23/17 03:30	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/22/17 07:30	05/22/17 13:45	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	20.0		2.5		mg/L			06/01/17 18:56	5
Fluoride	ND		0.25		mg/L			06/01/17 18:56	5
Sulfate	41.2		10.0		mg/L			06/01/17 18:56	5
Total Dissolved Solids	883		10.0		mg/L			05/23/17 16:21	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.6	HF	0.1		SU			05/22/17 14:49	1
Temperature	18.2	HF	0.001		Degrees C			05/22/17 14:49	1



# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

**Client Sample ID: MW-4**  
**Date Collected: 05/18/17 11:35**  
**Date Received: 05/20/17 09:30**

**Lab Sample ID: 480-118333-8**  
**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.26		0.0020		mg/L		05/22/17 12:15	05/25/17 16:28	1
Boron	0.18		0.020		mg/L		05/22/17 12:15	05/26/17 14:41	1
Calcium	265		0.50		mg/L		05/22/17 12:15	05/25/17 16:28	1
Chromium	ND		0.0040		mg/L		05/22/17 12:15	05/25/17 16:28	1
Lead	ND		0.010		mg/L		05/22/17 12:15	05/25/17 16:28	1
Lithium	ND		0.030		mg/L		05/22/17 12:15	05/25/17 16:28	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/22/17 09:44	05/23/17 03:36	1
Arsenic	1.6		1.0		ug/L		05/22/17 09:44	05/23/17 03:36	1
Beryllium	ND		0.70		ug/L		05/22/17 09:44	05/23/17 03:36	1
Cadmium	0.68		0.50		ug/L		05/22/17 09:44	05/23/17 03:36	1
Cobalt	0.93		0.30		ug/L		05/22/17 09:44	05/23/17 03:36	1
Molybdenum	1.9		1.0		ug/L		05/22/17 09:44	05/23/17 03:36	1
Selenium	1.1		1.0		ug/L		05/22/17 09:44	05/23/17 03:36	1
Thallium	ND		0.20		ug/L		05/22/17 09:44	05/23/17 03:36	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/22/17 07:30	05/22/17 13:47	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	38.1		2.5		mg/L			06/01/17 19:04	5
Fluoride	ND		0.25		mg/L			06/01/17 19:04	5
Sulfate	409		10.0		mg/L			06/01/17 19:04	5
Total Dissolved Solids	1380		20.0		mg/L			05/23/17 16:21	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1		SU			05/22/17 14:52	1
Temperature	18.2	HF	0.001		Degrees C			05/22/17 14:52	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

**Client Sample ID: DUP-1**

**Date Collected: 05/18/17 00:00**

**Date Received: 05/20/17 09:30**

**Lab Sample ID: 480-118333-9**

**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.23		0.0020		mg/L		05/22/17 12:15	05/25/17 16:31	1
Boron	0.032		0.020		mg/L		05/22/17 12:15	05/26/17 14:44	1
Calcium	131		0.50		mg/L		05/22/17 12:15	05/25/17 16:31	1
Chromium	0.0057		0.0040		mg/L		05/22/17 12:15	05/25/17 16:31	1
Lead	0.010		0.010		mg/L		05/22/17 12:15	05/25/17 16:31	1
Lithium	ND		0.030		mg/L		05/22/17 12:15	05/25/17 16:31	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/22/17 09:44	05/23/17 03:41	1
Arsenic	4.2		1.0		ug/L		05/22/17 09:44	05/23/17 03:41	1
Beryllium	ND		0.70		ug/L		05/22/17 09:44	05/23/17 03:41	1
Cadmium	ND		0.50		ug/L		05/22/17 09:44	05/23/17 03:41	1
Cobalt	1.4		0.30		ug/L		05/22/17 09:44	05/23/17 03:41	1
Molybdenum	3.8		1.0		ug/L		05/22/17 09:44	05/23/17 03:41	1
Selenium	ND		1.0		ug/L		05/22/17 09:44	05/23/17 03:41	1
Thallium	ND		0.20		ug/L		05/22/17 09:44	05/23/17 03:41	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/22/17 07:30	05/22/17 13:49	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	32.1		2.5		mg/L			06/01/17 19:12	5
Fluoride	ND		0.25		mg/L			06/01/17 19:12	5
Sulfate	104		10.0		mg/L			06/01/17 19:12	5
Total Dissolved Solids	579		10.0		mg/L			05/23/17 16:21	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.1	HF	0.1		SU			05/22/17 14:55	1
Temperature	18.4	HF	0.001		Degrees C			05/22/17 14:55	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-118333-10**

**Date Collected: 05/18/17 11:55**

**Matrix: Water**

**Date Received: 05/20/17 09:30**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		05/22/17 12:15	05/25/17 16:45	1
Boron	ND		0.020		mg/L		05/22/17 12:15	05/25/17 16:45	1
Calcium	ND		0.50		mg/L		05/22/17 12:15	05/25/17 16:45	1
Chromium	ND		0.0040		mg/L		05/22/17 12:15	05/25/17 16:45	1
Lead	ND		0.010		mg/L		05/22/17 12:15	05/25/17 16:45	1
Lithium	ND		0.030		mg/L		05/22/17 12:15	05/25/17 16:45	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/22/17 09:44	05/23/17 04:26	1
Arsenic	ND		1.0		ug/L		05/22/17 09:44	05/23/17 04:26	1
Beryllium	ND		0.70		ug/L		05/22/17 09:44	05/23/17 04:26	1
Cadmium	ND		0.50		ug/L		05/22/17 09:44	05/23/17 04:26	1
Cobalt	ND		0.30		ug/L		05/22/17 09:44	05/23/17 04:26	1
Molybdenum	ND		1.0		ug/L		05/22/17 09:44	05/23/17 04:26	1
Selenium	ND		1.0		ug/L		05/22/17 09:44	05/23/17 04:26	1
Thallium	ND		0.20		ug/L		05/22/17 09:44	05/23/17 04:26	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/22/17 07:30	05/22/17 13:51	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			06/01/17 19:20	1
Fluoride	ND		0.050		mg/L			06/01/17 19:20	1
Sulfate	ND		2.0		mg/L			06/01/17 19:20	1
Total Dissolved Solids	ND		10.0		mg/L			05/23/17 16:21	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.7	HF	0.1		SU			05/22/17 14:58	1
Temperature	18.9	HF	0.001		Degrees C			05/22/17 14:58	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

**Client Sample ID: EQUIP BLANK**

**Lab Sample ID: 480-118333-11**

**Date Collected: 05/18/17 12:00**

**Matrix: Water**

**Date Received: 05/20/17 09:30**

**Method: 6010C - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		05/22/17 12:15	05/25/17 16:49	1
Boron	ND		0.020		mg/L		05/22/17 12:15	05/25/17 16:49	1
Calcium	ND		0.50		mg/L		05/22/17 12:15	05/25/17 16:49	1
Chromium	ND		0.0040		mg/L		05/22/17 12:15	05/25/17 16:49	1
Lead	ND		0.010		mg/L		05/22/17 12:15	05/25/17 16:49	1
Lithium	ND		0.030		mg/L		05/22/17 12:15	05/25/17 16:49	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/22/17 09:44	05/23/17 04:32	1
Arsenic	ND		1.0		ug/L		05/22/17 09:44	05/23/17 04:32	1
Beryllium	ND		0.70		ug/L		05/22/17 09:44	05/23/17 04:32	1
Cadmium	ND		0.50		ug/L		05/22/17 09:44	05/23/17 04:32	1
Cobalt	ND		0.30		ug/L		05/22/17 09:44	05/23/17 04:32	1
Molybdenum	ND		1.0		ug/L		05/22/17 09:44	05/23/17 04:32	1
Selenium	ND		1.0		ug/L		05/22/17 09:44	05/23/17 04:32	1
Thallium	ND		0.20		ug/L		05/22/17 09:44	05/23/17 04:32	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/22/17 07:30	05/22/17 13:56	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			06/01/17 19:28	1
Fluoride	ND		0.050		mg/L			06/01/17 19:28	1
Sulfate	ND		2.0		mg/L			06/01/17 19:28	1
Total Dissolved Solids	ND		10.0		mg/L			05/23/17 16:21	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.3	HF	0.1		SU			05/22/17 15:01	1
Temperature	19.0	HF	0.001		Degrees C			05/22/17 15:01	1

# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 480-358512/1-A**  
**Matrix: Water**  
**Analysis Batch: 359321**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 358512**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		05/22/17 12:15	05/25/17 15:47	1
Calcium	ND		0.50		mg/L		05/22/17 12:15	05/25/17 15:47	1
Chromium	ND		0.0040		mg/L		05/22/17 12:15	05/25/17 15:47	1
Lead	ND		0.010		mg/L		05/22/17 12:15	05/25/17 15:47	1
Lithium	ND		0.030		mg/L		05/22/17 12:15	05/25/17 15:47	1

**Lab Sample ID: MB 480-358512/1-A**  
**Matrix: Water**  
**Analysis Batch: 359553**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 358512**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.020		mg/L		05/22/17 12:15	05/26/17 14:06	1

**Lab Sample ID: LCS 480-358512/2-A**  
**Matrix: Water**  
**Analysis Batch: 359321**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 358512**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	0.200	0.213		mg/L		106	80 - 120
Calcium	10.0	10.21		mg/L		102	80 - 120
Chromium	0.200	0.212		mg/L		106	80 - 120
Lead	0.200	0.205		mg/L		103	80 - 120

**Lab Sample ID: LCS 480-358512/2-A**  
**Matrix: Water**  
**Analysis Batch: 359553**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 358512**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.200	0.211		mg/L		106	80 - 120

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 480-358471/1-A**  
**Matrix: Water**  
**Analysis Batch: 358687**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 358471**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		05/22/17 09:44	05/23/17 02:29	1
Arsenic	ND		1.0		ug/L		05/22/17 09:44	05/23/17 02:29	1
Beryllium	ND		0.70		ug/L		05/22/17 09:44	05/23/17 02:29	1
Cadmium	ND		0.50		ug/L		05/22/17 09:44	05/23/17 02:29	1
Cobalt	ND		0.30		ug/L		05/22/17 09:44	05/23/17 02:29	1
Molybdenum	ND		1.0		ug/L		05/22/17 09:44	05/23/17 02:29	1
Selenium	ND		1.0		ug/L		05/22/17 09:44	05/23/17 02:29	1
Thallium	ND		0.20		ug/L		05/22/17 09:44	05/23/17 02:29	1

TestAmerica Buffalo

# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: LCS 480-358471/2-A**  
**Matrix: Water**  
**Analysis Batch: 358687**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 358471**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Antimony	20.0	19.77		ug/L		99	80 - 120
Arsenic	20.0	19.66		ug/L		98	80 - 120
Beryllium	20.0	22.78		ug/L		114	80 - 120
Cadmium	20.0	19.52		ug/L		98	80 - 120
Cobalt	20.0	20.16		ug/L		101	80 - 120
Molybdenum	20.0	19.52		ug/L		98	80 - 120
Selenium	20.0	18.65		ug/L		93	80 - 120
Thallium	20.0	20.59		ug/L		103	80 - 120

**Lab Sample ID: 480-118333-9 MS**  
**Matrix: Water**  
**Analysis Batch: 358687**

**Client Sample ID: DUP-1**  
**Prep Type: Total/NA**  
**Prep Batch: 358471**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Antimony	ND		20.0	18.37		ug/L		92	75 - 125
Arsenic	4.2		20.0	24.52		ug/L		102	75 - 125
Beryllium	ND		20.0	21.65		ug/L		107	75 - 125
Cadmium	ND		20.0	20.12		ug/L		100	75 - 125
Cobalt	1.4		20.0	21.20		ug/L		99	75 - 125
Molybdenum	3.8		20.0	24.13		ug/L		102	75 - 125
Selenium	ND		20.0	19.65		ug/L		96	75 - 125
Thallium	ND		20.0	21.41		ug/L		107	75 - 125

**Lab Sample ID: 480-118333-9 MSD**  
**Matrix: Water**  
**Analysis Batch: 358687**

**Client Sample ID: DUP-1**  
**Prep Type: Total/NA**  
**Prep Batch: 358471**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Antimony	ND		20.0	17.03		ug/L		85	75 - 125	8	20
Arsenic	4.2		20.0	23.01		ug/L		94	75 - 125	6	20
Beryllium	ND		20.0	20.52		ug/L		102	75 - 125	5	20
Cadmium	ND		20.0	18.42		ug/L		92	75 - 125	9	20
Cobalt	1.4		20.0	19.83		ug/L		92	75 - 125	7	20
Molybdenum	3.8		20.0	22.41		ug/L		93	75 - 125	7	20
Selenium	ND		20.0	18.42		ug/L		90	75 - 125	6	20
Thallium	ND		20.0	19.87		ug/L		99	75 - 125	7	20

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: MB 480-358432/1-A**  
**Matrix: Water**  
**Analysis Batch: 358577**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 358432**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		05/22/17 07:30	05/22/17 13:21	1

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# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

## Method: 7470A - Mercury (CVAA) (Continued)

**Lab Sample ID: LCS 480-358432/2-A**  
**Matrix: Water**  
**Analysis Batch: 358577**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 358432**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	6.67	6.98		ug/L		105	80 - 120

**Lab Sample ID: 480-118333-1 MS**  
**Matrix: Water**  
**Analysis Batch: 358577**

**Client Sample ID: MW-1**  
**Prep Type: Total/NA**  
**Prep Batch: 358432**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		6.67	6.90		ug/L		103	80 - 120

**Lab Sample ID: 480-118333-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 358577**

**Client Sample ID: MW-1**  
**Prep Type: Total/NA**  
**Prep Batch: 358432**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Mercury	ND		6.67	6.93		ug/L		104	80 - 120	0	20

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 480-359784/28**  
**Matrix: Water**  
**Analysis Batch: 359784**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			05/31/17 16:27	1
Fluoride	ND		0.050		mg/L			05/31/17 16:27	1
Sulfate	ND		2.0		mg/L			05/31/17 16:27	1

**Lab Sample ID: LCS 480-359784/27**  
**Matrix: Water**  
**Analysis Batch: 359784**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.75		mg/L		100	90 - 110
Fluoride	5.00	4.63		mg/L		93	90 - 110
Sulfate	50.0	47.53		mg/L		95	90 - 110

**Lab Sample ID: 480-118333-1 MS**  
**Matrix: Water**  
**Analysis Batch: 359784**

**Client Sample ID: MW-1**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	18.0		50.0	66.90		mg/L		98	81 - 120
Fluoride	0.19		5.00	4.67		mg/L		90	82 - 120
Sulfate	16.7		50.0	65.22		mg/L		97	80 - 120

TestAmerica Buffalo

# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: MB 480-360059/4**  
**Matrix: Water**  
**Analysis Batch: 360059**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			06/01/17 17:02	1
Fluoride	ND		0.050		mg/L			06/01/17 17:02	1
Sulfate	ND		2.0		mg/L			06/01/17 17:02	1

**Lab Sample ID: LCS 480-360059/3**  
**Matrix: Water**  
**Analysis Batch: 360059**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	51.27		mg/L		103	90 - 110
Fluoride	5.00	4.87		mg/L		97	90 - 110
Sulfate	50.0	53.05		mg/L		106	90 - 110

**Lab Sample ID: 480-118333-3 MS**  
**Matrix: Water**  
**Analysis Batch: 360059**

**Client Sample ID: MW-1RD**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	18.2		50.0	61.79		mg/L		87	81 - 120
Fluoride	0.27		5.00	5.14		mg/L		97	82 - 120
Sulfate	43.0	F1	50.0	76.94	F1	mg/L		68	80 - 120

**Lab Sample ID: 480-118333-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 360059**

**Client Sample ID: MW-1RD**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	18.2		50.0	62.19		mg/L		88	81 - 120	1	20
Fluoride	0.27		5.00	5.20		mg/L		99	82 - 120	1	20
Sulfate	43.0	F1	50.0	77.36	F1	mg/L		69	80 - 120	1	20

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 480-358764/1**  
**Matrix: Water**  
**Analysis Batch: 358764**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			05/23/17 16:21	1

**Lab Sample ID: LCS 480-358764/2**  
**Matrix: Water**  
**Analysis Batch: 358764**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	504	494.0		mg/L		98	85 - 115

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# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

## Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: 480-118333-10 DU  
 Matrix: Water  
 Analysis Batch: 358764

Client Sample ID: FIELD BLANK  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Dissolved Solids	ND		ND		mg/L		NC	10

## Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 480-358583/1  
 Matrix: Water  
 Analysis Batch: 358583

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		101	99 - 101

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

# QC Association Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

## Metals

### Prep Batch: 358432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-118333-1	MW-1	Total/NA	Water	7470A	
480-118333-2	MW-3	Total/NA	Water	7470A	
480-118333-3	MW-1RD	Total/NA	Water	7470A	
480-118333-4	MW-2RD	Total/NA	Water	7470A	
480-118333-5	MW-2R	Total/NA	Water	7470A	
480-118333-6	MW-3RD	Total/NA	Water	7470A	
480-118333-7	MW-3R	Total/NA	Water	7470A	
480-118333-8	MW-4	Total/NA	Water	7470A	
480-118333-9	DUP-1	Total/NA	Water	7470A	
480-118333-10	FIELD BLANK	Total/NA	Water	7470A	
480-118333-11	EQUIP BLANK	Total/NA	Water	7470A	
MB 480-358432/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-358432/2-A	Lab Control Sample	Total/NA	Water	7470A	
480-118333-1 MS	MW-1	Total/NA	Water	7470A	
480-118333-1 MSD	MW-1	Total/NA	Water	7470A	

### Prep Batch: 358471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-118333-1	MW-1	Total/NA	Water	3020A	
480-118333-2	MW-3	Total/NA	Water	3020A	
480-118333-3	MW-1RD	Total/NA	Water	3020A	
480-118333-4	MW-2RD	Total/NA	Water	3020A	
480-118333-5	MW-2R	Total/NA	Water	3020A	
480-118333-6	MW-3RD	Total/NA	Water	3020A	
480-118333-7	MW-3R	Total/NA	Water	3020A	
480-118333-8	MW-4	Total/NA	Water	3020A	
480-118333-9	DUP-1	Total/NA	Water	3020A	
480-118333-10	FIELD BLANK	Total/NA	Water	3020A	
480-118333-11	EQUIP BLANK	Total/NA	Water	3020A	
MB 480-358471/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-358471/2-A	Lab Control Sample	Total/NA	Water	3020A	
480-118333-9 MS	DUP-1	Total/NA	Water	3020A	
480-118333-9 MSD	DUP-1	Total/NA	Water	3020A	

### Prep Batch: 358512

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-118333-1	MW-1	Total/NA	Water	3005A	
480-118333-2	MW-3	Total/NA	Water	3005A	
480-118333-3	MW-1RD	Total/NA	Water	3005A	
480-118333-4	MW-2RD	Total/NA	Water	3005A	
480-118333-5	MW-2R	Total/NA	Water	3005A	
480-118333-6	MW-3RD	Total/NA	Water	3005A	
480-118333-7	MW-3R	Total/NA	Water	3005A	
480-118333-8	MW-4	Total/NA	Water	3005A	
480-118333-9	DUP-1	Total/NA	Water	3005A	
480-118333-10	FIELD BLANK	Total/NA	Water	3005A	
480-118333-11	EQUIP BLANK	Total/NA	Water	3005A	
MB 480-358512/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-358512/2-A	Lab Control Sample	Total/NA	Water	3005A	

# QC Association Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

## Metals (Continued)

### Analysis Batch: 358577

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-118333-1	MW-1	Total/NA	Water	7470A	358432
480-118333-2	MW-3	Total/NA	Water	7470A	358432
480-118333-3	MW-1RD	Total/NA	Water	7470A	358432
480-118333-4	MW-2RD	Total/NA	Water	7470A	358432
480-118333-5	MW-2R	Total/NA	Water	7470A	358432
480-118333-6	MW-3RD	Total/NA	Water	7470A	358432
480-118333-7	MW-3R	Total/NA	Water	7470A	358432
480-118333-8	MW-4	Total/NA	Water	7470A	358432
480-118333-9	DUP-1	Total/NA	Water	7470A	358432
480-118333-10	FIELD BLANK	Total/NA	Water	7470A	358432
480-118333-11	EQUIP BLANK	Total/NA	Water	7470A	358432
MB 480-358432/1-A	Method Blank	Total/NA	Water	7470A	358432
LCS 480-358432/2-A	Lab Control Sample	Total/NA	Water	7470A	358432
480-118333-1 MS	MW-1	Total/NA	Water	7470A	358432
480-118333-1 MSD	MW-1	Total/NA	Water	7470A	358432

### Analysis Batch: 358687

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-118333-1	MW-1	Total/NA	Water	6020A	358471
480-118333-2	MW-3	Total/NA	Water	6020A	358471
480-118333-3	MW-1RD	Total/NA	Water	6020A	358471
480-118333-4	MW-2RD	Total/NA	Water	6020A	358471
480-118333-5	MW-2R	Total/NA	Water	6020A	358471
480-118333-6	MW-3RD	Total/NA	Water	6020A	358471
480-118333-7	MW-3R	Total/NA	Water	6020A	358471
480-118333-8	MW-4	Total/NA	Water	6020A	358471
480-118333-9	DUP-1	Total/NA	Water	6020A	358471
480-118333-10	FIELD BLANK	Total/NA	Water	6020A	358471
480-118333-11	EQUIP BLANK	Total/NA	Water	6020A	358471
MB 480-358471/1-A	Method Blank	Total/NA	Water	6020A	358471
LCS 480-358471/2-A	Lab Control Sample	Total/NA	Water	6020A	358471
480-118333-9 MS	DUP-1	Total/NA	Water	6020A	358471
480-118333-9 MSD	DUP-1	Total/NA	Water	6020A	358471

### Analysis Batch: 359321

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-118333-1	MW-1	Total/NA	Water	6010C	358512
480-118333-2	MW-3	Total/NA	Water	6010C	358512
480-118333-3	MW-1RD	Total/NA	Water	6010C	358512
480-118333-4	MW-2RD	Total/NA	Water	6010C	358512
480-118333-5	MW-2R	Total/NA	Water	6010C	358512
480-118333-6	MW-3RD	Total/NA	Water	6010C	358512
480-118333-7	MW-3R	Total/NA	Water	6010C	358512
480-118333-8	MW-4	Total/NA	Water	6010C	358512
480-118333-9	DUP-1	Total/NA	Water	6010C	358512
480-118333-10	FIELD BLANK	Total/NA	Water	6010C	358512
480-118333-11	EQUIP BLANK	Total/NA	Water	6010C	358512
MB 480-358512/1-A	Method Blank	Total/NA	Water	6010C	358512
LCS 480-358512/2-A	Lab Control Sample	Total/NA	Water	6010C	358512

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# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

## Metals (Continued)

### Analysis Batch: 359553

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-118333-2	MW-3	Total/NA	Water	6010C	358512
480-118333-4	MW-2RD	Total/NA	Water	6010C	358512
480-118333-5	MW-2R	Total/NA	Water	6010C	358512
480-118333-6	MW-3RD	Total/NA	Water	6010C	358512
480-118333-7	MW-3R	Total/NA	Water	6010C	358512
480-118333-8	MW-4	Total/NA	Water	6010C	358512
480-118333-9	DUP-1	Total/NA	Water	6010C	358512
MB 480-358512/1-A	Method Blank	Total/NA	Water	6010C	358512
LCS 480-358512/2-A	Lab Control Sample	Total/NA	Water	6010C	358512

## General Chemistry

### Analysis Batch: 358583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-118333-1	MW-1	Total/NA	Water	SM 4500 H+ B	
480-118333-2	MW-3	Total/NA	Water	SM 4500 H+ B	
480-118333-3	MW-1RD	Total/NA	Water	SM 4500 H+ B	
480-118333-4	MW-2RD	Total/NA	Water	SM 4500 H+ B	
480-118333-5	MW-2R	Total/NA	Water	SM 4500 H+ B	
480-118333-6	MW-3RD	Total/NA	Water	SM 4500 H+ B	
480-118333-7	MW-3R	Total/NA	Water	SM 4500 H+ B	
480-118333-8	MW-4	Total/NA	Water	SM 4500 H+ B	
480-118333-9	DUP-1	Total/NA	Water	SM 4500 H+ B	
480-118333-10	FIELD BLANK	Total/NA	Water	SM 4500 H+ B	
480-118333-11	EQUIP BLANK	Total/NA	Water	SM 4500 H+ B	
LCS 480-358583/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

### Analysis Batch: 358764

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-118333-1	MW-1	Total/NA	Water	SM 2540C	
480-118333-2	MW-3	Total/NA	Water	SM 2540C	
480-118333-3	MW-1RD	Total/NA	Water	SM 2540C	
480-118333-4	MW-2RD	Total/NA	Water	SM 2540C	
480-118333-5	MW-2R	Total/NA	Water	SM 2540C	
480-118333-6	MW-3RD	Total/NA	Water	SM 2540C	
480-118333-7	MW-3R	Total/NA	Water	SM 2540C	
480-118333-8	MW-4	Total/NA	Water	SM 2540C	
480-118333-9	DUP-1	Total/NA	Water	SM 2540C	
480-118333-10	FIELD BLANK	Total/NA	Water	SM 2540C	
480-118333-11	EQUIP BLANK	Total/NA	Water	SM 2540C	
MB 480-358764/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-358764/2	Lab Control Sample	Total/NA	Water	SM 2540C	
480-118333-10 DU	FIELD BLANK	Total/NA	Water	SM 2540C	

### Analysis Batch: 359784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-118333-1	MW-1	Total/NA	Water	300.0	
MB 480-359784/28	Method Blank	Total/NA	Water	300.0	
LCS 480-359784/27	Lab Control Sample	Total/NA	Water	300.0	
480-118333-1 MS	MW-1	Total/NA	Water	300.0	

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# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

## General Chemistry (Continued)

### Analysis Batch: 360059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-118333-2	MW-3	Total/NA	Water	300.0	
480-118333-3	MW-1RD	Total/NA	Water	300.0	
480-118333-4	MW-2RD	Total/NA	Water	300.0	
480-118333-5	MW-2R	Total/NA	Water	300.0	
480-118333-6	MW-3RD	Total/NA	Water	300.0	
480-118333-7	MW-3R	Total/NA	Water	300.0	
480-118333-8	MW-4	Total/NA	Water	300.0	
480-118333-9	DUP-1	Total/NA	Water	300.0	
480-118333-10	FIELD BLANK	Total/NA	Water	300.0	
480-118333-11	EQUIP BLANK	Total/NA	Water	300.0	
MB 480-360059/4	Method Blank	Total/NA	Water	300.0	
LCS 480-360059/3	Lab Control Sample	Total/NA	Water	300.0	
480-118333-3 MS	MW-1RD	Total/NA	Water	300.0	
480-118333-3 MSD	MW-1RD	Total/NA	Water	300.0	

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

**Client Sample ID: MW-1**

**Date Collected: 05/18/17 08:55**

**Date Received: 05/20/17 09:30**

**Lab Sample ID: 480-118333-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			358512	05/22/17 12:15	MJW	TAL BUF
Total/NA	Analysis	6010C		1	359321	05/25/17 16:04	LMH	TAL BUF
Total/NA	Prep	3020A			358471	05/22/17 09:44	MJW	TAL BUF
Total/NA	Analysis	6020A		1	358687	05/23/17 02:40	TRB	TAL BUF
Total/NA	Prep	7470A			358432	05/22/17 07:30	JRK	TAL BUF
Total/NA	Analysis	7470A		1	358577	05/22/17 13:26	JRK	TAL BUF
Total/NA	Analysis	300.0		1	359784	05/31/17 19:05	DMR	TAL BUF
Total/NA	Analysis	SM 2540C		1	358764	05/23/17 16:21	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	358583	05/22/17 14:29	DSC	TAL BUF

**Client Sample ID: MW-3**

**Date Collected: 05/18/17 10:35**

**Date Received: 05/20/17 09:30**

**Lab Sample ID: 480-118333-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			358512	05/22/17 12:15	MJW	TAL BUF
Total/NA	Analysis	6010C		1	359321	05/25/17 16:07	LMH	TAL BUF
Total/NA	Prep	3005A			358512	05/22/17 12:15	MJW	TAL BUF
Total/NA	Analysis	6010C		1	359553	05/26/17 14:24	LMH	TAL BUF
Total/NA	Prep	3020A			358471	05/22/17 09:44	MJW	TAL BUF
Total/NA	Analysis	6020A		1	358687	05/23/17 02:45	TRB	TAL BUF
Total/NA	Prep	7470A			358432	05/22/17 07:30	JRK	TAL BUF
Total/NA	Analysis	7470A		1	358577	05/22/17 13:36	JRK	TAL BUF
Total/NA	Analysis	300.0		5	360059	06/01/17 17:42	LMW	TAL BUF
Total/NA	Analysis	SM 2540C		1	358764	05/23/17 16:21	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	358583	05/22/17 14:32	DSC	TAL BUF

**Client Sample ID: MW-1RD**

**Date Collected: 05/18/17 09:00**

**Date Received: 05/20/17 09:30**

**Lab Sample ID: 480-118333-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			358512	05/22/17 12:15	MJW	TAL BUF
Total/NA	Analysis	6010C		1	359321	05/25/17 16:11	LMH	TAL BUF
Total/NA	Prep	3020A			358471	05/22/17 09:44	MJW	TAL BUF
Total/NA	Analysis	6020A		1	358687	05/23/17 02:51	TRB	TAL BUF
Total/NA	Prep	7470A			358432	05/22/17 07:30	JRK	TAL BUF
Total/NA	Analysis	7470A		1	358577	05/22/17 13:39	JRK	TAL BUF
Total/NA	Analysis	300.0		2	360059	06/01/17 17:51	LMW	TAL BUF
Total/NA	Analysis	SM 2540C		1	358764	05/23/17 16:21	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	358583	05/22/17 14:35	DSC	TAL BUF

TestAmerica Buffalo

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-118333-4**

**Date Collected: 05/18/17 10:05**

**Matrix: Water**

**Date Received: 05/20/17 09:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			358512	05/22/17 12:15	MJW	TAL BUF
Total/NA	Analysis	6010C		1	359321	05/25/17 16:14	LMH	TAL BUF
Total/NA	Prep	3005A			358512	05/22/17 12:15	MJW	TAL BUF
Total/NA	Analysis	6010C		1	359553	05/26/17 14:27	LMH	TAL BUF
Total/NA	Prep	3020A			358471	05/22/17 09:44	MJW	TAL BUF
Total/NA	Analysis	6020A		1	358687	05/23/17 03:14	TRB	TAL BUF
Total/NA	Prep	7470A			358432	05/22/17 07:30	JRK	TAL BUF
Total/NA	Analysis	7470A		1	358577	05/22/17 13:41	JRK	TAL BUF
Total/NA	Analysis	300.0		5	360059	06/01/17 18:31	LMW	TAL BUF
Total/NA	Analysis	SM 2540C		1	358764	05/23/17 16:21	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	358583	05/22/17 14:38	DSC	TAL BUF

**Client Sample ID: MW-2R**

**Lab Sample ID: 480-118333-5**

**Date Collected: 05/18/17 10:10**

**Matrix: Water**

**Date Received: 05/20/17 09:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			358512	05/22/17 12:15	MJW	TAL BUF
Total/NA	Analysis	6010C		1	359321	05/25/17 16:18	LMH	TAL BUF
Total/NA	Prep	3005A			358512	05/22/17 12:15	MJW	TAL BUF
Total/NA	Analysis	6010C		1	359553	05/26/17 14:30	LMH	TAL BUF
Total/NA	Prep	3020A			358471	05/22/17 09:44	MJW	TAL BUF
Total/NA	Analysis	6020A		1	358687	05/23/17 03:20	TRB	TAL BUF
Total/NA	Prep	7470A			358432	05/22/17 07:30	JRK	TAL BUF
Total/NA	Analysis	7470A		1	358577	05/22/17 13:42	JRK	TAL BUF
Total/NA	Analysis	300.0		5	360059	06/01/17 18:39	LMW	TAL BUF
Total/NA	Analysis	SM 2540C		1	358764	05/23/17 16:21	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	358583	05/22/17 14:41	DSC	TAL BUF

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-118333-6**

**Date Collected: 05/18/17 10:45**

**Matrix: Water**

**Date Received: 05/20/17 09:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			358512	05/22/17 12:15	MJW	TAL BUF
Total/NA	Analysis	6010C		1	359321	05/25/17 16:21	LMH	TAL BUF
Total/NA	Prep	3005A			358512	05/22/17 12:15	MJW	TAL BUF
Total/NA	Analysis	6010C		1	359553	05/26/17 14:34	LMH	TAL BUF
Total/NA	Prep	3020A			358471	05/22/17 09:44	MJW	TAL BUF
Total/NA	Analysis	6020A		1	358687	05/23/17 03:25	TRB	TAL BUF
Total/NA	Prep	7470A			358432	05/22/17 07:30	JRK	TAL BUF
Total/NA	Analysis	7470A		1	358577	05/22/17 13:44	JRK	TAL BUF
Total/NA	Analysis	300.0		5	360059	06/01/17 18:48	LMW	TAL BUF

TestAmerica Buffalo

# Lab Chronicle

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	358764	05/23/17 16:21	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	358583	05/22/17 14:46	DSC	TAL BUF

## Client Sample ID: MW-3R

Lab Sample ID: 480-118333-7

Date Collected: 05/18/17 10:50

Matrix: Water

Date Received: 05/20/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			358512	05/22/17 12:15	MJW	TAL BUF
Total/NA	Analysis	6010C		1	359321	05/25/17 16:25	LMH	TAL BUF
Total/NA	Prep	3005A			358512	05/22/17 12:15	MJW	TAL BUF
Total/NA	Analysis	6010C		1	359553	05/26/17 14:37	LMH	TAL BUF
Total/NA	Prep	3020A			358471	05/22/17 09:44	MJW	TAL BUF
Total/NA	Analysis	6020A		1	358687	05/23/17 03:30	TRB	TAL BUF
Total/NA	Prep	7470A			358432	05/22/17 07:30	JRK	TAL BUF
Total/NA	Analysis	7470A		1	358577	05/22/17 13:45	JRK	TAL BUF
Total/NA	Analysis	300.0		5	360059	06/01/17 18:56	LMW	TAL BUF
Total/NA	Analysis	SM 2540C		1	358764	05/23/17 16:21	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	358583	05/22/17 14:49	DSC	TAL BUF

## Client Sample ID: MW-4

Lab Sample ID: 480-118333-8

Date Collected: 05/18/17 11:35

Matrix: Water

Date Received: 05/20/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			358512	05/22/17 12:15	MJW	TAL BUF
Total/NA	Analysis	6010C		1	359321	05/25/17 16:28	LMH	TAL BUF
Total/NA	Prep	3005A			358512	05/22/17 12:15	MJW	TAL BUF
Total/NA	Analysis	6010C		1	359553	05/26/17 14:41	LMH	TAL BUF
Total/NA	Prep	3020A			358471	05/22/17 09:44	MJW	TAL BUF
Total/NA	Analysis	6020A		1	358687	05/23/17 03:36	TRB	TAL BUF
Total/NA	Prep	7470A			358432	05/22/17 07:30	JRK	TAL BUF
Total/NA	Analysis	7470A		1	358577	05/22/17 13:47	JRK	TAL BUF
Total/NA	Analysis	300.0		5	360059	06/01/17 19:04	LMW	TAL BUF
Total/NA	Analysis	SM 2540C		1	358764	05/23/17 16:21	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	358583	05/22/17 14:52	DSC	TAL BUF

## Client Sample ID: DUP-1

Lab Sample ID: 480-118333-9

Date Collected: 05/18/17 00:00

Matrix: Water

Date Received: 05/20/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			358512	05/22/17 12:15	MJW	TAL BUF
Total/NA	Analysis	6010C		1	359321	05/25/17 16:31	LMH	TAL BUF
Total/NA	Prep	3005A			358512	05/22/17 12:15	MJW	TAL BUF
Total/NA	Analysis	6010C		1	359553	05/26/17 14:44	LMH	TAL BUF

TestAmerica Buffalo



# Lab Chronicle

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

## Client Sample ID: DUP-1

Date Collected: 05/18/17 00:00

Date Received: 05/20/17 09:30

## Lab Sample ID: 480-118333-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3020A			358471	05/22/17 09:44	MJW	TAL BUF
Total/NA	Analysis	6020A		1	358687	05/23/17 03:41	TRB	TAL BUF
Total/NA	Prep	7470A			358432	05/22/17 07:30	JRK	TAL BUF
Total/NA	Analysis	7470A		1	358577	05/22/17 13:49	JRK	TAL BUF
Total/NA	Analysis	300.0		5	360059	06/01/17 19:12	LMW	TAL BUF
Total/NA	Analysis	SM 2540C		1	358764	05/23/17 16:21	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	358583	05/22/17 14:55	DSC	TAL BUF

## Client Sample ID: FIELD BLANK

Date Collected: 05/18/17 11:55

Date Received: 05/20/17 09:30

## Lab Sample ID: 480-118333-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			358512	05/22/17 12:15	MJW	TAL BUF
Total/NA	Analysis	6010C		1	359321	05/25/17 16:45	LMH	TAL BUF
Total/NA	Prep	3020A			358471	05/22/17 09:44	MJW	TAL BUF
Total/NA	Analysis	6020A		1	358687	05/23/17 04:26	TRB	TAL BUF
Total/NA	Prep	7470A			358432	05/22/17 07:30	JRK	TAL BUF
Total/NA	Analysis	7470A		1	358577	05/22/17 13:51	JRK	TAL BUF
Total/NA	Analysis	300.0		1	360059	06/01/17 19:20	LMW	TAL BUF
Total/NA	Analysis	SM 2540C		1	358764	05/23/17 16:21	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	358583	05/22/17 14:58	DSC	TAL BUF

## Client Sample ID: EQUIP BLANK

Date Collected: 05/18/17 12:00

Date Received: 05/20/17 09:30

## Lab Sample ID: 480-118333-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			358512	05/22/17 12:15	MJW	TAL BUF
Total/NA	Analysis	6010C		1	359321	05/25/17 16:49	LMH	TAL BUF
Total/NA	Prep	3020A			358471	05/22/17 09:44	MJW	TAL BUF
Total/NA	Analysis	6020A		1	358687	05/23/17 04:32	TRB	TAL BUF
Total/NA	Prep	7470A			358432	05/22/17 07:30	JRK	TAL BUF
Total/NA	Analysis	7470A		1	358577	05/22/17 13:56	JRK	TAL BUF
Total/NA	Analysis	300.0		1	360059	06/01/17 19:28	LMW	TAL BUF
Total/NA	Analysis	SM 2540C		1	358764	05/23/17 16:21	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	358583	05/22/17 15:01	DSC	TAL BUF

### Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

# Accreditation/Certification Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

## Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	036-999-337	12-31-17

The following analytes are included in this report, but are not accredited/certified under this accreditation/certification:

Analysis Method	Prep Method	Matrix	Analyte
6010C	3005A	Water	Lithium

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 H+ B		Water	pH
SM 4500 H+ B		Water	Temperature

# Method Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL BUF
6020A	Metals (ICP/MS)	SW846	TAL BUF
7470A	Mercury (CVAA)	SW846	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL BUF
SM 4500 H+ B	pH	SM	TAL BUF

#### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

# Sample Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-118333-1	MW-1	Water	05/18/17 08:55	05/20/17 09:30
480-118333-2	MW-3	Water	05/18/17 10:35	05/20/17 09:30
480-118333-3	MW-1RD	Water	05/18/17 09:00	05/20/17 09:30
480-118333-4	MW-2RD	Water	05/18/17 10:05	05/20/17 09:30
480-118333-5	MW-2R	Water	05/18/17 10:10	05/20/17 09:30
480-118333-6	MW-3RD	Water	05/18/17 10:45	05/20/17 09:30
480-118333-7	MW-3R	Water	05/18/17 10:50	05/20/17 09:30
480-118333-8	MW-4	Water	05/18/17 11:35	05/20/17 09:30
480-118333-9	DUP-1	Water	05/18/17 00:00	05/20/17 09:30
480-118333-10	FIELD BLANK	Water	05/18/17 11:55	05/20/17 09:30
480-118333-11	EQUIP BLANK	Water	05/18/17 12:00	05/20/17 09:30

**Chain of Custody Record**

<b>Client Information</b>		Lab PM: VanDette, Ryan T		Carrier Tracking No(s):	
Client Contact: Nathaniel Beinemann		Phone: 651-792-6065		COC No: 480-97151-22509.1	
Company: Waste Connections, Inc.		E-Mail: ryan.vandette@testamericainc.com		Page: 1 of 1	
Address: 13425 Courthouse Blvd		Due Date Requested:		Job #:	
City: Rosemount		TAT Requested (days): 5 standard		Preservation Code: 480-118333 COC	
State, Zip: MN, 55068		PO #: Purchase Order Requested		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Email: nathanielb@wcnx.org		WO #: Project #:		V - MCAA W - pH 4-5 Z - other (specify)	
Project Name: SKB Lansing/ Event Desc: CCR Groundwater		48013603		Total Number of Containers	
Site: Minnesota		SSOW#:		Special Instructions/Note:	

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=soil, B=BT tissue, A=air)	Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		901.1, Ra - Radium-226/228		300.0_28D - Cl/FSO4		6010C, 6020A, 7470A		2540C, Calcd - Total Dissolved Solids		SM4500_H+ - pH	
					Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
MW-1	5/18/17	8:55	G	Water	X		X		X		X		X		X		X	
MW-3		10:35		Water	X		X		X		X		X		X		X	
Duplicate				Water	X		X		X		X		X		X		X	
Field Blank		11:58		Water	X		X		X		X		X		X		X	
Equip Blank		12:00		Water	X		X		X		X		X		X		X	
MW-1RD		9:08		Water	X		X		X		X		X		X		X	
MW-2RD		10:05		Water	X		X		X		X		X		X		X	
MW-2R		10:10		Water	X		X		X		X		X		X		X	
MW-3RD		10:45		Water	X		X		X		X		X		X		X	
MW-3R		10:50		Water	X		X		X		X		X		X		X	
MW-4		11:35		Water	X		X		X		X		X		X		X	

**Possible Hazard Identification**  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown  Radiological  
 Deliverable Requested: I, II, III, IV, Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

Special Instructions/QC Requirements:

Relinquished by: <i>MW-226/228</i>	Date/Time: 5/18/17 14:00	Company: GES
Relinquished by: <i>SKB</i>	Date/Time: 5-18-17 19W	Company: Company
Relinquished by:	Date/Time:	Company:

Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Method of Shipment: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date/Time: 5-18-17 14W Company: Company  
 Relinquished by: \_\_\_\_\_ Date/Time: 5/20/17 0930 Company: Company  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: Company

Custody Seals Intact: \_\_\_\_\_ Cooler Temperature(s) °C and Other Remarks: \_\_\_\_\_  
 Δ Yes Δ No

# Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-118333-1

**Login Number: 118333**

**List Number: 1**

**Creator: Janish, Carl M**

**List Source: TestAmerica Buffalo**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GES
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	





# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-118333-2

Client Project/Site: SKB Lansing - CCR Groundwater

Sampling Event: CCR Groundwater

For:

Waste Connections, Inc.

13425 Courthouse Blvd

Rosemount, Minnesota 55068

Attn: Nathaniel Beinemann



Authorized for release by:

6/22/2017 8:20:51 PM

Denise Giglia, Project Management Assistant II

[denise.giglia@testamericainc.com](mailto:denise.giglia@testamericainc.com)

Designee for

Ryan VanDette, Project Manager II

(716)504-9830

[ryan.vandette@testamericainc.com](mailto:ryan.vandette@testamericainc.com)

### LINKS

Review your project  
results through

**TotalAccess**

Have a Question?



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[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

## Qualifiers

### Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

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**Job ID: 480-118333-2**

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**Laboratory: TestAmerica Buffalo**

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**Narrative**

**Job Narrative  
480-118333-2**

**Comments**

No additional comments.

**Receipt**

The samples were received on 5/20/2017 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.0° C.

**RAD**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

**Client Sample ID: MW-1**

**Lab Sample ID: 480-118333-1**

No Detections.

**Client Sample ID: MW-3**

**Lab Sample ID: 480-118333-2**

No Detections.

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-118333-3**

No Detections.

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-118333-4**

No Detections.

**Client Sample ID: MW-2R**

**Lab Sample ID: 480-118333-5**

No Detections.

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-118333-6**

No Detections.

**Client Sample ID: MW-3R**

**Lab Sample ID: 480-118333-7**

No Detections.

**Client Sample ID: MW-4**

**Lab Sample ID: 480-118333-8**

No Detections.

**Client Sample ID: DUP-1**

**Lab Sample ID: 480-118333-9**

No Detections.

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-118333-10**

No Detections.

**Client Sample ID: EQUIP BLANK**

**Lab Sample ID: 480-118333-11**

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

**Client Sample ID: MW-1**  
**Date Collected: 05/18/17 08:55**  
**Date Received: 05/20/17 09:30**

**Lab Sample ID: 480-118333-1**  
**Matrix: Water**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.142	U	0.114	0.115	1.00	0.167	pCi/L	05/31/17 10:11	06/22/17 06:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	62.2		40 - 110					05/31/17 10:11	06/22/17 06:20	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.252	U	0.388	0.389	1.00	0.652	pCi/L	05/31/17 10:56	06/13/17 14:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	62.2		40 - 110					05/31/17 10:56	06/13/17 14:23	1
Y Carrier	81.9		40 - 110					05/31/17 10:56	06/13/17 14:23	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.394	U	0.404	0.405	5.00	0.652	pCi/L		06/22/17 12:52	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

**Client Sample ID: MW-3**  
**Date Collected: 05/18/17 10:35**  
**Date Received: 05/20/17 09:30**

**Lab Sample ID: 480-118333-2**  
**Matrix: Water**

### Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.475		0.144	0.150	1.00	0.128	pCi/L	05/31/17 10:11	06/22/17 06:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.3		40 - 110					05/31/17 10:11	06/22/17 06:20	1

### Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.358	U	0.299	0.301	1.00	0.477	pCi/L	05/31/17 10:56	06/13/17 14:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.3		40 - 110					05/31/17 10:56	06/13/17 14:23	1
Y Carrier	85.6		40 - 110					05/31/17 10:56	06/13/17 14:23	1

### Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.833		0.332	0.336	5.00	0.477	pCi/L		06/22/17 12:52	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-118333-3**

**Date Collected: 05/18/17 09:00**

**Matrix: Water**

**Date Received: 05/20/17 09:30**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.520		0.152	0.159	1.00	0.136	pCi/L	05/31/17 10:11	06/22/17 06:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.0		40 - 110					05/31/17 10:11	06/22/17 06:20	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.353	U	0.286	0.288	1.00	0.455	pCi/L	05/31/17 10:56	06/13/17 14:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.0		40 - 110					05/31/17 10:56	06/13/17 14:23	1
Y Carrier	87.1		40 - 110					05/31/17 10:56	06/13/17 14:23	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.873		0.323	0.328	5.00	0.455	pCi/L		06/22/17 12:52	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-118333-4**

**Date Collected: 05/18/17 10:05**

**Matrix: Water**

**Date Received: 05/20/17 09:30**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.261		0.109	0.112	1.00	0.112	pCi/L	05/31/17 10:11	06/22/17 06:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.6		40 - 110					05/31/17 10:11	06/22/17 06:20	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.647		0.299	0.305	1.00	0.436	pCi/L	05/31/17 10:56	06/13/17 14:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.6		40 - 110					05/31/17 10:56	06/13/17 14:23	1
Y Carrier	84.5		40 - 110					05/31/17 10:56	06/13/17 14:23	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.908		0.319	0.325	5.00	0.436	pCi/L		06/22/17 12:52	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

**Client Sample ID: MW-2R**

**Date Collected: 05/18/17 10:10**

**Date Received: 05/20/17 09:30**

**Lab Sample ID: 480-118333-5**

**Matrix: Water**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.208		0.0989	0.101	1.00	0.106	pCi/L	05/31/17 10:11	06/22/17 06:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.6		40 - 110					05/31/17 10:11	06/22/17 06:20	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.211	U	0.231	0.231	1.00	0.378	pCi/L	05/31/17 10:56	06/13/17 14:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.6		40 - 110					05/31/17 10:56	06/13/17 14:23	1
Y Carrier	92.3		40 - 110					05/31/17 10:56	06/13/17 14:23	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.419		0.251	0.252	5.00	0.378	pCi/L		06/22/17 12:52	1



# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-118333-6**

**Date Collected: 05/18/17 10:45**

**Matrix: Water**

**Date Received: 05/20/17 09:30**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.770		0.184	0.197	1.00	0.140	pCi/L	05/31/17 10:11	06/22/17 06:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	77.3		40 - 110					05/31/17 10:11	06/22/17 06:20	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.503		0.307	0.310	1.00	0.467	pCi/L	05/31/17 10:56	06/13/17 14:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	77.3		40 - 110					05/31/17 10:56	06/13/17 14:23	1
Y Carrier	87.9		40 - 110					05/31/17 10:56	06/13/17 14:23	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.27		0.358	0.368	5.00	0.467	pCi/L		06/22/17 12:52	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

**Client Sample ID: MW-3R**

**Date Collected: 05/18/17 10:50**

**Date Received: 05/20/17 09:30**

**Lab Sample ID: 480-118333-7**

**Matrix: Water**

### Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.330		0.118	0.122	1.00	0.111	pCi/L	05/31/17 10:11	06/22/17 06:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.3		40 - 110					05/31/17 10:11	06/22/17 06:20	1

### Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.518		0.258	0.262	1.00	0.372	pCi/L	05/31/17 10:56	06/13/17 14:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.3		40 - 110					05/31/17 10:56	06/13/17 14:24	1
Y Carrier	84.5		40 - 110					05/31/17 10:56	06/13/17 14:24	1

### Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.848		0.283	0.289	5.00	0.372	pCi/L		06/22/17 12:52	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

**Client Sample ID: MW-4**  
**Date Collected: 05/18/17 11:35**  
**Date Received: 05/20/17 09:30**

**Lab Sample ID: 480-118333-8**  
**Matrix: Water**

### Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.359		0.119	0.123	1.00	0.0978	pCi/L	05/31/17 10:11	06/22/17 06:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.4		40 - 110					05/31/17 10:11	06/22/17 06:20	1

### Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.485		0.272	0.276	1.00	0.409	pCi/L	05/31/17 10:56	06/13/17 14:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.4		40 - 110					05/31/17 10:56	06/13/17 14:24	1
Y Carrier	90.5		40 - 110					05/31/17 10:56	06/13/17 14:24	1

### Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.844		0.297	0.302	5.00	0.409	pCi/L		06/22/17 12:52	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

**Client Sample ID: DUP-1**

**Lab Sample ID: 480-118333-9**

**Date Collected: 05/18/17 00:00**

**Matrix: Water**

**Date Received: 05/20/17 09:30**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.777		0.185	0.198	1.00	0.153	pCi/L	05/31/17 10:11	06/22/17 06:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.2		40 - 110					05/31/17 10:11	06/22/17 06:20	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.454	U	0.324	0.327	1.00	0.508	pCi/L	05/31/17 10:56	06/13/17 14:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.2		40 - 110					05/31/17 10:56	06/13/17 14:24	1
Y Carrier	84.9		40 - 110					05/31/17 10:56	06/13/17 14:24	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.23		0.373	0.382	5.00	0.508	pCi/L		06/22/17 12:52	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-118333-10**

**Date Collected: 05/18/17 11:55**

**Matrix: Water**

**Date Received: 05/20/17 09:30**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0399	U	0.0433	0.0435	1.00	0.121	pCi/L	05/31/17 10:11	06/22/17 06:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.3		40 - 110					05/31/17 10:11	06/22/17 06:20	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0281	U	0.211	0.211	1.00	0.387	pCi/L	05/31/17 10:56	06/13/17 14:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.3		40 - 110					05/31/17 10:56	06/13/17 14:24	1
Y Carrier	86.4		40 - 110					05/31/17 10:56	06/13/17 14:24	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0681	U	0.215	0.215	5.00	0.387	pCi/L		06/22/17 12:52	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

**Client Sample ID: EQUIP BLANK**

**Lab Sample ID: 480-118333-11**

**Date Collected: 05/18/17 12:00**

**Matrix: Water**

**Date Received: 05/20/17 09:30**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0774	U	0.0786	0.0789	1.00	0.124	pCi/L	05/31/17 10:11	06/22/17 08:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.9		40 - 110					05/31/17 10:11	06/22/17 08:24	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.172	U	0.179	0.179	1.00	0.360	pCi/L	05/31/17 10:56	06/13/17 14:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.9		40 - 110					05/31/17 10:56	06/13/17 14:24	1
Y Carrier	86.7		40 - 110					05/31/17 10:56	06/13/17 14:24	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0946	U	0.195	0.196	5.00	0.360	pCi/L		06/22/17 12:52	1

# Tracer/Carrier Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

## Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
480-118333-1	MW-1	62.2	
480-118333-2	MW-3	85.3	
480-118333-3	MW-1RD	92.0	
480-118333-4	MW-2RD	92.6	
480-118333-5	MW-2R	87.6	
480-118333-6	MW-3RD	77.3	
480-118333-7	MW-3R	90.3	
480-118333-8	MW-4	89.4	
480-118333-9	DUP-1	78.2	
480-118333-10	FIELD BLANK	90.3	
480-118333-11	EQUIP BLANK	92.9	
LCS 160-311316/2-A	Lab Control Sample	96.8	
MB 160-311316/1-A	Method Blank	94.1	

**Tracer/Carrier Legend**  
 Ba = Ba Carrier

## Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
480-118333-1	MW-1	62.2	81.9
480-118333-2	MW-3	85.3	85.6
480-118333-3	MW-1RD	92.0	87.1
480-118333-4	MW-2RD	92.6	84.5
480-118333-5	MW-2R	87.6	92.3
480-118333-6	MW-3RD	77.3	87.9
480-118333-7	MW-3R	90.3	84.5
480-118333-8	MW-4	89.4	90.5
480-118333-9	DUP-1	78.2	84.9
480-118333-10	FIELD BLANK	90.3	86.4
480-118333-11	EQUIP BLANK	92.9	86.7
LCS 160-311333/2-A	Lab Control Sample	96.8	87.5
MB 160-311333/1-A	Method Blank	94.1	85.2

**Tracer/Carrier Legend**  
 Ba = Ba Carrier  
 Y = Y Carrier

# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

## Method: 903.0 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-311316/1-A**  
**Matrix: Water**  
**Analysis Batch: 314733**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 311316**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.03493	U	0.0472	0.0473	1.00	0.118	pCi/L	05/31/17 10:11	06/22/17 06:19	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.1		40 - 110					05/31/17 10:11	06/22/17 06:19	1

**Lab Sample ID: LCS 160-311316/2-A**  
**Matrix: Water**  
**Analysis Batch: 314733**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 311316**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.4	12.63		1.30	1.00	0.105	pCi/L	111	68 - 137
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	96.8		40 - 110						

## Method: 904.0 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-311333/1-A**  
**Matrix: Water**  
**Analysis Batch: 313171**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 311333**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1092	U	0.222	0.222	1.00	0.379	pCi/L	05/31/17 10:56	06/13/17 14:23	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.1		40 - 110					05/31/17 10:56	06/13/17 14:23	1
Y Carrier	85.2		40 - 110					05/31/17 10:56	06/13/17 14:23	1

**Lab Sample ID: LCS 160-311333/2-A**  
**Matrix: Water**  
**Analysis Batch: 313171**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 311333**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	13.3	13.93		1.50	1.00	0.357	pCi/L	105	56 - 140
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	96.8		40 - 110						
Y Carrier	87.5		40 - 110						



# QC Association Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

## Rad

### Prep Batch: 311316

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-118333-1	MW-1	Total/NA	Water	PrecSep-21	
480-118333-2	MW-3	Total/NA	Water	PrecSep-21	
480-118333-3	MW-1RD	Total/NA	Water	PrecSep-21	
480-118333-4	MW-2RD	Total/NA	Water	PrecSep-21	
480-118333-5	MW-2R	Total/NA	Water	PrecSep-21	
480-118333-6	MW-3RD	Total/NA	Water	PrecSep-21	
480-118333-7	MW-3R	Total/NA	Water	PrecSep-21	
480-118333-8	MW-4	Total/NA	Water	PrecSep-21	
480-118333-9	DUP-1	Total/NA	Water	PrecSep-21	
480-118333-10	FIELD BLANK	Total/NA	Water	PrecSep-21	
480-118333-11	EQUIP BLANK	Total/NA	Water	PrecSep-21	
MB 160-311316/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-311316/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

### Prep Batch: 311333

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-118333-1	MW-1	Total/NA	Water	PrecSep_0	
480-118333-2	MW-3	Total/NA	Water	PrecSep_0	
480-118333-3	MW-1RD	Total/NA	Water	PrecSep_0	
480-118333-4	MW-2RD	Total/NA	Water	PrecSep_0	
480-118333-5	MW-2R	Total/NA	Water	PrecSep_0	
480-118333-6	MW-3RD	Total/NA	Water	PrecSep_0	
480-118333-7	MW-3R	Total/NA	Water	PrecSep_0	
480-118333-8	MW-4	Total/NA	Water	PrecSep_0	
480-118333-9	DUP-1	Total/NA	Water	PrecSep_0	
480-118333-10	FIELD BLANK	Total/NA	Water	PrecSep_0	
480-118333-11	EQUIP BLANK	Total/NA	Water	PrecSep_0	
MB 160-311333/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-311333/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

# Lab Chronicle

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

## Client Sample ID: MW-1

Date Collected: 05/18/17 08:55

Date Received: 05/20/17 09:30

## Lab Sample ID: 480-118333-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			311316	05/31/17 10:11	LDE	TAL SL
Total/NA	Analysis	903.0		1	314733	06/22/17 06:20	ALD	TAL SL
Total/NA	Prep	PrecSep_0			311333	05/31/17 10:56	LDE	TAL SL
Total/NA	Analysis	904.0		1	313171	06/13/17 14:23	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	314773	06/22/17 12:52	RTM	TAL SL

## Client Sample ID: MW-3

Date Collected: 05/18/17 10:35

Date Received: 05/20/17 09:30

## Lab Sample ID: 480-118333-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			311316	05/31/17 10:11	LDE	TAL SL
Total/NA	Analysis	903.0		1	314733	06/22/17 06:20	ALD	TAL SL
Total/NA	Prep	PrecSep_0			311333	05/31/17 10:56	LDE	TAL SL
Total/NA	Analysis	904.0		1	313171	06/13/17 14:23	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	314773	06/22/17 12:52	RTM	TAL SL

## Client Sample ID: MW-1RD

Date Collected: 05/18/17 09:00

Date Received: 05/20/17 09:30

## Lab Sample ID: 480-118333-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			311316	05/31/17 10:11	LDE	TAL SL
Total/NA	Analysis	903.0		1	314733	06/22/17 06:20	ALD	TAL SL
Total/NA	Prep	PrecSep_0			311333	05/31/17 10:56	LDE	TAL SL
Total/NA	Analysis	904.0		1	313171	06/13/17 14:23	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	314773	06/22/17 12:52	RTM	TAL SL

## Client Sample ID: MW-2RD

Date Collected: 05/18/17 10:05

Date Received: 05/20/17 09:30

## Lab Sample ID: 480-118333-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			311316	05/31/17 10:11	LDE	TAL SL
Total/NA	Analysis	903.0		1	314733	06/22/17 06:20	ALD	TAL SL
Total/NA	Prep	PrecSep_0			311333	05/31/17 10:56	LDE	TAL SL
Total/NA	Analysis	904.0		1	313171	06/13/17 14:23	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	314773	06/22/17 12:52	RTM	TAL SL

# Lab Chronicle

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

## Client Sample ID: MW-2R

Date Collected: 05/18/17 10:10

Date Received: 05/20/17 09:30

## Lab Sample ID: 480-118333-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			311316	05/31/17 10:11	LDE	TAL SL
Total/NA	Analysis	903.0		1	314733	06/22/17 06:20	ALD	TAL SL
Total/NA	Prep	PrecSep_0			311333	05/31/17 10:56	LDE	TAL SL
Total/NA	Analysis	904.0		1	313171	06/13/17 14:23	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	314773	06/22/17 12:52	RTM	TAL SL

## Client Sample ID: MW-3RD

Date Collected: 05/18/17 10:45

Date Received: 05/20/17 09:30

## Lab Sample ID: 480-118333-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			311316	05/31/17 10:11	LDE	TAL SL
Total/NA	Analysis	903.0		1	314733	06/22/17 06:20	ALD	TAL SL
Total/NA	Prep	PrecSep_0			311333	05/31/17 10:56	LDE	TAL SL
Total/NA	Analysis	904.0		1	313171	06/13/17 14:23	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	314773	06/22/17 12:52	RTM	TAL SL

## Client Sample ID: MW-3R

Date Collected: 05/18/17 10:50

Date Received: 05/20/17 09:30

## Lab Sample ID: 480-118333-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			311316	05/31/17 10:11	LDE	TAL SL
Total/NA	Analysis	903.0		1	314733	06/22/17 06:20	ALD	TAL SL
Total/NA	Prep	PrecSep_0			311333	05/31/17 10:56	LDE	TAL SL
Total/NA	Analysis	904.0		1	313171	06/13/17 14:24	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	314773	06/22/17 12:52	RTM	TAL SL

## Client Sample ID: MW-4

Date Collected: 05/18/17 11:35

Date Received: 05/20/17 09:30

## Lab Sample ID: 480-118333-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			311316	05/31/17 10:11	LDE	TAL SL
Total/NA	Analysis	903.0		1	314733	06/22/17 06:20	ALD	TAL SL
Total/NA	Prep	PrecSep_0			311333	05/31/17 10:56	LDE	TAL SL
Total/NA	Analysis	904.0		1	313171	06/13/17 14:24	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	314773	06/22/17 12:52	RTM	TAL SL

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

## Client Sample ID: DUP-1

Date Collected: 05/18/17 00:00

Date Received: 05/20/17 09:30

## Lab Sample ID: 480-118333-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			311316	05/31/17 10:11	LDE	TAL SL
Total/NA	Analysis	903.0		1	314733	06/22/17 06:20	ALD	TAL SL
Total/NA	Prep	PrecSep_0			311333	05/31/17 10:56	LDE	TAL SL
Total/NA	Analysis	904.0		1	313171	06/13/17 14:24	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	314773	06/22/17 12:52	RTM	TAL SL

## Client Sample ID: FIELD BLANK

Date Collected: 05/18/17 11:55

Date Received: 05/20/17 09:30

## Lab Sample ID: 480-118333-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			311316	05/31/17 10:11	LDE	TAL SL
Total/NA	Analysis	903.0		1	314733	06/22/17 06:20	ALD	TAL SL
Total/NA	Prep	PrecSep_0			311333	05/31/17 10:56	LDE	TAL SL
Total/NA	Analysis	904.0		1	313171	06/13/17 14:24	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	314773	06/22/17 12:52	RTM	TAL SL

## Client Sample ID: EQUIP BLANK

Date Collected: 05/18/17 12:00

Date Received: 05/20/17 09:30

## Lab Sample ID: 480-118333-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			311316	05/31/17 10:11	LDE	TAL SL
Total/NA	Analysis	903.0		1	314733	06/22/17 08:24	ALD	TAL SL
Total/NA	Prep	PrecSep_0			311333	05/31/17 10:56	LDE	TAL SL
Total/NA	Analysis	904.0		1	313171	06/13/17 14:24	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	314773	06/22/17 12:52	RTM	TAL SL

### Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Accreditation/Certification Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

## Laboratory: TestAmerica Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	036-999-337	12-31-17

## Laboratory: TestAmerica St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-17 *
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18
Illinois	NELAP	5	200023	11-30-17
Iowa	State Program	7	373	02-01-18
Kansas	NELAP	7	E-10236	10-31-17
Kentucky (DW)	State Program	4	90125	12-31-17
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-17 *
Louisiana (DW)	NELAP	6	LA170011	12-31-17
Maryland	State Program	3	310	09-30-17
Missouri	State Program	7	780	06-30-17 *
Nevada	State Program	9	MO000542017-1	07-31-17 *
New Jersey	NELAP	2	MO002	06-30-17 *
New York	NELAP	2	11616	03-31-18
North Dakota	State Program	8	R207	06-30-17 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-17
Pennsylvania	NELAP	3	68-00540	02-21-18
South Carolina	State Program	4	85002001	06-30-17 *
Texas	NELAP	6	T104704193-16-10	07-31-17 *
US Fish & Wildlife	Federal		LE058448-0	10-31-17
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-17 *
Virginia	NELAP	3	460230	06-14-18
Washington	State Program	10	C592	08-30-17
West Virginia DEP	State Program	3	381	08-31-17 *

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Method Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL

**Protocol References:**

EPA = US Environmental Protection Agency

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

**Laboratory References:**

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



# Sample Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-118333-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-118333-1	MW-1	Water	05/18/17 08:55	05/20/17 09:30
480-118333-2	MW-3	Water	05/18/17 10:35	05/20/17 09:30
480-118333-3	MW-1RD	Water	05/18/17 09:00	05/20/17 09:30
480-118333-4	MW-2RD	Water	05/18/17 10:05	05/20/17 09:30
480-118333-5	MW-2R	Water	05/18/17 10:10	05/20/17 09:30
480-118333-6	MW-3RD	Water	05/18/17 10:45	05/20/17 09:30
480-118333-7	MW-3R	Water	05/18/17 10:50	05/20/17 09:30
480-118333-8	MW-4	Water	05/18/17 11:35	05/20/17 09:30
480-118333-9	DUP-1	Water	05/18/17 00:00	05/20/17 09:30
480-118333-10	FIELD BLANK	Water	05/18/17 11:55	05/20/17 09:30
480-118333-11	EQUIP BLANK	Water	05/18/17 12:00	05/20/17 09:30







# Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b>		Lab P.M.: VanDette, Ryan T	480-118333 Chain of Custody	
Client Contact: Shipping/Receiving		E-Mail: ryan.vandette@testamericainc.com	State of Origin: Minnesota	
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Minnesota		Page: Page 1 of 2
Address: 13715 Rider Trail North,		Job #: 480-118333-1		
City: Earth City	Due Date Requested: 6/1/2017	Preservation Codes:		
State, Zip: MO, 63045	TAT Requested (days):	A - HCl B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:		
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:	M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)		
Email:	WO #:	Total Number of containers		
Project Name: SKB Lansing	Project #: 48013603	Analysis Requested		
Site: Lansing MN	ISSOW#:	Perform MS/MSD (Yes or No)		
<b>Sample Identification - Client ID (Lab ID)</b>		Field Filtered Sample (Yes or No)		Special Instructions/Note:
MW-1 (480-118333-1)	Sample Date: 5/18/17	Sample Time: 08:55 Central	Sample Type (C=Comp, G=grab):	901.1_Ra/Fill_Geo_21 Radium-226/228
MW-3 (480-118333-2)	5/18/17	10:35 Central	Water	X
MW-1RD (480-118333-3)	5/18/17	09:00 Central	Water	X
MW-2RD (480-118333-4)	5/18/17	10:05 Central	Water	X
MW-2R (480-118333-5)	5/18/17	10:10 Central	Water	X
MW-3RD (480-118333-6)	5/18/17	10:45 Central	Water	X
MW-3R (480-118333-7)	5/18/17	10:50 Central	Water	X
MW-4 (480-118333-8)	5/18/17	11:35 Central	Water	X
DUP-1 (480-118333-9)	5/18/17	Central	Water	X

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

**Possible Hazard Identification**  
 Unconfirmed  
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2  
 Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Method of Shipment: \_\_\_\_\_  
 Relinquished by: *W. Clark* Date/Time: 5/22/17 1300 Company: T.A.S.R.  
 Relinquished by: *D. Clark* Date/Time: 5/23/17 0745 Company: T.A.S.R.  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_





## Chain of Custody Record

<b>Client Information (Sub Contract Lab)</b>				Sampler: VanDette, Ryan T		Lab PM: VanDette, Ryan T		COC No: 480-35103.2	
Client Contact: Ryan.vandette@testamericainc.com				Phone: (716) 691-2600		E-Mail: ryan.vandette@testamericainc.com		Page: 2 of 2	
Company: TestAmerica Laboratories, Inc.				Address: 13715 Rider Trail North, Earth City, MO, 63045		State of Origin: Minnesota		Job #: 480-118333-1	
Due Date Requested: 6/1/2017				TAT Requested (days):		Analysis Requested:		Preservation Codes:	
PO #:				WO #:		Project #:		M - Hexane	
Project Name: SKB Lansing				SSOW#:		48013603		N - None	
Site: Lansing MN				Sample Date		Sample Time		O - AsNaO2	
Sample Identification - Client ID (Lab ID)				Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=wastewat, BT=BIOWAS, AS=AS)		P - Na2O4S	
FIELD BLANK (480-118333-10)				11:55 Central		Water		Q - Na2SO3	
EQUIP BLANK (480-118333-11)				5/18/17		Water		R - Na2S2O3	
								S - HZSO4	
								T - TSP Dodecahydrate	
								U - Acetone	
								V - MCAA	
								W - pH 4.5	
								L - EDA	
								Z - other (specify)	
								Other:	
								Special Instructions/Note:	
								Total Number of containers	
								1	
								1	

901.1\_RaFill\_Geo\_21 Radium-226/228

Field Filtered Sample (Yes or No)  X

Perform MS/MSD (Yes or No)  X

Analysis Requested: 901.1\_RaFill\_Geo\_21 Radium-226/228

Special Instructions/Note:

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody.

<b>Possible Hazard Identification</b>			
Unconfirmed			
Deliverable Requested: I, II, III, IV, Other (specify)		Primary Deliverable Rank: 2	
Empty Kit Relinquished by:			
Date/Time: 5/22/17 13:00	Company: TARS	Date/Time: 5-23-17 07:45	Company: TARS
Date/Time:	Company:	Date/Time:	Company:
Date/Time:	Company:	Date/Time:	Company:
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:	

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return To Client  Disposal By Lab  Archive For Months

Special Instructions/QC Requirements:

Received by: [Signature]

Received by: [Signature]

Received by: [Signature]

Cooler Temperature(s) °C and Other Remarks:



## Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-118333-2

**Login Number: 118333**

**List Number: 1**

**Creator: Janish, Carl M**

**List Source: TestAmerica Buffalo**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GES
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	



## Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-118333-2

**Login Number: 118333**

**List Number: 2**

**Creator: Clarke, Jill C**

**List Source: TestAmerica St. Louis**

**List Creation: 05/23/17 12:03 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	20.0, 20.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-120139-1

Client Project/Site: SKB Lansing - CCR Groundwater

Sampling Event: CCR Groundwater

For:

Waste Connections, Inc.

13425 Courthouse Blvd

Rosemount, Minnesota 55068

Attn: Nathaniel Beinemann



Authorized for release by:

7/11/2017 3:18:55 PM

Denise Giglia, Project Management Assistant II

[denise.giglia@testamericainc.com](mailto:denise.giglia@testamericainc.com)

Designee for

Ryan VanDette, Project Manager II

(716)504-9830

[ryan.vandette@testamericainc.com](mailto:ryan.vandette@testamericainc.com)

### LINKS

Review your project  
results through

TotalAccess

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

## Qualifiers

### General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

## Job ID: 480-120139-1

### Laboratory: TestAmerica Buffalo

#### Narrative

#### Job Narrative 480-120139-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 6/24/2017 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.3° C and 2.5° C.

#### HPLC/IC

Method(s) 300.0: The following samples was diluted to bring the concentration of target analytes within the calibration range: MW-2R (480-120139-2), MW-3RD (480-120139-5) and (480-120139-G-5 MS). Elevated reporting limits (RLs) are provided.

Method(s) 300.0: The following samples was reported with elevated reporting limits for all analytes: MW-1RD (480-120139-1), MW-2RD (480-120139-3) and MW-3R (480-120139-4). The sample was analyzed at a dilution based on screening results.

Method(s) 300.0: The following samples was diluted to bring the concentration of target analytes within the calibration range: MW-4 (480-120139-6) and DUP-1 (480-120139-9). Elevated reporting limits (RLs) are provided.

Method(s) 300.0: The following samples was reported with elevated reporting limits for all analytes: MW-1 (480-120139-7) and MW-3 (480-120139-8). The sample was analyzed at a dilution based on screening results.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

Method(s) 6010C: The following sample was diluted due to the presence of Sulfur which interferes with Total Lead: MW-4 (480-120139-6). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### General Chemistry

Method(s) SM 2540C: Due to the matrix, the initial volume(s) used for the following samples deviated from the standard procedure: MW-2R (480-120139-2), MW-2RD (480-120139-3), MW-3R (480-120139-4), MW-3RD (480-120139-5), (480-120053-B-4) and (480-120053-B-4 DU). The reporting limits (RLs) have been adjusted proportionately.

Method(s) SM 2540C: Due to the matrix, the initial volume(s) used for the following sample deviated from the standard procedure: MW-4 (480-120139-6). The reporting limits (RLs) have been adjusted proportionately.

Method(s) 9040C, SM 4500 H+ B: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: MW-1RD (480-120139-1), MW-2R (480-120139-2), MW-2RD (480-120139-3), MW-3R (480-120139-4), MW-3RD (480-120139-5), MW-4 (480-120139-6), MW-1 (480-120139-7), MW-3 (480-120139-8), DUP-1 (480-120139-9), FIELD BLANK (480-120139-10) and EQUIPMENT BLANK (480-120139-11).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



# Detection Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

## Client Sample ID: MW-1RD

## Lab Sample ID: 480-120139-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.16		0.0020		mg/L	1		6010C	Total/NA
Calcium	72.8		0.50		mg/L	1		6010C	Total/NA
Cobalt	1.3		0.30		ug/L	1		6020A	Total/NA
Molybdenum	3.1		1.0		ug/L	1		6020A	Total/NA
Chloride	18.2		1.0		mg/L	2		300.0	Total/NA
Fluoride	0.26		0.10		mg/L	2		300.0	Total/NA
Sulfate	44.9		4.0		mg/L	2		300.0	Total/NA
Total Dissolved Solids	332		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.3	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.0	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-2R

## Lab Sample ID: 480-120139-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.18		0.0020		mg/L	1		6010C	Total/NA
Boron	0.16		0.020		mg/L	1		6010C	Total/NA
Calcium	181		0.50		mg/L	1		6010C	Total/NA
Arsenic	1.2		1.0		ug/L	1		6020A	Total/NA
Cobalt	0.84		0.30		ug/L	1		6020A	Total/NA
Molybdenum	1.9		1.0		ug/L	1		6020A	Total/NA
Chloride	34.7		2.5		mg/L	5		300.0	Total/NA
Sulfate	167		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	810		20.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.8	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-2RD

## Lab Sample ID: 480-120139-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.17		0.0020		mg/L	1		6010C	Total/NA
Boron	0.040		0.020		mg/L	1		6010C	Total/NA
Calcium	122		0.50		mg/L	1		6010C	Total/NA
Arsenic	2.4		1.0		ug/L	1		6020A	Total/NA
Cobalt	2.6		0.30		ug/L	1		6020A	Total/NA
Molybdenum	2.5		1.0		ug/L	1		6020A	Total/NA
Selenium	1.2		1.0		ug/L	1		6020A	Total/NA
Chloride	31.8		2.5		mg/L	5		300.0	Total/NA
Sulfate	58.7		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	486		20.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.1	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.4	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3R

## Lab Sample ID: 480-120139-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.54		0.0020		mg/L	1		6010C	Total/NA
Boron	0.041		0.020		mg/L	1		6010C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Detection Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

## Client Sample ID: MW-3R (Continued)

## Lab Sample ID: 480-120139-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	210		0.50		mg/L	1		6010C	Total/NA
Arsenic	3.0		1.0		ug/L	1		6020A	Total/NA
Cobalt	0.61		0.30		ug/L	1		6020A	Total/NA
Molybdenum	2.0		1.0		ug/L	1		6020A	Total/NA
Chloride	18.3		2.5		mg/L	5		300.0	Total/NA
Sulfate	29.2		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	808		20.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.5	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.1	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3RD

## Lab Sample ID: 480-120139-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.21		0.0020		mg/L	1		6010C	Total/NA
Boron	0.028		0.020		mg/L	1		6010C	Total/NA
Calcium	126		0.50		mg/L	1		6010C	Total/NA
Arsenic	4.0		1.0		ug/L	1		6020A	Total/NA
Cobalt	0.32		0.30		ug/L	1		6020A	Total/NA
Molybdenum	4.0		1.0		ug/L	1		6020A	Total/NA
Chloride	31.6		2.5		mg/L	5		300.0	Total/NA
Sulfate	105		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	566		20.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.0	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.0	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-4

## Lab Sample ID: 480-120139-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.27		0.0020		mg/L	1		6010C	Total/NA
Boron	0.25		0.020		mg/L	1		6010C	Total/NA
Calcium	271		0.50		mg/L	1		6010C	Total/NA
Arsenic	1.7		1.0		ug/L	1		6020A	Total/NA
Cadmium	0.59		0.50		ug/L	1		6020A	Total/NA
Cobalt	0.75		0.30		ug/L	1		6020A	Total/NA
Molybdenum	1.9		1.0		ug/L	1		6020A	Total/NA
Chloride	39.4		2.5		mg/L	5		300.0	Total/NA
Sulfate	481		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	1310		20.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.9	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.0	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-1

## Lab Sample ID: 480-120139-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.071		0.0020		mg/L	1		6010C	Total/NA
Calcium	72.3		0.50		mg/L	1		6010C	Total/NA
Chloride	14.5		1.0		mg/L	2		300.0	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

## Client Sample ID: MW-1 (Continued)

## Lab Sample ID: 480-120139-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.20		0.10		mg/L	2		300.0	Total/NA
Sulfate	14.7		4.0		mg/L	2		300.0	Total/NA
Total Dissolved Solids	318		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.1	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.0	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3

## Lab Sample ID: 480-120139-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.24		0.0020		mg/L	1		6010C	Total/NA
Boron	0.20		0.020		mg/L	1		6010C	Total/NA
Calcium	188		0.50		mg/L	1		6010C	Total/NA
Arsenic	1.6		1.0		ug/L	1		6020A	Total/NA
Cobalt	5.1		0.30		ug/L	1		6020A	Total/NA
Molybdenum	6.5		1.0		ug/L	1		6020A	Total/NA
Chloride	19.3		2.5		mg/L	5		300.0	Total/NA
Sulfate	23.9		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	768		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.7	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.1	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: DUP-1

## Lab Sample ID: 480-120139-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.21		0.0020		mg/L	1		6010C	Total/NA
Boron	0.028		0.020		mg/L	1		6010C	Total/NA
Calcium	124		0.50		mg/L	1		6010C	Total/NA
Arsenic	4.0		1.0		ug/L	1		6020A	Total/NA
Cobalt	0.33		0.30		ug/L	1		6020A	Total/NA
Molybdenum	3.9		1.0		ug/L	1		6020A	Total/NA
Chloride	31.2		2.5		mg/L	5		300.0	Total/NA
Sulfate	104		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	569		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.0	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.6	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: FIELD BLANK

## Lab Sample ID: 480-120139-10

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	5.6	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.4	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: EQUIPMENT BLANK

## Lab Sample ID: 480-120139-11

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	5.2	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-120139-1**

**Date Collected: 06/22/17 07:55**

**Matrix: Water**

**Date Received: 06/24/17 09:30**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Barium</b>	<b>0.16</b>		0.0020		mg/L		06/28/17 08:52	06/30/17 18:00	1
Boron	ND		0.020		mg/L		06/28/17 08:52	06/30/17 18:00	1
<b>Calcium</b>	<b>72.8</b>		0.50		mg/L		06/28/17 08:52	06/30/17 18:00	1
Chromium	ND		0.0040		mg/L		06/28/17 08:52	06/30/17 18:00	1
Lead	ND		0.010		mg/L		06/28/17 08:52	06/30/17 18:00	1
Lithium	ND		0.030		mg/L		06/28/17 08:52	06/30/17 18:00	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		06/28/17 12:35	07/04/17 09:00	1
Arsenic	ND		1.0		ug/L		06/28/17 12:35	07/04/17 09:00	1
Beryllium	ND		0.70		ug/L		06/28/17 12:35	07/04/17 09:00	1
Cadmium	ND		0.50		ug/L		06/28/17 12:35	07/04/17 09:00	1
<b>Cobalt</b>	<b>1.3</b>		0.30		ug/L		06/28/17 12:35	07/04/17 09:00	1
<b>Molybdenum</b>	<b>3.1</b>		1.0		ug/L		06/28/17 12:35	07/04/17 09:00	1
Selenium	ND		1.0		ug/L		06/28/17 12:35	07/04/17 09:00	1
Thallium	ND		0.20		ug/L		06/28/17 12:35	07/04/17 09:00	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		06/26/17 09:00	06/26/17 12:53	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>18.2</b>		1.0		mg/L			07/07/17 22:09	2
<b>Fluoride</b>	<b>0.26</b>		0.10		mg/L			07/07/17 22:09	2
<b>Sulfate</b>	<b>44.9</b>		4.0		mg/L			07/07/17 22:09	2
<b>Total Dissolved Solids</b>	<b>332</b>		10.0		mg/L			06/28/17 01:11	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>pH</b>	<b>7.3</b>	<b>HF</b>	0.1		SU			06/26/17 17:41	1
<b>Temperature</b>	<b>21.0</b>	<b>HF</b>	0.001		Degrees C			06/26/17 17:41	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

**Client Sample ID: MW-2R**

**Date Collected: 06/22/17 11:20**

**Date Received: 06/24/17 09:30**

**Lab Sample ID: 480-120139-2**

**Matrix: Water**

## Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.18		0.0020		mg/L		06/28/17 08:52	06/30/17 18:03	1
Boron	0.16		0.020		mg/L		06/28/17 08:52	06/30/17 18:03	1
Calcium	181		0.50		mg/L		06/28/17 08:52	06/30/17 18:03	1
Chromium	ND		0.0040		mg/L		06/28/17 08:52	06/30/17 18:03	1
Lead	ND		0.010		mg/L		06/28/17 08:52	06/30/17 18:03	1
Lithium	ND		0.030		mg/L		06/28/17 08:52	06/30/17 18:03	1

## Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		06/28/17 12:35	07/04/17 09:45	1
Arsenic	1.2		1.0		ug/L		06/28/17 12:35	07/04/17 09:45	1
Beryllium	ND		0.70		ug/L		06/28/17 12:35	07/04/17 09:45	1
Cadmium	ND		0.50		ug/L		06/28/17 12:35	07/04/17 09:45	1
Cobalt	0.84		0.30		ug/L		06/28/17 12:35	07/04/17 09:45	1
Molybdenum	1.9		1.0		ug/L		06/28/17 12:35	07/04/17 09:45	1
Selenium	ND		1.0		ug/L		06/28/17 12:35	07/04/17 09:45	1
Thallium	ND		0.20		ug/L		06/28/17 12:35	07/04/17 09:45	1

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		06/26/17 09:00	06/26/17 12:54	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	34.7		2.5		mg/L			07/07/17 22:17	5
Fluoride	ND		0.25		mg/L			07/07/17 22:17	5
Sulfate	167		10.0		mg/L			07/07/17 22:17	5
Total Dissolved Solids	810		20.0		mg/L			06/28/17 01:11	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.8	HF	0.1		SU			06/26/17 17:44	1
Temperature	21.2	HF	0.001		Degrees C			06/26/17 17:44	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-120139-3**

**Date Collected: 06/22/17 11:15**

**Matrix: Water**

**Date Received: 06/24/17 09:30**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.17		0.0020		mg/L		06/28/17 08:52	06/30/17 18:07	1
Boron	0.040		0.020		mg/L		06/28/17 08:52	06/30/17 18:07	1
Calcium	122		0.50		mg/L		06/28/17 08:52	06/30/17 18:07	1
Chromium	ND		0.0040		mg/L		06/28/17 08:52	06/30/17 18:07	1
Lead	ND		0.010		mg/L		06/28/17 08:52	06/30/17 18:07	1
Lithium	ND		0.030		mg/L		06/28/17 08:52	06/30/17 18:07	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		06/28/17 12:35	07/04/17 09:51	1
Arsenic	2.4		1.0		ug/L		06/28/17 12:35	07/04/17 09:51	1
Beryllium	ND		0.70		ug/L		06/28/17 12:35	07/04/17 09:51	1
Cadmium	ND		0.50		ug/L		06/28/17 12:35	07/04/17 09:51	1
Cobalt	2.6		0.30		ug/L		06/28/17 12:35	07/04/17 09:51	1
Molybdenum	2.5		1.0		ug/L		06/28/17 12:35	07/04/17 09:51	1
Selenium	1.2		1.0		ug/L		06/28/17 12:35	07/04/17 09:51	1
Thallium	ND		0.20		ug/L		06/28/17 12:35	07/04/17 09:51	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		06/26/17 09:00	06/26/17 13:01	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	31.8		2.5		mg/L			07/07/17 22:25	5
Fluoride	ND		0.25		mg/L			07/07/17 22:25	5
Sulfate	58.7		10.0		mg/L			07/07/17 22:25	5
Total Dissolved Solids	486		20.0		mg/L			06/28/17 01:11	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.1	HF	0.1		SU			06/26/17 17:47	1
Temperature	21.4	HF	0.001		Degrees C			06/26/17 17:47	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

**Client Sample ID: MW-3R**

**Date Collected: 06/22/17 13:25**

**Date Received: 06/24/17 09:30**

**Lab Sample ID: 480-120139-4**

**Matrix: Water**

## Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.54		0.0020		mg/L		06/28/17 08:52	06/30/17 18:10	1
Boron	0.041		0.020		mg/L		06/28/17 08:52	06/30/17 18:10	1
Calcium	210		0.50		mg/L		06/28/17 08:52	06/30/17 18:10	1
Chromium	ND		0.0040		mg/L		06/28/17 08:52	06/30/17 18:10	1
Lead	ND		0.010		mg/L		06/28/17 08:52	06/30/17 18:10	1
Lithium	ND		0.030		mg/L		06/28/17 08:52	06/30/17 18:10	1

## Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		06/28/17 12:35	07/04/17 09:56	1
Arsenic	3.0		1.0		ug/L		06/28/17 12:35	07/04/17 09:56	1
Beryllium	ND		0.70		ug/L		06/28/17 12:35	07/04/17 09:56	1
Cadmium	ND		0.50		ug/L		06/28/17 12:35	07/04/17 09:56	1
Cobalt	0.61		0.30		ug/L		06/28/17 12:35	07/04/17 09:56	1
Molybdenum	2.0		1.0		ug/L		06/28/17 12:35	07/04/17 09:56	1
Selenium	ND		1.0		ug/L		06/28/17 12:35	07/04/17 09:56	1
Thallium	ND		0.20		ug/L		06/28/17 12:35	07/04/17 09:56	1

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		06/26/17 09:00	06/26/17 13:03	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	18.3		2.5		mg/L			07/07/17 22:33	5
Fluoride	ND		0.25		mg/L			07/07/17 22:33	5
Sulfate	29.2		10.0		mg/L			07/07/17 22:33	5
Total Dissolved Solids	808		20.0		mg/L			06/28/17 01:11	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.5	HF	0.1		SU			06/26/17 17:50	1
Temperature	21.1	HF	0.001		Degrees C			06/26/17 17:50	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-120139-5**

**Date Collected: 06/22/17 14:30**

**Matrix: Water**

**Date Received: 06/24/17 09:30**

**Method: 6010C - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.21		0.0020		mg/L		06/28/17 08:52	06/30/17 18:14	1
Boron	0.028		0.020		mg/L		06/28/17 08:52	06/30/17 18:14	1
Calcium	126		0.50		mg/L		06/28/17 08:52	06/30/17 18:14	1
Chromium	ND		0.0040		mg/L		06/28/17 08:52	06/30/17 18:14	1
Lead	ND		0.010		mg/L		06/28/17 08:52	06/30/17 18:14	1
Lithium	ND		0.030		mg/L		06/28/17 08:52	06/30/17 18:14	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		06/28/17 12:35	07/04/17 10:02	1
Arsenic	4.0		1.0		ug/L		06/28/17 12:35	07/04/17 10:02	1
Beryllium	ND		0.70		ug/L		06/28/17 12:35	07/04/17 10:02	1
Cadmium	ND		0.50		ug/L		06/28/17 12:35	07/04/17 10:02	1
Cobalt	0.32		0.30		ug/L		06/28/17 12:35	07/04/17 10:02	1
Molybdenum	4.0		1.0		ug/L		06/28/17 12:35	07/04/17 10:02	1
Selenium	ND		1.0		ug/L		06/28/17 12:35	07/04/17 10:02	1
Thallium	ND		0.20		ug/L		06/28/17 12:35	07/04/17 10:02	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		06/26/17 09:00	06/26/17 13:05	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	31.6		2.5		mg/L			07/07/17 22:41	5
Fluoride	ND		0.25		mg/L			07/07/17 22:41	5
Sulfate	105		10.0		mg/L			07/07/17 22:41	5
Total Dissolved Solids	566		20.0		mg/L			06/28/17 01:11	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.0	HF	0.1		SU			06/26/17 17:53	1
Temperature	21.0	HF	0.001		Degrees C			06/26/17 17:53	1



# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

**Client Sample ID: MW-4**  
**Date Collected: 06/22/17 16:05**  
**Date Received: 06/24/17 09:30**

**Lab Sample ID: 480-120139-6**  
**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.27		0.0020		mg/L		06/28/17 08:52	06/30/17 18:18	1
Boron	0.25		0.020		mg/L		06/28/17 08:52	06/30/17 18:18	1
Calcium	271		0.50		mg/L		06/28/17 08:52	06/30/17 18:18	1
Chromium	ND		0.0040		mg/L		06/28/17 08:52	06/30/17 18:18	1
Lead	ND		0.050		mg/L		06/28/17 08:52	07/10/17 15:02	5
Lithium	ND		0.030		mg/L		06/28/17 08:52	06/30/17 18:18	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		06/28/17 12:35	07/04/17 10:07	1
Arsenic	1.7		1.0		ug/L		06/28/17 12:35	07/04/17 10:07	1
Beryllium	ND		0.70		ug/L		06/28/17 12:35	07/04/17 10:07	1
Cadmium	0.59		0.50		ug/L		06/28/17 12:35	07/04/17 10:07	1
Cobalt	0.75		0.30		ug/L		06/28/17 12:35	07/04/17 10:07	1
Molybdenum	1.9		1.0		ug/L		06/28/17 12:35	07/04/17 10:07	1
Selenium	ND		1.0		ug/L		06/28/17 12:35	07/04/17 10:07	1
Thallium	ND		0.20		ug/L		06/28/17 12:35	07/04/17 10:07	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		06/26/17 09:00	06/26/17 13:10	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	39.4		2.5		mg/L			07/08/17 09:08	5
Fluoride	ND		0.25		mg/L			07/08/17 09:08	5
Sulfate	481		10.0		mg/L			07/08/17 09:08	5
Total Dissolved Solids	1310		20.0		mg/L			06/28/17 20:33	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1		SU			06/26/17 17:56	1
Temperature	21.0	HF	0.001		Degrees C			06/26/17 17:56	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

**Client Sample ID: MW-1**  
**Date Collected: 06/22/17 07:50**  
**Date Received: 06/24/17 09:30**

**Lab Sample ID: 480-120139-7**  
**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Barium</b>	<b>0.071</b>		0.0020		mg/L		06/28/17 08:52	06/30/17 18:21	1
Boron	ND		0.020		mg/L		06/28/17 08:52	06/30/17 18:21	1
<b>Calcium</b>	<b>72.3</b>		0.50		mg/L		06/28/17 08:52	06/30/17 18:21	1
Chromium	ND		0.0040		mg/L		06/28/17 08:52	06/30/17 18:21	1
Lead	ND		0.010		mg/L		06/28/17 08:52	06/30/17 18:21	1
Lithium	ND		0.030		mg/L		06/28/17 08:52	06/30/17 18:21	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		06/28/17 12:35	07/04/17 10:13	1
Arsenic	ND		1.0		ug/L		06/28/17 12:35	07/04/17 10:13	1
Beryllium	ND		0.70		ug/L		06/28/17 12:35	07/04/17 10:13	1
Cadmium	ND		0.50		ug/L		06/28/17 12:35	07/04/17 10:13	1
Cobalt	ND		0.30		ug/L		06/28/17 12:35	07/04/17 10:13	1
Molybdenum	ND		1.0		ug/L		06/28/17 12:35	07/04/17 10:13	1
Selenium	ND		1.0		ug/L		06/28/17 12:35	07/04/17 10:13	1
Thallium	ND		0.20		ug/L		06/28/17 12:35	07/04/17 10:13	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		06/26/17 09:00	06/26/17 13:13	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>14.5</b>		1.0		mg/L			07/08/17 09:16	2
<b>Fluoride</b>	<b>0.20</b>		0.10		mg/L			07/08/17 09:16	2
<b>Sulfate</b>	<b>14.7</b>		4.0		mg/L			07/08/17 09:16	2
<b>Total Dissolved Solids</b>	<b>318</b>		10.0		mg/L			06/28/17 20:33	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>pH</b>	<b>7.1</b>	<b>HF</b>	0.1		SU			06/26/17 17:59	1
<b>Temperature</b>	<b>21.0</b>	<b>HF</b>	0.001		Degrees C			06/26/17 17:59	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

**Client Sample ID: MW-3**  
**Date Collected: 06/22/17 13:20**  
**Date Received: 06/24/17 09:30**

**Lab Sample ID: 480-120139-8**  
**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.24		0.0020		mg/L		06/28/17 08:52	06/30/17 18:25	1
Boron	0.20		0.020		mg/L		06/28/17 08:52	06/30/17 18:25	1
Calcium	188		0.50		mg/L		06/28/17 08:52	06/30/17 18:25	1
Chromium	ND		0.0040		mg/L		06/28/17 08:52	06/30/17 18:25	1
Lead	ND		0.010		mg/L		06/28/17 08:52	06/30/17 18:25	1
Lithium	ND		0.030		mg/L		06/28/17 08:52	06/30/17 18:25	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		06/28/17 12:35	07/04/17 10:18	1
Arsenic	1.6		1.0		ug/L		06/28/17 12:35	07/04/17 10:18	1
Beryllium	ND		0.70		ug/L		06/28/17 12:35	07/04/17 10:18	1
Cadmium	ND		0.50		ug/L		06/28/17 12:35	07/04/17 10:18	1
Cobalt	5.1		0.30		ug/L		06/28/17 12:35	07/04/17 10:18	1
Molybdenum	6.5		1.0		ug/L		06/28/17 12:35	07/04/17 10:18	1
Selenium	ND		1.0		ug/L		06/28/17 12:35	07/04/17 10:18	1
Thallium	ND		0.20		ug/L		06/28/17 12:35	07/04/17 10:18	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		06/26/17 09:00	06/26/17 13:14	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	19.3		2.5		mg/L			07/08/17 09:25	5
Fluoride	ND		0.25		mg/L			07/08/17 09:25	5
Sulfate	23.9		10.0		mg/L			07/08/17 09:25	5
Total Dissolved Solids	768		10.0		mg/L			06/28/17 20:33	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.7	HF	0.1		SU			06/26/17 18:02	1
Temperature	21.1	HF	0.001		Degrees C			06/26/17 18:02	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

**Client Sample ID: DUP-1**

**Date Collected: 06/22/17 00:00**

**Date Received: 06/24/17 09:30**

**Lab Sample ID: 480-120139-9**

**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.21		0.0020		mg/L		06/28/17 08:52	06/30/17 18:28	1
Boron	0.028		0.020		mg/L		06/28/17 08:52	06/30/17 18:28	1
Calcium	124		0.50		mg/L		06/28/17 08:52	06/30/17 18:28	1
Chromium	ND		0.0040		mg/L		06/28/17 08:52	06/30/17 18:28	1
Lead	ND		0.010		mg/L		06/28/17 08:52	06/30/17 18:28	1
Lithium	ND		0.030		mg/L		06/28/17 08:52	06/30/17 18:28	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		06/28/17 12:35	07/04/17 10:24	1
Arsenic	4.0		1.0		ug/L		06/28/17 12:35	07/04/17 10:24	1
Beryllium	ND		0.70		ug/L		06/28/17 12:35	07/04/17 10:24	1
Cadmium	ND		0.50		ug/L		06/28/17 12:35	07/04/17 10:24	1
Cobalt	0.33		0.30		ug/L		06/28/17 12:35	07/04/17 10:24	1
Molybdenum	3.9		1.0		ug/L		06/28/17 12:35	07/04/17 10:24	1
Selenium	ND		1.0		ug/L		06/28/17 12:35	07/04/17 10:24	1
Thallium	ND		0.20		ug/L		06/28/17 12:35	07/04/17 10:24	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		06/26/17 09:00	06/26/17 13:16	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	31.2		2.5		mg/L			07/08/17 09:33	5
Fluoride	ND		0.25		mg/L			07/08/17 09:33	5
Sulfate	104		10.0		mg/L			07/08/17 09:33	5
Total Dissolved Solids	569		10.0		mg/L			06/28/17 20:33	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.0	HF	0.1		SU			06/26/17 18:08	1
Temperature	21.6	HF	0.001		Degrees C			06/26/17 18:08	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-120139-10**

**Date Collected: 06/22/17 17:00**

**Matrix: Water**

**Date Received: 06/24/17 09:30**

**Method: 6010C - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		06/28/17 08:52	06/30/17 18:42	1
Boron	ND		0.020		mg/L		06/28/17 08:52	06/30/17 18:42	1
Calcium	ND		0.50		mg/L		06/28/17 08:52	06/30/17 18:42	1
Chromium	ND		0.0040		mg/L		06/28/17 08:52	06/30/17 18:42	1
Lead	ND		0.010		mg/L		06/28/17 08:52	06/30/17 18:42	1
Lithium	ND		0.030		mg/L		06/28/17 08:52	06/30/17 18:42	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		06/28/17 12:35	07/04/17 10:29	1
Arsenic	ND		1.0		ug/L		06/28/17 12:35	07/04/17 10:29	1
Beryllium	ND		0.70		ug/L		06/28/17 12:35	07/04/17 10:29	1
Cadmium	ND		0.50		ug/L		06/28/17 12:35	07/04/17 10:29	1
Cobalt	ND		0.30		ug/L		06/28/17 12:35	07/04/17 10:29	1
Molybdenum	ND		1.0		ug/L		06/28/17 12:35	07/04/17 10:29	1
Selenium	ND		1.0		ug/L		06/28/17 12:35	07/04/17 10:29	1
Thallium	ND		0.20		ug/L		06/28/17 12:35	07/04/17 10:29	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		06/26/17 09:00	06/26/17 13:18	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			07/08/17 09:41	1
Fluoride	ND		0.050		mg/L			07/08/17 09:41	1
Sulfate	ND		2.0		mg/L			07/08/17 09:41	1
Total Dissolved Solids	ND		10.0		mg/L			06/28/17 20:33	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.6	HF	0.1		SU			06/26/17 18:11	1
Temperature	21.4	HF	0.001		Degrees C			06/26/17 18:11	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-120139-11**

**Date Collected: 06/22/17 17:05**

**Matrix: Water**

**Date Received: 06/24/17 09:30**

**Method: 6010C - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		06/28/17 08:52	06/30/17 18:46	1
Boron	ND		0.020		mg/L		06/28/17 08:52	06/30/17 18:46	1
Calcium	ND		0.50		mg/L		06/28/17 08:52	06/30/17 18:46	1
Chromium	ND		0.0040		mg/L		06/28/17 08:52	06/30/17 18:46	1
Lead	ND		0.010		mg/L		06/28/17 08:52	06/30/17 18:46	1
Lithium	ND		0.030		mg/L		06/28/17 08:52	06/30/17 18:46	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		06/28/17 12:35	07/04/17 10:35	1
Arsenic	ND		1.0		ug/L		06/28/17 12:35	07/04/17 10:35	1
Beryllium	ND		0.70		ug/L		06/28/17 12:35	07/04/17 10:35	1
Cadmium	ND		0.50		ug/L		06/28/17 12:35	07/04/17 10:35	1
Cobalt	ND		0.30		ug/L		06/28/17 12:35	07/04/17 10:35	1
Molybdenum	ND		1.0		ug/L		06/28/17 12:35	07/04/17 10:35	1
Selenium	ND		1.0		ug/L		06/28/17 12:35	07/04/17 10:35	1
Thallium	ND		0.20		ug/L		06/28/17 12:35	07/04/17 10:35	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		06/26/17 09:00	06/26/17 13:20	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			07/08/17 09:49	1
Fluoride	ND		0.050		mg/L			07/08/17 09:49	1
Sulfate	ND		2.0		mg/L			07/08/17 09:49	1
Total Dissolved Solids	ND		10.0		mg/L			06/28/17 20:33	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.2	HF	0.1		SU			06/26/17 18:14	1
Temperature	21.2	HF	0.001		Degrees C			06/26/17 18:14	1

# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 480-364290/1-A**  
**Matrix: Water**  
**Analysis Batch: 365256**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 364290**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		06/28/17 08:52	06/30/17 16:57	1
Boron	ND		0.020		mg/L		06/28/17 08:52	06/30/17 16:57	1
Calcium	ND		0.50		mg/L		06/28/17 08:52	06/30/17 16:57	1
Chromium	ND		0.0040		mg/L		06/28/17 08:52	06/30/17 16:57	1
Lead	ND		0.010		mg/L		06/28/17 08:52	06/30/17 16:57	1
Lithium	ND		0.030		mg/L		06/28/17 08:52	06/30/17 16:57	1

**Lab Sample ID: LCS 480-364290/2-A**  
**Matrix: Water**  
**Analysis Batch: 365256**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 364290**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Barium	0.200	0.211		mg/L		105	80 - 120
Boron	0.200	0.205		mg/L		102	80 - 120
Calcium	10.0	9.86		mg/L		99	80 - 120
Chromium	0.200	0.206		mg/L		103	80 - 120
Lead	0.200	0.203		mg/L		101	80 - 120

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 480-364484/1-A**  
**Matrix: Water**  
**Analysis Batch: 365426**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 364484**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		06/28/17 12:35	07/04/17 08:49	1
Arsenic	ND		1.0		ug/L		06/28/17 12:35	07/04/17 08:49	1
Beryllium	ND		0.70		ug/L		06/28/17 12:35	07/04/17 08:49	1
Cadmium	ND		0.50		ug/L		06/28/17 12:35	07/04/17 08:49	1
Cobalt	ND		0.30		ug/L		06/28/17 12:35	07/04/17 08:49	1
Molybdenum	ND		1.0		ug/L		06/28/17 12:35	07/04/17 08:49	1
Selenium	ND		1.0		ug/L		06/28/17 12:35	07/04/17 08:49	1
Thallium	ND		0.20		ug/L		06/28/17 12:35	07/04/17 08:49	1

**Lab Sample ID: LCS 480-364484/2-A**  
**Matrix: Water**  
**Analysis Batch: 365426**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 364484**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Antimony	20.0	19.99		ug/L		100	80 - 120
Arsenic	20.0	19.49		ug/L		97	80 - 120
Beryllium	20.0	20.62		ug/L		103	80 - 120
Cadmium	20.0	19.62		ug/L		98	80 - 120
Cobalt	20.0	20.17		ug/L		101	80 - 120
Molybdenum	20.0	20.68		ug/L		103	80 - 120
Selenium	20.0	18.70		ug/L		93	80 - 120
Thallium	20.0	21.08		ug/L		105	80 - 120

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# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: 480-120139-1 MS**

**Matrix: Water**

**Analysis Batch: 365426**

**Client Sample ID: MW-1RD**

**Prep Type: Total/NA**

**Prep Batch: 364484**

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
Antimony	ND		20.0	21.29		ug/L		106	75 - 125
Arsenic	ND		20.0	20.84		ug/L		104	75 - 125
Beryllium	ND		20.0	20.12		ug/L		101	75 - 125
Cadmium	ND		20.0	19.98		ug/L		100	75 - 125
Cobalt	1.3		20.0	21.34		ug/L		100	75 - 125
Molybdenum	3.1		20.0	24.09		ug/L		105	75 - 125
Selenium	ND		20.0	19.99		ug/L		100	75 - 125
Thallium	ND		20.0	21.19		ug/L		106	75 - 125

**Lab Sample ID: 480-120139-1 MSD**

**Matrix: Water**

**Analysis Batch: 365426**

**Client Sample ID: MW-1RD**

**Prep Type: Total/NA**

**Prep Batch: 364484**

Analyte	Sample	Sample	Spike	MSD		Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier						
Antimony	ND		20.0	21.48		ug/L		107	75 - 125	1	20
Arsenic	ND		20.0	21.21		ug/L		106	75 - 125	2	20
Beryllium	ND		20.0	20.10		ug/L		100	75 - 125	0	20
Cadmium	ND		20.0	20.28		ug/L		101	75 - 125	2	20
Cobalt	1.3		20.0	21.70		ug/L		102	75 - 125	2	20
Molybdenum	3.1		20.0	24.00		ug/L		104	75 - 125	0	20
Selenium	ND		20.0	20.40		ug/L		102	75 - 125	2	20
Thallium	ND		20.0	21.36		ug/L		107	75 - 125	1	20

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: MB 480-363898/1-A**

**Matrix: Water**

**Analysis Batch: 364037**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 363898**

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.20		ug/L		06/26/17 09:00	06/26/17 12:49	1

**Lab Sample ID: LCS 480-363898/2-A**

**Matrix: Water**

**Analysis Batch: 364037**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 363898**

Analyte	Spike	LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
Mercury	6.67	5.63		ug/L		84	80 - 120

**Lab Sample ID: 480-120139-2 MS**

**Matrix: Water**

**Analysis Batch: 364037**

**Client Sample ID: MW-2R**

**Prep Type: Total/NA**

**Prep Batch: 363898**

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
Mercury	ND		6.67	5.82		ug/L		87	80 - 120

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# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

## Method: 7470A - Mercury (CVAA) (Continued)

**Lab Sample ID: 480-120139-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 364037**

**Client Sample ID: MW-2R**  
**Prep Type: Total/NA**  
**Prep Batch: 363898**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		6.67	5.80		ug/L		87	80 - 120	0	20

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 480-365884/28**  
**Matrix: Water**  
**Analysis Batch: 365884**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			07/07/17 20:07	1
Fluoride	ND		0.050		mg/L			07/07/17 20:07	1
Sulfate	ND		2.0		mg/L			07/07/17 20:07	1

**Lab Sample ID: LCS 480-365884/27**  
**Matrix: Water**  
**Analysis Batch: 365884**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	50.63		mg/L		101	90 - 110
Fluoride	5.00	4.89		mg/L		98	90 - 110
Sulfate	50.0	48.63		mg/L		97	90 - 110

**Lab Sample ID: 480-120139-5 MS**  
**Matrix: Water**  
**Analysis Batch: 365884**

**Client Sample ID: MW-3RD**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	31.6		250	288.0		mg/L		103	81 - 120
Fluoride	ND		25.0	25.12		mg/L		100	82 - 120
Sulfate	105		250	346.8		mg/L		97	80 - 120

**Lab Sample ID: MB 480-366002/4**  
**Matrix: Water**  
**Analysis Batch: 366002**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			07/08/17 09:00	1
Fluoride	ND		0.050		mg/L			07/08/17 09:00	1
Sulfate	ND		2.0		mg/L			07/08/17 09:00	1

**Lab Sample ID: LCS 480-366002/3**  
**Matrix: Water**  
**Analysis Batch: 366002**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	51.38		mg/L		103	90 - 110
Fluoride	5.00	5.00		mg/L		100	90 - 110
Sulfate	50.0	51.66		mg/L		103	90 - 110

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# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: 480-120139-11 MS**  
**Matrix: Water**  
**Analysis Batch: 366002**

**Client Sample ID: EQUIPMENT BLANK**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	ND		50.0	50.79		mg/L		102	81 - 120
Fluoride	ND		5.00	4.94		mg/L		99	82 - 120
Sulfate	ND		50.0	49.84		mg/L		100	80 - 120

**Lab Sample ID: 480-120139-11 MSD**  
**Matrix: Water**  
**Analysis Batch: 366002**

**Client Sample ID: EQUIPMENT BLANK**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	ND		50.0	50.50		mg/L		101	81 - 120	1	20
Fluoride	ND		5.00	4.94		mg/L		99	82 - 120	0	20
Sulfate	ND		50.0	49.98		mg/L		100	80 - 120	0	20

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 480-364366/1**  
**Matrix: Water**  
**Analysis Batch: 364366**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			06/28/17 01:11	1

**Lab Sample ID: LCS 480-364366/2**  
**Matrix: Water**  
**Analysis Batch: 364366**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	513	509.0		mg/L		99	85 - 115

**Lab Sample ID: 480-120139-1 DU**  
**Matrix: Water**  
**Analysis Batch: 364366**

**Client Sample ID: MW-1RD**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	332		337.0		mg/L		1	10

**Lab Sample ID: MB 480-364600/1**  
**Matrix: Water**  
**Analysis Batch: 364600**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			06/28/17 20:33	1

**Lab Sample ID: LCS 480-364600/2**  
**Matrix: Water**  
**Analysis Batch: 364600**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	513	491.0		mg/L		96	85 - 115

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# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

## Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: 480-120139-8 DU  
 Matrix: Water  
 Analysis Batch: 364600

Client Sample ID: MW-3  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	768		764.0		mg/L		0.5	10

## Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 480-364074/23  
 Matrix: Water  
 Analysis Batch: 364074

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99 - 101

Lab Sample ID: LCS 480-364074/45  
 Matrix: Water  
 Analysis Batch: 364074

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99 - 101

# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

## Metals

### Prep Batch: 363898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-120139-1	MW-1RD	Total/NA	Water	7470A	
480-120139-2	MW-2R	Total/NA	Water	7470A	
480-120139-3	MW-2RD	Total/NA	Water	7470A	
480-120139-4	MW-3R	Total/NA	Water	7470A	
480-120139-5	MW-3RD	Total/NA	Water	7470A	
480-120139-6	MW-4	Total/NA	Water	7470A	
480-120139-7	MW-1	Total/NA	Water	7470A	
480-120139-8	MW-3	Total/NA	Water	7470A	
480-120139-9	DUP-1	Total/NA	Water	7470A	
480-120139-10	FIELD BLANK	Total/NA	Water	7470A	
480-120139-11	EQUIPMENT BLANK	Total/NA	Water	7470A	
MB 480-363898/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-363898/2-A	Lab Control Sample	Total/NA	Water	7470A	
480-120139-2 MS	MW-2R	Total/NA	Water	7470A	
480-120139-2 MSD	MW-2R	Total/NA	Water	7470A	

### Analysis Batch: 364037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-120139-1	MW-1RD	Total/NA	Water	7470A	363898
480-120139-2	MW-2R	Total/NA	Water	7470A	363898
480-120139-3	MW-2RD	Total/NA	Water	7470A	363898
480-120139-4	MW-3R	Total/NA	Water	7470A	363898
480-120139-5	MW-3RD	Total/NA	Water	7470A	363898
480-120139-6	MW-4	Total/NA	Water	7470A	363898
480-120139-7	MW-1	Total/NA	Water	7470A	363898
480-120139-8	MW-3	Total/NA	Water	7470A	363898
480-120139-9	DUP-1	Total/NA	Water	7470A	363898
480-120139-10	FIELD BLANK	Total/NA	Water	7470A	363898
480-120139-11	EQUIPMENT BLANK	Total/NA	Water	7470A	363898
MB 480-363898/1-A	Method Blank	Total/NA	Water	7470A	363898
LCS 480-363898/2-A	Lab Control Sample	Total/NA	Water	7470A	363898
480-120139-2 MS	MW-2R	Total/NA	Water	7470A	363898
480-120139-2 MSD	MW-2R	Total/NA	Water	7470A	363898

### Prep Batch: 364290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-120139-1	MW-1RD	Total/NA	Water	3005A	
480-120139-2	MW-2R	Total/NA	Water	3005A	
480-120139-3	MW-2RD	Total/NA	Water	3005A	
480-120139-4	MW-3R	Total/NA	Water	3005A	
480-120139-5	MW-3RD	Total/NA	Water	3005A	
480-120139-6	MW-4	Total/NA	Water	3005A	
480-120139-7	MW-1	Total/NA	Water	3005A	
480-120139-8	MW-3	Total/NA	Water	3005A	
480-120139-9	DUP-1	Total/NA	Water	3005A	
480-120139-10	FIELD BLANK	Total/NA	Water	3005A	
480-120139-11	EQUIPMENT BLANK	Total/NA	Water	3005A	
MB 480-364290/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-364290/2-A	Lab Control Sample	Total/NA	Water	3005A	

TestAmerica Buffalo

# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

## Metals (Continued)

### Prep Batch: 364484

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-120139-1	MW-1RD	Total/NA	Water	3020A	
480-120139-2	MW-2R	Total/NA	Water	3020A	
480-120139-3	MW-2RD	Total/NA	Water	3020A	
480-120139-4	MW-3R	Total/NA	Water	3020A	
480-120139-5	MW-3RD	Total/NA	Water	3020A	
480-120139-6	MW-4	Total/NA	Water	3020A	
480-120139-7	MW-1	Total/NA	Water	3020A	
480-120139-8	MW-3	Total/NA	Water	3020A	
480-120139-9	DUP-1	Total/NA	Water	3020A	
480-120139-10	FIELD BLANK	Total/NA	Water	3020A	
480-120139-11	EQUIPMENT BLANK	Total/NA	Water	3020A	
MB 480-364484/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-364484/2-A	Lab Control Sample	Total/NA	Water	3020A	
480-120139-1 MS	MW-1RD	Total/NA	Water	3020A	
480-120139-1 MSD	MW-1RD	Total/NA	Water	3020A	

### Analysis Batch: 365256

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-120139-1	MW-1RD	Total/NA	Water	6010C	364290
480-120139-2	MW-2R	Total/NA	Water	6010C	364290
480-120139-3	MW-2RD	Total/NA	Water	6010C	364290
480-120139-4	MW-3R	Total/NA	Water	6010C	364290
480-120139-5	MW-3RD	Total/NA	Water	6010C	364290
480-120139-6	MW-4	Total/NA	Water	6010C	364290
480-120139-7	MW-1	Total/NA	Water	6010C	364290
480-120139-8	MW-3	Total/NA	Water	6010C	364290
480-120139-9	DUP-1	Total/NA	Water	6010C	364290
480-120139-10	FIELD BLANK	Total/NA	Water	6010C	364290
480-120139-11	EQUIPMENT BLANK	Total/NA	Water	6010C	364290
MB 480-364290/1-A	Method Blank	Total/NA	Water	6010C	364290
LCS 480-364290/2-A	Lab Control Sample	Total/NA	Water	6010C	364290

### Analysis Batch: 365426

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-120139-1	MW-1RD	Total/NA	Water	6020A	364484
480-120139-2	MW-2R	Total/NA	Water	6020A	364484
480-120139-3	MW-2RD	Total/NA	Water	6020A	364484
480-120139-4	MW-3R	Total/NA	Water	6020A	364484
480-120139-5	MW-3RD	Total/NA	Water	6020A	364484
480-120139-6	MW-4	Total/NA	Water	6020A	364484
480-120139-7	MW-1	Total/NA	Water	6020A	364484
480-120139-8	MW-3	Total/NA	Water	6020A	364484
480-120139-9	DUP-1	Total/NA	Water	6020A	364484
480-120139-10	FIELD BLANK	Total/NA	Water	6020A	364484
480-120139-11	EQUIPMENT BLANK	Total/NA	Water	6020A	364484
MB 480-364484/1-A	Method Blank	Total/NA	Water	6020A	364484
LCS 480-364484/2-A	Lab Control Sample	Total/NA	Water	6020A	364484
480-120139-1 MS	MW-1RD	Total/NA	Water	6020A	364484
480-120139-1 MSD	MW-1RD	Total/NA	Water	6020A	364484

TestAmerica Buffalo

# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

## Metals (Continued)

### Analysis Batch: 366233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-120139-6	MW-4	Total/NA	Water	6010C	364290

## General Chemistry

### Analysis Batch: 364074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-120139-1	MW-1RD	Total/NA	Water	SM 4500 H+ B	
480-120139-2	MW-2R	Total/NA	Water	SM 4500 H+ B	
480-120139-3	MW-2RD	Total/NA	Water	SM 4500 H+ B	
480-120139-4	MW-3R	Total/NA	Water	SM 4500 H+ B	
480-120139-5	MW-3RD	Total/NA	Water	SM 4500 H+ B	
480-120139-6	MW-4	Total/NA	Water	SM 4500 H+ B	
480-120139-7	MW-1	Total/NA	Water	SM 4500 H+ B	
480-120139-8	MW-3	Total/NA	Water	SM 4500 H+ B	
480-120139-9	DUP-1	Total/NA	Water	SM 4500 H+ B	
480-120139-10	FIELD BLANK	Total/NA	Water	SM 4500 H+ B	
480-120139-11	EQUIPMENT BLANK	Total/NA	Water	SM 4500 H+ B	
LCS 480-364074/23	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 480-364074/45	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

### Analysis Batch: 364366

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-120139-1	MW-1RD	Total/NA	Water	SM 2540C	
480-120139-2	MW-2R	Total/NA	Water	SM 2540C	
480-120139-3	MW-2RD	Total/NA	Water	SM 2540C	
480-120139-4	MW-3R	Total/NA	Water	SM 2540C	
480-120139-5	MW-3RD	Total/NA	Water	SM 2540C	
MB 480-364366/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-364366/2	Lab Control Sample	Total/NA	Water	SM 2540C	
480-120139-1 DU	MW-1RD	Total/NA	Water	SM 2540C	

### Analysis Batch: 364600

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-120139-6	MW-4	Total/NA	Water	SM 2540C	
480-120139-7	MW-1	Total/NA	Water	SM 2540C	
480-120139-8	MW-3	Total/NA	Water	SM 2540C	
480-120139-9	DUP-1	Total/NA	Water	SM 2540C	
480-120139-10	FIELD BLANK	Total/NA	Water	SM 2540C	
480-120139-11	EQUIPMENT BLANK	Total/NA	Water	SM 2540C	
MB 480-364600/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-364600/2	Lab Control Sample	Total/NA	Water	SM 2540C	
480-120139-8 DU	MW-3	Total/NA	Water	SM 2540C	

### Analysis Batch: 365884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-120139-1	MW-1RD	Total/NA	Water	300.0	
480-120139-2	MW-2R	Total/NA	Water	300.0	
480-120139-3	MW-2RD	Total/NA	Water	300.0	
480-120139-4	MW-3R	Total/NA	Water	300.0	
480-120139-5	MW-3RD	Total/NA	Water	300.0	

TestAmerica Buffalo

# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

## General Chemistry (Continued)

### Analysis Batch: 365884 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-365884/28	Method Blank	Total/NA	Water	300.0	
LCS 480-365884/27	Lab Control Sample	Total/NA	Water	300.0	
480-120139-5 MS	MW-3RD	Total/NA	Water	300.0	

### Analysis Batch: 366002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-120139-6	MW-4	Total/NA	Water	300.0	
480-120139-7	MW-1	Total/NA	Water	300.0	
480-120139-8	MW-3	Total/NA	Water	300.0	
480-120139-9	DUP-1	Total/NA	Water	300.0	
480-120139-10	FIELD BLANK	Total/NA	Water	300.0	
480-120139-11	EQUIPMENT BLANK	Total/NA	Water	300.0	
MB 480-366002/4	Method Blank	Total/NA	Water	300.0	
LCS 480-366002/3	Lab Control Sample	Total/NA	Water	300.0	
480-120139-11 MS	EQUIPMENT BLANK	Total/NA	Water	300.0	
480-120139-11 MSD	EQUIPMENT BLANK	Total/NA	Water	300.0	

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

**Client Sample ID: MW-1RD**

**Date Collected: 06/22/17 07:55**

**Date Received: 06/24/17 09:30**

**Lab Sample ID: 480-120139-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			364290	06/28/17 08:52	EMB	TAL BUF
Total/NA	Analysis	6010C		1	365256	06/30/17 18:00	LMH	TAL BUF
Total/NA	Prep	3020A			364484	06/28/17 12:35	EMB	TAL BUF
Total/NA	Analysis	6020A		1	365426	07/04/17 09:00	JRK	TAL BUF
Total/NA	Prep	7470A			363898	06/26/17 09:00	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	364037	06/26/17 12:53	MVZ	TAL BUF
Total/NA	Analysis	300.0		2	365884	07/07/17 22:09	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	364366	06/28/17 01:11	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	364074	06/26/17 17:41	ALZ	TAL BUF

**Client Sample ID: MW-2R**

**Date Collected: 06/22/17 11:20**

**Date Received: 06/24/17 09:30**

**Lab Sample ID: 480-120139-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			364290	06/28/17 08:52	EMB	TAL BUF
Total/NA	Analysis	6010C		1	365256	06/30/17 18:03	LMH	TAL BUF
Total/NA	Prep	3020A			364484	06/28/17 12:35	EMB	TAL BUF
Total/NA	Analysis	6020A		1	365426	07/04/17 09:45	JRK	TAL BUF
Total/NA	Prep	7470A			363898	06/26/17 09:00	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	364037	06/26/17 12:54	MVZ	TAL BUF
Total/NA	Analysis	300.0		5	365884	07/07/17 22:17	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	364366	06/28/17 01:11	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	364074	06/26/17 17:44	ALZ	TAL BUF

**Client Sample ID: MW-2RD**

**Date Collected: 06/22/17 11:15**

**Date Received: 06/24/17 09:30**

**Lab Sample ID: 480-120139-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			364290	06/28/17 08:52	EMB	TAL BUF
Total/NA	Analysis	6010C		1	365256	06/30/17 18:07	LMH	TAL BUF
Total/NA	Prep	3020A			364484	06/28/17 12:35	EMB	TAL BUF
Total/NA	Analysis	6020A		1	365426	07/04/17 09:51	JRK	TAL BUF
Total/NA	Prep	7470A			363898	06/26/17 09:00	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	364037	06/26/17 13:01	MVZ	TAL BUF
Total/NA	Analysis	300.0		5	365884	07/07/17 22:25	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	364366	06/28/17 01:11	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	364074	06/26/17 17:47	ALZ	TAL BUF



# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

**Client Sample ID: MW-3R**

**Lab Sample ID: 480-120139-4**

**Date Collected: 06/22/17 13:25**

**Matrix: Water**

**Date Received: 06/24/17 09:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			364290	06/28/17 08:52	EMB	TAL BUF
Total/NA	Analysis	6010C		1	365256	06/30/17 18:10	LMH	TAL BUF
Total/NA	Prep	3020A			364484	06/28/17 12:35	EMB	TAL BUF
Total/NA	Analysis	6020A		1	365426	07/04/17 09:56	JRK	TAL BUF
Total/NA	Prep	7470A			363898	06/26/17 09:00	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	364037	06/26/17 13:03	MVZ	TAL BUF
Total/NA	Analysis	300.0		5	365884	07/07/17 22:33	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	364366	06/28/17 01:11	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	364074	06/26/17 17:50	ALZ	TAL BUF

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-120139-5**

**Date Collected: 06/22/17 14:30**

**Matrix: Water**

**Date Received: 06/24/17 09:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			364290	06/28/17 08:52	EMB	TAL BUF
Total/NA	Analysis	6010C		1	365256	06/30/17 18:14	LMH	TAL BUF
Total/NA	Prep	3020A			364484	06/28/17 12:35	EMB	TAL BUF
Total/NA	Analysis	6020A		1	365426	07/04/17 10:02	JRK	TAL BUF
Total/NA	Prep	7470A			363898	06/26/17 09:00	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	364037	06/26/17 13:05	MVZ	TAL BUF
Total/NA	Analysis	300.0		5	365884	07/07/17 22:41	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	364366	06/28/17 01:11	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	364074	06/26/17 17:53	ALZ	TAL BUF

**Client Sample ID: MW-4**

**Lab Sample ID: 480-120139-6**

**Date Collected: 06/22/17 16:05**

**Matrix: Water**

**Date Received: 06/24/17 09:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			364290	06/28/17 08:52	EMB	TAL BUF
Total/NA	Analysis	6010C		1	365256	06/30/17 18:18	LMH	TAL BUF
Total/NA	Prep	3005A			364290	06/28/17 08:52	EMB	TAL BUF
Total/NA	Analysis	6010C		5	366233	07/10/17 15:02	AMH	TAL BUF
Total/NA	Prep	3020A			364484	06/28/17 12:35	EMB	TAL BUF
Total/NA	Analysis	6020A		1	365426	07/04/17 10:07	JRK	TAL BUF
Total/NA	Prep	7470A			363898	06/26/17 09:00	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	364037	06/26/17 13:10	MVZ	TAL BUF
Total/NA	Analysis	300.0		5	366002	07/08/17 09:08	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	364600	06/28/17 20:33	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	364074	06/26/17 17:56	ALZ	TAL BUF

TestAmerica Buffalo

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

## Client Sample ID: MW-1

Date Collected: 06/22/17 07:50

Date Received: 06/24/17 09:30

## Lab Sample ID: 480-120139-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			364290	06/28/17 08:52	EMB	TAL BUF
Total/NA	Analysis	6010C		1	365256	06/30/17 18:21	LMH	TAL BUF
Total/NA	Prep	3020A			364484	06/28/17 12:35	EMB	TAL BUF
Total/NA	Analysis	6020A		1	365426	07/04/17 10:13	JRK	TAL BUF
Total/NA	Prep	7470A			363898	06/26/17 09:00	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	364037	06/26/17 13:13	MVZ	TAL BUF
Total/NA	Analysis	300.0		2	366002	07/08/17 09:16	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	364600	06/28/17 20:33	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	364074	06/26/17 17:59	ALZ	TAL BUF

## Client Sample ID: MW-3

Date Collected: 06/22/17 13:20

Date Received: 06/24/17 09:30

## Lab Sample ID: 480-120139-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			364290	06/28/17 08:52	EMB	TAL BUF
Total/NA	Analysis	6010C		1	365256	06/30/17 18:25	LMH	TAL BUF
Total/NA	Prep	3020A			364484	06/28/17 12:35	EMB	TAL BUF
Total/NA	Analysis	6020A		1	365426	07/04/17 10:18	JRK	TAL BUF
Total/NA	Prep	7470A			363898	06/26/17 09:00	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	364037	06/26/17 13:14	MVZ	TAL BUF
Total/NA	Analysis	300.0		5	366002	07/08/17 09:25	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	364600	06/28/17 20:33	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	364074	06/26/17 18:02	ALZ	TAL BUF

## Client Sample ID: DUP-1

Date Collected: 06/22/17 00:00

Date Received: 06/24/17 09:30

## Lab Sample ID: 480-120139-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			364290	06/28/17 08:52	EMB	TAL BUF
Total/NA	Analysis	6010C		1	365256	06/30/17 18:28	LMH	TAL BUF
Total/NA	Prep	3020A			364484	06/28/17 12:35	EMB	TAL BUF
Total/NA	Analysis	6020A		1	365426	07/04/17 10:24	JRK	TAL BUF
Total/NA	Prep	7470A			363898	06/26/17 09:00	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	364037	06/26/17 13:16	MVZ	TAL BUF
Total/NA	Analysis	300.0		5	366002	07/08/17 09:33	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	364600	06/28/17 20:33	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	364074	06/26/17 18:08	ALZ	TAL BUF

TestAmerica Buffalo

# Lab Chronicle

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

## Client Sample ID: FIELD BLANK

## Lab Sample ID: 480-120139-10

Date Collected: 06/22/17 17:00

Matrix: Water

Date Received: 06/24/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			364290	06/28/17 08:52	EMB	TAL BUF
Total/NA	Analysis	6010C		1	365256	06/30/17 18:42	LMH	TAL BUF
Total/NA	Prep	3020A			364484	06/28/17 12:35	EMB	TAL BUF
Total/NA	Analysis	6020A		1	365426	07/04/17 10:29	JRK	TAL BUF
Total/NA	Prep	7470A			363898	06/26/17 09:00	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	364037	06/26/17 13:18	MVZ	TAL BUF
Total/NA	Analysis	300.0		1	366002	07/08/17 09:41	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	364600	06/28/17 20:33	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	364074	06/26/17 18:11	ALZ	TAL BUF

## Client Sample ID: EQUIPMENT BLANK

## Lab Sample ID: 480-120139-11

Date Collected: 06/22/17 17:05

Matrix: Water

Date Received: 06/24/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			364290	06/28/17 08:52	EMB	TAL BUF
Total/NA	Analysis	6010C		1	365256	06/30/17 18:46	LMH	TAL BUF
Total/NA	Prep	3020A			364484	06/28/17 12:35	EMB	TAL BUF
Total/NA	Analysis	6020A		1	365426	07/04/17 10:35	JRK	TAL BUF
Total/NA	Prep	7470A			363898	06/26/17 09:00	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	364037	06/26/17 13:20	MVZ	TAL BUF
Total/NA	Analysis	300.0		1	366002	07/08/17 09:49	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	364600	06/28/17 20:33	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	364074	06/26/17 18:14	ALZ	TAL BUF

**Laboratory References:**

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

# Accreditation/Certification Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

## Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	036-999-337	12-31-17

The following analytes are included in this report, but are not accredited/certified under this accreditation/certification:

Analysis Method	Prep Method	Matrix	Analyte
6010C	3005A	Water	Lithium

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 H+ B		Water	pH
SM 4500 H+ B		Water	Temperature

# Method Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL BUF
6020A	Metals (ICP/MS)	SW846	TAL BUF
7470A	Mercury (CVAA)	SW846	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL BUF
SM 4500 H+ B	pH	SM	TAL BUF

#### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

# Sample Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-120139-1	MW-1RD	Water	06/22/17 07:55	06/24/17 09:30
480-120139-2	MW-2R	Water	06/22/17 11:20	06/24/17 09:30
480-120139-3	MW-2RD	Water	06/22/17 11:15	06/24/17 09:30
480-120139-4	MW-3R	Water	06/22/17 13:25	06/24/17 09:30
480-120139-5	MW-3RD	Water	06/22/17 14:30	06/24/17 09:30
480-120139-6	MW-4	Water	06/22/17 16:05	06/24/17 09:30
480-120139-7	MW-1	Water	06/22/17 07:50	06/24/17 09:30
480-120139-8	MW-3	Water	06/22/17 13:20	06/24/17 09:30
480-120139-9	DUP-1	Water	06/22/17 00:00	06/24/17 09:30
480-120139-10	FIELD BLANK	Water	06/22/17 17:00	06/24/17 09:30
480-120139-11	EQUIPMENT BLANK	Water	06/22/17 17:05	06/24/17 09:30



Amherst, NY 14228-2223  
phone 716.691.2600 fax 716.691.7991

Regulatory Program:  DW  NPDES  RCRA  Other:

TestAmerica Laboratories, Inc.  
COC No: 1 of 1 COCs

Client Contact: SKB Environmental  
13425 Courthouse Blvd  
Rosemount, MN 55068  
(651) 438-1500 Phone  
(651) 438-1518 FAX  
Project Name: Lansing 2017 CCR GW Event 5  
Site:  
P O # 3064-17-00312

Project Manager: Ryan Van Dette  
Lab Contact: Nathaniel Beineman  
Date: 6/22/17  
Carrier:

Analysis Turnaround Time  
CALENDAR DAYS WORKING DAYS  
TAT if different from Below  
 2 weeks  
 1 week  
 2 days  
 1 day

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Metals (totals) * + Mercury	Chloride	Fluoride	Sulfate	TDS	pH	Radium 226 & 228 combined
MW-1RD	6/22/17	7:55	Grab	Water	7			X	X	X	X	X	X	X
MW-2R		11:20	Grab	Water	7			X	X	X	X	X	X	X
MW-2RD		11:15	Grab	Water	7			X	X	X	X	X	X	X
MW-3R		13:25	Grab	Water	7			X	X	X	X	X	X	X
MW-3RD		14:30	Grab	Water	7			X	X	X	X	X	X	X
MW-4		16:05	Grab	Water	7			X	X	X	X	X	X	X
MW-1		7:50	Grab	Water	7			X	X	X	X	X	X	X
MW-3		17:20	Grab	Water	7			X	X	X	X	X	X	X
Duplicate - 1		-	Grab	Water	7			X	X	X	X	X	X	X
Field Blank		17:00	Grab	Water	7			X	X	X	X	X	X	X
Equipment Blank		17:05	Grab	Water	7			X	X	X	X	X	X	X

Preservation Used: 1=Ice, 2=HCl; 3=H2SO4; 4=HNO3; 5=NaOH; 6=Other.

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown

Return to Client  Disposal by Lab  Archive for Months

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Therm ID No.: 2157713

Received by: [Signature] Date/Time: 6/23/17 11:36  
Company: A

Received by: [Signature] Date/Time: 6/24/17 09:30  
Company: F

Received in Laboratory by: [Signature]

Cooler Temp. (C): Obs'd: [Blank] Corrd: [Blank]

Custody Seal No.: [Blank] Yes  No

Relinquished by: [Signature] Date/Time: 6/23/17  
Company: T4

Relinquished by: [Signature] Date/Time: [Blank]  
Company: [Blank]



## Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-120139-1

**Login Number: 120139**

**List Number: 1**

**Creator: Janish, Carl M**

**List Source: TestAmerica Buffalo**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GES
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-120139-2

Client Project/Site: SKB Lansing - CCR Groundwater

Sampling Event: CCR Groundwater

For:

Waste Connections, Inc.

13425 Courthouse Blvd

Rosemount, Minnesota 55068

Attn: Nathaniel Beinemann



Authorized for release by:

7/25/2017 11:03:54 AM

Denise Giglia, Project Management Assistant II

[denise.giglia@testamericainc.com](mailto:denise.giglia@testamericainc.com)

Designee for

Ryan VanDette, Project Manager II

(716)504-9830

[ryan.vandette@testamericainc.com](mailto:ryan.vandette@testamericainc.com)

### LINKS

Review your project  
results through

**TotalAccess**

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

## Qualifiers

### Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

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**Job ID: 480-120139-2**

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**Laboratory: TestAmerica Buffalo**

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## Narrative

**Job Narrative**  
**480-120139-2**

## Comments

No additional comments.

## Receipt

The samples were received on 6/24/2017 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.3° C and 2.5° C.

## RAD

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-120139-1**

No Detections.

**Client Sample ID: MW-2R**

**Lab Sample ID: 480-120139-2**

No Detections.

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-120139-3**

No Detections.

**Client Sample ID: MW-3R**

**Lab Sample ID: 480-120139-4**

No Detections.

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-120139-5**

No Detections.

**Client Sample ID: MW-4**

**Lab Sample ID: 480-120139-6**

No Detections.

**Client Sample ID: MW-1**

**Lab Sample ID: 480-120139-7**

No Detections.

**Client Sample ID: MW-3**

**Lab Sample ID: 480-120139-8**

No Detections.

**Client Sample ID: DUP-1**

**Lab Sample ID: 480-120139-9**

No Detections.

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-120139-10**

No Detections.

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-120139-11**

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-120139-1**

**Date Collected: 06/22/17 07:55**

**Matrix: Water**

**Date Received: 06/24/17 09:30**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.485		0.115	0.123	1.00	0.0801	pCi/L	06/30/17 07:14	07/24/17 06:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	107		40 - 110					06/30/17 07:14	07/24/17 06:19	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.346		0.185	0.188	1.00	0.272	pCi/L	06/30/17 07:33	07/12/17 14:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	107		40 - 110					06/30/17 07:33	07/12/17 14:42	1
Y Carrier	91.6		40 - 110					06/30/17 07:33	07/12/17 14:42	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

**Client Sample ID: MW-2R**  
**Date Collected: 06/22/17 11:20**  
**Date Received: 06/24/17 09:30**

**Lab Sample ID: 480-120139-2**  
**Matrix: Water**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0748	U	0.0573	0.0577	1.00	0.0816	pCi/L	06/30/17 07:14	07/24/17 06:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	107		40 - 110					06/30/17 07:14	07/24/17 06:19	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.579		0.225	0.231	1.00	0.310	pCi/L	06/30/17 07:33	07/12/17 14:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	107		40 - 110					06/30/17 07:33	07/12/17 14:42	1
Y Carrier	85.2		40 - 110					06/30/17 07:33	07/12/17 14:42	1



# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-120139-3**

**Date Collected: 06/22/17 11:15**

**Matrix: Water**

**Date Received: 06/24/17 09:30**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.301		0.0959	0.0996	1.00	0.0871	pCi/L	06/30/17 07:14	07/24/17 06:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					06/30/17 07:14	07/24/17 06:20	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.212	U	0.218	0.219	1.00	0.356	pCi/L	06/30/17 07:33	07/12/17 14:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					06/30/17 07:33	07/12/17 14:43	1
Y Carrier	87.9		40 - 110					06/30/17 07:33	07/12/17 14:43	1



# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

**Client Sample ID: MW-3R**  
**Date Collected: 06/22/17 13:25**  
**Date Received: 06/24/17 09:30**

**Lab Sample ID: 480-120139-4**  
**Matrix: Water**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.521		0.116	0.125	1.00	0.0698	pCi/L	06/30/17 07:14	07/24/17 06:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/30/17 07:14	07/24/17 06:20	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.671		0.241	0.249	1.00	0.325	pCi/L	06/30/17 07:33	07/12/17 14:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/30/17 07:33	07/12/17 14:43	1
Y Carrier	86.0		40 - 110					06/30/17 07:33	07/12/17 14:43	1

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# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-120139-5**

**Date Collected: 06/22/17 14:30**

**Matrix: Water**

**Date Received: 06/24/17 09:30**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.661		0.132	0.145	1.00	0.0796	pCi/L	06/30/17 07:14	07/24/17 06:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					06/30/17 07:14	07/24/17 06:20	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.437		0.205	0.209	1.00	0.291	pCi/L	06/30/17 07:33	07/12/17 14:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					06/30/17 07:33	07/12/17 14:43	1
Y Carrier	89.7		40 - 110					06/30/17 07:33	07/12/17 14:43	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

**Client Sample ID: MW-4**  
**Date Collected: 06/22/17 16:05**  
**Date Received: 06/24/17 09:30**

**Lab Sample ID: 480-120139-6**  
**Matrix: Water**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.353		0.0987	0.104	1.00	0.0743	pCi/L	06/30/17 07:14	07/24/17 06:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					06/30/17 07:14	07/24/17 06:20	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.531		0.202	0.208	1.00	0.268	pCi/L	06/30/17 07:33	07/12/17 14:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					06/30/17 07:33	07/12/17 14:43	1
Y Carrier	91.6		40 - 110					06/30/17 07:33	07/12/17 14:43	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

**Client Sample ID: MW-1**  
**Date Collected: 06/22/17 07:50**  
**Date Received: 06/24/17 09:30**

**Lab Sample ID: 480-120139-7**  
**Matrix: Water**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0620	U	0.0552	0.0554	1.00	0.0828	pCi/L	06/30/17 07:14	07/24/17 06:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					06/30/17 07:14	07/24/17 06:20	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.163	U	0.145	0.145	1.00	0.297	pCi/L	06/30/17 07:33	07/12/17 14:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					06/30/17 07:33	07/12/17 14:43	1
Y Carrier	88.6		40 - 110					06/30/17 07:33	07/12/17 14:43	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

**Client Sample ID: MW-3**  
**Date Collected: 06/22/17 13:20**  
**Date Received: 06/24/17 09:30**

**Lab Sample ID: 480-120139-8**  
**Matrix: Water**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.288		0.0935	0.0971	1.00	0.0878	pCi/L	06/30/17 07:14	07/24/17 06:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/30/17 07:14	07/24/17 06:20	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.795		0.243	0.254	1.00	0.311	pCi/L	06/30/17 07:33	07/12/17 14:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/30/17 07:33	07/12/17 14:43	1
Y Carrier	90.8		40 - 110					06/30/17 07:33	07/12/17 14:43	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

**Client Sample ID: DUP-1**

**Lab Sample ID: 480-120139-9**

**Date Collected: 06/22/17 00:00**

**Matrix: Water**

**Date Received: 06/24/17 09:30**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.594		0.123	0.134	1.00	0.0733	pCi/L	06/30/17 07:14	07/24/17 06:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					06/30/17 07:14	07/24/17 06:21	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.694		0.215	0.225	1.00	0.270	pCi/L	06/30/17 07:33	07/12/17 14:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					06/30/17 07:33	07/12/17 14:43	1
Y Carrier	92.3		40 - 110					06/30/17 07:33	07/12/17 14:43	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-120139-10**

**Date Collected: 06/22/17 17:00**

**Matrix: Water**

**Date Received: 06/24/17 09:30**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.00476	U	0.0355	0.0355	1.00	0.0788	pCi/L	06/30/17 07:14	07/24/17 06:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					06/30/17 07:14	07/24/17 06:21	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.00726	U	0.150	0.150	1.00	0.272	pCi/L	06/30/17 07:33	07/12/17 14:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					06/30/17 07:33	07/12/17 14:43	1
Y Carrier	92.0		40 - 110					06/30/17 07:33	07/12/17 14:43	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-120139-11**

**Date Collected: 06/22/17 17:05**

**Matrix: Water**

**Date Received: 06/24/17 09:30**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.00119	U	0.0307	0.0307	1.00	0.0692	pCi/L	06/30/17 07:14	07/24/17 06:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					06/30/17 07:14	07/24/17 06:21	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0107	U	0.180	0.180	1.00	0.324	pCi/L	06/30/17 07:33	07/12/17 14:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					06/30/17 07:33	07/12/17 14:43	1
Y Carrier	90.5		40 - 110					06/30/17 07:33	07/12/17 14:43	1



# Tracer/Carrier Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

## Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
480-120139-1	MW-1RD	107	
480-120139-2	MW-2R	107	
480-120139-3	MW-2RD	105	
480-120139-4	MW-3R	103	
480-120139-5	MW-3RD	102	
480-120139-6	MW-4	101	
480-120139-7	MW-1	104	
480-120139-8	MW-3	103	
480-120139-9	DUP-1	105	
480-120139-10	FIELD BLANK	105	
480-120139-11	EQUIPMENT BLANK	106	
LCS 160-315884/2-A	Lab Control Sample	110	
MB 160-315884/1-A	Method Blank	106	

**Tracer/Carrier Legend**  
 Ba = Ba Carrier

## Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
480-120139-1	MW-1RD	107	91.6
480-120139-2	MW-2R	107	85.2
480-120139-3	MW-2RD	105	87.9
480-120139-4	MW-3R	103	86.0
480-120139-5	MW-3RD	102	89.7
480-120139-6	MW-4	101	91.6
480-120139-7	MW-1	104	88.6
480-120139-8	MW-3	103	90.8
480-120139-9	DUP-1	105	92.3
480-120139-10	FIELD BLANK	105	92.0
480-120139-11	EQUIPMENT BLANK	106	90.5
LCS 160-315885/2-A	Lab Control Sample	110	89.7
MB 160-315885/1-A	Method Blank	106	86.4

**Tracer/Carrier Legend**  
 Ba = Ba Carrier  
 Y = Y Carrier

# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

## Method: 903.0 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-315884/1-A**  
**Matrix: Water**  
**Analysis Batch: 318736**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 315884**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.03448	U	0.0558	0.0559	1.00	0.0965	pCi/L	06/30/17 07:14	07/24/17 06:18	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					06/30/17 07:14	07/24/17 06:18	1

**Lab Sample ID: LCS 160-315884/2-A**  
**Matrix: Water**  
**Analysis Batch: 318736**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 315884**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.4	9.599		0.980	1.00	0.0686	pCi/L	84	68 - 137
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	110		40 - 110						

## Method: 904.0 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-315885/1-A**  
**Matrix: Water**  
**Analysis Batch: 316997**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 315885**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.03294	U	0.168	0.168	1.00	0.310	pCi/L	06/30/17 07:33	07/12/17 14:42	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					06/30/17 07:33	07/12/17 14:42	1
Y Carrier	86.4		40 - 110					06/30/17 07:33	07/12/17 14:42	1

**Lab Sample ID: LCS 160-315885/2-A**  
**Matrix: Water**  
**Analysis Batch: 316997**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 315885**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	13.2	13.31		1.41	1.00	0.262	pCi/L	101	56 - 140
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	110		40 - 110						
Y Carrier	89.7		40 - 110						

# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

## Rad

### Prep Batch: 315884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-120139-1	MW-1RD	Total/NA	Water	PrecSep-21	
480-120139-2	MW-2R	Total/NA	Water	PrecSep-21	
480-120139-3	MW-2RD	Total/NA	Water	PrecSep-21	
480-120139-4	MW-3R	Total/NA	Water	PrecSep-21	
480-120139-5	MW-3RD	Total/NA	Water	PrecSep-21	
480-120139-6	MW-4	Total/NA	Water	PrecSep-21	
480-120139-7	MW-1	Total/NA	Water	PrecSep-21	
480-120139-8	MW-3	Total/NA	Water	PrecSep-21	
480-120139-9	DUP-1	Total/NA	Water	PrecSep-21	
480-120139-10	FIELD BLANK	Total/NA	Water	PrecSep-21	
480-120139-11	EQUIPMENT BLANK	Total/NA	Water	PrecSep-21	
MB 160-315884/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-315884/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

### Prep Batch: 315885

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-120139-1	MW-1RD	Total/NA	Water	PrecSep_0	
480-120139-2	MW-2R	Total/NA	Water	PrecSep_0	
480-120139-3	MW-2RD	Total/NA	Water	PrecSep_0	
480-120139-4	MW-3R	Total/NA	Water	PrecSep_0	
480-120139-5	MW-3RD	Total/NA	Water	PrecSep_0	
480-120139-6	MW-4	Total/NA	Water	PrecSep_0	
480-120139-7	MW-1	Total/NA	Water	PrecSep_0	
480-120139-8	MW-3	Total/NA	Water	PrecSep_0	
480-120139-9	DUP-1	Total/NA	Water	PrecSep_0	
480-120139-10	FIELD BLANK	Total/NA	Water	PrecSep_0	
480-120139-11	EQUIPMENT BLANK	Total/NA	Water	PrecSep_0	
MB 160-315885/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-315885/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

# Lab Chronicle

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

## Client Sample ID: MW-1RD

Date Collected: 06/22/17 07:55

Date Received: 06/24/17 09:30

## Lab Sample ID: 480-120139-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			315884	06/30/17 07:14	LDE	TAL SL
Total/NA	Analysis	903.0		1	318736	07/24/17 06:19	RTM	TAL SL
Total/NA	Prep	PrecSep_0			315885	06/30/17 07:33	LDE	TAL SL
Total/NA	Analysis	904.0		1	316997	07/12/17 14:42	ALD	TAL SL

## Client Sample ID: MW-2R

Date Collected: 06/22/17 11:20

Date Received: 06/24/17 09:30

## Lab Sample ID: 480-120139-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			315884	06/30/17 07:14	LDE	TAL SL
Total/NA	Analysis	903.0		1	318736	07/24/17 06:19	RTM	TAL SL
Total/NA	Prep	PrecSep_0			315885	06/30/17 07:33	LDE	TAL SL
Total/NA	Analysis	904.0		1	316997	07/12/17 14:42	ALD	TAL SL

## Client Sample ID: MW-2RD

Date Collected: 06/22/17 11:15

Date Received: 06/24/17 09:30

## Lab Sample ID: 480-120139-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			315884	06/30/17 07:14	LDE	TAL SL
Total/NA	Analysis	903.0		1	318736	07/24/17 06:20	RTM	TAL SL
Total/NA	Prep	PrecSep_0			315885	06/30/17 07:33	LDE	TAL SL
Total/NA	Analysis	904.0		1	316997	07/12/17 14:43	ALD	TAL SL

## Client Sample ID: MW-3R

Date Collected: 06/22/17 13:25

Date Received: 06/24/17 09:30

## Lab Sample ID: 480-120139-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			315884	06/30/17 07:14	LDE	TAL SL
Total/NA	Analysis	903.0		1	318736	07/24/17 06:20	RTM	TAL SL
Total/NA	Prep	PrecSep_0			315885	06/30/17 07:33	LDE	TAL SL
Total/NA	Analysis	904.0		1	316997	07/12/17 14:43	ALD	TAL SL

## Client Sample ID: MW-3RD

Date Collected: 06/22/17 14:30

Date Received: 06/24/17 09:30

## Lab Sample ID: 480-120139-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			315884	06/30/17 07:14	LDE	TAL SL
Total/NA	Analysis	903.0		1	318736	07/24/17 06:20	RTM	TAL SL
Total/NA	Prep	PrecSep_0			315885	06/30/17 07:33	LDE	TAL SL

TestAmerica Buffalo

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

## Client Sample ID: MW-3RD

Date Collected: 06/22/17 14:30

Date Received: 06/24/17 09:30

## Lab Sample ID: 480-120139-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	904.0		1	316997	07/12/17 14:43	ALD	TAL SL

## Client Sample ID: MW-4

Date Collected: 06/22/17 16:05

Date Received: 06/24/17 09:30

## Lab Sample ID: 480-120139-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			315884	06/30/17 07:14	LDE	TAL SL
Total/NA	Analysis	903.0		1	318736	07/24/17 06:20	RTM	TAL SL
Total/NA	Prep	PrecSep_0			315885	06/30/17 07:33	LDE	TAL SL
Total/NA	Analysis	904.0		1	316997	07/12/17 14:43	ALD	TAL SL

## Client Sample ID: MW-1

Date Collected: 06/22/17 07:50

Date Received: 06/24/17 09:30

## Lab Sample ID: 480-120139-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			315884	06/30/17 07:14	LDE	TAL SL
Total/NA	Analysis	903.0		1	318736	07/24/17 06:20	RTM	TAL SL
Total/NA	Prep	PrecSep_0			315885	06/30/17 07:33	LDE	TAL SL
Total/NA	Analysis	904.0		1	316997	07/12/17 14:43	ALD	TAL SL

## Client Sample ID: MW-3

Date Collected: 06/22/17 13:20

Date Received: 06/24/17 09:30

## Lab Sample ID: 480-120139-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			315884	06/30/17 07:14	LDE	TAL SL
Total/NA	Analysis	903.0		1	318736	07/24/17 06:20	RTM	TAL SL
Total/NA	Prep	PrecSep_0			315885	06/30/17 07:33	LDE	TAL SL
Total/NA	Analysis	904.0		1	316997	07/12/17 14:43	ALD	TAL SL

## Client Sample ID: DUP-1

Date Collected: 06/22/17 00:00

Date Received: 06/24/17 09:30

## Lab Sample ID: 480-120139-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			315884	06/30/17 07:14	LDE	TAL SL
Total/NA	Analysis	903.0		1	318736	07/24/17 06:21	RTM	TAL SL
Total/NA	Prep	PrecSep_0			315885	06/30/17 07:33	LDE	TAL SL
Total/NA	Analysis	904.0		1	316997	07/12/17 14:43	ALD	TAL SL

TestAmerica Buffalo

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

## Client Sample ID: FIELD BLANK

Lab Sample ID: 480-120139-10

Date Collected: 06/22/17 17:00

Matrix: Water

Date Received: 06/24/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			315884	06/30/17 07:14	LDE	TAL SL
Total/NA	Analysis	903.0		1	318736	07/24/17 06:21	RTM	TAL SL
Total/NA	Prep	PrecSep_0			315885	06/30/17 07:33	LDE	TAL SL
Total/NA	Analysis	904.0		1	316997	07/12/17 14:43	ALD	TAL SL

## Client Sample ID: EQUIPMENT BLANK

Lab Sample ID: 480-120139-11

Date Collected: 06/22/17 17:05

Matrix: Water

Date Received: 06/24/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			315884	06/30/17 07:14	LDE	TAL SL
Total/NA	Analysis	903.0		1	318736	07/24/17 06:21	RTM	TAL SL
Total/NA	Prep	PrecSep_0			315885	06/30/17 07:33	LDE	TAL SL
Total/NA	Analysis	904.0		1	316997	07/12/17 14:43	ALD	TAL SL

### Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Accreditation/Certification Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

## Laboratory: TestAmerica Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	036-999-337	12-31-17

## Laboratory: TestAmerica St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-18
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18
Illinois	NELAP	5	200023	11-30-17
Iowa	State Program	7	373	02-01-18
Kansas	NELAP	7	E-10236	10-31-17
Kentucky (DW)	State Program	4	90125	12-31-17
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-18
Louisiana (DW)	NELAP	6	LA170011	12-31-17
Maryland	State Program	3	310	09-30-18
Missouri	State Program	7	780	06-30-17 *
Nevada	State Program	9	MO000542017-1	07-31-17 *
New Jersey	NELAP	2	MO002	06-30-18
New York	NELAP	2	11616	03-31-18
North Dakota	State Program	8	R207	06-30-17 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-17 *
Pennsylvania	NELAP	3	68-00540	02-21-18
South Carolina	State Program	4	85002001	06-30-17 *
Texas	NELAP	6	T104704193-16-10	07-31-17 *
US Fish & Wildlife	Federal		LE058448-0	10-31-17
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-17 *
Virginia	NELAP	3	460230	06-14-18
Washington	State Program	10	C592	08-30-17 *
West Virginia DEP	State Program	3	381	08-31-17 *

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Method Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566





# Sample Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-120139-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-120139-1	MW-1RD	Water	06/22/17 07:55	06/24/17 09:30
480-120139-2	MW-2R	Water	06/22/17 11:20	06/24/17 09:30
480-120139-3	MW-2RD	Water	06/22/17 11:15	06/24/17 09:30
480-120139-4	MW-3R	Water	06/22/17 13:25	06/24/17 09:30
480-120139-5	MW-3RD	Water	06/22/17 14:30	06/24/17 09:30
480-120139-6	MW-4	Water	06/22/17 16:05	06/24/17 09:30
480-120139-7	MW-1	Water	06/22/17 07:50	06/24/17 09:30
480-120139-8	MW-3	Water	06/22/17 13:20	06/24/17 09:30
480-120139-9	DUP-1	Water	06/22/17 00:00	06/24/17 09:30
480-120139-10	FIELD BLANK	Water	06/22/17 17:00	06/24/17 09:30
480-120139-11	EQUIPMENT BLANK	Water	06/22/17 17:05	06/24/17 09:30

Amherst, NY 14228-2223  
phone 716.691.2600 fax 716.691.7991

Regulatory Program:  DW  NPDES  RCRA  Other:

TestAmerica Laboratories, Inc.  
COC No: 1 of 1 COCs

Client Contact  
SKB Environmental  
13425 Courthouse Blvd  
Rosemount, MN 55068  
(651) 438-1500 Phone  
(651) 438-1518 FAX  
Project Name: Lansing 2017 CCR GW Event 5  
Site:  
P O # 3064-17-00312

Project Manager: Ryan Van Dette  
Lab Contact:  
Site Contact: Nathaniel Beineman Date: 6/22/17  
Carrier:

Tel/Fax:  
Analysis Turnaround Time  
 CALENDAR DAYS  WORKING DAYS  
TAT if different from Below  
 2 weeks  
 1 week  
 2 days  
 1 day

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Metals (totals) * + Mercury	Chloride	Fluoride	Sulfate	TDS	pH	Radium 226 & 228 combined
MW-1RD	6/22/17	7:55	Grab	Water	7			X	X	X	X	X	X	X
MW-2R		11:20	Grab	Water	7			X	X	X	X	X	X	X
MW-2RD		11:15	Grab	Water	7			X	X	X	X	X	X	X
MW-3R		13:25	Grab	Water	7			X	X	X	X	X	X	X
MW-3RD		14:30	Grab	Water	7			X	X	X	X	X	X	X
MW-4		16:05	Grab	Water	7			X	X	X	X	X	X	X
MW-1		7:50	Grab	Water	7			X	X	X	X	X	X	X
MW-3		17:20	Grab	Water	7			X	X	X	X	X	X	X
Duplicate - 1		-	Grab	Water	7			X	X	X	X	X	X	X
Field Blank		17:00	Grab	Water	7			X	X	X	X	X	X	X
Equipment Blank		17:05	Grab	Water	7			X	X	X	X	X	X	X

Preservation Used: 1=Ice, 2=HCl; 3=H2SO4; 4=HNO3; 5=NaOH; 6=Other.  
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return to Client  Disposal by Lab  Archive for Months

Therm ID No.:  
Cooler Temp. (C): Obs'd: 21.5  
Received by: [Signature] Company: A  
Date/Time: 6/23/17 11:36  
Received by: [Signature] Company: [Signature]  
Date/Time: 6/24/17 09:30  
Received in Laboratory by: [Signature] Company: [Signature]  
Date/Time: [Signature] Company: [Signature]





# Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b> Client Contact: VanDette, Ryan T Shipping/Receiving: ryan.vandette@testamericainc.com Company: TestAmerica Laboratories, Inc. Address: 13715 Rider Trail North, Earth City, MO, 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email:		Lab PM: VanDette, Ryan T E-Mail: ryan.vandette@testamericainc.com Accreditations Required (See note): NELAP - Minnesota State: Minnesota			
Due Date Requested: 7/6/2017 TAT Requested (days):		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:			
Project Name: SKB Lansing Site: Lansing MN		Analysis Requested:			
Sample Identification - Client ID (Lab ID)		Total Number of Containers			
MW-1RD (480-120139-1)	6/22/17	07:55 Central	Water	X	3
MW-2R (480-120139-2)	6/22/17	11:20 Central	Water	X	3
MW-2RD (480-120139-3)	6/22/17	11:15 Central	Water	X	3
MW-3R (480-120139-4)	6/22/17	13:25 Central	Water	X	3
MW-3RD (480-120139-5)	6/22/17	14:30 Central	Water	X	3
MW-4 (480-120139-6)	6/22/17	16:05 Central	Water	X	3
MW-1 (480-120139-7)	6/22/17	07:50 Central	Water	X	3
MW-3 (480-120139-8)	6/22/17	13:20 Central	Water	X	3
DUP-1 (480-120139-9)	6/22/17	Central	Water	X	3

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

**Possible Hazard Identification**

Unconfirmed

Deliverable Requested: I, II, III, IV, Other (specify) \_\_\_\_\_ Rank: 2

Primary Deliverable Rank: 2

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Method of Shipment: \_\_\_\_\_

Relinquished by: *[Signature]* Date/Time: 6/26/17 13:00 Company: TAB Company

Relinquished by: *[Signature]* Date/Time: 6-27-17 09:15 Company: TAB Company

Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_





<b>Client Information (Sub Contract Lab)</b> Client Contact: Shipping/Receiving Company: TestAmerica Laboratories, Inc. Address: 13715 Rider Trail North, City: Earth City State, Zip: MO, 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email: Project Name: SKB Lansing Site: Lansing MN		Lab PM: VanDette, Ryan T E-Mail: ryan.vandette@testamericainc.com Accreditations Required (See note): NELAP - Minnesota	Carrier Tracking No(s): State of Origin: Minnesota Page 2 of 2 Job #: 480-120139-1	COC No: 480-35724.2
Due Date Requested: 7/6/2017 TAT Requested (days): PO #: WO #: Project #: 48013603 SOW#		<b>Analysis Requested</b> Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Z - other (specify)		
<b>Sample Identification - Client ID (Lab ID)</b> FIELD BLANK (480-120139-10) EQUIPMENT BLANK (480-120139-11)		Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> 901.1_RaFill_Geo_21 Radium-226/228	Total Number of Containers 3 3	Special Instructions/Note: Special Instructions/Note: Special Instructions/Note:
Sample Date: 6/22/17 Sample Time: 17:00 Central 17:05 Central	Sample Type (C=Comp, G=grab) Preservation Code: Water Water	<b>Possible Hazard Identification</b> Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify)		
Empty Kit Relinquished by: Relinquished by: [Signature] Relinquished by: Relinquished by:		Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:		
Date/Time: 6/26/17 1300 Date/Time: Date/Time:		Date/Time: 0705 Date/Time: Date/Time:		
Custody Seals Intact Δ Yes Δ No		Cooler Temperature(s) °C and Other Remarks:		

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody.



## Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-120139-2

**Login Number: 120139**

**List Number: 1**

**Creator: Janish, Carl M**

**List Source: TestAmerica Buffalo**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GES
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	



# Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-120139-2

**Login Number: 120139**

**List Number: 2**

**Creator: Taylor, Kristene N**

**List Source: TestAmerica St. Louis**

**List Creation: 06/27/17 01:03 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	17.0,17.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-121804-1

Client Project/Site: SKB Lansing - CCR Groundwater

Sampling Event: CCR Groundwater

For:

Waste Connections, Inc.

13425 Courthouse Blvd

Rosemount, Minnesota 55068

Attn: Nathaniel Beinemann



Authorized for release by:

8/21/2017 11:30:36 AM

Denise Giglia, Project Management Assistant II

[denise.giglia@testamericainc.com](mailto:denise.giglia@testamericainc.com)

Designee for

Ryan VanDette, Project Manager II

(716)504-9830

[ryan.vandette@testamericainc.com](mailto:ryan.vandette@testamericainc.com)

### LINKS

Review your project  
results through

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*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.

### General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

## Client Sample ID: MW-1RD

## Lab Sample ID: 480-121804-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.16		0.0020		mg/L	1		6010C	Total/NA
Calcium	72.6		0.50		mg/L	1		6010C	Total/NA
Cobalt	1.5		0.30		ug/L	1		6020A	Total/NA
Molybdenum	3.0		1.0		ug/L	1		6020A	Total/NA
Chloride	17.3		1.0		mg/L	2		300.0	Total/NA
Fluoride	0.24		0.10		mg/L	2		300.0	Total/NA
Sulfate	45.5		4.0		mg/L	2		300.0	Total/NA
Total Dissolved Solids	350		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.5	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.4	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-2R

## Lab Sample ID: 480-121804-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.19		0.0020		mg/L	1		6010C	Total/NA
Boron	0.34		0.020		mg/L	1		6010C	Total/NA
Calcium	181		0.50		mg/L	1		6010C	Total/NA
Cobalt	0.63		0.30		ug/L	1		6020A	Total/NA
Molybdenum	1.8		1.0		ug/L	1		6020A	Total/NA
Chloride	50.3		2.5		mg/L	5		300.0	Total/NA
Sulfate	121		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	869		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.9	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-2RD

## Lab Sample ID: 480-121804-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.17		0.0020		mg/L	1		6010C	Total/NA
Boron	0.044		0.020		mg/L	1		6010C	Total/NA
Calcium	121		0.50		mg/L	1		6010C	Total/NA
Arsenic	1.8		1.0		ug/L	1		6020A	Total/NA
Cobalt	2.2		0.30		ug/L	1		6020A	Total/NA
Molybdenum	2.4		1.0		ug/L	1		6020A	Total/NA
Chloride	30.9		2.5		mg/L	5		300.0	Total/NA
Sulfate	63.1		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	545		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.3	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3R

## Lab Sample ID: 480-121804-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.54		0.0020		mg/L	1		6010C	Total/NA
Boron	0.043		0.020		mg/L	1		6010C	Total/NA
Calcium	204		0.50		mg/L	1		6010C	Total/NA
Arsenic	2.9		1.0		ug/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

## Client Sample ID: MW-3R (Continued)

## Lab Sample ID: 480-121804-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.82		0.30		ug/L	1		6020A	Total/NA
Molybdenum	1.6		1.0		ug/L	1		6020A	Total/NA
Chloride	18.2		2.5		mg/L	5		300.0	Total/NA
Sulfate	35.1		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	854		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.8	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3RD

## Lab Sample ID: 480-121804-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.22		0.0020		mg/L	1		6010C	Total/NA
Boron	0.033		0.020		mg/L	1		6010C	Total/NA
Calcium	123		0.50		mg/L	1		6010C	Total/NA
Arsenic	4.4		1.0		ug/L	1		6020A	Total/NA
Cobalt	1.0		0.30		ug/L	1		6020A	Total/NA
Molybdenum	4.1		1.0		ug/L	1		6020A	Total/NA
Chloride	28.4		2.5		mg/L	5		300.0	Total/NA
Sulfate	102		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	576		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.2	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.3	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-4

## Lab Sample ID: 480-121804-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.25		0.0020		mg/L	1		6010C	Total/NA
Boron	0.37		0.020		mg/L	1		6010C	Total/NA
Calcium	239		0.50		mg/L	1		6010C	Total/NA
Arsenic	2.0		1.0		ug/L	1		6020A	Total/NA
Cobalt	0.89		0.30		ug/L	1		6020A	Total/NA
Molybdenum	1.9		1.0		ug/L	1		6020A	Total/NA
Chloride	29.2		2.5		mg/L	5		300.0	Total/NA
Sulfate	359		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	1170		20.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.0	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.5	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-1

## Lab Sample ID: 480-121804-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.10		0.0020		mg/L	1		6010C	Total/NA
Calcium	90.8		0.50		mg/L	1		6010C	Total/NA
Arsenic	1.0		1.0		ug/L	1		6020A	Total/NA
Cobalt	0.30		0.30		ug/L	1		6020A	Total/NA
Chloride	85.9		2.5		mg/L	5		300.0	Total/NA
Sulfate	30.8		10.0		mg/L	5		300.0	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

## Client Sample ID: MW-1 (Continued)

## Lab Sample ID: 480-121804-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids	475		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.1	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.6	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3

## Lab Sample ID: 480-121804-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.23		0.0020		mg/L	1		6010C	Total/NA
Boron	0.29		0.020		mg/L	1		6010C	Total/NA
Calcium	171		0.50		mg/L	1		6010C	Total/NA
Arsenic	2.3		1.0		ug/L	1		6020A	Total/NA
Cobalt	4.6		0.30		ug/L	1		6020A	Total/NA
Molybdenum	6.4		1.0		ug/L	1		6020A	Total/NA
Chloride	19.1		2.5		mg/L	5		300.0	Total/NA
Sulfate	28.9		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	738		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.8	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: DUP-1

## Lab Sample ID: 480-121804-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.21		0.0020		mg/L	1		6010C	Total/NA
Boron	0.038		0.020		mg/L	1		6010C	Total/NA
Calcium	122		0.50		mg/L	1		6010C	Total/NA
Arsenic	3.9		1.0		ug/L	1		6020A	Total/NA
Cobalt	0.85		0.30		ug/L	1		6020A	Total/NA
Molybdenum	3.7		1.0		ug/L	1		6020A	Total/NA
Chloride	28.2		2.5		mg/L	5		300.0	Total/NA
Sulfate	102		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	633		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.1	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: FIELD BLANK

## Lab Sample ID: 480-121804-10

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.0	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.3	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: EQUIPMENT BLANK

## Lab Sample ID: 480-121804-11

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	5.7	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.5	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-121804-1**

**Date Collected: 07/24/17 09:50**

**Matrix: Water**

**Date Received: 07/27/17 10:00**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Barium</b>	<b>0.16</b>		0.0020		mg/L		07/31/17 08:34	07/31/17 21:00	1
Boron	ND		0.020		mg/L		07/31/17 08:34	07/31/17 21:00	1
<b>Calcium</b>	<b>72.6</b>		0.50		mg/L		07/31/17 08:34	07/31/17 21:00	1
Chromium	ND		0.0040		mg/L		07/31/17 08:34	07/31/17 21:00	1
Lead	ND		0.010		mg/L		07/31/17 08:34	07/31/17 21:00	1
Lithium	ND		0.030		mg/L		07/31/17 08:34	07/31/17 21:00	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/03/17 09:10	08/10/17 22:33	1
Arsenic	ND		1.0		ug/L		08/03/17 09:10	08/10/17 22:33	1
Beryllium	ND		0.70		ug/L		08/03/17 09:10	08/18/17 08:07	1
Cadmium	ND		0.50		ug/L		08/03/17 09:10	08/10/17 22:33	1
<b>Cobalt</b>	<b>1.5</b>		0.30		ug/L		08/03/17 09:10	08/10/17 22:33	1
<b>Molybdenum</b>	<b>3.0</b>		1.0		ug/L		08/03/17 09:10	08/10/17 22:33	1
Selenium	ND		1.0		ug/L		08/03/17 09:10	08/18/17 08:07	1
Thallium	ND		0.20		ug/L		08/03/17 09:10	08/10/17 22:33	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		07/28/17 10:10	07/28/17 14:13	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>17.3</b>		1.0		mg/L			08/09/17 21:05	2
<b>Fluoride</b>	<b>0.24</b>		0.10		mg/L			08/09/17 21:05	2
<b>Sulfate</b>	<b>45.5</b>		4.0		mg/L			08/09/17 21:05	2
<b>Total Dissolved Solids</b>	<b>350</b>		10.0		mg/L			07/31/17 03:02	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>pH</b>	<b>7.5</b>	<b>HF</b>	0.1		SU			07/27/17 19:10	1
<b>Temperature</b>	<b>21.4</b>	<b>HF</b>	0.001		Degrees C			07/27/17 19:10	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

**Client Sample ID: MW-2R**

**Date Collected: 07/24/17 11:15**

**Date Received: 07/27/17 10:00**

**Lab Sample ID: 480-121804-2**

**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.19		0.0020		mg/L		07/31/17 08:34	07/31/17 21:28	1
Boron	0.34		0.020		mg/L		07/31/17 08:34	07/31/17 21:28	1
Calcium	181		0.50		mg/L		07/31/17 08:34	07/31/17 21:28	1
Chromium	ND		0.0040		mg/L		07/31/17 08:34	07/31/17 21:28	1
Lead	ND		0.010		mg/L		07/31/17 08:34	07/31/17 21:28	1
Lithium	ND		0.030		mg/L		07/31/17 08:34	07/31/17 21:28	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/02/17 07:50	08/06/17 02:25	1
Arsenic	ND		1.0		ug/L		08/02/17 07:50	08/06/17 02:25	1
Beryllium	ND		0.70		ug/L		08/02/17 07:50	08/18/17 12:36	1
Cadmium	ND		0.50		ug/L		08/02/17 07:50	08/06/17 02:25	1
Cobalt	0.63		0.30		ug/L		08/02/17 07:50	08/06/17 02:25	1
Molybdenum	1.8		1.0		ug/L		08/02/17 07:50	08/06/17 02:25	1
Selenium	ND		1.0		ug/L		08/02/17 07:50	08/06/17 02:25	1
Thallium	ND		0.20		ug/L		08/02/17 07:50	08/09/17 03:15	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		07/28/17 10:10	07/28/17 14:15	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	50.3		2.5		mg/L			08/09/17 21:45	5
Fluoride	ND		0.25		mg/L			08/09/17 21:45	5
Sulfate	121		10.0		mg/L			08/09/17 21:45	5
Total Dissolved Solids	869		10.0		mg/L			07/31/17 03:02	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1		SU			07/27/17 19:12	1
Temperature	21.2	HF	0.001		Degrees C			07/27/17 19:12	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-121804-3**

**Date Collected: 07/24/17 11:10**

**Matrix: Water**

**Date Received: 07/27/17 10:00**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.17		0.0020		mg/L		07/31/17 08:34	07/31/17 21:31	1
Boron	0.044		0.020		mg/L		07/31/17 08:34	07/31/17 21:31	1
Calcium	121		0.50		mg/L		07/31/17 08:34	07/31/17 21:31	1
Chromium	ND		0.0040		mg/L		07/31/17 08:34	07/31/17 21:31	1
Lead	ND		0.010		mg/L		07/31/17 08:34	07/31/17 21:31	1
Lithium	ND		0.030		mg/L		07/31/17 08:34	07/31/17 21:31	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/03/17 09:10	08/10/17 22:39	1
Arsenic	1.8		1.0		ug/L		08/03/17 09:10	08/10/17 22:39	1
Beryllium	ND		0.70		ug/L		08/03/17 09:10	08/18/17 08:12	1
Cadmium	ND		0.50		ug/L		08/03/17 09:10	08/10/17 22:39	1
Cobalt	2.2		0.30		ug/L		08/03/17 09:10	08/10/17 22:39	1
Molybdenum	2.4		1.0		ug/L		08/03/17 09:10	08/10/17 22:39	1
Selenium	ND		1.0		ug/L		08/03/17 09:10	08/18/17 08:12	1
Thallium	ND		0.20		ug/L		08/03/17 09:10	08/10/17 22:39	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		07/28/17 10:10	07/28/17 14:17	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	30.9		2.5		mg/L			08/09/17 21:54	5
Fluoride	ND		0.25		mg/L			08/09/17 21:54	5
Sulfate	63.1		10.0		mg/L			08/09/17 21:54	5
Total Dissolved Solids	545		10.0		mg/L			07/31/17 03:02	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.3	HF	0.1		SU			07/27/17 19:15	1
Temperature	21.2	HF	0.001		Degrees C			07/27/17 19:15	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

**Client Sample ID: MW-3R**

**Date Collected: 07/24/17 11:55**

**Date Received: 07/27/17 10:00**

**Lab Sample ID: 480-121804-4**

**Matrix: Water**

## Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.54		0.0020		mg/L		07/31/17 08:34	07/31/17 21:35	1
Boron	0.043		0.020		mg/L		07/31/17 08:34	07/31/17 21:35	1
Calcium	204		0.50		mg/L		07/31/17 08:34	07/31/17 21:35	1
Chromium	ND		0.0040		mg/L		07/31/17 08:34	07/31/17 21:35	1
Lead	ND		0.010		mg/L		07/31/17 08:34	07/31/17 21:35	1
Lithium	ND		0.030		mg/L		07/31/17 08:34	07/31/17 21:35	1

## Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/03/17 09:10	08/10/17 23:24	1
Arsenic	2.9		1.0		ug/L		08/03/17 09:10	08/10/17 23:24	1
Beryllium	ND		0.70		ug/L		08/03/17 09:10	08/18/17 08:57	1
Cadmium	ND		0.50		ug/L		08/03/17 09:10	08/10/17 23:24	1
Cobalt	0.82		0.30		ug/L		08/03/17 09:10	08/10/17 23:24	1
Molybdenum	1.6		1.0		ug/L		08/03/17 09:10	08/10/17 23:24	1
Selenium	ND		1.0		ug/L		08/03/17 09:10	08/18/17 08:57	1
Thallium	ND		0.20		ug/L		08/03/17 09:10	08/10/17 23:24	1

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		07/28/17 10:10	07/28/17 14:20	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	18.2		2.5		mg/L			08/09/17 22:02	5
Fluoride	ND		0.25		mg/L			08/09/17 22:02	5
Sulfate	35.1		10.0		mg/L			08/09/17 22:02	5
Total Dissolved Solids	854		10.0		mg/L			07/31/17 03:02	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.8	HF	0.1		SU			07/27/17 19:18	1
Temperature	21.2	HF	0.001		Degrees C			07/27/17 19:18	1



# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-121804-5**

**Date Collected: 07/24/17 12:30**

**Matrix: Water**

**Date Received: 07/27/17 10:00**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.22		0.0020		mg/L		07/31/17 08:34	07/31/17 21:39	1
Boron	0.033		0.020		mg/L		07/31/17 08:34	07/31/17 21:39	1
Calcium	123		0.50		mg/L		07/31/17 08:34	07/31/17 21:39	1
Chromium	ND		0.0040		mg/L		07/31/17 08:34	07/31/17 21:39	1
Lead	ND		0.010		mg/L		07/31/17 08:34	07/31/17 21:39	1
Lithium	ND		0.030		mg/L		07/31/17 08:34	07/31/17 21:39	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/03/17 09:10	08/10/17 23:30	1
Arsenic	4.4		1.0		ug/L		08/03/17 09:10	08/10/17 23:30	1
Beryllium	ND		0.70		ug/L		08/03/17 09:10	08/18/17 09:03	1
Cadmium	ND		0.50		ug/L		08/03/17 09:10	08/10/17 23:30	1
Cobalt	1.0		0.30		ug/L		08/03/17 09:10	08/10/17 23:30	1
Molybdenum	4.1		1.0		ug/L		08/03/17 09:10	08/10/17 23:30	1
Selenium	ND		1.0		ug/L		08/03/17 09:10	08/18/17 09:03	1
Thallium	ND		0.20		ug/L		08/03/17 09:10	08/10/17 23:30	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		07/28/17 10:10	07/28/17 14:22	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	28.4		2.5		mg/L			08/09/17 22:10	5
Fluoride	ND		0.25		mg/L			08/09/17 22:10	5
Sulfate	102		10.0		mg/L			08/09/17 22:10	5
Total Dissolved Solids	576		10.0		mg/L			07/31/17 03:02	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.2	HF	0.1		SU			07/27/17 19:21	1
Temperature	21.3	HF	0.001		Degrees C			07/27/17 19:21	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

**Client Sample ID: MW-4**  
**Date Collected: 07/24/17 13:05**  
**Date Received: 07/27/17 10:00**

**Lab Sample ID: 480-121804-6**  
**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.25		0.0020		mg/L		07/31/17 08:34	07/31/17 21:42	1
Boron	0.37		0.020		mg/L		07/31/17 08:34	07/31/17 21:42	1
Calcium	239		0.50		mg/L		07/31/17 08:34	07/31/17 21:42	1
Chromium	ND		0.0040		mg/L		07/31/17 08:34	07/31/17 21:42	1
Lead	ND		0.050		mg/L		07/31/17 08:34	08/01/17 21:07	5
Lithium	ND		0.030		mg/L		07/31/17 08:34	07/31/17 21:42	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/03/17 09:10	08/10/17 23:35	1
Arsenic	2.0		1.0		ug/L		08/03/17 09:10	08/10/17 23:35	1
Beryllium	ND		0.70		ug/L		08/03/17 09:10	08/18/17 09:08	1
Cadmium	ND		0.50		ug/L		08/03/17 09:10	08/10/17 23:35	1
Cobalt	0.89		0.30		ug/L		08/03/17 09:10	08/10/17 23:35	1
Molybdenum	1.9		1.0		ug/L		08/03/17 09:10	08/10/17 23:35	1
Selenium	ND		1.0		ug/L		08/03/17 09:10	08/18/17 09:08	1
Thallium	ND		0.20		ug/L		08/03/17 09:10	08/10/17 23:35	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		07/28/17 10:10	07/28/17 14:23	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	29.2		2.5		mg/L			08/09/17 22:18	5
Fluoride	ND		0.25		mg/L			08/09/17 22:18	5
Sulfate	359		10.0		mg/L			08/09/17 22:18	5
Total Dissolved Solids	1170		20.0		mg/L			07/31/17 03:02	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.0	HF	0.1		SU			07/27/17 19:24	1
Temperature	21.5	HF	0.001		Degrees C			07/27/17 19:24	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

**Client Sample ID: MW-1**  
**Date Collected: 07/24/17 09:45**  
**Date Received: 07/27/17 10:00**

**Lab Sample ID: 480-121804-7**  
**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Barium</b>	<b>0.10</b>		0.0020		mg/L		07/31/17 08:34	07/31/17 21:46	1
Boron	ND		0.020		mg/L		07/31/17 08:34	07/31/17 21:46	1
<b>Calcium</b>	<b>90.8</b>		0.50		mg/L		07/31/17 08:34	07/31/17 21:46	1
Chromium	ND		0.0040		mg/L		07/31/17 08:34	07/31/17 21:46	1
Lead	ND		0.010		mg/L		07/31/17 08:34	07/31/17 21:46	1
Lithium	ND		0.030		mg/L		07/31/17 08:34	07/31/17 21:46	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/03/17 09:10	08/10/17 23:41	1
<b>Arsenic</b>	<b>1.0</b>		1.0		ug/L		08/03/17 09:10	08/10/17 23:41	1
Beryllium	ND		0.70		ug/L		08/03/17 09:10	08/18/17 09:14	1
Cadmium	ND		0.50		ug/L		08/03/17 09:10	08/10/17 23:41	1
<b>Cobalt</b>	<b>0.30</b>		0.30		ug/L		08/03/17 09:10	08/10/17 23:41	1
Molybdenum	ND		1.0		ug/L		08/03/17 09:10	08/10/17 23:41	1
Selenium	ND		1.0		ug/L		08/03/17 09:10	08/18/17 09:14	1
Thallium	ND		0.20		ug/L		08/03/17 09:10	08/10/17 23:41	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		07/28/17 10:10	07/28/17 14:25	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>85.9</b>		2.5		mg/L			08/09/17 22:26	5
Fluoride	ND		0.25		mg/L			08/09/17 22:26	5
<b>Sulfate</b>	<b>30.8</b>		10.0		mg/L			08/09/17 22:26	5
<b>Total Dissolved Solids</b>	<b>475</b>		10.0		mg/L			07/31/17 03:02	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>pH</b>	<b>7.1</b>	<b>HF</b>	0.1		SU			07/27/17 19:26	1
<b>Temperature</b>	<b>21.6</b>	<b>HF</b>	0.001		Degrees C			07/27/17 19:26	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

**Client Sample ID: MW-3**  
**Date Collected: 07/24/17 11:50**  
**Date Received: 07/27/17 10:00**

**Lab Sample ID: 480-121804-8**  
**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.23		0.0020		mg/L		07/31/17 08:34	07/31/17 21:49	1
Boron	0.29		0.020		mg/L		07/31/17 08:34	07/31/17 21:49	1
Calcium	171		0.50		mg/L		07/31/17 08:34	07/31/17 21:49	1
Chromium	ND		0.0040		mg/L		07/31/17 08:34	07/31/17 21:49	1
Lead	ND		0.010		mg/L		07/31/17 08:34	07/31/17 21:49	1
Lithium	ND		0.030		mg/L		07/31/17 08:34	07/31/17 21:49	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/03/17 09:10	08/10/17 23:46	1
Arsenic	2.3		1.0		ug/L		08/03/17 09:10	08/10/17 23:46	1
Beryllium	ND		0.70		ug/L		08/03/17 09:10	08/18/17 09:19	1
Cadmium	ND		0.50		ug/L		08/03/17 09:10	08/10/17 23:46	1
Cobalt	4.6		0.30		ug/L		08/03/17 09:10	08/10/17 23:46	1
Molybdenum	6.4		1.0		ug/L		08/03/17 09:10	08/10/17 23:46	1
Selenium	ND		1.0		ug/L		08/03/17 09:10	08/18/17 09:19	1
Thallium	ND		0.20		ug/L		08/03/17 09:10	08/10/17 23:46	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		07/28/17 10:10	07/28/17 14:30	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	19.1		2.5		mg/L			08/09/17 22:34	5
Fluoride	ND		0.25		mg/L			08/09/17 22:34	5
Sulfate	28.9		10.0		mg/L			08/09/17 22:34	5
Total Dissolved Solids	738		10.0		mg/L			07/31/17 03:02	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.8	HF	0.1		SU			07/27/17 19:32	1
Temperature	21.2	HF	0.001		Degrees C			07/27/17 19:32	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

**Client Sample ID: DUP-1**

**Date Collected: 07/24/17 00:00**

**Date Received: 07/27/17 10:00**

**Lab Sample ID: 480-121804-9**

**Matrix: Water**

**Method: 6010C - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.21		0.0020		mg/L		07/31/17 08:34	07/31/17 21:53	1
Boron	0.038		0.020		mg/L		07/31/17 08:34	07/31/17 21:53	1
Calcium	122		0.50		mg/L		07/31/17 08:34	07/31/17 21:53	1
Chromium	ND		0.0040		mg/L		07/31/17 08:34	07/31/17 21:53	1
Lead	ND		0.010		mg/L		07/31/17 08:34	07/31/17 21:53	1
Lithium	ND		0.030		mg/L		07/31/17 08:34	07/31/17 21:53	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/03/17 09:10	08/10/17 23:51	1
Arsenic	3.9		1.0		ug/L		08/03/17 09:10	08/10/17 23:51	1
Beryllium	ND		0.70		ug/L		08/03/17 09:10	08/18/17 09:25	1
Cadmium	ND		0.50		ug/L		08/03/17 09:10	08/10/17 23:51	1
Cobalt	0.85		0.30		ug/L		08/03/17 09:10	08/10/17 23:51	1
Molybdenum	3.7		1.0		ug/L		08/03/17 09:10	08/10/17 23:51	1
Selenium	ND		1.0		ug/L		08/03/17 09:10	08/18/17 09:25	1
Thallium	ND		0.20		ug/L		08/03/17 09:10	08/10/17 23:51	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		07/28/17 10:10	07/28/17 14:32	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	28.2		2.5		mg/L			08/09/17 22:42	5
Fluoride	ND		0.25		mg/L			08/09/17 22:42	5
Sulfate	102		10.0		mg/L			08/09/17 22:42	5
Total Dissolved Solids	633		10.0		mg/L			07/31/17 03:02	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.1	HF	0.1		SU			07/27/17 19:37	1
Temperature	21.2	HF	0.001		Degrees C			07/27/17 19:37	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-121804-10**

**Date Collected: 07/24/17 13:25**

**Matrix: Water**

**Date Received: 07/27/17 10:00**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		07/31/17 08:34	07/31/17 22:07	1
Boron	ND		0.020		mg/L		07/31/17 08:34	07/31/17 22:07	1
Calcium	ND		0.50		mg/L		07/31/17 08:34	07/31/17 22:07	1
Chromium	ND		0.0040		mg/L		07/31/17 08:34	07/31/17 22:07	1
Lead	ND		0.010		mg/L		07/31/17 08:34	07/31/17 22:07	1
Lithium	ND		0.030		mg/L		07/31/17 08:34	07/31/17 22:07	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/03/17 09:10	08/10/17 23:57	1
Arsenic	ND		1.0		ug/L		08/03/17 09:10	08/10/17 23:57	1
Beryllium	ND		0.70		ug/L		08/03/17 09:10	08/18/17 09:30	1
Cadmium	ND		0.50		ug/L		08/03/17 09:10	08/10/17 23:57	1
Cobalt	ND		0.30		ug/L		08/03/17 09:10	08/10/17 23:57	1
Molybdenum	ND		1.0		ug/L		08/03/17 09:10	08/10/17 23:57	1
Selenium	ND		1.0		ug/L		08/03/17 09:10	08/18/17 09:30	1
Thallium	ND		0.20		ug/L		08/03/17 09:10	08/10/17 23:57	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		07/28/17 10:10	07/28/17 14:34	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			08/09/17 22:51	1
Fluoride	ND		0.050		mg/L			08/09/17 22:51	1
Sulfate	ND		2.0		mg/L			08/09/17 22:51	1
Total Dissolved Solids	ND		10.0		mg/L			07/31/17 03:02	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.0	HF	0.1		SU			07/27/17 19:39	1
Temperature	21.3	HF	0.001		Degrees C			07/27/17 19:39	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-121804-11**

**Date Collected: 07/24/17 13:30**

**Matrix: Water**

**Date Received: 07/27/17 10:00**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		07/31/17 08:34	07/31/17 22:11	1
Boron	ND		0.020		mg/L		07/31/17 08:34	07/31/17 22:11	1
Calcium	ND		0.50		mg/L		07/31/17 08:34	07/31/17 22:11	1
Chromium	ND		0.0040		mg/L		07/31/17 08:34	07/31/17 22:11	1
Lead	ND		0.010		mg/L		07/31/17 08:34	07/31/17 22:11	1
Lithium	ND		0.030		mg/L		07/31/17 08:34	07/31/17 22:11	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/03/17 09:10	08/11/17 00:02	1
Arsenic	ND		1.0		ug/L		08/03/17 09:10	08/11/17 00:02	1
Beryllium	ND		0.70		ug/L		08/03/17 09:10	08/18/17 09:36	1
Cadmium	ND		0.50		ug/L		08/03/17 09:10	08/11/17 00:02	1
Cobalt	ND		0.30		ug/L		08/03/17 09:10	08/11/17 00:02	1
Molybdenum	ND		1.0		ug/L		08/03/17 09:10	08/11/17 00:02	1
Selenium	ND		1.0		ug/L		08/03/17 09:10	08/18/17 09:36	1
Thallium	ND		0.20		ug/L		08/03/17 09:10	08/11/17 00:02	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		07/28/17 10:10	07/28/17 14:36	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			08/10/17 20:48	1
Fluoride	ND		0.050		mg/L			08/10/17 20:48	1
Sulfate	ND		2.0		mg/L			08/10/17 20:48	1
Total Dissolved Solids	ND		10.0		mg/L			07/31/17 03:02	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.7	HF	0.1		SU			07/27/17 19:42	1
Temperature	21.5	HF	0.001		Degrees C			07/27/17 19:42	1

# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 480-369354/1-A**  
**Matrix: Water**  
**Analysis Batch: 369782**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 369354**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		07/31/17 08:34	07/31/17 20:20	1
Boron	ND		0.020		mg/L		07/31/17 08:34	07/31/17 20:20	1
Calcium	ND		0.50		mg/L		07/31/17 08:34	07/31/17 20:20	1
Chromium	ND		0.0040		mg/L		07/31/17 08:34	07/31/17 20:20	1
Lead	ND		0.010		mg/L		07/31/17 08:34	07/31/17 20:20	1
Lithium	ND		0.030		mg/L		07/31/17 08:34	07/31/17 20:20	1

**Lab Sample ID: LCS 480-369354/2-A**  
**Matrix: Water**  
**Analysis Batch: 369782**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 369354**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Barium	0.200	0.208		mg/L		104	80 - 120
Boron	0.200	0.208		mg/L		104	80 - 120
Calcium	10.0	9.84		mg/L		98	80 - 120
Chromium	0.200	0.195		mg/L		97	80 - 120
Lead	0.200	0.203		mg/L		101	80 - 120

**Lab Sample ID: 480-121804-1 MS**  
**Matrix: Water**  
**Analysis Batch: 369782**

**Client Sample ID: MW-1RD**  
**Prep Type: Total/NA**  
**Prep Batch: 369354**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Barium	0.16		0.200	0.369		mg/L		103	75 - 125
Boron	ND		0.200	0.224		mg/L		105	75 - 125
Calcium	72.6		10.0	81.53	4	mg/L		89	75 - 125
Chromium	ND		0.200	0.195		mg/L		97	75 - 125
Lead	ND		0.200	0.207		mg/L		102	75 - 125

**Lab Sample ID: 480-121804-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 369782**

**Client Sample ID: MW-1RD**  
**Prep Type: Total/NA**  
**Prep Batch: 369354**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Barium	0.16		0.200	0.370		mg/L		103	75 - 125	0	20
Boron	ND		0.200	0.224		mg/L		105	75 - 125	0	20
Calcium	72.6		10.0	81.13	4	mg/L		85	75 - 125	0	20
Chromium	ND		0.200	0.198		mg/L		98	75 - 125	1	20
Lead	ND		0.200	0.207		mg/L		102	75 - 125	0	20

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 480-369916/1-A**  
**Matrix: Water**  
**Analysis Batch: 370815**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 369916**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/02/17 07:50	08/05/17 23:33	1
Arsenic	ND		1.0		ug/L		08/02/17 07:50	08/05/17 23:33	1

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# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: MB 480-369916/1-A**  
**Matrix: Water**  
**Analysis Batch: 370815**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 369916**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.50		ug/L		08/02/17 07:50	08/05/17 23:33	1
Cobalt	ND		0.30		ug/L		08/02/17 07:50	08/05/17 23:33	1
Molybdenum	ND		1.0		ug/L		08/02/17 07:50	08/05/17 23:33	1
Selenium	ND		1.0		ug/L		08/02/17 07:50	08/05/17 23:33	1

**Lab Sample ID: MB 480-369916/1-A**  
**Matrix: Water**  
**Analysis Batch: 371282**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 369916**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/02/17 07:50	08/09/17 00:23	1
Arsenic	ND		1.0		ug/L		08/02/17 07:50	08/09/17 00:23	1
Beryllium	ND	^	0.70		ug/L		08/02/17 07:50	08/09/17 00:23	1
Cadmium	ND		0.50		ug/L		08/02/17 07:50	08/09/17 00:23	1
Cobalt	ND		0.30		ug/L		08/02/17 07:50	08/09/17 00:23	1
Molybdenum	ND		1.0		ug/L		08/02/17 07:50	08/09/17 00:23	1
Selenium	ND		1.0		ug/L		08/02/17 07:50	08/09/17 00:23	1
Thallium	ND		0.20		ug/L		08/02/17 07:50	08/09/17 00:23	1

**Lab Sample ID: MB 480-369916/1-A**  
**Matrix: Water**  
**Analysis Batch: 372930**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 369916**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.70		ug/L		08/02/17 07:50	08/18/17 11:58	1

**Lab Sample ID: LCS 480-369916/2-A**  
**Matrix: Water**  
**Analysis Batch: 370815**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 369916**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Antimony	20.0	18.99		ug/L		95	80 - 120
Arsenic	20.0	19.70		ug/L		99	80 - 120
Cadmium	20.0	18.91		ug/L		95	80 - 120
Cobalt	20.0	19.36		ug/L		97	80 - 120
Molybdenum	20.0	20.68		ug/L		103	80 - 120
Selenium	20.0	19.39		ug/L		97	80 - 120

**Lab Sample ID: LCS 480-369916/2-A**  
**Matrix: Water**  
**Analysis Batch: 371282**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 369916**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Thallium	20.0	19.83		ug/L		99	80 - 120

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# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: LCS 480-369916/2-A**  
**Matrix: Water**  
**Analysis Batch: 372930**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 369916**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Beryllium	20.0	22.29		ug/L		111	80 - 120

**Lab Sample ID: MB 480-370256/1-A**  
**Matrix: Water**  
**Analysis Batch: 371738**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 370256**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/03/17 09:10	08/10/17 22:06	1
Arsenic	ND		1.0		ug/L		08/03/17 09:10	08/10/17 22:06	1
Cadmium	ND		0.50		ug/L		08/03/17 09:10	08/10/17 22:06	1
Cobalt	ND		0.30		ug/L		08/03/17 09:10	08/10/17 22:06	1
Molybdenum	ND		1.0		ug/L		08/03/17 09:10	08/10/17 22:06	1
Thallium	ND		0.20		ug/L		08/03/17 09:10	08/10/17 22:06	1

**Lab Sample ID: MB 480-370256/1-A**  
**Matrix: Water**  
**Analysis Batch: 372855**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 370256**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.70		ug/L		08/03/17 09:10	08/18/17 07:56	1
Selenium	ND		1.0		ug/L		08/03/17 09:10	08/18/17 07:56	1

**Lab Sample ID: LCS 480-370256/2-A**  
**Matrix: Water**  
**Analysis Batch: 371738**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 370256**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Antimony	20.0	19.15		ug/L		96	80 - 120
Arsenic	20.0	18.93		ug/L		95	80 - 120
Cadmium	20.0	19.28		ug/L		96	80 - 120
Cobalt	20.0	19.50		ug/L		97	80 - 120
Molybdenum	20.0	20.24		ug/L		101	80 - 120
Thallium	20.0	19.91		ug/L		100	80 - 120

**Lab Sample ID: LCS 480-370256/2-A**  
**Matrix: Water**  
**Analysis Batch: 372855**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 370256**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Beryllium	20.0	21.26		ug/L		106	80 - 120
Selenium	20.0	19.52		ug/L		98	80 - 120

**Lab Sample ID: 480-121804-3 MS**  
**Matrix: Water**  
**Analysis Batch: 371738**

**Client Sample ID: MW-2RD**  
**Prep Type: Total/NA**  
**Prep Batch: 370256**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Antimony	ND		20.0	19.48		ug/L		97	75 - 125
Arsenic	1.8		20.0	21.79		ug/L		100	75 - 125

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# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: 480-121804-3 MS**  
**Matrix: Water**  
**Analysis Batch: 371738**

**Client Sample ID: MW-2RD**  
**Prep Type: Total/NA**  
**Prep Batch: 370256**  
**%Rec.**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Cadmium	ND		20.0	18.77		ug/L		94	75 - 125
Cobalt	2.2		20.0	19.58		ug/L		87	75 - 125
Molybdenum	2.4		20.0	22.30		ug/L		100	75 - 125
Thallium	ND		20.0	19.27		ug/L		96	75 - 125

**Lab Sample ID: 480-121804-3 MS**  
**Matrix: Water**  
**Analysis Batch: 372855**

**Client Sample ID: MW-2RD**  
**Prep Type: Total/NA**  
**Prep Batch: 370256**  
**%Rec.**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Antimony	ND		20.0	20.38		ug/L		102	75 - 125
Arsenic	1.8		20.0	22.81		ug/L		105	75 - 125
Beryllium	ND		20.0	21.98		ug/L		110	75 - 125
Cadmium	ND		20.0	21.23		ug/L		106	75 - 125
Cobalt	2.2		20.0	21.61		ug/L		97	75 - 125
Selenium	ND		20.0	21.46		ug/L		103	75 - 125

**Lab Sample ID: 480-121804-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 371738**

**Client Sample ID: MW-2RD**  
**Prep Type: Total/NA**  
**Prep Batch: 370256**  
**%Rec.**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Antimony	ND		20.0	19.26		ug/L		96	75 - 125	1	20
Arsenic	1.8		20.0	22.26		ug/L		102	75 - 125	2	20
Cadmium	ND		20.0	19.12		ug/L		96	75 - 125	2	20
Cobalt	2.2		20.0	19.85		ug/L		88	75 - 125	1	20
Molybdenum	2.4		20.0	22.14		ug/L		99	75 - 125	1	20
Thallium	ND		20.0	19.69		ug/L		98	75 - 125	2	20

**Lab Sample ID: 480-121804-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 372855**

**Client Sample ID: MW-2RD**  
**Prep Type: Total/NA**  
**Prep Batch: 370256**  
**%Rec.**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Antimony	ND		20.0	21.31		ug/L		107	75 - 125	4	20
Arsenic	1.8		20.0	22.95		ug/L		106	75 - 125	1	20
Beryllium	ND		20.0	21.99		ug/L		110	75 - 125	0	20
Cadmium	ND		20.0	21.23		ug/L		106	75 - 125	0	20
Cobalt	2.2		20.0	22.13		ug/L		99	75 - 125	2	20
Selenium	ND		20.0	22.01		ug/L		105	75 - 125	3	20

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: MB 480-369202/1-A**  
**Matrix: Water**  
**Analysis Batch: 369375**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 369202**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		07/28/17 10:10	07/28/17 13:46	1

TestAmerica Buffalo

# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

**Lab Sample ID: LCS 480-369202/2-A**  
**Matrix: Water**  
**Analysis Batch: 369375**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 369202**  
**%Rec.**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	6.67	6.25		ug/L		94	80 - 120

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 480-371286/28**  
**Matrix: Water**  
**Analysis Batch: 371286**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			08/09/17 20:16	1
Fluoride	ND		0.050		mg/L			08/09/17 20:16	1
Sulfate	ND		2.0		mg/L			08/09/17 20:16	1

**Lab Sample ID: LCS 480-371286/27**  
**Matrix: Water**  
**Analysis Batch: 371286**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	48.53		mg/L		97	90 - 110
Fluoride	5.00	5.03		mg/L		101	90 - 110
Sulfate	50.0	49.75		mg/L		100	90 - 110

**Lab Sample ID: 480-121804-1 MS**  
**Matrix: Water**  
**Analysis Batch: 371286**

**Client Sample ID: MW-1RD**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	17.3		100	113.5		mg/L		96	81 - 120
Fluoride	0.24		10.0	10.21		mg/L		100	82 - 120
Sulfate	45.5		100	142.3		mg/L		97	80 - 120

**Lab Sample ID: 480-121804-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 371286**

**Client Sample ID: MW-1RD**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Chloride	17.3		100	112.7		mg/L		95	81 - 120	1	20
Fluoride	0.24		10.0	10.14		mg/L		99	82 - 120	1	20
Sulfate	45.5		100	141.6		mg/L		96	80 - 120	0	20

**Lab Sample ID: 480-121804-10 MS**  
**Matrix: Water**  
**Analysis Batch: 371286**

**Client Sample ID: FIELD BLANK**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	ND		50.0	48.08		mg/L		96	81 - 120
Fluoride	ND		5.00	4.98		mg/L		100	82 - 120
Sulfate	ND		50.0	49.16		mg/L		98	80 - 120

TestAmerica Buffalo

# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: MB 480-371464/28**  
**Matrix: Water**  
**Analysis Batch: 371464**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			08/10/17 16:26	1
Fluoride	ND		0.050		mg/L			08/10/17 16:26	1
Sulfate	ND		2.0		mg/L			08/10/17 16:26	1

**Lab Sample ID: LCS 480-371464/27**  
**Matrix: Water**  
**Analysis Batch: 371464**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	51.94		mg/L		104	90 - 110
Fluoride	5.00	5.26		mg/L		105	90 - 110
Sulfate	50.0	51.21		mg/L		102	90 - 110

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 480-369479/1**  
**Matrix: Water**  
**Analysis Batch: 369479**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			07/31/17 03:02	1

**Lab Sample ID: LCS 480-369479/2**  
**Matrix: Water**  
**Analysis Batch: 369479**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	508	504.0		mg/L		99	85 - 115

**Lab Sample ID: 480-121804-8 DU**  
**Matrix: Water**  
**Analysis Batch: 369479**

**Client Sample ID: MW-3**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	738		758.0		mg/L		3	10

## Method: SM 4500 H+ B - pH

**Lab Sample ID: LCS 480-369150/1**  
**Matrix: Water**  
**Analysis Batch: 369150**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99 - 101

TestAmerica Buffalo

# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

## Method: SM 4500 H+ B - pH (Continued)

Lab Sample ID: LCS 480-369150/23  
 Matrix: Water  
 Analysis Batch: 369150

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99 - 101

Lab Sample ID: 480-121804-8 DU  
 Matrix: Water  
 Analysis Batch: 369150

Client Sample ID: MW-3  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.8	HF	6.8		SU		0.7	5
Temperature	21.2	HF	21.2		Degrees C		0.2	10

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# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

## Metals

### Prep Batch: 369202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-121804-1	MW-1RD	Total/NA	Water	7470A	
480-121804-2	MW-2R	Total/NA	Water	7470A	
480-121804-3	MW-2RD	Total/NA	Water	7470A	
480-121804-4	MW-3R	Total/NA	Water	7470A	
480-121804-5	MW-3RD	Total/NA	Water	7470A	
480-121804-6	MW-4	Total/NA	Water	7470A	
480-121804-7	MW-1	Total/NA	Water	7470A	
480-121804-8	MW-3	Total/NA	Water	7470A	
480-121804-9	DUP-1	Total/NA	Water	7470A	
480-121804-10	FIELD BLANK	Total/NA	Water	7470A	
480-121804-11	EQUIPMENT BLANK	Total/NA	Water	7470A	
MB 480-369202/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-369202/2-A	Lab Control Sample	Total/NA	Water	7470A	

### Prep Batch: 369354

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-121804-1	MW-1RD	Total/NA	Water	3005A	
480-121804-2	MW-2R	Total/NA	Water	3005A	
480-121804-3	MW-2RD	Total/NA	Water	3005A	
480-121804-4	MW-3R	Total/NA	Water	3005A	
480-121804-5	MW-3RD	Total/NA	Water	3005A	
480-121804-6	MW-4	Total/NA	Water	3005A	
480-121804-7	MW-1	Total/NA	Water	3005A	
480-121804-8	MW-3	Total/NA	Water	3005A	
480-121804-9	DUP-1	Total/NA	Water	3005A	
480-121804-10	FIELD BLANK	Total/NA	Water	3005A	
480-121804-11	EQUIPMENT BLANK	Total/NA	Water	3005A	
MB 480-369354/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-369354/2-A	Lab Control Sample	Total/NA	Water	3005A	
480-121804-1 MS	MW-1RD	Total/NA	Water	3005A	
480-121804-1 MSD	MW-1RD	Total/NA	Water	3005A	

### Analysis Batch: 369375

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-121804-1	MW-1RD	Total/NA	Water	7470A	369202
480-121804-2	MW-2R	Total/NA	Water	7470A	369202
480-121804-3	MW-2RD	Total/NA	Water	7470A	369202
480-121804-4	MW-3R	Total/NA	Water	7470A	369202
480-121804-5	MW-3RD	Total/NA	Water	7470A	369202
480-121804-6	MW-4	Total/NA	Water	7470A	369202
480-121804-7	MW-1	Total/NA	Water	7470A	369202
480-121804-8	MW-3	Total/NA	Water	7470A	369202
480-121804-9	DUP-1	Total/NA	Water	7470A	369202
480-121804-10	FIELD BLANK	Total/NA	Water	7470A	369202
480-121804-11	EQUIPMENT BLANK	Total/NA	Water	7470A	369202
MB 480-369202/1-A	Method Blank	Total/NA	Water	7470A	369202
LCS 480-369202/2-A	Lab Control Sample	Total/NA	Water	7470A	369202

### Analysis Batch: 369782

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-121804-1	MW-1RD	Total/NA	Water	6010C	369354

TestAmerica Buffalo

# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

## Metals (Continued)

### Analysis Batch: 369782 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-121804-2	MW-2R	Total/NA	Water	6010C	369354
480-121804-3	MW-2RD	Total/NA	Water	6010C	369354
480-121804-4	MW-3R	Total/NA	Water	6010C	369354
480-121804-5	MW-3RD	Total/NA	Water	6010C	369354
480-121804-6	MW-4	Total/NA	Water	6010C	369354
480-121804-7	MW-1	Total/NA	Water	6010C	369354
480-121804-8	MW-3	Total/NA	Water	6010C	369354
480-121804-9	DUP-1	Total/NA	Water	6010C	369354
480-121804-10	FIELD BLANK	Total/NA	Water	6010C	369354
480-121804-11	EQUIPMENT BLANK	Total/NA	Water	6010C	369354
MB 480-369354/1-A	Method Blank	Total/NA	Water	6010C	369354
LCS 480-369354/2-A	Lab Control Sample	Total/NA	Water	6010C	369354
480-121804-1 MS	MW-1RD	Total/NA	Water	6010C	369354
480-121804-1 MSD	MW-1RD	Total/NA	Water	6010C	369354

### Prep Batch: 369916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-121804-2	MW-2R	Total/NA	Water	3020A	
MB 480-369916/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-369916/2-A	Lab Control Sample	Total/NA	Water	3020A	

### Analysis Batch: 370053

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-121804-6	MW-4	Total/NA	Water	6010C	369354

### Prep Batch: 370256

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-121804-1	MW-1RD	Total/NA	Water	3020A	
480-121804-3	MW-2RD	Total/NA	Water	3020A	
480-121804-4	MW-3R	Total/NA	Water	3020A	
480-121804-5	MW-3RD	Total/NA	Water	3020A	
480-121804-6	MW-4	Total/NA	Water	3020A	
480-121804-7	MW-1	Total/NA	Water	3020A	
480-121804-8	MW-3	Total/NA	Water	3020A	
480-121804-9	DUP-1	Total/NA	Water	3020A	
480-121804-10	FIELD BLANK	Total/NA	Water	3020A	
480-121804-11	EQUIPMENT BLANK	Total/NA	Water	3020A	
MB 480-370256/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-370256/2-A	Lab Control Sample	Total/NA	Water	3020A	
480-121804-3 MS	MW-2RD	Total/NA	Water	3020A	
480-121804-3 MSD	MW-2RD	Total/NA	Water	3020A	

### Analysis Batch: 370815

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-121804-2	MW-2R	Total/NA	Water	6020A	369916
MB 480-369916/1-A	Method Blank	Total/NA	Water	6020A	369916
LCS 480-369916/2-A	Lab Control Sample	Total/NA	Water	6020A	369916

### Analysis Batch: 371282

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-121804-2	MW-2R	Total/NA	Water	6020A	369916

TestAmerica Buffalo



# QC Association Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

## Metals (Continued)

### Analysis Batch: 371282 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-369916/1-A	Method Blank	Total/NA	Water	6020A	369916
LCS 480-369916/2-A	Lab Control Sample	Total/NA	Water	6020A	369916

### Analysis Batch: 371738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-121804-1	MW-1RD	Total/NA	Water	6020A	370256
480-121804-3	MW-2RD	Total/NA	Water	6020A	370256
480-121804-4	MW-3R	Total/NA	Water	6020A	370256
480-121804-5	MW-3RD	Total/NA	Water	6020A	370256
480-121804-6	MW-4	Total/NA	Water	6020A	370256
480-121804-7	MW-1	Total/NA	Water	6020A	370256
480-121804-8	MW-3	Total/NA	Water	6020A	370256
480-121804-9	DUP-1	Total/NA	Water	6020A	370256
480-121804-10	FIELD BLANK	Total/NA	Water	6020A	370256
480-121804-11	EQUIPMENT BLANK	Total/NA	Water	6020A	370256
MB 480-370256/1-A	Method Blank	Total/NA	Water	6020A	370256
LCS 480-370256/2-A	Lab Control Sample	Total/NA	Water	6020A	370256
480-121804-3 MS	MW-2RD	Total/NA	Water	6020A	370256
480-121804-3 MSD	MW-2RD	Total/NA	Water	6020A	370256

### Analysis Batch: 372855

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-121804-1	MW-1RD	Total/NA	Water	6020A	370256
480-121804-3	MW-2RD	Total/NA	Water	6020A	370256
480-121804-4	MW-3R	Total/NA	Water	6020A	370256
480-121804-5	MW-3RD	Total/NA	Water	6020A	370256
480-121804-6	MW-4	Total/NA	Water	6020A	370256
480-121804-7	MW-1	Total/NA	Water	6020A	370256
480-121804-8	MW-3	Total/NA	Water	6020A	370256
480-121804-9	DUP-1	Total/NA	Water	6020A	370256
480-121804-10	FIELD BLANK	Total/NA	Water	6020A	370256
480-121804-11	EQUIPMENT BLANK	Total/NA	Water	6020A	370256
MB 480-370256/1-A	Method Blank	Total/NA	Water	6020A	370256
LCS 480-370256/2-A	Lab Control Sample	Total/NA	Water	6020A	370256
480-121804-3 MS	MW-2RD	Total/NA	Water	6020A	370256
480-121804-3 MSD	MW-2RD	Total/NA	Water	6020A	370256

### Analysis Batch: 372930

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-121804-2	MW-2R	Total/NA	Water	6020A	369916
MB 480-369916/1-A	Method Blank	Total/NA	Water	6020A	369916
LCS 480-369916/2-A	Lab Control Sample	Total/NA	Water	6020A	369916

## General Chemistry

### Analysis Batch: 369150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-121804-1	MW-1RD	Total/NA	Water	SM 4500 H+ B	
480-121804-2	MW-2R	Total/NA	Water	SM 4500 H+ B	
480-121804-3	MW-2RD	Total/NA	Water	SM 4500 H+ B	

TestAmerica Buffalo

# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

## General Chemistry (Continued)

### Analysis Batch: 369150 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-121804-4	MW-3R	Total/NA	Water	SM 4500 H+ B	
480-121804-5	MW-3RD	Total/NA	Water	SM 4500 H+ B	
480-121804-6	MW-4	Total/NA	Water	SM 4500 H+ B	
480-121804-7	MW-1	Total/NA	Water	SM 4500 H+ B	
480-121804-8	MW-3	Total/NA	Water	SM 4500 H+ B	
480-121804-9	DUP-1	Total/NA	Water	SM 4500 H+ B	
480-121804-10	FIELD BLANK	Total/NA	Water	SM 4500 H+ B	
480-121804-11	EQUIPMENT BLANK	Total/NA	Water	SM 4500 H+ B	
LCS 480-369150/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 480-369150/23	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
480-121804-8 DU	MW-3	Total/NA	Water	SM 4500 H+ B	

### Analysis Batch: 369479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-121804-1	MW-1RD	Total/NA	Water	SM 2540C	
480-121804-2	MW-2R	Total/NA	Water	SM 2540C	
480-121804-3	MW-2RD	Total/NA	Water	SM 2540C	
480-121804-4	MW-3R	Total/NA	Water	SM 2540C	
480-121804-5	MW-3RD	Total/NA	Water	SM 2540C	
480-121804-6	MW-4	Total/NA	Water	SM 2540C	
480-121804-7	MW-1	Total/NA	Water	SM 2540C	
480-121804-8	MW-3	Total/NA	Water	SM 2540C	
480-121804-9	DUP-1	Total/NA	Water	SM 2540C	
480-121804-10	FIELD BLANK	Total/NA	Water	SM 2540C	
480-121804-11	EQUIPMENT BLANK	Total/NA	Water	SM 2540C	
MB 480-369479/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-369479/2	Lab Control Sample	Total/NA	Water	SM 2540C	
480-121804-8 DU	MW-3	Total/NA	Water	SM 2540C	

### Analysis Batch: 371286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-121804-1	MW-1RD	Total/NA	Water	300.0	
480-121804-2	MW-2R	Total/NA	Water	300.0	
480-121804-3	MW-2RD	Total/NA	Water	300.0	
480-121804-4	MW-3R	Total/NA	Water	300.0	
480-121804-5	MW-3RD	Total/NA	Water	300.0	
480-121804-6	MW-4	Total/NA	Water	300.0	
480-121804-7	MW-1	Total/NA	Water	300.0	
480-121804-8	MW-3	Total/NA	Water	300.0	
480-121804-9	DUP-1	Total/NA	Water	300.0	
480-121804-10	FIELD BLANK	Total/NA	Water	300.0	
MB 480-371286/28	Method Blank	Total/NA	Water	300.0	
LCS 480-371286/27	Lab Control Sample	Total/NA	Water	300.0	
480-121804-1 MS	MW-1RD	Total/NA	Water	300.0	
480-121804-1 MSD	MW-1RD	Total/NA	Water	300.0	
480-121804-10 MS	FIELD BLANK	Total/NA	Water	300.0	

### Analysis Batch: 371464

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-121804-11	EQUIPMENT BLANK	Total/NA	Water	300.0	
MB 480-371464/28	Method Blank	Total/NA	Water	300.0	

TestAmerica Buffalo

# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

## General Chemistry (Continued)

### Analysis Batch: 371464 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 480-371464/27	Lab Control Sample	Total/NA	Water	300.0	

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# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

**Client Sample ID: MW-1RD**

**Date Collected: 07/24/17 09:50**

**Date Received: 07/27/17 10:00**

**Lab Sample ID: 480-121804-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			369354	07/31/17 08:34	EMB	TAL BUF
Total/NA	Analysis	6010C		1	369782	07/31/17 21:00	LMH	TAL BUF
Total/NA	Prep	3020A			370256	08/03/17 09:10	EMB	TAL BUF
Total/NA	Analysis	6020A		1	371738	08/10/17 22:33	JRK	TAL BUF
Total/NA	Prep	3020A			370256	08/03/17 09:10	EMB	TAL BUF
Total/NA	Analysis	6020A		1	372855	08/18/17 08:07	JRK	TAL BUF
Total/NA	Prep	7470A			369202	07/28/17 10:10	BMB	TAL BUF
Total/NA	Analysis	7470A		1	369375	07/28/17 14:13	BMB	TAL BUF
Total/NA	Analysis	300.0		2	371286	08/09/17 21:05	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	369479	07/31/17 03:02	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	369150	07/27/17 19:10	ALZ	TAL BUF

**Client Sample ID: MW-2R**

**Date Collected: 07/24/17 11:15**

**Date Received: 07/27/17 10:00**

**Lab Sample ID: 480-121804-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			369354	07/31/17 08:34	EMB	TAL BUF
Total/NA	Analysis	6010C		1	369782	07/31/17 21:28	LMH	TAL BUF
Total/NA	Prep	3020A			369916	08/02/17 07:50	MJW	TAL BUF
Total/NA	Analysis	6020A		1	370815	08/06/17 02:25	JRK	TAL BUF
Total/NA	Prep	3020A			369916	08/02/17 07:50	MJW	TAL BUF
Total/NA	Analysis	6020A		1	371282	08/09/17 03:15	JRK	TAL BUF
Total/NA	Prep	3020A			369916	08/02/17 07:50	MJW	TAL BUF
Total/NA	Analysis	6020A		1	372930	08/18/17 12:36	JRK	TAL BUF
Total/NA	Prep	7470A			369202	07/28/17 10:10	BMB	TAL BUF
Total/NA	Analysis	7470A		1	369375	07/28/17 14:15	BMB	TAL BUF
Total/NA	Analysis	300.0		5	371286	08/09/17 21:45	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	369479	07/31/17 03:02	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	369150	07/27/17 19:12	ALZ	TAL BUF

**Client Sample ID: MW-2RD**

**Date Collected: 07/24/17 11:10**

**Date Received: 07/27/17 10:00**

**Lab Sample ID: 480-121804-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			369354	07/31/17 08:34	EMB	TAL BUF
Total/NA	Analysis	6010C		1	369782	07/31/17 21:31	LMH	TAL BUF
Total/NA	Prep	3020A			370256	08/03/17 09:10	EMB	TAL BUF
Total/NA	Analysis	6020A		1	371738	08/10/17 22:39	JRK	TAL BUF
Total/NA	Prep	3020A			370256	08/03/17 09:10	EMB	TAL BUF
Total/NA	Analysis	6020A		1	372855	08/18/17 08:12	JRK	TAL BUF

TestAmerica Buffalo

# Lab Chronicle

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-121804-3**

**Date Collected: 07/24/17 11:10**

**Matrix: Water**

**Date Received: 07/27/17 10:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			369202	07/28/17 10:10	BMB	TAL BUF
Total/NA	Analysis	7470A		1	369375	07/28/17 14:17	BMB	TAL BUF
Total/NA	Analysis	300.0		5	371286	08/09/17 21:54	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	369479	07/31/17 03:02	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	369150	07/27/17 19:15	ALZ	TAL BUF

**Client Sample ID: MW-3R**

**Lab Sample ID: 480-121804-4**

**Date Collected: 07/24/17 11:55**

**Matrix: Water**

**Date Received: 07/27/17 10:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			369354	07/31/17 08:34	EMB	TAL BUF
Total/NA	Analysis	6010C		1	369782	07/31/17 21:35	LMH	TAL BUF
Total/NA	Prep	3020A			370256	08/03/17 09:10	EMB	TAL BUF
Total/NA	Analysis	6020A		1	371738	08/10/17 23:24	JRK	TAL BUF
Total/NA	Prep	3020A			370256	08/03/17 09:10	EMB	TAL BUF
Total/NA	Analysis	6020A		1	372855	08/18/17 08:57	JRK	TAL BUF
Total/NA	Prep	7470A			369202	07/28/17 10:10	BMB	TAL BUF
Total/NA	Analysis	7470A		1	369375	07/28/17 14:20	BMB	TAL BUF
Total/NA	Analysis	300.0		5	371286	08/09/17 22:02	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	369479	07/31/17 03:02	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	369150	07/27/17 19:18	ALZ	TAL BUF

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-121804-5**

**Date Collected: 07/24/17 12:30**

**Matrix: Water**

**Date Received: 07/27/17 10:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			369354	07/31/17 08:34	EMB	TAL BUF
Total/NA	Analysis	6010C		1	369782	07/31/17 21:39	LMH	TAL BUF
Total/NA	Prep	3020A			370256	08/03/17 09:10	EMB	TAL BUF
Total/NA	Analysis	6020A		1	371738	08/10/17 23:30	JRK	TAL BUF
Total/NA	Prep	3020A			370256	08/03/17 09:10	EMB	TAL BUF
Total/NA	Analysis	6020A		1	372855	08/18/17 09:03	JRK	TAL BUF
Total/NA	Prep	7470A			369202	07/28/17 10:10	BMB	TAL BUF
Total/NA	Analysis	7470A		1	369375	07/28/17 14:22	BMB	TAL BUF
Total/NA	Analysis	300.0		5	371286	08/09/17 22:10	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	369479	07/31/17 03:02	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	369150	07/27/17 19:21	ALZ	TAL BUF

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

**Client Sample ID: MW-4**  
**Date Collected: 07/24/17 13:05**  
**Date Received: 07/27/17 10:00**

**Lab Sample ID: 480-121804-6**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			369354	07/31/17 08:34	EMB	TAL BUF
Total/NA	Analysis	6010C		1	369782	07/31/17 21:42	LMH	TAL BUF
Total/NA	Prep	3005A			369354	07/31/17 08:34	EMB	TAL BUF
Total/NA	Analysis	6010C		5	370053	08/01/17 21:07	LMH	TAL BUF
Total/NA	Prep	3020A			370256	08/03/17 09:10	EMB	TAL BUF
Total/NA	Analysis	6020A		1	371738	08/10/17 23:35	JRK	TAL BUF
Total/NA	Prep	3020A			370256	08/03/17 09:10	EMB	TAL BUF
Total/NA	Analysis	6020A		1	372855	08/18/17 09:08	JRK	TAL BUF
Total/NA	Prep	7470A			369202	07/28/17 10:10	BMB	TAL BUF
Total/NA	Analysis	7470A		1	369375	07/28/17 14:23	BMB	TAL BUF
Total/NA	Analysis	300.0		5	371286	08/09/17 22:18	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	369479	07/31/17 03:02	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	369150	07/27/17 19:24	ALZ	TAL BUF

**Client Sample ID: MW-1**  
**Date Collected: 07/24/17 09:45**  
**Date Received: 07/27/17 10:00**

**Lab Sample ID: 480-121804-7**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			369354	07/31/17 08:34	EMB	TAL BUF
Total/NA	Analysis	6010C		1	369782	07/31/17 21:46	LMH	TAL BUF
Total/NA	Prep	3020A			370256	08/03/17 09:10	EMB	TAL BUF
Total/NA	Analysis	6020A		1	371738	08/10/17 23:41	JRK	TAL BUF
Total/NA	Prep	3020A			370256	08/03/17 09:10	EMB	TAL BUF
Total/NA	Analysis	6020A		1	372855	08/18/17 09:14	JRK	TAL BUF
Total/NA	Prep	7470A			369202	07/28/17 10:10	BMB	TAL BUF
Total/NA	Analysis	7470A		1	369375	07/28/17 14:25	BMB	TAL BUF
Total/NA	Analysis	300.0		5	371286	08/09/17 22:26	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	369479	07/31/17 03:02	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	369150	07/27/17 19:26	ALZ	TAL BUF

**Client Sample ID: MW-3**  
**Date Collected: 07/24/17 11:50**  
**Date Received: 07/27/17 10:00**

**Lab Sample ID: 480-121804-8**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			369354	07/31/17 08:34	EMB	TAL BUF
Total/NA	Analysis	6010C		1	369782	07/31/17 21:49	LMH	TAL BUF
Total/NA	Prep	3020A			370256	08/03/17 09:10	EMB	TAL BUF
Total/NA	Analysis	6020A		1	371738	08/10/17 23:46	JRK	TAL BUF
Total/NA	Prep	3020A			370256	08/03/17 09:10	EMB	TAL BUF
Total/NA	Analysis	6020A		1	372855	08/18/17 09:19	JRK	TAL BUF
Total/NA	Prep	7470A			369202	07/28/17 10:10	BMB	TAL BUF

TestAmerica Buffalo

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

**Client Sample ID: MW-3**

**Lab Sample ID: 480-121804-8**

**Date Collected: 07/24/17 11:50**

**Matrix: Water**

**Date Received: 07/27/17 10:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7470A		1	369375	07/28/17 14:30	BMB	TAL BUF
Total/NA	Analysis	300.0		5	371286	08/09/17 22:34	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	369479	07/31/17 03:02	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	369150	07/27/17 19:32	ALZ	TAL BUF

**Client Sample ID: DUP-1**

**Lab Sample ID: 480-121804-9**

**Date Collected: 07/24/17 00:00**

**Matrix: Water**

**Date Received: 07/27/17 10:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			369354	07/31/17 08:34	EMB	TAL BUF
Total/NA	Analysis	6010C		1	369782	07/31/17 21:53	LMH	TAL BUF
Total/NA	Prep	3020A			370256	08/03/17 09:10	EMB	TAL BUF
Total/NA	Analysis	6020A		1	371738	08/10/17 23:51	JRK	TAL BUF
Total/NA	Prep	3020A			370256	08/03/17 09:10	EMB	TAL BUF
Total/NA	Analysis	6020A		1	372855	08/18/17 09:25	JRK	TAL BUF
Total/NA	Prep	7470A			369202	07/28/17 10:10	BMB	TAL BUF
Total/NA	Analysis	7470A		1	369375	07/28/17 14:32	BMB	TAL BUF
Total/NA	Analysis	300.0		5	371286	08/09/17 22:42	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	369479	07/31/17 03:02	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	369150	07/27/17 19:37	ALZ	TAL BUF

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-121804-10**

**Date Collected: 07/24/17 13:25**

**Matrix: Water**

**Date Received: 07/27/17 10:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			369354	07/31/17 08:34	EMB	TAL BUF
Total/NA	Analysis	6010C		1	369782	07/31/17 22:07	LMH	TAL BUF
Total/NA	Prep	3020A			370256	08/03/17 09:10	EMB	TAL BUF
Total/NA	Analysis	6020A		1	371738	08/10/17 23:57	JRK	TAL BUF
Total/NA	Prep	3020A			370256	08/03/17 09:10	EMB	TAL BUF
Total/NA	Analysis	6020A		1	372855	08/18/17 09:30	JRK	TAL BUF
Total/NA	Prep	7470A			369202	07/28/17 10:10	BMB	TAL BUF
Total/NA	Analysis	7470A		1	369375	07/28/17 14:34	BMB	TAL BUF
Total/NA	Analysis	300.0		1	371286	08/09/17 22:51	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	369479	07/31/17 03:02	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	369150	07/27/17 19:39	ALZ	TAL BUF

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-121804-11**

**Date Collected: 07/24/17 13:30**

**Matrix: Water**

**Date Received: 07/27/17 10:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			369354	07/31/17 08:34	EMB	TAL BUF
Total/NA	Analysis	6010C		1	369782	07/31/17 22:11	LMH	TAL BUF
Total/NA	Prep	3020A			370256	08/03/17 09:10	EMB	TAL BUF
Total/NA	Analysis	6020A		1	371738	08/11/17 00:02	JRK	TAL BUF
Total/NA	Prep	3020A			370256	08/03/17 09:10	EMB	TAL BUF
Total/NA	Analysis	6020A		1	372855	08/18/17 09:36	JRK	TAL BUF
Total/NA	Prep	7470A			369202	07/28/17 10:10	BMB	TAL BUF
Total/NA	Analysis	7470A		1	369375	07/28/17 14:36	BMB	TAL BUF
Total/NA	Analysis	300.0		1	371464	08/10/17 20:48	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	369479	07/31/17 03:02	KMB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	369150	07/27/17 19:42	ALZ	TAL BUF

#### Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600



# Accreditation/Certification Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

## Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	036-999-337	12-31-17

The following analytes are included in this report, but are not accredited/certified under this accreditation/certification:

Analysis Method	Prep Method	Matrix	Analyte
6010C	3005A	Water	Lithium

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 H+ B		Water	pH
SM 4500 H+ B		Water	Temperature



# Method Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL BUF
6020A	Metals (ICP/MS)	SW846	TAL BUF
7470A	Mercury (CVAA)	SW846	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL BUF
SM 4500 H+ B	pH	SM	TAL BUF

#### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

# Sample Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-121804-1	MW-1RD	Water	07/24/17 09:50	07/27/17 10:00
480-121804-2	MW-2R	Water	07/24/17 11:15	07/27/17 10:00
480-121804-3	MW-2RD	Water	07/24/17 11:10	07/27/17 10:00
480-121804-4	MW-3R	Water	07/24/17 11:55	07/27/17 10:00
480-121804-5	MW-3RD	Water	07/24/17 12:30	07/27/17 10:00
480-121804-6	MW-4	Water	07/24/17 13:05	07/27/17 10:00
480-121804-7	MW-1	Water	07/24/17 09:45	07/27/17 10:00
480-121804-8	MW-3	Water	07/24/17 11:50	07/27/17 10:00
480-121804-9	DUP-1	Water	07/24/17 00:00	07/27/17 10:00
480-121804-10	FIELD BLANK	Water	07/24/17 13:25	07/27/17 10:00
480-121804-11	EQUIPMENT BLANK	Water	07/24/17 13:30	07/27/17 10:00

Tel/Fax: \_\_\_\_\_

Client Contact: \_\_\_\_\_

SKB Environmental  
13425 Courthouse Blvd  
Rosemount, MN 55068

(651) 438-1500 Phone (651) 438-1518 FAX

Project Name: Lansing 2017 CCR GW Event 6

Site: \_\_\_\_\_

P O # \_\_\_\_\_

Sample Identification	Sample Date	Sample Time	Sample Type (C-Cont, G-Cont)	Matrix	# of Cont.	Analysis Turnaround Time															
						Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Metals (total)* + Mercury	Chloride	Fluoride	Sulfate	PH	Medium 226 & 228 combined	Carrier:	Lab Contact:	Site Contact:	Belineman	Date:			
MW-1RD	7/27/17	9:50	Grab	Water	7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-2R		11:15	Grab	Water	7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-2RD		11:10	Grab	Water	7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-3R		11:55	Grab	Water	7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-3RD		12:30	Grab	Water	7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-4		13:05	Grab	Water	7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-1		9:45	Grab	Water	7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-3		11:50	Grab	Water	7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Duplicate - 1			Grab	Water	7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Field Blank		13:25	Grab	Water	7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Equipment Blank		13:30	Grab	Water	7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

**Preservation Used:** 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other

**Possible Hazard Identification:** Please List any EPA Hazardous Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard  Flammable  Skin Irritant  Unknown  Poison B  Return to Client  Archived by Lab  Months \_\_\_\_\_

Received by: \_\_\_\_\_ Date/Time: 7/25/17 7:00  
Received by: \_\_\_\_\_ Date/Time: 7/24/17 11:06  
Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Company: SKS  
Company: \_\_\_\_\_  
Company: \_\_\_\_\_

Therm ID No.: \_\_\_\_\_  
Date/Time: 7/25/17 11:06  
Date/Time: 7/24/17 11:06  
Date/Time: \_\_\_\_\_



## Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-121804-1

SDG Number:

**Login Number: 121804**

**List Number: 1**

**Creator: Janish, Carl M**

**List Source: TestAmerica Buffalo**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GES
Samples received within 48 hours of sampling.	False	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-121804-2

Client Project/Site: SKB Lansing - CCR Groundwater

Sampling Event: CCR Groundwater

For:

Waste Connections, Inc.

13425 Courthouse Blvd

Rosemount, Minnesota 55068

Attn: Nathaniel Beinemann



Authorized for release by:

8/28/2017 4:31:07 PM

Ryan VanDette, Project Manager II

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*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

## Qualifiers

### Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)



# Case Narrative

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

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**Job ID: 480-121804-2**

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**Laboratory: TestAmerica Buffalo**

## Narrative

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**Job Narrative  
480-121804-2**

## Comments

No additional comments.

## Receipt

The samples were received on 7/27/2017 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.1° C, 3.0° C and 3.8° C.

## RAD

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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## Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-121804-1**

No Detections.

**Client Sample ID: MW-2R**

**Lab Sample ID: 480-121804-2**

No Detections.

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-121804-3**

No Detections.

**Client Sample ID: MW-3R**

**Lab Sample ID: 480-121804-4**

No Detections.

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-121804-5**

No Detections.

**Client Sample ID: MW-4**

**Lab Sample ID: 480-121804-6**

No Detections.

**Client Sample ID: MW-1**

**Lab Sample ID: 480-121804-7**

No Detections.

**Client Sample ID: MW-3**

**Lab Sample ID: 480-121804-8**

No Detections.

**Client Sample ID: DUP-1**

**Lab Sample ID: 480-121804-9**

No Detections.

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-121804-10**

No Detections.

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-121804-11**

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-121804-1**

Date Collected: 07/24/17 09:50

Matrix: Water

Date Received: 07/27/17 10:00

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.597		0.138	0.148	1.00	0.0900	pCi/L	08/03/17 09:40	08/28/17 06:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.4		40 - 110					08/03/17 09:40	08/28/17 06:37	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.08		0.276	0.293	1.00	0.319	pCi/L	08/03/17 10:11	08/15/17 09:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.4		40 - 110					08/03/17 10:11	08/15/17 09:46	1
Y Carrier	90.1		40 - 110					08/03/17 10:11	08/15/17 09:46	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

**Client Sample ID: MW-2R**

**Lab Sample ID: 480-121804-2**

Date Collected: 07/24/17 11:15

Matrix: Water

Date Received: 07/27/17 10:00

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.310		0.101	0.105	1.00	0.0697	pCi/L	08/03/17 09:40	08/28/17 06:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.4		40 - 110					08/03/17 09:40	08/28/17 06:37	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.221	U	0.220	0.221	1.00	0.357	pCi/L	08/03/17 10:11	08/15/17 09:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.4		40 - 110					08/03/17 10:11	08/15/17 09:46	1
Y Carrier	83.4		40 - 110					08/03/17 10:11	08/15/17 09:46	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-121804-3**

Date Collected: 07/24/17 11:10

Matrix: Water

Date Received: 07/27/17 10:00

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.370		0.107	0.112	1.00	0.0882	pCi/L	08/03/17 09:40	08/28/17 06:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.6		40 - 110					08/03/17 09:40	08/28/17 06:38	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.929		0.262	0.276	1.00	0.324	pCi/L	08/03/17 10:11	08/15/17 09:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.6		40 - 110					08/03/17 10:11	08/15/17 09:47	1
Y Carrier	93.5		40 - 110					08/03/17 10:11	08/15/17 09:47	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

**Client Sample ID: MW-3R**  
**Date Collected: 07/24/17 11:55**  
**Date Received: 07/27/17 10:00**

**Lab Sample ID: 480-121804-4**  
**Matrix: Water**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.584		0.126	0.137	1.00	0.0732	pCi/L	08/03/17 09:40	08/28/17 06:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.6		40 - 110					08/03/17 09:40	08/28/17 06:39	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.981		0.272	0.287	1.00	0.339	pCi/L	08/03/17 10:11	08/15/17 09:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.6		40 - 110					08/03/17 10:11	08/15/17 09:47	1
Y Carrier	89.3		40 - 110					08/03/17 10:11	08/15/17 09:47	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-121804-5**

Date Collected: 07/24/17 12:30

Matrix: Water

Date Received: 07/27/17 10:00

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.757		0.147	0.162	1.00	0.0763	pCi/L	08/03/17 09:40	08/28/17 06:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.2		40 - 110					08/03/17 09:40	08/28/17 06:39	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.715		0.267	0.275	1.00	0.361	pCi/L	08/03/17 10:11	08/15/17 09:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.2		40 - 110					08/03/17 10:11	08/15/17 09:47	1
Y Carrier	86.4		40 - 110					08/03/17 10:11	08/15/17 09:47	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

**Client Sample ID: MW-4**  
**Date Collected: 07/24/17 13:05**  
**Date Received: 07/27/17 10:00**

**Lab Sample ID: 480-121804-6**  
**Matrix: Water**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.290		0.0963	0.0998	1.00	0.0825	pCi/L	08/03/17 09:40	08/28/17 06:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.1		40 - 110					08/03/17 09:40	08/28/17 06:39	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.850		0.293	0.304	1.00	0.396	pCi/L	08/03/17 10:11	08/15/17 09:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.1		40 - 110					08/03/17 10:11	08/15/17 09:47	1
Y Carrier	84.5		40 - 110					08/03/17 10:11	08/15/17 09:47	1



# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

**Client Sample ID: MW-1**  
**Date Collected: 07/24/17 09:45**  
**Date Received: 07/27/17 10:00**

**Lab Sample ID: 480-121804-7**  
**Matrix: Water**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.185		0.0834	0.0850	1.00	0.0966	pCi/L	08/03/17 09:40	08/28/17 06:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.5		40 - 110					08/03/17 09:40	08/28/17 06:39	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.537		0.255	0.259	1.00	0.367	pCi/L	08/03/17 10:11	08/15/17 09:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.5		40 - 110					08/03/17 10:11	08/15/17 09:47	1
Y Carrier	86.7		40 - 110					08/03/17 10:11	08/15/17 09:47	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

**Client Sample ID: MW-3**  
**Date Collected: 07/24/17 11:50**  
**Date Received: 07/27/17 10:00**

**Lab Sample ID: 480-121804-8**  
**Matrix: Water**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.452		0.118	0.125	1.00	0.0946	pCi/L	08/03/17 09:40	08/28/17 06:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.9		40 - 110					08/03/17 09:40	08/28/17 06:40	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.998		0.270	0.285	1.00	0.314	pCi/L	08/03/17 10:11	08/15/17 09:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.9		40 - 110					08/03/17 10:11	08/15/17 09:47	1
Y Carrier	85.2		40 - 110					08/03/17 10:11	08/15/17 09:47	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

**Client Sample ID: DUP-1**

**Lab Sample ID: 480-121804-9**

Date Collected: 07/24/17 00:00

Matrix: Water

Date Received: 07/27/17 10:00

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.816		0.155	0.172	1.00	0.104	pCi/L	08/03/17 09:40	08/28/17 06:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.3		40 - 110					08/03/17 09:40	08/28/17 06:40	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.20		0.310	0.330	1.00	0.387	pCi/L	08/03/17 10:11	08/15/17 09:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.3		40 - 110					08/03/17 10:11	08/15/17 09:47	1
Y Carrier	85.6		40 - 110					08/03/17 10:11	08/15/17 09:47	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-121804-10**

**Date Collected: 07/24/17 13:25**

**Matrix: Water**

**Date Received: 07/27/17 10:00**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0528	U	0.0505	0.0507	1.00	0.0756	pCi/L	08/03/17 09:40	08/28/17 06:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.2		40 - 110					08/03/17 09:40	08/28/17 06:40	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.306	U	0.233	0.235	1.00	0.367	pCi/L	08/03/17 10:11	08/15/17 09:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.2		40 - 110					08/03/17 10:11	08/15/17 09:42	1
Y Carrier	87.9		40 - 110					08/03/17 10:11	08/15/17 09:42	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-121804-11**

Date Collected: 07/24/17 13:30

Matrix: Water

Date Received: 07/27/17 10:00

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0869	U	0.0660	0.0665	1.00	0.0936	pCi/L	08/03/17 09:40	08/28/17 06:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.5		40 - 110					08/03/17 09:40	08/28/17 06:40	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.283	U	0.228	0.230	1.00	0.362	pCi/L	08/03/17 10:11	08/15/17 09:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.5		40 - 110					08/03/17 10:11	08/15/17 09:42	1
Y Carrier	87.1		40 - 110					08/03/17 10:11	08/15/17 09:42	1

# Tracer/Carrier Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

## Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
480-121804-1	MW-1RD	86.4	
480-121804-1 DU	MW-1RD	93.2	
480-121804-2	MW-2R	89.4	
480-121804-3	MW-2RD	90.6	
480-121804-4	MW-3R	92.6	
480-121804-5	MW-3RD	88.2	
480-121804-6	MW-4	89.1	
480-121804-7	MW-1	85.5	
480-121804-8	MW-3	87.9	
480-121804-9	DUP-1	92.3	
480-121804-10	FIELD BLANK	91.2	
480-121804-11	EQUIPMENT BLANK	88.5	
LCS 160-320553/2-A	Lab Control Sample	95.6	
MB 160-320553/1-A	Method Blank	95.3	

**Tracer/Carrier Legend**  
 Ba = Ba Carrier

## Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
480-121804-1	MW-1RD	86.4	90.1
480-121804-1 DU	MW-1RD	93.2	83.7
480-121804-2	MW-2R	89.4	83.4
480-121804-3	MW-2RD	90.6	93.5
480-121804-4	MW-3R	92.6	89.3
480-121804-5	MW-3RD	88.2	86.4
480-121804-6	MW-4	89.1	84.5
480-121804-7	MW-1	85.5	86.7
480-121804-8	MW-3	87.9	85.2
480-121804-9	DUP-1	92.3	85.6
480-121804-10	FIELD BLANK	91.2	87.9
480-121804-11	EQUIPMENT BLANK	88.5	87.1
LCS 160-320637/2-A	Lab Control Sample	95.6	87.1
MB 160-320637/1-A	Method Blank	95.3	85.2

**Tracer/Carrier Legend**  
 Ba = Ba Carrier  
 Y = Y Carrier

# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

## Method: 903.0 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-320553/1-A**  
**Matrix: Water**  
**Analysis Batch: 324698**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 320553**

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.1318		0.0652	0.0663	1.00	0.0672	pCi/L	08/03/17 09:40	08/28/17 06:34	1
Carrier	MB MB		Limits		Prepared	Analyzed	Dil Fac			
	%Yield	Qualifier								
Ba Carrier	95.3		40 - 110		08/03/17 09:40	08/28/17 06:34	1			

**Lab Sample ID: LCS 160-320553/2-A**  
**Matrix: Water**  
**Analysis Batch: 324698**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 320553**

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Radium-226	11.4	11.38		1.16	1.00	0.0673	pCi/L	100	68 - 137
Carrier	LCS LCS		Limits		Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier							
Ba Carrier	95.6		40 - 110						

**Lab Sample ID: 480-121804-1 DU**  
**Matrix: Water**  
**Analysis Batch: 324698**

**Client Sample ID: MW-1RD**  
**Prep Type: Total/NA**  
**Prep Batch: 320553**

Analyte	Sample Sample		DU	DU	Total	RL	MDC	Unit	RER	RER Limit
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					
Radium-226	0.597		0.7117		0.162	1.00	0.103	pCi/L	0.37	1
Carrier	DU DU		Limits		Prepared	Analyzed	Dil Fac			
	%Yield	Qualifier								
Ba Carrier	93.2		40 - 110							

## Method: 904.0 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-320637/1-A**  
**Matrix: Water**  
**Analysis Batch: 322168**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 320637**

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.3130	U	0.212	0.214	1.00	0.327	pCi/L	08/03/17 10:11	08/15/17 09:44	1
Carrier	MB MB		Limits		Prepared	Analyzed	Dil Fac			
	%Yield	Qualifier								
Ba Carrier	95.3		40 - 110		08/03/17 10:11	08/15/17 09:44	1			
Y Carrier	85.2		40 - 110		08/03/17 10:11	08/15/17 09:44	1			

TestAmerica Buffalo

# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

## Method: 904.0 - Radium-228 (GFPC) (Continued)

**Lab Sample ID: LCS 160-320637/2-A**

**Matrix: Water**

**Analysis Batch: 322168**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 320637**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	13.0	14.67		1.56	1.00	0.280	pCi/L	112	56 - 140

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	95.6		40 - 110
Y Carrier	87.1		40 - 110

**Lab Sample ID: 480-121804-1 DU**

**Matrix: Water**

**Analysis Batch: 322168**

**Client Sample ID: MW-1RD**

**Prep Type: Total/NA**

**Prep Batch: 320637**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	1.08		1.286		0.313	1.00	0.320	pCi/L	0.33	1

Carrier	DU %Yield	DU Qualifier	Limits
Ba Carrier	93.2		40 - 110
Y Carrier	83.7		40 - 110



# QC Association Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

## Rad

### Prep Batch: 320553

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-121804-1	MW-1RD	Total/NA	Water	PrecSep-21	
480-121804-2	MW-2R	Total/NA	Water	PrecSep-21	
480-121804-3	MW-2RD	Total/NA	Water	PrecSep-21	
480-121804-4	MW-3R	Total/NA	Water	PrecSep-21	
480-121804-5	MW-3RD	Total/NA	Water	PrecSep-21	
480-121804-6	MW-4	Total/NA	Water	PrecSep-21	
480-121804-7	MW-1	Total/NA	Water	PrecSep-21	
480-121804-8	MW-3	Total/NA	Water	PrecSep-21	
480-121804-9	DUP-1	Total/NA	Water	PrecSep-21	
480-121804-10	FIELD BLANK	Total/NA	Water	PrecSep-21	
480-121804-11	EQUIPMENT BLANK	Total/NA	Water	PrecSep-21	
MB 160-320553/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-320553/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
480-121804-1 DU	MW-1RD	Total/NA	Water	PrecSep-21	

### Prep Batch: 320637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-121804-1	MW-1RD	Total/NA	Water	PrecSep_0	
480-121804-2	MW-2R	Total/NA	Water	PrecSep_0	
480-121804-3	MW-2RD	Total/NA	Water	PrecSep_0	
480-121804-4	MW-3R	Total/NA	Water	PrecSep_0	
480-121804-5	MW-3RD	Total/NA	Water	PrecSep_0	
480-121804-6	MW-4	Total/NA	Water	PrecSep_0	
480-121804-7	MW-1	Total/NA	Water	PrecSep_0	
480-121804-8	MW-3	Total/NA	Water	PrecSep_0	
480-121804-9	DUP-1	Total/NA	Water	PrecSep_0	
480-121804-10	FIELD BLANK	Total/NA	Water	PrecSep_0	
480-121804-11	EQUIPMENT BLANK	Total/NA	Water	PrecSep_0	
MB 160-320637/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-320637/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
480-121804-1 DU	MW-1RD	Total/NA	Water	PrecSep_0	

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

## Client Sample ID: MW-1RD

Lab Sample ID: 480-121804-1

Date Collected: 07/24/17 09:50

Matrix: Water

Date Received: 07/27/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			320553	08/03/17 09:40	LDE	TAL SL
Total/NA	Analysis	903.0		1	324698	08/28/17 06:37	RTM	TAL SL
Total/NA	Prep	PrecSep_0			320637	08/03/17 10:11	LDE	TAL SL
Total/NA	Analysis	904.0		1	322168	08/15/17 09:46	ALD	TAL SL

## Client Sample ID: MW-2R

Lab Sample ID: 480-121804-2

Date Collected: 07/24/17 11:15

Matrix: Water

Date Received: 07/27/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			320553	08/03/17 09:40	LDE	TAL SL
Total/NA	Analysis	903.0		1	324698	08/28/17 06:37	RTM	TAL SL
Total/NA	Prep	PrecSep_0			320637	08/03/17 10:11	LDE	TAL SL
Total/NA	Analysis	904.0		1	322168	08/15/17 09:46	ALD	TAL SL

## Client Sample ID: MW-2RD

Lab Sample ID: 480-121804-3

Date Collected: 07/24/17 11:10

Matrix: Water

Date Received: 07/27/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			320553	08/03/17 09:40	LDE	TAL SL
Total/NA	Analysis	903.0		1	324697	08/28/17 06:38	RTM	TAL SL
Total/NA	Prep	PrecSep_0			320637	08/03/17 10:11	LDE	TAL SL
Total/NA	Analysis	904.0		1	322168	08/15/17 09:47	ALD	TAL SL

## Client Sample ID: MW-3R

Lab Sample ID: 480-121804-4

Date Collected: 07/24/17 11:55

Matrix: Water

Date Received: 07/27/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			320553	08/03/17 09:40	LDE	TAL SL
Total/NA	Analysis	903.0		1	324697	08/28/17 06:39	RTM	TAL SL
Total/NA	Prep	PrecSep_0			320637	08/03/17 10:11	LDE	TAL SL
Total/NA	Analysis	904.0		1	322168	08/15/17 09:47	ALD	TAL SL

## Client Sample ID: MW-3RD

Lab Sample ID: 480-121804-5

Date Collected: 07/24/17 12:30

Matrix: Water

Date Received: 07/27/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			320553	08/03/17 09:40	LDE	TAL SL
Total/NA	Analysis	903.0		1	324697	08/28/17 06:39	RTM	TAL SL
Total/NA	Prep	PrecSep_0			320637	08/03/17 10:11	LDE	TAL SL

TestAmerica Buffalo

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

## Client Sample ID: MW-3RD

Lab Sample ID: 480-121804-5

Date Collected: 07/24/17 12:30

Matrix: Water

Date Received: 07/27/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	904.0		1	322168	08/15/17 09:47	ALD	TAL SL

## Client Sample ID: MW-4

Lab Sample ID: 480-121804-6

Date Collected: 07/24/17 13:05

Matrix: Water

Date Received: 07/27/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			320553	08/03/17 09:40	LDE	TAL SL
Total/NA	Analysis	903.0		1	324697	08/28/17 06:39	RTM	TAL SL
Total/NA	Prep	PrecSep_0			320637	08/03/17 10:11	LDE	TAL SL
Total/NA	Analysis	904.0		1	322168	08/15/17 09:47	ALD	TAL SL

## Client Sample ID: MW-1

Lab Sample ID: 480-121804-7

Date Collected: 07/24/17 09:45

Matrix: Water

Date Received: 07/27/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			320553	08/03/17 09:40	LDE	TAL SL
Total/NA	Analysis	903.0		1	324697	08/28/17 06:39	RTM	TAL SL
Total/NA	Prep	PrecSep_0			320637	08/03/17 10:11	LDE	TAL SL
Total/NA	Analysis	904.0		1	322168	08/15/17 09:47	ALD	TAL SL

## Client Sample ID: MW-3

Lab Sample ID: 480-121804-8

Date Collected: 07/24/17 11:50

Matrix: Water

Date Received: 07/27/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			320553	08/03/17 09:40	LDE	TAL SL
Total/NA	Analysis	903.0		1	324697	08/28/17 06:40	RTM	TAL SL
Total/NA	Prep	PrecSep_0			320637	08/03/17 10:11	LDE	TAL SL
Total/NA	Analysis	904.0		1	322168	08/15/17 09:47	ALD	TAL SL

## Client Sample ID: DUP-1

Lab Sample ID: 480-121804-9

Date Collected: 07/24/17 00:00

Matrix: Water

Date Received: 07/27/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			320553	08/03/17 09:40	LDE	TAL SL
Total/NA	Analysis	903.0		1	324697	08/28/17 06:40	RTM	TAL SL
Total/NA	Prep	PrecSep_0			320637	08/03/17 10:11	LDE	TAL SL
Total/NA	Analysis	904.0		1	322168	08/15/17 09:47	ALD	TAL SL

TestAmerica Buffalo

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

## Client Sample ID: FIELD BLANK

Lab Sample ID: 480-121804-10

Date Collected: 07/24/17 13:25

Matrix: Water

Date Received: 07/27/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			320553	08/03/17 09:40	LDE	TAL SL
Total/NA	Analysis	903.0		1	324697	08/28/17 06:40	RTM	TAL SL
Total/NA	Prep	PrecSep_0			320637	08/03/17 10:11	LDE	TAL SL
Total/NA	Analysis	904.0		1	322166	08/15/17 09:42	CDR	TAL SL

## Client Sample ID: EQUIPMENT BLANK

Lab Sample ID: 480-121804-11

Date Collected: 07/24/17 13:30

Matrix: Water

Date Received: 07/27/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			320553	08/03/17 09:40	LDE	TAL SL
Total/NA	Analysis	903.0		1	324697	08/28/17 06:40	RTM	TAL SL
Total/NA	Prep	PrecSep_0			320637	08/03/17 10:11	LDE	TAL SL
Total/NA	Analysis	904.0		1	322166	08/15/17 09:42	CDR	TAL SL

### Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

## Accreditation/Certification Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

### Laboratory: TestAmerica Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	036-999-337	12-31-17

### Laboratory: TestAmerica St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-18
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18
Illinois	NELAP	5	200023	11-30-17
Iowa	State Program	7	373	02-01-18
Kansas	NELAP	7	E-10236	10-31-17 *
Kentucky (DW)	State Program	4	90125	12-31-17
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-18
Louisiana (DW)	NELAP	6	LA170011	12-31-17
Maryland	State Program	3	310	09-30-18
Missouri	State Program	7	780	06-30-18
Nevada	State Program	9	MO000542017-1	07-31-18
New Jersey	NELAP	2	MO002	06-30-18
New York	NELAP	2	11616	03-31-18
North Dakota	State Program	8	R207	06-30-17 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-17 *
Pennsylvania	NELAP	3	68-00540	02-21-18
South Carolina	State Program	4	85002001	06-30-17 *
Texas	NELAP	6	T104704193-17-11	07-31-18
US Fish & Wildlife	Federal		058448	08-31-18
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-17 *
Virginia	NELAP	3	460230	06-14-18
Washington	State Program	10	C592	08-30-17 *
West Virginia DEP	State Program	3	381	08-31-17 *

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Method Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



# Sample Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-121804-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-121804-1	MW-1RD	Water	07/24/17 09:50	07/27/17 10:00
480-121804-2	MW-2R	Water	07/24/17 11:15	07/27/17 10:00
480-121804-3	MW-2RD	Water	07/24/17 11:10	07/27/17 10:00
480-121804-4	MW-3R	Water	07/24/17 11:55	07/27/17 10:00
480-121804-5	MW-3RD	Water	07/24/17 12:30	07/27/17 10:00
480-121804-6	MW-4	Water	07/24/17 13:05	07/27/17 10:00
480-121804-7	MW-1	Water	07/24/17 09:45	07/27/17 10:00
480-121804-8	MW-3	Water	07/24/17 11:50	07/27/17 10:00
480-121804-9	DUP-1	Water	07/24/17 00:00	07/27/17 10:00
480-121804-10	FIELD BLANK	Water	07/24/17 13:25	07/27/17 10:00
480-121804-11	EQUIPMENT BLANK	Water	07/24/17 13:30	07/27/17 10:00

Amherst, NY 14228-2223  
phone 716.691.2600 fax 716.691.7991

Regulatory Program:  DW  WDES  RCRA  Other: \_\_\_\_\_

TestAmerica Laboratories, Inc.  
COC No: \_\_\_\_\_ of \_\_\_\_\_ COCs

Client Contact  
SKB Environmental  
13425 Courthouse Blvd  
Rosemount, MN 55068  
(651) 438-1500 Phone  
(651) 438-1518 FAX  
Project Name: Lansing 2017 CCR GW Event 6  
Site:  
P O #

Project Manager: Ryan Van Derbe  
Tel/Fax: \_\_\_\_\_  
Site Contact: Nathaniel Belineman  
Date: 7/24/17  
Carrier: \_\_\_\_\_  
Sampler: \_\_\_\_\_  
For Lab Use Only:  
Walk-in Client:  
Lab Sampling:  
Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C-Cont, G-Cont)	Matrix	# of Cont.	Analysis Turnaround Time										
						Filtered Sample (Y/N)	Metals (total)* + Mercury	Chloride	Fluoride	Sulfate	PH	Medium 226 & 228 combined	Carrier	Other		
MW-1RD	7/24/17	9:50	Grab	Water	7	X	X	X	X	X	X	X				
MW-2R		11:15	Grab	Water	7	X	X	X	X	X	X	X				
MW-2RD		11:10	Grab	Water	7	X	X	X	X	X	X	X				
MW-3R		11:55	Grab	Water	7	X	X	X	X	X	X	X				
MW-3RD		12:30	Grab	Water	7	X	X	X	X	X	X	X				
MW-4		13:05	Grab	Water	7	X	X	X	X	X	X	X				
MW-1		9:45	Grab	Water	7	X	X	X	X	X	X	X				
MW-3		11:50	Grab	Water	7	X	X	X	X	X	X	X				
Duplicate - 1			Grab	Water	7	X	X	X	X	X	X	X				
Field Blank		13:25	Grab	Water	7	X	X	X	X	X	X	X				
Equipment Blank		13:30	Grab	Water	7	X	X	X	X	X	X	X				

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other

Possible Hazard Identification: Please List any EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard  Flammable  Skin Irritant  Unknown   
Return to Client  Dispose by Lab  Archive for \_\_\_\_\_ Months

Therm ID No.: \_\_\_\_\_  
Date/Time: 7/25/17 11:06  
Received by: [Signature] Company: [Blank]  
Date/Time: 7/24/17 [Blank]  
Received in Laboratory by: [Blank] Company: [Blank]



# Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b>		Lab PM: VanDette, Ryan T	Carrier Tracking No(s): 480-36328-1
Shipping/Receiving		E-Mail: ryan.vandette@testamerica.com	State of Origin: Minnesota
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Minnesota	
Address: 13715 Rider Trail North, City: Earth City State, Zip: MO, 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email:		Job #: 480-121804-1	
Project Name: SKB Lansing Site: Lansing MN		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Ice V - MCAA W - pH 4-5 L - EDTA Other:	
Due Date Requested: 8/8/2017 TAT Requested (days):		<b>Analysis Requested</b>	
PO #: WO #: Project #: 48013603 SSOW#:		Perform MS/MSD (Yes or No)	
Sample Date		Field Filtered Sample (Yes or No)	
Sample Time		903.0/PreSep_21 Standard Target List	
Sample Type (C=Comp, G=grab)		904.0/PreSep_0 Standard Target List	
Matrix (W=water, S=solid, O=wastewater, B=Tissue, A=Air)		Total Number of Containers	
Preservation Code:		Special Instructions/Note:	
MW-1RD (480-121804-1)	7/24/17 09:50 Central Water	X	3
MW-2R (480-121804-2)	7/24/17 11:15 Central Water	X	3
MW-2RD (480-121804-3)	7/24/17 11:10 Central Water	X	3
MW-3R (480-121804-4)	7/24/17 11:55 Central Water	X	3
MW-3RD (480-121804-5)	7/24/17 12:30 Central Water	X	3
MW-4 (480-121804-6)	7/24/17 13:05 Central Water	X	3
MW-1 (480-121804-7)	7/24/17 09:45 Central Water	X	3
MW-3 (480-121804-8)	7/24/17 11:50 Central Water	X	3
DUP-1 (480-121804-9)	7/24/17 Central Water	X	3

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

**Possible Hazard Identification**  
 Unconfirmed  
 Deliverable Requested: I, II, III, IV, Other (specify)  
 Primary Deliverable Rank: 2  
 Date: \_\_\_\_\_

Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date/Time: 7/31/17 Company: TAB  
 Relinquished by: \_\_\_\_\_ Date/Time: 8/1/17 Company: VSA  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months  
 Special Instructions/QC Requirements:







## Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-121804-2

SDG Number:

**Login Number: 121804**

**List Number: 1**

**Creator: Janish, Carl M**

**List Source: TestAmerica Buffalo**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GES
Samples received within 48 hours of sampling.	False	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

## Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-121804-2

SDG Number:

**Login Number: 121804**

**List Number: 2**

**Creator: Taylor, Kristene N**

**List Source: TestAmerica St. Louis**

**List Creation: 08/01/17 04:15 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	19.0,19.0,19.0,19.0,19.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-123041-1

Client Project/Site: SKB Lansing - CCR Groundwater

Sampling Event: CCR Groundwater

For:

Waste Connections, Inc.

13425 Courthouse Blvd

Rosemount, Minnesota 55068

Attn: Nathaniel Beinemann



Authorized for release by:

8/30/2017 3:04:23 PM

Denise Giglia, Project Management Assistant II

[denise.giglia@testamericainc.com](mailto:denise.giglia@testamericainc.com)

Designee for

Ryan VanDette, Project Manager II

(716)504-9830

[ryan.vandette@testamericainc.com](mailto:ryan.vandette@testamericainc.com)

### LINKS

Review your project  
results through

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Have a Question?



Visit us at:

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*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.

### General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

**Job ID: 480-123041-1**

**Laboratory: TestAmerica Buffalo**

## Narrative

### Job Narrative 480-123041-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 8/22/2017 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.9° C, 3.0° C and 3.4° C.

#### HPLC/IC

Method(s) 300.0: The following samples was diluted to bring the concentration of target analytes within the calibration range: MW-2R (480-123041-2), MW-3RD (480-123041-5), MW-4 (480-123041-6), MW-1 (480-123041-7) and DUP-1 (480-123041-9). Elevated reporting limits (RLs) are provided.

Method(s) 300.0: The following samples was reported with elevated reporting limits for all analytes: MW-1RD (480-123041-1), MW-2RD (480-123041-3), MW-3R (480-123041-4) and MW-3 (480-123041-8). The sample was analyzed at a dilution based on screening results.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) 9040C, SM 4500 H+ B: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: MW-1RD (480-123041-1), MW-2R (480-123041-2), MW-2RD (480-123041-3), MW-3R (480-123041-4), MW-3RD (480-123041-5), MW-4 (480-123041-6), MW-1 (480-123041-7), MW-3 (480-123041-8), DUP-1 (480-123041-9), FIELD BLANK (480-123041-10) and EQUIPMENT BLANK (480-123041-11).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

## Client Sample ID: MW-1RD

## Lab Sample ID: 480-123041-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.16		0.0020		mg/L	1		6010C	Total/NA
Calcium	79.2		0.50		mg/L	1		6010C	Total/NA
Cobalt	1.4		0.30		ug/L	1		6020A	Total/NA
Molybdenum	3.0		1.0		ug/L	1		6020A	Total/NA
Chloride	17.2		1.0		mg/L	2		300.0	Total/NA
Fluoride	0.25		0.10		mg/L	2		300.0	Total/NA
Sulfate	47.0		4.0		mg/L	2		300.0	Total/NA
Total Dissolved Solids	320		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.6	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	24.3	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-2R

## Lab Sample ID: 480-123041-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.18		0.0020		mg/L	1		6010C	Total/NA
Boron	0.36		0.020		mg/L	1		6010C	Total/NA
Calcium	194		0.50		mg/L	1		6010C	Total/NA
Arsenic	1.0		1.0		ug/L	1		6020A	Total/NA
Cobalt	0.56		0.30		ug/L	1		6020A	Total/NA
Molybdenum	1.9		1.0		ug/L	1		6020A	Total/NA
Chloride	55.7		2.5		mg/L	5		300.0	Total/NA
Sulfate	124		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	821		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.0	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	24.4	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-2RD

## Lab Sample ID: 480-123041-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.16		0.0020		mg/L	1		6010C	Total/NA
Boron	0.042		0.020		mg/L	1		6010C	Total/NA
Calcium	128		0.50		mg/L	1		6010C	Total/NA
Arsenic	1.8		1.0		ug/L	1		6020A	Total/NA
Cobalt	2.2		0.30		ug/L	1		6020A	Total/NA
Molybdenum	2.6		1.0		ug/L	1		6020A	Total/NA
Chloride	27.3		2.5		mg/L	5		300.0	Total/NA
Sulfate	59.9		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	522		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.4	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	23.7	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3R

## Lab Sample ID: 480-123041-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.54		0.0020		mg/L	1		6010C	Total/NA
Boron	0.044		0.020		mg/L	1		6010C	Total/NA
Calcium	223		0.50		mg/L	1		6010C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

## Client Sample ID: MW-3R (Continued)

## Lab Sample ID: 480-123041-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	2.7		1.0		ug/L	1		6020A	Total/NA
Cobalt	0.49		0.30		ug/L	1		6020A	Total/NA
Molybdenum	1.7		1.0		ug/L	1		6020A	Total/NA
Chloride	17.7		2.5		mg/L	5		300.0	Total/NA
Sulfate	32.3		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	791		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.9	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	23.9	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3RD

## Lab Sample ID: 480-123041-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.21		0.0020		mg/L	1		6010C	Total/NA
Boron	0.030		0.020		mg/L	1		6010C	Total/NA
Calcium	132		0.50		mg/L	1		6010C	Total/NA
Arsenic	4.2		1.0		ug/L	1		6020A	Total/NA
Cobalt	0.73		0.30		ug/L	1		6020A	Total/NA
Molybdenum	4.0		1.0		ug/L	1		6020A	Total/NA
Chloride	28.4		2.5		mg/L	5		300.0	Total/NA
Sulfate	106		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	567		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.3	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	23.9	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-4

## Lab Sample ID: 480-123041-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.24		0.0020		mg/L	1		6010C	Total/NA
Boron	0.33		0.020		mg/L	1		6010C	Total/NA
Calcium	242		0.50		mg/L	1		6010C	Total/NA
Arsenic	1.9		1.0		ug/L	1		6020A	Total/NA
Cadmium	0.52		0.50		ug/L	1		6020A	Total/NA
Cobalt	0.58		0.30		ug/L	1		6020A	Total/NA
Molybdenum	2.0		1.0		ug/L	1		6020A	Total/NA
Chloride	35.4		2.5		mg/L	5		300.0	Total/NA
Fluoride	0.26		0.25		mg/L	5		300.0	Total/NA
Sulfate	297		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	1070		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.1	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	23.8	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-1

## Lab Sample ID: 480-123041-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.11		0.0020		mg/L	1		6010C	Total/NA
Boron	0.021		0.020		mg/L	1		6010C	Total/NA
Calcium	104		0.50		mg/L	1		6010C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

## Client Sample ID: MW-1 (Continued)

## Lab Sample ID: 480-123041-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	0.68		0.50		ug/L	1		6020A	Total/NA
Chloride	97.2		2.5		mg/L	5		300.0	Total/NA
Sulfate	39.0		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	459		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.2	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	23.8	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3

## Lab Sample ID: 480-123041-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.26		0.0020		mg/L	1		6010C	Total/NA
Boron	0.32		0.020		mg/L	1		6010C	Total/NA
Calcium	205		0.50		mg/L	1		6010C	Total/NA
Arsenic	2.8		1.0		ug/L	1		6020A	Total/NA
Cobalt	5.4		0.30		ug/L	1		6020A	Total/NA
Molybdenum	7.5		1.0		ug/L	1		6020A	Total/NA
Chloride	22.3		2.5		mg/L	5		300.0	Total/NA
Sulfate	30.8		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	802		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.9	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	24.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: DUP-1

## Lab Sample ID: 480-123041-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.21		0.0020		mg/L	1		6010C	Total/NA
Boron	0.030		0.020		mg/L	1		6010C	Total/NA
Calcium	134		0.50		mg/L	1		6010C	Total/NA
Arsenic	4.1		1.0		ug/L	1		6020A	Total/NA
Cobalt	0.76		0.30		ug/L	1		6020A	Total/NA
Molybdenum	3.8		1.0		ug/L	1		6020A	Total/NA
Chloride	27.9		2.5		mg/L	5		300.0	Total/NA
Sulfate	105		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	562		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.3	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	24.3	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: FIELD BLANK

## Lab Sample ID: 480-123041-10

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.4	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	23.5	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: EQUIPMENT BLANK

## Lab Sample ID: 480-123041-11

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	5.9	HF	0.1		SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

**Client Sample ID: EQUIPMENT BLANK (Continued)**

**Lab Sample ID: 480-123041-11**

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Temperature	24.3	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

- 1
- 2
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This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-123041-1**

**Date Collected: 08/17/17 08:30**

**Matrix: Water**

**Date Received: 08/22/17 09:45**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Barium</b>	<b>0.16</b>		0.0020		mg/L		08/23/17 10:15	08/24/17 13:04	1
Boron	ND		0.020		mg/L		08/23/17 10:15	08/24/17 13:04	1
<b>Calcium</b>	<b>79.2</b>		0.50		mg/L		08/23/17 10:15	08/24/17 13:04	1
Chromium	ND		0.0040		mg/L		08/23/17 10:15	08/24/17 13:04	1
Lead	ND		0.010		mg/L		08/23/17 10:15	08/24/17 13:04	1
Lithium	ND		0.030		mg/L		08/23/17 10:15	08/24/17 13:04	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/24/17 07:50	08/24/17 19:10	1
Arsenic	ND		1.0		ug/L		08/24/17 07:50	08/24/17 19:10	1
Beryllium	ND	^	0.70		ug/L		08/24/17 07:50	08/24/17 19:10	1
Cadmium	ND		0.50		ug/L		08/24/17 07:50	08/24/17 19:10	1
<b>Cobalt</b>	<b>1.4</b>		0.30		ug/L		08/24/17 07:50	08/24/17 19:10	1
<b>Molybdenum</b>	<b>3.0</b>		1.0		ug/L		08/24/17 07:50	08/24/17 19:10	1
Selenium	ND		1.0		ug/L		08/24/17 07:50	08/24/17 19:10	1
Thallium	ND		0.20		ug/L		08/24/17 07:50	08/24/17 19:10	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		08/23/17 09:20	08/23/17 13:38	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>17.2</b>		1.0		mg/L			08/28/17 18:46	2
<b>Fluoride</b>	<b>0.25</b>		0.10		mg/L			08/28/17 18:46	2
<b>Sulfate</b>	<b>47.0</b>		4.0		mg/L			08/28/17 18:46	2
<b>Total Dissolved Solids</b>	<b>320</b>		10.0		mg/L			08/23/17 09:13	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>pH</b>	<b>7.6</b>	<b>HF</b>	0.1		SU			08/24/17 15:37	1
<b>Temperature</b>	<b>24.3</b>	<b>HF</b>	0.001		Degrees C			08/24/17 15:37	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

**Client Sample ID: MW-2R**

**Date Collected: 08/17/17 09:35**

**Date Received: 08/22/17 09:45**

**Lab Sample ID: 480-123041-2**

**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.18		0.0020		mg/L		08/23/17 10:15	08/24/17 13:08	1
Boron	0.36		0.020		mg/L		08/23/17 10:15	08/24/17 13:08	1
Calcium	194		0.50		mg/L		08/23/17 10:15	08/24/17 13:08	1
Chromium	ND		0.0040		mg/L		08/23/17 10:15	08/24/17 13:08	1
Lead	ND		0.010		mg/L		08/23/17 10:15	08/24/17 13:08	1
Lithium	ND		0.030		mg/L		08/23/17 10:15	08/24/17 13:08	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/24/17 07:50	08/24/17 19:16	1
Arsenic	1.0		1.0		ug/L		08/24/17 07:50	08/24/17 19:16	1
Beryllium	ND	^	0.70		ug/L		08/24/17 07:50	08/24/17 19:16	1
Cadmium	ND		0.50		ug/L		08/24/17 07:50	08/24/17 19:16	1
Cobalt	0.56		0.30		ug/L		08/24/17 07:50	08/24/17 19:16	1
Molybdenum	1.9		1.0		ug/L		08/24/17 07:50	08/24/17 19:16	1
Selenium	ND		1.0		ug/L		08/24/17 07:50	08/24/17 19:16	1
Thallium	ND		0.20		ug/L		08/24/17 07:50	08/24/17 19:16	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		08/23/17 09:20	08/23/17 13:40	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	55.7		2.5		mg/L			08/28/17 18:54	5
Fluoride	ND		0.25		mg/L			08/28/17 18:54	5
Sulfate	124		10.0		mg/L			08/28/17 18:54	5
Total Dissolved Solids	821		10.0		mg/L			08/23/17 09:13	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.0	HF	0.1		SU			08/24/17 15:40	1
Temperature	24.4	HF	0.001		Degrees C			08/24/17 15:40	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-123041-3**

**Date Collected: 08/17/17 09:30**

**Matrix: Water**

**Date Received: 08/22/17 09:45**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.16		0.0020		mg/L		08/23/17 10:15	08/24/17 13:22	1
Boron	0.042		0.020		mg/L		08/23/17 10:15	08/24/17 13:22	1
Calcium	128		0.50		mg/L		08/23/17 10:15	08/24/17 13:22	1
Chromium	ND		0.0040		mg/L		08/23/17 10:15	08/24/17 13:22	1
Lead	ND		0.010		mg/L		08/23/17 10:15	08/24/17 13:22	1
Lithium	ND		0.030		mg/L		08/23/17 10:15	08/24/17 13:22	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/24/17 07:50	08/24/17 19:21	1
Arsenic	1.8		1.0		ug/L		08/24/17 07:50	08/24/17 19:21	1
Beryllium	ND	^	0.70		ug/L		08/24/17 07:50	08/24/17 19:21	1
Cadmium	ND		0.50		ug/L		08/24/17 07:50	08/24/17 19:21	1
Cobalt	2.2		0.30		ug/L		08/24/17 07:50	08/24/17 19:21	1
Molybdenum	2.6		1.0		ug/L		08/24/17 07:50	08/24/17 19:21	1
Selenium	ND		1.0		ug/L		08/24/17 07:50	08/24/17 19:21	1
Thallium	ND		0.20		ug/L		08/24/17 07:50	08/24/17 19:21	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		08/23/17 09:20	08/23/17 13:42	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	27.3		2.5		mg/L			08/28/17 19:02	5
Fluoride	ND		0.25		mg/L			08/28/17 19:02	5
Sulfate	59.9		10.0		mg/L			08/28/17 19:02	5
Total Dissolved Solids	522		10.0		mg/L			08/23/17 09:13	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.4	HF	0.1		SU			08/24/17 15:42	1
Temperature	23.7	HF	0.001		Degrees C			08/24/17 15:42	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

**Client Sample ID: MW-3R**

**Date Collected: 08/17/17 10:20**

**Date Received: 08/22/17 09:45**

**Lab Sample ID: 480-123041-4**

**Matrix: Water**

## Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.54		0.0020		mg/L		08/23/17 10:15	08/24/17 13:26	1
Boron	0.044		0.020		mg/L		08/23/17 10:15	08/24/17 13:26	1
Calcium	223		0.50		mg/L		08/23/17 10:15	08/24/17 13:26	1
Chromium	ND		0.0040		mg/L		08/23/17 10:15	08/24/17 13:26	1
Lead	ND		0.010		mg/L		08/23/17 10:15	08/24/17 13:26	1
Lithium	ND		0.030		mg/L		08/23/17 10:15	08/24/17 13:26	1

## Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/24/17 07:50	08/24/17 19:27	1
Arsenic	2.7		1.0		ug/L		08/24/17 07:50	08/24/17 19:27	1
Beryllium	ND	^	0.70		ug/L		08/24/17 07:50	08/24/17 19:27	1
Cadmium	ND		0.50		ug/L		08/24/17 07:50	08/24/17 19:27	1
Cobalt	0.49		0.30		ug/L		08/24/17 07:50	08/24/17 19:27	1
Molybdenum	1.7		1.0		ug/L		08/24/17 07:50	08/24/17 19:27	1
Selenium	ND		1.0		ug/L		08/24/17 07:50	08/24/17 19:27	1
Thallium	ND		0.20		ug/L		08/24/17 07:50	08/24/17 19:27	1

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		08/23/17 09:20	08/23/17 13:44	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	17.7		2.5		mg/L			08/28/17 19:43	5
Fluoride	ND		0.25		mg/L			08/28/17 19:43	5
Sulfate	32.3		10.0		mg/L			08/28/17 19:43	5
Total Dissolved Solids	791		10.0		mg/L			08/23/17 09:13	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1		SU			08/24/17 15:45	1
Temperature	23.9	HF	0.001		Degrees C			08/24/17 15:45	1



# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-123041-5**

**Date Collected: 08/17/17 10:55**

**Matrix: Water**

**Date Received: 08/22/17 09:45**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.21		0.0020		mg/L		08/23/17 10:15	08/24/17 13:29	1
Boron	0.030		0.020		mg/L		08/23/17 10:15	08/24/17 13:29	1
Calcium	132		0.50		mg/L		08/23/17 10:15	08/24/17 13:29	1
Chromium	ND		0.0040		mg/L		08/23/17 10:15	08/24/17 13:29	1
Lead	ND		0.010		mg/L		08/23/17 10:15	08/24/17 13:29	1
Lithium	ND		0.030		mg/L		08/23/17 10:15	08/24/17 13:29	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/24/17 07:50	08/24/17 19:32	1
Arsenic	4.2		1.0		ug/L		08/24/17 07:50	08/24/17 19:32	1
Beryllium	ND	^	0.70		ug/L		08/24/17 07:50	08/24/17 19:32	1
Cadmium	ND		0.50		ug/L		08/24/17 07:50	08/24/17 19:32	1
Cobalt	0.73		0.30		ug/L		08/24/17 07:50	08/24/17 19:32	1
Molybdenum	4.0		1.0		ug/L		08/24/17 07:50	08/24/17 19:32	1
Selenium	ND		1.0		ug/L		08/24/17 07:50	08/24/17 19:32	1
Thallium	ND		0.20		ug/L		08/24/17 07:50	08/24/17 19:32	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		08/23/17 09:20	08/23/17 13:46	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	28.4		2.5		mg/L			08/28/17 19:51	5
Fluoride	ND		0.25		mg/L			08/28/17 19:51	5
Sulfate	106		10.0		mg/L			08/28/17 19:51	5
Total Dissolved Solids	567		10.0		mg/L			08/23/17 09:13	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.3	HF	0.1		SU			08/24/17 15:48	1
Temperature	23.9	HF	0.001		Degrees C			08/24/17 15:48	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

**Client Sample ID: MW-4**  
**Date Collected: 08/17/17 11:45**  
**Date Received: 08/22/17 09:45**

**Lab Sample ID: 480-123041-6**  
**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.24		0.0020		mg/L		08/23/17 10:15	08/24/17 13:33	1
Boron	0.33		0.020		mg/L		08/23/17 10:15	08/24/17 13:33	1
Calcium	242		0.50		mg/L		08/23/17 10:15	08/24/17 13:33	1
Chromium	ND		0.0040		mg/L		08/23/17 10:15	08/24/17 13:33	1
Lead	ND		0.010		mg/L		08/23/17 10:15	08/24/17 13:33	1
Lithium	ND		0.030		mg/L		08/23/17 10:15	08/24/17 13:33	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/24/17 07:50	08/24/17 19:38	1
Arsenic	1.9		1.0		ug/L		08/24/17 07:50	08/24/17 19:38	1
Beryllium	ND	^	0.70		ug/L		08/24/17 07:50	08/24/17 19:38	1
Cadmium	0.52		0.50		ug/L		08/24/17 07:50	08/24/17 19:38	1
Cobalt	0.58		0.30		ug/L		08/24/17 07:50	08/24/17 19:38	1
Molybdenum	2.0		1.0		ug/L		08/24/17 07:50	08/24/17 19:38	1
Selenium	ND		1.0		ug/L		08/24/17 07:50	08/24/17 19:38	1
Thallium	ND		0.20		ug/L		08/24/17 07:50	08/24/17 19:38	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		08/23/17 09:20	08/23/17 13:48	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	35.4		2.5		mg/L			08/28/17 19:59	5
Fluoride	0.26		0.25		mg/L			08/28/17 19:59	5
Sulfate	297		10.0		mg/L			08/28/17 19:59	5
Total Dissolved Solids	1070		10.0		mg/L			08/23/17 09:13	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.1	HF	0.1		SU			08/24/17 15:51	1
Temperature	23.8	HF	0.001		Degrees C			08/24/17 15:51	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

**Client Sample ID: MW-1**  
**Date Collected: 08/17/17 08:25**  
**Date Received: 08/22/17 09:45**

**Lab Sample ID: 480-123041-7**  
**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.11		0.0020		mg/L		08/23/17 10:15	08/24/17 13:37	1
Boron	0.021		0.020		mg/L		08/23/17 10:15	08/24/17 13:37	1
Calcium	104		0.50		mg/L		08/23/17 10:15	08/24/17 13:37	1
Chromium	ND		0.0040		mg/L		08/23/17 10:15	08/24/17 13:37	1
Lead	ND		0.010		mg/L		08/23/17 10:15	08/24/17 13:37	1
Lithium	ND		0.030		mg/L		08/23/17 10:15	08/24/17 13:37	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/24/17 07:50	08/24/17 19:43	1
Arsenic	ND		1.0		ug/L		08/24/17 07:50	08/24/17 19:43	1
Beryllium	ND	^	0.70		ug/L		08/24/17 07:50	08/24/17 19:43	1
Cadmium	0.68		0.50		ug/L		08/24/17 07:50	08/24/17 19:43	1
Cobalt	ND		0.30		ug/L		08/24/17 07:50	08/24/17 19:43	1
Molybdenum	ND		1.0		ug/L		08/24/17 07:50	08/24/17 19:43	1
Selenium	ND		1.0		ug/L		08/24/17 07:50	08/24/17 19:43	1
Thallium	ND		0.20		ug/L		08/24/17 07:50	08/24/17 19:43	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		08/23/17 09:20	08/23/17 13:55	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	97.2		2.5		mg/L			08/28/17 20:07	5
Fluoride	ND		0.25		mg/L			08/28/17 20:07	5
Sulfate	39.0		10.0		mg/L			08/28/17 20:07	5
Total Dissolved Solids	459		10.0		mg/L			08/23/17 09:13	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.2	HF	0.1		SU			08/24/17 15:54	1
Temperature	23.8	HF	0.001		Degrees C			08/24/17 15:54	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

**Client Sample ID: MW-3**  
**Date Collected: 08/17/17 10:25**  
**Date Received: 08/22/17 09:45**

**Lab Sample ID: 480-123041-8**  
**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.26		0.0020		mg/L		08/23/17 10:15	08/24/17 13:40	1
Boron	0.32		0.020		mg/L		08/23/17 10:15	08/24/17 13:40	1
Calcium	205		0.50		mg/L		08/23/17 10:15	08/24/17 13:40	1
Chromium	ND		0.0040		mg/L		08/23/17 10:15	08/24/17 13:40	1
Lead	ND		0.010		mg/L		08/23/17 10:15	08/24/17 13:40	1
Lithium	ND		0.030		mg/L		08/23/17 10:15	08/24/17 13:40	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/24/17 07:50	08/24/17 19:49	1
Arsenic	2.8		1.0		ug/L		08/24/17 07:50	08/24/17 19:49	1
Beryllium	ND	^	0.70		ug/L		08/24/17 07:50	08/24/17 19:49	1
Cadmium	ND		0.50		ug/L		08/24/17 07:50	08/24/17 19:49	1
Cobalt	5.4		0.30		ug/L		08/24/17 07:50	08/24/17 19:49	1
Molybdenum	7.5		1.0		ug/L		08/24/17 07:50	08/24/17 19:49	1
Selenium	ND		1.0		ug/L		08/24/17 07:50	08/24/17 19:49	1
Thallium	ND		0.20		ug/L		08/24/17 07:50	08/24/17 19:49	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		08/23/17 09:20	08/23/17 13:57	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	22.3		2.5		mg/L			08/28/17 20:15	5
Fluoride	ND		0.25		mg/L			08/28/17 20:15	5
Sulfate	30.8		10.0		mg/L			08/28/17 20:15	5
Total Dissolved Solids	802		10.0		mg/L			08/23/17 09:13	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1		SU			08/24/17 15:56	1
Temperature	24.2	HF	0.001		Degrees C			08/24/17 15:56	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

**Client Sample ID: DUP-1**

**Date Collected: 08/17/17 00:00**

**Date Received: 08/22/17 09:45**

**Lab Sample ID: 480-123041-9**

**Matrix: Water**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.21		0.0020		mg/L		08/23/17 10:15	08/24/17 13:44	1
Boron	0.030		0.020		mg/L		08/23/17 10:15	08/24/17 13:44	1
Calcium	134		0.50		mg/L		08/23/17 10:15	08/24/17 13:44	1
Chromium	ND		0.0040		mg/L		08/23/17 10:15	08/24/17 13:44	1
Lead	ND		0.010		mg/L		08/23/17 10:15	08/24/17 13:44	1
Lithium	ND		0.030		mg/L		08/23/17 10:15	08/24/17 13:44	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/24/17 07:50	08/24/17 20:12	1
Arsenic	4.1		1.0		ug/L		08/24/17 07:50	08/24/17 20:12	1
Beryllium	ND		0.70		ug/L		08/24/17 07:50	08/24/17 20:12	1
Cadmium	ND		0.50		ug/L		08/24/17 07:50	08/24/17 20:12	1
Cobalt	0.76		0.30		ug/L		08/24/17 07:50	08/24/17 20:12	1
Molybdenum	3.8		1.0		ug/L		08/24/17 07:50	08/24/17 20:12	1
Selenium	ND		1.0		ug/L		08/24/17 07:50	08/24/17 20:12	1
Thallium	ND		0.20		ug/L		08/24/17 07:50	08/24/17 20:12	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		08/23/17 09:20	08/23/17 13:59	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	27.9		2.5		mg/L			08/28/17 20:23	5
Fluoride	ND		0.25		mg/L			08/28/17 20:23	5
Sulfate	105		10.0		mg/L			08/28/17 20:23	5
Total Dissolved Solids	562		10.0		mg/L			08/23/17 09:13	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.3	HF	0.1		SU			08/24/17 15:59	1
Temperature	24.3	HF	0.001		Degrees C			08/24/17 15:59	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-123041-10**

**Date Collected: 08/17/17 12:00**

**Matrix: Water**

**Date Received: 08/22/17 09:45**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		08/23/17 10:15	08/24/17 13:47	1
Boron	ND		0.020		mg/L		08/23/17 10:15	08/24/17 13:47	1
Calcium	ND		0.50		mg/L		08/23/17 10:15	08/24/17 13:47	1
Chromium	ND		0.0040		mg/L		08/23/17 10:15	08/24/17 13:47	1
Lead	ND		0.010		mg/L		08/23/17 10:15	08/24/17 13:47	1
Lithium	ND		0.030		mg/L		08/23/17 10:15	08/24/17 13:47	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/24/17 07:50	08/24/17 20:18	1
Arsenic	ND		1.0		ug/L		08/24/17 07:50	08/24/17 20:18	1
Beryllium	ND		0.70		ug/L		08/24/17 07:50	08/24/17 20:18	1
Cadmium	ND		0.50		ug/L		08/24/17 07:50	08/24/17 20:18	1
Cobalt	ND		0.30		ug/L		08/24/17 07:50	08/24/17 20:18	1
Molybdenum	ND		1.0		ug/L		08/24/17 07:50	08/24/17 20:18	1
Selenium	ND		1.0		ug/L		08/24/17 07:50	08/24/17 20:18	1
Thallium	ND		0.20		ug/L		08/24/17 07:50	08/24/17 20:18	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		08/23/17 09:20	08/23/17 14:01	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			08/28/17 20:32	1
Fluoride	ND		0.050		mg/L			08/28/17 20:32	1
Sulfate	ND		2.0		mg/L			08/28/17 20:32	1
Total Dissolved Solids	ND		10.0		mg/L			08/23/17 09:13	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.4	HF	0.1		SU			08/24/17 16:08	1
Temperature	23.5	HF	0.001		Degrees C			08/24/17 16:08	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-123041-11**

**Date Collected: 08/17/17 12:05**

**Matrix: Water**

**Date Received: 08/22/17 09:45**

### Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		08/23/17 10:15	08/24/17 13:51	1
Boron	ND		0.020		mg/L		08/23/17 10:15	08/24/17 13:51	1
Calcium	ND		0.50		mg/L		08/23/17 10:15	08/24/17 13:51	1
Chromium	ND		0.0040		mg/L		08/23/17 10:15	08/24/17 13:51	1
Lead	ND		0.010		mg/L		08/23/17 10:15	08/24/17 13:51	1
Lithium	ND		0.030		mg/L		08/23/17 10:15	08/24/17 13:51	1

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/24/17 07:50	08/24/17 20:23	1
Arsenic	ND		1.0		ug/L		08/24/17 07:50	08/24/17 20:23	1
Beryllium	ND		0.70		ug/L		08/24/17 07:50	08/24/17 20:23	1
Cadmium	ND		0.50		ug/L		08/24/17 07:50	08/24/17 20:23	1
Cobalt	ND		0.30		ug/L		08/24/17 07:50	08/24/17 20:23	1
Molybdenum	ND		1.0		ug/L		08/24/17 07:50	08/24/17 20:23	1
Selenium	ND		1.0		ug/L		08/24/17 07:50	08/24/17 20:23	1
Thallium	ND		0.20		ug/L		08/24/17 07:50	08/24/17 20:23	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		08/23/17 09:20	08/23/17 14:03	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			08/28/17 20:40	1
Fluoride	ND		0.050		mg/L			08/28/17 20:40	1
Sulfate	ND		2.0		mg/L			08/28/17 20:40	1
Total Dissolved Solids	ND		10.0		mg/L			08/23/17 09:13	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.9	HF	0.1		SU			08/24/17 16:11	1
Temperature	24.3	HF	0.001		Degrees C			08/24/17 16:11	1

# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 480-373479/1-A**  
**Matrix: Water**  
**Analysis Batch: 373928**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 373479**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		08/23/17 10:15	08/24/17 12:10	1
Boron	ND		0.020		mg/L		08/23/17 10:15	08/24/17 12:10	1
Calcium	ND		0.50		mg/L		08/23/17 10:15	08/24/17 12:10	1
Chromium	ND		0.0040		mg/L		08/23/17 10:15	08/24/17 12:10	1
Lead	ND		0.010		mg/L		08/23/17 10:15	08/24/17 12:10	1
Lithium	ND		0.030		mg/L		08/23/17 10:15	08/24/17 12:10	1

**Lab Sample ID: LCS 480-373479/2-A**  
**Matrix: Water**  
**Analysis Batch: 373928**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 373479**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	0.200	0.197		mg/L		99	80 - 120
Boron	0.200	0.202		mg/L		101	80 - 120
Calcium	10.0	10.22		mg/L		102	80 - 120
Chromium	0.200	0.198		mg/L		99	80 - 120
Lead	0.200	0.207		mg/L		103	80 - 120

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 480-373638/1-A**  
**Matrix: Water**  
**Analysis Batch: 373966**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 373638**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		08/24/17 07:50	08/24/17 18:59	1
Arsenic	ND		1.0		ug/L		08/24/17 07:50	08/24/17 18:59	1
Beryllium	ND	^	0.70		ug/L		08/24/17 07:50	08/24/17 18:59	1
Cadmium	ND		0.50		ug/L		08/24/17 07:50	08/24/17 18:59	1
Cobalt	ND		0.30		ug/L		08/24/17 07:50	08/24/17 18:59	1
Molybdenum	ND		1.0		ug/L		08/24/17 07:50	08/24/17 18:59	1
Selenium	ND		1.0		ug/L		08/24/17 07:50	08/24/17 18:59	1
Thallium	ND		0.20		ug/L		08/24/17 07:50	08/24/17 18:59	1

**Lab Sample ID: LCS 480-373638/2-A**  
**Matrix: Water**  
**Analysis Batch: 373966**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 373638**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	20.0	19.44		ug/L		97	80 - 120
Arsenic	20.0	19.17		ug/L		96	80 - 120
Cadmium	20.0	20.51		ug/L		103	80 - 120
Cobalt	20.0	20.75		ug/L		104	80 - 120
Molybdenum	20.0	19.83		ug/L		99	80 - 120
Selenium	20.0	19.64		ug/L		98	80 - 120
Thallium	20.0	21.81		ug/L		109	80 - 120

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# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

## Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 480-373638/2-A  
Matrix: Water  
Analysis Batch: 374228

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 373638

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Beryllium	20.0	22.49		ug/L		112	80 - 120

## Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 480-373464/1-A  
Matrix: Water  
Analysis Batch: 373591

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 373464

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		08/23/17 09:20	08/23/17 14:53	1

Lab Sample ID: LCS 480-373464/2-A  
Matrix: Water  
Analysis Batch: 373591

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 373464

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	6.67	5.98		ug/L		90	80 - 120

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 480-374239/28  
Matrix: Water  
Analysis Batch: 374239

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			08/28/17 18:13	1
Fluoride	ND		0.050		mg/L			08/28/17 18:13	1
Sulfate	ND		2.0		mg/L			08/28/17 18:13	1

Lab Sample ID: LCS 480-374239/27  
Matrix: Water  
Analysis Batch: 374239

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Chloride	50.0	48.83		mg/L		98	90 - 110
Fluoride	5.00	4.91		mg/L		98	90 - 110
Sulfate	50.0	50.52		mg/L		101	90 - 110

Lab Sample ID: 480-123041-3 MS  
Matrix: Water  
Analysis Batch: 374239

Client Sample ID: MW-2RD  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Chloride	27.3		250	275.1		mg/L		99	81 - 120
Fluoride	ND		25.0	25.28		mg/L		100	82 - 120
Sulfate	59.9		250	316.3		mg/L		103	80 - 120

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# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: 480-123041-3 MSD**

**Matrix: Water**  
**Analysis Batch: 374239**

**Client Sample ID: MW-2RD**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	27.3		250	274.6		mg/L		99	81 - 120	0	20
Fluoride	ND		25.0	25.25		mg/L		100	82 - 120	0	20
Sulfate	59.9		250	317.0		mg/L		103	80 - 120	0	20

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 480-373476/1**

**Matrix: Water**  
**Analysis Batch: 373476**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			08/23/17 09:13	1

**Lab Sample ID: LCS 480-373476/2**

**Matrix: Water**  
**Analysis Batch: 373476**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	516	487.0		mg/L		94	85 - 115

**Lab Sample ID: 480-123041-6 DU**

**Matrix: Water**  
**Analysis Batch: 373476**

**Client Sample ID: MW-4**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1070		1081		mg/L		0.8	10

## Method: SM 4500 H+ B - pH

**Lab Sample ID: LCS 480-373838/1**

**Matrix: Water**  
**Analysis Batch: 373838**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99 - 101

**Lab Sample ID: LCS 480-373838/23**

**Matrix: Water**  
**Analysis Batch: 373838**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99 - 101

**Lab Sample ID: 480-123041-9 DU**

**Matrix: Water**  
**Analysis Batch: 373838**

**Client Sample ID: DUP-1**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.3	HF	7.3		SU		0	5

TestAmerica Buffalo

# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

## Method: SM 4500 H+ B - pH (Continued)

Lab Sample ID: 480-123041-9 DU

Matrix: Water

Analysis Batch: 373838

Client Sample ID: DUP-1

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Temperature	24.3	HF	24.2		Degrees C		0.2	10

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

## Metals

### Prep Batch: 373464

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123041-1	MW-1RD	Total/NA	Water	7470A	
480-123041-2	MW-2R	Total/NA	Water	7470A	
480-123041-3	MW-2RD	Total/NA	Water	7470A	
480-123041-4	MW-3R	Total/NA	Water	7470A	
480-123041-5	MW-3RD	Total/NA	Water	7470A	
480-123041-6	MW-4	Total/NA	Water	7470A	
480-123041-7	MW-1	Total/NA	Water	7470A	
480-123041-8	MW-3	Total/NA	Water	7470A	
480-123041-9	DUP-1	Total/NA	Water	7470A	
480-123041-10	FIELD BLANK	Total/NA	Water	7470A	
480-123041-11	EQUIPMENT BLANK	Total/NA	Water	7470A	
MB 480-373464/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-373464/2-A	Lab Control Sample	Total/NA	Water	7470A	

### Prep Batch: 373479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123041-1	MW-1RD	Total/NA	Water	3005A	
480-123041-2	MW-2R	Total/NA	Water	3005A	
480-123041-3	MW-2RD	Total/NA	Water	3005A	
480-123041-4	MW-3R	Total/NA	Water	3005A	
480-123041-5	MW-3RD	Total/NA	Water	3005A	
480-123041-6	MW-4	Total/NA	Water	3005A	
480-123041-7	MW-1	Total/NA	Water	3005A	
480-123041-8	MW-3	Total/NA	Water	3005A	
480-123041-9	DUP-1	Total/NA	Water	3005A	
480-123041-10	FIELD BLANK	Total/NA	Water	3005A	
480-123041-11	EQUIPMENT BLANK	Total/NA	Water	3005A	
MB 480-373479/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-373479/2-A	Lab Control Sample	Total/NA	Water	3005A	

### Analysis Batch: 373591

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123041-1	MW-1RD	Total/NA	Water	7470A	373464
480-123041-2	MW-2R	Total/NA	Water	7470A	373464
480-123041-3	MW-2RD	Total/NA	Water	7470A	373464
480-123041-4	MW-3R	Total/NA	Water	7470A	373464
480-123041-5	MW-3RD	Total/NA	Water	7470A	373464
480-123041-6	MW-4	Total/NA	Water	7470A	373464
480-123041-7	MW-1	Total/NA	Water	7470A	373464
480-123041-8	MW-3	Total/NA	Water	7470A	373464
480-123041-9	DUP-1	Total/NA	Water	7470A	373464
480-123041-10	FIELD BLANK	Total/NA	Water	7470A	373464
480-123041-11	EQUIPMENT BLANK	Total/NA	Water	7470A	373464
MB 480-373464/1-A	Method Blank	Total/NA	Water	7470A	373464
LCS 480-373464/2-A	Lab Control Sample	Total/NA	Water	7470A	373464

### Prep Batch: 373638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123041-1	MW-1RD	Total/NA	Water	3020A	
480-123041-2	MW-2R	Total/NA	Water	3020A	
480-123041-3	MW-2RD	Total/NA	Water	3020A	

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# QC Association Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

## Metals (Continued)

### Prep Batch: 373638 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123041-4	MW-3R	Total/NA	Water	3020A	
480-123041-5	MW-3RD	Total/NA	Water	3020A	
480-123041-6	MW-4	Total/NA	Water	3020A	
480-123041-7	MW-1	Total/NA	Water	3020A	
480-123041-8	MW-3	Total/NA	Water	3020A	
480-123041-9	DUP-1	Total/NA	Water	3020A	
480-123041-10	FIELD BLANK	Total/NA	Water	3020A	
480-123041-11	EQUIPMENT BLANK	Total/NA	Water	3020A	
MB 480-373638/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-373638/2-A	Lab Control Sample	Total/NA	Water	3020A	

### Analysis Batch: 373928

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123041-1	MW-1RD	Total/NA	Water	6010C	373479
480-123041-2	MW-2R	Total/NA	Water	6010C	373479
480-123041-3	MW-2RD	Total/NA	Water	6010C	373479
480-123041-4	MW-3R	Total/NA	Water	6010C	373479
480-123041-5	MW-3RD	Total/NA	Water	6010C	373479
480-123041-6	MW-4	Total/NA	Water	6010C	373479
480-123041-7	MW-1	Total/NA	Water	6010C	373479
480-123041-8	MW-3	Total/NA	Water	6010C	373479
480-123041-9	DUP-1	Total/NA	Water	6010C	373479
480-123041-10	FIELD BLANK	Total/NA	Water	6010C	373479
480-123041-11	EQUIPMENT BLANK	Total/NA	Water	6010C	373479
MB 480-373479/1-A	Method Blank	Total/NA	Water	6010C	373479
LCS 480-373479/2-A	Lab Control Sample	Total/NA	Water	6010C	373479

### Analysis Batch: 373966

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123041-1	MW-1RD	Total/NA	Water	6020A	373638
480-123041-2	MW-2R	Total/NA	Water	6020A	373638
480-123041-3	MW-2RD	Total/NA	Water	6020A	373638
480-123041-4	MW-3R	Total/NA	Water	6020A	373638
480-123041-5	MW-3RD	Total/NA	Water	6020A	373638
480-123041-6	MW-4	Total/NA	Water	6020A	373638
480-123041-7	MW-1	Total/NA	Water	6020A	373638
480-123041-8	MW-3	Total/NA	Water	6020A	373638
480-123041-9	DUP-1	Total/NA	Water	6020A	373638
480-123041-10	FIELD BLANK	Total/NA	Water	6020A	373638
480-123041-11	EQUIPMENT BLANK	Total/NA	Water	6020A	373638
MB 480-373638/1-A	Method Blank	Total/NA	Water	6020A	373638
LCS 480-373638/2-A	Lab Control Sample	Total/NA	Water	6020A	373638

### Analysis Batch: 374228

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 480-373638/2-A	Lab Control Sample	Total/NA	Water	6020A	373638

# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

## General Chemistry

### Analysis Batch: 373476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123041-1	MW-1RD	Total/NA	Water	SM 2540C	
480-123041-2	MW-2R	Total/NA	Water	SM 2540C	
480-123041-3	MW-2RD	Total/NA	Water	SM 2540C	
480-123041-4	MW-3R	Total/NA	Water	SM 2540C	
480-123041-5	MW-3RD	Total/NA	Water	SM 2540C	
480-123041-6	MW-4	Total/NA	Water	SM 2540C	
480-123041-7	MW-1	Total/NA	Water	SM 2540C	
480-123041-8	MW-3	Total/NA	Water	SM 2540C	
480-123041-9	DUP-1	Total/NA	Water	SM 2540C	
480-123041-10	FIELD BLANK	Total/NA	Water	SM 2540C	
480-123041-11	EQUIPMENT BLANK	Total/NA	Water	SM 2540C	
MB 480-373476/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-373476/2	Lab Control Sample	Total/NA	Water	SM 2540C	
480-123041-6 DU	MW-4	Total/NA	Water	SM 2540C	

### Analysis Batch: 373838

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123041-1	MW-1RD	Total/NA	Water	SM 4500 H+ B	
480-123041-2	MW-2R	Total/NA	Water	SM 4500 H+ B	
480-123041-3	MW-2RD	Total/NA	Water	SM 4500 H+ B	
480-123041-4	MW-3R	Total/NA	Water	SM 4500 H+ B	
480-123041-5	MW-3RD	Total/NA	Water	SM 4500 H+ B	
480-123041-6	MW-4	Total/NA	Water	SM 4500 H+ B	
480-123041-7	MW-1	Total/NA	Water	SM 4500 H+ B	
480-123041-8	MW-3	Total/NA	Water	SM 4500 H+ B	
480-123041-9	DUP-1	Total/NA	Water	SM 4500 H+ B	
480-123041-10	FIELD BLANK	Total/NA	Water	SM 4500 H+ B	
480-123041-11	EQUIPMENT BLANK	Total/NA	Water	SM 4500 H+ B	
LCS 480-373838/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 480-373838/23	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
480-123041-9 DU	DUP-1	Total/NA	Water	SM 4500 H+ B	

### Analysis Batch: 374239

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123041-1	MW-1RD	Total/NA	Water	300.0	
480-123041-2	MW-2R	Total/NA	Water	300.0	
480-123041-3	MW-2RD	Total/NA	Water	300.0	
480-123041-4	MW-3R	Total/NA	Water	300.0	
480-123041-5	MW-3RD	Total/NA	Water	300.0	
480-123041-6	MW-4	Total/NA	Water	300.0	
480-123041-7	MW-1	Total/NA	Water	300.0	
480-123041-8	MW-3	Total/NA	Water	300.0	
480-123041-9	DUP-1	Total/NA	Water	300.0	
480-123041-10	FIELD BLANK	Total/NA	Water	300.0	
480-123041-11	EQUIPMENT BLANK	Total/NA	Water	300.0	
MB 480-374239/28	Method Blank	Total/NA	Water	300.0	
LCS 480-374239/27	Lab Control Sample	Total/NA	Water	300.0	
480-123041-3 MS	MW-2RD	Total/NA	Water	300.0	
480-123041-3 MSD	MW-2RD	Total/NA	Water	300.0	

TestAmerica Buffalo

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

**Client Sample ID: MW-1RD**

**Date Collected: 08/17/17 08:30**

**Date Received: 08/22/17 09:45**

**Lab Sample ID: 480-123041-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			373479	08/23/17 10:15	EMB	TAL BUF
Total/NA	Analysis	6010C		1	373928	08/24/17 13:04	LMH	TAL BUF
Total/NA	Prep	3020A			373638	08/24/17 07:50	EMB	TAL BUF
Total/NA	Analysis	6020A		1	373966	08/24/17 19:10	JRK	TAL BUF
Total/NA	Prep	7470A			373464	08/23/17 09:20	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	373591	08/23/17 13:38	MVZ	TAL BUF
Total/NA	Analysis	300.0		2	374239	08/28/17 18:46	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	373476	08/23/17 09:13	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	373838	08/24/17 15:37	DSC	TAL BUF

**Client Sample ID: MW-2R**

**Date Collected: 08/17/17 09:35**

**Date Received: 08/22/17 09:45**

**Lab Sample ID: 480-123041-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			373479	08/23/17 10:15	EMB	TAL BUF
Total/NA	Analysis	6010C		1	373928	08/24/17 13:08	LMH	TAL BUF
Total/NA	Prep	3020A			373638	08/24/17 07:50	EMB	TAL BUF
Total/NA	Analysis	6020A		1	373966	08/24/17 19:16	JRK	TAL BUF
Total/NA	Prep	7470A			373464	08/23/17 09:20	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	373591	08/23/17 13:40	MVZ	TAL BUF
Total/NA	Analysis	300.0		5	374239	08/28/17 18:54	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	373476	08/23/17 09:13	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	373838	08/24/17 15:40	DSC	TAL BUF

**Client Sample ID: MW-2RD**

**Date Collected: 08/17/17 09:30**

**Date Received: 08/22/17 09:45**

**Lab Sample ID: 480-123041-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			373479	08/23/17 10:15	EMB	TAL BUF
Total/NA	Analysis	6010C		1	373928	08/24/17 13:22	LMH	TAL BUF
Total/NA	Prep	3020A			373638	08/24/17 07:50	EMB	TAL BUF
Total/NA	Analysis	6020A		1	373966	08/24/17 19:21	JRK	TAL BUF
Total/NA	Prep	7470A			373464	08/23/17 09:20	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	373591	08/23/17 13:42	MVZ	TAL BUF
Total/NA	Analysis	300.0		5	374239	08/28/17 19:02	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	373476	08/23/17 09:13	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	373838	08/24/17 15:42	DSC	TAL BUF

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

**Client Sample ID: MW-3R**

**Date Collected: 08/17/17 10:20**

**Date Received: 08/22/17 09:45**

**Lab Sample ID: 480-123041-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			373479	08/23/17 10:15	EMB	TAL BUF
Total/NA	Analysis	6010C		1	373928	08/24/17 13:26	LMH	TAL BUF
Total/NA	Prep	3020A			373638	08/24/17 07:50	EMB	TAL BUF
Total/NA	Analysis	6020A		1	373966	08/24/17 19:27	JRK	TAL BUF
Total/NA	Prep	7470A			373464	08/23/17 09:20	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	373591	08/23/17 13:44	MVZ	TAL BUF
Total/NA	Analysis	300.0		5	374239	08/28/17 19:43	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	373476	08/23/17 09:13	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	373838	08/24/17 15:45	DSC	TAL BUF

**Client Sample ID: MW-3RD**

**Date Collected: 08/17/17 10:55**

**Date Received: 08/22/17 09:45**

**Lab Sample ID: 480-123041-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			373479	08/23/17 10:15	EMB	TAL BUF
Total/NA	Analysis	6010C		1	373928	08/24/17 13:29	LMH	TAL BUF
Total/NA	Prep	3020A			373638	08/24/17 07:50	EMB	TAL BUF
Total/NA	Analysis	6020A		1	373966	08/24/17 19:32	JRK	TAL BUF
Total/NA	Prep	7470A			373464	08/23/17 09:20	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	373591	08/23/17 13:46	MVZ	TAL BUF
Total/NA	Analysis	300.0		5	374239	08/28/17 19:51	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	373476	08/23/17 09:13	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	373838	08/24/17 15:48	DSC	TAL BUF

**Client Sample ID: MW-4**

**Date Collected: 08/17/17 11:45**

**Date Received: 08/22/17 09:45**

**Lab Sample ID: 480-123041-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			373479	08/23/17 10:15	EMB	TAL BUF
Total/NA	Analysis	6010C		1	373928	08/24/17 13:33	LMH	TAL BUF
Total/NA	Prep	3020A			373638	08/24/17 07:50	EMB	TAL BUF
Total/NA	Analysis	6020A		1	373966	08/24/17 19:38	JRK	TAL BUF
Total/NA	Prep	7470A			373464	08/23/17 09:20	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	373591	08/23/17 13:48	MVZ	TAL BUF
Total/NA	Analysis	300.0		5	374239	08/28/17 19:59	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	373476	08/23/17 09:13	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	373838	08/24/17 15:51	DSC	TAL BUF

TestAmerica Buffalo



# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

## Client Sample ID: MW-1

Date Collected: 08/17/17 08:25

Date Received: 08/22/17 09:45

## Lab Sample ID: 480-123041-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			373479	08/23/17 10:15	EMB	TAL BUF
Total/NA	Analysis	6010C		1	373928	08/24/17 13:37	LMH	TAL BUF
Total/NA	Prep	3020A			373638	08/24/17 07:50	EMB	TAL BUF
Total/NA	Analysis	6020A		1	373966	08/24/17 19:43	JRK	TAL BUF
Total/NA	Prep	7470A			373464	08/23/17 09:20	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	373591	08/23/17 13:55	MVZ	TAL BUF
Total/NA	Analysis	300.0		5	374239	08/28/17 20:07	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	373476	08/23/17 09:13	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	373838	08/24/17 15:54	DSC	TAL BUF

## Client Sample ID: MW-3

Date Collected: 08/17/17 10:25

Date Received: 08/22/17 09:45

## Lab Sample ID: 480-123041-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			373479	08/23/17 10:15	EMB	TAL BUF
Total/NA	Analysis	6010C		1	373928	08/24/17 13:40	LMH	TAL BUF
Total/NA	Prep	3020A			373638	08/24/17 07:50	EMB	TAL BUF
Total/NA	Analysis	6020A		1	373966	08/24/17 19:49	JRK	TAL BUF
Total/NA	Prep	7470A			373464	08/23/17 09:20	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	373591	08/23/17 13:57	MVZ	TAL BUF
Total/NA	Analysis	300.0		5	374239	08/28/17 20:15	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	373476	08/23/17 09:13	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	373838	08/24/17 15:56	DSC	TAL BUF

## Client Sample ID: DUP-1

Date Collected: 08/17/17 00:00

Date Received: 08/22/17 09:45

## Lab Sample ID: 480-123041-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			373479	08/23/17 10:15	EMB	TAL BUF
Total/NA	Analysis	6010C		1	373928	08/24/17 13:44	LMH	TAL BUF
Total/NA	Prep	3020A			373638	08/24/17 07:50	EMB	TAL BUF
Total/NA	Analysis	6020A		1	373966	08/24/17 20:12	JRK	TAL BUF
Total/NA	Prep	7470A			373464	08/23/17 09:20	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	373591	08/23/17 13:59	MVZ	TAL BUF
Total/NA	Analysis	300.0		5	374239	08/28/17 20:23	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	373476	08/23/17 09:13	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	373838	08/24/17 15:59	DSC	TAL BUF

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-123041-10**

**Date Collected: 08/17/17 12:00**

**Matrix: Water**

**Date Received: 08/22/17 09:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			373479	08/23/17 10:15	EMB	TAL BUF
Total/NA	Analysis	6010C		1	373928	08/24/17 13:47	LMH	TAL BUF
Total/NA	Prep	3020A			373638	08/24/17 07:50	EMB	TAL BUF
Total/NA	Analysis	6020A		1	373966	08/24/17 20:18	JRK	TAL BUF
Total/NA	Prep	7470A			373464	08/23/17 09:20	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	373591	08/23/17 14:01	MVZ	TAL BUF
Total/NA	Analysis	300.0		1	374239	08/28/17 20:32	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	373476	08/23/17 09:13	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	373838	08/24/17 16:08	DSC	TAL BUF

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-123041-11**

**Date Collected: 08/17/17 12:05**

**Matrix: Water**

**Date Received: 08/22/17 09:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			373479	08/23/17 10:15	EMB	TAL BUF
Total/NA	Analysis	6010C		1	373928	08/24/17 13:51	LMH	TAL BUF
Total/NA	Prep	3020A			373638	08/24/17 07:50	EMB	TAL BUF
Total/NA	Analysis	6020A		1	373966	08/24/17 20:23	JRK	TAL BUF
Total/NA	Prep	7470A			373464	08/23/17 09:20	MVZ	TAL BUF
Total/NA	Analysis	7470A		1	373591	08/23/17 14:03	MVZ	TAL BUF
Total/NA	Analysis	300.0		1	374239	08/28/17 20:40	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	373476	08/23/17 09:13	EKB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	373838	08/24/17 16:11	DSC	TAL BUF

**Laboratory References:**

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

# Accreditation/Certification Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

## Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	036-999-337	12-31-17

The following analytes are included in this report, but are not accredited/certified under this accreditation/certification:

Analysis Method	Prep Method	Matrix	Analyte
6010C	3005A	Water	Lithium

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 H+ B		Water	pH
SM 4500 H+ B		Water	Temperature

# Method Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL BUF
6020A	Metals (ICP/MS)	SW846	TAL BUF
7470A	Mercury (CVAA)	SW846	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL BUF
SM 4500 H+ B	pH	SM	TAL BUF

#### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

# Sample Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-123041-1	MW-1RD	Water	08/17/17 08:30	08/22/17 09:45
480-123041-2	MW-2R	Water	08/17/17 09:35	08/22/17 09:45
480-123041-3	MW-2RD	Water	08/17/17 09:30	08/22/17 09:45
480-123041-4	MW-3R	Water	08/17/17 10:20	08/22/17 09:45
480-123041-5	MW-3RD	Water	08/17/17 10:55	08/22/17 09:45
480-123041-6	MW-4	Water	08/17/17 11:45	08/22/17 09:45
480-123041-7	MW-1	Water	08/17/17 08:25	08/22/17 09:45
480-123041-8	MW-3	Water	08/17/17 10:25	08/22/17 09:45
480-123041-9	DUP-1	Water	08/17/17 00:00	08/22/17 09:45
480-123041-10	FIELD BLANK	Water	08/17/17 12:00	08/22/17 09:45
480-123041-11	EQUIPMENT BLANK	Water	08/17/17 12:05	08/22/17 09:45





Regulatory Program:  DW  NPDES  RCRA  Other: \_\_\_\_\_  
 Project Manager: Ryan Van Dette  
 Tel/Fax: \_\_\_\_\_

Client Contact	SKB Environmental 13425 Courthouse Blvd Rosemount, MN 55068 (651) 438-1500 Phone (651) 438-1518 FAX Project Name: Lansing 2017 CCR GW Event 7 Site: P O # 3064-17-00369	Site Contact: Nathaniel Beineman Date: 8/17/17 Carrier: _____	COC No: _____ of _____ COCs
Analysis Turnaround Time	CALENDAR DAYS _____ WORKING DAYS _____ TAT if different from Below 2 weeks 1 week 2 days 1 day	Lab Contact: _____	Sampler: _____ For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Metals (totals) + Mercury	Chloride	Fluoride	Sulfate	TDS	pH	Radium 226 & 228 combined	Sample Specific Notes:
MW-1RD	8/17/17	8:30	Grab	Water	7			X	X	X	X	X	X	X	
MW-2R		9:35	Grab	Water	7			X	X	X	X	X	X	X	
MW-2RD		9:50	Grab	Water	7			X	X	X	X	X	X	X	
MW-3R		10:20	Grab	Water	7			X	X	X	X	X	X	X	
MW-3RD		10:55	Grab	Water	7			X	X	X	X	X	X	X	
MW-4		11:45	Grab	Water	7			X	X	X	X	X	X	X	
MW-1		8:25	Grab	Water	7			X	X	X	X	X	X	X	
MW-3		11:25	Grab	Water	7			X	X	X	X	X	X	X	
Duplicate - 1		-	Grab	Water	7			X	X	X	X	X	X	X	
Field Blank		12:00	Grab	Water	7			X	X	X	X	X	X	X	
Equipment Blank		12:05	Grab	Water	7			X	X	X	X	X	X	X	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other \_\_\_\_\_

Possible Hazard Identification: \_\_\_\_\_ Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard  Flammable  Skin Irritant  Unknown   
 Return to Client \_\_\_\_\_ Disposal by Lab \_\_\_\_\_ Archive for \_\_\_\_\_ Months \_\_\_\_\_

\*Metals - Boron, Calcium, Antimony, Arsenic, Barium, Beryllium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium

Cooler Temp. (°C): Obs'd: \_\_\_\_\_ Corrd: \_\_\_\_\_

Received by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: 8-21 12:00  
 Received by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: 8-21 1945  
 Received in Laboratory by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Therm ID No.: \_\_\_\_\_

30,34,2.9 #1





# Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-123041-1

SDG Number:

**Login Number: 123041**

**List Number: 1**

**Creator: Wallace, Cameron**

**List Source: TestAmerica Buffalo**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GES
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-123041-2

Client Project/Site: SKB Lansing - CCR Groundwater

Sampling Event: CCR Groundwater

For:

Waste Connections, Inc.

13425 Courthouse Blvd

Rosemount, Minnesota 55068

Attn: Nathaniel Beinemann



Authorized for release by:

9/15/2017 4:00:42 PM

Ryan VanDette, Project Manager II

(716)504-9830

[ryan.vandette@testamericainc.com](mailto:ryan.vandette@testamericainc.com)



### LINKS

Review your project  
results through

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Have a Question?



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[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

## Qualifiers

### Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

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**Job ID: 480-123041-2**

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**Laboratory: TestAmerica Buffalo**

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**Narrative**

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**Job Narrative  
480-123041-2**

**Comments**

No additional comments.

**Receipt**

The samples were received on 8/22/2017 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.9° C, 3.0° C and 3.4° C.

**RAD**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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## Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-123041-1**

No Detections.

**Client Sample ID: MW-2R**

**Lab Sample ID: 480-123041-2**

No Detections.

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-123041-3**

No Detections.

**Client Sample ID: MW-3R**

**Lab Sample ID: 480-123041-4**

No Detections.

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-123041-5**

No Detections.

**Client Sample ID: MW-4**

**Lab Sample ID: 480-123041-6**

No Detections.

**Client Sample ID: MW-1**

**Lab Sample ID: 480-123041-7**

No Detections.

**Client Sample ID: MW-3**

**Lab Sample ID: 480-123041-8**

No Detections.

**Client Sample ID: DUP-1**

**Lab Sample ID: 480-123041-9**

No Detections.

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-123041-10**

No Detections.

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-123041-11**

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-123041-1**

Date Collected: 08/17/17 08:30

Matrix: Water

Date Received: 08/22/17 09:45

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.462		0.123	0.129	1.00	0.0904	pCi/L	08/24/17 09:56	09/15/17 05:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.2		40 - 110					08/24/17 09:56	09/15/17 05:58	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.519		0.271	0.275	1.00	0.405	pCi/L	08/24/17 10:15	09/05/17 13:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.2		40 - 110					08/24/17 10:15	09/05/17 13:38	1
Y Carrier	90.5		40 - 110					08/24/17 10:15	09/05/17 13:38	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

**Client Sample ID: MW-2R**

**Lab Sample ID: 480-123041-2**

Date Collected: 08/17/17 09:35

Matrix: Water

Date Received: 08/22/17 09:45

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.211		0.0867	0.0888	1.00	0.0813	pCi/L	08/24/17 09:56	09/15/17 05:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.4		40 - 110					08/24/17 09:56	09/15/17 05:58	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.348		0.228	0.230	1.00	0.348	pCi/L	08/24/17 10:15	09/05/17 13:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.4		40 - 110					08/24/17 10:15	09/05/17 13:38	1
Y Carrier	91.2		40 - 110					08/24/17 10:15	09/05/17 13:38	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-123041-3**

Date Collected: 08/17/17 09:30

Matrix: Water

Date Received: 08/22/17 09:45

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.412		0.114	0.120	1.00	0.0913	pCi/L	08/24/17 09:56	09/15/17 05:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.6		40 - 110					08/24/17 09:56	09/15/17 05:58	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.384		0.250	0.252	1.00	0.384	pCi/L	08/24/17 10:15	09/05/17 13:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.6		40 - 110					08/24/17 10:15	09/05/17 13:38	1
Y Carrier	90.8		40 - 110					08/24/17 10:15	09/05/17 13:38	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

**Client Sample ID: MW-3R**

**Lab Sample ID: 480-123041-4**

Date Collected: 08/17/17 10:20

Matrix: Water

Date Received: 08/22/17 09:45

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.653		0.143	0.155	1.00	0.0943	pCi/L	08/24/17 09:56	09/15/17 05:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.3		40 - 110					08/24/17 09:56	09/15/17 05:59	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.32		0.330	0.351	1.00	0.400	pCi/L	08/24/17 10:15	09/05/17 13:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.3		40 - 110					08/24/17 10:15	09/05/17 13:39	1
Y Carrier	85.6		40 - 110					08/24/17 10:15	09/05/17 13:39	1



# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-123041-5**

Date Collected: 08/17/17 10:55

Matrix: Water

Date Received: 08/22/17 09:45

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.754		0.167	0.180	1.00	0.103	pCi/L	08/24/17 09:56	09/15/17 05:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	72.6		40 - 110					08/24/17 09:56	09/15/17 05:59	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.374	U	0.272	0.274	1.00	0.422	pCi/L	08/24/17 10:15	09/05/17 13:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	72.6		40 - 110					08/24/17 10:15	09/05/17 13:39	1
Y Carrier	84.5		40 - 110					08/24/17 10:15	09/05/17 13:39	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

**Client Sample ID: MW-4**  
**Date Collected: 08/17/17 11:45**  
**Date Received: 08/22/17 09:45**

**Lab Sample ID: 480-123041-6**  
**Matrix: Water**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.373		0.114	0.119	1.00	0.0917	pCi/L	08/24/17 09:56	09/15/17 05:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.9		40 - 110					08/24/17 09:56	09/15/17 05:59	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.725		0.286	0.294	1.00	0.393	pCi/L	08/24/17 10:15	09/05/17 13:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.9		40 - 110					08/24/17 10:15	09/05/17 13:39	1
Y Carrier	86.4		40 - 110					08/24/17 10:15	09/05/17 13:39	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

**Client Sample ID: MW-1**  
**Date Collected: 08/17/17 08:25**  
**Date Received: 08/22/17 09:45**

**Lab Sample ID: 480-123041-7**  
**Matrix: Water**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.153		0.0826	0.0837	1.00	0.0996	pCi/L	08/24/17 09:56	09/15/17 05:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.5		40 - 110					08/24/17 09:56	09/15/17 05:59	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0572	U	0.237	0.237	1.00	0.415	pCi/L	08/24/17 10:15	09/05/17 13:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.5		40 - 110					08/24/17 10:15	09/05/17 13:39	1
Y Carrier	86.4		40 - 110					08/24/17 10:15	09/05/17 13:39	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

**Client Sample ID: MW-3**  
**Date Collected: 08/17/17 10:25**  
**Date Received: 08/22/17 09:45**

**Lab Sample ID: 480-123041-8**  
**Matrix: Water**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.371		0.112	0.117	1.00	0.0857	pCi/L	08/24/17 09:56	09/15/17 06:01	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.7		40 - 110					08/24/17 09:56	09/15/17 06:01	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.350	U	0.241	0.244	1.00	0.373	pCi/L	08/24/17 10:15	09/05/17 13:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.7		40 - 110					08/24/17 10:15	09/05/17 13:39	1
Y Carrier	89.7		40 - 110					08/24/17 10:15	09/05/17 13:39	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

**Client Sample ID: DUP-1**

**Lab Sample ID: 480-123041-9**

Date Collected: 08/17/17 00:00

Matrix: Water

Date Received: 08/22/17 09:45

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.673		0.146	0.158	1.00	0.0874	pCi/L	08/24/17 09:56	09/15/17 06:01	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.8		40 - 110					08/24/17 09:56	09/15/17 06:01	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.489		0.266	0.270	1.00	0.396	pCi/L	08/24/17 10:15	09/05/17 13:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.8		40 - 110					08/24/17 10:15	09/05/17 13:39	1
Y Carrier	85.2		40 - 110					08/24/17 10:15	09/05/17 13:39	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-123041-10**

**Date Collected: 08/17/17 12:00**

**Matrix: Water**

**Date Received: 08/22/17 09:45**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.000	U	0.0270	0.0270	1.00	0.0667	pCi/L	08/24/17 09:56	09/15/17 06:01	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.4		40 - 110					08/24/17 09:56	09/15/17 06:01	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.00218	U	0.237	0.237	1.00	0.423	pCi/L	08/24/17 10:15	09/05/17 13:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.4		40 - 110					08/24/17 10:15	09/05/17 13:39	1
Y Carrier	89.7		40 - 110					08/24/17 10:15	09/05/17 13:39	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-123041-11**

Date Collected: 08/17/17 12:05

Matrix: Water

Date Received: 08/22/17 09:45

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0266	U	0.0430	0.0430	1.00	0.0757	pCi/L	08/24/17 09:56	09/15/17 06:01	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.1		40 - 110					08/24/17 09:56	09/15/17 06:01	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.322	U	0.278	0.280	1.00	0.447	pCi/L	08/24/17 10:15	09/05/17 13:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.1		40 - 110					08/24/17 10:15	09/05/17 13:40	1
Y Carrier	86.0		40 - 110					08/24/17 10:15	09/05/17 13:40	1

# Tracer/Carrier Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

## Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

### Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (40-110)
480-123041-1	MW-1RD	88.2
480-123041-2	MW-2R	86.4
480-123041-3	MW-2RD	87.6
480-123041-4	MW-3R	87.3
480-123041-5	MW-3RD	72.6
480-123041-6	MW-4	82.9
480-123041-7	MW-1	85.5
480-123041-8	MW-3	86.7
480-123041-9	DUP-1	85.8
480-123041-10	FIELD BLANK	86.4
480-123041-11	EQUIPMENT BLANK	86.1
LCS 160-323934/2-A	Lab Control Sample	87.3
MB 160-323934/1-A	Method Blank	89.1

#### Tracer/Carrier Legend

Ba = Ba Carrier

## Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

### Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
480-123041-1	MW-1RD	88.2	90.5
480-123041-2	MW-2R	86.4	91.2
480-123041-3	MW-2RD	87.6	90.8
480-123041-4	MW-3R	87.3	85.6
480-123041-5	MW-3RD	72.6	84.5
480-123041-6	MW-4	82.9	86.4
480-123041-7	MW-1	85.5	86.4
480-123041-8	MW-3	86.7	89.7
480-123041-9	DUP-1	85.8	85.2
480-123041-10	FIELD BLANK	86.4	89.7
480-123041-11	EQUIPMENT BLANK	86.1	86.0
LCS 160-323942/2-A	Lab Control Sample	87.3	86.4
MB 160-323942/1-A	Method Blank	89.1	82.6

#### Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier



# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

## Method: 903.0 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-323934/1-A**  
**Matrix: Water**  
**Analysis Batch: 327361**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 323934**

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.05996	U	0.0603	0.0606	1.00	0.0936	pCi/L	08/24/17 09:56	09/15/17 05:58	1
Carrier	MB MB		Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	%Yield	Qualifier	Limits							
Ba Carrier	89.1		40 - 110		08/24/17 09:56	09/15/17 05:58	1			

**Lab Sample ID: LCS 160-323934/2-A**  
**Matrix: Water**  
**Analysis Batch: 327361**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 323934**

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Radium-226	9.60	9.233		0.977	1.00	0.0856	pCi/L	96	68 - 137
Carrier	LCS LCS		Limits		Prepared	Analyzed	Dil Fac		
Ba Carrier	%Yield	Qualifier	Limits						
Ba Carrier	87.3		40 - 110						

## Method: 904.0 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-323942/1-A**  
**Matrix: Water**  
**Analysis Batch: 325532**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 323942**

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.2456	U	0.256	0.257	1.00	0.417	pCi/L	08/24/17 10:15	09/05/17 13:42	1
Carrier	MB MB		Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	%Yield	Qualifier	Limits							
Ba Carrier	89.1		40 - 110		08/24/17 10:15	09/05/17 13:42	1			
Y Carrier	MB MB		Limits		Prepared	Analyzed	Dil Fac			
Y Carrier	%Yield	Qualifier	Limits							
Y Carrier	82.6		40 - 110		08/24/17 10:15	09/05/17 13:42	1			

**Lab Sample ID: LCS 160-323942/2-A**  
**Matrix: Water**  
**Analysis Batch: 325532**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 323942**

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Radium-228	13.0	16.33		1.75	1.00	0.413	pCi/L	126	56 - 140
Carrier	LCS LCS		Limits		Prepared	Analyzed	Dil Fac		
Ba Carrier	%Yield	Qualifier	Limits						
Ba Carrier	87.3		40 - 110						
Y Carrier	LCS LCS		Limits		Prepared	Analyzed	Dil Fac		
Y Carrier	%Yield	Qualifier	Limits						
Y Carrier	86.4		40 - 110						

TestAmerica Buffalo

# QC Association Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

## Rad

### Prep Batch: 323934

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123041-1	MW-1RD	Total/NA	Water	PrecSep-21	
480-123041-2	MW-2R	Total/NA	Water	PrecSep-21	
480-123041-3	MW-2RD	Total/NA	Water	PrecSep-21	
480-123041-4	MW-3R	Total/NA	Water	PrecSep-21	
480-123041-5	MW-3RD	Total/NA	Water	PrecSep-21	
480-123041-6	MW-4	Total/NA	Water	PrecSep-21	
480-123041-7	MW-1	Total/NA	Water	PrecSep-21	
480-123041-8	MW-3	Total/NA	Water	PrecSep-21	
480-123041-9	DUP-1	Total/NA	Water	PrecSep-21	
480-123041-10	FIELD BLANK	Total/NA	Water	PrecSep-21	
480-123041-11	EQUIPMENT BLANK	Total/NA	Water	PrecSep-21	
MB 160-323934/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-323934/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

### Prep Batch: 323942

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123041-1	MW-1RD	Total/NA	Water	PrecSep_0	
480-123041-2	MW-2R	Total/NA	Water	PrecSep_0	
480-123041-3	MW-2RD	Total/NA	Water	PrecSep_0	
480-123041-4	MW-3R	Total/NA	Water	PrecSep_0	
480-123041-5	MW-3RD	Total/NA	Water	PrecSep_0	
480-123041-6	MW-4	Total/NA	Water	PrecSep_0	
480-123041-7	MW-1	Total/NA	Water	PrecSep_0	
480-123041-8	MW-3	Total/NA	Water	PrecSep_0	
480-123041-9	DUP-1	Total/NA	Water	PrecSep_0	
480-123041-10	FIELD BLANK	Total/NA	Water	PrecSep_0	
480-123041-11	EQUIPMENT BLANK	Total/NA	Water	PrecSep_0	
MB 160-323942/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-323942/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

## Client Sample ID: MW-1RD

Lab Sample ID: 480-123041-1

Date Collected: 08/17/17 08:30

Matrix: Water

Date Received: 08/22/17 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			323934	08/24/17 09:56	LDE	TAL SL
Total/NA	Analysis	903.0		1	327361	09/15/17 05:58	ALD	TAL SL
Total/NA	Prep	PrecSep_0			323942	08/24/17 10:15	LDE	TAL SL
Total/NA	Analysis	904.0		1	325533	09/05/17 13:38	ALD	TAL SL

## Client Sample ID: MW-2R

Lab Sample ID: 480-123041-2

Date Collected: 08/17/17 09:35

Matrix: Water

Date Received: 08/22/17 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			323934	08/24/17 09:56	LDE	TAL SL
Total/NA	Analysis	903.0		1	327361	09/15/17 05:58	ALD	TAL SL
Total/NA	Prep	PrecSep_0			323942	08/24/17 10:15	LDE	TAL SL
Total/NA	Analysis	904.0		1	325533	09/05/17 13:38	ALD	TAL SL

## Client Sample ID: MW-2RD

Lab Sample ID: 480-123041-3

Date Collected: 08/17/17 09:30

Matrix: Water

Date Received: 08/22/17 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			323934	08/24/17 09:56	LDE	TAL SL
Total/NA	Analysis	903.0		1	327361	09/15/17 05:58	ALD	TAL SL
Total/NA	Prep	PrecSep_0			323942	08/24/17 10:15	LDE	TAL SL
Total/NA	Analysis	904.0		1	325533	09/05/17 13:38	ALD	TAL SL

## Client Sample ID: MW-3R

Lab Sample ID: 480-123041-4

Date Collected: 08/17/17 10:20

Matrix: Water

Date Received: 08/22/17 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			323934	08/24/17 09:56	LDE	TAL SL
Total/NA	Analysis	903.0		1	327361	09/15/17 05:59	ALD	TAL SL
Total/NA	Prep	PrecSep_0			323942	08/24/17 10:15	LDE	TAL SL
Total/NA	Analysis	904.0		1	325533	09/05/17 13:39	ALD	TAL SL

## Client Sample ID: MW-3RD

Lab Sample ID: 480-123041-5

Date Collected: 08/17/17 10:55

Matrix: Water

Date Received: 08/22/17 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			323934	08/24/17 09:56	LDE	TAL SL
Total/NA	Analysis	903.0		1	327361	09/15/17 05:59	ALD	TAL SL
Total/NA	Prep	PrecSep_0			323942	08/24/17 10:15	LDE	TAL SL

TestAmerica Buffalo

# Lab Chronicle

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

## Client Sample ID: MW-3RD

Lab Sample ID: 480-123041-5

Date Collected: 08/17/17 10:55

Matrix: Water

Date Received: 08/22/17 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	904.0		1	325533	09/05/17 13:39	ALD	TAL SL

## Client Sample ID: MW-4

Lab Sample ID: 480-123041-6

Date Collected: 08/17/17 11:45

Matrix: Water

Date Received: 08/22/17 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			323934	08/24/17 09:56	LDE	TAL SL
Total/NA	Analysis	903.0		1	327361	09/15/17 05:59	ALD	TAL SL
Total/NA	Prep	PrecSep_0			323942	08/24/17 10:15	LDE	TAL SL
Total/NA	Analysis	904.0		1	325533	09/05/17 13:39	ALD	TAL SL

## Client Sample ID: MW-1

Lab Sample ID: 480-123041-7

Date Collected: 08/17/17 08:25

Matrix: Water

Date Received: 08/22/17 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			323934	08/24/17 09:56	LDE	TAL SL
Total/NA	Analysis	903.0		1	327361	09/15/17 05:59	ALD	TAL SL
Total/NA	Prep	PrecSep_0			323942	08/24/17 10:15	LDE	TAL SL
Total/NA	Analysis	904.0		1	325533	09/05/17 13:39	ALD	TAL SL

## Client Sample ID: MW-3

Lab Sample ID: 480-123041-8

Date Collected: 08/17/17 10:25

Matrix: Water

Date Received: 08/22/17 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			323934	08/24/17 09:56	LDE	TAL SL
Total/NA	Analysis	903.0		1	327366	09/15/17 06:01	ALD	TAL SL
Total/NA	Prep	PrecSep_0			323942	08/24/17 10:15	LDE	TAL SL
Total/NA	Analysis	904.0		1	325533	09/05/17 13:39	ALD	TAL SL

## Client Sample ID: DUP-1

Lab Sample ID: 480-123041-9

Date Collected: 08/17/17 00:00

Matrix: Water

Date Received: 08/22/17 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			323934	08/24/17 09:56	LDE	TAL SL
Total/NA	Analysis	903.0		1	327366	09/15/17 06:01	ALD	TAL SL
Total/NA	Prep	PrecSep_0			323942	08/24/17 10:15	LDE	TAL SL
Total/NA	Analysis	904.0		1	325533	09/05/17 13:39	ALD	TAL SL

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

## Client Sample ID: FIELD BLANK

Lab Sample ID: 480-123041-10

Date Collected: 08/17/17 12:00

Matrix: Water

Date Received: 08/22/17 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			323934	08/24/17 09:56	LDE	TAL SL
Total/NA	Analysis	903.0		1	327366	09/15/17 06:01	ALD	TAL SL
Total/NA	Prep	PrecSep_0			323942	08/24/17 10:15	LDE	TAL SL
Total/NA	Analysis	904.0		1	325533	09/05/17 13:39	ALD	TAL SL

## Client Sample ID: EQUIPMENT BLANK

Lab Sample ID: 480-123041-11

Date Collected: 08/17/17 12:05

Matrix: Water

Date Received: 08/22/17 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			323934	08/24/17 09:56	LDE	TAL SL
Total/NA	Analysis	903.0		1	327366	09/15/17 06:01	ALD	TAL SL
Total/NA	Prep	PrecSep_0			323942	08/24/17 10:15	LDE	TAL SL
Total/NA	Analysis	904.0		1	325533	09/05/17 13:40	ALD	TAL SL

### Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Accreditation/Certification Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

## Laboratory: TestAmerica Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	036-999-337	12-31-17

## Laboratory: TestAmerica St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-18
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18
Illinois	NELAP	5	200023	11-30-17
Iowa	State Program	7	373	02-01-18
Kansas	NELAP	7	E-10236	10-31-17 *
Kentucky (DW)	State Program	4	90125	12-31-17
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-18
Louisiana (DW)	NELAP	6	LA170011	12-31-17
Maryland	State Program	3	310	09-30-18
Missouri	State Program	7	780	06-30-18
Nevada	State Program	9	MO000542017-1	07-31-18
New Jersey	NELAP	2	MO002	06-30-18
New York	NELAP	2	11616	03-31-18
North Dakota	State Program	8	R207	06-30-17 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-18
Pennsylvania	NELAP	3	68-00540	02-21-18
South Carolina	State Program	4	85002001	06-30-17 *
Texas	NELAP	6	T104704193-17-11	07-31-18
US Fish & Wildlife	Federal		058448	08-31-18
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-18
Virginia	NELAP	3	460230	06-14-18
Washington	State Program	10	C592	08-30-18
West Virginia DEP	State Program	3	381	08-31-18

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Method Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



# Sample Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123041-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-123041-1	MW-1RD	Water	08/17/17 08:30	08/22/17 09:45
480-123041-2	MW-2R	Water	08/17/17 09:35	08/22/17 09:45
480-123041-3	MW-2RD	Water	08/17/17 09:30	08/22/17 09:45
480-123041-4	MW-3R	Water	08/17/17 10:20	08/22/17 09:45
480-123041-5	MW-3RD	Water	08/17/17 10:55	08/22/17 09:45
480-123041-6	MW-4	Water	08/17/17 11:45	08/22/17 09:45
480-123041-7	MW-1	Water	08/17/17 08:25	08/22/17 09:45
480-123041-8	MW-3	Water	08/17/17 10:25	08/22/17 09:45
480-123041-9	DUP-1	Water	08/17/17 00:00	08/22/17 09:45
480-123041-10	FIELD BLANK	Water	08/17/17 12:00	08/22/17 09:45
480-123041-11	EQUIPMENT BLANK	Water	08/17/17 12:05	08/22/17 09:45



# Chain of Custody Record

**TestAmerica Buffalo**  
10 Hazelwood Drive

Amherst, NY 14228-2223  
phone 716.691.2600 fax 716.691.7991



TestAmerica I 480-123041 COC

Regulatory Program:  DW  NPDES  RCRA  Other:

Client Contact SKB Environmental 13425 Courthouse Blvd Rosemount, MN 55068 (651) 438-1500 Phone (651) 438-1518 FAX Project Name: Lansing 2017 CCR GW Event 7 Site: P O # 3064-17-00369		Project Manager: Ryan Van Dette Tel/Fax: Analysis Turnaround Time CALENDAR DAYS WORKING DAYS TAT if different from Below 2 weeks 1 week 2 days 1 day		Site Contact: Nathaniel Beineman Date: 8/17/17 Carrier: COC No: of COCs											
Sample Identification		Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Metals (totals) + Mercury	Chloride	Fluoride	Sulfate	TDS	pH	Radium 226 & 228 combined
MW-1RD		8/17/17	8:30	Grab	Water	7	X		X	X	X	X	X	X	X
MW-2R			9:35	Grab	Water	7	X		X	X	X	X	X	X	X
MW-2RD			9:50	Grab	Water	7	X		X	X	X	X	X	X	X
MW-3R			10:20	Grab	Water	7	X		X	X	X	X	X	X	X
MW-3RD			10:55	Grab	Water	7	X		X	X	X	X	X	X	X
MW-4			11:45	Grab	Water	7	X		X	X	X	X	X	X	X
MW-1			8:25	Grab	Water	7	X		X	X	X	X	X	X	X
MW-3			11:25	Grab	Water	7	X		X	X	X	X	X	X	X
Duplicate - 1					Water	7	X		X	X	X	X	X	X	X
Field Blank			12:00	Grab	Water	7	X		X	X	X	X	X	X	X
Equipment Blank			12:05	Grab	Water	7	X		X	X	X	X	X	X	X
<p><b>Preservation Used:</b> 1= Ice, 2= HCl; 3= H<sub>2</sub>SO<sub>4</sub>; 4= HNO<sub>3</sub>; 5= NaOH; 6= Other.</p> <p><b>Possible Hazard Identification:</b> Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.</p>															
Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> *Metals - Boron, Calcium, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium								Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months							
Custody Seals Intact: Yes <input type="checkbox"/> No <input type="checkbox"/>		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Corrd:		Therm ID No.:		Date/Time:		Date/Time:		Date/Time:	
Relinquished by: [Signature]		Company: GES		Date/Time: 8-21-17 10:00		Received by: [Signature]		Company: [Signature]		Date/Time: 8-21-17 09:45		Date/Time: 8/22/17 09:45		Date/Time: 8/22/17 09:45	
Relinquished by: [Signature]		Company: ASA		Date/Time: 8-21-17 19:40		Received in Laboratory by: [Signature]		Company: [Signature]		Date/Time: 8/22/17 09:45		Date/Time: 8/22/17 09:45		Date/Time: 8/22/17 09:45	





**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Lab PM: VanDette, Ryan T		Carmer Tracking No(s):						
Shipping/Receiving		E-Mail: ryan.vandette@testamericainc.com		State of Origin: Minnesota						
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Minnesota		Job #: 480-123041-1						
Address: 13715 Rider Trail North,		Due Date Requested: 9/1/2017		Preservation Codes:						
City: Earth City		TAT Requested (days):		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:						
State, Zip: MO, 63045		PO #:		M - Hexane N - None O - AshAO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)						
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		WO #:		Total Number of containers						
Email:		Project #: 48013603		Special Instructions/Note:						
Project Name: SKB Lansing		SSOW#:								
Site: Lansing MN										
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, OP=water, BT=tissue, A=air)	Field Filtered Sample (Yes or No)	Form MS/MSD (Yes or No)	903.0/PreSep_21 Standard Target List	904.0/PreSep_0 Standard Target List	Total Number of containers
MW-1RD (480-123041-1)	8/17/17	08:30 Central	Water		X					3
MW-2R (480-123041-2)	8/17/17	09:35 Central	Water		X					3
MW-2RD (480-123041-3)	8/17/17	09:30 Central	Water		X					3
MW-3R (480-123041-4)	8/17/17	10:20 Central	Water		X					3
MW-3RD (480-123041-5)	8/17/17	10:55 Central	Water		X					3
MW-4 (480-123041-6)	8/17/17	11:45 Central	Water		X					3
MW-1 (480-123041-7)	8/17/17	08:25 Central	Water		X					3
MW-3 (480-123041-8)	8/17/17	10:25 Central	Water		X					3
DUP-1 (480-123041-9)	8/17/17	Central	Water		X					3

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

**Possible Hazard Identification**  
 Unconfirmed  Return To Client  Disposal By Lab  Archive For  Months

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Special Instructions/QC Requirements:

Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Method of Shipment: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Received by: *Jth Clark* Date/Time: 8/23/17 0915 Company: TASA  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_

Custody Seals Intact: \_\_\_\_\_ Custody Seal No.: \_\_\_\_\_  
 Δ Yes Δ No Cooler Temperature(s) °C and Other Remarks:







## Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-123041-2

SDG Number:

**Login Number: 123041**

**List Number: 1**

**Creator: Wallace, Cameron**

**List Source: TestAmerica Buffalo**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GES
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	



## Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-123041-2

SDG Number:

**Login Number: 123041**

**List Number: 2**

**Creator: Clarke, Jill C**

**List Source: TestAmerica St. Louis**

**List Creation: 08/23/17 11:15 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	20.0, 20.0, 20.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	COC not relinquished.
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-123928-1

Client Project/Site: SKB Lansing - CCR Groundwater

Sampling Event: CCR Groundwater

For:

Waste Connections, Inc.

13425 Courthouse Blvd

Rosemount, Minnesota 55068

Attn: Nathaniel Beinemann



Authorized for release by:

9/22/2017 4:16:59 PM

Ryan VanDette, Project Manager II

(716)504-9830

[ryan.vandette@testamericainc.com](mailto:ryan.vandette@testamericainc.com)



### LINKS

Review your project  
results through

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[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

## Qualifiers

### General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)



# Case Narrative

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

**Job ID: 480-123928-1**

**Laboratory: TestAmerica Buffalo**

## Narrative

### Job Narrative 480-123928-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 9/11/2017 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 3.0° C, 3.4° C and 3.8° C.

#### HPLC/IC

Method(s) 300.0: The following samples was diluted to bring the concentration of target analytes within the calibration range: MW-2R (480-123928-2), MW-3RD (480-123928-5), MW-4 (480-123928-6) and DUPLICATE-1 (480-123928-9). Elevated reporting limits (RLs) are provided.

Method(s) 300.0: The following samples was reported with elevated reporting limits for all analytes: MW-2RD (480-123928-3), MW-3R (480-123928-4), MW-1 (480-123928-7) and MW-3 (480-123928-8). The sample was analyzed at a dilution based on screening results.

Method(s) 300.0: The following sample was reported with elevated reporting limits for all analytes: MW-1RD (480-123928-1). The sample was analyzed at a dilution based on screening results.

Method(s) 300.0: The Sulfate results reported for the following sample do not concur with results previously reported for this site: MW-1 (480-123928-7). The additional analysis of the sample Matrix Spike and Matrix Spike Duplicate confirmed the levels present in the unspiked analytical run.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) SM 2540C: Due to the matrix, the initial volume(s) used for the following sample deviated from the standard procedure: MW-4 (480-123928-6). The reporting limits (RLs) have been adjusted proportionately.

Method(s) 9040C, SM 4500 H+ B: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: MW-1RD (480-123928-1), MW-2R (480-123928-2), MW-2RD (480-123928-3), MW-3R (480-123928-4), MW-3RD (480-123928-5), MW-4 (480-123928-6), MW-1 (480-123928-7), MW-3 (480-123928-8), DUPLICATE-1 (480-123928-9) and EQUIPMENT BLANK (480-123928-11).

Method(s) 9040C, SM 4500 H+ B: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following sample has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: FIELD BLANK (480-123928-10).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Detection Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

## Client Sample ID: MW-1RD

## Lab Sample ID: 480-123928-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.15		0.0020		mg/L	1		6010C	Total/NA
Calcium	72.0		0.50		mg/L	1		6010C	Total/NA
Cobalt	1.4		0.30		ug/L	1		6020A	Total/NA
Molybdenum	2.9		1.0		ug/L	1		6020A	Total/NA
Chloride	18.1		1.0		mg/L	2		300.0	Total/NA
Fluoride	0.25		0.10		mg/L	2		300.0	Total/NA
Sulfate	45.0		4.0		mg/L	2		300.0	Total/NA
Total Dissolved Solids	327		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.6	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	25.4	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-2R

## Lab Sample ID: 480-123928-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.19		0.0020		mg/L	1		6010C	Total/NA
Boron	0.29		0.020		mg/L	1		6010C	Total/NA
Calcium	190		0.50		mg/L	1		6010C	Total/NA
Cobalt	0.88		0.30		ug/L	1		6020A	Total/NA
Molybdenum	2.0		1.0		ug/L	1		6020A	Total/NA
Chloride	67.5		2.5		mg/L	5		300.0	Total/NA
Sulfate	143		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	838		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.0	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	25.4	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-2RD

## Lab Sample ID: 480-123928-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.16		0.0020		mg/L	1		6010C	Total/NA
Boron	0.045		0.020		mg/L	1		6010C	Total/NA
Calcium	123		0.50		mg/L	1		6010C	Total/NA
Arsenic	1.8		1.0		ug/L	1		6020A	Total/NA
Cobalt	2.4		0.30		ug/L	1		6020A	Total/NA
Molybdenum	2.7		1.0		ug/L	1		6020A	Total/NA
Chloride	32.5		2.5		mg/L	5		300.0	Total/NA
Sulfate	66.3		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	523		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.4	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	25.4	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3R

## Lab Sample ID: 480-123928-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.55		0.0020		mg/L	1		6010C	Total/NA
Boron	0.047		0.020		mg/L	1		6010C	Total/NA
Calcium	211		0.50		mg/L	1		6010C	Total/NA
Arsenic	2.5		1.0		ug/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Detection Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

## Client Sample ID: MW-3R (Continued)

## Lab Sample ID: 480-123928-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	1.4		0.50		ug/L	1		6020A	Total/NA
Cobalt	0.62		0.30		ug/L	1		6020A	Total/NA
Molybdenum	1.6		1.0		ug/L	1		6020A	Total/NA
Chloride	19.0		2.5		mg/L	5		300.0	Total/NA
Sulfate	29.4		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	831		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.9	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	25.4	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3RD

## Lab Sample ID: 480-123928-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.20		0.0020		mg/L	1		6010C	Total/NA
Boron	0.031		0.020		mg/L	1		6010C	Total/NA
Calcium	119		0.50		mg/L	1		6010C	Total/NA
Arsenic	3.8		1.0		ug/L	1		6020A	Total/NA
Cobalt	0.66		0.30		ug/L	1		6020A	Total/NA
Molybdenum	3.8		1.0		ug/L	1		6020A	Total/NA
Chloride	31.7		2.5		mg/L	5		300.0	Total/NA
Sulfate	113		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	570		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.4	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	25.5	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-4

## Lab Sample ID: 480-123928-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.22		0.0020		mg/L	1		6010C	Total/NA
Boron	0.29		0.020		mg/L	1		6010C	Total/NA
Calcium	210		0.50		mg/L	1		6010C	Total/NA
Arsenic	1.9		1.0		ug/L	1		6020A	Total/NA
Cobalt	0.63		0.30		ug/L	1		6020A	Total/NA
Molybdenum	2.0		1.0		ug/L	1		6020A	Total/NA
Chloride	44.4		2.5		mg/L	5		300.0	Total/NA
Fluoride	0.26		0.25		mg/L	5		300.0	Total/NA
Sulfate	244		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	1030		20.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.1	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	25.6	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-1

## Lab Sample ID: 480-123928-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.083		0.0020		mg/L	1		6010C	Total/NA
Boron	0.020		0.020		mg/L	1		6010C	Total/NA
Calcium	85.0		0.50		mg/L	1		6010C	Total/NA
Chloride	68.2		2.5		mg/L	5		300.0	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Detection Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

## Client Sample ID: MW-1 (Continued)

Lab Sample ID: 480-123928-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	74.0		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	382		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.4	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	25.6	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-3

Lab Sample ID: 480-123928-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.29		0.0020		mg/L	1		6010C	Total/NA
Boron	0.32		0.020		mg/L	1		6010C	Total/NA
Calcium	206		0.50		mg/L	1		6010C	Total/NA
Arsenic	2.7		1.0		ug/L	1		6020A	Total/NA
Cobalt	5.3		0.30		ug/L	1		6020A	Total/NA
Molybdenum	8.3		1.0		ug/L	1		6020A	Total/NA
Chloride	26.0		2.5		mg/L	5		300.0	Total/NA
Sulfate	28.6		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	841		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.0	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	25.7	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: DUPLICATE-1

Lab Sample ID: 480-123928-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.21		0.0020		mg/L	1		6010C	Total/NA
Boron	0.031		0.020		mg/L	1		6010C	Total/NA
Calcium	125		0.50		mg/L	1		6010C	Total/NA
Arsenic	3.9		1.0		ug/L	1		6020A	Total/NA
Cobalt	0.64		0.30		ug/L	1		6020A	Total/NA
Molybdenum	4.0		1.0		ug/L	1		6020A	Total/NA
Chloride	31.7		2.5		mg/L	5		300.0	Total/NA
Sulfate	113		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	561		10.0		mg/L	1		SM 2540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.4	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	25.8	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: FIELD BLANK

Lab Sample ID: 480-123928-10

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	5.8	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	25.9	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

## Client Sample ID: EQUIPMENT BLANK

Lab Sample ID: 480-123928-11

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	5.9	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	25.9	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-123928-1**

**Date Collected: 09/07/17 08:20**

**Matrix: Water**

**Date Received: 09/11/17 09:00**

**Method: 6010C - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.15		0.0020		mg/L		09/13/17 08:55	09/14/17 15:16	1
Boron	ND		0.020		mg/L		09/13/17 08:55	09/14/17 15:16	1
Calcium	72.0		0.50		mg/L		09/13/17 08:55	09/14/17 15:16	1
Chromium	ND		0.0040		mg/L		09/13/17 08:55	09/14/17 15:16	1
Lead	ND		0.010		mg/L		09/13/17 08:55	09/14/17 15:16	1
Lithium	ND		0.030		mg/L		09/13/17 08:55	09/14/17 15:16	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		09/12/17 08:14	09/12/17 20:51	1
Arsenic	ND		1.0		ug/L		09/12/17 08:14	09/12/17 20:51	1
Beryllium	ND		0.70		ug/L		09/12/17 08:14	09/12/17 20:51	1
Cadmium	ND		0.50		ug/L		09/12/17 08:14	09/12/17 20:51	1
Cobalt	1.4		0.30		ug/L		09/12/17 08:14	09/12/17 20:51	1
Molybdenum	2.9		1.0		ug/L		09/12/17 08:14	09/12/17 20:51	1
Selenium	ND		1.0		ug/L		09/12/17 08:14	09/12/17 20:51	1
Thallium	ND		0.20		ug/L		09/12/17 08:14	09/12/17 20:51	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		09/12/17 11:20	09/12/17 17:03	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	18.1		1.0		mg/L			09/14/17 18:50	2
Fluoride	0.25		0.10		mg/L			09/14/17 18:50	2
Sulfate	45.0		4.0		mg/L			09/14/17 18:50	2
Total Dissolved Solids	327		10.0		mg/L			09/11/17 20:54	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.6	HF	0.1		SU			09/12/17 17:15	1
Temperature	25.4	HF	0.001		Degrees C			09/12/17 17:15	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

**Client Sample ID: MW-2R**

**Lab Sample ID: 480-123928-2**

**Date Collected: 09/07/17 09:05**

**Matrix: Water**

**Date Received: 09/11/17 09:00**

**Method: 6010C - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.19		0.0020		mg/L		09/13/17 08:55	09/14/17 15:19	1
Boron	0.29		0.020		mg/L		09/13/17 08:55	09/14/17 15:19	1
Calcium	190		0.50		mg/L		09/13/17 08:55	09/14/17 15:19	1
Chromium	ND		0.0040		mg/L		09/13/17 08:55	09/14/17 15:19	1
Lead	ND		0.010		mg/L		09/13/17 08:55	09/14/17 15:19	1
Lithium	ND		0.030		mg/L		09/13/17 08:55	09/14/17 15:19	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		09/12/17 08:14	09/12/17 21:36	1
Arsenic	ND		1.0		ug/L		09/12/17 08:14	09/12/17 21:36	1
Beryllium	ND		0.70		ug/L		09/12/17 08:14	09/12/17 21:36	1
Cadmium	ND		0.50		ug/L		09/12/17 08:14	09/12/17 21:36	1
Cobalt	0.88		0.30		ug/L		09/12/17 08:14	09/12/17 21:36	1
Molybdenum	2.0		1.0		ug/L		09/12/17 08:14	09/12/17 21:36	1
Selenium	ND		1.0		ug/L		09/12/17 08:14	09/12/17 21:36	1
Thallium	ND		0.20		ug/L		09/12/17 08:14	09/12/17 21:36	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		09/12/17 11:20	09/12/17 17:08	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	67.5		2.5		mg/L			09/14/17 15:07	5
Fluoride	ND		0.25		mg/L			09/14/17 15:07	5
Sulfate	143		10.0		mg/L			09/14/17 15:07	5
Total Dissolved Solids	838		10.0		mg/L			09/11/17 20:54	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.0	HF	0.1		SU			09/12/17 17:18	1
Temperature	25.4	HF	0.001		Degrees C			09/12/17 17:18	1

# Client Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-123928-3**

Date Collected: 09/07/17 09:00

Matrix: Water

Date Received: 09/11/17 09:00

**Method: 6010C - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.16		0.0020		mg/L		09/13/17 08:55	09/14/17 15:34	1
Boron	0.045		0.020		mg/L		09/13/17 08:55	09/14/17 15:34	1
Calcium	123		0.50		mg/L		09/13/17 08:55	09/14/17 15:34	1
Chromium	ND		0.0040		mg/L		09/13/17 08:55	09/14/17 15:34	1
Lead	ND		0.010		mg/L		09/13/17 08:55	09/14/17 15:34	1
Lithium	ND		0.030		mg/L		09/13/17 08:55	09/14/17 15:34	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		09/12/17 08:14	09/12/17 21:42	1
Arsenic	1.8		1.0		ug/L		09/12/17 08:14	09/12/17 21:42	1
Beryllium	ND		0.70		ug/L		09/12/17 08:14	09/12/17 21:42	1
Cadmium	ND		0.50		ug/L		09/12/17 08:14	09/12/17 21:42	1
Cobalt	2.4		0.30		ug/L		09/12/17 08:14	09/12/17 21:42	1
Molybdenum	2.7		1.0		ug/L		09/12/17 08:14	09/12/17 21:42	1
Selenium	ND		1.0		ug/L		09/12/17 08:14	09/12/17 21:42	1
Thallium	ND		0.20		ug/L		09/12/17 08:14	09/12/17 21:42	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		09/12/17 11:20	09/12/17 17:10	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	32.5		2.5		mg/L			09/14/17 15:22	5
Fluoride	ND		0.25		mg/L			09/14/17 15:22	5
Sulfate	66.3		10.0		mg/L			09/14/17 15:22	5
Total Dissolved Solids	523		10.0		mg/L			09/11/17 20:54	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.4	HF	0.1		SU			09/12/17 17:21	1
Temperature	25.4	HF	0.001		Degrees C			09/12/17 17:21	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

**Client Sample ID: MW-3R**  
**Date Collected: 09/07/17 09:40**  
**Date Received: 09/11/17 09:00**

**Lab Sample ID: 480-123928-4**  
**Matrix: Water**

**Method: 6010C - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.55		0.0020		mg/L		09/13/17 08:55	09/14/17 15:37	1
Boron	0.047		0.020		mg/L		09/13/17 08:55	09/14/17 15:37	1
Calcium	211		0.50		mg/L		09/13/17 08:55	09/14/17 15:37	1
Chromium	ND		0.0040		mg/L		09/13/17 08:55	09/14/17 15:37	1
Lead	ND		0.010		mg/L		09/13/17 08:55	09/14/17 15:37	1
Lithium	ND		0.030		mg/L		09/13/17 08:55	09/14/17 15:37	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		09/12/17 08:14	09/12/17 21:47	1
Arsenic	2.5		1.0		ug/L		09/12/17 08:14	09/12/17 21:47	1
Beryllium	ND		0.70		ug/L		09/12/17 08:14	09/12/17 21:47	1
Cadmium	1.4		0.50		ug/L		09/12/17 08:14	09/12/17 21:47	1
Cobalt	0.62		0.30		ug/L		09/12/17 08:14	09/12/17 21:47	1
Molybdenum	1.6		1.0		ug/L		09/12/17 08:14	09/12/17 21:47	1
Selenium	ND		1.0		ug/L		09/12/17 08:14	09/12/17 21:47	1
Thallium	ND		0.20		ug/L		09/12/17 08:14	09/12/17 21:47	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		09/12/17 11:20	09/12/17 17:12	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	19.0		2.5		mg/L			09/14/17 15:36	5
Fluoride	ND		0.25		mg/L			09/14/17 15:36	5
Sulfate	29.4		10.0		mg/L			09/14/17 15:36	5
Total Dissolved Solids	831		10.0		mg/L			09/11/17 20:54	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1		SU			09/12/17 17:23	1
Temperature	25.4	HF	0.001		Degrees C			09/12/17 17:23	1



# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-123928-5**

**Date Collected: 09/07/17 10:10**

**Matrix: Water**

**Date Received: 09/11/17 09:00**

**Method: 6010C - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.20		0.0020		mg/L		09/13/17 08:55	09/14/17 15:41	1
Boron	0.031		0.020		mg/L		09/13/17 08:55	09/14/17 15:41	1
Calcium	119		0.50		mg/L		09/13/17 08:55	09/14/17 15:41	1
Chromium	ND		0.0040		mg/L		09/13/17 08:55	09/14/17 15:41	1
Lead	ND		0.010		mg/L		09/13/17 08:55	09/14/17 15:41	1
Lithium	ND		0.030		mg/L		09/13/17 08:55	09/14/17 15:41	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		09/12/17 08:14	09/12/17 21:53	1
Arsenic	3.8		1.0		ug/L		09/12/17 08:14	09/12/17 21:53	1
Beryllium	ND		0.70		ug/L		09/12/17 08:14	09/12/17 21:53	1
Cadmium	ND		0.50		ug/L		09/12/17 08:14	09/12/17 21:53	1
Cobalt	0.66		0.30		ug/L		09/12/17 08:14	09/12/17 21:53	1
Molybdenum	3.8		1.0		ug/L		09/12/17 08:14	09/12/17 21:53	1
Selenium	ND		1.0		ug/L		09/12/17 08:14	09/12/17 21:53	1
Thallium	ND		0.20		ug/L		09/12/17 08:14	09/12/17 21:53	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		09/12/17 11:20	09/12/17 17:14	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	31.7		2.5		mg/L			09/14/17 15:51	5
Fluoride	ND		0.25		mg/L			09/14/17 15:51	5
Sulfate	113		10.0		mg/L			09/14/17 15:51	5
Total Dissolved Solids	570		10.0		mg/L			09/11/17 20:54	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.4	HF	0.1		SU			09/12/17 17:26	1
Temperature	25.5	HF	0.001		Degrees C			09/12/17 17:26	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

**Client Sample ID: MW-4**  
**Date Collected: 09/07/17 11:00**  
**Date Received: 09/11/17 09:00**

**Lab Sample ID: 480-123928-6**  
**Matrix: Water**

**Method: 6010C - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.22		0.0020		mg/L		09/13/17 08:55	09/14/17 15:44	1
Boron	0.29		0.020		mg/L		09/13/17 08:55	09/14/17 15:44	1
Calcium	210		0.50		mg/L		09/13/17 08:55	09/14/17 15:44	1
Chromium	ND		0.0040		mg/L		09/13/17 08:55	09/14/17 15:44	1
Lead	ND		0.010		mg/L		09/13/17 08:55	09/14/17 15:44	1
Lithium	ND		0.030		mg/L		09/13/17 08:55	09/14/17 15:44	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		09/12/17 08:14	09/12/17 21:58	1
Arsenic	1.9		1.0		ug/L		09/12/17 08:14	09/12/17 21:58	1
Beryllium	ND		0.70		ug/L		09/12/17 08:14	09/12/17 21:58	1
Cadmium	ND		0.50		ug/L		09/12/17 08:14	09/12/17 21:58	1
Cobalt	0.63		0.30		ug/L		09/12/17 08:14	09/12/17 21:58	1
Molybdenum	2.0		1.0		ug/L		09/12/17 08:14	09/12/17 21:58	1
Selenium	ND		1.0		ug/L		09/12/17 08:14	09/12/17 21:58	1
Thallium	ND		0.20		ug/L		09/12/17 08:14	09/12/17 21:58	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		09/12/17 11:20	09/12/17 17:16	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	44.4		2.5		mg/L			09/14/17 16:05	5
Fluoride	0.26		0.25		mg/L			09/14/17 16:05	5
Sulfate	244		10.0		mg/L			09/14/17 16:05	5
Total Dissolved Solids	1030		20.0		mg/L			09/11/17 20:54	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.1	HF	0.1		SU			09/12/17 17:29	1
Temperature	25.6	HF	0.001		Degrees C			09/12/17 17:29	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

**Client Sample ID: MW-1**  
**Date Collected: 09/07/17 08:15**  
**Date Received: 09/11/17 09:00**

**Lab Sample ID: 480-123928-7**  
**Matrix: Water**

**Method: 6010C - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.083		0.0020		mg/L		09/13/17 08:55	09/14/17 15:48	1
Boron	0.020		0.020		mg/L		09/13/17 08:55	09/14/17 15:48	1
Calcium	85.0		0.50		mg/L		09/13/17 08:55	09/14/17 15:48	1
Chromium	ND		0.0040		mg/L		09/13/17 08:55	09/14/17 15:48	1
Lead	ND		0.010		mg/L		09/13/17 08:55	09/14/17 15:48	1
Lithium	ND		0.030		mg/L		09/13/17 08:55	09/14/17 15:48	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		09/12/17 08:14	09/12/17 22:03	1
Arsenic	ND		1.0		ug/L		09/12/17 08:14	09/12/17 22:03	1
Beryllium	ND		0.70		ug/L		09/12/17 08:14	09/12/17 22:03	1
Cadmium	ND		0.50		ug/L		09/12/17 08:14	09/12/17 22:03	1
Cobalt	ND		0.30		ug/L		09/12/17 08:14	09/12/17 22:03	1
Molybdenum	ND		1.0		ug/L		09/12/17 08:14	09/12/17 22:03	1
Selenium	ND		1.0		ug/L		09/12/17 08:14	09/12/17 22:03	1
Thallium	ND		0.20		ug/L		09/12/17 08:14	09/12/17 22:03	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		09/12/17 11:20	09/12/17 17:18	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	68.2		2.5		mg/L			09/14/17 16:20	5
Fluoride	ND		0.25		mg/L			09/14/17 16:20	5
Sulfate	74.0		10.0		mg/L			09/14/17 16:20	5
Total Dissolved Solids	382		10.0		mg/L			09/11/17 20:54	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.4	HF	0.1		SU			09/12/17 17:32	1
Temperature	25.6	HF	0.001		Degrees C			09/12/17 17:32	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

**Client Sample ID: MW-3**  
**Date Collected: 09/07/17 09:45**  
**Date Received: 09/11/17 09:00**

**Lab Sample ID: 480-123928-8**  
**Matrix: Water**

**Method: 6010C - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.29		0.0020		mg/L		09/13/17 08:55	09/14/17 15:52	1
Boron	0.32		0.020		mg/L		09/13/17 08:55	09/14/17 15:52	1
Calcium	206		0.50		mg/L		09/13/17 08:55	09/14/17 15:52	1
Chromium	ND		0.0040		mg/L		09/13/17 08:55	09/14/17 15:52	1
Lead	ND		0.010		mg/L		09/13/17 08:55	09/14/17 15:52	1
Lithium	ND		0.030		mg/L		09/13/17 08:55	09/14/17 15:52	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		09/12/17 08:14	09/12/17 22:09	1
Arsenic	2.7		1.0		ug/L		09/12/17 08:14	09/12/17 22:09	1
Beryllium	ND		0.70		ug/L		09/12/17 08:14	09/12/17 22:09	1
Cadmium	ND		0.50		ug/L		09/12/17 08:14	09/12/17 22:09	1
Cobalt	5.3		0.30		ug/L		09/12/17 08:14	09/12/17 22:09	1
Molybdenum	8.3		1.0		ug/L		09/12/17 08:14	09/12/17 22:09	1
Selenium	ND		1.0		ug/L		09/12/17 08:14	09/12/17 22:09	1
Thallium	ND		0.20		ug/L		09/12/17 08:14	09/12/17 22:09	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		09/12/17 11:20	09/12/17 17:20	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	26.0		2.5		mg/L			09/14/17 17:33	5
Fluoride	ND		0.25		mg/L			09/14/17 17:33	5
Sulfate	28.6		10.0		mg/L			09/14/17 17:33	5
Total Dissolved Solids	841		10.0		mg/L			09/11/17 20:54	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.0	HF	0.1		SU			09/12/17 17:35	1
Temperature	25.7	HF	0.001		Degrees C			09/12/17 17:35	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

**Client Sample ID: DUPLICATE-1**

**Lab Sample ID: 480-123928-9**

Date Collected: 09/07/17 00:00

Matrix: Water

Date Received: 09/11/17 09:00

**Method: 6010C - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.21		0.0020		mg/L		09/13/17 08:55	09/14/17 15:55	1
Boron	0.031		0.020		mg/L		09/13/17 08:55	09/14/17 15:55	1
Calcium	125		0.50		mg/L		09/13/17 08:55	09/14/17 15:55	1
Chromium	ND		0.0040		mg/L		09/13/17 08:55	09/14/17 15:55	1
Lead	ND		0.010		mg/L		09/13/17 08:55	09/14/17 15:55	1
Lithium	ND		0.030		mg/L		09/13/17 08:55	09/14/17 15:55	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		09/12/17 08:14	09/12/17 22:14	1
Arsenic	3.9		1.0		ug/L		09/12/17 08:14	09/12/17 22:14	1
Beryllium	ND		0.70		ug/L		09/12/17 08:14	09/12/17 22:14	1
Cadmium	ND		0.50		ug/L		09/12/17 08:14	09/12/17 22:14	1
Cobalt	0.64		0.30		ug/L		09/12/17 08:14	09/12/17 22:14	1
Molybdenum	4.0		1.0		ug/L		09/12/17 08:14	09/12/17 22:14	1
Selenium	ND		1.0		ug/L		09/12/17 08:14	09/12/17 22:14	1
Thallium	ND		0.20		ug/L		09/12/17 08:14	09/12/17 22:14	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		09/12/17 11:20	09/12/17 17:22	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	31.7		2.5		mg/L			09/14/17 17:47	5
Fluoride	ND		0.25		mg/L			09/14/17 17:47	5
Sulfate	113		10.0		mg/L			09/14/17 17:47	5
Total Dissolved Solids	561		10.0		mg/L			09/11/17 20:54	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.4	HF	0.1		SU			09/12/17 17:38	1
Temperature	25.8	HF	0.001		Degrees C			09/12/17 17:38	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-123928-10**

**Date Collected: 09/07/17 11:10**

**Matrix: Water**

**Date Received: 09/11/17 09:00**

**Method: 6010C - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		09/13/17 08:55	09/14/17 15:59	1
Boron	ND		0.020		mg/L		09/13/17 08:55	09/14/17 15:59	1
Calcium	ND		0.50		mg/L		09/13/17 08:55	09/14/17 15:59	1
Chromium	ND		0.0040		mg/L		09/13/17 08:55	09/14/17 15:59	1
Lead	ND		0.010		mg/L		09/13/17 08:55	09/14/17 15:59	1
Lithium	ND		0.030		mg/L		09/13/17 08:55	09/14/17 15:59	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		09/12/17 08:14	09/12/17 22:20	1
Arsenic	ND		1.0		ug/L		09/12/17 08:14	09/12/17 22:20	1
Beryllium	ND		0.70		ug/L		09/12/17 08:14	09/12/17 22:20	1
Cadmium	ND		0.50		ug/L		09/12/17 08:14	09/12/17 22:20	1
Cobalt	ND		0.30		ug/L		09/12/17 08:14	09/12/17 22:20	1
Molybdenum	ND		1.0		ug/L		09/12/17 08:14	09/12/17 22:20	1
Selenium	ND		1.0		ug/L		09/12/17 08:14	09/12/17 22:20	1
Thallium	ND		0.20		ug/L		09/12/17 08:14	09/12/17 22:20	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		09/12/17 11:20	09/12/17 17:24	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			09/14/17 18:02	1
Fluoride	ND		0.050		mg/L			09/14/17 18:02	1
Sulfate	ND		2.0		mg/L			09/14/17 18:02	1
Total Dissolved Solids	ND		10.0		mg/L			09/11/17 20:54	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.8	HF	0.1		SU			09/13/17 20:48	1
Temperature	25.9	HF	0.001		Degrees C			09/13/17 20:48	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-123928-11**

**Date Collected: 09/07/17 11:15**

**Matrix: Water**

**Date Received: 09/11/17 09:00**

**Method: 6010C - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		09/13/17 08:55	09/14/17 16:03	1
Boron	ND		0.020		mg/L		09/13/17 08:55	09/14/17 16:03	1
Calcium	ND		0.50		mg/L		09/13/17 08:55	09/14/17 16:03	1
Chromium	ND		0.0040		mg/L		09/13/17 08:55	09/14/17 16:03	1
Lead	ND		0.010		mg/L		09/13/17 08:55	09/14/17 16:03	1
Lithium	ND		0.030		mg/L		09/13/17 08:55	09/14/17 16:03	1

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		09/12/17 08:14	09/12/17 22:43	1
Arsenic	ND		1.0		ug/L		09/12/17 08:14	09/12/17 22:43	1
Beryllium	ND		0.70		ug/L		09/12/17 08:14	09/12/17 22:43	1
Cadmium	ND		0.50		ug/L		09/12/17 08:14	09/12/17 22:43	1
Cobalt	ND		0.30		ug/L		09/12/17 08:14	09/12/17 22:43	1
Molybdenum	ND		1.0		ug/L		09/12/17 08:14	09/12/17 22:43	1
Selenium	ND		1.0		ug/L		09/12/17 08:14	09/12/17 22:43	1
Thallium	ND		0.20		ug/L		09/12/17 08:14	09/12/17 22:43	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		09/12/17 11:20	09/12/17 17:26	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			09/14/17 18:17	1
Fluoride	ND		0.050		mg/L			09/14/17 18:17	1
Sulfate	ND		2.0		mg/L			09/14/17 18:17	1
Total Dissolved Solids	ND		10.0		mg/L			09/11/17 20:54	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.9	HF	0.1		SU			09/12/17 17:49	1
Temperature	25.9	HF	0.001		Degrees C			09/12/17 17:49	1

# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 480-376635/1-A**  
**Matrix: Water**  
**Analysis Batch: 377065**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 376635**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		09/13/17 08:55	09/14/17 14:51	1
Boron	ND		0.020		mg/L		09/13/17 08:55	09/14/17 14:51	1
Calcium	ND		0.50		mg/L		09/13/17 08:55	09/14/17 14:51	1
Chromium	ND		0.0040		mg/L		09/13/17 08:55	09/14/17 14:51	1
Lead	ND		0.010		mg/L		09/13/17 08:55	09/14/17 14:51	1
Lithium	ND		0.030		mg/L		09/13/17 08:55	09/14/17 14:51	1

**Lab Sample ID: LCS 480-376635/2-A**  
**Matrix: Water**  
**Analysis Batch: 377065**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 376635**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	0.200	0.199		mg/L		99	80 - 120
Boron	0.200	0.203		mg/L		101	80 - 120
Calcium	10.0	9.77		mg/L		98	80 - 120
Chromium	0.200	0.192		mg/L		96	80 - 120
Lead	0.200	0.200		mg/L		100	80 - 120

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 480-376184/1-A**  
**Matrix: Water**  
**Analysis Batch: 376749**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 376184**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		09/12/17 08:14	09/12/17 19:44	1
Arsenic	ND		1.0		ug/L		09/12/17 08:14	09/12/17 19:44	1
Beryllium	ND		0.70		ug/L		09/12/17 08:14	09/12/17 19:44	1
Cadmium	ND		0.50		ug/L		09/12/17 08:14	09/12/17 19:44	1
Cobalt	ND		0.30		ug/L		09/12/17 08:14	09/12/17 19:44	1
Molybdenum	ND		1.0		ug/L		09/12/17 08:14	09/12/17 19:44	1
Selenium	ND		1.0		ug/L		09/12/17 08:14	09/12/17 19:44	1
Thallium	ND		0.20		ug/L		09/12/17 08:14	09/12/17 19:44	1

**Lab Sample ID: LCS 480-376184/2-A**  
**Matrix: Water**  
**Analysis Batch: 376749**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 376184**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	20.0	19.31		ug/L		97	80 - 120
Arsenic	20.0	18.58		ug/L		93	80 - 120
Beryllium	20.0	19.54		ug/L		98	80 - 120
Cadmium	20.0	19.03		ug/L		95	80 - 120
Cobalt	20.0	21.08		ug/L		105	80 - 120
Molybdenum	20.0	19.75		ug/L		99	80 - 120
Selenium	20.0	18.63		ug/L		93	80 - 120
Thallium	20.0	20.04		ug/L		100	80 - 120

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# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

## Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 480-123928-1 MS  
 Matrix: Water  
 Analysis Batch: 376749

Client Sample ID: MW-1RD  
 Prep Type: Total/NA  
 Prep Batch: 376184

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND		20.0	19.29		ug/L		96	75 - 125
Arsenic	ND		20.0	20.33		ug/L		100	75 - 125
Beryllium	ND		20.0	19.32		ug/L		96	75 - 125
Cadmium	ND		20.0	19.24		ug/L		96	75 - 125
Cobalt	1.4		20.0	20.89		ug/L		98	75 - 125
Molybdenum	2.9		20.0	23.10		ug/L		101	75 - 125
Selenium	ND		20.0	18.77		ug/L		94	75 - 125
Thallium	ND		20.0	20.13		ug/L		101	75 - 125

Lab Sample ID: 480-123928-1 MSD  
 Matrix: Water  
 Analysis Batch: 376749

Client Sample ID: MW-1RD  
 Prep Type: Total/NA  
 Prep Batch: 376184

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		20.0	19.17		ug/L		96	75 - 125	1	20
Arsenic	ND		20.0	21.02		ug/L		103	75 - 125	3	20
Beryllium	ND		20.0	19.91		ug/L		99	75 - 125	3	20
Cadmium	ND		20.0	19.02		ug/L		95	75 - 125	1	20
Cobalt	1.4		20.0	20.87		ug/L		97	75 - 125	0	20
Molybdenum	2.9		20.0	23.05		ug/L		101	75 - 125	0	20
Selenium	ND		20.0	20.07		ug/L		100	75 - 125	7	20
Thallium	ND		20.0	20.05		ug/L		100	75 - 125	0	20

## Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 480-376324/1-A  
 Matrix: Water  
 Analysis Batch: 376440

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 376324

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		09/12/17 11:20	09/12/17 16:46	1

Lab Sample ID: LCS 480-376324/2-A  
 Matrix: Water  
 Analysis Batch: 376440

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 376324

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	6.67	6.22		ug/L		93	80 - 120

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 480-376863/4  
 Matrix: Water  
 Analysis Batch: 376863

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			09/14/17 14:53	1
Fluoride	ND		0.050		mg/L			09/14/17 14:53	1

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# QC Sample Results

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: MB 480-376863/4**

**Matrix: Water**

**Analysis Batch: 376863**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		2.0		mg/L			09/14/17 14:53	1

**Lab Sample ID: LCS 480-376863/3**

**Matrix: Water**

**Analysis Batch: 376863**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	51.81		mg/L		104	90 - 110
Fluoride	5.00	5.16		mg/L		103	90 - 110
Sulfate	50.0	51.32		mg/L		103	90 - 110

**Lab Sample ID: 480-123928-7 MS**

**Matrix: Water**

**Analysis Batch: 376863**

**Client Sample ID: MW-1**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	68.2		250	334.2		mg/L		106	81 - 120
Fluoride	ND		25.0	26.89		mg/L		108	82 - 120
Sulfate	74.0		250	334.2		mg/L		104	80 - 120

**Lab Sample ID: 480-123928-7 MSD**

**Matrix: Water**

**Analysis Batch: 376863**

**Client Sample ID: MW-1**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Chloride	68.2		250	337.5		mg/L		108	81 - 120	1	20
Fluoride	ND		25.0	26.97		mg/L		108	82 - 120	0	20
Sulfate	74.0		250	336.8		mg/L		105	80 - 120	1	20

**Lab Sample ID: MB 480-376889/28**

**Matrix: Water**

**Analysis Batch: 376889**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			09/14/17 16:07	1
Fluoride	ND		0.050		mg/L			09/14/17 16:07	1
Sulfate	ND		2.0		mg/L			09/14/17 16:07	1

**Lab Sample ID: LCS 480-376889/27**

**Matrix: Water**

**Analysis Batch: 376889**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.05		mg/L		98	90 - 110
Fluoride	5.00	4.79		mg/L		96	90 - 110
Sulfate	50.0	46.17		mg/L		92	90 - 110

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# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 480-123928-1 MS  
 Matrix: Water  
 Analysis Batch: 376889

Client Sample ID: MW-1RD  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	18.1		100	118.8		mg/L		101	81 - 120
Fluoride	0.25		10.0	10.05		mg/L		98	82 - 120
Sulfate	45.0		100	138.2		mg/L		93	80 - 120

## Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 480-376232/1  
 Matrix: Water  
 Analysis Batch: 376232

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			09/11/17 20:54	1

Lab Sample ID: LCS 480-376232/2  
 Matrix: Water  
 Analysis Batch: 376232

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	513	501.0		mg/L		98	85 - 115

## Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 480-376446/1  
 Matrix: Water  
 Analysis Batch: 376446

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99 - 101

Lab Sample ID: LCS 480-376446/23  
 Matrix: Water  
 Analysis Batch: 376446

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99 - 101

Lab Sample ID: LCS 480-376719/23  
 Matrix: Water  
 Analysis Batch: 376719

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.1		SU		101	99 - 101

# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

## Metals

### Prep Batch: 376184

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123928-1	MW-1RD	Total/NA	Water	3020A	
480-123928-2	MW-2R	Total/NA	Water	3020A	
480-123928-3	MW-2RD	Total/NA	Water	3020A	
480-123928-4	MW-3R	Total/NA	Water	3020A	
480-123928-5	MW-3RD	Total/NA	Water	3020A	
480-123928-6	MW-4	Total/NA	Water	3020A	
480-123928-7	MW-1	Total/NA	Water	3020A	
480-123928-8	MW-3	Total/NA	Water	3020A	
480-123928-9	DUPLICATE-1	Total/NA	Water	3020A	
480-123928-10	FIELD BLANK	Total/NA	Water	3020A	
480-123928-11	EQUIPMENT BLANK	Total/NA	Water	3020A	
MB 480-376184/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-376184/2-A	Lab Control Sample	Total/NA	Water	3020A	
480-123928-1 MS	MW-1RD	Total/NA	Water	3020A	
480-123928-1 MSD	MW-1RD	Total/NA	Water	3020A	

### Prep Batch: 376324

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123928-1	MW-1RD	Total/NA	Water	7470A	
480-123928-2	MW-2R	Total/NA	Water	7470A	
480-123928-3	MW-2RD	Total/NA	Water	7470A	
480-123928-4	MW-3R	Total/NA	Water	7470A	
480-123928-5	MW-3RD	Total/NA	Water	7470A	
480-123928-6	MW-4	Total/NA	Water	7470A	
480-123928-7	MW-1	Total/NA	Water	7470A	
480-123928-8	MW-3	Total/NA	Water	7470A	
480-123928-9	DUPLICATE-1	Total/NA	Water	7470A	
480-123928-10	FIELD BLANK	Total/NA	Water	7470A	
480-123928-11	EQUIPMENT BLANK	Total/NA	Water	7470A	
MB 480-376324/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-376324/2-A	Lab Control Sample	Total/NA	Water	7470A	

### Analysis Batch: 376440

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123928-1	MW-1RD	Total/NA	Water	7470A	376324
480-123928-2	MW-2R	Total/NA	Water	7470A	376324
480-123928-3	MW-2RD	Total/NA	Water	7470A	376324
480-123928-4	MW-3R	Total/NA	Water	7470A	376324
480-123928-5	MW-3RD	Total/NA	Water	7470A	376324
480-123928-6	MW-4	Total/NA	Water	7470A	376324
480-123928-7	MW-1	Total/NA	Water	7470A	376324
480-123928-8	MW-3	Total/NA	Water	7470A	376324
480-123928-9	DUPLICATE-1	Total/NA	Water	7470A	376324
480-123928-10	FIELD BLANK	Total/NA	Water	7470A	376324
480-123928-11	EQUIPMENT BLANK	Total/NA	Water	7470A	376324
MB 480-376324/1-A	Method Blank	Total/NA	Water	7470A	376324
LCS 480-376324/2-A	Lab Control Sample	Total/NA	Water	7470A	376324

### Prep Batch: 376635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123928-1	MW-1RD	Total/NA	Water	3005A	

TestAmerica Buffalo

# QC Association Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

## Metals (Continued)

### Prep Batch: 376635 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123928-2	MW-2R	Total/NA	Water	3005A	
480-123928-3	MW-2RD	Total/NA	Water	3005A	
480-123928-4	MW-3R	Total/NA	Water	3005A	
480-123928-5	MW-3RD	Total/NA	Water	3005A	
480-123928-6	MW-4	Total/NA	Water	3005A	
480-123928-7	MW-1	Total/NA	Water	3005A	
480-123928-8	MW-3	Total/NA	Water	3005A	
480-123928-9	DUPLICATE-1	Total/NA	Water	3005A	
480-123928-10	FIELD BLANK	Total/NA	Water	3005A	
480-123928-11	EQUIPMENT BLANK	Total/NA	Water	3005A	
MB 480-376635/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-376635/2-A	Lab Control Sample	Total/NA	Water	3005A	

### Analysis Batch: 376749

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123928-1	MW-1RD	Total/NA	Water	6020A	376184
480-123928-2	MW-2R	Total/NA	Water	6020A	376184
480-123928-3	MW-2RD	Total/NA	Water	6020A	376184
480-123928-4	MW-3R	Total/NA	Water	6020A	376184
480-123928-5	MW-3RD	Total/NA	Water	6020A	376184
480-123928-6	MW-4	Total/NA	Water	6020A	376184
480-123928-7	MW-1	Total/NA	Water	6020A	376184
480-123928-8	MW-3	Total/NA	Water	6020A	376184
480-123928-9	DUPLICATE-1	Total/NA	Water	6020A	376184
480-123928-10	FIELD BLANK	Total/NA	Water	6020A	376184
480-123928-11	EQUIPMENT BLANK	Total/NA	Water	6020A	376184
MB 480-376184/1-A	Method Blank	Total/NA	Water	6020A	376184
LCS 480-376184/2-A	Lab Control Sample	Total/NA	Water	6020A	376184
480-123928-1 MS	MW-1RD	Total/NA	Water	6020A	376184
480-123928-1 MSD	MW-1RD	Total/NA	Water	6020A	376184

### Analysis Batch: 377065

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123928-1	MW-1RD	Total/NA	Water	6010C	376635
480-123928-2	MW-2R	Total/NA	Water	6010C	376635
480-123928-3	MW-2RD	Total/NA	Water	6010C	376635
480-123928-4	MW-3R	Total/NA	Water	6010C	376635
480-123928-5	MW-3RD	Total/NA	Water	6010C	376635
480-123928-6	MW-4	Total/NA	Water	6010C	376635
480-123928-7	MW-1	Total/NA	Water	6010C	376635
480-123928-8	MW-3	Total/NA	Water	6010C	376635
480-123928-9	DUPLICATE-1	Total/NA	Water	6010C	376635
480-123928-10	FIELD BLANK	Total/NA	Water	6010C	376635
480-123928-11	EQUIPMENT BLANK	Total/NA	Water	6010C	376635
MB 480-376635/1-A	Method Blank	Total/NA	Water	6010C	376635
LCS 480-376635/2-A	Lab Control Sample	Total/NA	Water	6010C	376635

# QC Association Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

## General Chemistry

### Analysis Batch: 376232

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123928-1	MW-1RD	Total/NA	Water	SM 2540C	
480-123928-2	MW-2R	Total/NA	Water	SM 2540C	
480-123928-3	MW-2RD	Total/NA	Water	SM 2540C	
480-123928-4	MW-3R	Total/NA	Water	SM 2540C	
480-123928-5	MW-3RD	Total/NA	Water	SM 2540C	
480-123928-6	MW-4	Total/NA	Water	SM 2540C	
480-123928-7	MW-1	Total/NA	Water	SM 2540C	
480-123928-8	MW-3	Total/NA	Water	SM 2540C	
480-123928-9	DUPLICATE-1	Total/NA	Water	SM 2540C	
480-123928-10	FIELD BLANK	Total/NA	Water	SM 2540C	
480-123928-11	EQUIPMENT BLANK	Total/NA	Water	SM 2540C	
MB 480-376232/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-376232/2	Lab Control Sample	Total/NA	Water	SM 2540C	

### Analysis Batch: 376446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123928-1	MW-1RD	Total/NA	Water	SM 4500 H+ B	
480-123928-2	MW-2R	Total/NA	Water	SM 4500 H+ B	
480-123928-3	MW-2RD	Total/NA	Water	SM 4500 H+ B	
480-123928-4	MW-3R	Total/NA	Water	SM 4500 H+ B	
480-123928-5	MW-3RD	Total/NA	Water	SM 4500 H+ B	
480-123928-6	MW-4	Total/NA	Water	SM 4500 H+ B	
480-123928-7	MW-1	Total/NA	Water	SM 4500 H+ B	
480-123928-8	MW-3	Total/NA	Water	SM 4500 H+ B	
480-123928-9	DUPLICATE-1	Total/NA	Water	SM 4500 H+ B	
480-123928-11	EQUIPMENT BLANK	Total/NA	Water	SM 4500 H+ B	
LCS 480-376446/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 480-376446/23	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

### Analysis Batch: 376719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123928-10	FIELD BLANK	Total/NA	Water	SM 4500 H+ B	
LCS 480-376719/23	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

### Analysis Batch: 376863

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123928-2	MW-2R	Total/NA	Water	300.0	
480-123928-3	MW-2RD	Total/NA	Water	300.0	
480-123928-4	MW-3R	Total/NA	Water	300.0	
480-123928-5	MW-3RD	Total/NA	Water	300.0	
480-123928-6	MW-4	Total/NA	Water	300.0	
480-123928-7	MW-1	Total/NA	Water	300.0	
480-123928-8	MW-3	Total/NA	Water	300.0	
480-123928-9	DUPLICATE-1	Total/NA	Water	300.0	
480-123928-10	FIELD BLANK	Total/NA	Water	300.0	
480-123928-11	EQUIPMENT BLANK	Total/NA	Water	300.0	
MB 480-376863/4	Method Blank	Total/NA	Water	300.0	
LCS 480-376863/3	Lab Control Sample	Total/NA	Water	300.0	
480-123928-7 MS	MW-1	Total/NA	Water	300.0	
480-123928-7 MSD	MW-1	Total/NA	Water	300.0	

TestAmerica Buffalo

# QC Association Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

## General Chemistry (Continued)

### Analysis Batch: 376889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123928-1	MW-1RD	Total/NA	Water	300.0	
MB 480-376889/28	Method Blank	Total/NA	Water	300.0	
LCS 480-376889/27	Lab Control Sample	Total/NA	Water	300.0	
480-123928-1 MS	MW-1RD	Total/NA	Water	300.0	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

## Client Sample ID: MW-1RD

Lab Sample ID: 480-123928-1

Date Collected: 09/07/17 08:20

Matrix: Water

Date Received: 09/11/17 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			376635	09/13/17 08:55	EMB	TAL BUF
Total/NA	Analysis	6010C		1	377065	09/14/17 15:16	AMH	TAL BUF
Total/NA	Prep	3020A			376184	09/12/17 08:14	EMB	TAL BUF
Total/NA	Analysis	6020A		1	376749	09/12/17 20:51	JRK	TAL BUF
Total/NA	Prep	7470A			376324	09/12/17 11:20	EMB	TAL BUF
Total/NA	Analysis	7470A		1	376440	09/12/17 17:03	BMB	TAL BUF
Total/NA	Analysis	300.0		2	376889	09/14/17 18:50	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	376232	09/11/17 20:54	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	376446	09/12/17 17:15	ALZ	TAL BUF

## Client Sample ID: MW-2R

Lab Sample ID: 480-123928-2

Date Collected: 09/07/17 09:05

Matrix: Water

Date Received: 09/11/17 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			376635	09/13/17 08:55	EMB	TAL BUF
Total/NA	Analysis	6010C		1	377065	09/14/17 15:19	AMH	TAL BUF
Total/NA	Prep	3020A			376184	09/12/17 08:14	EMB	TAL BUF
Total/NA	Analysis	6020A		1	376749	09/12/17 21:36	JRK	TAL BUF
Total/NA	Prep	7470A			376324	09/12/17 11:20	EMB	TAL BUF
Total/NA	Analysis	7470A		1	376440	09/12/17 17:08	BMB	TAL BUF
Total/NA	Analysis	300.0		5	376863	09/14/17 15:07	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	376232	09/11/17 20:54	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	376446	09/12/17 17:18	ALZ	TAL BUF

## Client Sample ID: MW-2RD

Lab Sample ID: 480-123928-3

Date Collected: 09/07/17 09:00

Matrix: Water

Date Received: 09/11/17 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			376635	09/13/17 08:55	EMB	TAL BUF
Total/NA	Analysis	6010C		1	377065	09/14/17 15:34	AMH	TAL BUF
Total/NA	Prep	3020A			376184	09/12/17 08:14	EMB	TAL BUF
Total/NA	Analysis	6020A		1	376749	09/12/17 21:42	JRK	TAL BUF
Total/NA	Prep	7470A			376324	09/12/17 11:20	EMB	TAL BUF
Total/NA	Analysis	7470A		1	376440	09/12/17 17:10	BMB	TAL BUF
Total/NA	Analysis	300.0		5	376863	09/14/17 15:22	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	376232	09/11/17 20:54	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	376446	09/12/17 17:21	ALZ	TAL BUF



# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

## Client Sample ID: MW-3R

Lab Sample ID: 480-123928-4

Date Collected: 09/07/17 09:40

Matrix: Water

Date Received: 09/11/17 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			376635	09/13/17 08:55	EMB	TAL BUF
Total/NA	Analysis	6010C		1	377065	09/14/17 15:37	AMH	TAL BUF
Total/NA	Prep	3020A			376184	09/12/17 08:14	EMB	TAL BUF
Total/NA	Analysis	6020A		1	376749	09/12/17 21:47	JRK	TAL BUF
Total/NA	Prep	7470A			376324	09/12/17 11:20	EMB	TAL BUF
Total/NA	Analysis	7470A		1	376440	09/12/17 17:12	BMB	TAL BUF
Total/NA	Analysis	300.0		5	376863	09/14/17 15:36	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	376232	09/11/17 20:54	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	376446	09/12/17 17:23	ALZ	TAL BUF

## Client Sample ID: MW-3RD

Lab Sample ID: 480-123928-5

Date Collected: 09/07/17 10:10

Matrix: Water

Date Received: 09/11/17 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			376635	09/13/17 08:55	EMB	TAL BUF
Total/NA	Analysis	6010C		1	377065	09/14/17 15:41	AMH	TAL BUF
Total/NA	Prep	3020A			376184	09/12/17 08:14	EMB	TAL BUF
Total/NA	Analysis	6020A		1	376749	09/12/17 21:53	JRK	TAL BUF
Total/NA	Prep	7470A			376324	09/12/17 11:20	EMB	TAL BUF
Total/NA	Analysis	7470A		1	376440	09/12/17 17:14	BMB	TAL BUF
Total/NA	Analysis	300.0		5	376863	09/14/17 15:51	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	376232	09/11/17 20:54	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	376446	09/12/17 17:26	ALZ	TAL BUF

## Client Sample ID: MW-4

Lab Sample ID: 480-123928-6

Date Collected: 09/07/17 11:00

Matrix: Water

Date Received: 09/11/17 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			376635	09/13/17 08:55	EMB	TAL BUF
Total/NA	Analysis	6010C		1	377065	09/14/17 15:44	AMH	TAL BUF
Total/NA	Prep	3020A			376184	09/12/17 08:14	EMB	TAL BUF
Total/NA	Analysis	6020A		1	376749	09/12/17 21:58	JRK	TAL BUF
Total/NA	Prep	7470A			376324	09/12/17 11:20	EMB	TAL BUF
Total/NA	Analysis	7470A		1	376440	09/12/17 17:16	BMB	TAL BUF
Total/NA	Analysis	300.0		5	376863	09/14/17 16:05	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	376232	09/11/17 20:54	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	376446	09/12/17 17:29	ALZ	TAL BUF

# Lab Chronicle

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

## Client Sample ID: MW-1

Lab Sample ID: 480-123928-7

Date Collected: 09/07/17 08:15

Matrix: Water

Date Received: 09/11/17 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			376635	09/13/17 08:55	EMB	TAL BUF
Total/NA	Analysis	6010C		1	377065	09/14/17 15:48	AMH	TAL BUF
Total/NA	Prep	3020A			376184	09/12/17 08:14	EMB	TAL BUF
Total/NA	Analysis	6020A		1	376749	09/12/17 22:03	JRK	TAL BUF
Total/NA	Prep	7470A			376324	09/12/17 11:20	EMB	TAL BUF
Total/NA	Analysis	7470A		1	376440	09/12/17 17:18	BMB	TAL BUF
Total/NA	Analysis	300.0		5	376863	09/14/17 16:20	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	376232	09/11/17 20:54	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	376446	09/12/17 17:32	ALZ	TAL BUF

## Client Sample ID: MW-3

Lab Sample ID: 480-123928-8

Date Collected: 09/07/17 09:45

Matrix: Water

Date Received: 09/11/17 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			376635	09/13/17 08:55	EMB	TAL BUF
Total/NA	Analysis	6010C		1	377065	09/14/17 15:52	AMH	TAL BUF
Total/NA	Prep	3020A			376184	09/12/17 08:14	EMB	TAL BUF
Total/NA	Analysis	6020A		1	376749	09/12/17 22:09	JRK	TAL BUF
Total/NA	Prep	7470A			376324	09/12/17 11:20	EMB	TAL BUF
Total/NA	Analysis	7470A		1	376440	09/12/17 17:20	BMB	TAL BUF
Total/NA	Analysis	300.0		5	376863	09/14/17 17:33	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	376232	09/11/17 20:54	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	376446	09/12/17 17:35	ALZ	TAL BUF

## Client Sample ID: DUPLICATE-1

Lab Sample ID: 480-123928-9

Date Collected: 09/07/17 00:00

Matrix: Water

Date Received: 09/11/17 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			376635	09/13/17 08:55	EMB	TAL BUF
Total/NA	Analysis	6010C		1	377065	09/14/17 15:55	AMH	TAL BUF
Total/NA	Prep	3020A			376184	09/12/17 08:14	EMB	TAL BUF
Total/NA	Analysis	6020A		1	376749	09/12/17 22:14	JRK	TAL BUF
Total/NA	Prep	7470A			376324	09/12/17 11:20	EMB	TAL BUF
Total/NA	Analysis	7470A		1	376440	09/12/17 17:22	BMB	TAL BUF
Total/NA	Analysis	300.0		5	376863	09/14/17 17:47	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	376232	09/11/17 20:54	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	376446	09/12/17 17:38	ALZ	TAL BUF

# Lab Chronicle

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

## Client Sample ID: FIELD BLANK

Lab Sample ID: 480-123928-10

Date Collected: 09/07/17 11:10

Matrix: Water

Date Received: 09/11/17 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			376635	09/13/17 08:55	EMB	TAL BUF
Total/NA	Analysis	6010C		1	377065	09/14/17 15:59	AMH	TAL BUF
Total/NA	Prep	3020A			376184	09/12/17 08:14	EMB	TAL BUF
Total/NA	Analysis	6020A		1	376749	09/12/17 22:20	JRK	TAL BUF
Total/NA	Prep	7470A			376324	09/12/17 11:20	EMB	TAL BUF
Total/NA	Analysis	7470A		1	376440	09/12/17 17:24	BMB	TAL BUF
Total/NA	Analysis	300.0		1	376863	09/14/17 18:02	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	376232	09/11/17 20:54	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	376719	09/13/17 20:48	ALZ	TAL BUF

## Client Sample ID: EQUIPMENT BLANK

Lab Sample ID: 480-123928-11

Date Collected: 09/07/17 11:15

Matrix: Water

Date Received: 09/11/17 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			376635	09/13/17 08:55	EMB	TAL BUF
Total/NA	Analysis	6010C		1	377065	09/14/17 16:03	AMH	TAL BUF
Total/NA	Prep	3020A			376184	09/12/17 08:14	EMB	TAL BUF
Total/NA	Analysis	6020A		1	376749	09/12/17 22:43	JRK	TAL BUF
Total/NA	Prep	7470A			376324	09/12/17 11:20	EMB	TAL BUF
Total/NA	Analysis	7470A		1	376440	09/12/17 17:26	BMB	TAL BUF
Total/NA	Analysis	300.0		1	376863	09/14/17 18:17	RJS	TAL BUF
Total/NA	Analysis	SM 2540C		1	376232	09/11/17 20:54	CDC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	376446	09/12/17 17:49	ALZ	TAL BUF

**Laboratory References:**

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

# Accreditation/Certification Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

## Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	036-999-337	12-31-17

The following analytes are included in this report, but are not accredited/certified under this accreditation/certification:

Analysis Method	Prep Method	Matrix	Analyte
6010C	3005A	Water	Lithium

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 H+ B		Water	pH
SM 4500 H+ B		Water	Temperature

# Method Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL BUF
6020A	Metals (ICP/MS)	SW846	TAL BUF
7470A	Mercury (CVAA)	SW846	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL BUF
SM 4500 H+ B	pH	SM	TAL BUF

**Protocol References:**

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

# Sample Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-123928-1	MW-1RD	Water	09/07/17 08:20	09/11/17 09:00
480-123928-2	MW-2R	Water	09/07/17 09:05	09/11/17 09:00
480-123928-3	MW-2RD	Water	09/07/17 09:00	09/11/17 09:00
480-123928-4	MW-3R	Water	09/07/17 09:40	09/11/17 09:00
480-123928-5	MW-3RD	Water	09/07/17 10:10	09/11/17 09:00
480-123928-6	MW-4	Water	09/07/17 11:00	09/11/17 09:00
480-123928-7	MW-1	Water	09/07/17 08:15	09/11/17 09:00
480-123928-8	MW-3	Water	09/07/17 09:45	09/11/17 09:00
480-123928-9	DUPLICATE-1	Water	09/07/17 00:00	09/11/17 09:00
480-123928-10	FIELD BLANK	Water	09/07/17 11:10	09/11/17 09:00
480-123928-11	EQUIPMENT BLANK	Water	09/07/17 11:15	09/11/17 09:00





Client Contact		Project Manager: Ryan Van Dette		Site Contact: Nathaniel Beineman		Date: 9/17/17		Carrier:	
SKB Environmental		Tel/Fax:		Lab Contact:		Carrier:		COC No: _____ of _____	
13425 Courthouse Blvd		Analysis Turnaround Time		Sample Type		Sample Matrix		Sample Specific Notes:	
Rosemount, MN 55068		CALENDAR DAYS WORKING DAYS		(C=Comp, G=Grab)		Water			
(651) 438-1500 Phone		TAT if different from Below		# of Cont.		7			
(651) 438-1518 FAX		2 weeks		7		7			
Project Name: Lansing 2017 CCR GW Event 8		1 week		7		7			
Site:		2 days		7		7			
P O # 3064-17-00402		1 day		7		7			
Sample Identification		Sample Date		Sample Time		Matrix		Filtered Sample (Y/N)	
MW-1RD		9/17/17		8:20		Water		X	
MW-2R				9:05		Water		X	
MW-2RD				9:00		Water		X	
MW-3R				9:40		Water		X	
MW-3RD				10:10		Water		X	
MW-4				11:00		Water		X	
MW-1				8:15		Water		X	
MW-3				9:45		Water		X	
Duplicate - 1						Water		X	
Field Blank				11:10		Water		X	
Equipment Blank				11:15		Water		X	
<p><b>Preservation Used:</b> 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other</p> <p><b>Possible Hazard Identification:</b> Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.</p> <p>Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Unknown <input type="checkbox"/> Poison B <input type="checkbox"/></p> <p>*Metals - Boron, Calcium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium</p>									
Custody Seals Intact: Yes <input type="checkbox"/> No <input type="checkbox"/>		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Corrd:		Therm ID No.:	
Relinquished by: <i>Am</i>		Company: GFS		Date/Time: 9/17/17 15:00		Received by: <i>Am</i>		Company: <i>Am</i>	
Relinquished by: <i>Am</i>		Company: <i>Am</i>		Date/Time: 9-17-17 14:44		Received by: <i>Am</i>		Company: <i>Am</i>	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	



## Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-123928-1

SDG Number:

**Login Number: 123928**

**List Number: 1**

**Creator: Wallace, Cameron**

**List Source: TestAmerica Buffalo**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GES
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-123928-2

Client Project/Site: SKB Lansing - CCR Groundwater

Sampling Event: CCR Groundwater

For:

Waste Connections, Inc.

13425 Courthouse Blvd

Rosemount, Minnesota 55068

Attn: Nathaniel Beinemann



Authorized for release by:

10/9/2017 3:37:28 PM

Denise Giglia, Project Management Assistant II

[denise.giglia@testamericainc.com](mailto:denise.giglia@testamericainc.com)

Designee for

Ryan VanDette, Project Manager II

(716)504-9830

[ryan.vandette@testamericainc.com](mailto:ryan.vandette@testamericainc.com)

### LINKS

Review your project  
results through

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Have a Question?



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[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

## Qualifiers

### Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

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**Job ID: 480-123928-2**

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**Laboratory: TestAmerica Buffalo**

## Narrative

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**Job Narrative**  
**480-123928-2**

## Comments

No additional comments.

## Receipt

The samples were received on 9/11/2017 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 3.0° C, 3.4° C and 3.8° C.

## RAD

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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# Detection Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-123928-1**

No Detections.

**Client Sample ID: MW-2R**

**Lab Sample ID: 480-123928-2**

No Detections.

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-123928-3**

No Detections.

**Client Sample ID: MW-3R**

**Lab Sample ID: 480-123928-4**

No Detections.

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-123928-5**

No Detections.

**Client Sample ID: MW-4**

**Lab Sample ID: 480-123928-6**

No Detections.

**Client Sample ID: MW-1**

**Lab Sample ID: 480-123928-7**

No Detections.

**Client Sample ID: MW-3**

**Lab Sample ID: 480-123928-8**

No Detections.

**Client Sample ID: DUPLICATE-1**

**Lab Sample ID: 480-123928-9**

No Detections.

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-123928-10**

No Detections.

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-123928-11**

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

**Client Sample ID: MW-1RD**

**Lab Sample ID: 480-123928-1**

**Date Collected: 09/07/17 08:20**

**Matrix: Water**

**Date Received: 09/11/17 09:00**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.534		0.118	0.128	1.00	0.0788	pCi/L	09/14/17 07:46	10/09/17 08:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					09/14/17 07:46	10/09/17 08:48	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.576		0.247	0.253	1.00	0.357	pCi/L	09/14/17 08:02	09/21/17 09:33	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					09/14/17 08:02	09/21/17 09:33	1
Y Carrier	84.9		40 - 110					09/14/17 08:02	09/21/17 09:33	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

**Client Sample ID: MW-2R**  
**Date Collected: 09/07/17 09:05**  
**Date Received: 09/11/17 09:00**

**Lab Sample ID: 480-123928-2**  
**Matrix: Water**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.205		0.0744	0.0766	1.00	0.0640	pCi/L	09/14/17 07:46	10/09/17 08:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110					09/14/17 07:46	10/09/17 08:48	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.75		0.338	0.374	1.00	0.394	pCi/L	09/14/17 08:02	09/21/17 09:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110					09/14/17 08:02	09/21/17 09:36	1
Y Carrier	87.1		40 - 110					09/14/17 08:02	09/21/17 09:36	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

**Client Sample ID: MW-2RD**

**Lab Sample ID: 480-123928-3**

**Date Collected: 09/07/17 09:00**

**Matrix: Water**

**Date Received: 09/11/17 09:00**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.321		0.0924	0.0968	1.00	0.0724	pCi/L	09/14/17 07:46	10/09/17 08:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					09/14/17 07:46	10/09/17 08:48	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.413		0.212	0.215	1.00	0.313	pCi/L	09/14/17 08:02	09/21/17 09:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					09/14/17 08:02	09/21/17 09:34	1
Y Carrier	87.9		40 - 110					09/14/17 08:02	09/21/17 09:34	1



# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

**Client Sample ID: MW-3R**

**Date Collected: 09/07/17 09:40**

**Date Received: 09/11/17 09:00**

**Lab Sample ID: 480-123928-4**

**Matrix: Water**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.456		0.108	0.115	1.00	0.0740	pCi/L	09/14/17 07:46	10/09/17 08:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					09/14/17 07:46	10/09/17 08:48	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.848		0.250	0.262	1.00	0.322	pCi/L	09/14/17 08:02	09/21/17 09:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					09/14/17 08:02	09/21/17 09:34	1
Y Carrier	86.7		40 - 110					09/14/17 08:02	09/21/17 09:34	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

**Client Sample ID: MW-3RD**

**Lab Sample ID: 480-123928-5**

**Date Collected: 09/07/17 10:10**

**Matrix: Water**

**Date Received: 09/11/17 09:00**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.881		0.152	0.171	1.00	0.0791	pCi/L	09/14/17 07:46	10/09/17 08:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.1		40 - 110					09/14/17 07:46	10/09/17 08:48	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.654		0.229	0.237	1.00	0.304	pCi/L	09/14/17 08:02	09/21/17 09:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.1		40 - 110					09/14/17 08:02	09/21/17 09:34	1
Y Carrier	91.2		40 - 110					09/14/17 08:02	09/21/17 09:34	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

**Client Sample ID: MW-4**  
**Date Collected: 09/07/17 11:00**  
**Date Received: 09/11/17 09:00**

**Lab Sample ID: 480-123928-6**  
**Matrix: Water**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.330		0.0951	0.0996	1.00	0.0826	pCi/L	09/14/17 07:46	10/09/17 08:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.4		40 - 110					09/14/17 07:46	10/09/17 08:48	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.586		0.274	0.279	1.00	0.403	pCi/L	09/14/17 08:02	09/21/17 09:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.4		40 - 110					09/14/17 08:02	09/21/17 09:34	1
Y Carrier	81.5		40 - 110					09/14/17 08:02	09/21/17 09:34	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

**Client Sample ID: MW-1**  
**Date Collected: 09/07/17 08:15**  
**Date Received: 09/11/17 09:00**

**Lab Sample ID: 480-123928-7**  
**Matrix: Water**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.101		0.0607	0.0614	1.00	0.0783	pCi/L	09/14/17 07:46	10/09/17 08:49	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.8		40 - 110					09/14/17 07:46	10/09/17 08:49	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.623		0.219	0.227	1.00	0.292	pCi/L	09/14/17 08:02	09/21/17 09:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.8		40 - 110					09/14/17 08:02	09/21/17 09:36	1
Y Carrier	90.5		40 - 110					09/14/17 08:02	09/21/17 09:36	1



# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

**Client Sample ID: MW-3**  
**Date Collected: 09/07/17 09:45**  
**Date Received: 09/11/17 09:00**

**Lab Sample ID: 480-123928-8**  
**Matrix: Water**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.379		0.101	0.107	1.00	0.0740	pCi/L	09/14/17 07:46	10/09/17 08:49	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.1		40 - 110					09/14/17 07:46	10/09/17 08:49	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.56		0.298	0.331	1.00	0.318	pCi/L	09/14/17 08:02	09/21/17 09:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.1		40 - 110					09/14/17 08:02	09/21/17 09:36	1
Y Carrier	88.2		40 - 110					09/14/17 08:02	09/21/17 09:36	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

**Client Sample ID: DUPLICATE-1**

**Lab Sample ID: 480-123928-9**

Date Collected: 09/07/17 00:00

Matrix: Water

Date Received: 09/11/17 09:00

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.784		0.138	0.155	1.00	0.0607	pCi/L	09/14/17 07:46	10/09/17 08:49	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					09/14/17 07:46	10/09/17 08:49	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.831		0.240	0.252	1.00	0.293	pCi/L	09/14/17 08:02	09/21/17 09:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					09/14/17 08:02	09/21/17 09:36	1
Y Carrier	84.1		40 - 110					09/14/17 08:02	09/21/17 09:36	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

**Client Sample ID: FIELD BLANK**

**Lab Sample ID: 480-123928-10**

**Date Collected: 09/07/17 11:10**

**Matrix: Water**

**Date Received: 09/11/17 09:00**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0130	U	0.0388	0.0389	1.00	0.0747	pCi/L	09/14/17 07:46	10/09/17 08:49	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					09/14/17 07:46	10/09/17 08:49	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.339		0.183	0.186	1.00	0.268	pCi/L	09/14/17 08:02	09/21/17 09:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					09/14/17 08:02	09/21/17 09:37	1
Y Carrier	89.3		40 - 110					09/14/17 08:02	09/21/17 09:37	1

# Client Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-123928-11**

**Date Collected: 09/07/17 11:15**

**Matrix: Water**

**Date Received: 09/11/17 09:00**

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0140	U	0.0341	0.0342	1.00	0.0651	pCi/L	09/14/17 07:46	10/09/17 08:52	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	99.7		40 - 110					09/14/17 07:46	10/09/17 08:52	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.360		0.199	0.201	1.00	0.294	pCi/L	09/14/17 08:02	09/21/17 09:37	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	99.7		40 - 110					09/14/17 08:02	09/21/17 09:37	1
Y Carrier	89.7		40 - 110					09/14/17 08:02	09/21/17 09:37	1



# Tracer/Carrier Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

## Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

### Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (40-110)
480-123928-1	MW-1RD	101
480-123928-1 DU	MW-1RD	101
480-123928-2	MW-2R	100
480-123928-3	MW-2RD	101
480-123928-4	MW-3R	102
480-123928-5	MW-3RD	94.1
480-123928-6	MW-4	94.4
480-123928-7	MW-1	98.8
480-123928-8	MW-3	97.1
480-123928-9	DUPLICATE-1	101
480-123928-10	FIELD BLANK	101
480-123928-11	EQUIPMENT BLANK	99.7
LCS 160-327131/2-A	Lab Control Sample	101
MB 160-327131/1-A	Method Blank	96.5

#### Tracer/Carrier Legend

Ba = Ba Carrier

## Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

### Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
480-123928-1	MW-1RD	101	84.9
480-123928-1 DU	MW-1RD	101	92.3
480-123928-2	MW-2R	100	87.1
480-123928-3	MW-2RD	101	87.9
480-123928-4	MW-3R	102	86.7
480-123928-5	MW-3RD	94.1	91.2
480-123928-6	MW-4	94.4	81.5
480-123928-7	MW-1	98.8	90.5
480-123928-8	MW-3	97.1	88.2
480-123928-9	DUPLICATE-1	101	84.1
480-123928-10	FIELD BLANK	101	89.3
480-123928-11	EQUIPMENT BLANK	99.7	89.7
LCS 160-327133/2-A	Lab Control Sample	101	92.3
MB 160-327133/1-A	Method Blank	96.5	84.5

#### Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

## Method: 903.0 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-327131/1-A**  
**Matrix: Water**  
**Analysis Batch: 330838**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 327131**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.05854	U	0.0471	0.0474	1.00	0.0649	pCi/L	09/14/17 07:46	10/09/17 08:48	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.5		40 - 110					09/14/17 07:46	10/09/17 08:48	1

**Lab Sample ID: LCS 160-327131/2-A**  
**Matrix: Water**  
**Analysis Batch: 330838**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 327131**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	9.60	10.26		1.05	1.00	0.0778	pCi/L	107	68 - 137
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	101		40 - 110						

**Lab Sample ID: 480-123928-1 DU**  
**Matrix: Water**  
**Analysis Batch: 330838**

**Client Sample ID: MW-1RD**  
**Prep Type: Total/NA**  
**Prep Batch: 327131**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	0.534		0.3420		0.102	1.00	0.0750	pCi/L	0.84	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	101		40 - 110							

## Method: 904.0 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-327133/1-A**  
**Matrix: Water**  
**Analysis Batch: 328272**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 327133**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.03247	U	0.199	0.199	1.00	0.361	pCi/L	09/14/17 08:02	09/21/17 09:33	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.5		40 - 110					09/14/17 08:02	09/21/17 09:33	1
Y Carrier	84.5		40 - 110					09/14/17 08:02	09/21/17 09:33	1

# QC Sample Results

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

## Method: 904.0 - Radium-228 (GFPC) (Continued)

**Lab Sample ID: LCS 160-327133/2-A**  
**Matrix: Water**  
**Analysis Batch: 328272**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 327133**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	12.9	13.97		1.46	1.00	0.298	pCi/L	108	56 - 140

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	101		40 - 110
Y Carrier	92.3		40 - 110

**Lab Sample ID: 480-123928-1 DU**  
**Matrix: Water**  
**Analysis Batch: 328272**

**Client Sample ID: MW-1RD**  
**Prep Type: Total/NA**  
**Prep Batch: 327133**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.576		0.2898		0.179	1.00	0.267	pCi/L	0.66	1

Carrier	DU %Yield	DU Qualifier	Limits
Ba Carrier	101		40 - 110
Y Carrier	92.3		40 - 110

# QC Association Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

## Rad

### Prep Batch: 327131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123928-1	MW-1RD	Total/NA	Water	PrecSep-21	
480-123928-2	MW-2R	Total/NA	Water	PrecSep-21	
480-123928-3	MW-2RD	Total/NA	Water	PrecSep-21	
480-123928-4	MW-3R	Total/NA	Water	PrecSep-21	
480-123928-5	MW-3RD	Total/NA	Water	PrecSep-21	
480-123928-6	MW-4	Total/NA	Water	PrecSep-21	
480-123928-7	MW-1	Total/NA	Water	PrecSep-21	
480-123928-8	MW-3	Total/NA	Water	PrecSep-21	
480-123928-9	DUPLICATE-1	Total/NA	Water	PrecSep-21	
480-123928-10	FIELD BLANK	Total/NA	Water	PrecSep-21	
480-123928-11	EQUIPMENT BLANK	Total/NA	Water	PrecSep-21	
MB 160-327131/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-327131/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
480-123928-1 DU	MW-1RD	Total/NA	Water	PrecSep-21	

### Prep Batch: 327133

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-123928-1	MW-1RD	Total/NA	Water	PrecSep_0	
480-123928-2	MW-2R	Total/NA	Water	PrecSep_0	
480-123928-3	MW-2RD	Total/NA	Water	PrecSep_0	
480-123928-4	MW-3R	Total/NA	Water	PrecSep_0	
480-123928-5	MW-3RD	Total/NA	Water	PrecSep_0	
480-123928-6	MW-4	Total/NA	Water	PrecSep_0	
480-123928-7	MW-1	Total/NA	Water	PrecSep_0	
480-123928-8	MW-3	Total/NA	Water	PrecSep_0	
480-123928-9	DUPLICATE-1	Total/NA	Water	PrecSep_0	
480-123928-10	FIELD BLANK	Total/NA	Water	PrecSep_0	
480-123928-11	EQUIPMENT BLANK	Total/NA	Water	PrecSep_0	
MB 160-327133/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-327133/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
480-123928-1 DU	MW-1RD	Total/NA	Water	PrecSep_0	

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

## Client Sample ID: MW-1RD

Date Collected: 09/07/17 08:20

Date Received: 09/11/17 09:00

## Lab Sample ID: 480-123928-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			327131	09/14/17 07:46	LDE	TAL SL
Total/NA	Analysis	903.0		1	330838	10/09/17 08:48	RTM	TAL SL
Total/NA	Prep	PrecSep_0			327133	09/14/17 08:02	LDE	TAL SL
Total/NA	Analysis	904.0		1	328272	09/21/17 09:33	ALD	TAL SL

## Client Sample ID: MW-2R

Date Collected: 09/07/17 09:05

Date Received: 09/11/17 09:00

## Lab Sample ID: 480-123928-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			327131	09/14/17 07:46	LDE	TAL SL
Total/NA	Analysis	903.0		1	330838	10/09/17 08:48	RTM	TAL SL
Total/NA	Prep	PrecSep_0			327133	09/14/17 08:02	LDE	TAL SL
Total/NA	Analysis	904.0		1	328273	09/21/17 09:36	ALD	TAL SL

## Client Sample ID: MW-2RD

Date Collected: 09/07/17 09:00

Date Received: 09/11/17 09:00

## Lab Sample ID: 480-123928-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			327131	09/14/17 07:46	LDE	TAL SL
Total/NA	Analysis	903.0		1	330838	10/09/17 08:48	RTM	TAL SL
Total/NA	Prep	PrecSep_0			327133	09/14/17 08:02	LDE	TAL SL
Total/NA	Analysis	904.0		1	328272	09/21/17 09:34	ALD	TAL SL

## Client Sample ID: MW-3R

Date Collected: 09/07/17 09:40

Date Received: 09/11/17 09:00

## Lab Sample ID: 480-123928-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			327131	09/14/17 07:46	LDE	TAL SL
Total/NA	Analysis	903.0		1	330838	10/09/17 08:48	RTM	TAL SL
Total/NA	Prep	PrecSep_0			327133	09/14/17 08:02	LDE	TAL SL
Total/NA	Analysis	904.0		1	328272	09/21/17 09:34	ALD	TAL SL

## Client Sample ID: MW-3RD

Date Collected: 09/07/17 10:10

Date Received: 09/11/17 09:00

## Lab Sample ID: 480-123928-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			327131	09/14/17 07:46	LDE	TAL SL
Total/NA	Analysis	903.0		1	330838	10/09/17 08:48	RTM	TAL SL
Total/NA	Prep	PrecSep_0			327133	09/14/17 08:02	LDE	TAL SL

TestAmerica Buffalo

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

## Client Sample ID: MW-3RD

Date Collected: 09/07/17 10:10

Date Received: 09/11/17 09:00

## Lab Sample ID: 480-123928-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	904.0		1	328272	09/21/17 09:34	ALD	TAL SL

## Client Sample ID: MW-4

Date Collected: 09/07/17 11:00

Date Received: 09/11/17 09:00

## Lab Sample ID: 480-123928-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			327131	09/14/17 07:46	LDE	TAL SL
Total/NA	Analysis	903.0		1	330838	10/09/17 08:48	RTM	TAL SL
Total/NA	Prep	PrecSep_0			327133	09/14/17 08:02	LDE	TAL SL
Total/NA	Analysis	904.0		1	328272	09/21/17 09:34	ALD	TAL SL

## Client Sample ID: MW-1

Date Collected: 09/07/17 08:15

Date Received: 09/11/17 09:00

## Lab Sample ID: 480-123928-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			327131	09/14/17 07:46	LDE	TAL SL
Total/NA	Analysis	903.0		1	330838	10/09/17 08:49	RTM	TAL SL
Total/NA	Prep	PrecSep_0			327133	09/14/17 08:02	LDE	TAL SL
Total/NA	Analysis	904.0		1	328273	09/21/17 09:36	ALD	TAL SL

## Client Sample ID: MW-3

Date Collected: 09/07/17 09:45

Date Received: 09/11/17 09:00

## Lab Sample ID: 480-123928-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			327131	09/14/17 07:46	LDE	TAL SL
Total/NA	Analysis	903.0		1	330838	10/09/17 08:49	RTM	TAL SL
Total/NA	Prep	PrecSep_0			327133	09/14/17 08:02	LDE	TAL SL
Total/NA	Analysis	904.0		1	328273	09/21/17 09:36	ALD	TAL SL

## Client Sample ID: DUPLICATE-1

Date Collected: 09/07/17 00:00

Date Received: 09/11/17 09:00

## Lab Sample ID: 480-123928-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			327131	09/14/17 07:46	LDE	TAL SL
Total/NA	Analysis	903.0		1	330838	10/09/17 08:49	RTM	TAL SL
Total/NA	Prep	PrecSep_0			327133	09/14/17 08:02	LDE	TAL SL
Total/NA	Analysis	904.0		1	328273	09/21/17 09:36	ALD	TAL SL

TestAmerica Buffalo

# Lab Chronicle

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

## Client Sample ID: FIELD BLANK

Lab Sample ID: 480-123928-10

Date Collected: 09/07/17 11:10

Matrix: Water

Date Received: 09/11/17 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			327131	09/14/17 07:46	LDE	TAL SL
Total/NA	Analysis	903.0		1	330838	10/09/17 08:49	RTM	TAL SL
Total/NA	Prep	PrecSep_0			327133	09/14/17 08:02	LDE	TAL SL
Total/NA	Analysis	904.0		1	328273	09/21/17 09:37	ALD	TAL SL

## Client Sample ID: EQUIPMENT BLANK

Lab Sample ID: 480-123928-11

Date Collected: 09/07/17 11:15

Matrix: Water

Date Received: 09/11/17 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			327131	09/14/17 07:46	LDE	TAL SL
Total/NA	Analysis	903.0		1	330839	10/09/17 08:52	RTM	TAL SL
Total/NA	Prep	PrecSep_0			327133	09/14/17 08:02	LDE	TAL SL
Total/NA	Analysis	904.0		1	328273	09/21/17 09:37	ALD	TAL SL

### Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Accreditation/Certification Summary

Client: Waste Connections, Inc.  
 Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

## Laboratory: TestAmerica Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	036-999-337	12-31-17

## Laboratory: TestAmerica St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-18
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18
Illinois	NELAP	5	200023	11-30-17
Iowa	State Program	7	373	02-01-18
Kansas	NELAP	7	E-10236	10-31-17 *
Kentucky (DW)	State Program	4	90125	12-31-17
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-18
Louisiana (DW)	NELAP	6	LA170011	12-31-17
Maryland	State Program	3	310	09-30-18
Missouri	State Program	7	780	06-30-18
Nevada	State Program	9	MO000542017-1	07-31-18
New Jersey	NELAP	2	MO002	06-30-18
New York	NELAP	2	11616	03-31-18
North Dakota	State Program	8	R207	06-30-18
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-18
Pennsylvania	NELAP	3	68-00540	02-21-18
South Carolina	State Program	4	85002001	06-30-17 *
Texas	NELAP	6	T104704193-17-11	07-31-18
US Fish & Wildlife	Federal		058448	08-31-18
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-18
Virginia	NELAP	3	460230	06-14-18
Washington	State Program	10	C592	08-30-18
West Virginia DEP	State Program	3	381	08-31-18

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.



# Method Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



# Sample Summary

Client: Waste Connections, Inc.  
Project/Site: SKB Lansing - CCR Groundwater

TestAmerica Job ID: 480-123928-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-123928-1	MW-1RD	Water	09/07/17 08:20	09/11/17 09:00
480-123928-2	MW-2R	Water	09/07/17 09:05	09/11/17 09:00
480-123928-3	MW-2RD	Water	09/07/17 09:00	09/11/17 09:00
480-123928-4	MW-3R	Water	09/07/17 09:40	09/11/17 09:00
480-123928-5	MW-3RD	Water	09/07/17 10:10	09/11/17 09:00
480-123928-6	MW-4	Water	09/07/17 11:00	09/11/17 09:00
480-123928-7	MW-1	Water	09/07/17 08:15	09/11/17 09:00
480-123928-8	MW-3	Water	09/07/17 09:45	09/11/17 09:00
480-123928-9	DUPLICATE-1	Water	09/07/17 00:00	09/11/17 09:00
480-123928-10	FIELD BLANK	Water	09/07/17 11:10	09/11/17 09:00
480-123928-11	EQUIPMENT BLANK	Water	09/07/17 11:15	09/11/17 09:00



Client Contact		Regulatory Program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other: _____		Site Contact: Nathaniel Beineman		Date: 9/17/17		Carrier:	
SKB Environmental		Project Manager: Ryan Van Dette		Lab Contact:		Date:		Carrier:	
13425 Courthouse Blvd		Analysis Turnaround Time		Filtered Sample (Y/N)		Perform MS/MSD (Y/N)		Metals (totals) + Mercury	
Rosemount, MN 55068		CALENDAR DAYS WORKING DAYS		Sample Type (C=Comp, G=Grab)		Matrix		# of Cont.	
(651) 438-1500 Phone		TAT if different from Below		Sample Time		Matrix		# of Cont.	
(651) 438-1518 FAX		2 weeks		8:20		Water		7	
Project Name: Lansing 2017 CCR GW Event 8		1 week		9:05		Water		7	
Site:		2 days		9:00		Water		7	
P O # 3064-17-00402		1 day		9:40		Water		7	
				10:10		Water		7	
				11:00		Water		7	
				8:15		Water		7	
				9:45		Water		7	
				-		Water		7	
				11:10		Water		7	
				11:15		Water		7	
				Equipment Blank		Water		7	
<p><b>Preservation Used:</b> 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other</p> <p><b>Possible Hazard Identification:</b> Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.</p> <p>Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Unknown <input type="checkbox"/> Poison B <input type="checkbox"/></p> <p>*Metals - Boron, Calcium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium</p>									
<p>Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months</p>									
<p>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</p>									
<p>Custody Seal No.: _____ Yes <input type="checkbox"/> No <input type="checkbox"/></p>									
<p>Relinquished by: <i>Am</i> Company: <i>GES</i> Date/Time: <i>9/17/17 15:00</i></p>									
<p>Relinquished by: <i>Am</i> Company: <i>GES</i> Date/Time: <i>9-17-17 14:44</i></p>									
<p>Relinquished by: _____ Company: _____ Date/Time: _____</p>									
<p>Received by: <i>Am</i> Company: <i>GES</i> Date/Time: <i>9-17-17 16:00</i></p>									
<p>Received by: <i>Am</i> Company: <i>GES</i> Date/Time: <i>9-17-17 09:00</i></p>									
<p>Received in Laboratory by: _____ Date/Time: _____</p>									
<p>Therm ID No.: _____</p>									





**Chain of Custody Record**

<b>Client Information (Sub Contract Lab)</b>		Lab PM: VanDette, Ryan T	Carrier Tracking No(s): 480-37130.1							
Client Contact: Shipping/Receiving		E-Mail: ryan.vandette@testamericainc.com	Page: Page 1 of 2							
Company: TestAmerica Laboratories, Inc.		State of Origin: Minnesota	Job #: 480-123928-2							
Address: 13715 Ridder Trail North, Earth City State, Zip: MO, 63045		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:								
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)								
Email:		Total Number of Containers								
Project Name: SKB Lansing - CCR Groundwater		Analysis Requested								
Site: Lansing MN		Perform MS/MSD (Yes or No)								
Due Date Requested: 10/9/2017		Field Filtered Sample (Yes or No)								
TAT Requested (days):		903.0/PreSep_21 Standard Target List								
PO #:		904.0/PreSep_0 Standard Target List								
WO #:		Total Number of Containers								
Project #: 48013603		Special Instructions/Note:								
SSOW#:										
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wast/oil, BT=tissue, A=Air)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	903.0/PreSep_21 Standard Target List	904.0/PreSep_0 Standard Target List	Total Number of Containers
MW-1RD (480-123928-1)	9/7/17	08:20 Central		Water		X	X	X	X	3
MW-2R (480-123928-2)	9/7/17	09:05 Central		Water		X	X	X	X	3
MW-2RD (480-123928-3)	9/7/17	09:00 Central		Water		X	X	X	X	3
MW-3R (480-123928-4)	9/7/17	09:40 Central		Water		X	X	X	X	3
MW-3RD (480-123928-5)	9/7/17	10:10 Central		Water		X	X	X	X	3
MW-4 (480-123928-6)	9/7/17	11:00 Central		Water		X	X	X	X	3
MW-1 (480-123928-7)	9/7/17	08:15 Central		Water		X	X	X	X	3
MW-3 (480-123928-8)	9/7/17	09:45 Central		Water		X	X	X	X	3
DUPLICATE-1 (480-123928-9)	9/7/17	Central		Water		X	X	X	X	3

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

**Possible Hazard Identification**  
 Unconfirmed  
 Deliverable Requested: I, II, III, IV, Other (specify) \_\_\_\_\_  
 Primary Deliverable Rank: 2  
 Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Relinquished by: *[Signature]* Date/Time: 9/13/17 09:30 Company: *[Signature]*  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_

**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months  
 Special Instructions/QC Requirements:





**Chain of Custody Record**

**TestAmerica Buffalo**  
10 Hazelwood Drive  
Amherst, NY 14228-2298  
Phone (716) 891-2600 Fax (716) 691-7991

<b>Client Information (Sub Contract Lab)</b>		Lab PM: VanDette, Ryan T	Carrier Tracking No(s):	COC No: 480-37130.2			
Client Contact: Shipping/Receiving		E-Mail: ryan.vandette@testamericainc.com	State of Origin: Minnesota	Page: Page 2 of 2			
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Minnesota					
Address: 13715 Rider Trail North,		Due Date Requested: 10/9/2017	Job #: 480-123928-2				
City: Earth City		TAT Requested (days):	Preservation Codes:				
State, Zip: MO, 63045		PO #:	A - HCL M - Hexane B - NaOH N - None O - AshaO2 C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		WO #:	Analysis Requested				
Email:		Project #: 48013603	903.0/PrecSep_21 Standard Target List				
Project Name: SKB Lansing - CCR Groundwater		SSOW#:	904.0/PrecSep_0 Standard Target List				
Site: Lansing MN			Total Number of containers				
<b>Sample Identification - Client ID (Lab ID)</b>	<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type (C=comp, G=grab)</b>	<b>Matrix (W=water, S=solid, O=waste/oil, BT=BIOWASTE, A=Air)</b>	<b>Field Filtered Sample (Yes or No)</b>	<b>Perform MS/MSD (Yes or No)</b>	<b>Special Instructions/Note:</b>
FIELD BLANK (480-123928-10)	9/7/17	11:10 Central		Water	X	X	3
EQUIPMENT BLANK (480-123928-11)	9/7/17	11:15 Central		Water	X	X	3
Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody.							
<b>Possible Hazard Identification</b>							
Unconfirmed							
Deliverable Requested: I, II, III, IV, Other (specify)							
Primary Deliverable Rank: 2							
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:							
Empty Kit Relinquished by:							
Date/Time:	9/12/17 0600	Date:	9/13/17	Time:	0930	Company:	Company
Relinquished by: <i>cw...</i>							
Relinquished by:							
Relinquished by:							
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No							
Custody Seal No.:							
Cooler Temperature(s) °C and Other Remarks:							



## Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-123928-2

SDG Number:

**Login Number: 123928**

**List Number: 1**

**Creator: Wallace, Cameron**

**List Source: TestAmerica Buffalo**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GES
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

## Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-123928-2

SDG Number:

**Login Number: 123928**

**List Number: 2**

**Creator: Taylor, Kristene N**

**List Source: TestAmerica St. Louis**

**List Creation: 09/13/17 03:13 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	20.0,20.0,20.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Appendix C – Statistical Evaluation Data

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	A	B	C	D	E	F	G	H	I	J	K	L
1	<b>Background Statistics for Uncensored Full Data Sets</b>											
2	<b>User Selected Options</b>											
3	Date/Time of Computation			12/6/2017 8:32:17 AM								
4	From File			C:\Users\bjanowiak\Desktop\CCR sampling Brian Horan\Lansing source file.xlsx								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	New or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	<b>MW-1 Antimony T^report_result_value</b>											
12												
13	<b>General Statistics</b>											
14	Total Number of Observations				36		Number of Distinct Observations				1	
15	Minimum				1		First Quartile				1	
16	Second Largest				1		Median				1	
17	Maximum				1		Third Quartile				1	
18	Mean				1		SD				0	
19	Coefficient of Variation				0		Skewness				N/A	
20												
21	<b>Warning: There is only one distinct observation value in this data set - resulting in '0' variance!</b>											
22	<b>ProUCL (or any other software) should not be used on such a data set!</b>											
23	<b>The data set for variable MW-1 Antimony T^report_result_value was not processed!</b>											
24												
25	<b>If possible, compute and collect Data Quality Objectives (DQOs) based sample size and analytical results.</b>											
26	<b>The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).</b>											
27												
28												
29	<b>MW-1 Arsenic D^report_result_value</b>											
30												
31	<b>General Statistics</b>											
32	Total Number of Observations				6		Number of Distinct Observations				5	
33							Number of Missing Observations				27	
34	Minimum				1		First Quartile				1.05	
35	Second Largest				2.4		Median				1.35	
36	Maximum				3.8		Third Quartile				2.175	
37	Mean				1.817		SD				1.103	
38	Coefficient of Variation				0.607		Skewness				1.484	
39	Mean of logged Data				0.466		SD of logged Data				0.537	
40												
41	<b>Critical Values for Background Threshold Values (BTVs)</b>											
42	Tolerance Factor K (For UTL)				3.708		d2max (for USL)				1.822	
43												
44	<b>Normal GOF Test</b>											
45	Shapiro Wilk Test Statistic				0.809		<b>Shapiro Wilk GOF Test</b>					
46	5% Shapiro Wilk Critical Value				0.788		Data appear Normal at 5% Significance Level					
47	Lilliefors Test Statistic				0.28		<b>Lilliefors GOF Test</b>					
48	5% Lilliefors Critical Value				0.362		Data appear Normal at 5% Significance Level					
49	<b>Data appear Normal at 5% Significance Level</b>											
50												

	A	B	C	D	E	F	G	H	I	J	K	L
51	<b>Background Statistics Assuming Normal Distribution</b>											
52	95% UTL with 95% Coverage				5.908						90% Percentile (z)	3.231
53	95% UPL (t)				4.218						95% Percentile (z)	3.632
54	95% USL				3.827						99% Percentile (z)	4.384
55												
56	<b>Gamma GOF Test</b>											
57	A-D Test Statistic				0.48	<b>Anderson-Darling Gamma GOF Test</b>						
58	5% A-D Critical Value				0.7	Detected data appear Gamma Distributed at 5% Significance Level						
59	K-S Test Statistic				0.246	<b>Kolmogrov-Smirnoff Gamma GOF Test</b>						
60	5% K-S Critical Value				0.334	Detected data appear Gamma Distributed at 5% Significance Level						
61	<b>Detected data appear Gamma Distributed at 5% Significance Level</b>											
62												
63	<b>Gamma Statistics</b>											
64	k hat (MLE)				3.987	k star (bias corrected MLE)					2.104	
65	Theta hat (MLE)				0.456	Theta star (bias corrected MLE)					0.863	
66	nu hat (MLE)				47.84	nu star (bias corrected)					25.25	
67	MLE Mean (bias corrected)				1.817	MLE Sd (bias corrected)					1.252	
68												
69	<b>Background Statistics Assuming Gamma Distribution</b>											
70	95% Wilson Hilferty (WH) Approx. Gamma UPL				4.665	90% Percentile					3.491	
71	95% Hawkins Wixley (HW) Approx. Gamma UPL				4.757	95% Percentile					4.241	
72	95% WH Approx. Gamma UTL with 95% Coverage				8.158	99% Percentile					5.897	
73	95% HW Approx. Gamma UTL with 95% Coverage				8.737							
74	95% WH USL				4.032	95% HW USL					4.075	
75												
76	<b>Lognormal GOF Test</b>											
77	Shapiro Wilk Test Statistic				0.876	<b>Shapiro Wilk Lognormal GOF Test</b>						
78	5% Shapiro Wilk Critical Value				0.788	Data appear Lognormal at 5% Significance Level						
79	Lilliefors Test Statistic				0.212	<b>Lilliefors Lognormal GOF Test</b>						
80	5% Lilliefors Critical Value				0.362	Data appear Lognormal at 5% Significance Level						
81	<b>Data appear Lognormal at 5% Significance Level</b>											
82												
83	<b>Background Statistics assuming Lognormal Distribution</b>											
84	95% UTL with 95% Coverage				11.67	90% Percentile (z)					3.172	
85	95% UPL (t)				5.129	95% Percentile (z)					3.855	
86	95% USL				4.24	99% Percentile (z)					5.559	
87												
88	<b>Nonparametric Distribution Free Background Statistics</b>											
89	<b>Data appear Normal at 5% Significance Level</b>											
90												
91	<b>Nonparametric Upper Limits for Background Threshold Values</b>											
92	Order of Statistic, r				6	95% UTL with 95% Coverage					3.8	
93	Approximate f				0.316	Confidence Coefficient (CC) achieved by UTL					0.265	
94	95% Percentile Bootstrap UTL with 95% Coverage				3.8	95% BCA Bootstrap UTL with 95% Coverage					3.8	
95	95% UPL				3.8	90% Percentile					3.1	
96	90% Chebyshev UPL				5.392	95% Percentile					3.45	
97	95% Chebyshev UPL				7.012	99% Percentile					3.73	
98	95% USL				3.8							
99												
100	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background											
101	data set free of outliers and consists of observations collected from clean unimpacted locations.											
102	The use of USL tends to provide a balance between false positives and false negatives provided the data											
103	represents a background data set and when many onsite observations need to be compared with the BTV.											

	A	B	C	D	E	F	G	H	I	J	K	L
104												
105	MW-1 Arsenic T^report_result_value											
106												
107	<b>General Statistics</b>											
108	Total Number of Observations					36		Number of Distinct Observations				18
109	Minimum					1		First Quartile				1.15
110	Second Largest					4.4		Median				1.95
111	Maximum					4.9		Third Quartile				2.925
112	Mean					2.286		SD				1.21
113	Coefficient of Variation					0.529		Skewness				0.682
114	Mean of logged Data					0.689		SD of logged Data				0.537
115												
116	<b>Critical Values for Background Threshold Values (BTVs)</b>											
117	Tolerance Factor K (For UTL)					2.148		d2max (for USL)				2.824
118												
119	<b>Normal GOF Test</b>											
120	Shapiro Wilk Test Statistic					0.878		<b>Shapiro Wilk GOF Test</b>				
121	5% Shapiro Wilk Critical Value					0.935		Data Not Normal at 5% Significance Level				
122	Lilliefors Test Statistic					0.144		<b>Lilliefors GOF Test</b>				
123	5% Lilliefors Critical Value					0.148		Data appear Normal at 5% Significance Level				
124	<b>Data appear Approximate Normal at 5% Significance Level</b>											
125												
126	<b>Background Statistics Assuming Normal Distribution</b>											
127	95% UTL with 95% Coverage			4.885		90% Percentile (z)				3.836		
128	95% UPL (t)			4.358		95% Percentile (z)				4.276		
129	95% USL			5.701		99% Percentile (z)				5.1		
130												
131	<b>Gamma GOF Test</b>											
132	A-D Test Statistic					0.983		<b>Anderson-Darling Gamma GOF Test</b>				
133	5% A-D Critical Value					0.753		Data Not Gamma Distributed at 5% Significance Level				
134	K-S Test Statistic					0.141		<b>Kolmogrov-Smirnoff Gamma GOF Test</b>				
135	5% K-S Critical Value					0.148		Detected data appear Gamma Distributed at 5% Significance Level				
136	<b>Detected data follow Appr. Gamma Distribution at 5% Significance Level</b>											
137												
138	<b>Gamma Statistics</b>											
139	k hat (MLE)					3.784		k star (bias corrected MLE)				3.487
140	Theta hat (MLE)					0.604		Theta star (bias corrected MLE)				0.656
141	nu hat (MLE)					272.5		nu star (bias corrected)				251.1
142	MLE Mean (bias corrected)					2.286		MLE Sd (bias corrected)				1.224
143												
144	<b>Background Statistics Assuming Gamma Distribution</b>											
145	95% Wilson Hilferty (WH) Approx. Gamma UPL					4.664		90% Percentile				3.928
146	95% Hawkins Wixley (HW) Approx. Gamma UPL					4.731		95% Percentile				4.599
147	95% WH Approx. Gamma UTL with 95% Coverage					5.552		99% Percentile				6.042
148	95% HW Approx. Gamma UTL with 95% Coverage					5.699						
149	95% WH USL					7.139		95% HW USL				7.485
150												
151	<b>Lognormal GOF Test</b>											
152	Shapiro Wilk Test Statistic					0.897		<b>Shapiro Wilk Lognormal GOF Test</b>				
153	5% Shapiro Wilk Critical Value					0.935		Data Not Lognormal at 5% Significance Level				
154	Lilliefors Test Statistic					0.15		<b>Lilliefors Lognormal GOF Test</b>				
155	5% Lilliefors Critical Value					0.148		Data Not Lognormal at 5% Significance Level				
156	<b>Data Not Lognormal at 5% Significance Level</b>											

	A	B	C	D	E	F	G	H	I	J	K	L
157												
158	<b>Background Statistics assuming Lognormal Distribution</b>											
159	95% UTL with 95% Coverage				6.319		90% Percentile (z)				3.966	
160	95% UPL (t)				5		95% Percentile (z)				4.821	
161	95% USL				9.084		99% Percentile (z)				6.953	
162												
163	<b>Nonparametric Distribution Free Background Statistics</b>											
164	<b>Data appear Approximate Normal at 5% Significance Level</b>											
165												
166	<b>Nonparametric Upper Limits for Background Threshold Values</b>											
167	Order of Statistic, r				36		95% UTL with 95% Coverage				4.9	
168	Approximate f				1.895		Confidence Coefficient (CC) achieved by UTL				0.842	
169	95% Percentile Bootstrap UTL with 95% Coverage				4.9		95% BCA Bootstrap UTL with 95% Coverage				4.4	
170	95% UPL				4.475		90% Percentile				4.3	
171	90% Chebyshev UPL				5.965		95% Percentile				4.4	
172	95% Chebyshev UPL				7.631		99% Percentile				4.725	
173	95% USL				4.9							
174												
175	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background											
176	data set free of outliers and consists of observations collected from clean unimpacted locations.											
177	The use of USL tends to provide a balance between false positives and false negatives provided the data											
178	represents a background data set and when many onsite observations need to be compared with the BTV.											
179												

	A	B	C	D	E	F	G	H	I	J	K	L
180	MW-1 Barium D^report_result_value											
181												
182	<b>General Statistics</b>											
183	Total Number of Observations					6	Number of Distinct Observations					6
184							Number of Missing Observations					27
185	Minimum					0.069	First Quartile					0.188
186	Second Largest					0.28	Median					0.225
187	Maximum					0.52	Third Quartile					0.27
188	Mean					0.25	SD					0.15
189	Coefficient of Variation					0.602	Skewness					1.183
190	Mean of logged Data					-1.551	SD of logged Data					0.661
191												
192	<b>Critical Values for Background Threshold Values (BTVs)</b>											
193	Tolerance Factor K (For UTL)					3.708	d2max (for USL)					1.822
194												
195	<b>Normal GOF Test</b>											
196	Shapiro Wilk Test Statistic					0.909	<b>Shapiro Wilk GOF Test</b>					
197	5% Shapiro Wilk Critical Value					0.788	Data appear Normal at 5% Significance Level					
198	Lilliefors Test Statistic					0.254	<b>Lilliefors GOF Test</b>					
199	5% Lilliefors Critical Value					0.362	Data appear Normal at 5% Significance Level					
200	<b>Data appear Normal at 5% Significance Level</b>											
201												
202	<b>Background Statistics Assuming Normal Distribution</b>											
203	95% UTL with 95% Coverage					0.808	90% Percentile (z)					0.443
204	95% UPL (t)					0.577	95% Percentile (z)					0.497
205	95% USL					0.524	99% Percentile (z)					0.6
206												
207	<b>Gamma GOF Test</b>											
208	A-D Test Statistic					0.274	<b>Anderson-Darling Gamma GOF Test</b>					
209	5% A-D Critical Value					0.701	Detected data appear Gamma Distributed at 5% Significance Level					
210	K-S Test Statistic					0.191	<b>Kolmogrov-Smirnoff Gamma GOF Test</b>					
211	5% K-S Critical Value					0.334	Detected data appear Gamma Distributed at 5% Significance Level					
212	<b>Detected data appear Gamma Distributed at 5% Significance Level</b>											
213												
214	<b>Gamma Statistics</b>											
215	k hat (MLE)					3.214	k star (bias corrected MLE)					1.718
216	Theta hat (MLE)					0.0777	Theta star (bias corrected MLE)					0.145
217	nu hat (MLE)					38.57	nu star (bias corrected)					20.62
218	MLE Mean (bias corrected)					0.25	MLE Sd (bias corrected)					0.191
219												
220	<b>Background Statistics Assuming Gamma Distribution</b>											
221	95% Wilson Hilferty (WH) Approx. Gamma UPL					0.698	90% Percentile					0.504
222	95% Hawkins Wixley (HW) Approx. Gamma UPL					0.73	95% Percentile					0.622
223	95% WH Approx. Gamma UTL with 95% Coverage					1.27	99% Percentile					0.887
224	95% HW Approx. Gamma UTL with 95% Coverage					1.423						
225	95% WH USL					0.596	95% HW USL					0.615
226												
227	<b>Lognormal GOF Test</b>											
228	Shapiro Wilk Test Statistic					0.942	<b>Shapiro Wilk Lognormal GOF Test</b>					
229	5% Shapiro Wilk Critical Value					0.788	Data appear Lognormal at 5% Significance Level					
230	Lilliefors Test Statistic					0.235	<b>Lilliefors Lognormal GOF Test</b>					
231	5% Lilliefors Critical Value					0.362	Data appear Lognormal at 5% Significance Level					
232	<b>Data appear Lognormal at 5% Significance Level</b>											

	A	B	C	D	E	F	G	H	I	J	K	L	
233													
234	<b>Background Statistics assuming Lognormal Distribution</b>												
235	95% UTL with 95% Coverage				2.461						90% Percentile (z)		0.495
236	95% UPL (t)				0.894						95% Percentile (z)		0.629
237	95% USL				0.707						99% Percentile (z)		0.987
238													
239	<b>Nonparametric Distribution Free Background Statistics</b>												
240	<b>Data appear Normal at 5% Significance Level</b>												
241													
242	<b>Nonparametric Upper Limits for Background Threshold Values</b>												
243	Order of Statistic, r				6		95% UTL with 95% Coverage				0.52		
244	Approximate f				0.316		Confidence Coefficient (CC) achieved by UTL				0.265		
245	95% Percentile Bootstrap UTL with 95% Coverage				0.52		95% BCA Bootstrap UTL with 95% Coverage				0.52		
246	95% UPL				0.52		90% Percentile				0.4		
247	90% Chebyshev UPL				0.737		95% Percentile				0.46		
248	95% Chebyshev UPL				0.958		99% Percentile				0.508		
249	95% USL				0.52								
250													
251	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background												
252	data set free of outliers and consists of observations collected from clean unimpacted locations.												
253	The use of USL tends to provide a balance between false positives and false negatives provided the data												
254	represents a background data set and when many onsite observations need to be compared with the BTV.												
255													
256	<b>MW-1 Barium T^report_result_value</b>												
257													
258	<b>General Statistics</b>												
259	Total Number of Observations				36		Number of Distinct Observations				21		
260	Minimum				0.063		First Quartile				0.188		
261	Second Largest				0.57		Median				0.22		
262	Maximum				0.58		Third Quartile				0.26		
263	Mean				0.254		SD				0.148		
264	Coefficient of Variation				0.581		Skewness				1.207		
265	Mean of logged Data				-1.527		SD of logged Data				0.581		
266													
267	<b>Critical Values for Background Threshold Values (BTVs)</b>												
268	Tolerance Factor K (For UTL)				2.148		d2max (for USL)				2.824		
269													
270	<b>Normal GOF Test</b>												
271	Shapiro Wilk Test Statistic				0.797		<b>Shapiro Wilk GOF Test</b>						
272	5% Shapiro Wilk Critical Value				0.935		Data Not Normal at 5% Significance Level						
273	Lilliefors Test Statistic				0.262		<b>Lilliefors GOF Test</b>						
274	5% Lilliefors Critical Value				0.148		Data Not Normal at 5% Significance Level						
275	<b>Data Not Normal at 5% Significance Level</b>												
276													
277	<b>Background Statistics Assuming Normal Distribution</b>												
278	95% UTL with 95% Coverage				0.571		90% Percentile (z)				0.443		
279	95% UPL (t)				0.507		95% Percentile (z)				0.497		
280	95% USL				0.671		99% Percentile (z)				0.598		
281													
282	<b>Gamma GOF Test</b>												
283	A-D Test Statistic				1.727		<b>Anderson-Darling Gamma GOF Test</b>						
284	5% A-D Critical Value				0.753		Data Not Gamma Distributed at 5% Significance Level						
285	K-S Test Statistic				0.19		<b>Kolmogrov-Smirnoff Gamma GOF Test</b>						

	A	B	C	D	E	F	G	H	I	J	K	L	
286	5% K-S Critical Value				0.148	Data Not Gamma Distributed at 5% Significance Level							
287	<b>Data Not Gamma Distributed at 5% Significance Level</b>												
288													
289	<b>Gamma Statistics</b>												
290	k hat (MLE)				3.346	k star (bias corrected MLE)				3.085			
291	Theta hat (MLE)				0.0759	Theta star (bias corrected MLE)				0.0823			
292	nu hat (MLE)				240.9	nu star (bias corrected)				222.1			
293	MLE Mean (bias corrected)				0.254	MLE Sd (bias corrected)				0.145			
294													
295	<b>Background Statistics Assuming Gamma Distribution</b>												
296	95% Wilson Hilferty (WH) Approx. Gamma UPL				0.536	90% Percentile				0.448			
297	95% Hawkins Wixley (HW) Approx. Gamma UPL				0.545	95% Percentile				0.529			
298	95% WH Approx. Gamma UTL with 95% Coverage				0.643	99% Percentile				0.704			
299	95% HW Approx. Gamma UTL with 95% Coverage				0.662								
300	95% WH USL				0.836	95% HW USL				0.881			
301													
302	<b>Lognormal GOF Test</b>												
303	Shapiro Wilk Test Statistic				0.895	<b>Shapiro Wilk Lognormal GOF Test</b>							
304	5% Shapiro Wilk Critical Value				0.935	Data Not Lognormal at 5% Significance Level							
305	Lilliefors Test Statistic				0.207	<b>Lilliefors Lognormal GOF Test</b>							
306	5% Lilliefors Critical Value				0.148	Data Not Lognormal at 5% Significance Level							
307	<b>Data Not Lognormal at 5% Significance Level</b>												
308													
309	<b>Background Statistics assuming Lognormal Distribution</b>												
310	95% UTL with 95% Coverage				0.756	90% Percentile (z)				0.457			
311	95% UPL (t)				0.587	95% Percentile (z)				0.564			
312	95% USL				1.119	99% Percentile (z)				0.838			
313													
314	<b>Nonparametric Distribution Free Background Statistics</b>												
315	<b>Data do not follow a Discernible Distribution (0.05)</b>												
316													
317	<b>Nonparametric Upper Limits for Background Threshold Values</b>												
318	Order of Statistic, r				36	95% UTL with 95% Coverage				0.58			
319	Approximate f				1.895	Confidence Coefficient (CC) achieved by UTL				0.842			
320	95% Percentile Bootstrap UTL with 95% Coverage				0.58	95% BCA Bootstrap UTL with 95% Coverage				0.58			
321	95% UPL				0.572	90% Percentile				0.54			
322	90% Chebyshev UPL				0.703	95% Percentile				0.555			
323	95% Chebyshev UPL				0.907	99% Percentile				0.577			
324	95% USL				0.58								
325													
326	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background												
327	data set free of outliers and consists of observations collected from clean unimpacted locations.												
328	The use of USL tends to provide a balance between false positives and false negatives provided the data												
329	represents a background data set and when many onsite observations need to be compared with the BTV.												
330													

	A	B	C	D	E	F	G	H	I	J	K	L
331	MW-1 Beryllium T^report_result_value											
332												
333	<b>General Statistics</b>											
334	Total Number of Observations				36		Number of Distinct Observations				1	
335	Minimum				0.7		First Quartile				0.7	
336	Second Largest				0.7		Median				0.7	
337	Maximum				0.7		Third Quartile				0.7	
338	Mean				0.7		SD				3.378E-16	
339	Coefficient of Variation				4.826E-16		Skewness				1.044	
340												
341	<b>Warning: There is only one distinct observation value in this data set - resulting in '0' variance!</b>											
342	<b>ProUCL (or any other software) should not be used on such a data set!</b>											
343	<b>The data set for variable MW-1 Beryllium T^report_result_value was not processed!</b>											
344												
345	<b>If possible, compute and collect Data Quality Objectives (DQOs) based sample size and analytical results.</b>											
346	<b>The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).</b>											
347												
348												
349	MW-1 Boron T^report_result_value											
350												
351	<b>General Statistics</b>											
352	Total Number of Observations				16		Number of Distinct Observations				11	
353							Number of Missing Observations				17	
354	Minimum				0.02		First Quartile				0.02	
355	Second Largest				0.32		Median				0.0755	
356	Maximum				0.32		Third Quartile				0.245	
357	Mean				0.135		SD				0.124	
358	Coefficient of Variation				0.921		Skewness				0.374	
359	Mean of logged Data				-2.608		SD of logged Data				1.236	
360												
361	<b>Critical Values for Background Threshold Values (BTVs)</b>											
362	Tolerance Factor K (For UTL)				2.524		d2max (for USL)				2.443	
363												
364	<b>Normal GOF Test</b>											
365	Shapiro Wilk Test Statistic				0.794		<b>Shapiro Wilk GOF Test</b>					
366	5% Shapiro Wilk Critical Value				0.887		Data Not Normal at 5% Significance Level					
367	Lilliefors Test Statistic				0.275		<b>Lilliefors GOF Test</b>					
368	5% Lilliefors Critical Value				0.222		Data Not Normal at 5% Significance Level					
369	<b>Data Not Normal at 5% Significance Level</b>											
370												
371	<b>Background Statistics Assuming Normal Distribution</b>											
372	95% UTL with 95% Coverage		0.449		90% Percentile (z)				0.295			
373	95% UPL (t)		0.36		95% Percentile (z)				0.34			
374	95% USL		0.439		99% Percentile (z)				0.424			
375												
376	<b>Gamma GOF Test</b>											
377	A-D Test Statistic				1.49		<b>Anderson-Darling Gamma GOF Test</b>					
378	5% A-D Critical Value				0.765		Data Not Gamma Distributed at 5% Significance Level					
379	K-S Test Statistic				0.235		<b>Kolmogrov-Smirnoff Gamma GOF Test</b>					
380	5% K-S Critical Value				0.222		Data Not Gamma Distributed at 5% Significance Level					
381	<b>Data Not Gamma Distributed at 5% Significance Level</b>											
382												
383	<b>Gamma Statistics</b>											



	A	B	C	D	E	F	G	H	I	J	K	L
384	k hat (MLE)					0.957	k star (bias corrected MLE)					0.819
385	Theta hat (MLE)					0.141	Theta star (bias corrected MLE)					0.165
386	nu hat (MLE)					30.62	nu star (bias corrected)					26.21
387	MLE Mean (bias corrected)					0.135	MLE Sd (bias corrected)					0.149
388												
389	<b>Background Statistics Assuming Gamma Distribution</b>											
390	95% Wilson Hilferty (WH) Approx. Gamma UPL					0.472	90% Percentile					0.327
391	95% Hawkins Wixley (HW) Approx. Gamma UPL					0.504	95% Percentile					0.434
392	95% WH Approx. Gamma UTL with 95% Coverage					0.747	99% Percentile					0.689
393	95% HW Approx. Gamma UTL with 95% Coverage					0.853						
394	95% WH USL					0.712	95% HW USL					0.807
395												
396	<b>Lognormal GOF Test</b>											
397	Shapiro Wilk Test Statistic					0.777	<b>Shapiro Wilk Lognormal GOF Test</b>					
398	5% Shapiro Wilk Critical Value					0.887	Data Not Lognormal at 5% Significance Level					
399	Lilliefors Test Statistic					0.228	<b>Lilliefors Lognormal GOF Test</b>					
400	5% Lilliefors Critical Value					0.222	Data Not Lognormal at 5% Significance Level					
401	<b>Data Not Lognormal at 5% Significance Level</b>											
402												
403	<b>Background Statistics assuming Lognormal Distribution</b>											
404	95% UTL with 95% Coverage					1.668	90% Percentile (z)					0.359
405	95% UPL (t)					0.687	95% Percentile (z)					0.563
406	95% USL					1.509	99% Percentile (z)					1.306
407												
408	<b>Nonparametric Distribution Free Background Statistics</b>											
409	<b>Data do not follow a Discernible Distribution (0.05)</b>											
410												
411	<b>Nonparametric Upper Limits for Background Threshold Values</b>											
412	Order of Statistic, r					16	95% UTL with 95% Coverage					0.32
413	Approximate f					0.842	Confidence Coefficient (CC) achieved by UTL					0.56
414	95% Percentile Bootstrap UTL with 95% Coverage					0.32	95% BCA Bootstrap UTL with 95% Coverage					0.32
415	95% UPL					0.32	90% Percentile					0.305
416	90% Chebyshev UPL					0.52	95% Percentile					0.32
417	95% Chebyshev UPL					0.694	99% Percentile					0.32
418	95% USL					0.32						
419												
420	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background											
421	data set free of outliers and consists of observations collected from clean unimpacted locations.											
422	The use of USL tends to provide a balance between false positives and false negatives provided the data											
423	represents a background data set and when many onsite observations need to be compared with the BTV.											
424												

	A	B	C	D	E	F	G	H	I	J	K	L
425	MW-1 Cadmium D^report_result_value											
426												
427	<b>General Statistics</b>											
428	Total Number of Observations					26	Number of Distinct Observations					23
429							Number of Missing Observations					10
430	Minimum					0.028	First Quartile					0.0413
431	Second Largest					0.5	Median					0.123
432	Maximum					0.5	Third Quartile					0.29
433	Mean					0.172	SD					0.156
434	Coefficient of Variation					0.903	Skewness					0.766
435	Mean of logged Data					-2.252	SD of logged Data					1.07
436												
437	<b>Critical Values for Background Threshold Values (BTVs)</b>											
438	Tolerance Factor K (For UTL)					2.275	d2max (for USL)					2.681
439												
440	<b>Normal GOF Test</b>											
441	Shapiro Wilk Test Statistic					0.835	<b>Shapiro Wilk GOF Test</b>					
442	5% Shapiro Wilk Critical Value					0.92	Data Not Normal at 5% Significance Level					
443	Lilliefors Test Statistic					0.251	<b>Lilliefors GOF Test</b>					
444	5% Lilliefors Critical Value					0.174	Data Not Normal at 5% Significance Level					
445	<b>Data Not Normal at 5% Significance Level</b>											
446												
447	<b>Background Statistics Assuming Normal Distribution</b>											
448	95% UTL with 95% Coverage					0.526	90% Percentile (z)					0.372
449	95% UPL (t)					0.443	95% Percentile (z)					0.428
450	95% USL					0.589	99% Percentile (z)					0.534
451												
452	<b>Gamma GOF Test</b>											
453	A-D Test Statistic					1.481	<b>Anderson-Darling Gamma GOF Test</b>					
454	5% A-D Critical Value					0.77	Data Not Gamma Distributed at 5% Significance Level					
455	K-S Test Statistic					0.253	<b>Kolmogrov-Smirnoff Gamma GOF Test</b>					
456	5% K-S Critical Value					0.176	Data Not Gamma Distributed at 5% Significance Level					
457	<b>Data Not Gamma Distributed at 5% Significance Level</b>											
458												
459	<b>Gamma Statistics</b>											
460	k hat (MLE)					1.151	k star (bias corrected MLE)					1.043
461	Theta hat (MLE)					0.15	Theta star (bias corrected MLE)					0.165
462	nu hat (MLE)					59.83	nu star (bias corrected)					54.26
463	MLE Mean (bias corrected)					0.172	MLE Sd (bias corrected)					0.169
464												
465	<b>Background Statistics Assuming Gamma Distribution</b>											
466	95% Wilson Hilferty (WH) Approx. Gamma UPL					0.528	90% Percentile					0.393
467	95% Hawkins Wixley (HW) Approx. Gamma UPL					0.552	95% Percentile					0.509
468	95% WH Approx. Gamma UTL with 95% Coverage					0.734	99% Percentile					0.777
469	95% HW Approx. Gamma UTL with 95% Coverage					0.8						
470	95% WH USL					0.923	95% HW USL					1.037
471												
472	<b>Lognormal GOF Test</b>											
473	Shapiro Wilk Test Statistic					0.851	<b>Shapiro Wilk Lognormal GOF Test</b>					
474	5% Shapiro Wilk Critical Value					0.92	Data Not Lognormal at 5% Significance Level					
475	Lilliefors Test Statistic					0.236	<b>Lilliefors Lognormal GOF Test</b>					
476	5% Lilliefors Critical Value					0.174	Data Not Lognormal at 5% Significance Level					
477	<b>Data Not Lognormal at 5% Significance Level</b>											

	A	B	C	D	E	F	G	H	I	J	K	L	
478													
479	<b>Background Statistics assuming Lognormal Distribution</b>												
480	95% UTL with 95% Coverage				1.2						90% Percentile (z)		0.414
481	95% UPL (t)				0.677						95% Percentile (z)		0.611
482	95% USL				1.853						99% Percentile (z)		1.268
483													
484	<b>Nonparametric Distribution Free Background Statistics</b>												
485	<b>Data do not follow a Discernible Distribution (0.05)</b>												
486													
487	<b>Nonparametric Upper Limits for Background Threshold Values</b>												
488	Order of Statistic, r				26		95% UTL with 95% Coverage				0.5		
489	Approximate f				1.368		Confidence Coefficient (CC) achieved by UTL				0.736		
490	95% Percentile Bootstrap UTL with 95% Coverage				0.5		95% BCA Bootstrap UTL with 95% Coverage				0.5		
491	95% UPL				0.5		90% Percentile				0.365		
492	90% Chebyshev UPL				0.648		95% Percentile				0.468		
493	95% Chebyshev UPL				0.863		99% Percentile				0.5		
494	95% USL				0.5								
495													
496	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background												
497	data set free of outliers and consists of observations collected from clean unimpacted locations.												
498	The use of USL tends to provide a balance between false positives and false negatives provided the data												
499	represents a background data set and when many onsite observations need to be compared with the BTV.												
500													
501	<b>MW-1 Cadmium T^report_result_value</b>												
502													
503	<b>General Statistics</b>												
504	Total Number of Observations				16		Number of Distinct Observations				3		
505							Number of Missing Observations				17		
506	Minimum				0.5		First Quartile				0.5		
507	Second Largest				0.51		Median				0.5		
508	Maximum				0.68		Third Quartile				0.5		
509	Mean				0.512		SD				0.0449		
510	Coefficient of Variation				0.0877		Skewness				3.98		
511	Mean of logged Data				-0.673		SD of logged Data				0.0767		
512													
513	<b>Critical Values for Background Threshold Values (BTVs)</b>												
514	Tolerance Factor K (For UTL)				2.524		d2max (for USL)				2.443		
515													
516	<b>Normal GOF Test</b>												
517	Shapiro Wilk Test Statistic				0.294		<b>Shapiro Wilk GOF Test</b>						
518	5% Shapiro Wilk Critical Value				0.887		Data Not Normal at 5% Significance Level						
519	Lilliefors Test Statistic				0.479		<b>Lilliefors GOF Test</b>						
520	5% Lilliefors Critical Value				0.222		Data Not Normal at 5% Significance Level						
521	<b>Data Not Normal at 5% Significance Level</b>												
522													
523	<b>Background Statistics Assuming Normal Distribution</b>												
524	95% UTL with 95% Coverage				0.625		90% Percentile (z)				0.569		
525	95% UPL (t)				0.593		95% Percentile (z)				0.586		
526	95% USL				0.622		99% Percentile (z)				0.616		
527													
528	<b>Gamma GOF Test</b>												
529	A-D Test Statistic				5.338		<b>Anderson-Darling Gamma GOF Test</b>						
530	5% A-D Critical Value				0.736		Data Not Gamma Distributed at 5% Significance Level						

	A	B	C	D	E	F	G	H	I	J	K	L
531	K-S Test Statistic					0.483	Kolmogrov-Smirnoff Gamma GOF Test					
532	5% K-S Critical Value					0.214	Data Not Gamma Distributed at 5% Significance Level					
533	Data Not Gamma Distributed at 5% Significance Level											
534												
535	Gamma Statistics											
536	k hat (MLE)					165.9	k star (bias corrected MLE)					134.8
537	Theta hat (MLE)					0.00309	Theta star (bias corrected MLE)					0.0038
538	nu hat (MLE)					5309	nu star (bias corrected)					4315
539	MLE Mean (bias corrected)					0.512	MLE Sd (bias corrected)					0.0441
540												
541	Background Statistics Assuming Gamma Distribution											
542	95% Wilson Hilferty (WH) Approx. Gamma UPL					0.588	90% Percentile					0.569
543	95% Hawkins Wixley (HW) Approx. Gamma UPL					0.588	95% Percentile					0.586
544	95% WH Approx. Gamma UTL with 95% Coverage					0.621	99% Percentile					0.62
545	95% HW Approx. Gamma UTL with 95% Coverage					0.621						
546	95% WH USL					0.618	95% HW USL					0.617
547												
548	Lognormal GOF Test											
549	Shapiro Wilk Test Statistic					0.297	Shapiro Wilk Lognormal GOF Test					
550	5% Shapiro Wilk Critical Value					0.887	Data Not Lognormal at 5% Significance Level					
551	Lilliefors Test Statistic					0.48	Lilliefors Lognormal GOF Test					
552	5% Lilliefors Critical Value					0.222	Data Not Lognormal at 5% Significance Level					
553	Data Not Lognormal at 5% Significance Level											
554												
555	Background Statistics assuming Lognormal Distribution											
556	95% UTL with 95% Coverage					0.619	90% Percentile (z)					0.563
557	95% UPL (t)					0.586	95% Percentile (z)					0.579
558	95% USL					0.616	99% Percentile (z)					0.61
559												
560	Nonparametric Distribution Free Background Statistics											
561	Data do not follow a Discernible Distribution (0.05)											
562												
563	Nonparametric Upper Limits for Background Threshold Values											
564	Order of Statistic, r					16	95% UTL with 95% Coverage					0.68
565	Approximate f					0.842	Confidence Coefficient (CC) achieved by UTL					0.56
566	95% Percentile Bootstrap UTL with 95% Coverage					N/A	95% BCA Bootstrap UTL with 95% Coverage					N/A
567	95% UPL					0.68	90% Percentile					0.505
568	90% Chebyshev UPL					0.651	95% Percentile					0.553
569	95% Chebyshev UPL					0.714	99% Percentile					0.655
570	95% USL					0.68						
571												
572	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background											
573	data set free of outliers and consists of observations collected from clean unimpacted locations.											
574	The use of USL tends to provide a balance between false positives and false negatives provided the data											
575	represents a background data set and when many onsite observations need to be compared with the BTV.											
576												

	A	B	C	D	E	F	G	H	I	J	K	L
577	MW-1 Calcium D^report_result_value											
578												
579	<b>General Statistics</b>											
580	Total Number of Observations					24	Number of Distinct Observations					6
581							Number of Missing Observations					12
582	Minimum					0.5	First Quartile					0.5
583	Second Largest					0.76	Median					0.5
584	Maximum					1.4	Third Quartile					0.5
585	Mean					0.56	SD					0.19
586	Coefficient of Variation					0.339	Skewness					4.126
587	Mean of logged Data					-0.611	SD of logged Data					0.228
588												
589	<b>Critical Values for Background Threshold Values (BTVs)</b>											
590	Tolerance Factor K (For UTL)					2.309	d2max (for USL)					2.644
591												
592	<b>Normal GOF Test</b>											
593	Shapiro Wilk Test Statistic					0.369	<b>Shapiro Wilk GOF Test</b>					
594	5% Shapiro Wilk Critical Value					0.916	Data Not Normal at 5% Significance Level					
595	Lilliefors Test Statistic					0.418	<b>Lilliefors GOF Test</b>					
596	5% Lilliefors Critical Value					0.181	Data Not Normal at 5% Significance Level					
597	<b>Data Not Normal at 5% Significance Level</b>											
598												
599	<b>Background Statistics Assuming Normal Distribution</b>											
600	95% UTL with 95% Coverage					0.999	90% Percentile (z)					0.804
601	95% UPL (t)					0.893	95% Percentile (z)					0.873
602	95% USL					1.063	99% Percentile (z)					1.003
603												
604	<b>Gamma GOF Test</b>											
605	A-D Test Statistic					6.038	<b>Anderson-Darling Gamma GOF Test</b>					
606	5% A-D Critical Value					0.743	Data Not Gamma Distributed at 5% Significance Level					
607	K-S Test Statistic					0.431	<b>Kolmogrov-Smirnoff Gamma GOF Test</b>					
608	5% K-S Critical Value					0.178	Data Not Gamma Distributed at 5% Significance Level					
609	<b>Data Not Gamma Distributed at 5% Significance Level</b>											
610												
611	<b>Gamma Statistics</b>											
612	k hat (MLE)					15.61	k star (bias corrected MLE)					13.68
613	Theta hat (MLE)					0.0359	Theta star (bias corrected MLE)					0.041
614	nu hat (MLE)					749	nu star (bias corrected)					656.7
615	MLE Mean (bias corrected)					0.56	MLE Sd (bias corrected)					0.152
616												
617	<b>Background Statistics Assuming Gamma Distribution</b>											
618	95% Wilson Hilferty (WH) Approx. Gamma UPL					0.835	90% Percentile					0.761
619	95% Hawkins Wixley (HW) Approx. Gamma UPL					0.828	95% Percentile					0.831
620	95% WH Approx. Gamma UTL with 95% Coverage					0.945	99% Percentile					0.972
621	95% HW Approx. Gamma UTL with 95% Coverage					0.938						
622	95% WH USL					1.015	95% HW USL					1.009
623												
624	<b>Lognormal GOF Test</b>											
625	Shapiro Wilk Test Statistic					0.425	<b>Shapiro Wilk Lognormal GOF Test</b>					
626	5% Shapiro Wilk Critical Value					0.916	Data Not Lognormal at 5% Significance Level					
627	Lilliefors Test Statistic					0.431	<b>Lilliefors Lognormal GOF Test</b>					
628	5% Lilliefors Critical Value					0.181	Data Not Lognormal at 5% Significance Level					
629	<b>Data Not Lognormal at 5% Significance Level</b>											

	A	B	C	D	E	F	G	H	I	J	K	L	
630													
631	<b>Background Statistics assuming Lognormal Distribution</b>												
632	95% UTL with 95% Coverage				0.919						90% Percentile (z)		0.727
633	95% UPL (t)				0.809						95% Percentile (z)		0.79
634	95% USL				0.992						99% Percentile (z)		0.923
635													
636	<b>Nonparametric Distribution Free Background Statistics</b>												
637	<b>Data do not follow a Discernible Distribution (0.05)</b>												
638													
639	<b>Nonparametric Upper Limits for Background Threshold Values</b>												
640	Order of Statistic, r			24		95% UTL with 95% Coverage				1.4			
641	Approximate f			1.263		Confidence Coefficient (CC) achieved by UTL				0.708			
642	95% Percentile Bootstrap UTL with 95% Coverage				1.4		95% BCA Bootstrap UTL with 95% Coverage				1.4		
643	95% UPL				1.24		90% Percentile				0.653		
644	90% Chebyshev UPL				1.142		95% Percentile				0.748		
645	95% Chebyshev UPL				1.406		99% Percentile				1.253		
646	95% USL				1.4								
647													
648	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background												
649	data set free of outliers and consists of observations collected from clean unimpacted locations.												
650	The use of USL tends to provide a balance between false positives and false negatives provided the data												
651	represents a background data set and when many onsite observations need to be compared with the BTV.												
652													
653	<b>MW-1 Calcium T^report_result_value</b>												
654													
655	<b>General Statistics</b>												
656	Total Number of Observations				36		Number of Distinct Observations				34		
657	Minimum				68.5		First Quartile				128.3		
658	Second Largest				265		Median				187.5		
659	Maximum				271		Third Quartile				210.3		
660	Mean				173.9		SD				56.98		
661	Coefficient of Variation				0.328		Skewness				-0.353		
662	Mean of logged Data				5.094		SD of logged Data				0.387		
663													
664	<b>Critical Values for Background Threshold Values (BTVs)</b>												
665	Tolerance Factor K (For UTL)				2.148		d2max (for USL)				2.824		
666													
667	<b>Normal GOF Test</b>												
668	Shapiro Wilk Test Statistic				0.943		<b>Shapiro Wilk GOF Test</b>						
669	5% Shapiro Wilk Critical Value				0.935		Data appear Normal at 5% Significance Level						
670	Lilliefors Test Statistic				0.133		<b>Lilliefors GOF Test</b>						
671	5% Lilliefors Critical Value				0.148		Data appear Normal at 5% Significance Level						
672	<b>Data appear Normal at 5% Significance Level</b>												
673													
674	<b>Background Statistics Assuming Normal Distribution</b>												
675	95% UTL with 95% Coverage				296.3		90% Percentile (z)				247		
676	95% UPL (t)				271.5		95% Percentile (z)				267.7		
677	95% USL				334.8		99% Percentile (z)				306.5		
678													
679	<b>Gamma GOF Test</b>												
680	A-D Test Statistic				1.163		<b>Anderson-Darling Gamma GOF Test</b>						
681	5% A-D Critical Value				0.749		Data Not Gamma Distributed at 5% Significance Level						
682	K-S Test Statistic				0.178		<b>Kolmogrov-Smirnoff Gamma GOF Test</b>						

	A	B	C	D	E	F	G	H	I	J	K	L	
683	5% K-S Critical Value				0.147	Data Not Gamma Distributed at 5% Significance Level							
684	<b>Data Not Gamma Distributed at 5% Significance Level</b>												
685													
686	<b>Gamma Statistics</b>												
687	k hat (MLE)				7.906	k star (bias corrected MLE)				7.266			
688	Theta hat (MLE)				22	Theta star (bias corrected MLE)				23.94			
689	nu hat (MLE)				569.2	nu star (bias corrected)				523.1			
690	MLE Mean (bias corrected)				173.9	MLE Sd (bias corrected)				64.53			
691													
692	<b>Background Statistics Assuming Gamma Distribution</b>												
693	95% Wilson Hilferty (WH) Approx. Gamma UPL				294.8	90% Percentile				260			
694	95% Hawkins Wixley (HW) Approx. Gamma UPL				299.3	95% Percentile				291.8			
695	95% WH Approx. Gamma UTL with 95% Coverage				335.3	99% Percentile				358			
696	95% HW Approx. Gamma UTL with 95% Coverage				343.2								
697	95% WH USL				405.3	95% HW USL				420.7			
698													
699	<b>Lognormal GOF Test</b>												
700	Shapiro Wilk Test Statistic				0.885	<b>Shapiro Wilk Lognormal GOF Test</b>							
701	5% Shapiro Wilk Critical Value				0.935	Data Not Lognormal at 5% Significance Level							
702	Lilliefors Test Statistic				0.195	<b>Lilliefors Lognormal GOF Test</b>							
703	5% Lilliefors Critical Value				0.148	Data Not Lognormal at 5% Significance Level							
704	<b>Data Not Lognormal at 5% Significance Level</b>												
705													
706	<b>Background Statistics assuming Lognormal Distribution</b>												
707	95% UTL with 95% Coverage				374.5	90% Percentile (z)				267.8			
708	95% UPL (t)				316.4	95% Percentile (z)				308.2			
709	95% USL				486.3	99% Percentile (z)				401.2			
710													
711	<b>Nonparametric Distribution Free Background Statistics</b>												
712	<b>Data appear Normal at 5% Significance Level</b>												
713													
714	<b>Nonparametric Upper Limits for Background Threshold Values</b>												
715	Order of Statistic, r				36	95% UTL with 95% Coverage				271			
716	Approximate f				1.895	Confidence Coefficient (CC) achieved by UTL				0.842			
717	95% Percentile Bootstrap UTL with 95% Coverage				271	95% BCA Bootstrap UTL with 95% Coverage				271			
718	95% UPL				265.9	90% Percentile				240.5			
719	90% Chebyshev UPL				347.2	95% Percentile				259.8			
720	95% Chebyshev UPL				425.7	99% Percentile				268.9			
721	95% USL				271								
722													
723	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background												
724	data set free of outliers and consists of observations collected from clean unimpacted locations.												
725	The use of USL tends to provide a balance between false positives and false negatives provided the data												
726	represents a background data set and when many onsite observations need to be compared with the BTV.												
727													

	A	B	C	D	E	F	G	H	I	J	K	L
728	MW-1 Chloride T^report_result_value											
729												
730	<b>General Statistics</b>											
731	Total Number of Observations					35	Number of Distinct Observations					31
732							Number of Missing Observations					1
733	Minimum					14.5	First Quartile					19.45
734	Second Largest					68.2	Median					29.2
735	Maximum					85.9	Third Quartile					39.3
736	Mean					32.64	SD					16.68
737	Coefficient of Variation					0.511	Skewness					1.474
738	Mean of logged Data					3.378	SD of logged Data					0.457
739												
740	<b>Critical Values for Background Threshold Values (BTVs)</b>											
741	Tolerance Factor K (For UTL)					2.157	d2max (for USL)					2.812
742												
743	<b>Normal GOF Test</b>											
744	Shapiro Wilk Test Statistic					0.851	<b>Shapiro Wilk GOF Test</b>					
745	5% Shapiro Wilk Critical Value					0.934	Data Not Normal at 5% Significance Level					
746	Lilliefors Test Statistic					0.147	<b>Lilliefors GOF Test</b>					
747	5% Lilliefors Critical Value					0.15	Data appear Normal at 5% Significance Level					
748	<b>Data appear Approximate Normal at 5% Significance Level</b>											
749												
750	<b>Background Statistics Assuming Normal Distribution</b>											
751	95% UTL with 95% Coverage					68.62	90% Percentile (z)					54.02
752	95% UPL (t)					61.24	95% Percentile (z)					60.08
753	95% USL					79.54	99% Percentile (z)					71.44
754												
755	<b>Gamma GOF Test</b>											
756	A-D Test Statistic					0.839	<b>Anderson-Darling Gamma GOF Test</b>					
757	5% A-D Critical Value					0.75	Data Not Gamma Distributed at 5% Significance Level					
758	K-S Test Statistic					0.17	<b>Kolmogrov-Smirnoff Gamma GOF Test</b>					
759	5% K-S Critical Value					0.149	Data Not Gamma Distributed at 5% Significance Level					
760	<b>Data Not Gamma Distributed at 5% Significance Level</b>											
761												
762	<b>Gamma Statistics</b>											
763	k hat (MLE)					4.813	k star (bias corrected MLE)					4.419
764	Theta hat (MLE)					6.782	Theta star (bias corrected MLE)					7.385
765	nu hat (MLE)					336.9	nu star (bias corrected)					309.3
766	MLE Mean (bias corrected)					32.64	MLE Sd (bias corrected)					15.53
767												
768	<b>Background Statistics Assuming Gamma Distribution</b>											
769	95% Wilson Hilferty (WH) Approx. Gamma UPL					62.29	90% Percentile					53.44
770	95% Hawkins Wixley (HW) Approx. Gamma UPL					62.65	95% Percentile					61.64
771	95% WH Approx. Gamma UTL with 95% Coverage					73.14	99% Percentile					79.07
772	95% HW Approx. Gamma UTL with 95% Coverage					74.2						
773	95% WH USL					91.4	95% HW USL					94.14
774												
775	<b>Lognormal GOF Test</b>											
776	Shapiro Wilk Test Statistic					0.943	<b>Shapiro Wilk Lognormal GOF Test</b>					
777	5% Shapiro Wilk Critical Value					0.934	Data appear Lognormal at 5% Significance Level					
778	Lilliefors Test Statistic					0.17	<b>Lilliefors Lognormal GOF Test</b>					
779	5% Lilliefors Critical Value					0.15	Data Not Lognormal at 5% Significance Level					
780	<b>Data appear Approximate Lognormal at 5% Significance Level</b>											



	A	B	C	D	E	F	G	H	I	J	K	L	
781													
782	<b>Background Statistics assuming Lognormal Distribution</b>												
783	95% UTL with 95% Coverage				78.55						90% Percentile (z)		52.65
784	95% UPL (t)				64.18						95% Percentile (z)		62.16
785	95% USL				106						99% Percentile (z)		84.87
786													
787	<b>Nonparametric Distribution Free Background Statistics</b>												
788	<b>Data appear Approximate Normal at 5% Significance Level</b>												
789													
790	<b>Nonparametric Upper Limits for Background Threshold Values</b>												
791	Order of Statistic, r				35		95% UTL with 95% Coverage				85.9		
792	Approximate f				1.842		Confidence Coefficient (CC) achieved by UTL				0.834		
793	95% Percentile Bootstrap UTL with 95% Coverage				85.9		95% BCA Bootstrap UTL with 95% Coverage				85.9		
794	95% UPL				71.74		90% Percentile				53.54		
795	90% Chebyshev UPL				83.39		95% Percentile				67.71		
796	95% Chebyshev UPL				106.4		99% Percentile				79.88		
797	95% USL				85.9								
798													
799	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background												
800	data set free of outliers and consists of observations collected from clean unimpacted locations.												
801	The use of USL tends to provide a balance between false positives and false negatives provided the data												
802	represents a background data set and when many onsite observations need to be compared with the BTV.												
803													
804	<b>MW-1 Chromium D^report_result_value</b>												
805													
806	<b>General Statistics</b>												
807	Total Number of Observations				6		Number of Distinct Observations				1		
808							Number of Missing Observations				27		
809	Minimum				0.004		First Quartile				0.004		
810	Second Largest				0.004		Median				0.004		
811	Maximum				0.004		Third Quartile				0.004		
812	Mean				0.004		SD				0		
813	Coefficient of Variation				0		Skewness				N/A		
814													
815	<b>Warning: There is only one distinct observation value in this data set - resulting in '0' variance!</b>												
816	<b>ProUCL (or any other software) should not be used on such a data set!</b>												
817	<b>The data set for variable MW-1 Chromium D^report_result_value was not processed!</b>												
818													
819	<b>It is suggested to collect at least 8 to 10 observations using these statistical methods!</b>												
820	<b>If possible, compute and collect Data Quality Objectives (DQOs) based sample size and analytical results.</b>												
821	<b>The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).</b>												
822													
823													

	A	B	C	D	E	F	G	H	I	J	K	L
824	MW-1 Chromium T^report_result_value											
825												
826	<b>General Statistics</b>											
827	Total Number of Observations				36		Number of Distinct Observations				1	
828	Minimum				0.004		First Quartile				0.004	
829	Second Largest				0.004		Median				0.004	
830	Maximum				0.004		Third Quartile				0.004	
831	Mean				0.004		SD				2.639E-18	
832	Coefficient of Variation				6.597E-16		Skewness				-1.044	
833												
834	<b>Warning: There is only one distinct observation value in this data set - resulting in '0' variance!</b>											
835	<b>ProUCL (or any other software) should not be used on such a data set!</b>											
836	<b>The data set for variable MW-1 Chromium T^report_result_value was not processed!</b>											
837												
838	<b>If possible, compute and collect Data Quality Objectives (DQOs) based sample size and analytical results.</b>											
839	<b>The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).</b>											
840												
841												
842	MW-1 Cobalt T^report_result_value											
843												
844	<b>General Statistics</b>											
845	Total Number of Observations				36		Number of Distinct Observations				28	
846	Minimum				0.3		First Quartile				0.575	
847	Second Largest				5.4		Median				0.76	
848	Maximum				5.6		Third Quartile				1.025	
849	Mean				1.422		SD				1.701	
850	Coefficient of Variation				1.196		Skewness				1.809	
851	Mean of logged Data				-0.123		SD of logged Data				0.899	
852												
853	<b>Critical Values for Background Threshold Values (BTVs)</b>											
854	Tolerance Factor K (For UTL)				2.148		d2max (for USL)				2.824	
855												
856	<b>Normal GOF Test</b>											
857	Shapiro Wilk Test Statistic				0.601		<b>Shapiro Wilk GOF Test</b>					
858	5% Shapiro Wilk Critical Value				0.935		Data Not Normal at 5% Significance Level					
859	Lilliefors Test Statistic				0.385		<b>Lilliefors GOF Test</b>					
860	5% Lilliefors Critical Value				0.148		Data Not Normal at 5% Significance Level					
861	<b>Data Not Normal at 5% Significance Level</b>											
862												
863	<b>Background Statistics Assuming Normal Distribution</b>											
864	95% UTL with 95% Coverage		5.077		90% Percentile (z)				3.602			
865	95% UPL (t)		4.336		95% Percentile (z)				4.22			
866	95% USL		6.225		99% Percentile (z)				5.379			
867												
868	<b>Gamma GOF Test</b>											
869	A-D Test Statistic				3.62		<b>Anderson-Darling Gamma GOF Test</b>					
870	5% A-D Critical Value				0.773		Data Not Gamma Distributed at 5% Significance Level					
871	K-S Test Statistic				0.281		<b>Kolmogrov-Smirnoff Gamma GOF Test</b>					
872	5% K-S Critical Value				0.151		Data Not Gamma Distributed at 5% Significance Level					
873	<b>Data Not Gamma Distributed at 5% Significance Level</b>											
874												
875	<b>Gamma Statistics</b>											
876	k hat (MLE)				1.191		k star (bias corrected MLE)				1.111	

	A	B	C	D	E	F	G	H	I	J	K	L
877	Theta hat (MLE)					1.194	Theta star (bias corrected MLE)					1.28
878	nu hat (MLE)					85.77	nu star (bias corrected)					79.96
879	MLE Mean (bias corrected)					1.422	MLE Sd (bias corrected)					1.349
880												
881	<b>Background Statistics Assuming Gamma Distribution</b>											
882	95% Wilson Hilferty (WH) Approx. Gamma UPL					4.075	90% Percentile					3.191
883	95% Hawkins Wixley (HW) Approx. Gamma UPL					4.063	95% Percentile					4.106
884	95% WH Approx. Gamma UTL with 95% Coverage					5.336	99% Percentile					6.215
885	95% HW Approx. Gamma UTL with 95% Coverage					5.446						
886	95% WH USL					7.767	95% HW USL					8.253
887												
888	<b>Lognormal GOF Test</b>											
889	Shapiro Wilk Test Statistic					0.835	<b>Shapiro Wilk Lognormal GOF Test</b>					
890	5% Shapiro Wilk Critical Value					0.935	Data Not Lognormal at 5% Significance Level					
891	Lilliefors Test Statistic					0.2	<b>Lilliefors Lognormal GOF Test</b>					
892	5% Lilliefors Critical Value					0.148	Data Not Lognormal at 5% Significance Level					
893	<b>Data Not Lognormal at 5% Significance Level</b>											
894												
895	<b>Background Statistics assuming Lognormal Distribution</b>											
896	95% UTL with 95% Coverage					6.094	90% Percentile (z)					2.797
897	95% UPL (t)					4.12	95% Percentile (z)					3.876
898	95% USL					11.18	99% Percentile (z)					7.151
899												
900	<b>Nonparametric Distribution Free Background Statistics</b>											
901	<b>Data do not follow a Discernible Distribution (0.05)</b>											
902												
903	<b>Nonparametric Upper Limits for Background Threshold Values</b>											
904	Order of Statistic, r					36	95% UTL with 95% Coverage					5.6
905	Approximate f					1.895	Confidence Coefficient (CC) achieved by UTL					0.842
906	95% Percentile Bootstrap UTL with 95% Coverage					5.6	95% BCA Bootstrap UTL with 95% Coverage					5.6
907	95% UPL					5.43	90% Percentile					4.9
908	90% Chebyshev UPL					6.596	95% Percentile					5.325
909	95% Chebyshev UPL					8.939	99% Percentile					5.53
910	95% USL					5.6						
911												
912	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background											
913	data set free of outliers and consists of observations collected from clean unimpacted locations.											
914	The use of USL tends to provide a balance between false positives and false negatives provided the data											
915	represents a background data set and when many onsite observations need to be compared with the BTV.											
916												

	A	B	C	D	E	F	G	H	I	J	K	L
917	MW-1 Fluoride T^report_result_value											
918												
919	<b>General Statistics</b>											
920	Total Number of Observations					36	Number of Distinct Observations					4
921	Minimum					0.19	First Quartile					0.25
922	Second Largest					0.26	Median					0.25
923	Maximum					0.26	Third Quartile					0.25
924	Mean					0.246	SD					0.0163
925	Coefficient of Variation					0.0662	Skewness					-3.061
926	Mean of logged Data					-1.406	SD of logged Data					0.0737
927												
928	<b>Critical Values for Background Threshold Values (BTVs)</b>											
929	Tolerance Factor K (For UTL)					2.148	d2max (for USL)					2.824
930												
931	<b>Normal GOF Test</b>											
932	Shapiro Wilk Test Statistic					0.391	<b>Shapiro Wilk GOF Test</b>					
933	5% Shapiro Wilk Critical Value					0.935	Data Not Normal at 5% Significance Level					
934	Lilliefors Test Statistic					0.518	<b>Lilliefors GOF Test</b>					
935	5% Lilliefors Critical Value					0.148	Data Not Normal at 5% Significance Level					
936	<b>Data Not Normal at 5% Significance Level</b>											
937												
938	<b>Background Statistics Assuming Normal Distribution</b>											
939	95% UTL with 95% Coverage					0.281	90% Percentile (z)					0.267
940	95% UPL (t)					0.274	95% Percentile (z)					0.273
941	95% USL					0.292	99% Percentile (z)					0.284
942												
943	<b>Gamma GOF Test</b>											
944	A-D Test Statistic					10.82	<b>Anderson-Darling Gamma GOF Test</b>					
945	5% A-D Critical Value					0.746	Data Not Gamma Distributed at 5% Significance Level					
946	K-S Test Statistic					0.521	<b>Kolmogrov-Smirnoff Gamma GOF Test</b>					
947	5% K-S Critical Value					0.146	Data Not Gamma Distributed at 5% Significance Level					
948	<b>Data Not Gamma Distributed at 5% Significance Level</b>											
949												
950	<b>Gamma Statistics</b>											
951	k hat (MLE)					203.5	k star (bias corrected MLE)					186.6
952	Theta hat (MLE)					0.00121	Theta star (bias corrected MLE)					0.00132
953	nu hat (MLE)					14653	nu star (bias corrected)					13433
954	MLE Mean (bias corrected)					0.246	MLE Sd (bias corrected)					0.018
955												
956	<b>Background Statistics Assuming Gamma Distribution</b>											
957	95% Wilson Hilferty (WH) Approx. Gamma UPL					0.277	90% Percentile					0.269
958	95% Hawkins Wixley (HW) Approx. Gamma UPL					0.277	95% Percentile					0.276
959	95% WH Approx. Gamma UTL with 95% Coverage					0.285	99% Percentile					0.29
960	95% HW Approx. Gamma UTL with 95% Coverage					0.285						
961	95% WH USL					0.298	95% HW USL					0.299
962												
963	<b>Lognormal GOF Test</b>											
964	Shapiro Wilk Test Statistic					0.383	<b>Shapiro Wilk Lognormal GOF Test</b>					
965	5% Shapiro Wilk Critical Value					0.935	Data Not Lognormal at 5% Significance Level					
966	Lilliefors Test Statistic					0.52	<b>Lilliefors Lognormal GOF Test</b>					
967	5% Lilliefors Critical Value					0.148	Data Not Lognormal at 5% Significance Level					
968	<b>Data Not Lognormal at 5% Significance Level</b>											
969												

	A	B	C	D	E	F	G	H	I	J	K	L
970	<b>Background Statistics assuming Lognormal Distribution</b>											
971	95% UTL with 95% Coverage				0.287						90% Percentile (z)	0.27
972	95% UPL (t)				0.278						95% Percentile (z)	0.277
973	95% USL				0.302						99% Percentile (z)	0.291
974												
975	<b>Nonparametric Distribution Free Background Statistics</b>											
976	<b>Data do not follow a Discernible Distribution (0.05)</b>											
977												
978	<b>Nonparametric Upper Limits for Background Threshold Values</b>											
979	Order of Statistic, r				36						95% UTL with 95% Coverage	0.26
980	Approximate f				1.895						Confidence Coefficient (CC) achieved by UTL	0.842
981	95% Percentile Bootstrap UTL with 95% Coverage				0.26						95% BCA Bootstrap UTL with 95% Coverage	0.26
982	95% UPL				0.26						90% Percentile	0.25
983	90% Chebyshev UPL				0.295						95% Percentile	0.253
984	95% Chebyshev UPL				0.318						99% Percentile	0.26
985	95% USL				0.26							
986												
987	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background											
988	data set free of outliers and consists of observations collected from clean unimpacted locations.											
989	The use of USL tends to provide a balance between false positives and false negatives provided the data											
990	represents a background data set and when many onsite observations need to be compared with the BTV.											
991												
992	<b>MW-1 Lead D^report_result_value</b>											
993												
994	<b>General Statistics</b>											
995	Total Number of Observations				6						Number of Distinct Observations	1
996											Number of Missing Observations	27
997	Minimum				10						First Quartile	10
998	Second Largest				10						Median	10
999	Maximum				10						Third Quartile	10
1000	Mean				10						SD	0
1001	Coefficient of Variation				0						Skewness	N/A
1002												
1003	<b>Warning: There is only one distinct observation value in this data set - resulting in '0' variance!</b>											
1004	<b>ProUCL (or any other software) should not be used on such a data set!</b>											
1005	<b>The data set for variable MW-1 Lead D^report_result_value was not processed!</b>											
1006												
1007	<b>It is suggested to collect at least 8 to 10 observations using these statistical methods!</b>											
1008	<b>If possible, compute and collect Data Quality Objectives (DQOs) based sample size and analytical results.</b>											
1009	<b>The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).</b>											
1010												
1011												

	A	B	C	D	E	F	G	H	I	J	K	L
1012	MW-1 Lead T^report_result_value											
1013												
1014	<b>General Statistics</b>											
1015	Total Number of Observations					36	Number of Distinct Observations					4
1016	Minimum					0.01	First Quartile					0.01
1017	Second Largest					0.05	Median					0.01
1018	Maximum					0.05	Third Quartile					0.01
1019	Mean					0.0136	SD					0.0112
1020	Coefficient of Variation					0.826	Skewness					3.078
1021	Mean of logged Data					-4.452	SD of logged Data					0.456
1022												
1023	<b>Critical Values for Background Threshold Values (BTVs)</b>											
1024	Tolerance Factor K (For UTL)					2.148	d2max (for USL)					2.824
1025												
1026	<b>Normal GOF Test</b>											
1027	Shapiro Wilk Test Statistic					0.347	<b>Shapiro Wilk GOF Test</b>					
1028	5% Shapiro Wilk Critical Value					0.935	Data Not Normal at 5% Significance Level					
1029	Lilliefors Test Statistic					0.486	<b>Lilliefors GOF Test</b>					
1030	5% Lilliefors Critical Value					0.148	Data Not Normal at 5% Significance Level					
1031	<b>Data Not Normal at 5% Significance Level</b>											
1032												
1033	<b>Background Statistics Assuming Normal Distribution</b>											
1034	95% UTL with 95% Coverage					0.0377	90% Percentile (z)					0.028
1035	95% UPL (t)					0.0328	95% Percentile (z)					0.032
1036	95% USL					0.0453	99% Percentile (z)					0.0397
1037												
1038	<b>Gamma GOF Test</b>											
1039	A-D Test Statistic					11.25	<b>Anderson-Darling Gamma GOF Test</b>					
1040	5% A-D Critical Value					0.753	Data Not Gamma Distributed at 5% Significance Level					
1041	K-S Test Statistic					0.499	<b>Kolmogrov-Smirnoff Gamma GOF Test</b>					
1042	5% K-S Critical Value					0.148	Data Not Gamma Distributed at 5% Significance Level					
1043	<b>Data Not Gamma Distributed at 5% Significance Level</b>											
1044												
1045	<b>Gamma Statistics</b>											
1046	k hat (MLE)					3.422	k star (bias corrected MLE)					3.155
1047	Theta hat (MLE)					0.00397	Theta star (bias corrected MLE)					0.0043
1048	nu hat (MLE)					246.4	nu star (bias corrected)					227.2
1049	MLE Mean (bias corrected)					0.0136	MLE Sd (bias corrected)					0.00765
1050												
1051	<b>Background Statistics Assuming Gamma Distribution</b>											
1052	95% Wilson Hilferty (WH) Approx. Gamma UPL					0.028	90% Percentile					0.0238
1053	95% Hawkins Wixley (HW) Approx. Gamma UPL					0.0273	95% Percentile					0.0281
1054	95% WH Approx. Gamma UTL with 95% Coverage					0.0335	99% Percentile					0.0373
1055	95% HW Approx. Gamma UTL with 95% Coverage					0.0329						
1056	95% WH USL					0.0434	95% HW USL					0.0431
1057												
1058	<b>Lognormal GOF Test</b>											
1059	Shapiro Wilk Test Statistic					0.369	<b>Shapiro Wilk Lognormal GOF Test</b>					
1060	5% Shapiro Wilk Critical Value					0.935	Data Not Lognormal at 5% Significance Level					
1061	Lilliefors Test Statistic					0.493	<b>Lilliefors Lognormal GOF Test</b>					
1062	5% Lilliefors Critical Value					0.148	Data Not Lognormal at 5% Significance Level					
1063	<b>Data Not Lognormal at 5% Significance Level</b>											
1064												

	A	B	C	D	E	F	G	H	I	J	K	L
1065	<b>Background Statistics assuming Lognormal Distribution</b>											
1066	95% UTL with 95% Coverage				0.0311						90% Percentile (z)	0.0209
1067	95% UPL (t)				0.0255						95% Percentile (z)	0.0247
1068	95% USL				0.0423						99% Percentile (z)	0.0337
1069												
1070	<b>Nonparametric Distribution Free Background Statistics</b>											
1071	<b>Data do not follow a Discernible Distribution (0.05)</b>											
1072												
1073	<b>Nonparametric Upper Limits for Background Threshold Values</b>											
1074	Order of Statistic, r				36	95% UTL with 95% Coverage					0.05	
1075	Approximate f				1.895	Confidence Coefficient (CC) achieved by UTL					0.842	
1076	95% Percentile Bootstrap UTL with 95% Coverage				0.05	95% BCA Bootstrap UTL with 95% Coverage					0.05	
1077	95% UPL				0.05	90% Percentile					0.0145	
1078	90% Chebyshev UPL				0.0477	95% Percentile					0.05	
1079	95% Chebyshev UPL				0.0631	99% Percentile					0.05	
1080	95% USL				0.05							
1081												
1082	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background											
1083	data set free of outliers and consists of observations collected from clean unimpacted locations.											
1084	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1085	represents a background data set and when many onsite observations need to be compared with the BTV.											
1086												
1087	<b>MW-1 Lithium T^report_result_value</b>											
1088												
1089	<b>General Statistics</b>											
1090	Total Number of Observations				36	Number of Distinct Observations					1	
1091	Minimum				0.03	First Quartile					0.03	
1092	Second Largest				0.03	Median					0.03	
1093	Maximum				0.03	Third Quartile					0.03	
1094	Mean				0.03	SD					2.111E-17	
1095	Coefficient of Variation				7.037E-16	Skewness					-1.044	
1096												
1097	<b>Warning: There is only one distinct observation value in this data set - resulting in '0' variance!</b>											
1098	<b>ProUCL (or any other software) should not be used on such a data set!</b>											
1099	<b>The data set for variable MW-1 Lithium T^report_result_value was not processed!</b>											
1100												
1101	<b>If possible, compute and collect Data Quality Objectives (DQOs) based sample size and analytical results.</b>											
1102	<b>The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).</b>											
1103												
1104												
1105	<b>MW-1 Mercury D^report_result_value</b>											
1106												
1107	<b>General Statistics</b>											
1108	Total Number of Observations				6	Number of Distinct Observations					1	
1109						Number of Missing Observations					27	
1110	Minimum				2.0000E-4	First Quartile					2.0000E-4	
1111	Second Largest				2.0000E-4	Median					2.0000E-4	
1112	Maximum				2.0000E-4	Third Quartile					2.0000E-4	
1113	Mean				2.0000E-4	SD					0	
1114	Coefficient of Variation				0	Skewness					N/A	
1115												

	A	B	C	D	E	F	G	H	I	J	K	L
1116	Warning: There is only one distinct observation value in this data set - resulting in '0' variance!											
1117	ProUCL (or any other software) should not be used on such a data set!											
1118	The data set for variable MW-1 Mercury D^report_result_value was not processed!											
1119												
1120	It is suggested to collect at least 8 to 10 observations using these statistical methods!											
1121	If possible, compute and collect Data Quality Objectives (DQOs) based sample size and analytical results.											
1122	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
1123												
1124												
1125	MW-1 Mercury T^report_result_value											
1126												
1127	<b>General Statistics</b>											
1128	Total Number of Observations				36		Number of Distinct Observations				1	
1129	Minimum				0.2		First Quartile				0.2	
1130	Second Largest				0.2		Median				0.2	
1131	Maximum				0.2		Third Quartile				0.2	
1132	Mean				0.2		SD				8.445E-17	
1133	Coefficient of Variation				4.222E-16		Skewness				-1.044	
1134												
1135	Warning: There is only one distinct observation value in this data set - resulting in '0' variance!											
1136	ProUCL (or any other software) should not be used on such a data set!											
1137	The data set for variable MW-1 Mercury T^report_result_value was not processed!											
1138												
1139	If possible, compute and collect Data Quality Objectives (DQOs) based sample size and analytical results.											
1140	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
1141												
1142												
1143	MW-1 MOLYBDENUM T^report_result_value											
1144												
1145	<b>General Statistics</b>											
1146	Total Number of Observations				36		Number of Distinct Observations				16	
1147	Minimum				1		First Quartile				1.675	
1148	Second Largest				7.5		Median				1.9	
1149	Maximum				8.3		Third Quartile				4	
1150	Mean				2.85		SD				2.005	
1151	Coefficient of Variation				0.704		Skewness				1.307	
1152	Mean of logged Data				0.841		SD of logged Data				0.633	
1153												
1154	<b>Critical Values for Background Threshold Values (BTVs)</b>											
1155	Tolerance Factor K (For UTL)				2.148		d2max (for USL)				2.824	
1156												
1157	<b>Normal GOF Test</b>											
1158	Shapiro Wilk Test Statistic				0.796		<b>Shapiro Wilk GOF Test</b>					
1159	5% Shapiro Wilk Critical Value				0.935		Data Not Normal at 5% Significance Level					
1160	Lilliefors Test Statistic				0.331		<b>Lilliefors GOF Test</b>					
1161	5% Lilliefors Critical Value				0.148		Data Not Normal at 5% Significance Level					
1162	<b>Data Not Normal at 5% Significance Level</b>											
1163												
1164	<b>Background Statistics Assuming Normal Distribution</b>											
1165	95% UTL with 95% Coverage				7.159		90% Percentile (z)				5.42	
1166	95% UPL (t)				6.285		95% Percentile (z)				6.149	
1167	95% USL				8.513		99% Percentile (z)				7.515	
1168												



	A	B	C	D	E	F	G	H	I	J	K	L
1169	<b>Gamma GOF Test</b>											
1170	A-D Test Statistic				1.9		<b>Anderson-Darling Gamma GOF Test</b>					
1171	5% A-D Critical Value				0.756		Data Not Gamma Distributed at 5% Significance Level					
1172	K-S Test Statistic				0.293		<b>Kolmogrov-Smirnoff Gamma GOF Test</b>					
1173	5% K-S Critical Value				0.148		Data Not Gamma Distributed at 5% Significance Level					
1174	<b>Data Not Gamma Distributed at 5% Significance Level</b>											
1175												
1176	<b>Gamma Statistics</b>											
1177	k hat (MLE)				2.574		k star (bias corrected MLE)				2.378	
1178	Theta hat (MLE)				1.107		Theta star (bias corrected MLE)				1.199	
1179	nu hat (MLE)				185.3		nu star (bias corrected)				171.2	
1180	MLE Mean (bias corrected)				2.85		MLE Sd (bias corrected)				1.848	
1181												
1182	<b>Background Statistics Assuming Gamma Distribution</b>											
1183	95% Wilson Hilferty (WH) Approx. Gamma UPL				6.49		90% Percentile				5.325	
1184	95% Hawkins Wixley (HW) Approx. Gamma UPL				6.556		95% Percentile				6.407	
1185	95% WH Approx. Gamma UTL with 95% Coverage				7.946		99% Percentile				8.781	
1186	95% HW Approx. Gamma UTL with 95% Coverage				8.144							
1187	95% WH USL				10.61		95% HW USL				11.16	
1188												
1189	<b>Lognormal GOF Test</b>											
1190	Shapiro Wilk Test Statistic				0.893		<b>Shapiro Wilk Lognormal GOF Test</b>					
1191	5% Shapiro Wilk Critical Value				0.935		Data Not Lognormal at 5% Significance Level					
1192	Lilliefors Test Statistic				0.259		<b>Lilliefors Lognormal GOF Test</b>					
1193	5% Lilliefors Critical Value				0.148		Data Not Lognormal at 5% Significance Level					
1194	<b>Data Not Lognormal at 5% Significance Level</b>											
1195												
1196	<b>Background Statistics assuming Lognormal Distribution</b>											
1197	95% UTL with 95% Coverage				9.036		90% Percentile (z)				5.219	
1198	95% UPL (t)				6.858		95% Percentile (z)				6.569	
1199	95% USL				13.86		99% Percentile (z)				10.11	
1200												
1201	<b>Nonparametric Distribution Free Background Statistics</b>											
1202	<b>Data do not follow a Discernible Distribution (0.05)</b>											
1203												
1204	<b>Nonparametric Upper Limits for Background Threshold Values</b>											
1205	Order of Statistic, r				36		95% UTL with 95% Coverage				8.3	
1206	Approximate f				1.895		Confidence Coefficient (CC) achieved by UTL				0.842	
1207	95% Percentile Bootstrap UTL with 95% Coverage				8.3		95% BCA Bootstrap UTL with 95% Coverage				8.3	
1208	95% UPL				7.62		90% Percentile				6.05	
1209	90% Chebyshev UPL				8.949		95% Percentile				6.75	
1210	95% Chebyshev UPL				11.71		99% Percentile				8.02	
1211	95% USL				8.3							
1212												
1213	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background											
1214	data set free of outliers and consists of observations collected from clean unimpacted locations.											
1215	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1216	represents a background data set and when many onsite observations need to be compared with the BTV.											
1217												

	A	B	C	D	E	F	G	H	I	J	K	L
1218	MW-1 Radium (226) T^report_result_value											
1219												
1220	<b>General Statistics</b>											
1221	Total Number of Observations					34	Number of Distinct Observations					33
1222							Number of Missing Observations					2
1223	Minimum					0.0816	First Quartile					0.23
1224	Second Largest					57.7	Median					0.372
1225	Maximum					59	Third Quartile					0.659
1226	Mean					6.892	SD					18.12
1227	Coefficient of Variation					2.629	Skewness					2.509
1228	Mean of logged Data					-0.514	SD of logged Data					1.787
1229												
1230	<b>Critical Values for Background Threshold Values (BTVs)</b>											
1231	Tolerance Factor K (For UTL)					2.166	d2max (for USL)					2.799
1232												
1233	<b>Normal GOF Test</b>											
1234	Shapiro Wilk Test Statistic					0.397	<b>Shapiro Wilk GOF Test</b>					
1235	5% Shapiro Wilk Critical Value					0.933	Data Not Normal at 5% Significance Level					
1236	Lilliefors Test Statistic					0.512	<b>Lilliefors GOF Test</b>					
1237	5% Lilliefors Critical Value					0.152	Data Not Normal at 5% Significance Level					
1238	<b>Data Not Normal at 5% Significance Level</b>											
1239												
1240	<b>Background Statistics Assuming Normal Distribution</b>											
1241	95% UTL with 95% Coverage					46.15	90% Percentile (z)					30.12
1242	95% UPL (t)					38.01	95% Percentile (z)					36.7
1243	95% USL					57.62	99% Percentile (z)					49.05
1244												
1245	<b>Gamma GOF Test</b>											
1246	A-D Test Statistic					7.419	<b>Anderson-Darling Gamma GOF Test</b>					
1247	5% A-D Critical Value					0.864	Data Not Gamma Distributed at 5% Significance Level					
1248	K-S Test Statistic					0.453	<b>Kolmogrov-Smirnoff Gamma GOF Test</b>					
1249	5% K-S Critical Value					0.164	Data Not Gamma Distributed at 5% Significance Level					
1250	<b>Data Not Gamma Distributed at 5% Significance Level</b>											
1251												
1252	<b>Gamma Statistics</b>											
1253	k hat (MLE)					0.285	k star (bias corrected MLE)					0.279
1254	Theta hat (MLE)					24.22	Theta star (bias corrected MLE)					24.7
1255	nu hat (MLE)					19.35	nu star (bias corrected)					18.97
1256	MLE Mean (bias corrected)					6.892	MLE Sd (bias corrected)					13.05
1257												
1258	<b>Background Statistics Assuming Gamma Distribution</b>											
1259	95% Wilson Hilferty (WH) Approx. Gamma UPL					22.76	90% Percentile					20.49
1260	95% Hawkins Wixley (HW) Approx. Gamma UPL					20.08	95% Percentile					32.26
1261	95% WH Approx. Gamma UTL with 95% Coverage					35.78	99% Percentile					63.13
1262	95% HW Approx. Gamma UTL with 95% Coverage					33.73						
1263	95% WH USL					61.42	95% HW USL					63.5
1264												
1265	<b>Lognormal GOF Test</b>											
1266	Shapiro Wilk Test Statistic					0.706	<b>Shapiro Wilk Lognormal GOF Test</b>					
1267	5% Shapiro Wilk Critical Value					0.933	Data Not Lognormal at 5% Significance Level					
1268	Lilliefors Test Statistic					0.297	<b>Lilliefors Lognormal GOF Test</b>					
1269	5% Lilliefors Critical Value					0.152	Data Not Lognormal at 5% Significance Level					
1270	<b>Data Not Lognormal at 5% Significance Level</b>											

	A	B	C	D	E	F	G	H	I	J	K	L	
1271													
1272	<b>Background Statistics assuming Lognormal Distribution</b>												
1273	95% UTL with 95% Coverage				28.69						90% Percentile (z)		5.904
1274	95% UPL (t)				12.86						95% Percentile (z)		11.3
1275	95% USL				88.91						99% Percentile (z)		38.18
1276													
1277	<b>Nonparametric Distribution Free Background Statistics</b>												
1278	<b>Data do not follow a Discernible Distribution (0.05)</b>												
1279													
1280	<b>Nonparametric Upper Limits for Background Threshold Values</b>												
1281	Order of Statistic, r				34		95% UTL with 95% Coverage				59		
1282	Approximate f				1.789		Confidence Coefficient (CC) achieved by UTL				0.825		
1283	95% Percentile Bootstrap UTL with 95% Coverage				59		95% BCA Bootstrap UTL with 95% Coverage				59		
1284	95% UPL				58.03		90% Percentile				34.7		
1285	90% Chebyshev UPL				62.05		95% Percentile				57.05		
1286	95% Chebyshev UPL				87.03		99% Percentile				58.57		
1287	95% USL				59								
1288													
1289	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background												
1290	data set free of outliers and consists of observations collected from clean unimpacted locations.												
1291	The use of USL tends to provide a balance between false positives and false negatives provided the data												
1292	represents a background data set and when many onsite observations need to be compared with the BTV.												
1293													
1294	<b>MW-1 Radium 228 T^report_result_value</b>												
1295													
1296	<b>General Statistics</b>												
1297	Total Number of Observations				33		Number of Distinct Observations				32		
1298							Number of Missing Observations				3		
1299	Minimum				0.297		First Quartile				0.477		
1300	Second Largest				31		Median				0.623		
1301	Maximum				39.7		Third Quartile				0.85		
1302	Mean				3.7		SD				9.785		
1303	Coefficient of Variation				2.645		Skewness				3.071		
1304	Mean of logged Data				-0.124		SD of logged Data				1.243		
1305													
1306	<b>Critical Values for Background Threshold Values (BTVs)</b>												
1307	Tolerance Factor K (For UTL)				2.176		d2max (for USL)				2.787		
1308													
1309	<b>Normal GOF Test</b>												
1310	Shapiro Wilk Test Statistic				0.37		<b>Shapiro Wilk GOF Test</b>						
1311	5% Shapiro Wilk Critical Value				0.931		Data Not Normal at 5% Significance Level						
1312	Lilliefors Test Statistic				0.488		<b>Lilliefors GOF Test</b>						
1313	5% Lilliefors Critical Value				0.154		Data Not Normal at 5% Significance Level						
1314	<b>Data Not Normal at 5% Significance Level</b>												
1315													
1316	<b>Background Statistics Assuming Normal Distribution</b>												
1317	95% UTL with 95% Coverage				24.99		90% Percentile (z)				16.24		
1318	95% UPL (t)				20.52		95% Percentile (z)				19.79		
1319	95% USL				30.97		99% Percentile (z)				26.46		
1320													
1321	<b>Gamma GOF Test</b>												
1322	A-D Test Statistic				7.564		<b>Anderson-Darling Gamma GOF Test</b>						
1323	5% A-D Critical Value				0.822		Data Not Gamma Distributed at 5% Significance Level						

	A	B	C	D	E	F	G	H	I	J	K	L
1324	K-S Test Statistic					0.397	Kolmogrov-Smirnoff Gamma GOF Test					
1325	5% K-S Critical Value					0.163	Data Not Gamma Distributed at 5% Significance Level					
1326	Data Not Gamma Distributed at 5% Significance Level											
1327												
1328	Gamma Statistics											
1329	k hat (MLE)					0.451	k star (bias corrected MLE)					0.43
1330	Theta hat (MLE)					8.209	Theta star (bias corrected MLE)					8.605
1331	nu hat (MLE)					29.75	nu star (bias corrected)					28.37
1332	MLE Mean (bias corrected)					3.7	MLE Sd (bias corrected)					5.642
1333												
1334	Background Statistics Assuming Gamma Distribution											
1335	95% Wilson Hilferty (WH) Approx. Gamma UPL					11.96	90% Percentile					10.31
1336	95% Hawkins Wixley (HW) Approx. Gamma UPL					10.73	95% Percentile					14.99
1337	95% WH Approx. Gamma UTL with 95% Coverage					17.76	99% Percentile					26.67
1338	95% HW Approx. Gamma UTL with 95% Coverage					16.57						
1339	95% WH USL					28.08	95% HW USL					27.75
1340												
1341	Lognormal GOF Test											
1342	Shapiro Wilk Test Statistic					0.645	Shapiro Wilk Lognormal GOF Test					
1343	5% Shapiro Wilk Critical Value					0.931	Data Not Lognormal at 5% Significance Level					
1344	Lilliefors Test Statistic					0.279	Lilliefors Lognormal GOF Test					
1345	5% Lilliefors Critical Value					0.154	Data Not Lognormal at 5% Significance Level					
1346	Data Not Lognormal at 5% Significance Level											
1347												
1348	Background Statistics assuming Lognormal Distribution											
1349	95% UTL with 95% Coverage					13.19	90% Percentile (z)					4.341
1350	95% UPL (t)					7.479	95% Percentile (z)					6.817
1351	95% USL					28.17	99% Percentile (z)					15.9
1352												
1353	Nonparametric Distribution Free Background Statistics											
1354	Data do not follow a Discernible Distribution (0.05)											
1355												
1356	Nonparametric Upper Limits for Background Threshold Values											
1357	Order of Statistic, r					33	95% UTL with 95% Coverage					39.7
1358	Approximate f					1.737	Confidence Coefficient (CC) achieved by UTL					0.816
1359	95% Percentile Bootstrap UTL with 95% Coverage					39.7	95% BCA Bootstrap UTL with 95% Coverage					34.48
1360	95% UPL					33.61	90% Percentile					1.712
1361	90% Chebyshev UPL					33.5	95% Percentile					31
1362	95% Chebyshev UPL					46.99	99% Percentile					36.92
1363	95% USL					39.7						
1364												
1365	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background											
1366	data set free of outliers and consists of observations collected from clean unimpacted locations.											
1367	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1368	represents a background data set and when many onsite observations need to be compared with the BTV.											
1369												

	A	B	C	D	E	F	G	H	I	J	K	L
1370	MW-1 Radium-226/228 T^report_result_value											
1371												
1372	<b>General Statistics</b>											
1373	Total Number of Observations				5		Number of Distinct Observations				5	
1374					Number of Missing Observations				27			
1375	Minimum				0.419		First Quartile				0.652	
1376	Second Largest				0.844		Median				0.833	
1377	Maximum				0.848		Third Quartile				0.844	
1378	Mean				0.719		SD				0.187	
1379	Coefficient of Variation				0.26		Skewness				-1.391	
1380	Mean of logged Data				-0.363		SD of logged Data				0.304	
1381												
1382	<b>Critical Values for Background Threshold Values (BTVs)</b>											
1383	Tolerance Factor K (For UTL)				4.203		d2max (for USL)				1.671	
1384												
1385	<b>Normal GOF Test</b>											
1386	Shapiro Wilk Test Statistic				0.786		<b>Shapiro Wilk GOF Test</b>					
1387	5% Shapiro Wilk Critical Value				0.762		Data appear Normal at 5% Significance Level					
1388	Lilliefors Test Statistic				0.329		<b>Lilliefors GOF Test</b>					
1389	5% Lilliefors Critical Value				0.396		Data appear Normal at 5% Significance Level					
1390	<b>Data appear Normal at 5% Significance Level</b>											
1391												
1392	<b>Background Statistics Assuming Normal Distribution</b>											
1393	95% UTL with 95% Coverage		1.505		90% Percentile (z)				0.959			
1394	95% UPL (t)		1.156		95% Percentile (z)				1.027			
1395	95% USL		1.032		99% Percentile (z)				1.154			
1396												
1397	<b>Gamma GOF Test</b>											
1398	A-D Test Statistic				0.675		<b>Anderson-Darling Gamma GOF Test</b>					
1399	5% A-D Critical Value				0.679		Detected data appear Gamma Distributed at 5% Significance Level					
1400	K-S Test Statistic				0.349		<b>Kolmogrov-Smirnoff Gamma GOF Test</b>					
1401	5% K-S Critical Value				0.357		Detected data appear Gamma Distributed at 5% Significance Level					
1402	<b>Detected data appear Gamma Distributed at 5% Significance Level</b>											
1403												
1404	<b>Gamma Statistics</b>											
1405	k hat (MLE)		15.16		k star (bias corrected MLE)				6.198			
1406	Theta hat (MLE)		0.0474		Theta star (bias corrected MLE)				0.116			
1407	nu hat (MLE)		151.6		nu star (bias corrected)				61.98			
1408	MLE Mean (bias corrected)		0.719		MLE Sd (bias corrected)				0.289			
1409												
1410	<b>Background Statistics Assuming Gamma Distribution</b>											
1411	95% Wilson Hilferty (WH) Approx. Gamma UPL		1.295		90% Percentile				1.105			
1412	95% Hawkins Wixley (HW) Approx. Gamma UPL		1.32		95% Percentile				1.251			
1413	95% WH Approx. Gamma UTL with 95% Coverage		1.953		99% Percentile				1.555			
1414	95% HW Approx. Gamma UTL with 95% Coverage		2.054									
1415	95% WH USL		1.102		95% HW USL				1.114			
1416												
1417	<b>Lognormal GOF Test</b>											
1418	Shapiro Wilk Test Statistic				0.761		<b>Shapiro Wilk Lognormal GOF Test</b>					
1419	5% Shapiro Wilk Critical Value				0.762		Data Not Lognormal at 5% Significance Level					
1420	Lilliefors Test Statistic				0.323		<b>Lilliefors Lognormal GOF Test</b>					
1421	5% Lilliefors Critical Value				0.396		Data appear Lognormal at 5% Significance Level					
1422	<b>Data appear Approximate Lognormal at 5% Significance Level</b>											

	A	B	C	D	E	F	G	H	I	J	K	L	
1423													
1424	<b>Background Statistics assuming Lognormal Distribution</b>												
1425	95% UTL with 95% Coverage				2.499						90% Percentile (z)		1.027
1426	95% UPL (t)				1.416						95% Percentile (z)		1.147
1427	95% USL				1.157						99% Percentile (z)		1.412
1428													
1429	<b>Nonparametric Distribution Free Background Statistics</b>												
1430	<b>Data appear Normal at 5% Significance Level</b>												
1431													
1432	<b>Nonparametric Upper Limits for Background Threshold Values</b>												
1433	Order of Statistic, r			5		95% UTL with 95% Coverage				0.848			
1434	Approximate f			0.263		Confidence Coefficient (CC) achieved by UTL				0.226			
1435	95% Percentile Bootstrap UTL with 95% Coverage				0.848		95% BCA Bootstrap UTL with 95% Coverage				0.848		
1436	95% UPL				0.848		90% Percentile				0.846		
1437	90% Chebyshev UPL				1.333		95% Percentile				0.847		
1438	95% Chebyshev UPL				1.612		99% Percentile				0.848		
1439	95% USL				0.848								
1440													
1441	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background												
1442	data set free of outliers and consists of observations collected from clean unimpacted locations.												
1443	The use of USL tends to provide a balance between false positives and false negatives provided the data												
1444	represents a background data set and when many onsite observations need to be compared with the BTV.												
1445													
1446	<b>MW-1 Selenium T^report_result_value</b>												
1447													
1448	<b>General Statistics</b>												
1449	Total Number of Observations				35		Number of Distinct Observations				3		
1450									Number of Missing Observations				1
1451	Minimum				1		First Quartile				1		
1452	Second Largest				1.1		Median				1		
1453	Maximum				1.2		Third Quartile				1		
1454	Mean				1.011		SD				0.0404		
1455	Coefficient of Variation				0.0399		Skewness				3.814		
1456	Mean of logged Data				0.0107		SD of logged Data				0.0374		
1457													
1458	<b>Critical Values for Background Threshold Values (BTVs)</b>												
1459	Tolerance Factor K (For UTL)				2.157		d2max (for USL)				2.812		
1460													
1461	<b>Normal GOF Test</b>												
1462	Shapiro Wilk Test Statistic				0.327		<b>Shapiro Wilk GOF Test</b>						
1463	5% Shapiro Wilk Critical Value				0.934		Data Not Normal at 5% Significance Level						
1464	Lilliefors Test Statistic				0.526		<b>Lilliefors GOF Test</b>						
1465	5% Lilliefors Critical Value				0.15		Data Not Normal at 5% Significance Level						
1466	<b>Data Not Normal at 5% Significance Level</b>												
1467													
1468	<b>Background Statistics Assuming Normal Distribution</b>												
1469	95% UTL with 95% Coverage				1.099		90% Percentile (z)				1.063		
1470	95% UPL (t)				1.081		95% Percentile (z)				1.078		
1471	95% USL				1.125		99% Percentile (z)				1.105		
1472													
1473	<b>Gamma GOF Test</b>												
1474	A-D Test Statistic				11.24		<b>Anderson-Darling Gamma GOF Test</b>						
1475	5% A-D Critical Value				0.746		Data Not Gamma Distributed at 5% Significance Level						

	A	B	C	D	E	F	G	H	I	J	K	L
1476	K-S Test Statistic					0.528	Kolmogrov-Smirnoff Gamma GOF Test					
1477	5% K-S Critical Value					0.148	Data Not Gamma Distributed at 5% Significance Level					
1478	Data Not Gamma Distributed at 5% Significance Level											
1479												
1480	Gamma Statistics											
1481	k hat (MLE)					706.1	k star (bias corrected MLE)					645.6
1482	Theta hat (MLE)					0.00143	Theta star (bias corrected MLE)					0.00157
1483	nu hat (MLE)					49427	nu star (bias corrected)					45192
1484	MLE Mean (bias corrected)					1.011	MLE Sd (bias corrected)					0.0398
1485												
1486	Background Statistics Assuming Gamma Distribution											
1487	95% Wilson Hilferty (WH) Approx. Gamma UPL					1.079	90% Percentile					1.063
1488	95% Hawkins Wixley (HW) Approx. Gamma UPL					1.078	95% Percentile					1.078
1489	95% WH Approx. Gamma UTL with 95% Coverage					1.097	99% Percentile					1.106
1490	95% HW Approx. Gamma UTL with 95% Coverage					1.096						
1491	95% WH USL					1.123	95% HW USL					1.123
1492												
1493	Lognormal GOF Test											
1494	Shapiro Wilk Test Statistic					0.328	Shapiro Wilk Lognormal GOF Test					
1495	5% Shapiro Wilk Critical Value					0.934	Data Not Lognormal at 5% Significance Level					
1496	Lilliefors Test Statistic					0.527	Lilliefors Lognormal GOF Test					
1497	5% Lilliefors Critical Value					0.15	Data Not Lognormal at 5% Significance Level					
1498	Data Not Lognormal at 5% Significance Level											
1499												
1500	Background Statistics assuming Lognormal Distribution											
1501	95% UTL with 95% Coverage					1.096	90% Percentile (z)					1.06
1502	95% UPL (t)					1.078	95% Percentile (z)					1.075
1503	95% USL					1.123	99% Percentile (z)					1.102
1504												
1505	Nonparametric Distribution Free Background Statistics											
1506	Data do not follow a Discernible Distribution (0.05)											
1507												
1508	Nonparametric Upper Limits for Background Threshold Values											
1509	Order of Statistic, r					35	95% UTL with 95% Coverage					1.2
1510	Approximate f					1.842	Confidence Coefficient (CC) achieved by UTL					0.834
1511	95% Percentile Bootstrap UTL with 95% Coverage					N/A	95% BCA Bootstrap UTL with 95% Coverage					N/A
1512	95% UPL					1.12	90% Percentile					1
1513	90% Chebyshev UPL					1.134	95% Percentile					1.1
1514	95% Chebyshev UPL					1.19	99% Percentile					1.166
1515	95% USL					1.2						
1516												
1517	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background											
1518	data set free of outliers and consists of observations collected from clean unimpacted locations.											
1519	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1520	represents a background data set and when many onsite observations need to be compared with the BTV.											
1521												

	A	B	C	D	E	F	G	H	I	J	K	L
1522	MW-1 Sulfate as SO4 T^report_result_value											
1523												
1524	<b>General Statistics</b>											
1525	Total Number of Observations				36		Number of Distinct Observations				33	
1526	Minimum				14		First Quartile				29.35	
1527	Second Largest				425		Median				57.6	
1528	Maximum				481		Third Quartile				128.8	
1529	Mean				114.7		SD				127.2	
1530	Coefficient of Variation				1.109		Skewness				1.697	
1531	Mean of logged Data				4.215		SD of logged Data				1.036	
1532												
1533	<b>Critical Values for Background Threshold Values (BTVs)</b>											
1534	Tolerance Factor K (For UTL)				2.148		d2max (for USL)				2.824	
1535												
1536	<b>Normal GOF Test</b>											
1537	Shapiro Wilk Test Statistic				0.738		<b>Shapiro Wilk GOF Test</b>					
1538	5% Shapiro Wilk Critical Value				0.935		Data Not Normal at 5% Significance Level					
1539	Lilliefors Test Statistic				0.221		<b>Lilliefors GOF Test</b>					
1540	5% Lilliefors Critical Value				0.148		Data Not Normal at 5% Significance Level					
1541	<b>Data Not Normal at 5% Significance Level</b>											
1542												
1543	<b>Background Statistics Assuming Normal Distribution</b>											
1544	95% UTL with 95% Coverage		388.1		90% Percentile (z)				277.8			
1545	95% UPL (t)		332.7		95% Percentile (z)				324			
1546	95% USL		474		99% Percentile (z)				410.7			
1547												
1548	<b>Gamma GOF Test</b>											
1549	A-D Test Statistic				1.433		<b>Anderson-Darling Gamma GOF Test</b>					
1550	5% A-D Critical Value				0.775		Data Not Gamma Distributed at 5% Significance Level					
1551	K-S Test Statistic				0.216		<b>Kolmogrov-Smirnoff Gamma GOF Test</b>					
1552	5% K-S Critical Value				0.151		Data Not Gamma Distributed at 5% Significance Level					
1553	<b>Data Not Gamma Distributed at 5% Significance Level</b>											
1554												
1555	<b>Gamma Statistics</b>											
1556	k hat (MLE)				1.085		k star (bias corrected MLE)				1.013	
1557	Theta hat (MLE)				105.7		Theta star (bias corrected MLE)				113.2	
1558	nu hat (MLE)				78.1		nu star (bias corrected)				72.93	
1559	MLE Mean (bias corrected)				114.7		MLE Sd (bias corrected)				114	
1560												
1561	<b>Background Statistics Assuming Gamma Distribution</b>											
1562	95% Wilson Hilferty (WH) Approx. Gamma UPL		343.8		90% Percentile				263.3			
1563	95% Hawkins Wixley (HW) Approx. Gamma UPL		351.6		95% Percentile				342.1			
1564	95% WH Approx. Gamma UTL with 95% Coverage		454.1		99% Percentile				524.8			
1565	95% HW Approx. Gamma UTL with 95% Coverage		478.6									
1566	95% WH USL		668.3		95% HW USL				739.9			
1567												
1568	<b>Lognormal GOF Test</b>											
1569	Shapiro Wilk Test Statistic				0.923		<b>Shapiro Wilk Lognormal GOF Test</b>					
1570	5% Shapiro Wilk Critical Value				0.935		Data Not Lognormal at 5% Significance Level					
1571	Lilliefors Test Statistic				0.184		<b>Lilliefors Lognormal GOF Test</b>					
1572	5% Lilliefors Critical Value				0.148		Data Not Lognormal at 5% Significance Level					
1573	<b>Data Not Lognormal at 5% Significance Level</b>											
1574												



	A	B	C	D	E	F	G	H	I	J	K	L
1575	<b>Background Statistics assuming Lognormal Distribution</b>											
1576	95% UTL with 95% Coverage				626.4						90% Percentile (z)	255.3
1577	95% UPL (t)				399						95% Percentile (z)	371.9
1578	95% USL				1261						99% Percentile (z)	753.1
1579												
1580	<b>Nonparametric Distribution Free Background Statistics</b>											
1581	<b>Data do not follow a Discernible Distribution (0.05)</b>											
1582												
1583	<b>Nonparametric Upper Limits for Background Threshold Values</b>											
1584	Order of Statistic, r				36	95% UTL with 95% Coverage					481	
1585	Approximate f				1.895	Confidence Coefficient (CC) achieved by UTL					0.842	
1586	95% Percentile Bootstrap UTL with 95% Coverage				481	95% BCA Bootstrap UTL with 95% Coverage					481	
1587	95% UPL				433.4	90% Percentile					328	
1588	90% Chebyshev UPL				501.7	95% Percentile					413	
1589	95% Chebyshev UPL				677	99% Percentile					461.4	
1590	95% USL				481							
1591												
1592	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background											
1593	data set free of outliers and consists of observations collected from clean unimpacted locations.											
1594	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1595	represents a background data set and when many onsite observations need to be compared with the BTV.											
1596												
1597	<b>MW-1 Thallium T^report_result_value</b>											
1598												
1599	<b>General Statistics</b>											
1600	Total Number of Observations				36	Number of Distinct Observations					1	
1601	Minimum				0.2	First Quartile					0.2	
1602	Second Largest				0.2	Median					0.2	
1603	Maximum				0.2	Third Quartile					0.2	
1604	Mean				0.2	SD					8.445E-17	
1605	Coefficient of Variation				4.222E-16	Skewness					-1.044	
1606												
1607	<b>Warning: There is only one distinct observation value in this data set - resulting in '0' variance!</b>											
1608	<b>ProUCL (or any other software) should not be used on such a data set!</b>											
1609	<b>The data set for variable MW-1 Thallium T^report_result_value was not processed!</b>											
1610												
1611	<b>If possible, compute and collect Data Quality Objectives (DQOs) based sample size and analytical results.</b>											
1612	<b>The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).</b>											
1613												
1614												

	A	B	C	D	E	F	G	H	I	J	K	L
1615	MW-1 Total Dissolved Solids T^report_result_value											
1616												
1617	<b>General Statistics</b>											
1618	Total Number of Observations					33	Number of Distinct Observations					32
1619							Number of Missing Observations					3
1620	Minimum					305	First Quartile					576
1621	Second Largest					1300	Median					800
1622	Maximum					1380	Third Quartile					860
1623	Mean					765.9	SD					273.3
1624	Coefficient of Variation					0.357	Skewness					0.313
1625	Mean of logged Data					6.572	SD of logged Data					0.392
1626												
1627	<b>Critical Values for Background Threshold Values (BTVs)</b>											
1628	Tolerance Factor K (For UTL)					2.176	d2max (for USL)					2.787
1629												
1630	<b>Normal GOF Test</b>											
1631	Shapiro Wilk Test Statistic					0.954	<b>Shapiro Wilk GOF Test</b>					
1632	5% Shapiro Wilk Critical Value					0.931	Data appear Normal at 5% Significance Level					
1633	Lilliefors Test Statistic					0.152	<b>Lilliefors GOF Test</b>					
1634	5% Lilliefors Critical Value					0.154	Data appear Normal at 5% Significance Level					
1635	<b>Data appear Normal at 5% Significance Level</b>											
1636												
1637	<b>Background Statistics Assuming Normal Distribution</b>											
1638	95% UTL with 95% Coverage					1361	90% Percentile (z)					1116
1639	95% UPL (t)					1236	95% Percentile (z)					1216
1640	95% USL					1528	99% Percentile (z)					1402
1641												
1642	<b>Gamma GOF Test</b>											
1643	A-D Test Statistic					0.606	<b>Anderson-Darling Gamma GOF Test</b>					
1644	5% A-D Critical Value					0.748	Detected data appear Gamma Distributed at 5% Significance Level					
1645	K-S Test Statistic					0.135	<b>Kolmogrov-Smirnoff Gamma GOF Test</b>					
1646	5% K-S Critical Value					0.153	Detected data appear Gamma Distributed at 5% Significance Level					
1647	<b>Detected data appear Gamma Distributed at 5% Significance Level</b>											
1648												
1649	<b>Gamma Statistics</b>											
1650	k hat (MLE)					7.438	k star (bias corrected MLE)					6.782
1651	Theta hat (MLE)					103	Theta star (bias corrected MLE)					112.9
1652	nu hat (MLE)					490.9	nu star (bias corrected)					447.6
1653	MLE Mean (bias corrected)					765.9	MLE Sd (bias corrected)					294.1
1654												
1655	<b>Background Statistics Assuming Gamma Distribution</b>											
1656	95% Wilson Hilferty (WH) Approx. Gamma UPL					1319	90% Percentile					1159
1657	95% Hawkins Wixley (HW) Approx. Gamma UPL					1336	95% Percentile					1305
1658	95% WH Approx. Gamma UTL with 95% Coverage					1515	99% Percentile					1610
1659	95% HW Approx. Gamma UTL with 95% Coverage					1547						
1660	95% WH USL					1806	95% HW USL					1868
1661												
1662	<b>Lognormal GOF Test</b>											
1663	Shapiro Wilk Test Statistic					0.932	<b>Shapiro Wilk Lognormal GOF Test</b>					
1664	5% Shapiro Wilk Critical Value					0.931	Data appear Lognormal at 5% Significance Level					
1665	Lilliefors Test Statistic					0.159	<b>Lilliefors Lognormal GOF Test</b>					
1666	5% Lilliefors Critical Value					0.154	Data Not Lognormal at 5% Significance Level					
1667	<b>Data appear Approximate Lognormal at 5% Significance Level</b>											

	A	B	C	D	E	F	G	H	I	J	K	L		
1668														
1669	<b>Background Statistics assuming Lognormal Distribution</b>													
1670	95% UTL with 95% Coverage				1678					90% Percentile (z)		1182		
1671					95% UPL (t)		1403					95% Percentile (z)		1363
1672					95% USL		2132					99% Percentile (z)		1780
1673														
1674	<b>Nonparametric Distribution Free Background Statistics</b>													
1675	<b>Data appear Normal at 5% Significance Level</b>													
1676														
1677	<b>Nonparametric Upper Limits for Background Threshold Values</b>													
1678	Order of Statistic, r				33					95% UTL with 95% Coverage		1380		
1679					Approximate f		1.737					Confidence Coefficient (CC) achieved by UTL		0.816
1680	95% Percentile Bootstrap UTL with 95% Coverage				1380					95% BCA Bootstrap UTL with 95% Coverage		1380		
1681					95% UPL		1324					90% Percentile		1150
1682					90% Chebyshev UPL		1598					95% Percentile		1264
1683					95% Chebyshev UPL		1975					99% Percentile		1354
1684					95% USL		1380							
1685														
1686	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background													
1687	data set free of outliers and consists of observations collected from clean unimpacted locations.													
1688	The use of USL tends to provide a balance between false positives and false negatives provided the data													
1689	represents a background data set and when many onsite observations need to be compared with the BTV.													
1690														

	A	B	C	D	E	F	G	H	I	J	K
1					<b>Outlier Tests for Selected Uncensored Variables</b>						
2	<b>User Selected Options</b>										
3	Date/Time of Computation		12/4/2017 5:54:42 PM								
4			From File	Iansing ProUCLraw_a.xls							
5			Full Precision	OFF							
6											
7											
8	<b>Rosner's Outlier Test for MW-1 Antimony T^report_result_value</b>										
9											
10											
11			Mean	1							
12			Standard Deviation	0							
13											
14											
15											
16											
17	<b>Dixon's Outlier Test for MW-1 Arsenic D^report_result_value</b>										
18											
19	Number of Observations = 6										
20	10% critical value: 0.482										
21	5% critical value: 0.56										
22	1% critical value: 0.698										
23											
24	<b>1. Observation Value 3.8 is a Potential Outlier (Upper Tail)?</b>										
25											
26	Test Statistic: 0.500										
27											
28	For 10% significance level, 3.8 is an outlier.										
29	For 5% significance level, 3.8 is not an outlier.										
30	For 1% significance level, 3.8 is not an outlier.										
31											
32	<b>2. Observation Value 1 is a Potential Outlier (Lower Tail)?</b>										
33											
34	Test Statistic: 0.000										
35											
36	For 10% significance level, 1 is not an outlier.										
37	For 5% significance level, 1 is not an outlier.										
38	For 1% significance level, 1 is not an outlier.										
39											
40											



	A	B	C	D	E	F	G	H	I	J	K
82	<b>Rosner's Outlier Test for MW-1 Barium T^report_result_value</b>										
83											
84											
85	<b>Mean</b>			<b>0.254</b>							
86	<b>Standard Deviation</b>			<b>0.148</b>							
87	<b>Number of data</b>			<b>36</b>							
88	<b>Number of suspected outliers</b>			<b>1</b>							
89											
90				Potential	Obs.	Test	Critical	Critical			
91	#	Mean	sd	outlier	Number	value	value (5%)	value (1%)			
92	1	0.254	0.146	0.58	20	2.239	2.99	3.33			
93											
94	For 5% Significance Level, there is no Potential Outlier										
95											
96	For 1% Significance Level, there is no Potential Outlier										
97											
98											
99	<b>Rosner's Outlier Test for MW-1 Beryllium T^report_result_value</b>										
100											
101											
102	<b>Mean</b>			<b>0.7</b>							
103	<b>Standard Deviation</b>			<b>3.378E-16</b>							
104											
105											
106											
107											
108	<b>Dixon's Outlier Test for MW-1 Boron T^report_result_value</b>										
109											
110	Number of Observations = 16										
111	10% critical value: 0.454										
112	5% critical value: 0.507										
113	1% critical value: 0.595										
114											
115	<b>1. Observation Value 0.32 is a Potential Outlier (Upper Tail)?</b>										
116											
117	Test Statistic: 0.100										
118											
119	For 10% significance level, 0.32 is not an outlier.										
120	For 5% significance level, 0.32 is not an outlier.										
121	For 1% significance level, 0.32 is not an outlier.										
122											
123	<b>2. Observation Value 0.02 is a Potential Outlier (Lower Tail)?</b>										
124											
125	Test Statistic: 0.000										
126											
127	For 10% significance level, 0.02 is not an outlier.										
128	For 5% significance level, 0.02 is not an outlier.										
129	For 1% significance level, 0.02 is not an outlier.										
130											
131											

	A	B	C	D	E	F	G	H	I	J	K
132	Rosner's Outlier Test for MW-1 Cadmium D^report_result_value										
133											
134											
135	Mean			0.172							
136	Standard Deviation			0.156							
137	Number of data			26							
138	Number of suspected outliers			1							
139											
140				Potential	Obs.	Test	Critical	Critical			
141	#	Mean	sd	outlier	Number	value	value (5%)	value (1%)			
142	1	0.172	0.153	0.5	1	2.148	2.84	3.16			
143											
144	For 5% Significance Level, there is no Potential Outlier										
145											
146	For 1% Significance Level, there is no Potential Outlier										
147											
148											
149	Dixon's Outlier Test for MW-1 Cadmium T^report_result_value										
150											
151	Number of Observations = 16										
152	10% critical value: 0.454										
153	5% critical value: 0.507										
154	1% critical value: 0.595										
155											
156	<b>1. Observation Value 0.68 is a Potential Outlier (Upper Tail)?</b>										
157											
158	Test Statistic: 1.000										
159											
160	For 10% significance level, 0.68 is an outlier.										
161	For 5% significance level, 0.68 is an outlier.										
162	For 1% significance level, 0.68 is an outlier.										
163											
164	<b>2. Observation Value 0.5 is a Potential Outlier (Lower Tail)?</b>										
165											
166	Test Statistic: NaN										
167											
168	For 10% significance level, 0.5 is an outlier.										
169	For 5% significance level, 0.5 is an outlier.										
170	For 1% significance level, 0.5 is an outlier.										
171											
172											





	A	B	C	D	E	F	G	H	I	J	K	
209	<b>Rosner's Outlier Test for MW-1 Chloride T^report_result_value</b>											
210												
211												
212	<b>Mean</b>			<b>36.06</b>								
213	<b>Standard Deviation</b>			<b>20.77</b>								
214	<b>Number of data</b>			<b>30</b>								
215	<b>Number of suspected outliers</b>			<b>1</b>								
216												
217				Potential	Obs.	Test	Critical	Critical				
218	#	Mean	sd	outlier	Number	value	value (5%)	value (1%)				
219	1	36.06	20.43	97.2	4	2.994	2.91	3.24				
220												
221	For 5% Significance Level, there is 1 Potential Outlier											
222	Potential outliers is: 97.2											
223												
224	For 1% Significance Level, there is no Potential Outlier											
225												
226												
227	<b>Dixon's Outlier Test for MW-1 Chromium D^report_result_value</b>											
228												
229	Number of Observations = 6											
230	10% critical value: 0.482											
231	5% critical value: 0.56											
232	1% critical value: 0.698											
233												
234	<b>1. Observation Value 0.004 is a Potential Outlier (Upper Tail)?</b>											
235												
236	Test Statistic: NaN											
237												
238	For 10% significance level, 0.004 is an outlier.											
239	For 5% significance level, 0.004 is an outlier.											
240	For 1% significance level, 0.004 is an outlier.											
241												
242	<b>2. Observation Value 0.004 is a Potential Outlier (Lower Tail)?</b>											
243												
244	Test Statistic: NaN											
245												
246	For 10% significance level, 0.004 is an outlier.											
247	For 5% significance level, 0.004 is an outlier.											
248	For 1% significance level, 0.004 is an outlier.											
249												
250												



	A	B	C	D	E	F	G	H	I	J	K
296	<b>Dixon's Outlier Test for MW-1 Lead D^report_result_value</b>										
297											
298	Number of Observations = 6										
299	10% critical value: 0.482										
300	5% critical value: 0.56										
301	1% critical value: 0.698										
302											
303	<b>1. Observation Value 10 is a Potential Outlier (Upper Tail)?</b>										
304											
305	Test Statistic: NaN										
306											
307	For 10% significance level, 10 is an outlier.										
308	For 5% significance level, 10 is an outlier.										
309	For 1% significance level, 10 is an outlier.										
310											
311	<b>2. Observation Value 10 is a Potential Outlier (Lower Tail)?</b>										
312											
313	Test Statistic: NaN										
314											
315	For 10% significance level, 10 is an outlier.										
316	For 5% significance level, 10 is an outlier.										
317	For 1% significance level, 10 is an outlier.										
318											
319											
320	<b>Rosner's Outlier Test for MW-1 Lead T^report_result_value</b>										
321											
322											
323	<b>Mean</b>			<b>0.0125</b>							
324	<b>Standard Deviation</b>			<b>0.00933</b>							
325	<b>Number of data</b>			<b>36</b>							
326	<b>Number of suspected outliers</b>			<b>1</b>							
327											
328				Potential	Obs.	Test	Critical	Critical			
329	#	Mean	sd	outlier	Number	value	value (5%)	value (1%)			
330	1	0.0125	0.0092	0.05	33	4.08	2.99	3.33			
331											
332	For 5% Significance Level, there is 1 Potential Outlier										
333	Potential outliers is: 0.05										
334											
335	For 1% Significance Level, there is 1 Potential Outlier										
336	Potential outliers is: 0.05										
337											
338											

	A	B	C	D	E	F	G	H	I	J	K
339	<b>Rosner's Outlier Test for MW-1 Lithium T^report_result_value</b>										
340											
341											
342	<b>Mean</b>		<b>0.03</b>								
343	<b>Standard Deviation</b>		<b>2.111E-17</b>								
344											
345											
346											
347											
348	<b>Dixon's Outlier Test for MW-1 Mercury D^report_result_value</b>										
349											
350	Number of Observations = 6										
351	10% critical value: 0.482										
352	5% critical value: 0.56										
353	1% critical value: 0.698										
354											
355	<b>1. Observation Value 0.0002 is a Potential Outlier (Upper Tail)?</b>										
356											
357	Test Statistic: NaN										
358											
359	For 10% significance level, 0.0002 is an outlier.										
360	For 5% significance level, 0.0002 is an outlier.										
361	For 1% significance level, 0.0002 is an outlier.										
362											
363	<b>2. Observation Value 0.0002 is a Potential Outlier (Lower Tail)?</b>										
364											
365	Test Statistic: NaN										
366											
367	For 10% significance level, 0.0002 is an outlier.										
368	For 5% significance level, 0.0002 is an outlier.										
369	For 1% significance level, 0.0002 is an outlier.										
370											
371											
372	<b>Rosner's Outlier Test for MW-1 Mercury T^report_result_value</b>										
373											
374											
375	<b>Mean</b>		<b>0.2</b>								
376	<b>Standard Deviation</b>		<b>8.445E-17</b>								
377											
378											
379											
380											

	A	B	C	D	E	F	G	H	I	J	K
381	<b>Rosner's Outlier Test for MW-1 MOLYBDENUM T^report_result_value</b>										
382											
383											
384	<b>Mean</b>			<b>2.85</b>							
385	<b>Standard Deviation</b>			<b>2.005</b>							
386	<b>Number of data</b>			<b>36</b>							
387	<b>Number of suspected outliers</b>			<b>1</b>							
388											
389				Potential	Obs.	Test	Critical	Critical			
390	#	Mean	sd	outlier	Number	value	value (5%)	value (1%)			
391	1	2.85	1.977	8.3	18	2.756	2.99	3.33			
392											
393	For 5% Significance Level, there is no Potential Outlier										
394											
395	For 1% Significance Level, there is no Potential Outlier										
396											
397											
398	<b>Rosner's Outlier Test for MW-1 Radium (226) T^report_result_value</b>										
399											
400											
401	<b>Mean</b>			<b>9.812</b>							
402	<b>Standard Deviation</b>			<b>21.73</b>							
403	<b>Number of data</b>			<b>36</b>							
404	<b>Number of suspected outliers</b>			<b>1</b>							
405											
406				Potential	Obs.	Test	Critical	Critical			
407	#	Mean	sd	outlier	Number	value	value (5%)	value (1%)			
408	1	9.812	21.42	74.7	13	3.029	2.99	3.33			
409											
410	For 5% Significance Level, there is 1 Potential Outlier										
411	Potential outliers is: 74.7										
412											
413	For 1% Significance Level, there is no Potential Outlier										
414											
415											

	A	B	C	D	E	F	G	H	I	J	K
416	Rosner's Outlier Test for MW-1 Radium 228 T^report_result_value										
417											
418											
419	Mean			7.638							
420	Standard Deviation			16.35							
421	Number of data			36							
422	Number of suspected outliers			1							
423											
424			Potential	Obs.	Test	Critical	Critical				
425	#	Mean	sd	outlier	Number	value	value (5%)	value (1%)			
426	1	7.638	16.12	59.1	1	3.192	2.99	3.33			
427											
428	For 5% Significance Level, there is 1 Potential Outlier										
429	Potential outliers is: 59.1										
430											
431	For 1% Significance Level, there is no Potential Outlier										
432											
433											
434	Dixon's Outlier Test for MW-1 Radium-226/228 T^report_result_value										
435											
436	Number of Observations = 6										
437	10% critical value: 0.482										
438	5% critical value: 0.56										
439	1% critical value: 0.698										
440											
441	1. Observation Value 1.27 is a Potential Outlier (Upper Tail)?										
442											
443	Test Statistic: 0.496										
444											
445	For 10% significance level, 1.27 is an outlier.										
446	For 5% significance level, 1.27 is not an outlier.										
447	For 1% significance level, 1.27 is not an outlier.										
448											
449	2. Observation Value 0.419 is a Potential Outlier (Lower Tail)?										
450											
451	Test Statistic: 0.274										
452											
453	For 10% significance level, 0.419 is not an outlier.										
454	For 5% significance level, 0.419 is not an outlier.										
455	For 1% significance level, 0.419 is not an outlier.										
456											
457											



	A	B	C	D	E	F	G	H	I	J	K	
503	Rosner's Outlier Test for MW-1 Total Dissolved Solids T^report_result_value											
504												
505												
506	Mean			765.9								
507	Standard Deviation			273.3								
508	Number of data			33								
509	Number of suspected outliers			1								
510												
511				Potential	Obs.	Test	Critical	Critical				
512	#	Mean	sd	outlier	Number	value	value (5%)	value (1%)				
513	1	765.9	269.2	1380	29	2.281	2.95	3.29				
514												
515	For 5% Significance Level, there is no Potential Outlier											
516												
517	For 1% Significance Level, there is no Potential Outlier											
518												