Annual Groundwater Monitoring and Corrective Action Report
Neal South CCR Monofill

Permit 97-SDP-13-98P
Neal South Energy Center
Salix, Iowa

MidAmerican Energy Company

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1. Introduction

This Annual Groundwater Monitoring and Corrective Action Report has been prepared by GHD on behalf of MidAmerican Energy Company (MidAmerican) in compliance with the Federal Coal Combustion Residual (CCR) rule (40 CFR Part 257) for the Neal South Energy Center (Neal South) CCR Monofill (Neal South Monofill) located near Salix, Iowa. The Neal South Monofill is located in Section 24, Township 86N, Range 47W in Woodbury County, Iowa. The Site Location Map (Figure 1.1) also shows the location of MidAmerican's Neal North Energy Center facility. The Neal South Monofill extent and monitoring well locations are shown on Figure 1.2.

MidAmerican initiated baseline groundwater monitoring in accordance with the Federal CCR rule in December 2015. The initial eight rounds of baseline monitoring sampling and analysis were completed prior to the October 17, 2017 deadline established in the CCR rule (40 CFR §257.94). Data for the eight required baseline monitoring events and the first detection monitoring event are available at the time of this report.

The uppermost aquifer in the vicinity is the Missouri River alluvial aquifer. The water table is located within either fine sand or overlying silts and clays that extend to the surface (Montgomery Watson, 1999). The deeper monitoring wells are screened in alluvial sand and gravel. The uppermost bedrock in the area is the Cretaceous-age Dakota Formation.

2. Groundwater Monitoring Activities

2.1 Groundwater Monitoring Network

The groundwater monitoring network consists of 14 monitoring wells (MW-1 through MW-5 and MW-7 through MW-15). No changes to the groundwater monitoring network were made during this reporting period. Groundwater elevation data were collected from the 14 wells and groundwater samples were collected from 9 of the 14 monitoring wells. The 9 sampled monitoring wells are screened at the water table (approximately 22 to 34 feet below ground surface [bgs]) and the remaining 5 monitoring wells are screened in a deeper portion (approximately 46 to 56 feet bgs) of the alluvial aquifer. Horizontal spacing between the downgradient shallow alluvial aquifer monitoring wells ranges from approximately 200 to 300 feet. Groundwater samples are used to assess potential impacts of the Neal South Monofill on surrounding groundwater. Groundwater elevation data are used to identify upgradient and downgradient monitoring points and to determine the potential influence of the Missouri River on groundwater conditions at the Neal South Monofill.

2.2 Monitoring Well Inspection

During each sampling event, the monitoring wells were inspected and conditions of the monitoring wells were noted on the field forms (Appendix A). Wells are maintained with a well cap and a lockable protective casing. Observations include the condition of the protective casing/vault and surrounding ground surface.

All monitoring wells in the groundwater monitoring system consist of 2-inch nominal inner-diameter polyvinyl chloride (PVC) casing and screen. Monitoring well surface completions consist of a lockable stick-up surface casing set in a concrete pad and placement of protective bollards in locations where traffic may be of concern. The wells were found to be in generally good condition, with no issues affecting well or sample integrity. Due to the surrounding topography, sediment has accumulated on top of some of the monitoring well pads.

On an annual basis, the total well depth of each well in the monitoring network is measured to evaluate the well condition and potential sediment accumulation in the well. Total well depth measurements and screen occlusion calculations from these annual total depth measurements are presented in Table 2.3. If screen occlusion greater than 10 percent is determined to be present, the well will be redeveloped prior to the next sampling event.

Based on the total depth measurements made in December 2015, December 2016, and December 2017, no well screens were occluded at or above the 10 percent criteria.

2.3 Sample Collection

Sampling was conducted using dedicated bladder pumps to purge water and collect samples using low-flow sampling techniques.

Prior to sample collection, the temperature, conductivity, pH, oxidation-reduction potential (ORP), dissolved oxygen, and turbidity of the purge water were measured using a calibrated multiparameter water quality instrument and flow cell. The readings were recorded on well sampling records. Upon stabilization, unfiltered samples were collected in laboratory-supplied containers. Copies of the groundwater sampling records for the eight baseline and initial detection monitoring events are included in Appendix A. During each of the eight baseline sampling events and initial detection monitoring event, a field duplicate sample was collected from monitoring well MW-11 for quality assurance/quality control (QA/QC) purposes.

2.4 Analytical Parameters

Groundwater samples were analyzed for the parameters specified in 40 CFR Part 257 Appendix III and IV (Tables 2.4 and 2.5, respectively) for each of the eight baseline monitoring events and for the parameters specified in 40 CFR Part 257 Appendix III (Table 2.4) for the initial detection monitoring event. The majority of the laboratory analyses were conducted by TestAmerica Laboratories, Inc. (TestAmerica) in Cedar Falls, Iowa; the radium 226/228 analyses were conducted by TestAmerica in St. Louis, Missouri. Analyses were conducted by the laboratory in accordance with the procedures and methods described in the United States Environmental Protection Agency (USEPA) Manual SW-846, “Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (September 1986),” as updated and/or in accordance with other approved testing procedures. TestAmerica provided prepared sample containers for each monitoring event. Analytical reports from each sampling event report total (i.e., unfiltered) sample results in accordance with the Federal CCR rule.

Table 2.6 summarizes the number of groundwater samples collected for analysis from each monitoring well, the dates the samples were collected, and whether the sample was required by the baseline, detection monitoring, or assessment monitoring programs.

Following receipt of the final laboratory analytical reports from each round of sampling, GHD completed an analytical data quality assessment and validation for the groundwater and field quality assurance samples collected during the baseline and initial detection monitoring events. Based on these assessments, the data are acceptable for use as reported by the laboratories.

3. Groundwater Flow Conditions

3.1 Horizontal Groundwater Flow

Groundwater levels were measured at each of the monitoring wells included in the monitoring network during each monitoring event. Four of the Neal South Monofill groundwater monitoring wells are in a nested pair with one shallow and one deep well, as illustrated on Figure 1.2 and in Table 3.1. Table 3.1 presents groundwater elevations measured in wells during the December 2015, March 2016, June 2016, September 2016, December 2016, February 2017, April 2017, July 2017, and September 2017 monitoring events. A groundwater flow map was prepared using water level measurements from each monitoring event for the alluvial aquifer (Figures 3.1 through 3.9). The groundwater flow direction for each of the nine monitoring events was inferred to be to the west-southwest. The minor variations in groundwater elevation and flow direction observed during the monitoring events are likely a result of normal seasonal variability in the amount and rate of infiltration of precipitation.

3.2 Horizontal Hydraulic Gradient and Groundwater Flow Velocity

Hydraulic conductivity data for the alluvial aquifer have not been collected at the Neal South Monofill; however, hydraulic conductivity estimates are available for the alluvial aquifer at the Neal North CCR Monofill, which is located to the northwest in a similar depositional environment (i.e., Missouri River alluvial deposits). Hydraulic conductivity estimates for the shallow alluvial aquifer at the Neal North CCR Monofill range from a low of approximately 0.3 meter per day (m/day) to 12.0 m/day (MWH, 2006). The geometric mean hydraulic conductivity for the shallow portion of the alluvial aquifer is 2.3 m/day (MWH, 2006).

The average linear groundwater velocity at the water table was estimated based on hydraulic conductivity, horizontal gradient, and the estimated porosity of the formation using the following equation:

$$V = Ki/n$$

Where V equals the average linear velocity; K equals the geometric mean hydraulic conductivity (2.3 m/day); i equals the average horizontal hydraulic gradient; and n equals the effective porosity (estimated at 0.3). During the nine recent sampling events at the Neal South Monofill, the average linear groundwater velocity at the water table (shallow alluvial aquifer) was estimated to range between 0.004 m/day (approximately 4.8 feet per year), calculated for the July 2017 monitoring event, and 0.008 m/day (approximately 10.1 feet per year), calculated for the December 2015

monitoring event. The estimated horizontal gradients and average linear groundwater flow velocities for each of the monitoring events is summarized in Table 3.2.

3.3 Vertical Hydraulic Gradient

Water levels measured in monitoring well pairs MW-1/MW-2, MW-3/MW-4, MW-7/MW-8, and MW-9/MW-10 during the eight baseline monitoring events and one detection monitoring event were used to calculate vertical hydraulic gradients. The vertical hydraulic gradients were calculated by the following equation:

$$\frac{\text{Water Elevation in Deep Well} - \text{Water Elevation in Shallow Well}}{\text{Elevation of Middle of Saturated Zone of Shallow Well Screen} - \text{Elevation of Middle of Saturated Zone of Deep Well Screen}}$$

The difference in groundwater elevations between nested pairs of wells is slight, ranging from 0 (at the MW-1/MW-2 well pair during the July 2017 gauging event) to a maximum difference of 0.36 foot (at the MW-9/MW-10 well pair during the July 2017 gauging event).

The vertical hydraulic gradients ranged from -0.008 (downward-directed flow) in well cluster MW-1/MW-2 to 0.010 (upward-directed flow) in well cluster MW-9/MW-10. Vertical gradients were in the upward direction during all nine monitoring events at well clusters MW-7/MW-8 and MW-9/MW-10, and in the downward direction during all nine monitoring events at well cluster MW-3/MW-4. At well cluster MW-1/MW-2, a downward gradient was measured during the February 2016, June 2016, December 2016, and April 2017 gauging events, while a slightly upward gradient was measured during the December 2015, September 2016, February 2017, July 2017, and September 2017 gauging events.

3.4 Monitoring Well Network Assessment

During the eight initial baseline gauging events and initial detection gauging event, groundwater elevations in MW-13 were above the screened portion of the well during three gauging events. Groundwater elevations remained within the screened interval for all other shallow monitoring wells. Table 2.2 provides the top and bottom of screen elevations and Table 3.1 provides the water table elevations measured in each well during the gauging events.

The Neal South Monofill groundwater monitoring network meets the Federal CCR rule requirements of having at least one upgradient monitoring well and three downgradient monitoring wells, and the groundwater monitoring network meets the design and construction requirements of 40 CFR Part 257, Section 91. Monitoring wells MW-4 and MW-15 have been identified as upgradient sampling locations.

4. Groundwater Monitoring

Groundwater sample collection records for the eight baseline monitoring events and initial detection monitoring event are provided in Appendix A and the associated laboratory analytical reports are provided in Appendix B. Appendix C includes time series graphs of concentration verses time for each analyte in the monitoring program. Analytical results for groundwater samples collected during

the eight baseline monitoring events and the initial detection monitoring event are summarized in Tables 4.1 and 4.2, respectively.

As part of assessment and reporting requirements under the Federal CCR rule, the groundwater monitoring data are subjected to statistical evaluation to demonstrate compliance with monitoring goals. Evaluation components include:

- Statistical summaries for the data sets obtained (on a per-well, per-parameter basis)
- Preparation of trend plots (concentration vs. time)
- Inter-well comparisons (downgradient vs. upgradient)
- Intra-well comparisons (vs. baseline conditions at a given well)

The statistical methods used in these evaluation steps for the Neal South Monofill are presented in the Groundwater Statistical Methods Certification (Methods Certification) (GHD, 2017). The procedures in the Methods Certification were selected in accordance with the Federal CCR rule, utilizing methodology presented in the USEPA's *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance* (Unified Guidance) (USEPA, 2009). The present evaluation utilizes the statistical methods presented therein to evaluate monitoring data from groundwater samples collected during the initial post-baseline monitoring event in September 2017.

Baseline monitoring under the Federal CCR rule occurred at the Neal South Monofill during eight monitoring events conducted between December 2015 and July 2017. These first eight events represent the selected baseline period required for both inter-well and intra-well comparisons. Since the present evaluation is for the first post-baseline (i.e., detection monitoring) event, required analysis of the baseline data is also performed.

4.1 Statistical Analysis Approach

The initial eight rounds of baseline groundwater monitoring data were collected and analyzed for the 40 CFR §257 Appendix III and IV constituents (Tables 2.4 and 2.5, respectively). Note that one constituent (fluoride) occurs in both the Appendix III and IV constituent lists in the Federal CCR rule. In the present evaluation, fluoride has been included with the Appendix III parameters, and is not duplicated again with the other Appendix IV parameters in the various figures and tables of results.

The baseline and September 2017 detection monitoring data for the Neal South Monofill are presented in Tables 4.1 and 4.2, respectively. Statistical summary information for each data set is provided along with trend analysis results in Table 4.3.

Groundwater monitoring at the Neal South Monofill is currently conducted under Detection Monitoring status per the Federal CCR rule. As such, the seven Appendix III constituents were analyzed in the September 2017 post-baseline monitoring event samples. For completeness, both the Appendix III and Appendix IV constituent data are included in the initial baseline analysis, but only Appendix III constituents are considered in the subsequent assessment of the September 2017 post baseline data.

No single method of statistical analysis is appropriate for each groundwater constituent dataset; instead, the statistical methods selected for use are dependent upon the data and distributions and

should consider the specific constituents and the nature of local hydrogeologic conditions. Depending on characteristics of the site and the groundwater monitoring data, a mix of inter-well (comparison vs. upgradient conditions) and intra-well (comparison vs. baseline) tests may be warranted. The statistical methods used for the inter-well and intra-well approaches are selected based on these factors as well as consideration of natural temporal or spatial variability of the concentrations of the groundwater constituents. Substantial natural spatial variability may necessitate intra-well methods. This statistical analysis was completed using both inter-well and intra-well approaches for the purpose of determining if a statistically significant increase (SSI) has occurred at the Neal South Monofill.

A preliminary statistical analysis was conducted using the eight rounds of baseline data to initially assess the constituent data and determine the most appropriate statistical approach(es) for the data. The data were examined for outliers, the percentage of non-detect values, and to determine the statistical distribution. Time series plots, box plots of upgradient data, and maps were used to evaluate the potential presence of temporal or spatial variations in constituent concentrations.

All of the Appendix III and IV constituents occur naturally in the environment. For constituents that occur naturally and vary substantially in concentration across the monitoring network due to natural hydrogeologic or geochemical factors (i.e., exhibiting spatial variability), an inter-well analysis is not appropriate where this occurs. Constituent concentrations greater than upgradient conditions might be incorrectly attributed to impact from the Neal South Monofill, when the differences are actually natural and unrelated to the Neal South Monofill due to locally varying distributions of groundwater constituents. In such cases, an intra-well approach is appropriate.

4.1.1 Spatial Variability

The concentration of naturally occurring constituents such as the Appendix III and IV constituents can be affected by the presence of differing aquifer material or geochemistry between monitoring well locations. At the Neal South Monofill, the uppermost groundwater occurs in alluvial deposits, which consist primarily of sands and gravels, with zones of finer-grained silts and clays. The natural geochemistry of groundwater can vary between these zones and affect the detected concentrations of natural constituents. In the case of the Neal South Monofill, these differing geological materials are intersected by the screened zones of the monitoring wells and may result in spatial variability for some constituents.

Box plots (Appendix D) were used to evaluate spatial variability between the two upgradient wells. For each data set, the top and bottom of a box represent the upper (Q3) and lower (Q1) quartiles of the data, and the horizontal line segment within the box indicates the median (Q2). The box covers the middle 50 percent of the data values. The whiskers extend past the quartiles a distance of 1.5 times the interquartile range (Q3 – Q1), or to the extremes (minimum and maximum observations), whichever is closer. When extremely large or small values occur, they are plotted as individual points outside the whiskers. Data points falling outside the whiskers are considered possible outliers.

The presence of spatial variability among the Neal South Monofill upgradient wells is evident for many detected constituents. If no spatial variability is present, the mean and distribution between the upgradient wells would be similar. In contrast, there is strong evidence of spatial variability

between wells where interquartile ranges do not overlap. Analytes with strong evidence of spatial variability are:

- Calcium
- Fluoride
- Sulfate
- TDS
- Barium
- Lithium

For these constituents, there are observed substantial differences in constituent concentrations in groundwater between the two upgradient wells (MW-4 and MW-15). This spatial variability invalidates inter-well comparisons for these constituents in downgradient wells, since observed differences between downgradient and upgradient conditions could be due to natural variability, or could be due to effects of the Neal South Monofill. An inter-well comparison could not distinguish between these two possibilities.

4.1.2 Temporal Variability

The CCR rule considers the occurrence of temporal trends in groundwater monitoring data. Where trends are observed, the statistical method selected must take these into account.

Statistically significant trends (Table 4.3) during the baseline period were detected for these constituents in an upgradient well:

- Boron, decreasing trend at MW-4
- Lithium, decreasing trend at MW-4

For these constituents, the statistically significant trends impact or invalidate inter-well comparisons, since the statistical methods presented in the CCR rule (40 CFR 257.93 (f)) assumes no trends are present in the upgradient data. Further analysis of temporal variability is provided in Section 4.2.2.

4.1.3 Summary of Statistical Analysis Approach

The statistical analysis will be completed using both inter-well and intra-well approaches for the purpose of determining if SSIs in constituent concentrations have occurred at the Neal South Monofill. However, this approach could change as additional data are collected during future monitoring. If new information warrants change, a modification of the statistical approach may be recommended for one or more constituents and/or monitoring wells.

4.2 Assessment of Baseline Data

4.2.1 Assessment of Statistical Assumptions and Data Screening

Per the Methods Certification, each of the baseline data sets were subjected to initial screening and assumption checking, considering the following items:

i) The presence of censored data (i.e., percentage of non-detect results)

ii) The observed data distribution (i.e., normal, gamma, lognormal, or unknown)

iii) The presence of statistical outliers

iv) Consideration of field duplicate results

The specific methods employed are described in the Methods Certification. The assumption-checking results for each data set (constituent by well) are presented in Table 4.3 (Trends) and Table 4.4 (Baseline Values).

4.2.2 Stability Assessment/Baseline Period Trend Analysis

The assessment of temporal trends is included as a precursor to intra-well and inter-well comparisons, as the statistical methods for these comparisons assume that a stable condition is present in the reference data set (i.e., the baseline period for intra-well comparisons, and the upgradient background data set for inter-well comparisons). Where a trend is identified, the comparison procedures must be adjusted to take this into account. Trend tests may also be used as an alternative intra-well comparison procedure when other methods are not appropriate (as noted at the beginning of Section 17.3 of the Unified Guidance [USEPA, 2009]).

The Methods Certification selects two statistical procedures for evaluating trends in the baseline data, namely:

i) The Mann-Kendall Trend Test

ii) The Theil-Sen Median Slope (for data sets identified as having a statistically significant temporal trend by the Mann-Kendall Test)

The applicability and methodology for these procedures are discussed in the Methods Certification. In carrying out the trend tests, a target significance level of 0.05 (i.e., 95 percent confidence) was selected. This significance level is applied on a per-location, per-parameter basis, for all suitable data sets. The CCR rule (40 CFR 257.93 (g)(2)) specifies that a significance level no lower than 0.01 (99 percent confidence) may be applied for individual comparisons, with an overall (site-wide) minimum significance level of 0.05. For current trend screening purposes, a significance level of 0.05 was selected to increase the statistical power of detecting potential trends with data sets containing only eight baseline samples (which is the number of baseline events specified in the Federal CCR rule). Non-detects were accommodated as described in the Methods Certification, considering these to be tied and lower than non-detects in the Mann-Kendall Test, and conservatively substituting the detection limit where needed for calculating the Thiel-Sen median slope.

The baseline data sets presented in Table 4.1 were subjected to trend testing as described above. The results of these tests are presented, along with summary statistics, in Table 4.3. The trend test findings are also included on trend plots, which are presented in Appendix C, Figures 1 through 9. Note that in the trend plots, field duplicate results are included as discrete points, but in the trend analyses these were averaged prior to trend calculations.

There are 189 baseline data sets that were considered (21 monitoring constituents at each of the 9 wells). Out of these, 73 data sets are comprised entirely of non-detect results. These occur mainly for the following constituents:

- Antimony (8 wells)
- Arsenic (5 wells)
- Beryllium (all 9 wells)
- Cadmium (all 9 wells)
- Chromium (8 wells)
- Lead (all 9 wells)
- Mercury (all 9 wells)
- Thallium (all 9 wells)

Additional constituents with at least one well having no detected results during baseline sampling are fluoride (1 well), molybdenum (3 wells), and selenium (2 wells).

There are 17 baseline period data sets containing one or more detected results, but having a non-detect frequency greater than 50 percent and were therefore not subjected to trend testing.

The remaining 99 data sets were subjected to trend analysis using the Mann-Kendall Test. The majority of the tests (82 of 99 data sets, or 83 percent) indicated that no statistically significant trends over time were present during the baseline period. Fourteen (14) decreasing trends and three (3) increasing trends were found.

Increasing trends were found for the following wells/constituents:

- Arsenic at MW-10 and MW-13
- Barium at MW-10

Decreasing trends were found for the following wells/constituents:

- Barium at MW-12
- Boron at MW-4, MW-10, MW-11, and MW-14
- Calcium at MW-2 and MW-12
- Lithium at MW-2, MW-4, and MW-10
- Selenium at MW-8, MW-13, and MW-14
- Sulfate at MW-2

Additionally, there are several data sets noted where there is less confidence of a trend over time (having statistical confidence less than 95 percent but greater than 90 percent), as noted in the comments in Table 4.3.

Where trends have been identified in a baseline data set, the methods for intra-well and inter-well comparisons performed below were adjusted to account for non-stationarity during the baseline period.

4.2.3 Inter-well Comparisons – Upgradient Background Values

The Federal CCR rule provides a list of alternate statistical procedures applicable to inter-well and intra-well comparisons (see 40 CFR 257.93(f)). In the Methods Certification, the use of upper tolerance limits (UTLs) was selected as being appropriate for assessment of groundwater monitoring data for the Neal South Monofill. A UTL is a statistically-based limit above which a given sample measurement is unlikely to occur if conditions are consistent with the reference population. For inter-well comparisons, the reference population is the data set of constituent concentrations in upgradient background well(s). Since there are two upgradient background wells at the site (MW-4 and MW-15), the data from these two wells have been pooled to calculate the upgradient background UTLs for each constituent.

Statistical UTLs have two descriptive parameters: (i) their *coverage*; and (ii) their *confidence*. Coverage refers to the percentage of the reference population that is within the tolerance limit. For example, if a coverage of 0.99 is selected, then 99 percent of the reference population will be within the tolerance limit (which in the case of a one-sided UTL, represents the 99th percentile of the reference population). Confidence refers to the probability that the specified coverage based on the samples collected will include the true value from the entire population. For example, if a 95 percent confidence level is selected, then there is no more than a 5 percent probability that the calculated UTL will not provide the selected coverage (e.g., true 99th percentile) of the population.

In Section 5 of the Methods Certification, two type of UTLs are specified:

i) A 95/95 UTL, which has a coverage of 0.95 (i.e., 95th percentile) with 95 percent confidence

ii) A 99/95 UTL, which has a coverage of 0.99 (i.e., 99th percentile) with 95 percent confidence

Comparisons against these UTLs are to be interpreted as follows:

a) If a given future observation exceeds a 95/95 UTL, but not a 99/95 UTL, the next regularly scheduled monitoring event will be used as the verification resample for determining an SSI.

b) If a given future observation exceeds both the 95/95 and 99/95 UTLs, then a verification resample or other appropriate response will be undertaken prior to the next regularly scheduled monitoring event.

An SSI is only identified after an original sample and its verification resample (either the next regularly-scheduled sample or a special verification sample) exceed the given UTL.

Calculations of UTLs for intra-well comparisons were completed using the logic and methodology presented in USEPA's Technical Guide for its ProUCL software (USEPA, 2015, current version 5.1.002). The results of the UTL calculations are provided in Table 4.4.

4.2.4 Intra-well Comparisons – Well-specific Baseline Values

As noted in the Methods Certification, the statistical methods (i.e., UTLs) for intra-well comparisons are analogous to those for inter-well comparisons. In this case, the reference population is the data set of constituent concentrations in a given well observed during the baseline period. Calculation of the upgradient background 95/95 UTL and 99/95 UTL values is performed using the same methods used for the inter-well comparisons.

Where temporal trends were identified over the baseline period, tolerance limits are not calculated (due to violation of the statistical assumptions of the UTL calculations) and a baseline range is provided as a reference. For affected data sets, future sample results are to be compared both against the baseline range and what would be expected based on the observed trend over the baseline period.

The calculated intra-well baseline values (UTLs) for each constituent at each well are presented in Table 4.5.

4.3 Assessment of Post-Baseline Monitoring Data – September 2017

4.3.1 Inter-well Comparisons (vs. Upgradient Background)

Inter-well comparisons of current monitoring data are conducted by comparing monitoring data from the current event (September 2017) to the upgradient background UTLs derived from the baseline period data (December 2015 to July 2017). These comparisons are presented in Table 4.6.

The results of the inter-well comparisons indicate three observations where the current monitoring event has a constituent concentration or measurement outside of baseline conditions in the upgradient wells (MW-4 and MW-15). These are:

- pH at MW-8 (7.2 J, slightly above the upgradient background 99/95 UTL of 7.19)
- pH at MW-10 (7.3 J, above the upgradient background 99/95 UTL of 7.19)
- Chloride at MW-12 (180 mg/L, above the upgradient background 99/95 UTL of 30.6 mg/L)

In all three cases, the observed values are within the range of baseline period data for these wells. These SSIs will be confirmed with verification samples.

4.3.2 Intra-well Comparisons (vs. Well-Specific Baseline Values)

Intra-well comparisons of current monitoring data are conducted by comparing monitoring data from the current event (September 2017) to the baseline period UTLs for each given well. These comparisons are presented in Table 4.7.

The results of the intra-well comparisons indicate that the Appendix III constituent concentrations are not above those observed during the baseline period. There was one case where an observation was found to be below the baseline range (note: due to a trend in the baseline period data, UTL values were not calculated in this case and the baseline range is used as a reference). This case was:

- Boron at MW-4 (0.898 mg/L, below the baseline range of 0.972 – 3.49 mg/L at MW-4)

Boron concentrations at MW-4 were identified by Mann-Kendall analysis to have a statistically significant decreasing trend over time, and the September 2017 observation appears to continue this trend. Consequently, no further action is required at this time due to the low boron concentration observed in September 2017.

No SSIs were identified by the intra-well comparisons of September 2017 groundwater monitoring data from the Neal South Monofill.

4.4 Comparison to Maximum Contaminant Levels (MCLs)

Sample results are compared to the USEPA MCL for constituents with an MCL. Two constituents, arsenic (at two locations: MW-2 and MW-10) and selenium (at four locations: MW-8, MW-11, MW-12, and MW-13), were detected at concentrations above the corresponding MCL.

4.4.1 Appendix III Analytes

- Boron. No MCL has been established for boron. The maximum boron concentration detected was 5.39 milligrams per liter (mg/L) at MW-12.
- Calcium. No MCL has been established for calcium. The maximum calcium concentration detected was 378 mg/L at upgradient well MW-4.
- Chloride. No MCL has been established for chloride. The maximum chloride concentration detected was 303 mg/L at MW-12.
- Fluoride. No MCL has been established for fluoride. The maximum fluoride concentration detected was 21 mg/L at MW-12.
- pH. No MCL has been established for pH. The highest and lowest pH recorded during the eight baseline and initial detection monitoring events were 6.71 (at MW-11) and 7.4 (at MW-8), respectively.
- Sulfate. No MCL has been established for sulfate. The maximum sulfate concentration detected was 996 mg/L at upgradient monitoring well MW-4.
- Total Dissolved Solids (TDS). No MCL has been established for TDS. The maximum TDS concentration detected was 2,570 mg/L at upgradient monitoring well MW-4.

4.4.2 Appendix IV Analytes

- Antimony. Antimony concentrations were below the method reporting limit (0.00100 mg/L) and the established MCL (0.006 mg/L) in all samples from all monitoring wells during the eight baseline monitoring events.
- Arsenic. Arsenic concentrations were below the established MCL (0.01 mg/L) during all eight baseline events in all monitoring wells, except for monitoring well MW-2, which ranged from 0.0156 mg/L during the July 2017 monitoring event to 0.0720 mg/L during the December 2016 monitoring event, and MW-10 which exceeded the MCL on three occasions (February 2017, 0.0165 mg/L; April 2017, 0.0192 mg/L; and July 2017, 0.0136 mg/L). Other than MW-2 and

MW-10, the only locations where arsenic was detected were MW-13 and MW-15, where arsenic was detected at concentrations below the MCL. All other monitoring locations were below the method reporting limit (0.00200 mg/L) for arsenic.

- Barium. Barium was detected in all of the monitored wells during the eight baseline monitoring events; however, the detected levels were all below the MCL for barium (2.0 mg/L).
- Beryllium. No detectable concentrations of beryllium were reported in any of the samples collected during the eight baseline monitoring events. The beryllium reporting limit is 0.001 mg/L, which is below the MCL (0.004 mg/L).
- Cadmium. Cadmium concentrations were below the method reporting limit (0.000500 mg/L) and the established MCL (0.005 mg/L) in all samples from all monitoring wells during the eight baseline monitoring events.
- Chromium. Chromium concentrations were below the method reporting limit (0.00500 mg/L) and the established MCL (0.1 mg/L) in all but one sample during the eight baseline monitoring events. In June 2016, chromium was detected at a concentration of 0.0340 mg/L at monitoring well MW-12.
- Cobalt. No MCL has been established for cobalt. The maximum cobalt concentration detected was 0.0104 mg/L at upgradient well MW-4.
- Lead. Lead concentrations were below the method reporting limit (0.000500 mg/L) and the established MCL (0.015 mg/L) in all samples from all wells during the eight baseline monitoring events.
- Lithium. No MCL has been established for lithium. The maximum lithium concentration detected was 0.254 mg/L at upgradient well MW-4.
- Mercury. Mercury concentrations were below the method reporting limit (0.000200 mg/L) and the established MCL (0.002 mg/L) in all samples from all monitoring wells during the eight baseline monitoring events.
- Molybdenum. No MCL has been established for molybdenum. The maximum molybdenum concentration detected was 0.143 mg/L at upgradient well MW-8.
- Selenium. Selenium concentrations were below the established MCL (0.05 mg/L) during the eight baseline events in all monitoring wells, except at monitoring wells MW-8, MW-11, MW-12, and MW-13. All eight baseline sample results from monitoring locations MW-2 and MW-10 were below the method reporting limit (0.00500 mg/L) for selenium.
- Thallium. Thallium concentrations were below the method reporting limit (0.00100 mg/L) and the established MCL (0.002 mg/L) in all samples from all monitoring wells during the eight baseline monitoring events.
- Radium 226 and 228 (combined). Radium 226 and 228 (combined) was detected in all of the monitoring wells during at least one of the eight baseline monitoring events. All detected concentrations were below the MCL of 5 picocuries per liter (pCi/L).

- Note, Appendix IV analytes were not analyzed as part of the September 2017 (initial detection) monitoring event, since they are not included in the detection monitoring program under the Federal CCR rule.

5. Conclusions and Recommendations

5.1 Groundwater Flow and Evaluation of the Monitoring Network

Groundwater flow in the vicinity of the Neal South Monofill is to the west-southwest. The groundwater flow evaluation (see Figures 3.1 through 3.9) indicates the monitoring network is sufficient and has appropriately located upgradient and downgradient well locations.

5.2 Groundwater Quality

A statistical evaluation of groundwater monitoring data collected during the baseline period (December 2015 to July 2017) has been conducted in accordance with the Federal CCR rule and Unified Guidance for assessing groundwater data (USEPA, 2009). This evaluation was successful in characterizing the baseline data sets, assessing the baseline data for trends, and generating inter-well upgradient background reference values and intra-well baseline values against which future monitoring data may be evaluated.

Additionally, an assessment of monitoring data from samples collected during September 2017 (the first post-baseline monitoring event) has been conducted.

Key results of the evaluation include:

- Constituent concentrations appear to vary between the two upgradient background wells. Assessment of the baseline period data indicates significant spatial variability in groundwater collected at different monitoring wells at the site, requiring intra-well comparisons.
- Significant concentration trends over time were observed in some baseline data sets at both downgradient wells and upgradient wells.
- Inter-well baseline values (UTLs) have been calculated from the baseline data for two upgradient background wells (MW-4 and MW-15).
- Intra-well baseline values (UTLs) have been calculated on a per-constituent, per-well basis for Appendix III and Appendix IV constituents.
- Assessment of the September 2017 detection monitoring event data indicates that:
    - Inter-well comparisons – The monitoring results at downgradient wells are mainly consistent with upgradient background conditions during the baseline period. The only exceptions are slightly elevated pH at MW-8 and MW-10, and elevated chloride at MW-12. These are SSIs which will be confirmed by verification sampling.
    - Intra-well comparisons – None of the September 2017 monitoring data exceed their corresponding intra-well baseline values. Boron at MW-4 was observed at a concentration slightly below the baseline period range at this well, but is consistent with a statistically significant decreasing trend observed during the baseline period for boron at MW-4.

Two constituents, arsenic (at two locations: MW-2 and MW-10) and selenium (at four locations: MW-8, MW-11, MW-12, and MW-13), were detected at concentrations above the corresponding MCL during the baseline monitoring period.

5.3 Recommendations

Verification samples will be collected prior to the next regularly scheduled sampling event to evaluate the SSIs (elevated pH at MW-8 and MW-10, and elevated chloride at MW-12) identified in the inter-well evaluation of the September 2017 detection monitoring event data. Based on the results of the verification sampling, the Neal South Monofill will remain in detection monitoring or initiate assessment monitoring. No changes to the monitoring network or sampling procedures are necessary.

6. Certification

I certify this Annual Groundwater Monitoring and Corrective Action Report meets the requirements of 40 CFR §257.90(e).

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Michael J. Alowitz, P.E. — Date: 1/31/2018

License Number: 18160

My license renewal date is: December 31, 2018

Pages or sheets covered by this seal: Entire Document

7. References

GHD, 2017. Groundwater Statistical Methods Certification. Neal South CCR Monofill, Permit No. 97-SDP-13-98P, Salix Iowa, MidAmerican Energy Company. October 17. 2017.

Montgomery Watson, 1999. Hydrogeological Investigation, Groundwater Monitoring Plan and Baseline Groundwater Quality Report for the Neal South Ash Landfill. December 1999.

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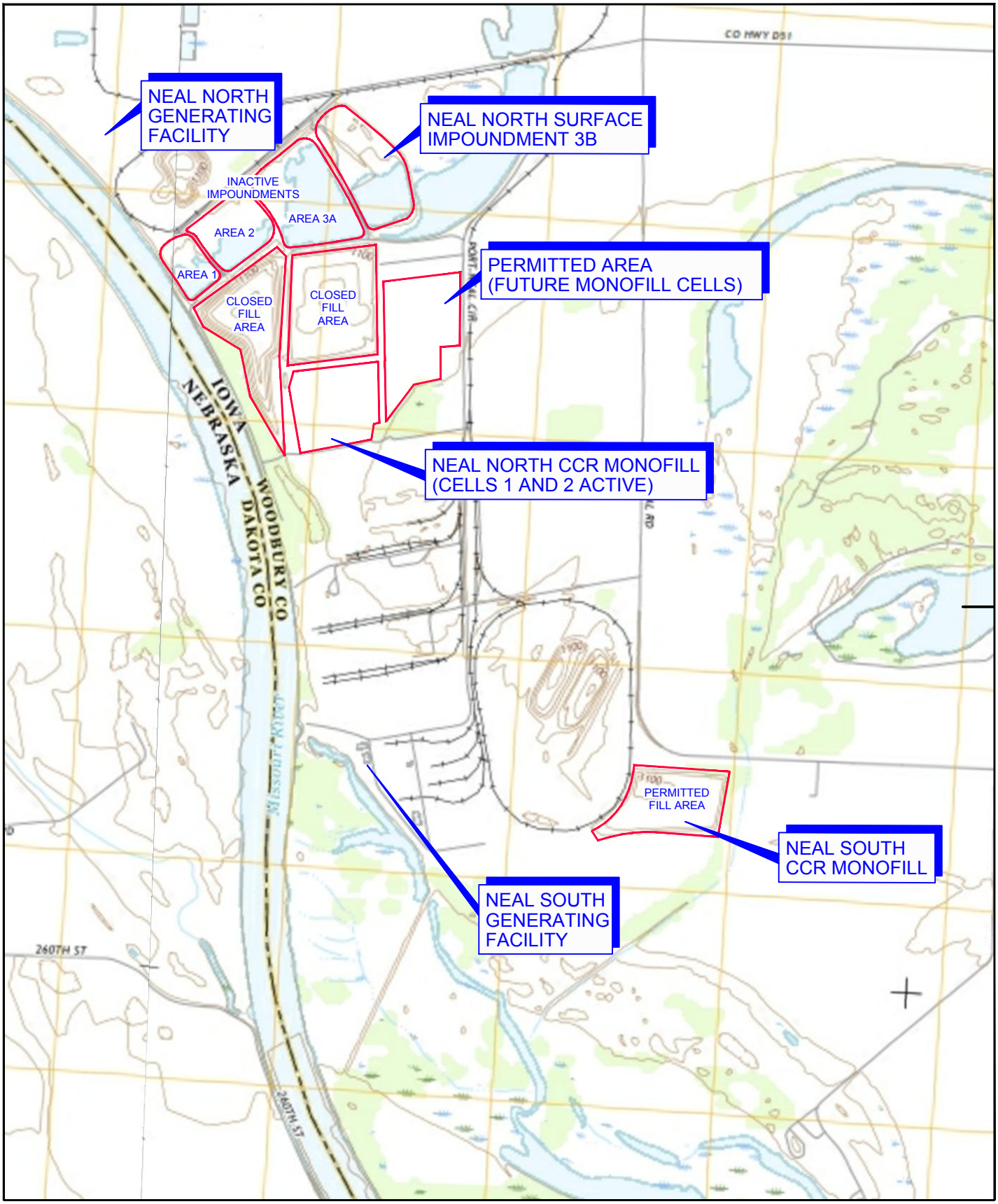
USEPA, 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance. Office of Resource Conservation and Recovery, Program Implementation and Information Division, United States Environmental Protection Agency, Washington DC. EPA/530/R-09/007. March 2009.

USEPA, 2015. ProUCL Version 5.1.002 Technical Guide. United States Environmental Protection Agency, Office of Research and Development, Washington DC. EPA/600/R-07/041. October 2015.

Figures



Source: USGS QUADRANGLE MAP: SALIX, IOWA (2015) & HOMER, NEBRASKA (2014)

0 1000 2000ft

Coordinate System:
UTM ZONE 17, NAD83

MIDAMERICAN ENERGY COMPANY
NEAL SOUTH CCR MONOFILL
SALIX, IOWA

11114654-CCR17

May 9, 2017

SITE LOCATION MAP

FIGURE 1.1

CAD File: P:\drawings\11114000s\11114654\11114654-REPORTS\11114654-CCR17(003)\11114654-CCR17(003)GN\11114654-CCR17(003)GN-WA008.dwg

Source: U.S. Department of Agriculture (USDA)
Imagery Date: September 16, 2014

0 100 200ft

Coordinate System:
NAD83 STATE PLANE
IOWA NORTH

MIDAMERICAN ENERGY COMPANY
NEAL SOUTH CCR MONOFILL
SALIX, IOWA

11114654-CCR17
Sep 27, 2017

SITE MAP AND MONITORING NETWORK

FIGURE 1.2

CAD File: P:\drawings\11114000s\11114654\11114654-REPORTS\11114654-CCR17(004)\11114654-CCR17(004)GN\11114654-CCR17(004)GN-WA002.dwg

Source: U.S. Department of Agriculture (USDA)
Imagery Date: September 16, 2014

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Coordinate System:
NA83 STATE PLANE
IOWA NORTH

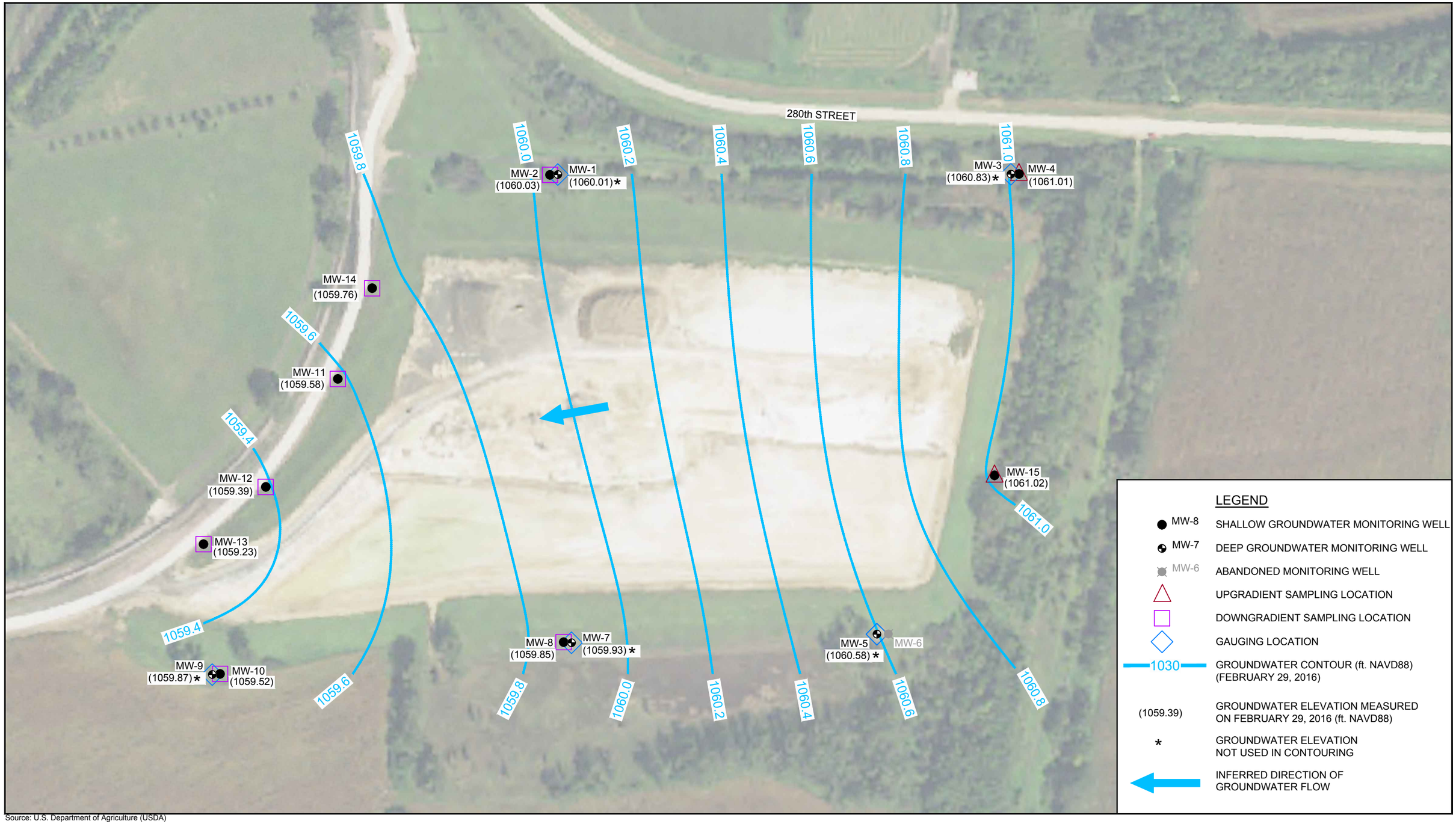
MIDAMERICAN ENERGY COMPANY
NEAL SOUTH CCR MONOFILL
SALIX, IOWA

11114654-CCR17
Sep 27, 2017

GROUNDWATER FLOW MAP - DECEMBER 7, 2015

FIGURE 3.1

CAD File: P:\drawings\11114000s\11114654\11114654-REPORTS\11114654-CCR17(004)\11114654-CCR17(004)GN\11114654-CCR17(004)GN-WA003.dwg



Source: U.S. Department of Agriculture (USDA)
Imagery Date: September 16, 2014

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Coordinate System:
NA83 STATE PLANE
IOWA NORTH

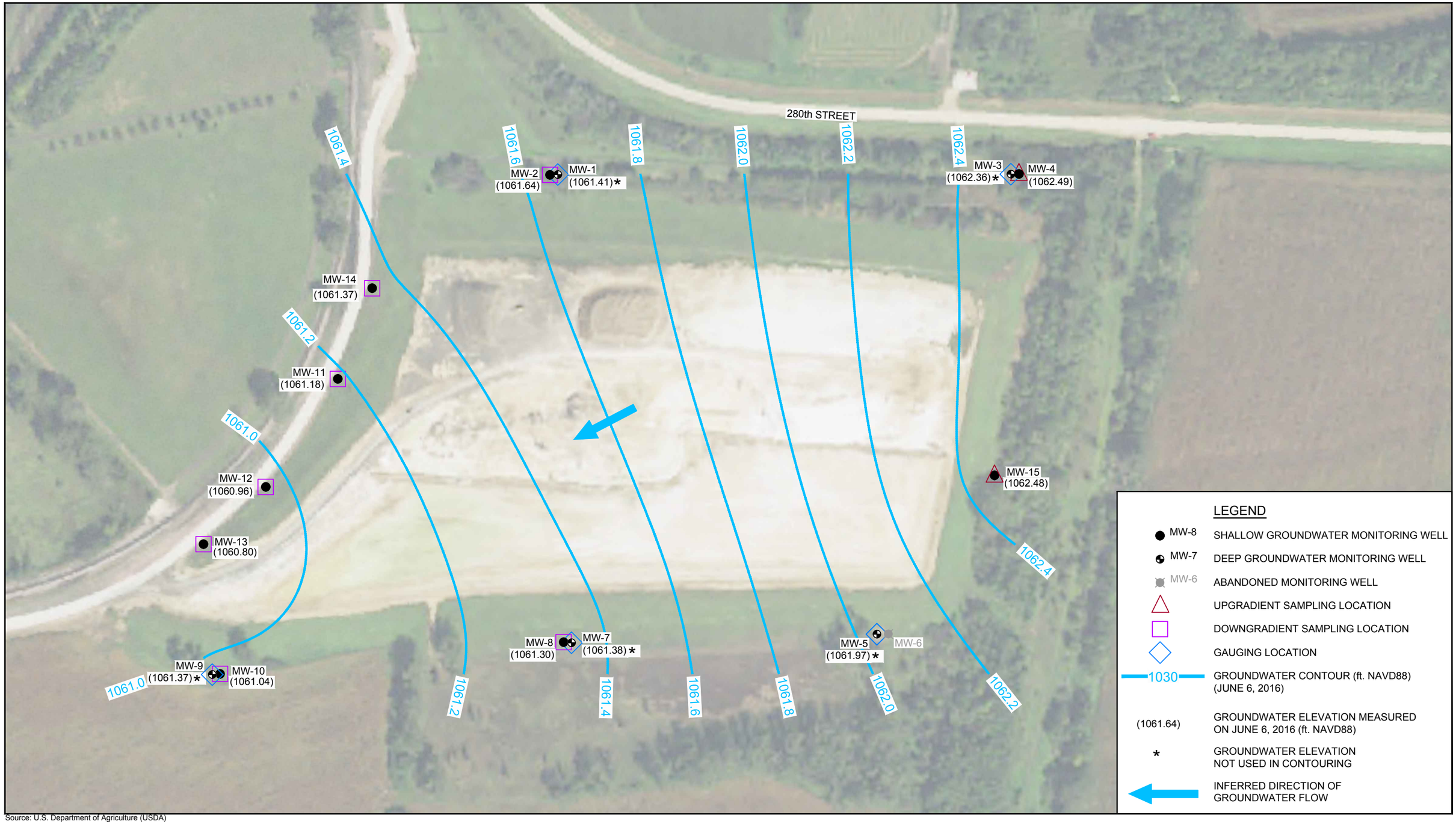
MIDAMERICAN ENERGY COMPANY
NEAL SOUTH CCR MONOFILL
SALIX, IOWA

11114654-CCR17
Sep 27, 2017

GROUNDWATER FLOW MAP - FEBRUARY 29, 2016

FIGURE 3.2

CAD File: P:\drawings\11114000s\11114654\11114654-REPORTS\11114654-CCR17(004)\11114654-CCR17(004)GN\11114654-CCR17(004)GN-WA004.dwg



Source: U.S. Department of Agriculture (USDA)
Imagery Date: September 16, 2014

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Coordinate System:
NA83 STATE PLANE
IOWA NORTH

GHD

MIDAMERICAN ENERGY COMPANY
NEAL SOUTH CCR MONOFILL
SALIX, IOWA

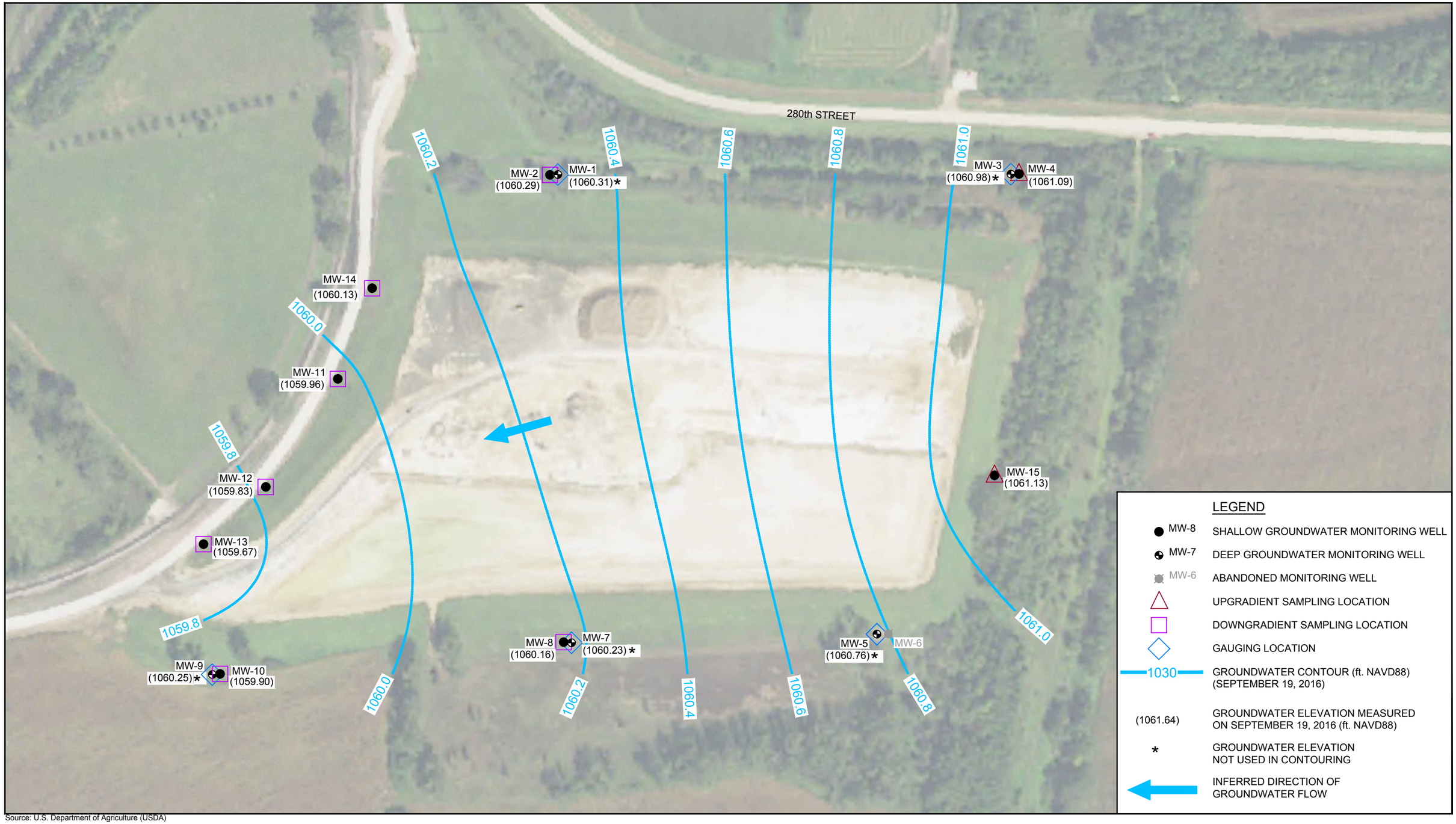
11114654-CCR17

Sep 27, 2017

GROUNDWATER FLOW MAP - JUNE 6, 2016

FIGURE 3.3

CAD File: P:\drawings\11114000s\11114654\11114654-REPORTS\11114654-CCR17(004)\11114654-CCR17(004)GN\11114654-CCR17(004)GN-WA005.dwg



Source: U.S. Department of Agriculture (USDA)
Imagery Date: September 16, 2014

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Coordinate System:
NA83 STATE PLANE
IOWA NORTH

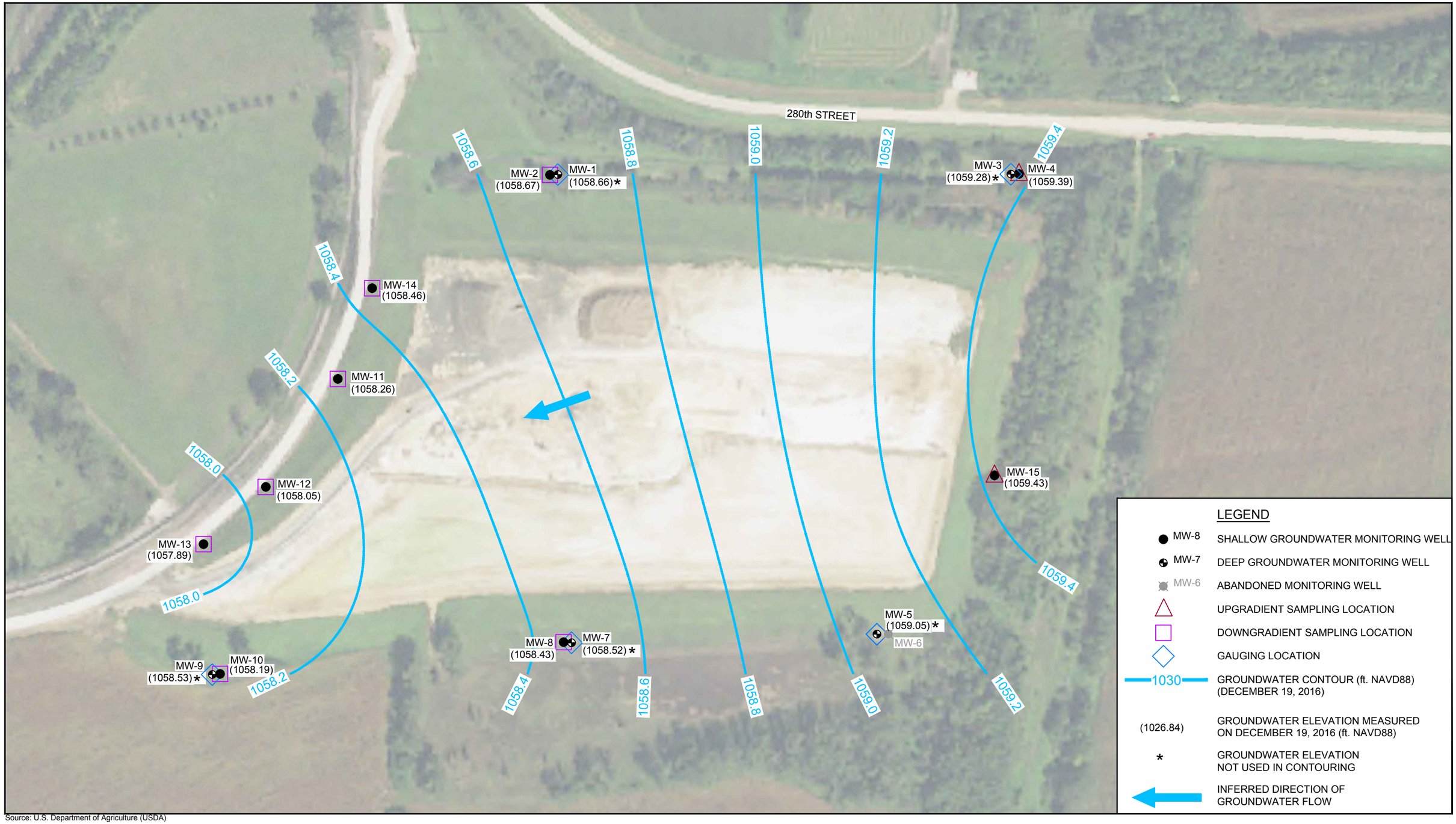
MIDAMERICAN ENERGY COMPANY
NEAL SOUTH CCR MONOFILL
SALIX, IOWA

11114654-CCR17
Sep 27, 2017

GROUNDWATER FLOW MAP - SEPTEMBER 19, 2016

FIGURE 3.4

CAD File: P:\drawings\11114000s\11114654\11114654-REPORTS\11114654-CCR17(004)\11114654-CCR17(004)GN\11114654-CCR17(004)GN-WA006.dwg



Source: U.S. Department of Agriculture (USDA)
Imagery Date: September 16, 2014

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Coordinate System:
NA83 STATE PLANE
IOWA NORTH

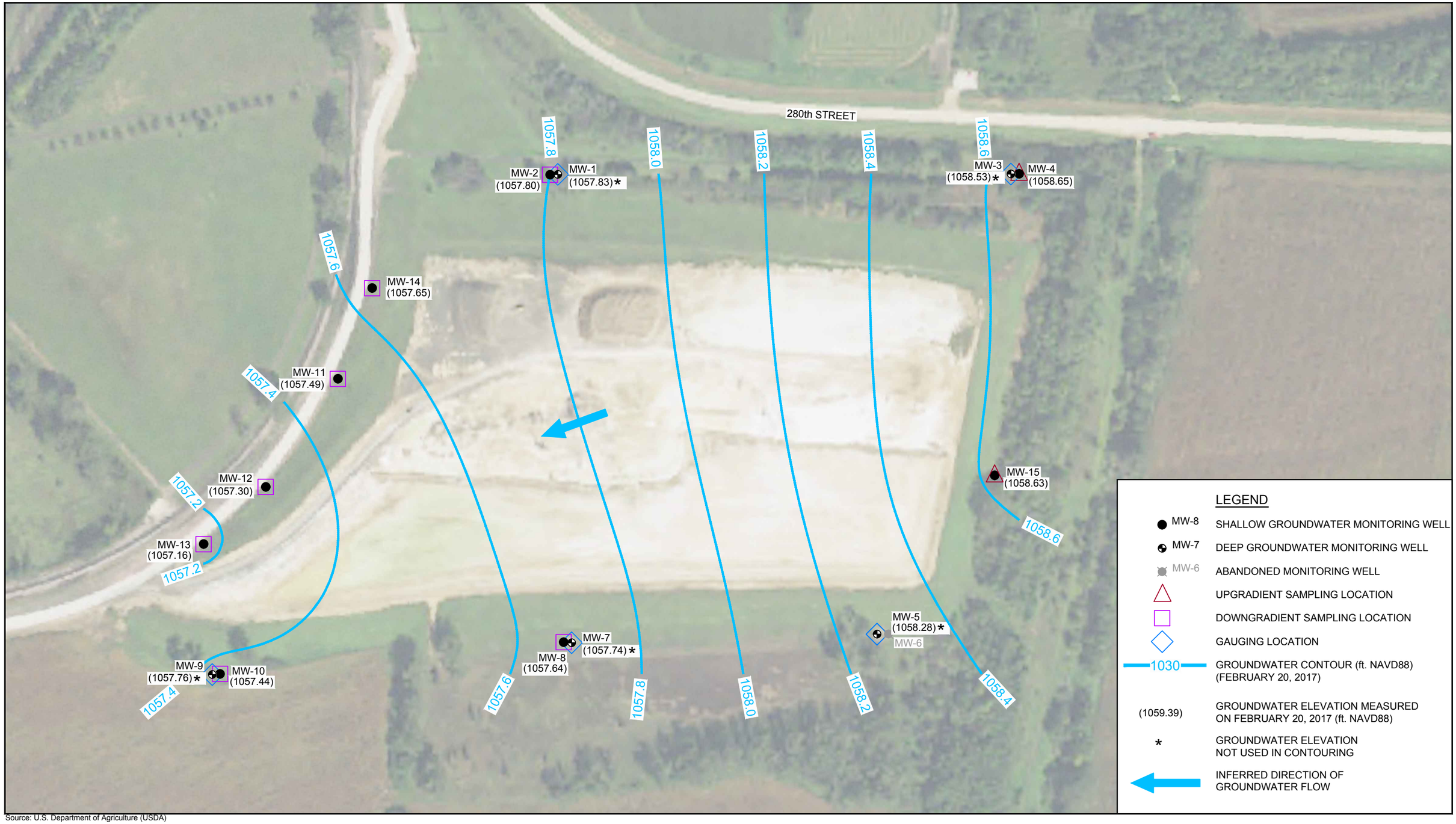
MIDAMERICAN ENERGY COMPANY
NEAL SOUTH CCR MONOFILL
SALIX, IOWA

11114654-CCR17
Sep 27, 2017

GROUNDWATER FLOW MAP - DECEMBER 19, 2016

FIGURE 3.5

CAD File: P:\drawings\11114000s\11114654\11114654-REPORTS\11114654-CCR17(004)\11114654-CCR17(004)GN\11114654-CCR17(004)GN-WA007.dwg



Source: U.S. Department of Agriculture (USDA)
Imagery Date: September 16, 2014

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Coordinate System:
NA83 STATE PLANE
IOWA NORTH

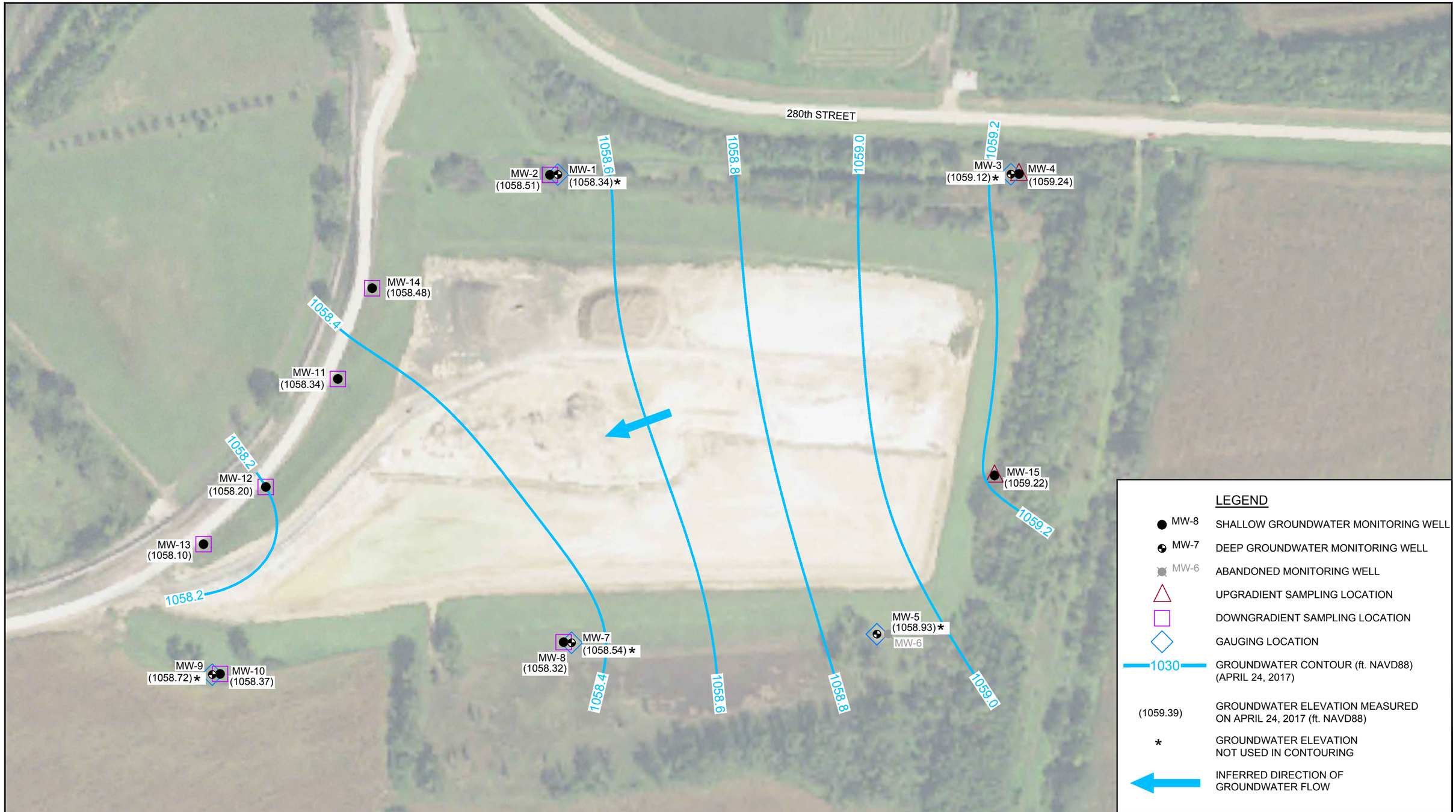
MIDAMERICAN ENERGY COMPANY
NEAL SOUTH CCR MONOFILL
SALIX, IOWA

11114654-CCR17
Sep 27, 2017

GROUNDWATER FLOW MAP - FEBRUARY 20, 2017

FIGURE 3.6

CAD File: P:\drawings\11114000s\11114654\11114654-REPORTS\11114654-CCR17(004)\11114654-CCR17(004)GN\11114654-CCR17(004)GN-WA008.dwg



Source: U.S. Department of Agriculture (USDA)
Imagery Date: September 16, 2014

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Coordinate System:
NA83 STATE PLANE
IOWA NORTH

MIDAMERICAN ENERGY COMPANY
NEAL SOUTH CCR MONOFILL
SALIX, IOWA

11114654-CCR17

Sep 27, 2017

GROUNDWATER FLOW MAP - APRIL 24, 2017

FIGURE 3.7

CAD File: P:\drawings\11114000s\11114654\11114654-REPORTS\11114654-CCR17(004)\11114654-CCR17(004)GN\11114654-CCR17(004)GN-WA009.dwg

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Imagery Date: September 16, 2014

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Coordinate System:
NA83 STATE PLANE
IOWA NORTH

MIDAMERICAN ENERGY COMPANY
NEAL SOUTH CCR MONOFILL
SALIX, IOWA

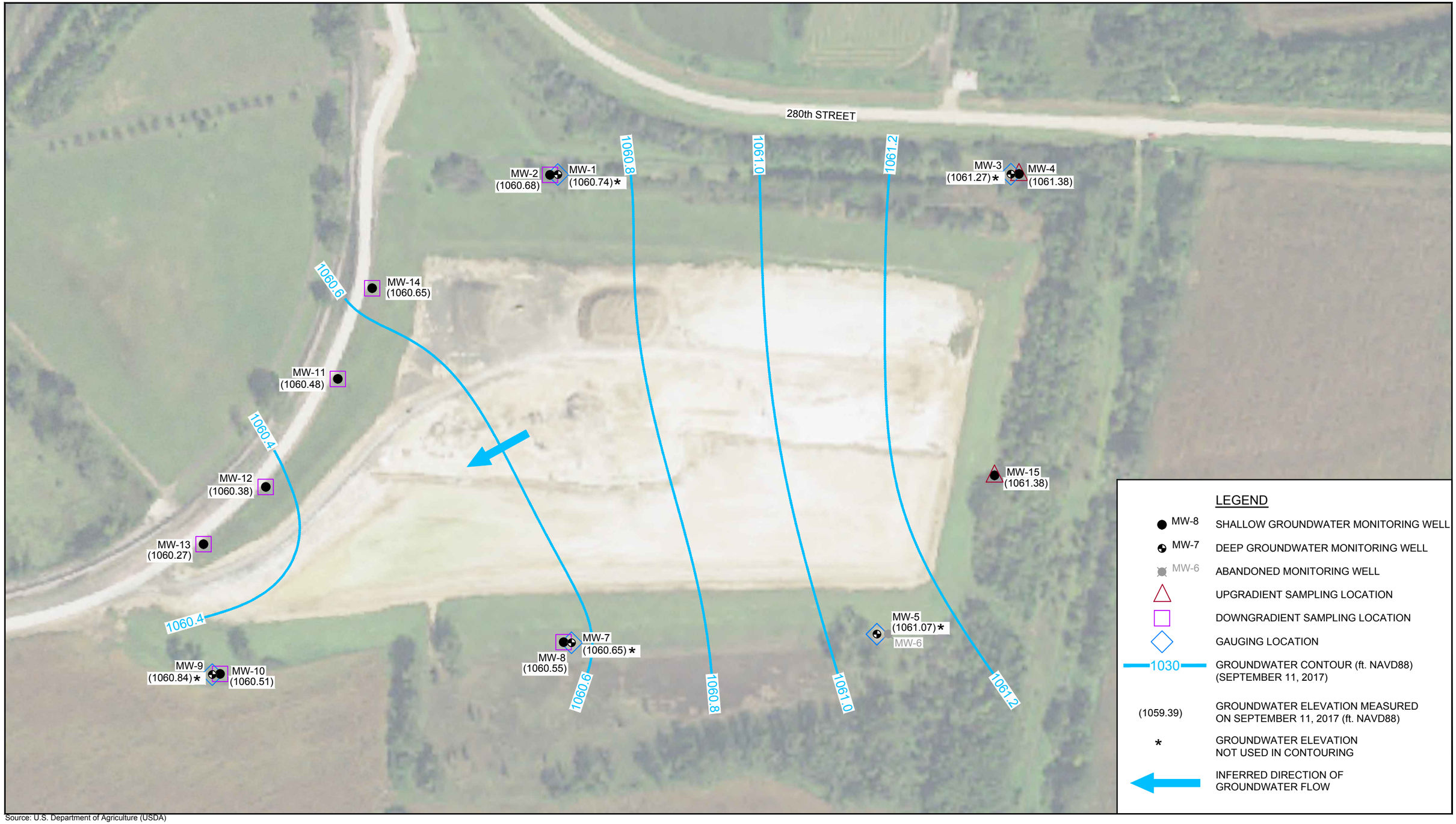
11114654-CCR17

Sep 27, 2017

GROUNDWATER FLOW MAP - JULY 5, 2017

FIGURE 3.8

CAD File: P:\drawings\11114000s\11114654\11114654-REPORTS\11114654-CCR17(004)\11114654-CCR17(004)GN\11114654-CCR17(004)GN-WA010.dwg



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IOWA NORTH

MIDAMERICAN ENERGY COMPANY
NEAL SOUTH CCR MONOFILL
SALIX, IOWA

11114654-CCR17
Sep 27, 2017

GROUNDWATER FLOW MAP - SEPTEMBER 11, 2017

FIGURE 3.9

CAD File: P:\drawings\11114000s\11114654\11114654-REPORTS\11114654-CCR17(004)\11114654-CCR17(004)GN\11114654-CCR17(004)GN-WA011.dwg

Tables

Table 2.1

Groundwater Monitoring Well Network
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Monitoring Wells	Use in Monitoring Network	Role in Monitoring Network
MW-1[a]	Gauged Only	Gauging Location
MW-2	Gauged and Sampled	Downgradient Location
MW-3[a]	Gauged Only	Gauging Location
MW-4	Gauged and Sampled	Upgradient Location
MW-5[a]	Gauged Only	Gauging Location
MW-7[a]	Gauged Only	Gauging Location
MW-8	Gauged and Sampled	Downgradient Location
MW-9[a]	Gauged Only	Gauging Location
MW-10	Gauged and Sampled	Downgradient Location
MW-11	Gauged and Sampled	Downgradient Location
MW-12	Gauged and Sampled	Downgradient Location
MW-13	Gauged and Sampled	Downgradient Location
MW-14	Gauged and Sampled	Downgradient Location
MW-15	Gauged and Sampled	Upgradient Location

Notes:
[a] Well is screened in deep portion of the alluvial aquifer.

Table 2.2

Well Construction Details
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

			Monitoring Well Construction					
Well Identification	Northing	Easting	Ground Surface Elevation (NAVD)	Top of Casing (NAVD)	Total Depth (feet BTOC)	Screen Length (feet)	Top of Screen (NAVD)	Bottom of Screen (NAVD)
MW-1[a]	3585568.1	4151099.3	1,076.2	1079.21	56.1	5	1,028.1	1,023.1
MW-2	3585567.5	4151093.2	1,076.2	1078.96	30.3	15	1,063.7	1,048.7
MW-3[a]	3585568.9	4152099.8	1,074.2	1077.29	58.8	5	1,023.5	1,018.5
MW-4	3585569.5	4152106.0	1,074.2	1077.52	26.7	15	1,065.8	1,050.8
MW-5[a]	3584559.6	4151802.7	1,074.9	1077.15	48.9	5	1,033.3	1,028.3
MW-7[a]	3584540.7	4151128.1	1,075.9	1078.45	50.4	5	1,033.1	1,028.1
MW-8	3584542.1	4151122.5	1,075.8	1078.46	27.6	15	1,065.9	1,050.9
MW-9[a]	3584471.0	4150346.9	1,073.4	1076.20	56.2	5	1,025.0	1,020.0
MW-10	3584472.5	4150352.8	1,073.4	1076.29	25.6	15	1,065.7	1,050.7
MW-11	3585119.7	4150620.1	1,078.7	1081.23	37.1	25	1,069.1	1,044.1
MW-12	3584882.6	4150461.8	1,084.3	1086.79	34.8	10	1,062.0	1,052.0
MW-13	3584757.1	4150325.4	1,083.3	1085.38	35.1	10	1,060.3	1,050.3
MW-14	3585318.7	4150695.4	1,079.2	1081.13	29.8	15	1,066.4	1,051.4
MW-15	3584907.9	4152060.7	1,074.9	1076.86	25.2	15	1,066.7	1,051.7

Notes:
[a] Well is screened in deep portion of the alluvial aquifer.
BTOC - Below top of casing.
NAVD - North American Vertical Datum 1988.

Table 2.3

Monitoring Well Screen Occlusion Evaluation
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Well	Top of Casing Elevation	Total Well Depth Below Top of Casing (feet)	Screen Length (feet)	7-Dec-2015		19-Dec-2016		19-Dec-2017	
				Measured Well Depth (feet)	Percent Screen Occluded	Measured Well Depth (feet)	Percent Screen Occluded	Measured Well Depth (feet)	Percent Screen Occluded
MW-1[a]	1079.21	56.10	5	55.98	2.4%	56.29	-3.8%	56.27	-3.4%
MW-2	1078.96	30.30	15	30.45	-1.0%	30.41	-0.7%	30.46	-1.1%
MW-3[a]	1077.29	58.80	5	58.78	0.4%	59.03	-4.6%	58.87	-1.4%
MW-4	1077.52	26.70	15	26.50	1.3%	26.51	1.3%	26.51	1.3%
MW-5[a]	1077.15	48.90	5	48.91	-0.2%	49.14	-4.8%	49.16	-5.2%
MW-7[a]	1078.45	50.40	5	50.42	-0.4%	50.68	-5.6%	50.69	-5.8%
MW-8	1078.46	27.60	15	27.60	0.0%	27.68	-0.5%	27.73	-0.9%
MW-9[a]	1076.20	56.20	5	55.91	5.8%	56.13	1.4%	56.16	0.8%
MW-10	1076.29	25.60	15	25.75	-1.0%	25.71	-0.7%	25.74	-0.9%
MW-11	1081.23	37.10	25	37.35	-1.0%	37.38	-1.1%	37.39	-1.2%
MW-12	1086.79	34.80	10	34.85	-0.5%	35.19	-3.9%	35.09	-2.9%
MW-13	1085.38	35.10	10	34.65	4.5%	35.30	-2.0%	35.05	0.5%
MW-14	1081.13	29.78	10	29.22	5.6%	29.25	5.3%	29.24	5.4%
MW-15	1076.86	25.19	10	25.19	0.0%	25.20	-0.1%	25.19	0.0%

Notes:
Elevations in feet NAVD88 (North American Vertical Datum 1988).
NM - Not measured.
% - Percent.
[a] Well is screened in deep portion of the alluvial aquifer.

Table 2.4

Appendix III Parameters (Detection Monitoring)
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Analyte	Analytical Method
Boron	EPA 6020A
Calcium	EPA 6020A
Chloride	EPA 9056A
Fluoride	EPA 9056A
pH	SM 4500 H+B
Sulfate	EPA 9056A
Total Dissolved Solids (TDS)	SM 2540C

Table 2.5

Appendix IV Parameters (Assessment Monitoring)
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Analyte	Analytical Method
Antimony	EPA 6020A
Arsenic	EPA 6020A
Barium	EPA 6020A
Beryllium	EPA 6020A
Cadmium	EPA 6020A
Chromium	EPA 6020A
Cobalt	EPA 6020A
Fluoride	EPA 9056A
Lead	EPA 6020A
Lithium	EPA 6010C
Mercury	EPA 7470A
Molybdenum	EPA 6020A
Selenium	EPA 6020A
Thallium	EPA 6020A
Radium 226 and 228 combined	EPA 9315/9320

Table 2.6

Summary of Groundwater Monitoring Events
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

	MW-4 (Upgradient)	MW-15 (Upgradient)	MW-2	MW-8	MW-10	MW-11	MW-12	MW-13	MW-14
Sampling Dates									
December 9, 2015	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
February 29 - March 1, 2016	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
June 6, 2016	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
September 19-20, 2016	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
December 19, 2016	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
February 20-21, 2017	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
April 24-25, 2017	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
July 5, 2017	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
September 11, 2017	Detection	Detection	Detection	Detection	Detection	Detection	Detection	Detection	Detection
Number of Samples									
Appendix III Analytes	9	9	9	9	9	9	9	9	9
Appendix IV Analytes	8	8	8	8	8	8	8	8	8

Notes:
1. Baseline monitoring events included analysis of both Appendix III (Detection Monitoring) and Appendix IV (Assessment Monitoring) analytes.
2. Detection monitoring events include the analysis of Appendix III (Detection Monitoring) analytes only.

Table 3.1

Groundwater Elevation Data
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Well Identification	Top of Casing (feet NAVD88)	Total Depth (feet BTOC)	Groundwater Elevation (feet NAVD88)								
			12/7/2015	2/29/2016	6/6/2016	9/19/2016	12/19/2016	2/20/2017	4/24/2017	7/5/2017	9/11/2017
MW-1[a]	1079.21	56.1	1061.39	1060.01	1061.41	1060.31	1058.66	1057.83	1058.34	1061.23	1060.74
MW-2	1078.96	30.3	1061.38	1060.03	1061.64	1060.29	1058.67	1057.80	1058.51	1061.23	1060.68
MW-3[a]	1077.29	58.8	1062.18	1060.83	1062.36	1060.98	1059.28	1058.53	1059.12	1061.72	1061.27
MW-4	1077.52	26.7	1062.30	1061.01	1062.49	1061.09	1059.39	1058.65	1059.24	1061.83	1061.38
MW-5[a]	1077.15	48.9	1062.03	1060.58	1061.97	1060.76	1059.05	1058.28	1058.93	1061.69	1061.07
MW-7[a]	1078.45	50.4	1061.36	1059.93	1061.38	1060.23	1058.52	1057.74	1058.54	1061.34	1060.65
MW-8	1078.46	27.6	1061.33	1059.85	1061.30	1060.16	1058.43	1057.64	1058.32	1061.23	1060.55
MW-9[a]	1076.20	56.2	1061.25	1059.87	1061.37	1060.25	1058.53	1057.76	1058.72	1061.64	1060.84
MW-10	1076.29	25.6	1060.93	1059.52	1061.04	1059.90	1058.19	1057.44	1058.37	1061.28	1060.51
MW-11	1081.23	37.1	1060.96	1059.58	1061.18	1059.96	1058.26	1057.49	1058.34	1061.08	1060.48
MW-12	1086.79	34.8	1060.76	1059.39	1060.96	1059.83	1058.05	1057.30	1058.20	1061.03	1060.38
MW-13	1085.38	35.1	1060.65	1059.23	1060.80	1059.67	1057.89	1057.16	1058.10	1060.98	1060.27
MW-14	1081.13	29.8	1061.12	1059.76	1061.37	1060.13	1058.46	1057.65	1058.48	1061.20	1060.65
MW-15	1076.86	25.2	1062.52	1061.02	1062.48	1061.13	1059.43	1058.63	1059.22	1061.92	1061.38

Notes:
[a] Well is screened in deep portion of the alluvial aquifer.
BTOC - Below top of casing.
NAVD88 - North American Vertical Datum of 1988.

Table 3.2

Horizontal Gradients and Average Linear Groundwater Flow Velocities
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Date	Horizontal Hydraulic Gradient	Average Linear Groundwater Flow Velocity (meters per day)	Average Linear Groundwater Flow Velocity (feet per year)
7-Dec-2015	0.0011	0.008	10.1
29-Feb-2016	0.0010	0.008	9.4
6-Jun-2016	0.0009	0.007	8.5
19-Sep-2016	0.0008	0.006	7.4
19-Dec-2016	0.0009	0.007	7.9
20-Feb-2017	0.0008	0.006	7.5
24-Apr-2017	0.0006	0.005	5.6
5-Jul-2017	0.0005	0.004	4.8
11-Sep-2017	0.0006	0.005	5.4

Table 4.1
Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Location ID:			***MW-2***	***MW-2***	***MW-2***	***MW-2***	***MW-2***	***MW-2***	***MW-2***	***MW-2***
Sample Date:		***MCL***	***12/9/2015***	***3/1/2016***	***6/6/2016***	***9/20/2016***	***12/19/2016***	***2/20/2017***	***4/25/2017***	***7/5/2017***
Parameters	***Units***									
Appendix III										
Boron	mg/L	-	0.780	1.13	1.33	1.11	1.32	0.815	0.200 U	0.200 U
Calcium	mg/L	-	287	185	200	171	167	158	125	134
Chloride	mg/L	-	6.47	13.5	5.99	11.5	8.57	7.08	28.0	20.4
Fluoride	mg/L	-	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	1.24	0.500 U
pH, lab	s.u.	-	6.88 J	6.99 J	6.74 J	7.2 J	7.0 J	7.0 J	7.2 J	7.1 J
Sulfate	mg/L	-	360	182	178	98.3	105	70.0	49.9	48.0
Total dissolved solids (TDS)	mg/L	-	1280	864	848 J	760	768	734	588	1390
Appendix IV										
Antimony	mg/L	0.006	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Arsenic	mg/L	0.01	0.0509	0.0632	0.0694	0.0539	0.0720	0.0386	0.0214	0.0156
Barium	mg/L	2.0	0.193	0.130	0.136	0.125	0.129	0.137	0.137	0.159
Beryllium	mg/L	0.004	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.005	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Chromium	mg/L	0.1	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	-	0.00331	0.00201	0.00159	0.00175	0.00198	0.00164	0.00144	0.00192
Lead	mg/L	0.015	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Lithium	mg/L	-	0.131	0.100	0.108	0.0889	0.102	0.0821	0.0589	0.0739
Mercury	mg/L	0.002	0.000200 U	0.000200 U	0.000200 U	0.000200 UJ	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	-	0.00266	0.00218	0.00243	0.00242	0.00269	0.00258	0.00200 U	0.00200 U
Radium-226 & 228	pCi/L	5	0.234 U	0.360 U	0.896	0.575	0.791	0.164 U	0.239 U	0.597
Selenium	mg/L	0.05	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Thallium	mg/L	0.002	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Footnotes:

U	Not detected at the associated reporting limit.
J	Estimated concentration.
UJ	Not detected; associated reporting limit is estimated.

Table 4.1
Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Location ID:		***MW-4***	***MW-4***	***MW-4***	***MW-4***	***MW-4***	***MW-4***	***MW-4***	***MW-4***
Sample Date:		***12/9/2015***	***3/1/2016***	***6/6/2016***	***9/20/2016***	***12/19/2016***	***2/20/2017***	***4/24/2017***	***7/5/2017***
Parameters	***Units***								
Appendix III									
Boron	mg/L	3.30	3.49	2.32	1.49	1.32	1.34	0.972	1.05
Calcium	mg/L	366	252	324	378	323	307	279	265
Chloride	mg/L	18.3	5.00 U	15.2	20.1	18.7	16.2	15.8	17.3
Fluoride	mg/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
pH, lab	s.u.	6.87 J	7.00 J	6.73 J	6.8 J	6.9 J	6.8 J	6.9 J	7.0 J
Sulfate	mg/L	996	628	852	975	844	839	681	721
Total dissolved solids (TDS)	mg/L	2340	1830	1960 J	2310	2570	2220	1730	1760
Appendix IV									
Antimony	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Arsenic	mg/L	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Barium	mg/L	0.0275	0.0245	0.0374	0.0364	0.0355	0.0334	0.0364	0.0353
Beryllium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Chromium	mg/L	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	0.00154	0.000500 U	0.000997	0.0104	0.00841	0.00855	0.00791	0.00758
Lead	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Lithium	mg/L	0.254	0.180	0.188	0.195	0.174	0.171	0.146	0.121
Mercury	mg/L	0.000200 U	0.000200 U	0.000200 U	0.000200 UJ	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Radium-226 & 228	pCi/L	0.228 U	0.212 U	0.460	0.829	0.748	0.398	0.375	0.425
Selenium	mg/L	0.00500 U	0.0113	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Thallium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Footnotes:

U	Not detected at the associated reporting limit.
J	Estimated concentration.
UJ	Not detected; associated reporting limit is estimated.

Table 4.1
Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Location ID:		***MW-8***	***MW-8***	***MW-8***	***MW-8***	***MW-8***	***MW-8***	***MW-8***	***MW-8***
Sample Date:		***12/9/2015***	***2/29/2016***	***6/6/2016***	***9/19/2016***	***12/19/2016***	***2/21/2017***	***4/24/2017***	***7/5/2017***
Parameters	***Units***								
Appendix III									
Boron	mg/L	3.44	4.01	1.23	4.91	5.38	4.00	0.712	0.703
Calcium	mg/L	212	204	213	187	198	190	196	167
Chloride	mg/L	5.07	5.90	5.00 U	5.00 U	5.00 U	8.69	5.30	5.00 U
Fluoride	mg/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	2.31	0.500 U	0.500 U
pH, lab	s.u.	7.08 J	7.23 J	7.04 J	7.4 J	7.3 J	7.2 J	7.2 J	7.1 J
Sulfate	mg/L	694	734	313	803	819	690	224	169
Total dissolved solids (TDS)	mg/L	1590	1700	1060 J	1730	1790	1810	1160	1000
Appendix IV									
Antimony	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Arsenic	mg/L	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Barium	mg/L	0.111	0.0862	0.0926	0.0731	0.0736	0.0596	0.0751	0.0778
Beryllium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Chromium	mg/L	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	0.00253	0.00344	0.00303	0.00248	0.00272	0.00211	0.00287	0.00313
Lead	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Lithium	mg/L	0.0950	0.0743	0.106	0.0500 U	0.0585	0.0684	0.111	0.103
Mercury	mg/L	0.000200 U	0.000200 U	0.000200 U	0.000200 UJ	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	0.00589	0.0565	0.0184	0.143	0.0895	0.0398	0.0241	0.0165
Radium-226 & 228	pCi/L	0.535	0.290 U	0.644	0.641	0.657	0.377 U	0.0102 U	0.959
Selenium	mg/L	0.0985	0.0620	0.00500 U	0.0672	0.00768	0.00500 U	0.00500 U	0.00500 U
Thallium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Footnotes:

U	Not detected at the associated reporting limit.
J	Estimated concentration.
UJ	Not detected; associated reporting limit is estimated.

Table 4.1
Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Location ID:		***MW-10***	***MW-10***	***MW-10***	***MW-10***	***MW-10***	***MW-10***	***MW-10***	***MW-10***
Sample Date:		***12/9/2015***	***2/29/2016***	***6/6/2016***	***9/19/2016***	***12/19/2016***	***2/21/2017***	***4/24/2017***	***7/5/2017***
Parameters	***Units***								
Appendix III									
Boron	mg/L	2.24	2.13	1.64	0.953	0.938	0.585	0.515	0.271
Calcium	mg/L	174	174	181	162	146	146	152	154
Chloride	mg/L	5.00 U	5.00 U	5.02	5.59	24.8	11.3	7.81	5.00 U
Fluoride	mg/L	3.43	0.500 U	0.500 U	0.500 U	6.47	2.95	0.500 U	0.500 U
pH, lab	s.u.	6.94 J	7.02 J	6.92 J	7.3 J	7.2 J	7.2 J	7.2 J	7.3 J
Sulfate	mg/L	264	250	189	98.2	36.8	14.3	55.4	134
Total dissolved solids (TDS)	mg/L	1130	1080	988 J	948	948	836	1150	1050
Appendix IV									
Antimony	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Arsenic	mg/L	0.00312	0.00551	0.00200 U	0.00489	0.00938	0.0165	0.0192	0.0136
Barium	mg/L	0.179	0.208	0.111	0.255	0.276	0.399	0.569	0.618
Beryllium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Chromium	mg/L	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	0.00394	0.00311	0.000854	0.00262	0.00197	0.00198	0.00191	0.00138
Lead	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Lithium	mg/L	0.138	0.126	0.117	0.0958	0.0874	0.0619	0.0653	0.0533
Mercury	mg/L	0.000200 U	0.000200 U	0.000200 U	0.000200 UJ	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	0.00346	0.00248	0.00239	0.00292	0.00267	0.00329	0.00296	0.00309
Radium-226 & 228	pCi/L	0.627	0.701	0.256 U	0.530	1.06	0.731	0.740	0.902
Selenium	mg/L	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Thallium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Footnotes:

U	Not detected at the associated reporting limit.
J	Estimated concentration.
UJ	Not detected; associated reporting limit is estimated.

Table 4.1
Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Location ID:		***MW-11***	***MW-11***	***MW-11***	***MW-11***
Sample Date:		***12/9/2015***	***3/1/2016***	***6/6/2016***	***9/20/2016***
Parameters	***Units***				
Appendix III					
Boron	mg/L	0.722 / 0.697	0.322 / 0.368	0.688 J / 0.221 J	0.583 / 0.602
Calcium	mg/L	225 / 222	237 / 243	238 / 255	272 / 279
Chloride	mg/L	12.9 / 14.5	6.37 / 7.24	37.5 / 40.6	16.8 / 17.8
Fluoride	mg/L	0.500 U / 0.500 U	0.500 U / 0.500 U	0.500 U / 0.500 U	0.500 U / 0.500 U
pH, lab	s.u.	6.93 J / 7.00 J	7.02 J / 7.02 J	6.71 J / 6.88 J	7.3 J / 7.1 J
Sulfate	mg/L	303 / 301	315 / 323	240 / 249	352 / 349
Total dissolved solids (TDS)	mg/L	1170 / 1180	1140 / 1190	1070 J / 1100 J	1300 / 1260
Appendix IV					
Antimony	mg/L	0.00100 U / 0.00100 U	0.00100 U / 0.00100 U	0.00100 U / 0.00100 U	0.00100 U / 0.00100 U
Arsenic	mg/L	0.00200 U / 0.00200 U	0.00200 U / 0.00200 U	0.00200 U / 0.00200 U	0.00200 U / 0.00200 U
Barium	mg/L	0.0853 / 0.0864	0.0651 / 0.0757	0.121 / 0.0752	0.0827 / 0.0795
Beryllium	mg/L	0.00100 U / 0.00100 U	0.00100 U / 0.00100 U	0.00100 U / 0.00100 U	0.00100 U / 0.00100 U
Cadmium	mg/L	0.000500 U / 0.000500 U	0.000500 U / 0.000500 U	0.000500 U / 0.000500 U	0.000500 U / 0.000500 U
Chromium	mg/L	0.00500 U / 0.00500 U	0.00500 U / 0.00500 U	0.00500 U / 0.00500 U	0.00500 U / 0.00500 U
Cobalt	mg/L	0.00238 / 0.00240	0.00153 / 0.00182	0.000500 U / 0.000792	0.00155 / 0.00163
Lead	mg/L	0.000500 U / 0.000500 U	0.000500 U / 0.000500 U	0.000500 U / 0.000500 U	0.000500 U / 0.000500 U
Lithium	mg/L	0.132 / 0.120	0.119 / 0.122	0.135 / 0.107	0.131 / 0.136
Mercury	mg/L	0.000200 U / 0.000200 U	0.000200 U / 0.000200 U	0.000200 U / 0.000200 U	0.000200 UJ / 0.000200 UJ
Molybdenum	mg/L	0.00200 U / 0.00200 U	0.00200 U / 0.00200 U	0.00200 U / 0.00200 U	0.00200 U / 0.00200 U
Radium-226 & 228	pCi/L	0.827 U / 0.321 U	0.0494 U / 0.246 U	-0.00864 U / -0.0107 U	-0.0282 U / 0.163 U
Selenium	mg/L	0.00500 U / 0.00500 U	0.00500 U / 0.00500 U	0.0580 J / 0.00609 J	0.00500 U / 0.00500 U
Thallium	mg/L	0.00100 U / 0.00100 U	0.00100 U / 0.00100 U	0.00100 U / 0.00100 U	0.00100 U / 0.00100 U

Footnotes:

U	Not detected at the associated reporting limit.
J	Estimated concentration.
UJ	Not detected; associated reporting limit is estimated.

Table 4.1
Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Location ID:		***MW-11***	***MW-11***	***MW-11***	***MW-11***
Sample Date:		***12/19/2016***	***2/20/2017***	***4/25/2017***	***7/5/2017***
Parameters	***Units***				
Appendix III					
Boron	mg/L	0.524 / 0.504	0.268 / 0.328	0.238 / 0.258	0.243 / 0.241
Calcium	mg/L	237 / 264	240 / 243	239 / 251	225 / 218
Chloride	mg/L	19.1 / 20.0 U	7.39 J / 21.0 J	12.1 / 11.2	5.91 / 6.10
Fluoride	mg/L	2.00 U / 0.500 U	1.20 J / 8.89 J	2.11 J / 3.30 J	0.500 U / 0.500 U
pH, lab	s.u.	7.3 J / 7.0 J	7.0 J / 7.0 J	7.0 J / 6.9 J	7.1 J / 7.0 J
Sulfate	mg/L	309 / 326	339 / 340	321 / 330	354 / 339
Total dissolved solids (TDS)	mg/L	1190 / 1200	1180 / 1210	1300 / 1470	1210 / 1280
Appendix IV					
Antimony	mg/L	0.00100 U / 0.00100 U	0.00100 U / 0.00100 U	0.00100 U / 0.00100 U	0.00100 U / 0.00100 U
Arsenic	mg/L	0.00200 U / 0.00200 U	0.00200 U / 0.00200 U	0.00200 U / 0.00200 U	0.00200 U / 0.00200 U
Barium	mg/L	0.0835 / 0.0767	0.0695 / 0.0703	0.0808 / 0.0824	0.0717 / 0.0694
Beryllium	mg/L	0.00100 U / 0.00100 U	0.00100 U / 0.00100 U	0.00100 U / 0.00100 U	0.00100 U / 0.00100 U
Cadmium	mg/L	0.000500 U / 0.000500 U	0.000500 U / 0.000500 U	0.000500 U / 0.000500 U	0.000500 U / 0.000500 U
Chromium	mg/L	0.00500 U / 0.00500 U	0.00500 U / 0.00500 U	0.00500 U / 0.00500 U	0.00500 U / 0.00500 U
Cobalt	mg/L	0.00212 / 0.00204	0.00271 / 0.00282	0.00279 / 0.00293	0.00331 / 0.00321
Lead	mg/L	0.000500 U / 0.000500 U	0.000500 U / 0.000500 U	0.000500 U / 0.000500 U	0.000500 U / 0.000500 U
Lithium	mg/L	0.127 / 0.132	0.122 / 0.119	0.111 / 0.111	0.120 / 0.121
Mercury	mg/L	0.000200 U / 0.000200 U	0.000200 U / 0.000200 U	0.000200 U / 0.000200 U	0.000200 U / 0.000200 U
Molybdenum	mg/L	0.00200 U / 0.00200 U	0.00200 U / 0.00200 U	0.00200 U / 0.00200 U	0.00200 U / 0.00200 U
Radium-226 & 228	pCi/L	0.217 U / 0.659	0.0507 U / 0.0642 U	0.120 U / 0.0680 U	0.330 / 0.576
Selenium	mg/L	0.00500 U / 0.00500 U	0.00500 U / 0.00500 U	0.00500 U / 0.00500 U	0.00500 U / 0.00500 U
Thallium	mg/L	0.00100 U / 0.00100 U	0.00100 U / 0.00100 U	0.00100 U / 0.00100 U	0.00100 U / 0.00100 U

Footnotes:

U	Not detected at the associated reporting limit.
J	Estimated concentration.
UJ	Not detected; associated reporting limit is estimated.

Table 4.1
Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Location ID:		***MW-12***	***MW-12***	***MW-12***	***MW-12***	***MW-12***	***MW-12***	***MW-12***	***MW-12***
Sample Date:		***12/9/2015***	***3/1/2016***	***6/6/2016***	***9/19/2016***	***12/19/2016***	***2/20/2017***	***4/25/2017***	***7/5/2017***
Parameters	***Units***								
Appendix III									
Boron	mg/L	3.86	5.14	4.78	4.81	5.25	5.39	5.12	1.94
Calcium	mg/L	199	235	287	225	209	199	193	186
Chloride	mg/L	143	149	303	86.3	152	42.1	29.2	10.2
Fluoride	mg/L	0.500 U	0.500 U	0.500 U	0.500 U	21.0	1.78	1.85	0.500 U
pH, lab	s.u.	7.05 J	7.09 J	7.03 J	7.2 J	7.1 J	7.1 J	7.0 J	7.1 J
Sulfate	mg/L	457	511	524	526	563	585	626	446
Total dissolved solids (TDS)	mg/L	1460	1730	1590 J	1440	1800	1600	1960	1360
Appendix IV									
Antimony	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Arsenic	mg/L	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Barium	mg/L	0.0838	0.0577	0.116	0.0509	0.0472	0.0440	0.0472	0.0454
Beryllium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Chromium	mg/L	0.00500 U	0.00500 U	0.0340	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000567	0.00182
Lead	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Lithium	mg/L	0.136	0.109	0.108	0.0871	0.0893	0.0727	0.0814	0.102
Mercury	mg/L	0.000200 U	0.000200 U	0.000200 U	0.000200 UJ	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	0.00200 U	0.00200 U	0.00234	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Radium-226 & 228	pCi/L	0.209 U	0.536	0.448	0.744	0.161 U	0.301 U	0.288 U	0.300 U
Selenium	mg/L	0.0582	0.0674	0.0522	0.0766	0.0728	0.0701	0.0327	0.00500 U
Thallium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Footnotes:

U	Not detected at the associated reporting limit.
J	Estimated concentration.
UJ	Not detected; associated reporting limit is estimated.

Table 4.1
Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Location ID:		***MW-13***	***MW-13***	***MW-13***	***MW-13***	***MW-13***	***MW-13***	***MW-13***	***MW-13***
Sample Date:		***12/9/2015***	***3/1/2016***	***6/6/2016***	***9/19/2016***	***12/19/2016***	***2/20/2017***	***4/25/2017***	***7/5/2017***
Parameters	***Units***								
Appendix III									
Boron	mg/L	0.694	0.726	0.200 U	1.60	1.33	1.21	0.747	1.26
Calcium	mg/L	230	258	194	262	239	264	230	245
Chloride	mg/L	6.18	5.00 U	13.1	15.7	54.9	18.1	17.6	17.5
Fluoride	mg/L	0.500 U	0.500 U	0.775	0.500 U	8.21	0.848	1.89	0.500 U
pH, lab	s.u.	6.90 J	6.98 J	6.91 J	7.1 J	7.1 J	7.0 J	6.9 J	7.0 J
Sulfate	mg/L	352	364	484	344	324	451	461	524
Total dissolved solids (TDS)	mg/L	1220	1280	1500 J	1270	1140	1330	1210	1590
Appendix IV									
Antimony	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Arsenic	mg/L	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00388	0.00223	0.00339	0.00360
Barium	mg/L	0.0530	0.0439	0.161	0.0418	0.0571	0.0477	0.0808	0.0768
Beryllium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Chromium	mg/L	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	0.000796	0.00139	0.000500 U	0.00103	0.00105	0.00187	0.00624	0.00116
Lead	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Lithium	mg/L	0.122	0.116	0.102	0.121	0.110	0.120	0.0830	0.105
Mercury	mg/L	0.000200 U	0.000200 U	0.000200 U	0.000200 UJ	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	0.00200 U	0.00200 U	0.00208	0.00200 U	0.00200 U	0.00200 U	0.00296	0.00235
Radium-226 & 228	pCi/L	1.25	0.493	0.486	0.214 U	0.370 U	0.0861 U	0.389	0.579
Selenium	mg/L	0.0405	0.0624	0.0831	0.0258	0.00616	0.0196	0.00500 U	0.00500 U
Thallium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Footnotes:

U	Not detected at the associated reporting limit.
J	Estimated concentration.
UJ	Not detected; associated reporting limit is estimated.

Table 4.1
Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Location ID:		***MW-14***	***MW-14***	***MW-14***	***MW-14***	***MW-14***	***MW-14***	***MW-14***	***MW-14***
Sample Date:		***12/9/2015***	***3/1/2016***	***6/6/2016***	***9/20/2016***	***12/19/2016***	***2/20/2017***	***4/25/2017***	***7/5/2017***
Parameters	***Units***								
Appendix III									
Boron	mg/L	1.19	1.11	0.593	1.47	1.05	0.883	0.343	0.281
Calcium	mg/L	263	256	246	246	301	270	235	198
Chloride	mg/L	6.40	5.00 U	5.66	5.47	5.00 U	8.67	23.2	8.21
Fluoride	mg/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	2.17	14.9	3.01
pH, lab	s.u.	6.80 J	6.91 J	6.87 J	7.0 J	6.9 J	6.9 J	6.9 J	6.9 J
Sulfate	mg/L	386	346	311	324	274	428	277	220
Total dissolved solids (TDS)	mg/L	1370	1280	1160 J	1300	1810	1600	1220	1030
Appendix IV									
Antimony	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Arsenic	mg/L	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Barium	mg/L	0.133	0.0798	0.0857	0.0656	0.0882	0.0768	0.0695	0.0604
Beryllium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Chromium	mg/L	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	0.00311	0.00278	0.00237	0.00259	0.00465	0.00494	0.00329	0.00327
Lead	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Lithium	mg/L	0.162	0.143	0.129	0.152	0.133	0.142	0.0959	0.105
Mercury	mg/L	0.000200 U	0.000200 U	0.000200 U	0.000200 UJ	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	0.00207	0.00200 U	0.00200 U	0.00200 U	0.00222	0.00222	0.00209	0.00200 U
Radium-226 & 228	pCi/L	1.79	0.597	0.789	0.879	1.05	0.559	0.324	0.557
Selenium	mg/L	0.0148	0.0216	0.0146	0.0289	0.0126	0.00695	0.00500 U	0.00500 U
Thallium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Footnotes:

U	Not detected at the associated reporting limit.
J	Estimated concentration.
UJ	Not detected; associated reporting limit is estimated.

Table 4.1
Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Location ID:		***MW-15***	***MW-15***	***MW-15***	***MW-15***	***MW-15***	***MW-15***	***MW-15***	***MW-15***
Sample Date:		***12/9/2015***	***2/29/2016***	***6/6/2016***	***9/19/2016***	***12/19/2016***	***2/21/2017***	***4/24/2017***	***7/5/2017***
Parameters	***Units***								
Appendix III									
Boron	mg/L	2.88	2.92	2.31	2.69	3.05	2.88	1.72	1.33
Calcium	mg/L	188	196	231	256	264	244	212	187
Chloride	mg/L	8.00	7.87	8.63	5.00 U	5.87	9.35	14.8	16.7
Fluoride	mg/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	1.90	0.913	0.500 U
pH, lab	s.u.	6.80 J	6.93 J	6.78 J	6.9 J	7.0 J	6.9 J	6.9 J	6.9 J
Sulfate	mg/L	501	515	642	520	507	538	316	293
Total dissolved solids (TDS)	mg/L	1580	1560	1580 J	1570	1970	2000	1310	1020
Appendix IV									
Antimony	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Arsenic	mg/L	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00286	0.00200 U	0.00200 U
Barium	mg/L	0.0583	0.0450	0.0428	0.0453	0.0683	0.0737	0.0611	0.0528
Beryllium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Chromium	mg/L	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	0.00212	0.00188	0.00165	0.00213	0.00212	0.00561	0.00199	0.00227
Lead	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Lithium	mg/L	0.0652	0.0541	0.0540	0.0701	0.0923	0.0814	0.0847	0.0919
Mercury	mg/L	0.000200 U	0.000200 U	0.000200 U	0.000200 UJ	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Radium-226 & 228	pCi/L	0.894	0.300 U	0.454	0.282 U	0.506 U	0.931	0.385	0.691
Selenium	mg/L	0.00500 U	0.00799	0.00657	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Thallium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Footnotes:

U	Not detected at the associated reporting limit.
J	Estimated concentration.
UJ	Not detected; associated reporting limit is estimated.

Table 4.2

September 2017 Detection Monitoring Analytical Results Summary
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Location ID:		MW-2	MW-4	MW-8	MW-10	MW-11	MW-11	MW-12	MW-13	MW-14	MW-15
Sample Date:		**09/11/2017**	**09/11/2017**	**09/11/2017**	**09/11/2017**	**09/11/2017**	**09/11/2017**	**09/11/2017**	**09/11/2017**	**09/11/2017**	**09/11/2017**
							Duplicate				
Parameters	**Units**										
Appendix III											
Boron	mg/L	0.583	0.898	2.80	0.336	0.431	0.477	4.34	1.19	1.36	2.58
Calcium	mg/L	151	245	208	152	252	246	233	286	238	195
Chloride	mg/L	12.1	18.6	5.60	5.77	8.91	8.54	180	21.3	5.00 U	10.5
Fluoride	mg/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
pH, lab	s.u.	7.0 J	6.9 J	7.2 J	7.3 J	7.0 J	6.9 J	7.1 J	6.9 J	7.0 J	6.9 J
Sulfate	mg/L	82.3	608	489	64.1	368	370	508	485	357	422
Total dissolved solids (TDS)	mg/L	740	1860	1610	1040	1350	1310	1990	1770	1420	1370

Notes:

U - Not detected at the associated reporting limit.

J - Estimated concentration.

Table 4.3

Baseline Period Statistical Trend Test Results
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Well	Analyte	Units	Date Range	All Data: Number of Samples	All Data: Percent ND	Trend Test Data: Summary Statistics: N	% ND	Min.	Mean/ Median[1]	Max.	Trend Test Results: Method	Stat.	Prob.	Conclusion	Sen's Slope	Comments
MW-2	***Appendix III***															
	Boron	mg/L	12/9/2015 - 7/5/2017	8	25%	8	25%	0.200 U	0.86	1.33	Mann-Kendall	-11	0.212	No trend identified	--	
	Calcium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	125	178	287	Mann-Kendall	-24	0.004	**Decreasing Trend**	-0.168	
	Chloride	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	5.99	12.7	28	Mann-Kendall	10	0.266	No trend identified	--	
	Fluoride	mg/L	12/9/2015 - 7/5/2017	8	88%	8	88%	0.500 U	0.5 U	1.24	> 50% Non-detect	--	--	--	--	
	pH, lab	s.u.	12/9/2015 - 7/5/2017	8	0%	8	0%	6.74 J	7.01	7.2 J	Mann-Kendall	14	0.105	No trend identified	--	
	Sulfate	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	48	136	360	Mann-Kendall	-26	0.002	**Decreasing Trend**	-0.351	
	Total dissolved solids (TDS)	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	588	904	1390	Mann-Kendall	-12	0.174	No trend identified	--	
	Appendix IV															
	Antimony	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	
	Arsenic	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.0156	0.0481	0.072	Mann-Kendall	-12	0.174	No trend identified	--	
	Barium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.125	0.143	0.193	Mann-Kendall	5	0.618	No trend identified	--	
	Beryllium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	
	Cadmium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000500 U	0.0005 U	0.000500 U	Not Detected	--	--	--	--	
	Chromium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00500 U	0.005 U	0.00500 U	Not Detected	--	--	--	--	
	Cobalt	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.00144	0.00195	0.00331	Mann-Kendall	-12	0.174	No trend identified	--	
	Lead	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000500 U	0.0005 U	0.000500 U	Not Detected	--	--	--	--	
	Lithium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.0589	0.0931	0.131	Mann-Kendall	-20	0.019	**Decreasing Trend**	-9.9E-05	
	Mercury	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000200 U	0.0002 U	0.000200 U	Not Detected	--	--	--	--	
	Molybdenum	mg/L	12/9/2015 - 7/5/2017	8	25%	8	25%	0.00200 U	0.00237	0.00269	Mann-Kendall	-9	0.319	No trend identified	--	
	Radium-226 & 228	pCi/L	12/9/2015 - 7/5/2017	8	50%	8	50%	0.164 U	0.439	0.896	Mann-Kendall	2	0.894	No trend identified	--	
	Selenium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00500 U	0.005 U	0.00500 U	Not Detected	--	--	--	--	
	Thallium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	
MW-4	***Appendix III***															
	Boron	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.972	1.91	3.49	Mann-Kendall	-22	0.009	**Decreasing Trend**	-0.00433	
	Calcium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	252	312	378	Mann-Kendall	-12	0.174	No trend identified	--	
	Chloride	mg/L	12/9/2015 - 7/5/2017	8	13%	8	13%	5.00 U	15.8	20.1	Mann-Kendall	2	0.902	No trend identified	--	
	Fluoride	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.500 U	0.5 U	0.500 U	Not Detected	--	--	--	--	
	pH, lab	s.u.	12/9/2015 - 7/5/2017	8	0%	8	0%	6.73 J	6.88	7.00 J	Mann-Kendall	7	0.451	No trend identified	--	
	Sulfate	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	628	817	996	Mann-Kendall	-12	0.174	No trend identified	--	
	Total dissolved solids (TDS)	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	1730	2090	2570	Mann-Kendall	-8	0.386	No trend identified	--	
	Appendix IV															
	Antimony	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	
	Arsenic	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00200 U	0.002 U	0.00200 U	Not Detected	--	--	--	--	
	Barium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.0245	0.0333	0.0374	Mann-Kendall	3	0.803	No trend identified	--	
	Beryllium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	
	Cadmium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000500 U	0.0005 U	0.000500 U	Not Detected	--	--	--	--	
	Chromium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00500 U	0.005 U	0.00500 U	Not Detected	--	--	--	--	
	Cobalt	mg/L	12/9/2015 - 7/5/2017	8	13%	8	13%	0.000500 U	0.00574	0.0104	Mann-Kendall	6	0.536	No trend identified	--	
	Lead	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000500 U	0.0005 U	0.000500 U	Not Detected	--	--	--	--	
	Lithium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.121	0.179	0.254	Mann-Kendall	-22	0.009	**Decreasing Trend**	-1.98E-04	
	Mercury	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000200 U	0.0002 U	0.000200 U	Not Detected	--	--	--	--	
	Molybdenum	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00200 U	0.002 U	0.00200 U	Not Detected	--	--	--	--	
	Radium-226 & 228	pCi/L	12/9/2015 - 7/5/2017	8	25%	8	25%	0.212 U	0.457	0.829	Mann-Kendall	5	0.618	No trend identified	--	
	Selenium	mg/L	12/9/2015 - 7/5/2017	8	88%	8	88%	0.00500 U	0.005 U	0.0113	> 50% Non-detect	--	--	--	--	
	Thallium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	

Table 4.3

Baseline Period Statistical Trend Test Results
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Well	Analyte	Units	Date Range	All Data: Number of Samples	All Data: Percent ND	Trend Test Data: Summary Statistics: N	% ND	Min.	Mean/ Median[1]	Max.	Trend Test Results: Method	Stat.	Prob.	Conclusion	Sen's Slope	Comments
MW-8	***Appendix III***															
	Boron	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.703	3.05	5.38	Mann-Kendall	-8	0.386	No trend identified	--	
	Calcium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	167	196	213	Mann-Kendall	-16	0.063	No trend identified	--	May be decreasing (90% confidence)
	Chloride	mg/L	12/9/2015 - 7/5/2017	8	50%	8	50%	5.00 U	5.62	8.69	Mann-Kendall	-2	0.894	No trend identified	--	
	Fluoride	mg/L	12/9/2015 - 7/5/2017	8	88%	8	88%	0.500 U	0.5 U	2.31	> 50% Non-detect	--	--	--	--	
	pH, lab	s.u.	12/9/2015 - 7/5/2017	8	0%	8	0%	7.04 J	7.19	7.4 J	Mann-Kendall	-1	1.000	No trend identified	--	
	Sulfate	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	169	556	819	Mann-Kendall	-10	0.266	No trend identified	--	
	Total dissolved solids (TDS)	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	1000	1480	1810	Mann-Kendall	0	1.000	No trend identified	--	
	Appendix IV															
	Antimony	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	
	Arsenic	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00200 U	0.002 U	0.00200 U	Not Detected	--	--	--	--	
	Barium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.0596	0.0811	0.111	Mann-Kendall	-10	0.266	No trend identified	--	
	Beryllium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	
	Cadmium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000500 U	0.0005 U	0.000500 U	Not Detected	--	--	--	--	
	Chromium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00500 U	0.005 U	0.00500 U	Not Detected	--	--	--	--	
	Cobalt	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.00211	0.00279	0.00344	Mann-Kendall	0	1.000	No trend identified	--	
	Lead	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000500 U	0.0005 U	0.000500 U	Not Detected	--	--	--	--	
	Lithium	mg/L	12/9/2015 - 7/5/2017	8	13%	8	13%	0.0500 U	0.0833	0.111	Mann-Kendall	4	0.711	No trend identified	--	
	Mercury	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000200 U	0.0002 U	0.000200 U	Not Detected	--	--	--	--	
	Molybdenum	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.00589	0.0492	0.143	Mann-Kendall	-2	0.902	No trend identified	--	
	Radium-226 & 228	pCi/L	12/9/2015 - 7/5/2017	8	38%	8	38%	0.0102 U	0.433	0.959	Mann-Kendall	5	0.610	No trend identified	--	
	Selenium	mg/L	12/9/2015 - 7/5/2017	8	50%	8	50%	0.00500 U	0.0319	0.0985	Mann-Kendall	-16	0.046	**Decreasing Trend**	-1.26E-04	
	Thallium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	
MW-10	***Appendix III***															
	Boron	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.271	1.16	2.24	Mann-Kendall	-28	0.001	**Decreasing Trend**	-0.00347	
	Calcium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	146	161	181	Mann-Kendall	-12	0.167	No trend identified	--	
	Chloride	mg/L	12/9/2015 - 7/5/2017	8	38%	8	38%	5.00 U	8.69	24.8	Mann-Kendall	9	0.308	No trend identified	--	
	Fluoride	mg/L	12/9/2015 - 7/5/2017	8	63%	8	63%	0.500 U	0.5 U	6.47	> 50% Non-detect	--	--	--	--	
	pH, lab	s.u.	12/9/2015 - 7/5/2017	8	0%	8	0%	6.92 J	7.14	7.3 J	Mann-Kendall	14	0.098	No trend identified	--	May be increasing (90% confidence)
	Sulfate	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	14.3	130	264	Mann-Kendall	-16	0.063	No trend identified	--	May be decreasing (90% confidence)
	Total dissolved solids (TDS)	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	836	1016	1150	Mann-Kendall	-7	0.454	No trend identified	--	
	Appendix IV															
	Antimony	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	
	Arsenic	mg/L	12/9/2015 - 7/5/2017	8	13%	8	13%	0.00200 U	0.00928	0.0192	Mann-Kendall	18	0.035	**Increasing Trend**	2.98E-05	
	Barium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.111	0.327	0.618	Mann-Kendall	24	0.004	**Increasing Trend**	8.38E-04	
	Beryllium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	
	Cadmium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000500 U	0.0005 U	0.000500 U	Not Detected	--	--	--	--	
	Chromium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00500 U	0.005 U	0.00500 U	Not Detected	--	--	--	--	
	Cobalt	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.000854	0.00222	0.00394	Mann-Kendall	-16	0.063	No trend identified	--	May be decreasing (90% confidence)
	Lead	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000500 U	0.0005 U	0.000500 U	Not Detected	--	--	--	--	
	Lithium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.0533	0.0931	0.138	Mann-Kendall	-26	0.002	**Decreasing Trend**	-1.48E-04	
	Mercury	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000200 U	0.0002 U	0.000200 U	Not Detected	--	--	--	--	
	Molybdenum	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.00239	0.00291	0.00346	Mann-Kendall	6	0.536	No trend identified	--	
	Radium-226 & 228	pCi/L	12/9/2015 - 7/5/2017	8	13%	8	13%	0.256 U	0.693	1.06	Mann-Kendall	14	0.108	No trend identified	--	
	Selenium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00500 U	0.005 U	0.00500 U	Not Detected	--	--	--	--	
	Thallium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	

Table 4.3

Baseline Period Statistical Trend Test Results
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Well	Analyte	Units	Date Range	All Data: Number of Samples	All Data: Percent ND	Trend Test Data: Summary Statistics: N	% ND	Min.	Mean/ Median[1]	Max.	Trend Test Results: Method	Stat.	Prob.	Conclusion	Sen's Slope	Comments
MW-11	***Appendix III***															
	Boron	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.242	0.425	0.7095	Mann-Kendall	-18	0.035	**Decreasing Trend**	-0.000622	
	Calcium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	221.5	243	275.5	Mann-Kendall	0	1.000	No trend identified	--	
	Chloride	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	6.005	16.0	39.05	Mann-Kendall	-8	0.386	No trend identified	--	
	Fluoride	mg/L	12/9/2015 - 7/5/2017	8	75%	8	75%	ND(0.5)	0.5 U	5.045	> 50% Non-detect	--	--	--	--	
	pH, lab	s.u.	12/9/2015 - 7/5/2017	8	0%	8	0%	6.795	7.02	7.2	Mann-Kendall	2	0.902	No trend identified	--	
	Sulfate	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	244.5	318	350.5	Mann-Kendall	12	0.174	No trend identified	--	
	Total dissolved solids (TDS)	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	1085	1216	1385	Mann-Kendall	13	0.135	No trend identified	--	
	Appendix IV															
	Antimony	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	ND(0.001)	0.001 U	ND(0.001)	Not Detected	--	--	--	--	
	Arsenic	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	ND(0.002)	0.002 U	ND(0.002)	Not Detected	--	--	--	--	
	Barium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.0699	0.0797	0.0981	Mann-Kendall	-8	0.386	No trend identified	--	
	Beryllium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	ND(0.001)	0.001 U	ND(0.001)	Not Detected	--	--	--	--	
	Cadmium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	ND(0.0005)	0.0005 U	ND(0.0005)	Not Detected	--	--	--	--	
	Chromium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	ND(0.005)	0.005 U	ND(0.005)	Not Detected	--	--	--	--	
	Cobalt	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.000792	0.00218	0.00326	Mann-Kendall	16	0.063	No trend identified	--	May be increasing (90% confidence)
	Lead	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	ND(0.0005)	0.0005 U	ND(0.0005)	Not Detected	--	--	--	--	
	Lithium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.111	0.123	0.1335	Mann-Kendall	-9	0.308	No trend identified	--	
	Mercury	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	ND(0.0002)	0.0002 U	ND(0.0002)	Not Detected	--	--	--	--	
	Molybdenum	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	ND(0.002)	0.002 U	ND(0.002)	Not Detected	--	--	--	--	
	Radium-226 & 228	pCi/L	12/9/2015 - 7/5/2017	8	75%	8	75%	ND(-0.00967)	0.121 U	0.659	> 50% Non-detect	--	--	--	--	
	Selenium	mg/L	12/9/2015 - 7/5/2017	8	88%	8	88%	ND(0.005)	0.005 U	0.032045	> 50% Non-detect	--	--	--	--	
	Thallium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	ND(0.001)	0.001 U	ND(0.001)	Not Detected	--	--	--	--	
MW-12	***Appendix III***															
	Boron	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	1.94	4.54	5.39	Mann-Kendall	4	0.711	No trend identified	--	
	Calcium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	186	217	287	Mann-Kendall	-17	0.046	**Decreasing Trend**	-0.100	
	Chloride	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	10.2	114	303	Mann-Kendall	-16	0.063	No trend identified	--	May be decreasing (90% confidence)
	Fluoride	mg/L	12/9/2015 - 7/5/2017	8	63%	8	63%	0.500 U	0.5 U	21	> 50% Non-detect	--	--	--	--	
	pH, lab	s.u.	12/9/2015 - 7/5/2017	8	0%	8	0%	7.0 J	7.08	7.2 J	Mann-Kendall	3	0.799	No trend identified	--	
	Sulfate	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	446	530	626	Mann-Kendall	14	0.108	No trend identified	--	
	Total dissolved solids (TDS)	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	1360	1618	1960	Mann-Kendall	2	0.902	No trend identified	--	
	Appendix IV															
	Antimony	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	
	Arsenic	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00200 U	0.002 U	0.00200 U	Not Detected	--	--	--	--	
	Barium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.044	0.0615	0.116	Mann-Kendall	-19	0.025	**Decreasing Trend**	-4E-05	
	Beryllium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	
	Cadmium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000500 U	0.0005 U	0.000500 U	Not Detected	--	--	--	--	
	Chromium	mg/L	12/9/2015 - 7/5/2017	8	88%	8	88%	0.00500 U	0.005 U	0.034	> 50% Non-detect	--	--	--	--	
	Cobalt	mg/L	12/9/2015 - 7/5/2017	8	75%	8	75%	0.000500 U	0.0005 U	0.00182	> 50% Non-detect	--	--	--	--	
	Lead	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000500 U	0.0005 U	0.000500 U	Not Detected	--	--	--	--	
	Lithium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.0727	0.0982	0.136	Mann-Kendall	-16	0.063	No trend identified	--	May be decreasing (90% confidence)
	Mercury	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000200 U	0.0002 U	0.000200 U	Not Detected	--	--	--	--	
	Molybdenum	mg/L	12/9/2015 - 7/5/2017	8	88%	8	88%	0.00200 U	0.002 U	0.00234	> 50% Non-detect	--	--	--	--	
	Radium-226 & 228	pCi/L	12/9/2015 - 7/5/2017	8	63%	8	63%	0.161 U	0.301 U	0.744	> 50% Non-detect	--	--	--	--	
	Selenium	mg/L	12/9/2015 - 7/5/2017	8	13%	8	13%	0.00500 U	0.0544	0.0766	Mann-Kendall	-8	0.386	No trend identified	--	
	Thallium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	

Table 4.3

Baseline Period Statistical Trend Test Results
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Well	Analyte	Units	Date Range	All Data: Number of Samples	All Data: Percent ND	Trend Test Data: Summary Statistics: N	% ND	Min.	Mean/ Median[1]	Max.	Trend Test Results: Method	Stat.	Prob.	Conclusion	Sen's Slope	Comments
MW-13	***Appendix III***															
	Boron	mg/L	12/9/2015 - 7/5/2017	8	13%	8	13%	0.200 U	0.97	1.6	Mann-Kendall	8	0.386	No trend identified	--	
	Calcium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	194	240	264	Mann-Kendall	5	0.618	No trend identified	--	
	Chloride	mg/L	12/9/2015 - 7/5/2017	8	13%	8	13%	5.00 U	18.5	54.9	Mann-Kendall	14	0.108	No trend identified	--	
	Fluoride	mg/L	12/9/2015 - 7/5/2017	8	50%	8	50%	0.500 U	1.72	8.21	Mann-Kendall	8	0.352	No trend identified	--	
	pH, lab	s.u.	12/9/2015 - 7/5/2017	8	0%	8	0%	6.90 J	6.99	7.1 J	Mann-Kendall	5	0.615	No trend identified	--	
	Sulfate	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	324	413	524	Mann-Kendall	10	0.266	No trend identified	--	
	Total dissolved solids (TDS)	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	1140	1318	1590	Mann-Kendall	4	0.711	No trend identified	--	
	Appendix IV															
	Antimony	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	
	Arsenic	mg/L	12/9/2015 - 7/5/2017	8	50%	8	50%	0.00200 U	0.00264	0.00388	Mann-Kendall	16	0.046	**Increasing Trend**	2.78E-06	
	Barium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.0418	0.0703	0.161	Mann-Kendall	6	0.536	No trend identified	--	
	Beryllium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	
	Cadmium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000500 U	0.0005 U	0.000500 U	Not Detected	--	--	--	--	
	Chromium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00500 U	0.005 U	0.00500 U	Not Detected	--	--	--	--	
	Cobalt	mg/L	12/9/2015 - 7/5/2017	8	13%	8	13%	0.000500 U	0.00175	0.00624	Mann-Kendall	14	0.108	No trend identified	--	
	Lead	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000500 U	0.0005 U	0.000500 U	Not Detected	--	--	--	--	
	Lithium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.083	0.110	0.122	Mann-Kendall	-12	0.174	No trend identified	--	
	Mercury	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000200 U	0.0002 U	0.000200 U	Not Detected	--	--	--	--	
	Molybdenum	mg/L	12/9/2015 - 7/5/2017	8	63%	8	63%	0.00200 U	0.002	0.00296	> 50% Non-detect	--	--	--	--	
	Radium-226 & 228	pCi/L	12/9/2015 - 7/5/2017	8	38%	8	38%	0.0861 U	0.432	1.25	Mann-Kendall	-7	0.445	No trend identified	--	
	Selenium	mg/L	12/9/2015 - 7/5/2017	8	25%	8	25%	0.00500 U	0.0309	0.0831	Mann-Kendall	-19	0.025	**Decreasing Trend**	-9.34E-05	
	Thallium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	
MW-14	***Appendix III***															
	Boron	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.281	0.865	1.47	Mann-Kendall	-18	0.035	**Decreasing Trend**	-0.00163	
	Calcium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	198	252	301	Mann-Kendall	-11	0.212	No trend identified	--	
	Chloride	mg/L	12/9/2015 - 7/5/2017	8	25%	8	25%	5.00 U	8.45	23.2	Mann-Kendall	9	0.319	No trend identified	--	
	Fluoride	mg/L	12/9/2015 - 7/5/2017	8	63%	8	63%	0.500 U	0.5 U	14.9	> 50% Non-detect	--	--	--	--	
	pH, lab	s.u.	12/9/2015 - 7/5/2017	8	0%	8	0%	6.80 J	6.90	7.0 J	Mann-Kendall	4	0.690	No trend identified	--	
	Sulfate	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	220	321	428	Mann-Kendall	-14	0.108	No trend identified	--	
	Total dissolved solids (TDS)	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	1030	1346	1810	Mann-Kendall	-6	0.536	No trend identified	--	
	Appendix IV															
	Antimony	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	
	Arsenic	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00200 U	0.002 U	0.00200 U	Not Detected	--	--	--	--	
	Barium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.0604	0.0824	0.133	Mann-Kendall	-16	0.063	No trend identified	--	May be decreasing (90% confidence)
	Beryllium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	
	Cadmium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000500 U	0.0005 U	0.000500 U	Not Detected	--	--	--	--	
	Chromium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00500 U	0.005 U	0.00500 U	Not Detected	--	--	--	--	
	Cobalt	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.00237	0.00338	0.00494	Mann-Kendall	8	0.386	No trend identified	--	
	Lead	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000500 U	0.0005 U	0.000500 U	Not Detected	--	--	--	--	
	Lithium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.0959	0.133	0.162	Mann-Kendall	-16	0.063	No trend identified	--	May be decreasing (90% confidence)
	Mercury	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000200 U	0.0002 U	0.000200 U	Not Detected	--	--	--	--	
	Molybdenum	mg/L	12/9/2015 - 7/5/2017	8	50%	8	50%	0.00200 U	0.00208	0.00222	Mann-Kendall	3	0.790	No trend identified	--	
	Radium-226 & 228	pCi/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.324	0.818	1.79	Mann-Kendall	-14	0.108	No trend identified	--	
	Selenium	mg/L	12/9/2015 - 7/5/2017	8	25%	8	25%	0.00500 U	0.0137	0.0289	Mann-Kendall	-19	0.025	**Decreasing Trend**	-3E-05	
	Thallium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	

Table 4.3

Baseline Period Statistical Trend Test Results
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Well	Analyte	Units	Date Range	All Data: Number of Samples	All Data: Percent ND	Trend Test Data: Summary Statistics: N	% ND	Min.	Mean/ Median[(1)]	Max.	Trend Test Results: Method	Stat.	Prob.	Conclusion	Sen's Slope	Comments
MW-15	***Appendix III***															
	Boron	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	1.33	2.47	3.05	Mann-Kendall	-11	0.212	No trend identified	--	
	Calcium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	187	222	264	Mann-Kendall	2	0.902	No trend identified	--	
	Chloride	mg/L	12/9/2015 - 7/5/2017	8	13%	8	13%	5.00 U	9.53	16.7	Mann-Kendall	14	0.108	No trend identified	--	
	Fluoride	mg/L	12/9/2015 - 7/5/2017	8	75%	8	75%	0.500 U	0.5 U	1.9	> 50% Non-detect	--	--	--	--	
	pH, lab	s.u.	12/9/2015 - 7/5/2017	8	0%	8	0%	6.78 J	6.89	7.0 J	Mann-Kendall	4	0.690	No trend identified	--	
	Sulfate	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	293	479	642	Mann-Kendall	-8	0.386	No trend identified	--	
	Total dissolved solids (TDS)	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	1020	1574	2000	Mann-Kendall	-5	0.618	No trend identified	--	
	Appendix IV															
	Antimony	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	
	Arsenic	mg/L	12/9/2015 - 7/5/2017	8	88%	8	88%	0.00200 U	0.002 U	0.00286	> 50% Non-detect	--	--	--	--	
	Barium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.0428	0.0559	0.0737	Mann-Kendall	8	0.386	No trend identified	--	
	Beryllium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	
	Cadmium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000500 U	0.0005 U	0.000500 U	Not Detected	--	--	--	--	
	Chromium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00500 U	0.005 U	0.00500 U	Not Detected	--	--	--	--	
	Cobalt	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.00165	0.00247	0.00561	Mann-Kendall	9	0.319	No trend identified	--	
	Lead	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000500 U	0.0005 U	0.000500 U	Not Detected	--	--	--	--	
	Lithium	mg/L	12/9/2015 - 7/5/2017	8	0%	8	0%	0.054	0.0742	0.0923	Mann-Kendall	16	0.063	No trend identified	--	May be decreasing (90% confidence)
	Mercury	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.000200 U	0.0002 U	0.000200 U	Not Detected	--	--	--	--	
	Molybdenum	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00200 U	0.002 U	0.00200 U	Not Detected	--	--	--	--	
	Radium-226 & 228	pCi/L	12/9/2015 - 7/5/2017	7	29%	7	29%	0.282 U	0.560	0.931	Mann-Kendall	2	0.879	No trend identified	--	
	Selenium	mg/L	12/9/2015 - 7/5/2017	8	75%	8	75%	0.00500 U	0.005 U	0.00799	> 50% Non-detect	--	--	--	--	
	Thallium	mg/L	12/9/2015 - 7/5/2017	8	100%	8	100%	0.00100 U	0.001 U	0.00100 U	Not Detected	--	--	--	--	

Note:
(1) Mean values are calculated for data sets containing up to 50 percent non-detects. Medians for data sets containing greater than 50 percent non-detects. The Kaplan-Meier method was used during mean calculations for data sets containing non-detects.

Table 4.4

Inter-Well Comparison Values
(Statistical Upper Tolerance Limits based on Data from Upgradient Wells)
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Well	Analyte	Number of Samples	Percent ND	Summary Statistics Min.	Summary Statistics Max.	Statistical Outliers	Data Distribution	UTL Method	95/95 UTL	99/95 UTL
Upgradient Wells (Pooled MW-4 and MW-15 data)										
	Appendix III									
	Boron	16	0%	0.972	3.49		Normal	Normal	4	5
	Calcium	16	0%	187	378		Normal	Normal	417	473
	Chloride	16	13%	5.00 U	20.1		Approx. Normal	Normal (KM)	25.8	30.6
	Fluoride	16	88%	0.500 U	1.9		--	Non-parametric	1.90	1.90
	pH, lab	16	0%	6.73 J	7.00 J		Normal	Normal	7.12	7.19
	- lower limit								6.64	6.57
	Sulfate	16	0%	293	996		Normal	Normal	1183	1383
	Total dissolved solids (TDS)	16	0%	1020	2570		Normal	Normal	2854	3235
	Appendix IV									
	Antimony	16	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U
	Arsenic	16	94%	0.00200 U	0.00286		--	Non-parametric	0.00286	0.00286
	Barium	16	0%	0.0245	0.0737		Normal	Normal	0.081	0.095
	Beryllium	16	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U
	Cadmium	16	100%	0.000500 U	0.000500 U		--	Detection limit	0.000500 U	0.000500 U
	Chromium	16	100%	0.00500 U	0.00500 U		--	Detection limit	0.00500 U	0.00500 U
	Cobalt	16	6%	0.000500 U	0.0104		Not Normal	Non-parametric	0.01040	0.01040
	Lead	16	100%	0.000500 U	0.000500 U		--	Detection limit	0.000500 U	0.000500 U
	Lithium	16	0%	0.054	0.254		Normal	Normal	0.280	0.338
	Mercury	16	100%	0.000200 U	0.000200 U		--	Detection limit	0.000200 U	0.000200 U
	Molybdenum	16	100%	0.00200 U	0.00200 U		--	Detection limit	0.00200 U	0.00200 U
	Radium-226 & 228	16	31%	0.212 U	0.931		Normal	Normal (KM)	1.11	1.34
	Selenium	16	81%	0.00500 U	0.0113		--	Non-parametric	0.01130	0.01130
	Thallium	16	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U

Note:
Non-Parametric UTLs with 16 upgradient background samples have a coverage of only 0.78 (i.e., 78th percentile) at 95 percent confidence.

Intra-Well Comparison Values
(Statistical Upper Tolerance Limits based on Baseline Period Data at each well)
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Well	Analyte	Number of Samples	Percent ND	Summary Statistics Min.	Summary Statistics Max.	Statistical Outliers	Data Distribution	UTL Method	95/95 UTL	99/95 UTL
MW-2										
	Appendix III									
	Boron	8	25%	0.200 U	1.33		Normal	Normal (KM)	2.22	2.71
	Calcium	8	0%	125	287		***<< Decreasing trend present in baseline -- UTL not calculated >>***			
	Chloride	8	0%	5.99	28		Normal	Normal	37.6	46.7
	Fluoride	8	88%	0.500 U	1.24		--	Non-parametric	1.24	1.24
	pH, lab	8	0%	6.74 J	7.2 J		Normal	Normal	7.59	7.76
	- lower limit								6.43	6.27
	Sulfate	8	0%	48	360		***<< Decreasing trend present in baseline -- UTL not calculated >>***			
	Total dissolved solids (TDS)	8	0%	588	1390		Normal	Normal	1798	2125
	Appendix IV									
	Antimony	8	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U
	Arsenic	8	0%	0.0156	0.072		Normal	Normal	0.116	0.141
	Barium	8	0%	0.125	0.193		Not Normal	Non-parametric	0.193	0.193
	Beryllium	8	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U
	Cadmium	8	100%	0.000500 U	0.000500 U		--	Detection limit	0.000500 U	0.000500 U
	Chromium	8	100%	0.00500 U	0.00500 U		--	Detection limit	0.00500 U	0.00500 U
	Cobalt	8	0%	0.00144	0.00331		Approx. Gamma	WH Approx. Gamma	0.00405	0.00512
	Lead	8	100%	0.000500 U	0.000500 U		--	Detection limit	0.000500 U	0.000500 U
	Lithium	8	0%	0.0589	0.131		***<< Decreasing trend present in baseline -- UTL not calculated >>***			
	Mercury	8	100%	0.000200 U	0.000200 U		--	Detection limit	0.000200 U	0.000200 U
	Molybdenum	8	25%	0.00200 U	0.00269		Normal	Normal (KM)	0.00326	0.00359
	Radium-226 & 228	8	50%	0.164 U	0.896		Normal	Normal (KM)	1.355	1.675
	Selenium	8	100%	0.00500 U	0.00500 U		--	Detection limit	0.00500 U	0.00500 U
	Thallium	8	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U

Intra-Well Comparison Values
(Statistical Upper Tolerance Limits based on Baseline Period Data at each well)
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Well	Analyte	Number of Samples	Percent ND	Summary Statistics Min.	Summary Statistics Max.	Statistical Outliers	Data Distribution	UTL Method	95/95 UTL	99/95 UTL
MW-4										
	Appendix III									
	Boron	8	0%	0.972	3.49		*<< Decreasing trend present in baseline -- UTL not calculated >>*			
	Calcium	8	0%	252	378		Normal	Normal	456.6	509.6
	Chloride	8	13%	5.00 U	20.1		Not Normal	Non-parametric	20.10	20.10
	Fluoride	8	100%	0.500 U	0.500 U		--	Detection limit	0.500 U	0.500 U
	pH, lab	8	0%	6.73 J	7.00 J		Normal	Normal	7.23	7.34
	- lower limit								6.52	6.41
	Sulfate	8	0%	628	996		Normal	Normal	1239	1394
	Total dissolved solids (TDS)	8	0%	1730	2570		Normal	Normal	3084	3448
	Appendix IV									
	Antimony	8	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U
	Arsenic	8	100%	0.00200 U	0.00200 U		--	Detection limit	0.00200 U	0.00200 U
	Barium	8	0%	0.0245	0.0374		Not Normal	Non-parametric	0.037	0.037
	Beryllium	8	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U
	Cadmium	8	100%	0.000500 U	0.000500 U		--	Detection limit	0.000500 U	0.000500 U
	Chromium	8	100%	0.00500 U	0.00500 U		--	Detection limit	0.00500 U	0.00500 U
	Cobalt	8	13%	0.000500 U	0.0104		Normal	Normal (KM)	0.01770	0.02210
	Lead	8	100%	0.000500 U	0.000500 U		--	Detection limit	0.000500 U	0.000500 U
	Lithium	8	0%	0.121	0.254		*<< Decreasing trend present in baseline -- UTL not calculated >>*			
	Mercury	8	100%	0.000200 U	0.000200 U		--	Detection limit	0.000200 U	0.000200 U
	Molybdenum	8	100%	0.00200 U	0.00200 U		--	Detection limit	0.00200 U	0.00200 U
	Radium-226 & 228	8	38%	0.212 U	0.829		Normal	Normal (KM)	1.146	1.404
	Selenium	8	88%	0.00500 U	0.0113		--	Non-parametric	0.011	0.011
	Thallium	8	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U

Intra-Well Comparison Values
(Statistical Upper Tolerance Limits based on Baseline Period Data at each well)
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Well	Analyte	Number of Samples	Percent ND	Summary Statistics Min.	Summary Statistics Max.	Statistical Outliers	Data Distribution	UTL Method	95/95 UTL	99/95 UTL
MW-8										
	Appendix III									
	Boron	8	0%	0.703	5.38		Normal	Normal	9.09	11.30
	Calcium	8	0%	167	213		Normal	Normal	243.6	261.1
	Chloride	8	50%	5.00 U	8.69		Normal	Normal (KM)	9.43	10.83
	Fluoride	8	88%	0.500 U	2.31		--	Non-parametric	2.31	2.31
	pH, lab	8	0%	7.04 J	7.4 J		Normal	Normal	7.64	7.77
	- lower limit								6.75	6.62
	Sulfate	8	0%	169	819		Not Normal	Non-parametric	819	819
	Total dissolved solids (TDS)	8	0%	1000	1810		Approx. Normal	Normal	2582	2986
	Appendix IV									
	Antimony	8	100%	0.00100 U	0.00100 U		--	Non-parametric	0.00100 U	0.00100 U
	Arsenic	8	100%	0.00200 U	0.00200 U		--	Non-parametric	0.00200 U	0.00200 U
	Barium	8	0%	0.0596	0.111		Normal	Normal	0.131	0.149
	Beryllium	8	100%	0.00100 U	0.00100 U		--	Non-parametric	0.00100 U	0.00100 U
	Cadmium	8	100%	0.000500 U	0.000500 U		--	Non-parametric	0.000500 U	0.000500 U
	Chromium	8	100%	0.00500 U	0.00500 U		--	Non-parametric	0.00500 U	0.00500 U
	Cobalt	8	0%	0.00211	0.00344		Normal	Normal	0.00413	0.00462
	Lead	8	100%	0.000500 U	0.000500 U		--	Non-parametric	0.000500 U	0.000500 U
	Lithium	8	13%	0.0500 U	0.111		Normal	Normal (KM)	0.153	0.179
	Mercury	8	100%	0.000200 U	0.000200 U		--	Non-parametric	0.000200 U	0.000200 U
	Molybdenum	8	0%	0.00589	0.143		Normal	Normal	0.197	0.251
	Radium-226 & 228	8	38%	0.0102 U	0.959		Approx. Normal	Normal (KM)	1.538	1.943
	Selenium	8	50%	0.00500 U	0.0985		***<< Decreasing trend present in baseline -- UTL not calculated >>***			
	Thallium	8	100%	0.00100 U	0.00100 U		--	Non-parametric	0.00100 U	0.00100 U

Intra-Well Comparison Values
(Statistical Upper Tolerance Limits based on Baseline Period Data at each well)
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Well	Analyte	Number of Samples	Percent ND	Summary Statistics Min.	Summary Statistics Max.	Statistical Outliers	Data Distribution	UTL Method	95/95 UTL	99/95 UTL
MW-10										
	Appendix III									
	Boron	8	0%	0.271	2.24		*<< Decreasing trend present in baseline -- UTL not calculated >>*			
	Calcium	8	0%	146	181		Normal	Normal	204.9	220.9
	Chloride	8	38%	5.00 U	24.8		Normal	Normal (KM)	29.2	36.7
	Fluoride	8	63%	0.500 U	6.47		--	Non-parametric	6.47	6.47
	pH, lab	8	0%	6.92 J	7.3 J		Normal	Normal	7.71	7.87
	- lower limit								6.56	6.40
	Sulfate	8	0%	14.3	264		Normal	Normal	436	548
	Total dissolved solids (TDS)	8	0%	836	1150		Normal	Normal	1354	1478
	Appendix IV									
	Antimony	8	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U
	Arsenic	8	13%	0.00200 U	0.0192		*<< Increasing trend present in baseline -- UTL not calculated >>*			
	Barium	8	0%	0.111	0.618		*<< Increasing trend present in baseline -- UTL not calculated >>*			
	Beryllium	8	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U
	Cadmium	8	100%	0.000500 U	0.000500 U		--	Detection limit	0.000500 U	0.000500 U
	Chromium	8	100%	0.00500 U	0.00500 U		--	Detection limit	0.00500 U	0.00500 U
	Cobalt	8	0%	0.000854	0.00394		Normal	Normal	0.00534	0.00648
	Lead	8	100%	0.000500 U	0.000500 U		--	Detection limit	0.000500 U	0.000500 U
	Lithium	8	0%	0.0533	0.138		*<< Decreasing trend present in baseline -- UTL not calculated >>*			
	Mercury	8	100%	0.000200 U	0.000200 U		--	Detection limit	0.000200 U	0.000200 U
	Molybdenum	8	0%	0.00239	0.00346		Normal	Normal	0.00411	0.00455
	Radium-226 & 228	8	13%	0.256 U	1.06		Normal	Normal (KM)	1.410	1.672
	Selenium	8	100%	0.00500 U	0.00500 U		--	Detection limit	0.00500 U	0.00500 U
	Thallium	8	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U

Intra-Well Comparison Values
(Statistical Upper Tolerance Limits based on Baseline Period Data at each well)
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Well	Analyte	Number of Samples	Percent ND	Summary Statistics Min.	Summary Statistics Max.	Statistical Outliers	Data Distribution	UTL Method	95/95 UTL	99/95 UTL
MW-11										
	Appendix III									
	Boron	8	0%	0.242	0.710		*<< Decreasing trend present in baseline -- UTL not calculated >>*			
	Calcium	8	0%	221.5	275.5		Normal	Normal	297	316
	Chloride	8	0%	6.005	39.05		Normal	Normal	49.1	61.2
	Fluoride	8	75%	ND(0.5)	5.045		--	Non-parametric	5.05	5.05
	pH, lab	8	0%	6.795	7.2		Normal	Normal	7.48	7.61
	- lower limit								6.55	6.42
	Sulfate	8	0%	244.5	350.5		Normal	Normal	426.2	465.7
	Total dissolved solids (TDS)	8	0%	1085	1385		Normal	Normal	1500	1604
	Appendix IV									
	Antimony	8	100%	ND(0.001)	ND(0.001)		--	Detection limit	ND(0.001)	ND(0.001)
	Arsenic	8	100%	ND(0.002)	ND(0.002)		--	Detection limit	ND(0.002)	ND(0.002)
	Barium	8	0%	0.0699	0.0981		Normal	Normal	0.110	0.122
	Beryllium	8	100%	ND(0.001)	ND(0.001)		--	Detection limit	ND(0.001)	ND(0.001)
	Cadmium	8	100%	ND(0.0005)	ND(0.0005)		--	Detection limit	ND(0.0005)	ND(0.0005)
	Chromium	8	100%	ND(0.005)	ND(0.005)		--	Detection limit	ND(0.005)	ND(0.005)
	Cobalt	8	0%	0.000792	0.00326		Normal	Normal	0.00475	0.00569
	Lead	8	100%	ND(0.0005)	ND(0.0005)		--	Detection limit	ND(0.0005)	ND(0.0005)
	Lithium	8	0%	0.111	0.1335		Normal	Normal	0.145	0.153
	Mercury	8	100%	ND(0.0002)	ND(0.0002)		--	Detection limit	ND(0.0002)	ND(0.0002)
	Molybdenum	8	100%	ND(0.002)	ND(0.002)		--	Detection limit	ND(0.002)	ND(0.002)
	Radium-226 & 228	8	75%	ND(-0.00967)	0.659		--	Non-parametric	0.659	0.659
	Selenium	8	88%	ND(0.005)	0.032045		--	Non-parametric	0.03205	0.03205
	Thallium	8	100%	ND(0.001)	ND(0.001)		--	Detection limit	ND(0.001)	ND(0.001)

Intra-Well Comparison Values
(Statistical Upper Tolerance Limits based on Baseline Period Data at each well)
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Well	Analyte	Number of Samples	Percent ND	Summary Statistics Min.	Summary Statistics Max.	Statistical Outliers	Data Distribution	UTL Method	95/95 UTL	99/95 UTL
MW-12										
	Appendix III									
	Boron	8	0%	1.94	5.39		Not Normal	Non-parametric	5.39	5.39
	Calcium	8	0%	186	287		*<< Decreasing trend present in baseline -- UTL not calculated >>*			
	Chloride	8	0%	10.2	303		Normal	Normal	417	528
	Fluoride	8	63%	0.500 U	21		--	Non-parametric	21.0	21.0
	pH, lab	8	0%	7.0 J	7.2 J		Normal	Normal	7.31	7.37
	- lower limit								6.86	6.80
	Sulfate	8	0%	446	626		Normal	Normal	724	796
	Total dissolved solids (TDS)	8	0%	1360	1960		Normal	Normal	2263	2499
	Appendix IV									
	Antimony	8	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U
	Arsenic	8	100%	0.00200 U	0.00200 U		--	Detection limit	0.00200 U	0.00200 U
	Barium	8	0%	0.044	0.116		Approx. Gamma	WH Approx. Gamma	0.160	0.215
	Beryllium	8	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U
	Cadmium	8	100%	0.000500 U	0.000500 U		--	Detection limit	0.000500 U	0.000500 U
	Chromium	8	88%	0.00500 U	0.034		--	Non-parametric	0.034	0.034
	Cobalt	8	75%	0.000500 U	0.00182		*<< Increasing trend present in baseline -- UTL not calculated >>*			
	Lead	8	100%	0.000500 U	0.000500 U		--	Detection limit	0.000500 U	0.000500 U
	Lithium	8	0%	0.0727	0.136		Normal	Normal	0.162	0.185
	Mercury	8	100%	0.000200 U	0.000200 U		--	Detection limit	0.000200 U	0.000200 U
	Molybdenum	8	88%	0.00200 U	0.00234		--	Non-parametric	0.00234	0.00234
	Radium-226 & 228	8	63%	0.161 U	0.744		--	Non-parametric	0.744	0.744
	Selenium	8	13%	0.00500 U	0.0766		Normal	Normal (KM)	0.127	0.154
	Thallium	8	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U

Intra-Well Comparison Values
(Statistical Upper Tolerance Limits based on Baseline Period Data at each well)
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Well	Analyte	Number of Samples	Percent ND	Summary Statistics Min.	Summary Statistics Max.	Statistical Outliers	Data Distribution	UTL Method	95/95 UTL	99/95 UTL
MW-13										
	Appendix III									
	Boron	8	13%	0.200 U	1.6		Normal	Normal (KM)	2.33	2.82
	Calcium	8	0%	194	264		Normal	Normal	314	341
	Chloride	8	13%	5.00 U	54.9		Approx. Lognormal	Normal (KM)	129.3	288.1
	Fluoride	8	50%	0.500 U	8.21		Approx. Normal	Normal (KM)	9.66	12.57
	pH, lab	8	0%	6.90 J	7.1 J		Normal	Normal	7.29	7.38
	- lower limit								6.68	6.59
	Sulfate	8	0%	324	524		Normal	Normal	654	742
	Total dissolved solids (TDS)	8	0%	1140	1590		Normal	Normal	1805	1984
	Appendix IV									
	Antimony	8	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U
	Arsenic	8	50%	0.00200 U	0.00388		***<< Increasing trend present in baseline -- UTL not calculated >>***			
	Barium	8	0%	0.0418	0.161		Approx. Normal	Normal	0.196	0.242
	Beryllium	8	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U
	Cadmium	8	100%	0.000500 U	0.000500 U		--	Detection limit	0.000500 U	0.000500 U
	Chromium	8	100%	0.00500 U	0.00500 U		--	Detection limit	0.00500 U	0.00500 U
	Cobalt	8	13%	0.000500 U	0.00624		Approx. Gamma	H Approx. Gamma (KI	0.00885	0.01370
	Lead	8	100%	0.000500 U	0.000500 U		--	Detection limit	0.000500 U	0.000500 U
	Lithium	8	0%	0.083	0.122		Normal	Normal	0.152	0.167
	Mercury	8	100%	0.000200 U	0.000200 U		--	Detection limit	0.000200 U	0.000200 U
	Molybdenum	8	63%	0.00200 U	0.00296		--	Non-parametric	0.00296	0.00296
	Radium-226 & 228	8	38%	0.0861 U	1.25		Normal	Normal (KM)	1.59	2.00
	Selenium	8	25%	0.00500 U	0.0831		***<< Decreasing trend present in baseline -- UTL not calculated >>***			
	Thallium	8	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U

Intra-Well Comparison Values
(Statistical Upper Tolerance Limits based on Baseline Period Data at each well)
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Well	Analyte	Number of Samples	Percent ND	Summary Statistics Min.	Summary Statistics Max.	Statistical Outliers	Data Distribution	UTL Method	95/95 UTL	99/95 UTL
MW-14										
	Appendix III									
	Boron	8	0%	0.281	1.47		*<< Decreasing trend present in baseline -- UTL not calculated >>*			
	Calcium	8	0%	198	301		Normal	Normal	346	381
	Chloride	8	25%	5.00 U	23.2		Lognormal	Lognormal (KM)	33.6	58.8
	Fluoride	8	63%	0.500 U	14.9		*<< Increasing trend present in baseline -- UTL not calculated >>*			
	pH, lab	8	0%	6.80 J	7.0 J		Normal	Normal	7.10	7.16
	- lower limit								6.69	6.64
	Sulfate	8	0%	220	428		Normal	Normal	532	609
	Total dissolved solids (TDS)	8	0%	1030	1810		Normal	Normal	2143	2434
	Appendix IV									
	Antimony	8	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U
	Arsenic	8	100%	0.00200 U	0.00200 U		--	Detection limit	0.00200 U	0.00200 U
	Barium	8	0%	0.0604	0.133		Approx. Nomal	Normal	0.154	0.181
	Beryllium	8	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U
	Cadmium	8	100%	0.000500 U	0.000500 U		--	Detection limit	0.000500 U	0.000500 U
	Chromium	8	100%	0.00500 U	0.00500 U		--	Detection limit	0.00500 U	0.00500 U
	Cobalt	8	0%	0.00237	0.00494		Normal	Normal	0.00636	0.00745
	Lead	8	100%	0.000500 U	0.000500 U		--	Detection limit	0.000500 U	0.000500 U
	Lithium	8	0%	0.0959	0.162		Normal	Normal	0.205	0.231
	Mercury	8	100%	0.000200 U	0.000200 U		--	Detection limit	0.000200 U	0.000200 U
	Molybdenum	8	50%	0.00200 U	0.00222		Normal	Normal (KM)	0.00236	0.00247
	Radium-226 & 228	8	0%	0.324	1.79		Normal	Normal	2.26	2.79
	Selenium	8	25%	0.00500 U	0.0289		*<< Increasing trend present in baseline -- UTL not calculated >>*			
	Thallium	8	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U

Intra-Well Comparison Values
(Statistical Upper Tolerance Limits based on Baseline Period Data at each well)
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

Well	Analyte	Number of Samples	Percent ND	Summary Statistics Min.	Summary Statistics Max.	Statistical Outliers	Data Distribution	UTL Method	95/95 UTL	99/95 UTL
MW-15										
	Appendix III									
	Boron	8	0%	1.33	3.05		Normal	Normal	4.49	5.23
	Calcium	8	0%	187	264		Normal	Normal	320	356
	Chloride	8	13%	5.00 U	16.7		Normal	Normal (KM)	21.8	26.3
	Fluoride	8	75%	0.500 U	1.9		--	0	2.3	2.9
	pH, lab	8	0%	6.78 J	7.0 J		Normal	Normal	7.15	7.22
	- lower limit								6.63	6.55
	Sulfate	8	0%	293	642		Normal	Normal	851	987
	Total dissolved solids (TDS)	8	0%	1020	2000		Normal	Normal	2593	2965
	Appendix IV									
	Antimony	8	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U
	Arsenic	8	88%	0.00200 U	0.00286		--	Non-parametric	0.0	0.0
	Barium	8	0%	0.0428	0.0737		Normal	Normal	0.092	0.106
	Beryllium	8	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U
	Cadmium	8	100%	0.000500 U	0.000500 U		--	Detection limit	0.000500 U	0.000500 U
	Chromium	8	100%	0.00500 U	0.00500 U		--	Detection limit	0.00500 U	0.00500 U
	Cobalt	8	0%	0.00165	0.00561		Not Normal	Non-parametric	0.00561	0.00561
	Lead	8	100%	0.000500 U	0.000500 U		--	Detection limit	0.000500 U	0.000500 U
	Lithium	8	0%	0.054	0.0923		Normal	Normal	0.124	0.142
	Mercury	8	100%	0.000200 U	0.000200 U		--	Detection limit	0.000200 U	0.000200 U
	Molybdenum	8	100%	0.00200 U	0.00200 U		--	Detection limit	0.00200 U	0.00200 U
	Radium-226 & 228	8	38%	0.282 U	0.931		Normal	Normal (KM)	1.34	1.63
	Selenium	8	75%	0.00500 U	0.00799		--	Non-parametric	0.00799	0.00799
	Thallium	8	100%	0.00100 U	0.00100 U		--	Detection limit	0.00100 U	0.00100 U

Note:
Non-Parametric UTLs with 8 baseline samples have a coverage of only 0.69 (i.e., 69th percentile) at 95 percent confidence.

Table 4.6

Inter-Well Comparisons for September 2017 Monitoring Data vs. Upgradient Background UTLs
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

		Metals		General Chemistry				
Well	***Observation***	***Boron mg/L***	***Calcium mg/L***	***Chloride mg/L***	***Fluoride mg/L***	***Sulfate mg/L***	***Total dissolved solids (TDS) mg/L***	***pH, lab s.u.***
Combined Upgradient	*Baseline 95/95 UTL*	***4.37***	***417***	***25.8***	***1.9***	***1183***	***2854***	***6.64-7.12***
	Baseline 99/95 UTL	***5.18***	***473***	***30.6***	***1.9***	***1383***	***3235***	***6.57-7.19***
MW-2	09/11/2017	0.583	151	12.1	0.500 U	82.3	740	7.0 J
MW-4 (upgradient)	09/11/2017	0.898	245	18.6	0.500 U	608	1860	6.9 J
MW-8	09/11/2017	2.80	208	5.60	0.500 U	489	1610	**7.2 J**
MW-10	09/11/2017	0.336	152	5.77	0.500 U	64.1	1040	**7.3 J**
MW-11	09/11/2017	0.431/0.477	252/246	8.91/8.54	0.500 U/0.500 U	368/370	1350/1310	7.0 J/6.9 J
MW-12	09/11/2017	4.34	233	**180**	0.500 U	508	1990	7.1 J
MW-13	09/11/2017	1.19	286	21.3	0.500 U	485	1770	6.9 J
MW-14	09/11/2017	1.36	238	5.00 U	0.500 U	357	1420	7.0 J
MW-15 (upgradient)	09/11/2017	2.58	195	10.5	0.500 U	422	1370	6.9 J

Notes:
368/370 - Field duplicate results.
U - Not detected at the associated reporting limit.
J - Estimated concentration.
28.0 Value exceeds intra-well baseline 95/95 UTL or is outside of baseline range.
7.2 J Value exceeds intra-well baseline 99/95 UTL.
† - Trend present during baseline period, no UTL values calculated (baseline range listed for comparison).

Table 4.7

Intra-Well Comparisons for September 2017 Monitoring Data
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

		Metals		General Chemistry				
Well	***Observation***	***Boron mg/L***	***Calcium mg/L***	***Chloride mg/L***	***Fluoride mg/L***	***Sulfate mg/L***	***Total dissolved solids (TDS) mg/L***	***pH, lab s.u.***
MW-2	*Baseline 95/95 UTL*	*2.22*	*125-287 †*	*37.6*	*1.24*	*48-360 †*	*1798*	*6.43-7.59*
	Baseline 99/95 UTL	*2.71*	*125-287 †*	*46.7*	*1.24*	*48-360 †*	*2125*	*6.27-7.76*
	09/11/2017	0.583	151	12.1	0.500 U	82.3	740	7.0 J
MW-4 (upgradient)	*Baseline 95/95 UTL*	*0.972-3.49 †*	*457*	*20.1*	*0.500 U*	*1239*	*3084*	*6.52-7.23*
	Baseline 99/95 UTL	*0.972-3.49 †*	*510*	*20.1*	*0.500 U*	*1394*	*3448*	*6.41-7.34*
	09/11/2017	0.898	245	18.6	0.500 U	608	1860	6.9 J
MW-8	*Baseline 95/95 UTL*	*9.09*	*244*	*9.4*	*2.31*	*819*	*2582*	*6.75-7.64*
	Baseline 99/95 UTL	*11.30*	*261*	*10.8*	*2.31*	*819*	*2986*	*6.62-7.77*
	09/11/2017	2.80	208	5.60	0.500 U	489	1610	7.2 J
MW-10	*Baseline 95/95 UTL*	*0.271-2.24 †*	*205*	*29.2*	*6.47*	*436*	*1354*	*6.56-7.71*
	Baseline 99/95 UTL	*0.271-2.24 †*	*221*	*36.7*	*6.47*	*548*	*1478*	*6.40-7.87*
	09/11/2017	0.336	152	5.77	0.500 U	64.1	1040	7.3 J
MW-11	*Baseline 95/95 UTL*	*0.242-0.710 †*	*297*	*49.1*	*5.05*	*426*	*1500*	*6.55-7.48*
	Baseline 99/95 UTL	*0.242-0.710 †*	*316*	*61.2*	*5.05*	*466*	*1604*	*6.42-7.61*
	09/11/2017	0.431/0.477	252/246	8.91/8.54	0.500 U/0.500 U	368/370	1350/1310	7.0 J/6.9 J
MW-12	*Baseline 95/95 UTL*	*5.39*	*186-287 †*	*417.0*	*21.00*	*724*	*2263*	*6.86-7.31*
	Baseline 99/95 UTL	*5.39*	*186-287 †*	*527.8*	*21.00*	*796*	*2499*	*6.80-7.37*
	09/11/2017	4.34	233	180	0.500 U	508	1990	7.1 J

Intra-Well Comparisons for September 2017 Monitoring Data
MidAmerican Energy Company
Neal South CCR Monofill
Salix, Iowa

		Metals		General Chemistry				
Well	***Observation***	***Boron mg/L***	***Calcium mg/L***	***Chloride mg/L***	***Fluoride mg/L***	***Sulfate mg/L***	***Total dissolved solids (TDS) mg/L***	***pH, lab s.u.***
MW-13	*Baseline 95/95 UTL*	*2.33*	*314*	*129.3*	*9.66*	*654*	*1805*	*6.68-7.29*
	Baseline 99/95 UTL	*2.82*	*341*	*288.1*	*12.57*	*742*	*1984*	*6.59-7.38*
	09/11/2017	1.19	286	21.3	0.500 U	485	1770	6.9 J
MW-14	*Baseline 95/95 UTL*	*0.281-1.47 †*	*346*	*33.6*	*0.500 U-14.9 †*	*532*	*2143*	*6.69-7.10*
	Baseline 99/95 UTL	*0.281-1.47 †*	*381*	*58.8*	*0.500 U-14.9 †*	*609*	*2434*	*6.64-7.16*
	09/11/2017	1.36	238	5.00 U	0.500 U	357	1420	7.0 J
MW-15 (upgradient)	*Baseline 95/95 UTL*	*4.49*	*320*	*21.8*	*2.31*	*851*	*2593*	*6.63-7.15*
	Baseline 99/95 UTL	*5.23*	*356*	*26.3*	*2.88*	*987*	*2965*	*6.55-7.22*
	09/11/2017	2.58	195	10.5	0.500 U	422	1370	6.9 J

Notes:
368/370 - Field duplicate results.
U - Not detected at the associated reporting limit.
J - Estimated concentration.
28.0 Value exceeds intra-well baseline 95/95 UTL or is outside of baseline range (for baseline data sets with temporal trends).
7.2 J Value exceeds intra-well baseline 99/95 UTL.
† - Trend present during baseline period, no UTL values calculated (baseline range listed for comparison).

Appendices

Appendix A
Groundwater Sample Collection Records

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 12-9-15 SITE: Neal South Monofill PROJECT 11114654

WEATHER: partly cloudy, breezy, ~50°F

WELL IDENTIFICATION: MW-2

DEPTH TO WATER (ft bTOC): 17.59

WELL TOTAL DEPTH (ft bTOC): 30.45

WELL DIAMETER (inches): 2-inch inner diameter

PURGING: began pumping at 1345

CASING VOLUME CALCULATION: _____ft of water in casing X _____gallon/foot = _____ total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:_____

Time (24 hr)	Amount Purged ~~(gals)~~ ml	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1348	100	175	6.84	12.39	1.32	115	49	5.19	17.60
1352	800	175	6.76	12.26	1.34	61.0	7	2.16	17.60
1356	1500	300	6.74	12.17	1.47	38.1	-19	0.27	17.61
1400	2700	300	6.74	12.20	1.56	22.0	-34	0.0	17.61
1404	3900	300	6.75	12.18	1.61	18.2	-40	0.0	17.61
1408	5100	300	6.75	12.19	1.63	15.2	-41	0.0	17.61
1412	6300	300	6.75	12.17	1.65	12.3	-46	0.0	17.61
1416	7500	300	6.76	12.15	1.65	11.6	-50	0.0	17.61
1420	8700	300	6.77	12.15	1.70	9.7	-52	0.0	17.61
Continued on back (circle one) (yes) no									

Well Purged Below Top of Pump? (Y/N): Y Time to Recharge:_____ Depth to Water (ft bTOC):_____

SAMPLING Equipment Used: (Same as Above) Other: CPM3, PS125, Refill 11, Discharge 9

Sample Time (24 hr)	Total Purged ~~(gals)~~ ml	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1430	11100	6.77	12.16	1.80	5.0	-55	0.0	17.61	

FINAL DEPTH TO WATER (ft bTOC): 17.61 TIME FINAL DEPTH TAKEN: 1430

SAMPLE ID: MW-2 SAMPLE FOR QC: 2 collected extra vol for MS/MSD

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (gal): 11100 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	Remarks
Concrete Pad? OK	
Bumper Posts? 2 OK	
Protective Casing? OK	
Paint and Label? used sharpie	
Lock? No	
Well Casing? yes, OK	
Reference Point? OK	

Field Sampler(s) Name(s): Kevin Armstrong

	NAME	SIGNATURE	DATE
PREPARED:	K. Armstrong	Kevin Armstrong	12-9-15
REVIEWED:	Kevin Armstrong	Kevin Armstrong	1-6-16

WELL NUMBER

MW-2

Time (24 hr)	Amount Purged ~~(gals)~~ ml	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1424	9900	300	6.78	12.16	1.80	8.6	-55	0.0	17.61

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 12/9/15 SITE: Neal South Monofill PROJECT 11114654

Start: 13:35
Stop: 14:23

WEATHER: 46°F, Partly Cloudy

WELL IDENTIFICATION: MW-4

DEPTH TO WATER (ft bTOC): 15.11
Tubing length: 22.41 ft
WELL TOTAL DEPTH (ft bTOC): 26.7
3 Pump Assembly V: 801 mL
WELL DIAMETER (inches): 2-inch inner diameter

Bladder V = 140 mL
Tube V = 100 mL
Tube 2 V = 27.3 mL

267
x 3
801

2 cycles/min 23/7 time ratio

PURGING:

CASING VOLUME CALCULATION: 11.6 ft of water in casing X 0.163 gallon/foot = _____ total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other: _____

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
13:39	~200	~50	6.87	11.14	2.83	29.0	97	4.14	15.12
13:42	850	~200	6.80	11.08	2.88	5.9	61	7.45	15.12
13:45	1500	~200	6.78	11.09	2.89	0.2	55	1.02	15.12
13:48	2150	~200	6.77	11.07	2.85	0.0	55	0.67	15.13
13:51	2800	~200	6.76	11.01	2.89	0.2	59	3.13	15.13
13:54	3450	~200	6.75	11.02	2.88	0.0	62	0.55	15.13
13:57	4100	~200	6.75	11.01	2.88	0.0	64	0.22	15.12
14:00	4750	~200	6.75	10.97	2.87	0.0	66	0.14	15.13
14:03	5400	~200	6.75	10.98	2.87	0.0	66	0.06	15.12

Continued on back (circle one) yes / (no)

air leak in line, fixed

air in line, fixed

Well Purged Below Top of Pump? (Y/(N)) Time to Recharge: N/A Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: Horiba Meter Cell:

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
14:03	5400	6.75	10.98	2.87	0.0	66	0.06	15.12	clear, slight orange tint

FINAL DEPTH TO WATER (ft bTOC): 15.12 TIME FINAL DEPTH TAKEN: 14:25

SAMPLE ID: MW-4 SAMPLE FOR QC: N/A

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (~~gal~~ mL): 5400 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	OK	see picture, may need to re-cut end of sample tube - seems to be letting air in
Bumper Posts?	OK	
Protective Casing?	OK	
Paint and Label?	OK	
Lock?	NONE	
Well Casing?	OK	
Reference Point?	OK	

Field Sampler(s) Name(s): S. Roste, K. Armstrong

	NAME	SIGNATURE	DATE
PREPARED:	Steven Roste	SRoste	12/9/15
REVIEWED:	Kevin Armstrong	Kevin Armstrong	1-6-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 12/9/15 SITE: Neal South Monofill PROJECT 11114654 Start: 14:56 Stop: 15:37

WEATHER: 54°F, partly cloudy

WELL IDENTIFICATION: MW-8

DEPTH TO WATER (ft bTOC): 17.10
Tubing length: 23.31 ft
WELL TOTAL DEPTH (ft bTOC): 27.6
3 Pump Assembly #: 813 mL
WELL DIAMETER (inches): 2-inch inner diameter

Bladder # = 140
Tube # = 104
Tube 2 # = 273
271
x 3
813

PURGING:

CASING VOLUME CALCULATION: 10.6 ft of water in casing X 0.163 gallon/foot = _____ total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other: _____

Time (24 hr)	Amount Purged (~~gals~~) mL	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
15:01	450	-	7.02	11.39	2.15	13.7	76	2.18	17.13
15:04	1050	≈200	6.97	11.40	2.15	7.2	81	0.71	17.14
15:07	1650	200	6.96	11.45	2.15	4.0	87	0.27	17.14
15:10	2250	200	6.96	11.51	2.15	2.1	92	0.00	17.14
15:13	2950	200	6.96	11.48	2.15	0.6	95	0.00	17.14
15:16	3450	200	6.96	11.49	2.15	0.0	96	0.00	17.14
Continued on back (circle one) yes (no)									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: N/A Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: Horiba Meter: Cell :

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
15:16	3450	6.96	11.49	2.15	0.0	96	0.00	17.14	clear

FINAL DEPTH TO WATER (ft bTOC): 17.12 TIME FINAL DEPTH TAKEN: 15:40

SAMPLE ID: MW-8 SAMPLE FOR QC: N/A

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (~~gal~~) mL: 3450 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	OK	see picture
Bumper Posts?	OK	
Protective Casing?	OK	
Paint and Label?	OK	
Lock?	none	
Well Casing?	OK	
Reference Point?	OK	

Field Sampler(s) Name(s): S. Roske, K. Armstrong

	NAME	SIGNATURE	DATE
PREPARED:	Steven Roske	Steven D Roske	12/9/15
REVIEWED:	Kevin Armstrong	Kevin Armstrong	1-6-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 12/9/15 SITE: Neal South Monofill PROJECT 11114654

Start: 16:03
Stop: 17:05

WEATHER: 55°F, partly cloudy

WELL IDENTIFICATION

MW-10

DEPTH TO WATER (ft bTOC): 15.40

Tubing length: 21.31 ft

WELL TOTAL DEPTH (ft bTOC): 25.6

3x Pump Assembly V = 786 mL

WELL DIAMETER (inches): 2-inch inner diameter

Bladder V: 140 mL
Tube V: 95 mL
Tube 2 V: 27.3 mL
262
x 3
786

2 cycles per min 23/7 time ratio

PURGING:

CASING VOLUME CALCULATION: 10.2 ft of water in casing X 0.163 gallon/foot = _____ total gallons/casing volume

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other:_____

Time (24 hr)	Amount Purged ~~(gals)~~ mL	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
16:07	250	—	6.82	12.16	1.75	84.8	-59	2.21	15.41
16:10	850	200	6.78	12.12	1.75	34.4	-71	0.75	15.41
16:13	1450	200	6.78	12.10	1.74	30.3	-76	0.27	15.41
16:16	2050	200	6.76	12.10	1.74	29.8	-78	0.02	15.41
16:19	2650	200	6.77	12.10	1.74	17.6	-83	0.00	15.41
16:22	3250	200	6.79	12.07	1.73	14.6	-86	0.00	15.41
16:25	3850	200	6.77	12.07	1.72	12.1	-88	0.00	15.41
16:28	4450	200	6.77	12.04	1.72	11.0	-90	0.00	15.41
16:31	5050	200	6.78	12.02	1.72	9.6	-91	0.00	15.41
Continued on back (circle one) (yes) / no									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: N/A Depth to Water (ft bTOC):_____

SAMPLING Equipment Used: Same as Above Other: Horiba Meter: Cell:

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
16:40	6850	6.78	11.94	1.72	6.8	-92	0.00	15.41	clear

FINAL DEPTH TO WATER (ft bTOC): 15.41 TIME FINAL DEPTH TAKEN: 17:00

SAMPLE ID: MW-10 SAMPLE FOR QC: N/A

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL ~~(gal)~~ mL: 6850 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	OK	See picture
Bumper Posts?	OK	
Protective Casing?	OK	
Paint and Label?	OK	
Lock?	none	
Well Casing?	OK	
Reference Point?	OK	

Field Sampler(s) Name(s): S. Rooste, K. Armstrong

	NAME	SIGNATURE	DATE
PREPARED:	Steven Rooste	Steven Rooste	12/9/15
REVIEWED:	Kevin Armstrong	Kevin Armstrong	1-6-16

WELL NUMBER

MW-10

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
16:34	5650	200	6.78	11.99	1.72	7.7	-91	0.00	15.41
16:37	6250	200	6.78	11.97	1.72	7.1	-92	0.00	15.41
16:40	6850	200	6.78	11.94	1.72	6.8	-92	0.00	15.41

COMMENTS

Turbidity did not get below 5 NTU, likely from leftover sediment within flow-thru cell

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 12-9-2015 SITE: Neal South Monofill PROJECT 11114654

WEATHER: mostly sunny, breezy, ~58°

WELL IDENTIFICATION: MW-11

DEPTH TO WATER (ft bTOC): 20.32

WELL TOTAL DEPTH (ft bTOC): 37.35

WELL DIAMETER (inches): 2-inch inner diameter

began purge at 1215

PURGING:

CASING VOLUME CALCULATION: _____ ft of water in casing X _____ gallon/foot = _____ total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other: _____

Time (24 hr)	Amount Purged ~~(gals)~~ ml	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1219	200	100	6.79	12.06	1.61	3.2	250	5.36	20.32
1224	700	100	6.72	12.18	1.62	2.5	250	2.91	20.32
1229	1450	150	6.72	12.34	1.63	2.1	248	0.85	20.32
1234	2300	175	6.72	12.41	1.64	1.6	246	0.0	20.32
1237	2850	175	6.72	12.47	1.64	1.5	244	0.0	20.32
1240	3400	175	6.73	12.53	1.65	1.1	243	0.0	20.32
1243	4425	175	6.73	12.57	1.65	1.1	241	0.0	20.32
1246	4950	175	6.73	12.57	1.65	1.0	241	0.0	20.32
Continued on back (circle one) yes / (no)									

Well Purged Below Top of Pump? (Y)(N): _____ Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: CPM 2; 18 refill; 12 discharge, 25 psi

Sample Time (24 hr)	Total Purged ml ~~(gals)~~	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1250	4950	6.73	12.57	1.65	1.0	241	0.0	20.32	

FINAL DEPTH TO WATER (ft bTOC): 20.32 TIME FINAL DEPTH TAKEN: 1247

SAMPLE ID: MW-11 SAMPLE FOR QC: Collected duplicate DP01

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (gal): 4950 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	
Concrete Pad?	not visible
Bumper Posts?	yes, 2 OK
Protective Casing?	OK
Paint and Label?	added w/ sharpie
Lock?	none
Well Casing?	OK
Reference Point?	OK

Remarks

depression adjacent to well will allow ponded water during wet weather

Field Sampler(s) Name(s): Kevin Armstrong

	NAME	SIGNATURE	DATE
PREPARED:	Kevin Armstrong	Kevin Armstrong	12-9-15
REVIEWED:	Kevin Armstrong	Kevin Armstrong	1-6-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: Dec 9, 2015 SITE: Neal South Monofill PROJECT 11114654

WEATHER: partly cloudy, light breeze ~45°

WELL IDENTIFICATION: MW-12

DEPTH TO WATER (ft bTOC): 26.03

WELL TOTAL DEPTH (ft bTOC): 34.85

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: _____ ft of water in casing X _____ gallon/foot = _____ total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other: _____

Time (24 hr)	Amount Purged ~~(gals)~~ ml	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1045	100 ml	~100	6.81	11.92	2.15	32.9	243	12.8	26.12
1048	400 ml	~100	6.87	11.99	2.15	17.4	239	4.20	26.12
1051	700	~100	6.88	12.15	2.15	12.9	228	2.25	26.12
1054	1000	~160	6.88	12.19	2.14	9.8	222	1.82	26.12
1057	1450	~150	6.88	12.19	2.14	10.1	217	1.66	26.12
1100	1900	~150	6.89	12.23	2.14	7.9	213	1.52	26.13
1115	2650	~150	6.89	12.24	2.14	5.1	209	1.51	26.13
Continued on back (circle one) yes (no)									

Well Purged Below Top of Pump? (Y/N) _____ Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: 2 CPM Refill 20, Discharge 10

Sample Time (24 hr)	Total Purged ml ~~(gals)~~	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1115	2650	6.89	12.24	2.14	5.1	209	1.51	26.13	

FINAL DEPTH TO WATER (ft bTOC): 26.13 TIME FINAL DEPTH TAKEN: 1115

SAMPLE ID: MW-12 SAMPLE FOR QC: _____

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL ~~(gal)~~ ml: 2650 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	OK	
Bumper Posts?	OK	
Protective Casing?	OK	
Paint and Label?	OK	
Lock?	none	
Well Casing?	OK	
Reference Point?	OK	

Field Sampler(s) Name(s): Kevin Armstrong

	NAME	SIGNATURE	DATE
PREPARED:	K. Armstrong	Kevin Armstrong	12-9-15
REVIEWED:	Kevin Armstrong	Kevin Armstrong	1-6-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 12/9/15 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 30°F, partly cloudy

10:44 start ~~08:31~~ Stop = 11:49

WELL IDENTIFICATION: MW-13

DEPTH TO WATER (ft bTOC): 24.79

WELL TOTAL DEPTH (ft bTOC): 34.65

3 Pump Assembly Volumes = 915 mL

WELL DIAMETER (inches): 2-inch inner diameter

Pump Assembly Volume = 305 mL

Bladder = 140 mL

Tubing = 0.17" ID, 30.81" Length, 8.39 in³ = 138 mL

Tube 2: 1/4" ID, L = 34" = 1.67 in³ = 27.3 mL

2/3/15 ~~34.85~~ - 24.79

PURGING:

CASING VOLUME CALCULATION: 9.86 ft of water in casing X 0.163 gallon/foot = 1.61 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Cycle	Time (24 hr)	Amount Purged ~~(gals)~~ mL	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1 Hz	10:48	50	~100	6.86	10.22	1.80	3.9	143	3.52	24.79
2	10:51	500	~~750~~	6.84	10.57	1.79	3.4	150	1.83	24.79
2	10:54	850	~150	6.83	10.72	1.79	1.6	147	0.98	24.79
2	10:57	1450	~200	6.81	10.78	1.79	0.5	142	0.49	24.79
2	11:00	1800	~117	6.81	10.84	1.79	0.2	137	0.35	24.79
2	11:03	2300	~167	6.80	10.85	1.79	0.4	129	0.12	24.79
2	11:05	2650	~117	6.81	10.85	1.79	0.0	123	0.05	24.79
2	11:10	3500	~170	6.81	10.88	1.79	0.0	106	0.00	24.79
2	11:15	4350	~170	6.79	10.88	1.79	0.5	88	0.00	24.79

Continued on back (circle one) yes / (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: N/A Depth to Water (ft bTOC): 24.79

SAMPLING Equipment Used: (Same as Above) Other: Horiba Meter # B2Ø18ØB Cell # B2Ø174B

Cycle	Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
2	11:20	5500	6.80	10.92	1.80	0.0	75	0.00	24.79	clear

FINAL DEPTH TO WATER (ft bTOC): 24.79 TIME FINAL DEPTH TAKEN: 11:20

SAMPLE ID: MW-13 SAMPLE FOR QC: N/A

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (~~gal~~ mL): 5500 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	OK	See picture
Bumper Posts?	OK	
Protective Casing?	OK	
Paint and Label?	OK	
Lock?	none	
Well Casing?	OK	
Reference Point?	OK	

Field Sampler(s) Name(s): S. Roske, K. Armstrong

	NAME	SIGNATURE	DATE
PREPARED:	K. Armstrong	Kevin Armstrong	12-9-15
REVIEWED:	Kevin Armstrong	Kevin Armstrong	1-6-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 12-9-2015 SITE: Neal South Monofill PROJECT 11114654

WEATHER: sunny, slight breeze, ~50°

WELL IDENTIFICATION: MW-14

DEPTH TO WATER (ft bTOC): 19.98

WELL TOTAL DEPTH (ft bTOC): 29.22

WELL DIAMETER (inches): 2-inch inner diameter

PURGING: Began purging at ~~1528~~ KOA 1530

CASING VOLUME CALCULATION: _____ ft of water in casing X _____ gallon/foot = _____ total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other: _____

Time (24 hr)	Amount Purged ~~(gals)~~ ml	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1533	500	—	6.79	12.87	1.94	25.7	175	4.69	20.05
1535	1000	325	6.73	12.91	1.95	17.1	165	2.92	20.05
1540	2625	325	6.69	13.00	1.95	9.2	156	0.18	20.05
1545	4250	325	6.68	13.04	1.95	8.1	142	0.0	20.05
1550	5875	325	6.67	13.05	1.95	4.4	134	0.0	20.05
1555	7500	325	6.68	13.05	1.95	4.6	132	0.0	20.05
1600	9125	325	6.68	13.06	1.95	4.0	128	0.0	20.05
Continued on back (circle one) yes / (no)									

Well Purged Below Top of Pump? (Y/N): ___ Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged ml ~~(gals)~~	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1600	9125	6.68	13.06	1.95	4.0	128	0.0	20.05	

FINAL DEPTH TO WATER (ft bTOC): 20.05 TIME FINAL DEPTH TAKEN: 1600

SAMPLE ID: MW-14 SAMPLE FOR QC: _____

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL ~~(gal)~~ ml: 9125 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	OK	
Bumper Posts?	3-OK	
Protective Casing?	OK	
Paint and Label?	paint good, label w/ sharpie	
Lock?	NO	
Well Casing?	good	
Reference Point?	OK	

Field Sampler(s) Name(s): Kevin Armstrong

	NAME	SIGNATURE	DATE
PREPARED:	Kevin Armstrong	Kevin Armstrong	12-9-2015
REVIEWED:	Kevin Armstrong	Kevin Armstrong	1-6-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 12/9/15 SITE: Neal South Monofill PROJECT 11114654

Start: 12:24
Stop: 13:12

WEATHER: 43°F, Partly Cloudy

WELL IDENTIFICATION: MW-15

DEPTH TO WATER (ft bTOC): 14.37
Tubing Length: 20.90 ft
WELL TOTAL DEPTH (ft bTOC): 25.19
3 Pump Assembly V = 783 mL
WELL DIAMETER (inches): 2-inch inner diameter

Bladder V = 140mL
Tube V = 93.3mL
Tube 2 V = 27.3mL
261
x 3
783

2 Cycles/min Fill 23 s ~22psi
PURGING: Discharge 7 s

CASING VOLUME CALCULATION: 10.82 ft of water in casing X 0.163 gallon/foot = _____ total gallons/casing volume

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other: _____

Time (24 hr)	Amount Purged ~~(gals)~~ mL	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
12:32	~~500~~	~~200~~	6.73	11.14	2.25	20.0	141	1.38	14.40
12:35	1100	~200	6.70	11.47	2.25	12.8	120	0.60	14.46
12:38	1700	200	6.68	11.67	2.24	8.5	107	0.24	14.39
12:41	2300	200	6.68	11.74	2.24	5.3	102	0.00	14.39
12:44	2900	200	6.68	11.83	2.23	4.8	99	0.00	14.42
12:47	3500	200	6.66	11.92	2.23	2.8	96	0.00	14.38
12:50	4100	200	6.67	11.91	2.23	2.0	95	0.00	14.41

Continued on back (circle one) yes (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: N/A Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: Same as Above Other: Horiba Meter: Cell: _____

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
12:50	4100	6.67	11.91	2.23	2.0	95	0.00	14.41	clear

FINAL DEPTH TO WATER (ft bTOC): 14.35 TIME FINAL DEPTH TAKEN: 13:15

SAMPLE ID: MW-15 SAMPLE FOR QC: N/A

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL ~~(gal)~~ mL: 4100 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	OK	see picture
Bumper Posts?	OK	
Protective Casing?	OK	
Paint and Label?	OK	
Lock?	none	
Well Casing?	OK	
Reference Point?	OK	

Field Sampler(s) Name(s): S. Rosde, K. Armstrong

	NAME	SIGNATURE	DATE
PREPARED:	Steven Rosde		12/9/15
REVIEWED:	Kevin Armstrong	Kevin Armstrong	1-6-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 3-1-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 20°F, overcast, 10-20 from N

WELL IDENTIFICATION: MW-2

DEPTH TO WATER (ft bTOC): 18.99

WELL TOTAL DEPTH (ft bTOC): 30.45

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 11.46 ft of water in casing X 0.163 gallon/foot = 1.87 total gallons/casing volume

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1140	pump on								
1142	cell full		7.18	8.24	1.55	257	154	2.19	19.01
1146	+1000		6.80	8.44	1.27	56.3	-29	0.00	19.03
1149	+2000		6.80	8.49	1.30	43.1	-63	0.00	19.03
1151	+3000		6.81	8.50	1.32	17.3	-75	0.00	19.03
1153	+4000		6.82	8.43	1.35	17.4	-81	0.00	19.03
1156	+5000		6.83	8.39	1.35	12.3	-84	0.00	19.03
1158	+6000		6.83	8.42	1.36	9.7	-88	0.00	19.03
Continued on back (circle one) yes no									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: Same as Above Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1158	+6000	6.83	8.42	1.36	9.7	-88	0.00	19.03	

FINAL DEPTH TO WATER (ft bTOC): 19.03 TIME FINAL DEPTH TAKEN: 1158

SAMPLE ID: MW-2 SAMPLE FOR QC: MS/MSD vol collected

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 6 L FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	✓ Rusty	
Lock?	✓	
Well Casing?	✓	
Reference Point?		

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		3-1-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	3-31-2016

WELL NUMBER

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 3-1-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~26°F, overcast, 10-20 from north

WELL IDENTIFICATION

MW-4

DEPTH TO WATER (ft bTOC): 16.62

WELL TOTAL DEPTH (ft bTOC): 26.70

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 10.08 ft of water in casing X 0.163 gallon/foot = 1.64 total gallons/casing volume

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1302	pump on								
1303	cell full		7.16	7.73	2.60	31.2	143	7.61	16.64
1306	+1000		6.84	7.65	2.47	23.5	185	2.75	16.64
1309	+2000		6.82	7.70	2.46	12.9	186	2.11	16.64
1311	+3000		6.82	7.73	2.46	18.0	188	1.77	16.64
1314	+4000		6.81	7.79	2.46	5.9	192	1.39	16.64
1316	+5000		6.81	7.57	2.47	3.2	195	1.13	16.64
1319	+6000		6.81	7.52	2.47	4.2	199	0.79	16.64
1321	+7000		6.80	7.45	2.47	3.0	201	0.67	16.64

Continued on back (circle one) yes / no

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: Same as Above Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1324	+8000	6.81	7.42	2.47	1.8	200	0.59	16.64	—

FINAL DEPTH TO WATER (ft bTOC): 16.64 TIME FINAL DEPTH TAKEN: 1324

SAMPLE ID: MW-4 SAMPLE FOR QC: No

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 8 L FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	
Bumper Posts?	✓	
Protective Casing?	✓	rusty
Paint and Label?	✓	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		3-1-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	3-31-2016

WELL NUMBER

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 2-29-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~ 35°F, overcast, N 10-20 mph

WELL IDENTIFICATION: MW-8

DEPTH TO WATER (ft bTOC): 18.61

WELL TOTAL DEPTH (ft bTOC): 27.6

WELL DIAMETER (inches): 2-inch inner diameter

PURGING: 3x system vol: 813 mL

CASING VOLUME CALCULATION: 8.99 ft of water in casing X 0.163 gallon/foot = 1.47 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1632	start pump								18.61
1635	cell full	~333 mL/min	7.18	7.15	2.19	5.2	208	7.77	18.61
1638	+1000		7.05	7.57	2.21	3.6	190	4.43	18.61
1641	+2000		7.03	7.70	2.21	2.8	177	3.80	18.61
1644	+3000		7.03	7.68	2.21	2.7	167	3.51	18.61
1647	+4000		7.02	7.64	2.21	2.9	161	3.31	18.61
1650	+5000		7.02	7.61	2.21	3.1	156	3.16	18.61
1653	+6000		7.03	7.57	2.21	3.2	152	3.06	18.61
Continued on back (circle one) yes / (no)									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1655	6000	7.03	7.57	2.21	3.2	152	3.06	18.61	—

FINAL DEPTH TO WATER (ft bTOC): 18.61 TIME FINAL DEPTH TAKEN: 16:53

SAMPLE ID: MW-8 SAMPLE FOR QC: No

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 6 L FLOW THROUGH CELL MODEL #: Horiba U-52 ✓

Well Condition		Remarks
Concrete Pad?	No	
Bumper Posts?	✓	
Protective Casing?	rusty	
Paint and Label?	✓	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		2-29-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	3-31-2016

WELL NUMBER

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 2-29-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~35°F, overcast, 10-20 from N

WELL IDENTIFICATION: MW-10

DEPTH TO WATER (ft bTOC): 16.78

WELL TOTAL DEPTH (ft bTOC): 25.6

WELL DIAMETER (inches): 2-inch inner diameter

PURGING: 3x system vol: 756 mL

CASING VOLUME CALCULATION: 8.82 ft of water in casing X 0.163 gallon/foot = 1.44 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1714	start	pump							
1717	cell full		6.96	6.41	1.87	13.1	-92	19.51	16.80
1720	+1000		6.83	7.35	1.86	13.0	-99	6.81	16.80
1723	+2000		6.84	7.47	1.87	17.1	-105	4.79	16.80
1726	+3000		6.84	7.56	1.86	12.1	-108	4.09	16.80
1729	+4000		6.86	7.91	1.83	11.1	-110	3.62	16.80
1732	+5000		6.87	8.25	1.82	10.9	-110	3.29	16.80
1735	+6000		6.87	8.27	1.81	10.7	-110	3.17	16.80
1738	+7000		6.88	8.21	1.80	10.2	-111	3.04	16.80

Continued on back (circle one) yes / (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1740 ~~1738~~	+7000	6.88	8.21	1.80	10.2	-111	3.04	16.80	

FINAL DEPTH TO WATER (ft bTOC): 16.80 TIME FINAL DEPTH TAKEN: 17.38

SAMPLE ID: MW-10 SAMPLE FOR QC: No

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 7 L FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	Remarks
Concrete Pad? ✓ buried	
Bumper Posts? 3 ✓	
Protective Casing? ✓	
Paint and Label? ✓ rusty	
Lock? No	
Well Casing? ✓	
Reference Point? ✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		2-29-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	3-31-2016

WELL NUMBER

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 3-1-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 18°F overcast 10-15 from N

WELL IDENTIFICATION

MW-11

DEPTH TO WATER (ft bTOC): 21.74

WELL TOTAL DEPTH (ft bTOC): 37.35

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 15.61 ft of water in casing X 0.163 gallon/foot = 2.54 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
946	pump on								
948	well full		7.21	6.95	1.70	5.7	246	12.69	21.75
951	+1000		6.85	7.69	1.69	4.3	236	5.27	21.75
954	+2000		6.84	7.94	1.69	4.3	228	3.74	21.75
957	+3000		6.84	7.79	1.70	4.5	222	3.05	21.75
1000	+4000		6.84	7.66	1.70	4.3	218	2.67	21.75
1003	+5000		6.84	7.74	1.70	4.0	214	2.45	21.75
1006	+6000		6.84	7.87	1.71	4.1	212	2.36	21.75
1009	+7000		6.84	7.85	1.71	4.2	210	2.31	21.75

Continued on back (circle one) yes (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING (Equipment Used: Same as Above) Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1009	+7000	6.84	7.85	1.71	4.2	210	2.31	21.75	-

FINAL DEPTH TO WATER (ft bTOC): 21.75 TIME FINAL DEPTH TAKEN: 1009

SAMPLE ID: MW-11 SAMPLE FOR QC: DP01 collected at MW-11

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 7 L FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	buried?	
Bumper Posts?	bent	
Protective Casing?	✓	rust
Paint and Label?	✓	rusty
Lock?	✓	
Well Casing?	✓	
Reference Point?		

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		3-1-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	3-31-2016

WELL NUMBER

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 3-1-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 18°F, overcast, 10-15 from N

WELL IDENTIFICATION: MW-12

DEPTH TO WATER (ft bTOC): 27.40

WELL TOTAL DEPTH (ft bTOC): 34.85

WELL DIAMETER (inches): 2-inch inner diameter

PURGING: 3x system volume ~900mL

CASING VOLUME CALCULATION: 7.45 ft of water in casing X 0.163 gallon/foot = 1.21 total gallons/casing volume

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (°C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
857	pump	in							
859	cell full		7.48	6.17	2.15	10.9	208	12.28	27.41
902	+1000		7.02	7.43	2.30	31.7	195	5.27	27.41
904	+2000		6.96	8.07	2.31	28.7	185	4.26	27.41
906	+3000		6.94	8.09	2.31	28.6	178	3.85	27.41
908	+4000		6.93	7.93	2.31	25.7	175	3.62	27.41
911	+5000		6.93	7.69	2.32	22.2	172	3.38	27.41
913	+6000		6.92	7.54	2.32	8.9	170	3.13	27.41
915	+7000		6.92	7.46	2.33	3.2	168	3.09	27.41

Continued on back (circle one) yes (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: Same as Above Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (°C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
915	7000	6.92	7.46	2.33	3.2	168	3.09	27.41	

FINAL DEPTH TO WATER (ft bTOC): 27.41 TIME FINAL DEPTH TAKEN: 915

SAMPLE ID: MW-12 SAMPLE FOR QC: No

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 7 L FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓ heaved severely	
Bumper Posts?	✓ 1 hit	
Protective Casing?	✓ leaning	
Paint and Label?	✓ rusty	
Lock?	✓	
Well Casing?	✓	
Reference Point?		

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		3-1-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	3-31-2016

WELL NUMBER

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 3-1-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 18°F, overcast, N 5-10 mph

WELL IDENTIFICATION: MW-13

DEPTH TO WATER (ft bTOC): 26.19

WELL TOTAL DEPTH (ft bTOC): 34.65

WELL DIAMETER (inches): 2-inch inner diameter

PURGING: 3x well vol system vol. 915

CASING VOLUME CALCULATION: 8.46 ft of water in casing X 0.163 gallon/foot = 1.38 total gallons/casing volume

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
748	start	pump							
753	cell	fill	6.19	7.65	1.85	1.2	297	11.13	26.20
755	+1000		6.68	7.73	2.02	2.1	193	6.77	26.20
757	+2000		6.75	7.46	2.05	1.2	124	4.67	26.20
800	+3000		6.76	7.56	2.06	0.5	88	3.77	26.20
802	+4000		6.77	7.65	2.04	0.1	74	3.36	26.20
805	+5000		6.78	7.70	2.03	0.0	62	3.09	26.20
808	+6000		6.80	6.67	2.05	0.0	51	3.06	26.20
811	+7000		6.78	7.68	2.00	0.0	45	2.93	26.20

Continued on back (circle one) yes / no

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: Same as Above Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
815	9000	6.79	7.75	1.99	0.0	36	2.83	26.20	—

FINAL DEPTH TO WATER (ft bTOC): 26.20 TIME FINAL DEPTH TAKEN: 815

SAMPLE ID: MW-13 SAMPLE FOR QC: No

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 9 L FLOW THROUGH CELL MODEL #: Horiba U-52 ✓

Well Condition	Remarks
Concrete Pad? ✓ heaved	
Bumper Posts? ✓ heaved	
Protective Casing? ✓	
Paint and Label? ✓ rusty	
Lock? ✓	
Well Casing? ✓	
Reference Point?	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		3-1-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	3-31-2016

WELL NUMBER

MW-13

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
8:13	+8000		6.79	7.73	2.00	0.0	39	2.89	26.20
8:15	+9000		6.79	7.75	1.99	0.0	36	2.83	26.20

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 3-1-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 18°F, overcast, 10-20 from N

WELL IDENTIFICATION: MW-14

DEPTH TO WATER (ft bTOC): 21.48

WELL TOTAL DEPTH (ft bTOC): 29.22

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 7.74 ft of water in casing X 0.165 gallon/foot = 1.26 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1041	pump	on							
1044	cell	fill	6.94	8.71	1.97	5.8	230	4.42	
1046	+1000		6.74	9.09	1.97	5.5	218	1.47	21.49
1048	+2000		6.72	9.20	1.96	6.5	206	0.79	21.49
10:50	+3000		6.72	9.17	1.97	4.8	190	0.44	21.49
10:53	+4000		6.73	9.07	1.98	4.2	167	0.19	21.49
10:55	+5000		6.72	9.13	1.97	4.3	147	0.00	21.49
10:57	+6000		6.73	9.16	1.98	4.6	133	0.00	21.50
10:59	+7000		6.73	9.21	1.98	4.4	120	0.00	21.50

Continued on back (circle one) (yes) no

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1108	+11000	6.72	9.30	1.98	5.2	95	0.0	21.50	

FINAL DEPTH TO WATER (ft bTOC): 21.50 TIME FINAL DEPTH TAKEN: 1108

SAMPLE ID: MW-14 SAMPLE FOR QC: No

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 11 L FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	Remarks
Concrete Pad? ✓	
Bumper Posts? ✓	
Protective Casing? ✓	
Paint and Label? ✓	
Lock? ✓	
Well Casing? ✓	
Reference Point?	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		3-1-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	3-31-2016

WELL NUMBER

MW-14

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1101	+8000		6.72	9.32	1.98	4.9	110	0.00	21.50
1104	+9000		6.71	9.24	1.98	4.6	103	0.00	21.50
1106	+10000		6.71	9.26	1.98	4.6	98	0.00	21.50
1108	+11000		6.72	9.30	1.98	5.2	95	0.00	21.50

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 2-29-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~40°F overcast, NW 5-15mph

WELL IDENTIFICATION: MW-15

DEPTH TO WATER (ft bTOC): 15.81

WELL TOTAL DEPTH (ft bTOC): 25.19

WELL DIAMETER (inches): 2-inch inner diameter

PURGING: 3x pump assembly Volume = 783 mL

CASING VOLUME CALCULATION: 9.38 ft of water in casing X 0.163 gallon/foot = 1.53 total gallons/casing volume

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
15:33	start pump								15.81
15:35	cell full		6.20	8.38	2.31	111	264	15.27	15.85
15:38	+1000	~300 mL/min	6.65	9.20	2.27	45.8	226	11.94	15.85
15:40	+2000	~500 mL/min	6.72	9.22	2.26	19.6	210	10.75	15.84
15:43	+3000	~300 mL/min	6.73	9.18	2.25	9.0	199	9.81	15.85
1546	+4000	~300 mL/min	6.74	9.23	2.24	6.9	187	9.09	15.85
1549	+5000		6.74	9.14	2.24	23.5	147	8.73	15.85
1552	+6000		6.74	9.11	2.25	11.2	114	8.30	15.85
1556	+7000		6.74	9.21	2.25	11.9	98	7.95	15.85
Continued on back (circle one) yes no									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: — Depth to Water (ft bTOC): 15.85

SAMPLING Equipment Used: Same as Above Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1610	10000	6.74	9.11	2.25	15.7	82	7.37	15.85	

FINAL DEPTH TO WATER (ft bTOC): 15.85 TIME FINAL DEPTH TAKEN: 16:05

SAMPLE ID: MW-15 SAMPLE FOR QC: No

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 10 L FLOW THROUGH CELL MODEL #: Horiba U-52 ✓

Well Condition		Remarks
Concrete Pad?	✓	
Bumper Posts?	✓	leaved ?
Protective Casing?	✓	
Paint and Label?	✓	
Lock?	0464	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		2-29-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	3-31-2016

WELL NUMBER

MW-15

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1559	+8000		6.74	9.18	2.25	18.2	91	7.60	15.85
1602	+9000		6.74	9.13	2.25	16.8	86	7.46	15.85
1605	+10,000	see ~~samp~~	6.74	9.11	2.25	15.7	82	7.37	15.85

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 6-6-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~75-80°F, clear, 10-20 from NW

WELL IDENTIFICATION: MW-2

DEPTH TO WATER (ft bTOC): 17.32

WELL TOTAL DEPTH (ft bTOC): 30.45

WELL DIAMETER (inches): 2-inch inner diameter

PURGING: 3x System vol = 7000 mL

CASING VOLUME CALCULATION: 13.13 ft of water in casing X 0.163 gallon/foot = 2.14 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1411	pump on								17.33
1413	cell full		7.03	15.46	1.20	209	175	4.28	17.34
1415	+1000		6.97	13.04	1.16	55.0	70	0.04	17.34
1417	+2000		6.90	12.36	1.18	46.4	8	0.00	17.34
1419	+3000		6.91	12.18	1.20	29.2	-33	0.00	17.34
1421	+4000		6.94	12.00	1.26	9.7	-82	0.00	17.34
1423	+5000		6.96	11.91	1.27	19.8	-98	0.00	17.34
1425	+6000		6.97	11.90	1.28	14.1	-103	0.00	17.34
1427	+7000		6.98	11.91	1.28	7.6	-105	0.00	17.34

Continued on back (circle one) yes (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: — Depth to Water (ft bTOC): —

SAMPLING Equipment Used: (Same as Above) Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1427	+7000	6.98	11.91	1.28	7.6	-105	0.00	17.34	—

FINAL DEPTH TO WATER (ft bTOC): 17.34 TIME FINAL DEPTH TAKEN: 1427

SAMPLE ID: MW-2 SAMPLE FOR QC: MS/MSD (3x vol)

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +7000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	
Concrete Pad?	✓
Bumper Posts?	✓
Protective Casing?	✓
Paint and Label?	No / rusty
Lock?	✓
Well Casing?	✓
Reference Point?	✓

Remarks

R10/D5 @ 30 psi

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		6-6-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	7-18-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 6-6-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~75-80°F, clear, ~ 10-20 from NW

WELL IDENTIFICATION: MW-4

DEPTH TO WATER (ft bTOC): 15.03

WELL TOTAL DEPTH (ft bTOC): 26.70

WELL DIAMETER (inches): 2-inch inner diameter

3x System Vol ~ 900 mL

PURGING:

CASING VOLUME CALCULATION: 11.67 ft of water in casing X 0.163 gallon/foot = ~1.85 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1326	pump on								1503
1327	well full								
1329	+1000		6.86	13.50	2.24	0.0	191	4.05	1505
1331	+2000		6.86	11.71	2.31	0.0	190	0.75	1505
1334	+3000		6.88	11.54	2.31	0.0	187	0.21	15.03
1336	+4000		6.87	11.44	2.33	0.0	179	0.00	15.05
1338	+5000		6.87	11.35	2.33	0.0	176	0.00	15.05
1341	+6000		6.88	11.10	2.34	0.0	175	0.00	15.05

Continued on back (circle one) yes / (no)

Well Purged Below Top of Pump? (Y/N): Y Time to Recharge: — Depth to Water (ft bTOC): —

SAMPLING Equipment Used: (Same as Above) Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1341	+6000	6.88	11.10	2.34	0.0	175	0.00	15.05	—

FINAL DEPTH TO WATER (ft bTOC): 15.05 TIME FINAL DEPTH TAKEN: 1341

SAMPLE ID: MW-4 SAMPLE FOR QC: No

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +6000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	
Concrete Pad?	✓
Bumper Posts?	✓
Protective Casing?	✓
Paint and Label?	✓
Lock?	✓
Well Casing?	✓
Reference Point?	✓

Remarks

R10/05 @ 30 psi

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		6-6-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	7-18-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 6-6-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 80°F, clear, 15-25 from NW

WELL IDENTIFICATION: MW-8

DEPTH TO WATER (ft bTOC): 17.16

WELL TOTAL DEPTH (ft bTOC): 27.60

WELL DIAMETER (inches): 2-inch inner diameter

PURGING: 3x system vol - 900 mL

CASING VOLUME ~~CALCULATION~~: 10.44 ft of water in casing x 0.163 gallon/foot = 1.65 total gallons/casing volume

Equipment Used: ~~Dedicated Bladder Pump~~ Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1545	pump on								17.16
1546	cell full		7.33	16.66	1.60	11.8	82	5.78	17.16
1548	+1000		7.13	13.04	1.44	0.0	-27	0.02	17.16
1550	+2000		7.14	12.27	1.43	0.0	-46	0.00	17.16
1552	+3000		7.15	12.08	1.44	0.0	-52	0.00	17.16
1554	+4000		7.16	11.99	1.44	0.0	-58	0.00	17.16
1556	+5000		7.17	12.00	1.44	0.0	-65	0.00	17.16
1558	+6000		7.17	11.99	1.44	0.0	-70	0.00	17.16
1600	+7000		7.17	11.96	1.44	0.0	-72	0.00	17.16
Continued on back (circle one) yes / (no)									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: — Depth to Water (ft bTOC): —

SAMPLING Equipment Used: (Same as Above) Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1600	+7000	7.17	11.96	1.44	0.0	-72	0.00	17.16	—

FINAL DEPTH TO WATER (ft bTOC): 17.16 TIME FINAL DEPTH TAKEN: 1600

SAMPLE ID: MW-8 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +7000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓ buried	R10/05 @ 30psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	✓ rusty	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		6-6-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	7-18-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 6-6-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~80°F, clear, 20-30 from NW

WELL IDENTIFICATION

MW-10

DEPTH TO WATER (ft bTOC): 15.25

WELL TOTAL DEPTH (ft bTOC): 25.60

WELL DIAMETER (inches): 2-inch inner diameter

3X system vol ~ 2900 mL

PURGING:

CASING VOLUME CALCULATION: 10.35 ft of water in casing X 0.163 gallon/foot = ~1.65 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:_____

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1622	pump on								15.25
1624	cell fill		7.18	16.22	1.41	149	88	5.82	15.27
1626	+1000		6.98	12.89	1.47	16.2	94	0.00	15.27
1629	+2000		6.99	12.46	1.48	6.8	90	0.00	15.27
1631	+3000		7.00	12.22	1.49	3.5	87	0.00	15.27
1633	+4000		7.01	12.15	1.49	1.8	82	0.00	15.27
1636	+5000		7.02	12.07	1.49	0.9	79	0.00	15.27
Continued on back (circle one) yes (no)									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge:_____ Depth to Water (ft bTOC):_____

SAMPLING Equipment Used: (Same as Above) Other:_____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1636	+5000	7.02	12.07	1.49	0.9	79	0.00	15.27	—

FINAL DEPTH TO WATER (ft bTOC): 15.27 TIME FINAL DEPTH TAKEN: 1636

SAMPLE ID: MW-10 SAMPLE FOR QC: none

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +5000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	R10/D5 @ 30 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	✓	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		6-6-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	7-18-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 6-6-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~70°F, partly cloudy, 5-10 from NW

WELL IDENTIFICATION: MW-11

DEPTH TO WATER (ft bTOC): 20.05

WELL TOTAL DEPTH (ft bTOC): 37.35

WELL DIAMETER (inches): 2-inch inner diameter

3x system vol: 900 ml

PURGING:

CASING VOLUME CALCULATION: 17.30 ft of water in casing X 0.163 gallon/foot = 2.82 total gallons/casing volume

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1040	Pump cell fill	on							20.07
1042			7.07	17.80	1.57	0.1	170	4.50	20.07
1045	+1000		6.95	15.52	1.51	0.0	171	0.13	20.07
1049	+2000		6.95	15.19	1.49	0.0	164	0.00	20.06
1052	+3000		6.96	14.89	1.47	0.0	157	0.00	20.07
1055	+4000		6.96	14.81	1.45	0.0	153	0.00	20.07
1059	+5000		6.96	14.68	1.43	0.0	151	0.00	20.07

Continued on back (circle one) yes (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: — Depth to Water (ft bTOC): —

SAMPLING Equipment Used: Same as Above Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1059	+5000	6.96	14.68	1.43	0.0	151	0.00	20.07	none

FINAL DEPTH TO WATER (ft bTOC): 20.07 TIME FINAL DEPTH TAKEN: 1059

SAMPLE ID: MW-11 SAMPLE FOR QC: DP01

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +5000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	
Concrete Pad?	buried
Bumper Posts?	South bent 5
Protective Casing?	✓
Paint and Label?	No / rusty
Lock?	✓
Well Casing?	✓
Reference Point?	✓

Remarks

RIU/DSG @ 30psi

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		6-6-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	7-18-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 8-6-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~70°F partly cloudy (occasional sprinkle), 5-10 from NW

WELL IDENTIFICATION: MW-12

DEPTH TO WATER (ft bTOC): 25.83

WELL TOTAL DEPTH (ft bTOC): 34.85

WELL DIAMETER (inches): 2-inch inner diameter 3x system vol = 900mL

PURGING:

CASING VOLUME CALCULATION: 9.02 ft of water in casing X 0.163 gallon/foot = 1.47 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) ~~Nondedicated Bladder Pump~~ Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
959	pump on								25.83
1002	+1		7.27	15.29	2.15	0.0	147	7.22	25.84
1004	+1000		7.11	13.73	2.28	0.0	148	5.17	25.84
1007	+2000		7.10	13.36	2.32	0.0	148	4.76	25.84
1009	+3000		7.10	13.27	2.34	0.0	147	4.66	25.84
1012	+4000		7.11	13.21	2.34	0.0	148	4.51	25.84
1014	+5000		7.11	13.07	2.35	0.0	149	4.46	25.84
1017	+6000		7.12	13.09	2.35	0.0	150	4.41	25.84

Continued on back (circle one) yes / (no)

Well Purged Below Top of Pump? (Y/N): NA Time to Recharge: — Depth to Water (ft bTOC): —

SAMPLING Equipment Used: (Same as Above) Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1017	+6000	7.12	13.09	2.35	0.0	150	4.41	25.84	—

FINAL DEPTH TO WATER (ft bTOC): 25.84 TIME FINAL DEPTH TAKEN: 1017

SAMPLE ID: MW-12 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +6000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	
Concrete Pad?	present but heaved
Bumper Posts?	East has been hit
Protective Casing?	heaved
Paint and Label?	✓
Lock?	✓
Well Casing?	✓
Reference Point?	✓

Remarks

R10 / D5 @ 30psi

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		6-6-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	7-18-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 6-6-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~70°F, partly cloudy, 5-10 from W

WELL IDENTIFICATION: MW-13

DEPTH TO WATER (ft bTOC): 24.58

WELL TOTAL DEPTH (ft bTOC): 34.65

WELL DIAMETER (inches): 2-inch inner diameter

PURGING: 3x system vol: 9.5

CASING VOLUME CALCULATION: 10.07 ft of water in casing X 0.163 gallon/foot = 1.64 total gallons/casing volume

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
912	0	start	pump						
918	cell full		6.94	16.59	1.78	15.1	130	2.97	24.60
922	+1000		6.88	14.11	1.82	2.3	111	0.06	24.60
925	+2000		6.90	13.59	1.84	1.5	74	0.00	24.60
928	+3000		6.92	13.48	1.84	0.3	32	0.00	24.60
931	+4000		6.93	13.44	1.83	0.4	8	0.00	24.60
934	+5000		6.94	13.38	1.83	0.0	-7	0.00	24.60
937	+6000		6.93	13.29	1.84	0.3	-12	0.00	24.60
940	+7000		6.94	13.39	1.83	0.5	-16	0.00	24.60

Continued on back (circle one) yes / no

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: — Depth to Water (ft bTOC): —

SAMPLING Equipment Used: Same as Above Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
940	+7000	6.94	13.39	1.83	0.5	-16	0.00	24.60	—

FINAL DEPTH TO WATER (ft bTOC): 24.60 TIME FINAL DEPTH TAKEN: 940

SAMPLE ID: MW-13 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +7000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		
Concrete Pad?	✓	
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	✓	rusty
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Remarks

- had to reposition O-ring in flow cell - leaking at start & purge.

R10/105 @ 30 psi

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		6-6-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	7-18-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 6-6-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~70-75°F, mostly clear, 5-15 from NW

WELL IDENTIFICATION: MW-14

DEPTH TO WATER (ft bTOC): 19.76

WELL TOTAL DEPTH (ft bTOC): 29.22

WELL DIAMETER (inches): 2-inch inner diameter

3x system vol ~ 900mL

PURGING:

CASING VOLUME CALCULATION: 9.46 ft of water in casing X 0.163 gallon/foot = 1.6 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1121	Pumps on								19.77
1122	Cell full		7.00	16.02	1.56	3.0	187	4.17	19.78
1125	+1000		6.87	13.44	1.57	0.0	174	0.01	19.78
1127	+2000		6.87	12.92	1.58	0.0	162	0.00	19.78
1130	+3000		6.88	12.77	1.59	0.0	149	0.00	19.78
1132	+4000		6.89	12.86	1.58	0.0	127	0.00	19.78
1135	+5000		6.89	12.77	1.59	0.0	116	0.00	19.78
1137	+6000		6.89	12.77	1.59	0.0	109	0.00	19.78
1140	+7000		6.89	12.66	1.60	0.0	105	0.00	19.78

Continued on back (circle one) yes / (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: — Depth to Water (ft bTOC): —

SAMPLING Equipment Used: (Same as Above) Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1142	+8000	6.89	12.63	1.60	0.0	101	0.00	19.78	—

FINAL DEPTH TO WATER (ft bTOC): 19.78 TIME FINAL DEPTH TAKEN: 1142

SAMPLE ID: MW-14 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +8000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	R10/D5 @ 30 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	No label - paint good	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		6-6-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	7-18-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 6-6-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~80°F, clear, 15-25 from NW

WELL IDENTIFICATION: MW-15

DEPTH TO WATER (ft bTOC): 14.38

WELL TOTAL DEPTH (ft bTOC): 25.19

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 10.81 ft of water in casing X 0.163 gallon/foot = _____ total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:_____

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1511	pump on								14.38
1512	cell full		7.16	17.65	1.81	51.2	131	4.71	14.40
1514	+1000		6.84	13.30	1.96	5.7	100	0.00	14.41
1517	+2000		6.84	12.46	2.00	3.8	94	0.00	14.41
1519	+3000		6.86	12.28	2.00	0.0	91	0.00	14.41
1521	+4000		6.86	12.29	2.00	0.0	89	0.00	14.41

Continued on back (circle one) yes / (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: — Depth to Water (ft bTOC): —

SAMPLING Equipment Used: (Same as Above) Other:_____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1521	+4000	6.86	12.29	2.00	0.00	89	0.00	14.41	

FINAL DEPTH TO WATER (ft bTOC): 14.41 TIME FINAL DEPTH TAKEN: 1521

SAMPLE ID: MW-15 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +4000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	P10/P5@30 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	✓ no label	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		6-6-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	7-18-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 9-20-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~65, clear, calm

WELL IDENTIFICATION: MW-2

DEPTH TO WATER (ft bTOC): 18.71

WELL TOTAL DEPTH (ft bTOC): 30.45

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 11.74 ft of water in casing X 0.163 gallon/foot = 1.91 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
901	Cell/Cell		6.92	13.96	1.18	19.7	35	13.72	18.74
904	1000		6.88	13.30	1.14	13.4	-2	2.07	18.74
907	2000	Flushing Flowcell							
910	3000		6.96	13.13	1.17	84.3	-86	5.60	18.74
912	4000		6.99	13.27	1.18	27.6	-97	4.24	18.74
915	5000		6.99	13.41	1.18	22.8	-103	4.60	18.74
918	6000		6.96	13.44	1.18	8.6	-107	3.97	18.74
920	7000		6.96	13.13	1.18	24.6	-110	0.24	18.74
923	8000		6.96	13.13	1.19	9.7	-113	0.12	18.74

Continued on back (circle one) yes / (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
926	9000	6.95	13.14	1.19	1.5	-116	0.07	18.74	—

FINAL DEPTH TO WATER (ft bTOC): 18.74 TIME FINAL DEPTH TAKEN: 926

SAMPLE ID: MW-2 SAMPLE FOR QC: MS/MSD

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 9000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	
Concrete Pad?	✓
Bumper Posts?	✓
Protective Casing?	✓
Paint and Label?	rusty - needs label
Lock?	✓
Well Casing?	✓
Reference Point?	✓

Remarks

R10/105 @ 25 psi

* tap flowcell to clear air

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		9-20-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	10-28-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 9-20-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~55, clear, calm

WELL IDENTIFICATION: MW-4

DEPTH TO WATER (ft bTOC): 16.43

WELL TOTAL DEPTH (ft bTOC): 26.50

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 10.07 ft of water in casing X 0.163 gallon/foot = 1.64 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
801	well full		6.77	16.59	2.40	8.1	-47	4.29	16.44
804	1000		6.67	16.52	2.44	4.8	-64	1.97	16.45
807	2000		6.68	15.93	2.46	0.0	-70	0.96	1645
810	3000		6.69	15.59	2.48	0.0	-71	0.70	16.45
812	4000		6.70	15.48	2.48	0.0	-71	0.60	16.45
~~815~~	5000		6.69	15.43	2.48	0.0	-72	0.54	16.45
~~818~~	6000		6.70	15.35	2.49	0.0	-72	0.52	16.45
Continued on back (circle one) yes / (no)									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
~~818~~	6000	6.70	15.35	2.49	0.0	-72	0.52	16.45	16.45

FINAL DEPTH TO WATER (ft bTOC): 16.45 TIME FINAL DEPTH TAKEN: 818

SAMPLE ID: MW-4 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 6000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	buried	R10105 @ 20 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	rusty w/ label	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		9-20-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	10-28-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 9-19-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~80-85°F, clear, calm

WELL IDENTIFICATION: MW-8

DEPTH TO WATER (ft bTOC): 18.33

WELL TOTAL DEPTH (ft bTOC): 27.60

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 9.27 ft of water in casing X 0.163 gallon/foot = 1.51 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1648	cell full		7.52	21.46	2.04	0.0	103	8.73	18.41
1652	1000		7.38	16.51	2.32	0.0	78	4.27	18.41
1654	2000		7.35	15.79	2.34	0.0	56	3.78	18.41
1657	3000		7.31	16.35	2.28	0.0	25	2.53	18.41
1659	4000		7.28	15.43	2.30	0.0	12	2.43	18.41
1702	5000		7.26	15.27	2.29	0.0	1	2.20	18.41
1704	6000		7.26	15.26	2.27	0.0	-3	2.07	18.41
1707	7000		7.25	15.14	2.26	0.0	-7	1.99	18.41
1709	8000		7.23	15.16	2.24	0.0	-10	1.93	18.41
Continued on back (circle one) yes / (no)									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: (Same as Above) Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1712	9000	7.22	15.18	2.23	0.0	-12	1.89	18.41	-

FINAL DEPTH TO WATER (ft bTOC): 18.41 TIME FINAL DEPTH TAKEN: 1712

SAMPLE ID: MW-8 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 9000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	buried ?	R10/D5 @ 25 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	very rusty w/ label	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		9-19-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	10-28-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 9-19-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~80°F, clear, calm

WELL IDENTIFICATION: MW-10

DEPTH TO WATER (ft bTOC): 16.40

WELL TOTAL DEPTH (ft bTOC): 25.75

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 9.35 ft of water in casing X 0.163 gallon/foot = 1.52 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1737	Cell Cell		7.19	17.11	1.44	1.3	-72	3.17	16.41
1740	1000		7.26	15.16	1.46	0.0	-124	0.80	16.42
1742	2000		7.25	14.84	1.46	0.0	-132	0.55	16.42
1745	3000		7.24	14.77	1.46	0.0	-135	0.35	16.42
1747	4000		7.22	14.57	1.46	0.0	-137	0.24	16.42
1750	5000		7.21	14.52	1.46	0.0	-137	0.17	16.42
1752	6000		7.20	14.52	1.46	0.0	-137	0.13	16.42
Continued on back (circle one) yes / (no)									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: (Same as Above) Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1755	7000	7.19	14.49	1.46	0.0	-137	0.10	16.42	—

FINAL DEPTH TO WATER (ft bTOC): 16.42 TIME FINAL DEPTH TAKEN: 17:55

SAMPLE ID: MW-10 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 7000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	buried ?	R10/105 @ 25 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	rusty w/ label	
Lock?	No	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		9-19-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	10-28-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 9-20-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~65°F, clear, 5-10 from NW

WELL IDENTIFICATION: MW-11

DEPTH TO WATER (ft bTOC): 21.27

WELL TOTAL DEPTH (ft bTOC): 37.35

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 17.73 ft of water in casing X 0.163 gallon/foot = 2.24 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1002	cell full		7.15	15.82	1.67	0.0	125	3.35	21.27
1005	1000		6.86	15.33	1.73	0.0	117	3.92	21.27
1008	2000		6.86	15.17	1.75	0.0	118	1.03	21.27
1011	3000		6.84	15.14	1.75	0.0	119	0.72	21.27
1014	4000		6.85	15.17	1.75	0.0	121	0.57	21.27
1017	5000		6.85	15.30	1.74	0.0	123	0.48	21.27
1020	6000		6.85	15.36	1.74	0.0	124	0.52	21.27
Continued on back (circle one) yes / (no)									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING (Equipment Used:) Same as Above Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1023	7000	6.86	15.41	1.74	0.0	125	0.51	21.27	—

FINAL DEPTH TO WATER (ft bTOC): 21.27 TIME FINAL DEPTH TAKEN: 1023

SAMPLE ID: MW-11 SAMPLE FOR QC: DP-01

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 7000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	
Concrete Pad?	buried?
Bumper Posts?	✓ (bent)
Protective Casing?	✓
Paint and Label?	rusty - no label
Lock?	✓
Well Casing?	✓
Reference Point?	✓

Remarks

R10/05 @ 25psi

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		9-20-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	10-28-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 9-19-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~75°F, clear, calm

WELL IDENTIFICATION: MW-12

DEPTH TO WATER (ft bTOC): 27.00

WELL TOTAL DEPTH (ft bTOC): 34.85

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 7.85 ft of water in casing X 0.163 gallon/foot = 1.28 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1903	cell full		7.10	16.94	1.94	24.6	120	8.31	27.01
1906	1000		7.12	15.48	1.90	0.0	117	5.35	27.01
1909	2000		7.11	15.13	1.89	0.0	122	4.69	27.01
1912	3000		7.09	14.82	1.91	0.0	126	4.29	27.01
1915	4000		7.09	14.92	1.90	0.0	129	4.01	27.01
1918	5000		7.08	14.57	1.92	0.0	131	3.94	27.01
1921	6000		7.08	14.86	1.91	0.0	133	3.87	27.01
1924	7000		7.08	14.71	1.91	0.0	134	3.84	27.01

Continued on back (circle one) yes / (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1924	7000	7.08	14.71	1.91	0.0	134	3.84	27.01	—

FINAL DEPTH TO WATER (ft bTOC): 27.01 TIME FINAL DEPTH TAKEN: 1924

SAMPLE ID: MW-12 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 7000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	
Concrete Pad?	✓ (heaved)
Bumper Posts?	bent
Protective Casing?	leaning
Paint and Label?	peeling paint w label
Lock?	✓
Well Casing?	✓
Reference Point?	✓ (heaved?)

Remarks

R10/D5 @ 30psi.

Protop heaved ~ 8.12" and leaning toward road at 15-20° angle.

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		9-19-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	10-28-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 9-19-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~80°F, clear, calm

WELL IDENTIFICATION: MW-13

DEPTH TO WATER (ft bTOC): 25.74

WELL TOTAL DEPTH (ft bTOC): 34.65

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 8.91 ft of water in casing X 0.163 gallon/foot = 1.45 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1819	cell full		7.09	18.24	1.76	0.0	107	3.45	25.74
1822	1000		6.82	15.86	1.76	0.0	56	0.97	25.74
1824	2000		6.84	15.27	1.75	0.0	10	3.91	25.74
1827	3000		6.85	15.24	1.73	0.0	-5	0.37	25.74
1829	4000		6.86	15.23	1.73	0.0	-10	0.27	25.74
1832	5000		6.88	15.13	1.73	0.0	-23	0.18	25.74
1834	6000		6.89	15.13	1.72	0.0	-26	0.15	25.74
1837	7000		6.89	15.10	1.73	0.0	-28	0.13	25.74
Continued on back (circle one) yes / (no)									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1837	7000	6.89	15.10	1.73	0.0	-28	0.13	25.74	—

FINAL DEPTH TO WATER (ft bTOC): 25.74 TIME FINAL DEPTH TAKEN: 1837

SAMPLE ID: MW-13 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 7000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	D5/R10 @ 30 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	rusty, w/ label	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wheland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wheland		9-19-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	10-28-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 9-20-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~70°F, clear, 10-15 from SW

WELL IDENTIFICATION: MW-14

DEPTH TO WATER (ft bTOC): 20.99

WELL TOTAL DEPTH (ft bTOC): 29.22

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 8.23 ft of water in casing X 0.163 gallon/foot = 1.34 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:_____

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1050	cell full		6.80	17.54	1.77	0.0	129	4.21	21.02
1052	1000		6.75	15.73	1.84	0.0	131	1.24	21.02
1054	2000		6.75	15.50	1.85	0.0	133	0.74	21.03
1057	3000		6.75	15.42	1.86	0.0	136	0.52	21.03
1059	4000		6.75	15.39	1.86	0.0	136	0.43	21.03
1101	5000		6.75	15.28	1.84	0.0	133	0.35	21.03
1104	6000		6.75	15.33	1.85	0.0	131	0.33	21.03
1106	7000								

Continued on back (circle one) yes (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge:_____ Depth to Water (ft bTOC):_____

SAMPLING Equipment Used: (Same as Above) Other:_____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1106	~~7000~~ 6000	6.75	15.33	1.85	0.0	131	0.33	21.03	—

FINAL DEPTH TO WATER (ft bTOC): 21.03 TIME FINAL DEPTH TAKEN: 1106

SAMPLE ID: MW-14 SAMPLE FOR QC: none

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 6000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	R10/05 @ 25 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	no label	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		9-20-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	10-28-16

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 9-19-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~80-85°F, clear, calm

WELL IDENTIFICATION: MW-15

DEPTH TO WATER (ft bTOC): 15.73

WELL TOTAL DEPTH (ft bTOC): 25.19

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 9.46 ft of water in casing X 0.163 gallon/foot = 1.54 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1545	cell full		6.95	29.51	1.65	45.5	104	2.80	15.81
1547	1000		6.82	28.07	1.61	0.0	77	0.88	15.81
1550	2000		6.78	27.06	1.63	29.1	79	0.49	15.80
1553	3000		6.77	26.50	1.63	0.0	82	0.37	15.80
1556	4000		6.72	25.98	1.64	5.1	71	0.29	15.80
1559	5000		6.74	25.75	1.66	29.4	61	0.34	15.80
1602	6000		6.56	22.78	1.80	59.0	52	1.82	15.80
1605	7000	Hush Howell							
1608	8000		6.68	19.97	1.90	45.3	48	0.84	15.80

Continued on back (circle one) (yes) / no

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: (Same as Above) Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1620	12000	6.62	19.88	1.86	0.0	38	0.24	15.80	—

FINAL DEPTH TO WATER (ft bTOC): 15.80 TIME FINAL DEPTH TAKEN: 1620

SAMPLE ID: MW-15 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 12000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	R10105 @ 25 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	no label	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		9-19-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	10-28-16

WELL NUMBER

MW-15

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1611	9000		6.63	19.59	1.88	0.0	38	0.26	15.80
1614	10000		6.64	19.95	1.87	0.0	36	0.27	15.80
1617	11000		6.64	20.01	1.87	0.0	37	0.20	15.80
1620	12000		6.62	19.88	1.86	0.0	38	0.24	15.80

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 12-19-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 10°F, dark

WELL IDENTIFICATION: MW-2

DEPTH TO WATER (ft bTOC): 20.31

WELL TOTAL DEPTH (ft bTOC): 30.41

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 10.1 ft of water in casing x 0.163 gallon/foot = 1.65 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
SCD 17:39									
SCD 17:38	Full Cell	333/min	7.12	9.83	1.23	11.7	-76	3.74	20.33
~~17:39~~	+1000		6.89	10.53	1.21	27.4	-104	0.29	20.33
17:41	+2000		6.89	10.55	1.21	24.5	-106	0.26	20.33
17:44	+3000		6.91	10.59	1.22	13.6	-117	0.18	20.33
17:47	+4000		6.92	10.57	1.22	11.5	-124	0.18	20.33
17:50	+5000		6.93	10.56	1.22	9.9	-129	0.17	20.37
17:53	+6000		6.93	10.54	1.22	9.0	-133	0.14	20.37
17:56	+7000		6.94	10.54	1.20	7.7	-134	0.15	20.37
17:59	+8000		6.94	10.54	1.20	6.2	-137	0.39	20.37

A comment on back

Continued on back (circle one) yes / no

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC): 20.33

SAMPLING Equipment Used: Same as Above Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
18:08	11,000	6.94	10.50	1.19	4.9	-139	0.13	20.37	

FINAL DEPTH TO WATER (ft bTOC): 20.37 TIME FINAL DEPTH TAKEN: 18:08

SAMPLE ID: MW-2 SAMPLE FOR QC: MS/MSD

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 11000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	rusty no label	
Lock?	✓	
Well Casing?	rusty	
Reference Point?	✓	

Field Sampler(s) Name(s): Sean Determan

	NAME	SIGNATURE	DATE
PREPARED:	Sean Determan	Sean Determan	12-19-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	1-5-2017

WELL NUMBER

MW-2

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
18:02	+9000	333/min	6.94	10.56	1.20	6.2	-137	0.19	20.37
18:05	+10000		6.94	10.52	1.19	5.4	-139	0.13	20.37
18:08	+11,000		6.94	10.50	1.19	4.9	-139	0.13	20.37

COMMENTS

* Pump came unhooked from battery.

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 12-19-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 10 °F, clear skies, sunny

WELL IDENTIFICATION: MW-4

DEPTH TO WATER (ft bTOC): ~~18.17~~ SCD ~~15.17~~ SCD 18.17

WELL TOTAL DEPTH (ft bTOC): 26.51

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 8.34 ft of water in casing X 0.163 gallon/foot = 1.36 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
11:17	Full Cell	500/min	6.90	9.30	2.56	11.5	-73	7.34	18.17
11:14	+1000	500/min	6.78	9.92	2.59	8.5	-87	0.95	18.17
11:17	+2000	333/min	6.76	10.09	2.59	4.3	-93	0.36	18.17
11:20	+3000	333/min	6.76	10.02	2.57	4.7	-96	0.16	18.17
11:23	+4000	333/min	6.76	10.10	2.56	4.3	-97	0.09	18.17
11:26	+5000	333/min	6.75	10.13	2.55	3.9	-99	0.04	18.17
Continued on back (circle one) yes (no)									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC) 18.17

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
11:26	5000	6.75	10.13	2.55	3.9	-99	0.04	18.17	

FINAL DEPTH TO WATER (ft bTOC): 18.17 TIME FINAL DEPTH TAKEN: 11:26

SAMPLE ID: MW-4 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 5000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	DS/R10 @ 35 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	Rusty ✓	
Lock?	✓	
Well Casing?	Rusty	
Reference Point?	✓	

Field Sampler(s) Name(s): Sean Determan

	NAME	SIGNATURE	DATE
PREPARED:	Sean Determan	Sean C Determan	12-19-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	1-5-2017

WELL NUMBER

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 12-19-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 20°F partly cloudy

WELL IDENTIFICATION: MW-8

DEPTH TO WATER (ft bTOC): 20.06

WELL TOTAL DEPTH (ft bTOC): 27.68

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 7.62 ft of water in casing x 0.163 gallon/foot = 1.24 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:_____

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
15:45	Full Cell	333/min	7.35	11.24	2.28	3.5	104	0.40	20.09
15:50	+1000		7.29	11.03	2.29	4.3	46	0.01	20.09
15:53	+2000		7.28	10.99	2.29	3.9	-34	0.00	20.09
15:56	+3000		7.26	10.95	2.29	3.6	-56	0.00	20.09
16:00	+4000		7.25	10.95	2.29	3.3	-59	0.00	20.09
16:03	+5000		7.24	10.88	2.28	3.1	-62	0.00	20.09

Continued on back (circle one) yes / (no)

Well Purged Below Top of Pump? (Y/N): Y Time to Recharge:_____ Depth to Water (ft bTOC):_____

SAMPLING Equipment Used: (Same as Above) Other:_____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
16:03	5000	7.24	10.88	2.28	3.1	-62	0.00	20.09	

FINAL DEPTH TO WATER (ft bTOC): 20.09 TIME FINAL DEPTH TAKEN: 16:03

SAMPLE ID: MW-8 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 5000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	Remarks
Concrete Pad? ✓	NE bollard - no concrete
Bumper Posts?	
Protective Casing? ✓	
Paint and Label? rusty w/ label	
Lock? ✓	
Well Casing? rusty	
Reference Point? ✓	

Field Sampler(s) Name(s): Sean Determan

	NAME	SIGNATURE	DATE
PREPARED:	Sean Determan	Sean Determan	12-19-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	1-5-2017

WELL NUMBER

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 12-19-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 20°F, Sunny

WELL IDENTIFICATION: MW-10

DEPTH TO WATER (ft bTOC): 18.13

WELL TOTAL DEPTH (ft bTOC): 25.71

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 7.58 ft of water in casing X 0.163 gallon/foot = 1.24 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
14:46	Fill (+11	333/min	7.15	10.97	1.41	46.7	-134	1.95	18.13
14:49	+1000		7.15	11.09	1.41	52.2	-146	1.08	18.13
14:52	+2000		7.16	11.16	1.40	42.0	-154	0.57	18.13
14:55	+3000		7.18	11.18	1.40	16.6	-160	0.28	18.13
14:59	+4000		7.19	11.12	1.41	10.0	-164	0.09	18.13
15:03	+5000		7.20	11.15	1.42	14.5	-167	0.04	18.13
15:07	+6000		7.20	11.11	1.42	9.4	-167	0.02	18.13
15:11	+7000		7.20	11.10	1.43	6.8	-167	0.00	18.13
15:14	+8000		7.20	11.09	1.43	6.2	-167	0.00	18.13
Continued on back (circle one) (yes) no									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
15:18	+9000	7.20	11.08	1.42	4.9	-167	0.0	18.13	

FINAL DEPTH TO WATER (ft bTOC): 18.13 TIME FINAL DEPTH TAKEN: 15:18

SAMPLE ID: MW-10 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 9000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	D5/R10 @ 35 psi
Bumper Posts?	✓	Heavy vegetation
Protective Casing?	Rusty	
Paint and Label?	rusty w/ label	
Lock?	✓	
Well Casing?	Scuffed ✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Sean Determan

	NAME	SIGNATURE	DATE
PREPARED:	Sean Determan	S C Det	12-19-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	1-5-2017

WELL NUMBER

MW-10

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
15:18	+9000	333/min	7.20	11.08	1.42	4.9	-167	0.00	15.13

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 12-19-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 15 °F, partly cloudy

WELL IDENTIFICATION

MW-11

DEPTH TO WATER (ft bTOC): 22.97

WELL TOTAL DEPTH (ft bTOC): 37.38

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 14.41 ft of water in casing x 0.163 gallon/foot = 2.35 total gallons/casing volume

Equipment Used: ~~Dedicated Bladder Pump~~ Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
16:28	Full Cell	333/min	6.99	10.33	1.69	2.3	68	1.35	22.97
16:31	+1000		6.90	10.55	1.66	2.1	70	0.37	22.97
16:34	+2000		6.89	10.59	1.65	1.9	71	0.26	22.97
16:37	+3000		6.89	10.51	1.65	2.3	72	0.14	22.97
16:40	+4000		6.89	10.51	1.65	2.4	73	0.12	22.97

Continued on back (circle one) yes / no

Well Purged Below Top of Pump? (Y/N): Y Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: Same as Above Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
16:40	4000	6.89	10.51	1.65	2.4	73	0.12	22.97	

FINAL DEPTH TO WATER (ft bTOC): 22.97 TIME FINAL DEPTH TAKEN: 16:40

SAMPLE ID: MW-11 SAMPLE FOR QC: DP 01

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 4000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	
Concrete Pad?	✓
Bumper Posts?	Bent/leaning
Protective Casing?	✓
Paint and Label?	rusty/no label
Lock?	✓
Well Casing?	rusty
Reference Point?	✓

Remarks

D5/R10 @ 35 psi

Field Sampler(s) Name(s): Sean Determan

	NAME	SIGNATURE	DATE
PREPARED:	Sean Determan	Sean C Determan	12-19-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	1-5-2017

WELL NUMBER

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 12-19-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 5°F, partly cloudy

WELL IDENTIFICATION: MW-12

DEPTH TO WATER (ft bTOC): 28.74

WELL TOTAL DEPTH (ft bTOC): 35.19

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 6.45 ft of water in casing X 0.163 gallon/foot = 1.05 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
09:00	Full Cell	333/min	7.28	9.33	2.00	4.6	118	4.53	28.74
09:03	+1000		7.04	9.15	2.01	6.5	125	1.63	28.74
09:06	+2000		7.01	9.38	2.00	8.0	132	1.33	28.74
09:09	+3000		6.99	9.46	2.00	4.7	141	1.14	28.74
09:12	+4000		6.99	9.60	2.00	4.4	148	1.11	28.74
09:15	+5000		6.98	9.63	1.99	4.3	156	1.09	28.74

Continued on back (circle one) yes / (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: (Same as Above) Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
09:15	+5000	6.98	9.63	1.99	4.3	156	1.09	28.74	

FINAL DEPTH TO WATER (ft bTOC): 28.74 TIME FINAL DEPTH TAKEN: 09:15

SAMPLE ID: MW-12 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 5000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓ (chewed)	R10/05 @ 45 psi
Bumper Posts?	bent	
Protective Casing?	leaning	
Paint and Label?	✓	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s):

	NAME	SIGNATURE	DATE
PREPARED:	Sean Determann	S C Determann	12-19-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	1-5-2017

WELL NUMBER

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 12-8-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 5°F Partly cloudy

WELL IDENTIFICATION: MW-13

DEPTH TO WATER (ft bTOC): 27.47

WELL TOTAL DEPTH (ft bTOC): 35.30

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 7.83 ft of water in casing X 0.163 gallon/foot = 1.28 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
03:09	Cell Full		7.42	10.15	1.61	5.6	94	5.92	27.47
08:12	+1000		6.94	10.23	1.65	4.3	-72	5.41	27.47
08:15	+2000		6.90	10.25	1.65	2.9	-90	4.99	27.47
08:18	+3000		6.89	10.27	1.66	1.3	-114	4.28	27.47
08:21	+4000		6.90	10.26	1.66	0.5	-117	4.34	27.47
08:24	+5000		6.90	10.32	1.66	0.0	-122	3.65	27.47
08:27	+6000		6.90	10.30	1.67	0.2	-121	0.28	27.47
08:30	+7000		6.90	10.19	1.67	0.4	-121	0.21	27.47
08:33	+8000		6.90	10.09	1.67	0.8	-121	0.18	27.47
Continued on back (circle one) yes / (no)									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): 27.47

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
08:33	+8000	6.90	10.09	1.67	0.8	-121	0.18	27.47	

FINAL DEPTH TO WATER (ft bTOC): 27.47 TIME FINAL DEPTH TAKEN: 0833

SAMPLE ID: MW-13 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): 8000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	
Concrete Pad?	✓
Bumper Posts?	✓
Protective Casing?	✓
Paint and Label?	✓
Lock?	✓
Well Casing?	✓
Reference Point?	✓

Remarks

DS/R10 @ 45 psi

Field Sampler(s) Name(s): Sean Determan

	NAME	SIGNATURE	DATE
PREPARED:	Sean Determan	S C D	12-19-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	1-5-17

WELL NUMBER

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 12-19-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 5°F, clear skies, sunny

WELL IDENTIFICATION: MW-14

DEPTH TO WATER (ft bTOC): 22.67

WELL TOTAL DEPTH (ft bTOC): 29.25

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 6.58 ft of water in casing X 0.163 gallon/foot = 1.07 total gallons/casing volume

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other:_____

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
09:56	Full (e)	333/min	6.78	10.36	2.05	8.3	229	11.89	22.67
09:59	+1000		6.76	10.68	2.05	9.0	221	1.39	22.67
10:02	+2000		6.76	10.83	2.05	10.0	210	0.60	22.67
10:05	+3000		6.76	10.86	2.05	7.7	192	0.27	22.67
10:08	+4000		6.75	10.91	2.06	5.3	172	0.18	22.67
10:11	+5000		6.75	11.02	2.06	3.2	153	0.13	22.67
10:14	+6000		6.75	11.07	2.05	3.1	135	0.10	22.67
10:17	+7000		6.75	11.10	2.05	3.3	122	0.08	22.67
Continued on back (circle one) yes / no									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge:_____ Depth to Water (ft bTOC):_____

SAMPLING Equipment Used: Same as Above Other:_____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
10:17	+7000	6.75	11.10	2.05	3.3	122	0.08	22.67	

FINAL DEPTH TO WATER (ft bTOC): 22.67 TIME FINAL DEPTH TAKEN: 10:17

SAMPLE ID: MW-14 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +7000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	No label	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Sean Determan

	NAME	SIGNATURE	DATE
PREPARED:	Sean Determan	Sean C Determan	12-19-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	1-5-17

WELL NUMBER

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 12-19-16 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 20°F, Sunny

WELL IDENTIFICATION: MW-15

DEPTH TO WATER (ft bTOC): 17.47

WELL TOTAL DEPTH (ft bTOC): 25.20

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 7.73 ft of water in casing X 0.163 gallon/foot = 1.26 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) ~~Nondedicated Bladder Pump~~ Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
13:22	Full Cell	333/min	6.86	12.31	2.06	39.3	151	2.48	17.47
13:25	+1000		6.81	12.27	2.05	22.2	136	1.31	17.47
~~13:28~~ 13:29	+2000		6.78	11.88	2.04	30.5	122	0.62	17.47
13:33	+3000		6.77	11.55	2.03	45.3	104	0.37	17.47
13:37	+4000		6.77	11.54	2.03	34.7	85	0.22	17.47
13:41	+5000		6.77	10.89	2.03	53.1	72	0.16	17.47
13:45	+6000		6.76	11.29	2.03	10.6	61	0.09	17.47
13:49	+7000		6.76	11.49	2.04	4.4	49	0.04	17.47
13:53	+8000		6.75	11.72	2.04	4.9	38	0.17	17.47

Continued on back (circle one) yes / no

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: ~~Same as Above~~ Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
13:57 ~~9000~~	9000	6.75	11.75	2.04	2.0	32	0.03	17.47	

FINAL DEPTH TO WATER (ft bTOC): 17.47 TIME FINAL DEPTH TAKEN: 13:57

SAMPLE ID: MW-15 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): ~9000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	05/R10 @ 35 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	no label	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Sean Determan

	NAME	SIGNATURE	DATE
PREPARED:	Sean Determan	Sean C Determan	12-19-16
REVIEWED:	Kevin Armstrong	Kevin Armstrong	1-5-17

WELL NUMBER

MW-15

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
13:57	+9000	333/min	6.75	11.75	2.04	2.0	32	0.03	17.45

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 2-20-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~60°F, 10-20 from S, overcast

WELL IDENTIFICATION: MW-2

DEPTH TO WATER (ft bTOC): 21.21

WELL TOTAL DEPTH (ft bTOC): 30.41

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 9.20 ft of water in casing X 0.163 gallon/foot = 1.50 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1413	Cell Full		6.76	12.44	1.24	118	-74	2.84	21.21
1416	+1000		6.77	12.10	1.23	48.7	-95	0.80	21.22
1418	+2000		6.80	12.09	1.22	25.8	-102	0.49	21.21
1421	+3000		6.82	12.04	1.20	15.7	-105	0.36	21.21
1424	+4000		6.82	12.03	1.20	14.1	-107	0.27	21.21
1427	+5000		6.82	11.97	1.19	10.2	-108	0.20	21.21
1430	+6000		6.81	11.89	1.18	8.8	-109	0.16	21.21
1433	+7000		6.81	11.87	1.17	5.9	-108	0.13	21.21
1436	+8000		6.80	11.86	1.17	4.8	-109	0.10	21.21
Continued on back (circle one) yes (no)									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1436	+8000	6.80	11.86	1.17	4.8	-109	0.10	21.21	clear

FINAL DEPTH TO WATER (ft bTOC): 21.21 TIME FINAL DEPTH TAKEN: 1436

SAMPLE ID: MW-2 SAMPLE FOR QC: MS/MSD

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +8000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	R10/05 @ 24 psi
Bumper Posts?	✓	R10/05 @ 20 psi at 1418
Protective Casing?	✓	
Paint and Label?	✓ no label	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		2-20-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	3-29-2017

WELL NUMBER

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 2-20-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~60°F, overcast, 5-10 from S

WELL IDENTIFICATION: MW-4

DEPTH TO WATER (ft bTOC): 1887 @ 1314

WELL TOTAL DEPTH (ft bTOC): 26.51

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 7.64 ft of water in casing x 0.163 gallon/foot = 1.25 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1322	well full		6.14	14.41	2.48	15.9	-12	1.29	18.94
1325	+1000		6.63	12.43	2.59	7.9	-82	0.45	18.94
1329	+2000		6.70	12.00	2.56	4.1	-91	0.28	18.94
1332	+3000		6.72	11.91	2.51	3.5	-92	0.17	18.94
1335	+4000		6.72	11.84	2.47	4.2	-94	0.09	18.94
1339	+5000		6.72	11.78	2.44	5.5	-94	0.03	18.94
1342	+6000		6.72	11.74	2.43	4.8	-95	0.00	18.94

Continued on back (circle one) yes (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
+6000	1342	6.72	11.74	2.43	4.8	-95	0.00	18.94	clear

FINAL DEPTH TO WATER (ft bTOC): 18.94 TIME FINAL DEPTH TAKEN: 1342

SAMPLE ID: MW-4 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +6000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	buried	R10/D5 @ 22 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	rusty	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		2-20-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	3-29-2017

MW-3 DTW 18.76 @ 1313

WELL NUMBER

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 2-21-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 30°F, 5 from SE, clear

WELL IDENTIFICATION: MW-8

DEPTH TO WATER (ft bTOC): 20.89

WELL TOTAL DEPTH (ft bTOC): 27.68

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 6.79 ft of water in casing X 0.163 gallon/foot = 1.11 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
744	collect		6.49	10.55	2.12	30.9	165	3.27	20.89
747	+1000		6.88	10.28	2.06	0.0	17	1.29	20.89
750	+2000		6.95	10.23	2.02	0.0	-18	1.95	20.89
753	+3000		6.95	10.11	2.00	0.0	-30	1.45	20.89
755	+4000		6.95	10.02	1.98	0.0	-34	1.27	20.89
758	+5000		6.94	9.97	1.99	0.0	-36	1.21	20.89
801	+6000		6.94	9.99	1.99	0.0	-37	1.18	20.89
Continued on back (circle one) yes (no)									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: (Same as Above) Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
801	+6000	6.94	9.99	1.99	0.0	-37	1.18	20.89	clear

FINAL DEPTH TO WATER (ft bTOC): 20.89 TIME FINAL DEPTH TAKEN: 801

SAMPLE ID: MW-8 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +6000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	buried	R10/D5 @ 22 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	rusty	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		2-21-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	3-29-2017

WELL NUMBER

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 2-21-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 35°F, clear, calm

WELL IDENTIFICATION: MW-10

DEPTH TO WATER (ft bTOC): 18.90

WELL TOTAL DEPTH (ft bTOC): 25.71

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 6.81 ft of water in casing X 0.163 gallon/foot = 1.11 total gallons/casing volume

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
836	Cell Full		6.93	11.76	1.37	66.9	-108	2.42	18.91
838	+1000		7.02	11.84	1.39	21.8	-145	0.28	18.91
841	+2000		7.05	11.68	1.38	16.5	-151	0.12	18.92
844	+3000		7.05	11.84	1.37	11.2	-156	0.02	18.92
847	+4000		7.05	11.86	1.37	9.1	-159	0.00	18.92
849	+5000		7.04	11.85	1.37	7.1	-160	0.00	18.92
852	+6000		7.04	11.81	1.37	5.7	-161	0.00	18.92
855	+7000		7.02	11.79	1.37	4.5	-160	0.00	18.92
Continued on back (circle one) yes / no									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: Same as Above Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
855	+7000	7.02	11.79	1.37	4.5	-160	0.00	18.92	clear

FINAL DEPTH TO WATER (ft bTOC): 18.92 TIME FINAL DEPTH TAKEN: 855

SAMPLE ID: MW-10 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +7000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	
Concrete Pad?	buried
Bumper Posts?	✓
Protective Casing?	✓
Paint and Label?	✓ rusty
Lock?	no lock
Well Casing?	✓
Reference Point?	✓

Remarks

R10/05 @ 20 psi.

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		2-21-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	3-29-2017

WELL NUMBER

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 2-20-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 55-60°F, 10-15 from S, Mostly clear

WELL IDENTIFICATION: MW-11

DEPTH TO WATER (ft bTOC): 23.82

WELL TOTAL DEPTH (ft bTOC): 37.38

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 13.56 ft of water in casing X 0.163 gallon/foot = 2.21 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1724	cell full		7.09	14.04	1.53	1.1	174	1.57	23.83
1727	+1000		6.88	12.86	1.55	0.0	167	0.26	25.83
1730	+2000		6.88	12.69	1.54	0.0	159	0.26	23.83
1733	+3000		6.89	12.56	1.54	0.0	152	2.21*	23.83
1735	+4000		6.88	12.57	1.53	0.0	149	2.46*	23.83
1738	+6000		6.88	12.51	1.54	0.0	147	0.18	23.83
1741	+7000		6.87	12.48	1.53	0.0	145	0.16	23.83
1744	+8000		6.87	12.49	1.53	0.0	142	0.15	23.83
Continued on back (circle one) yes / (no)									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1744	+8000	6.87	12.49	1.53	0.0	142	0.15	23.83	clear

FINAL DEPTH TO WATER (ft bTOC): 23.83 TIME FINAL DEPTH TAKEN: 1744

SAMPLE ID: MW-11 SAMPLE FOR QC: DP-01 (duplicate)

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +8000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	
Concrete Pad?	✓
Bumper Posts?	✓
Protective Casing?	✓
Paint and Label?	rusty
Lock?	✓
Well Casing?	✓
Reference Point?	✓

Remarks

R-10/05 @ 26 psi

* bubble in ion sensor?

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		2-20-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	3-29-2017

WELL NUMBER

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 2-20-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 55-60°F, 10-20 from S, partly cloudy

WELL IDENTIFICATION: MW-12

DEPTH TO WATER (ft bTOC): 29.51

WELL TOTAL DEPTH (ft bTOC): 35.19

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 5.68 ft of water in casing X 0.163 gallon/foot = 0.93 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1631	cell full		7.23	13.90	1.79	4.8	112	2.49	29.51
1634	+1000		6.98	13.45	1.79	1.4	104	1.13	29.51
1637	+2000		6.96	13.25	1.79	0.5	101	0.64	29.51
1641	+3000		6.95	13.10	1.80	0.6	102	0.46	29.51
1644	+4000		6.95	13.01	1.80	0.6	104	0.35	29.51
1647	+5000		6.94	12.96	1.80	0.0	105	0.29	29.51
1650	+6000		6.94	12.94	1.80	0.0	105	0.27	29.51

Continued on back (circle one) yes (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: MQvbl? - only partial refill each stroke Depth to Water (ft bTOC):

SAMPLING Equipment Used: (Same as Above) Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1650	+6000	6.94	12.94	1.80	0.0	105	0.27	29.51	clear

FINAL DEPTH TO WATER (ft bTOC): 29.51 TIME FINAL DEPTH TAKEN: 1650

SAMPLE ID: MW-12 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +6000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	
Concrete Pad?	heaved
Bumper Posts?	✓
Protective Casing?	heaved
Paint and Label?	✓
Lock?	✓
Well Casing?	✓
Reference Point?	✓

Remarks

Protop + pad severely heaved - TOC is ~1' below Protop opening (accuracy of DTW?)

R10/D5 @ .28 psi

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		2-20-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	3-29-2017

WELL NUMBER

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 2-20-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 55-60°F, overcast 10-20 from S

WELL IDENTIFICATION: MW-13

DEPTH TO WATER (ft bTOC): 28.21

WELL TOTAL DEPTH (ft bTOC): 35.30

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 7.09 ft of water in casing X 0.163 gallon/foot = 1.16 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:_____

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1524	Cell Full		6.82	13.47	1.77	3.8	83	1.55	28.23
1528	+1000		6.70	12.92	1.80	3.2	60	0.28	28.23
1531	+2000		6.71	12.90	1.78	3.2	41	2.22	28.23
1534	+3000		6.72	12.85	1.77	3.7	15	2.25	28.23
1537	+4000		6.73	12.85	1.74	4.1	-1	2.01	28.23
1540	+5000		6.74	12.83	1.74	4.4	-13	1.82	28.23
1544	+6000		6.74	12.83	1.74	4.4	-20	1.53	28.23
1547	+7000		6.75	12.82	1.74	3.4	-25	1.33	28.23
1550	+8000		6.75	12.83	1.76	4.1	-26	1.28	28.23
Continued on back (circle one) (yes) no									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge:_____ Depth to Water (ft bTOC):_____

SAMPLING Equipment Used: (Same as Above) Other:_____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1609	+14000	6.76	12.82	1.75	1.2	-43	0.71	28.23	clear

FINAL DEPTH TO WATER (ft bTOC): 28.23 TIME FINAL DEPTH TAKEN: 1609

SAMPLE ID: MW-13 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +14000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	
Concrete Pad?	✓
Bumper Posts?	✓
Protective Casing?	✓
Paint and Label?	✓
Lock?	✓
Well Casing?	✓
Reference Point?	✓

Remarks

R10/105 @ 25 psi

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		2-20-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	3-29-2017

WELL NUMBER

MW-13

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1553	+9000		6.75	12.83	1.75	4.1	-29	1.14	28.23
1556	+10000		6.76	12.82	1.74	2.3	-35	1.00	28.23
1559	+11000		6.76	12.82	1.74	2.2	-38	0.87	28.23
1602	+12000		6.76	12.84	1.74	2.8	-40	0.79	28.23
1605	+13000		6.77	12.81	1.74	2.0	-42	0.74	28.23
1609	+14000		6.76	12.82	1.75	1.2	-43	0.71	28.23

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 2-20-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 50-55°F, 5-10 from S, clear

WELL IDENTIFICATION: MW-14

DEPTH TO WATER (ft bTOC): 23.56

WELL TOTAL DEPTH (ft bTOC): 29.25

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 5.69 ft of water in casing X 0.163 gallon/foot = 0.93 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1808	cell full		6.78	13.74	1.88	1.4	177	2.53	23.58
1811	+1000		6.73	13.20	1.89	2.0	171	1.34	23.58
1814	+2000		6.73	13.05	1.84	2.9	166	1.03	23.58
1818	+3000		6.74	12.93	1.91	2.0	148	0.59	23.58
1821	+4000		6.74	12.91	1.91	1.0	139	0.44	23.58
1824	+5000		6.74	12.85	1.91	0.0	132	0.26	23.58
1827	+6000		6.74	12.80	1.92	0.0	112	0.16	23.58
1830	+7000		6.73	12.78	1.92	0.0	100	0.10	23.58
1833	+8000		6.73	12.75	1.92	0.0	94	0.05	23.58

Continued on back (circle one) yes (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: (Same as Above) Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1836	+9000	6.72	12.71	1.92	0.0	90	0.02	23.58	clear

FINAL DEPTH TO WATER (ft bTOC): 23.58 TIME FINAL DEPTH TAKEN: 1836

SAMPLE ID: MW-14 SAMPLE FOR QC: none

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +9000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	✓
Concrete Pad?	✓
Bumper Posts?	✓
Protective Casing?	✓
Paint and Label?	✓
Lock?	✓
Well Casing?	✓
Reference Point?	✓

Remarks

R10/105 @ 25 psi

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		2-20-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	3-29-2017

WELL NUMBER

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 2-21-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 35°F, clear, calm

WELL IDENTIFICATION

MW-15

DEPTH TO WATER (ft bTOC): 18.26

WELL TOTAL DEPTH (ft bTOC): 25.20

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 6.94 ft of water in casing X 0.163 gallon/foot = 1.13 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
934	Cell fill		6.85	11.38	2.04	73.0	107	1.67	18.33
936	+1000		6.59	11.76	2.07	29.4	71	0.34	18.31
939	+2000		6.56	11.83	2.09	10.2	62	0.08	18.31
942	+3000		6.56	11.70	2.09	9.4	66	0.06	18.30
945	+4000		6.55	11.60	2.09	7.1	69	0.02	18.29
948	+5000		6.55	11.61	2.10	5.2	70	0.00	18.29
951	+6000		6.55	11.60	2.10	4.3	70	0.00	18.29

Continued on back (circle one) yes / (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: (Same as Above) Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
951	+6000	6.55	11.60	2.10	4.3	70	0.0	18.29	clear

FINAL DEPTH TO WATER (ft bTOC): 18.29 TIME FINAL DEPTH TAKEN: 951

SAMPLE ID: MW-15 SAMPLE FOR QC: none

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +6000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	buried	R10/05 @ 20 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	✓	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		2-21-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	3-29-2017

WELL NUMBER

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)

COMMENTS

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 4-25-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 50°F, overcast, calm, light rain

WELL IDENTIFICATION: MW-2

DEPTH TO WATER (ft bTOC): 20.47

WELL TOTAL DEPTH (ft bTOC): 30.41

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 9.94 ft of water in casing X 0.163 gallon/foot = 1.62 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1435	cell full		7.14	10.01	0.997	298	-52	1.57	20.49
1438	+1000		7.09	10.36	0.947	19.7	-81	0.27	20.50
1440	+2000		7.07	10.42	0.934	12.0	-88	0.04	20.50
1443	+3000		7.09	10.44	0.937	5.5	-93	0.00	20.50
1446	+4000		7.06	10.47	0.935	0.0	-99	0.00	20.50
1449	+5000		7.07	10.49	0.943	0.0	-104	0.00	20.50
1452	+6000		7.07	10.50	0.948	0.0	-102	0.00	20.50

Continued on back (circle one) yes (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1452	+6000	7.07	10.50	0.948	0.0	-102	0.00	20.50	—

FINAL DEPTH TO WATER (ft bTOC): 20.50 TIME FINAL DEPTH TAKEN: 1452

SAMPLE ID: MW-2 SAMPLE FOR QC: MS/MSD (3x vol)

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +6000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	R10/D5 @ 25 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	rusty	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland	[signature]	4-25-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	5-18-2017

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 4-24-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~55°F, overcast, 5-10 from S

WELL IDENTIFICATION: MW-4

DEPTH TO WATER (ft bTOC): 18.28

WELL TOTAL DEPTH (ft bTOC): 26.57

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 8.23 ft of water in casing x 0.163 gallon/foot = 1.34 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
806	cell full		6.23	11.17	2.19	12.3	47	1.87	18.30
810	+1000		6.75	10.48	2.16	0.0	-40	0.47	18.30
812	+2000		6.79	10.44	2.15	0.0	-54	0.36	18.30
815	+3000		6.81	10.41	2.15	0.0	-63	0.28	18.30
817	+4000		6.82	10.42	2.15	0.0	-67	0.22	18.30
830	+5000		6.82	10.37	2.15	0.0	-69	0.19	18.30
Continued on back (circle one) yes / (no)									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
830	+5000	6.82	10.37	2.15	0.0	-69	0.19	18.30	—

FINAL DEPTH TO WATER (ft bTOC): 18.30 TIME FINAL DEPTH TAKEN: 830

SAMPLE ID: MW-4 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +5000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	R101052@ 20psi
Bumper Posts?	✓	
Protective Casing?		
Paint and Label?	✓ / very rusty	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		4-24-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	5-18-2017

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 4-24-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 55°F, overcast, 5-10 from S

WELL IDENTIFICATION: MW-8

DEPTH TO WATER (ft bTOC): 20.04

WELL TOTAL DEPTH (ft bTOC): 27.68

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 7.64 ft of water in casing X 0.163 gallon/foot = 1.24 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1017	Cell full		7.12	11.94	1.53	0.0	18	1.24	20.10
1020	+1000		7.02	11.50	1.50	0.0	-19	0.13	20.11
1023	+2000		7.02	11.41	1.49	0.0	-24	0.05	20.11
1026	+3000		7.02	11.37	1.49	0.0	-26	0.03	20.11
1028	+4000		7.02	11.39	1.48	0.0	-27	0.02	20.11

Continued on back (circle one) yes (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1028	+4000	7.02	11.39	1.48	0.0	-27	0.02	20.11	—

FINAL DEPTH TO WATER (ft bTOC): 20.11 TIME FINAL DEPTH TAKEN: 1028

SAMPLE ID: MW-8 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +4000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	
Concrete Pad?	buried
Bumper Posts?	✓
Protective Casing?	✓
Paint and Label?	rusty ✓ ✓
Lock?	✓
Well Casing?	✓
Reference Point?	✓

Remarks

R10/05 @ 30ps.
R10/05 @ 22ps. at 1020

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		4-24-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	5-18-2017

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 4-24-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 55°F, overcast, 5-10 from S

WELL IDENTIFICATION: MW-10

DEPTH TO WATER (ft bTOC): 17.91

WELL TOTAL DEPTH (ft bTOC): 25.71

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 7.80 ft of water in casing x 0.163 gallon/foot = 1.27 total gallons/casing volume

Equipment Used: Dedicated Bladder Pump / Nondedicated Bladder Pump / Bailer / Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1052	cell full		7.15	12.23	1.43	69.7	-93	1.75	17.93
1055	+1000		7.18	11.69	1.43	106	-121	0.19	17.93
1057	+2000		7.22	11.56	1.43	94.4	-132	0.06	17.93
1100	+3000		7.23	11.55	1.43	80.4	-140	0.03	17.93
1103	+4000		7.24	11.59	1.42	66.2	-146	0.02	17.93
1106	+5000		7.24	11.56	1.42	48.3	-148	0.01	17.93
1108	+6000		7.24	11.61	1.42	42.8	-150	0.00	17.93
1111	+7000		7.24	11.63	1.41	27.5	-152	0.00	17.93
1114	+8000		7.24	11.63	1.42	24.6	-154	0.00	17.93
Continued on back (circle one) yes / no									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: Same as Above Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1122	+11000	7.25	11.64	1.41	4.9	-155	0.00	17.93	—

FINAL DEPTH TO WATER (ft bTOC): _____ TIME FINAL DEPTH TAKEN: 1122

SAMPLE ID: MW-10 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +11,000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	
Concrete Pad?	buried
Bumper Posts?	✓
Protective Casing?	✓
Paint and Label?	rusty / ✓
Lock?	no locks
Well Casing?	✓
Reference Point?	✓

Remarks

R10-05 @ 22psi

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		4-24-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	5-18-2017

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 4-25-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 50°F, overcast, 5-10 from N, light rain

WELL IDENTIFICATION: MW-11

DEPTH TO WATER (ft bTOC): 22.90

WELL TOTAL DEPTH (ft bTOC): 37.38

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 14.48 ft of water in casing X 0.163 gallon/foot = 2.36 total gallons/casing volume

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1705	cell full		7.11	10.05	1.64	0.0	135	1.69	22.90
1708	+1000		6.96	10.47	1.62	0.0	121	0.47	22.90
1711	+2000		6.94	10.60	1.61	0.0	110	0.31	22.90
1714	+3000		6.94	10.60	1.60	0.0	102	0.23	22.90
1717	+4000		6.95	10.60	1.60	0.0	97	0.19	22.90
1720	+5000		6.95	10.61	1.59	0.0	94	0.14	22.90
Continued on back (circle one) yes / no									

Well Purged Below Top of Pump? (Y/N): Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: Same as Above Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1720	+5000	6.95	10.61	1.59	0.0	94	0.14	22.90	

FINAL DEPTH TO WATER (ft bTOC): 22.90 TIME FINAL DEPTH TAKEN: 1720

SAMPLE ID: MW-11 SAMPLE FOR QC: DP01

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +5000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	
Concrete Pad?	✓
Bumper Posts?	✓
Protective Casing?	✓
Paint and Label?	✓ Dusty
Lock?	✓
Well Casing?	✓
Reference Point?	✓

Remarks

R10-05 @ 25psi

Field Sampler(s) Name(s): Tim Wheland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wheland		4-25-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	5-18-2017

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 4-25-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 50°F, overcast, 5-10 from N, light rain

WELL IDENTIFICATION: MW-12

DEPTH TO WATER (ft bTOC): 28.60

WELL TOTAL DEPTH (ft bTOC): 35.19

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 6.59 ft of water in casing X 0.163 gallon/foot = 1.07 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1617	cell full		7.32	10.44	1.98	0.0	17	3.16	28.60
1621	+1000		7.01	10.96	2.03	0.0	21	0.64	28.60
1624	+2000		6.99	11.00	2.03	0.0	26	0.55	28.60
1628	+3000		6.98	11.01	2.02	0.0	34	0.48	28.60
1631	+4000		6.98	11.00	2.01	0.0	39	0.45	28.60
1634	+5000		6.97	11.02	2.01	0.0	44	0.43	28.60
Continued on back (circle one) yes (no)									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1634	+5000	6.97	11.02	2.01	0.0	44	0.43	28.60	—

FINAL DEPTH TO WATER (ft bTOC): 28.60 TIME FINAL DEPTH TAKEN: 1634

SAMPLE ID: MW-12 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +5000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	
Concrete Pad?	heaved
Bumper Posts?	✓
Protective Casing?	heaved
Paint and Label?	✓
Lock?	✓
Well Casing?	✓
Reference Point?	✓

Remarks

Surface Completion severely heaved and should be replaced

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		4-25-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	5-18-2017

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 4-25-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 50°F, overcast, 5-10 from N

WELL IDENTIFICATION: MW-13

DEPTH TO WATER (ft bTOC): 27.30

WELL TOTAL DEPTH (ft bTOC): 35.30

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 8.00 ft of water in casing X 0.163 gallon/foot = 1.30 total gallons/casing volume

Equipment Used: ~~Dedicated Bladder Pump~~ Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1537	cell full		6.99	10.84	1.65	0.0	-32	0.95	~~35.30~~ 27.31
1541	+1000		7.01	11.31	1.65	0.0	-72	0.04	27.31
1544	+2000		7.00	11.38	1.66	0.0	-79	0.00	27.31
1547	+3000		7.00	11.42	1.66	0.0	-84	0.00	27.31
1550	+4000		7.00	11.44	1.67	0.0	-87	0.00	27.31
Continued on back (circle one) yes / no									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: ~~Same as Above~~ Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1550	+4000	7.00	11.44	1.67	0.0	-87	0.00	27.31	—

FINAL DEPTH TO WATER (ft bTOC): 27.31 TIME FINAL DEPTH TAKEN: 1550

SAMPLE ID: MW-13 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +4000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	R101 05@ 30psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	✓	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		4-25-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	5-18-2017

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 4-25-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 50°F, overcast, 5-10 from N, light rain

WELL IDENTIFICATION: MW-14

DEPTH TO WATER (ft bTOC): 22.67

WELL TOTAL DEPTH (ft bTOC): 29.25

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 6.58 ft of water in casing X 0.163 gallon/foot = 1.07 total gallons/casing volume

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1802	cell full		7.12	10.57	1.70	0.0	161	1.51	22.67
1805	+1000		6.88	11.20	1.60	0.0	152	0.19	22.67
1808	+2000		6.85	11.35	1.58	0.0	137	0.00	22.67
1811	+3000		6.84	11.36	1.57	0.0	129	0.00	22.67
1814	+4000		6.85	11.39	1.56	0.0	116	0.00	22.67
1817	+5000		6.85	11.38	1.56	0.0	112	0.00	22.67
1820	+6000		6.85	11.40	1.56	0.0	109	0.00	22.67

Continued on back (circle one) yes (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: Same as Above Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1820	+6000	6.85	11.40	1.56	0.0	109	0.00	22.67	—

FINAL DEPTH TO WATER (ft bTOC): 22.67 TIME FINAL DEPTH TAKEN: 1820

SAMPLE ID: MW-14 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +6000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	R101 05 @ 28 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	✓	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		4-25-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	5-18-2017

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 4-24-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 55°F, overcast, 5-10 from S

WELL IDENTIFICATION: MW-15

DEPTH TO WATER (ft bTOC): 17.64

WELL TOTAL DEPTH (ft bTOC): 25.20

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 7.56 ft of water in casing x 0.163 gallon/foot = 1.23 total gallons/casing volume

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
930	cell full		6.89	11.89	1.93	260	-24	4.67	17.68
935	+1000		6.83	11.63	1.48	34.4	6	0.92	17.68
938	+2000		6.82	11.56	1.45	19.3	21	0.39	17.69
942	+3000		6.82	11.46	1.46	4.4	34	0.19	17.70
945	+4000		6.82	11.44	1.46	0.0	40	0.13	17.70
948	+5000		6.82	11.42	1.46	0.0	43	0.09	17.70
952	+6000		6.82	11.45	1.46	0.0	44	0.07	17.70

Continued on back (circle one) yes / (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: (Same as Above) Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
952	+6000	6.82	11.45	1.46	0.0	44	0.07	17.70	—

FINAL DEPTH TO WATER (ft bTOC): 17.70 TIME FINAL DEPTH TAKEN: 952

SAMPLE ID: MW-15 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +6000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	R10/D5 @
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	✓ No label	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		4-24-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	5-18-2017

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 7-5-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 90°F, clear, calm

WELL IDENTIFICATION: MW-2

DEPTH TO WATER (ft bTOC): 17.86

WELL TOTAL DEPTH (ft bTOC): 30.41

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 12.55 ft of water in casing X 0.163 gallon/foot = 2.04 total gallons/casing volume

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other:_____

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1326	cell full		7.48	18.94	0.965	16.8	-92	1.89	17.90
1329	+1000		6.93	14.83	1.01	3.0	-103	0.25	17.89
1331	+2000		6.88	14.47	1.01	0.0	-106	0.14	17.89
1333	+3000		6.85	14.27	1.01	0.0	-110	0.11	17.89
1336	+4000		6.85	14.34	1.01	0.0	-111	0.09	17.89

Continued on back (circle one) yes (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge:_____ Depth to Water (ft bTOC):_____

SAMPLING Equipment Used: Same as Above Other:_____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1336	+4000	6.85	14.34	1.01	0.0	-111	0.09	17.89	—

FINAL DEPTH TO WATER (ft bTOC): 17.89 TIME FINAL DEPTH TAKEN: 1336

SAMPLE ID: MW-2 SAMPLE FOR QC: MS-MSD (3x vol)

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +4000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	RID/05 @ 25 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	rusty ✓	
Lock?		
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		7-5-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	7-12-17

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 7-5-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~80°F, clear, calm

WELL IDENTIFICATION: MW-4

DEPTH TO WATER (ft bTOC): 15.69

WELL TOTAL DEPTH (ft bTOC): 26.51

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 10.82 ft of water in casing X 0.163 gallon/foot = 1.76 total gallons/casing volume

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1030	collect		5.90	17.93	1.97	5.7	-49	1.74	15.70
1032	+1000		6.24	13.93	2.11	5.0	-95	0.48	15.71
1035	+2000		6.36	13.11	2.15	4.1	-101	0.26	15.71
1037	+3000		6.41	12.72	2.18	2.0	-109	0.15	15.71
1039	+4000		6.43	12.60	2.18	0.0	-109	0.14	15.71
1042	+5000		6.43	12.68	2.18	0.0	-109	0.12	15.71

Continued on back (circle one) yes (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: Same as Above Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1042	+5000	6.43	12.68	2.18	0.0	-109	0.12	15.71	—

FINAL DEPTH TO WATER (ft bTOC): 15.71 TIME FINAL DEPTH TAKEN: 1042

SAMPLE ID: MW-04 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +5000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	buried ?	R10/05 @ 20 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	rusty	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		7-5-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	7-12-17

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 7-5-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 90°F, clear, 5-10 from South

WELL IDENTIFICATION: MW-8

DEPTH TO WATER (ft bTOC): 17.23

WELL TOTAL DEPTH (ft bTOC): 27.68

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 10.45 ft of water in casing X 0.163 gallon/foot = 1.70 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:_____

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1429	cell full		7.00	19.49	1.29	1.2	-62	8.70	17.30
1432	+1000		6.93	15.79	1.33	5.1	-76	0.99	17.31
1434	+2000		6.91	15.49	1.34	2.6	-76	0.58	17.31
1436	+3000		6.90	15.23	1.34	0.0	-76	0.39	17.31
1439	+4000		6.88	15.19	1.34	21.6	-76	0.35	17.31
1441	+5000		6.87	14.98	1.34	7.5	-75	0.29	17.31
1443	+6000		6.88	14.81	1.35	3.2	-75	0.27	17.31

Continued on back (circle one) yes / (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge:_____ Depth to Water (ft bTOC):_____

SAMPLING Equipment Used: (Same as Above) Other:_____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1443	+6000	6.88	14.81	1.35	3.2	-75	0.27	17.31	-

FINAL DEPTH TO WATER (ft bTOC): 17.31 TIME FINAL DEPTH TAKEN: 1443

SAMPLE ID: MW-8 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +6000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	buried	R10/05 @ 20 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	✓ rusty	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		7-5-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	7-12-17

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 7-5-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~85°F, clear, 5-10 from S

WELL IDENTIFICATION: MW-10

DEPTH TO WATER (ft bTOC): 15.01

WELL TOTAL DEPTH (ft bTOC): 25.71

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 10.7 ft of water in casing x 0.163 gallon/foot = 1.74 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1158	cell full		7.01	18.21	1.44	58.5	-119	2.21	15.01
1201	+1000		6.97	14.92	1.52	7.2	-148	0.43	15.02
1203	+2000		6.99	14.67	1.52	13.4	-151	0.34	15.01
1206	+3000		7.01	14.40	1.52	11.2	-160	0.21	15.01
1208	+4000		7.03	14.12	1.52	8.9	-165	0.16	15.02
1211	+5000		7.04	13.98	1.51	6.3	-168	0.14	15.02
1213	+6000		7.05	13.96	1.51	5.1	-168	0.13	15.02
1216	+7000		7.04	14.01	1.51	4.7	-171	0.13	15.02
Continued on back (circle one) yes / (no)									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: (Same as Above) Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1216	+7000	7.04	14.01	1.51	4.7	-171	0.13	15.02	

FINAL DEPTH TO WATER (ft bTOC): 15.02 TIME FINAL DEPTH TAKEN: 1216

SAMPLE ID: MW-10 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +7000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	buried	R10/105 @ 20psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	✓ dusty	
Lock?	NP	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		7-5-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	7-12-17

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 7-5-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 92°F, clear, 0-5 from S

WELL IDENTIFICATION: MW-11

DEPTH TO WATER (ft bTOC): 20.11

WELL TOTAL DEPTH (ft bTOC): 37.38

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 17.27 ft of water in casing X 0.163 gallon/foot = 2.82 total gallons/casing volume

Equipment Used: Dedicated Bladder Pump Non-dedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1648	cell full		7.15	17.54	1.58	0.0	11	0.70	20.11
1650	+1000		6.95	16.02	1.61	0.0	29	0.29	20.11
1652	+2000		6.88	15.67	1.58	0.0	37	0.20	20.11
1655	+3000		6.86	15.27	1.57	0.0	45	0.17	20.11
1657	+4000		6.84	15.35	1.56	0.0	50	0.15	20.11
1659	+5000		6.84	15.31	1.55	0.0	54	0.13	20.11

Continued on back (circle one) yes (no)

Well Purged Below Top of Pump? (Y/N): Y Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: Same as Above Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1659	+5000	6.84	15.31	1.55	0.0	54	0.13	20.11	—

FINAL DEPTH TO WATER (ft bTOC): 20.11 TIME FINAL DEPTH TAKEN: 1659

SAMPLE ID: MW-11 SAMPLE FOR QC: DP-01

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +5000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	RID-D5 @ 25 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	✓	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		7-5-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	7-12-17

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 7-5-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 92°F, clear, 0-5 from South

WELL IDENTIFICATION: MW-12

DEPTH TO WATER (ft bTOC): 25.73

WELL TOTAL DEPTH (ft bTOC): 35.19

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 9.46 ft of water in casing x 0.163 gallon/foot = 1.54 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:_____

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1614	cell fill		7.20	20.13	1.61	1.2	39	3.04	25.73
1616	+1000		7.04	16.31	1.63	1.0	50	1.50	25.73
1618	+2000		6.95	15.70	1.64	0.0	13	0.85	25.73
1620	+3000		6.91	15.44	1.64	0.0	-58	0.66	25.73
1622	+4000		6.90	15.37	1.64	0.0	-66	0.57	25.73
1624	+5000		6.90	15.43	1.64	0.0	-67	0.55	25.73

Continued on back (circle one) yes / (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge:_____ Depth to Water (ft bTOC):_____

SAMPLING Equipment Used: (Same as Above) Other:_____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1624	+5000	6.90	15.43	1.64	0.0	-67	0.55	25.73	—

FINAL DEPTH TO WATER (ft bTOC): 25.73 TIME FINAL DEPTH TAKEN: 1624

SAMPLE ID: MW-12 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +5000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓ heaved	R10105 @ 30psi
Bumper Posts?	✓	
Protective Casing?	✓ heaved	Protop severally heaved
Paint and Label?	✓	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		7-5-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	7-12-17

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 7-5-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 7-5-17, clear, 5-10 from South

WELL IDENTIFICATION: MW-13

DEPTH TO WATER (ft bTOC): 24.36

WELL TOTAL DEPTH (ft bTOC): 35.30

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 10.94 ft of water in casing X 0.163 gallon/foot = 1.78 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1544	cell full		6.93	20.60	1.63	32.1	-95	1.75	24.37
1546	+1000		6.90	19.41	1.69	20.7	-99	0.85	24.37
1548	+2000		6.88	18.61	1.74	9.7	-104	0.46	24.37
1550	+3000		6.87	18.30	1.75	3.8	-105	0.32	24.37
1552	+4000		6.87	18.22	1.75	2.0	-106	0.28	24.37
1554	+5000		6.86	18.20	1.75	1.2	-106	0.25	24.37

Continued on back (circle one) yes (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1554	+5000	6.86	18.20	1.75	1.2	-106	0.25	24.37	—

FINAL DEPTH TO WATER (ft bTOC): 24.37 TIME FINAL DEPTH TAKEN: 1554

SAMPLE ID: MW-13 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +5000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	R10105 @ 30psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	✓	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		7-5-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	7-12-17

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 7-5-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 90°F, clear, S-10 from S

WELL IDENTIFICATION: MW-14

DEPTH TO WATER (ft bTOC): 19.89

WELL TOTAL DEPTH (ft bTOC): 29.25

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 9.36 ft of water in casing X 0.163 gallon/foot = 1.52 total gallons/casing volume

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1512	cell full		7.33	21.23	1.29	0.0	65	0.93	19.90
1514	+1000		6.95	17.13	1.36	0.0	60	0.30	19.90
1516	+2000		6.84	16.39	1.37	0.0	58	0.17	19.90
1518	+3000		6.81	16.15	1.37	0.0	57	0.14	19.90
1520	+4000		6.79	15.92	1.38	0.0	56	0.12	19.90
1522	+5000		6.77	15.93	1.40	0.0	55	0.10	19.90

Continued on back (circle one) yes / no

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: Same as Above Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1522	+5000	6.77	15.93	1.40	0.0	55	0.10	19.90	—

FINAL DEPTH TO WATER (ft bTOC): 19.90 TIME FINAL DEPTH TAKEN: 1522

SAMPLE ID: MW-14 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +5000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	
Concrete Pad?	✓
Bumper Posts?	✓
Protective Casing?	✓
Paint and Label?	✓
Lock?	✓
Well Casing?	✓
Reference Point?	✓

Remarks

R10/D5 @ 25psi

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		7-5-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	7-12-17

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 7-5-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 80-85°F, clear, calm

WELL IDENTIFICATION: MW-15

DEPTH TO WATER (ft bTOC): 14.98

WELL TOTAL DEPTH (ft bTOC): 25.20

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 10.22 ft of water in casing X 0.163 gallon/foot = 1.67 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1122	cell full		7.11	17.78	1.36	31.2	46	3.50	1500
1124	+1000		6.67	15.50	1.35	46.6	26	0.86	1500
1126	+2000		6.58	14.67	1.35	14.9	21	0.50	1500
1129	+3000		6.56	15.56	1.36	9.3	17	0.43	1500
1131	+4000		6.55	14.86	1.35	6.7	17	0.35	1500
1133	+5000		6.53	14.89	1.35	4.3	18	0.34	1500

Continued on back (circle one) yes (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1133	5000	6.53	14.89	1.35	4.3	18	0.34	1500	

FINAL DEPTH TO WATER (ft bTOC): 1500 TIME FINAL DEPTH TAKEN: 1133

SAMPLE ID: MW-15 SAMPLE FOR QC: none

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +5000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	R10/D5 @ 20psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	✓	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		7-5-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	7-12-17

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 9-11-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 80°F, clear 5-10 Hans

WELL IDENTIFICATION: MW-2

DEPTH TO WATER (ft bTOC): 18.26

WELL TOTAL DEPTH (ft bTOC): 30.41

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 12.15 ft of water in casing X 0.163 gallon/foot = 1.98 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1414	cell full		7.34	16.60	1.05	31.1	-76	8.27	18.26
1417	+1000		7.04	14.40	1.11	13.0	-99	7.62	18.27
1420	+2000		7.00	13.22	1.11	6.9	-109	6.45	18.26
1423	+3000		7.02	13.13	1.09	11.3	-113	5.57	18.26
1426	+4000		7.02	13.09	1.08	3.9	-117	5.08	18.26
1429	+5000		7.01	13.05	1.08	4.3	-119	4.85	18.26
1432	+6000		7.02	12.95	1.07	4.5	-119	4.77	18.26
1435	+7000		7.02	12.96	1.07	2.7	-120	4.68	18.26

Continued on back (circle one) yes / (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1435	+7000	7.02	12.96	1.07	2.7	-120	4.68	18.26	—

FINAL DEPTH TO WATER (ft bTOC): 18.26 TIME FINAL DEPTH TAKEN: 1435

SAMPLE ID: MW-2 SAMPLE FOR QC: MS/MSD (3x vol)

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +7000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	R10/05 @ 20psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	rusty / no	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		9-11-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	9-20-17

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 9-11-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 80°F, clear, 5-10 from SW

WELL IDENTIFICATION: MW-4

DEPTH TO WATER (ft bTOC): 16.14

WELL TOTAL DEPTH (ft bTOC): 26.51

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 10.37 ft of water in casing X 0.163 gallon/foot = 1.69 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1151	cell full		6.07	17.71	1.87	15.3	1	2.31	16.14
1154	+1000		6.67	13.38	1.89	5.9	-35	0.39	16.19
1157	+2000		6.74	12.86	1.91	4.7	-44	1.01	16.20
1200	+3000		6.77	12.78	1.91	4.9	-50	0.19	16.20
1202	+4000		6.79	12.73	1.91	4.3	-53	0.10	16.20
1205	+5000		6.79	12.64	1.91	4.1	-55	0.07	16.20

Continued on back (circle one) yes (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: (Same as Above) Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1205	+5000	6.79	12.64	1.91	4.1	-55	0.07	16.20	-

FINAL DEPTH TO WATER (ft bTOC): 16.20 TIME FINAL DEPTH TAKEN: 1205

SAMPLE ID: MW-4 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +5000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	R10105 @ 20psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	rusty ✓	
Lock?		
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		9-11-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	9-20-17

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 9-11-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: ~80°F, 5-10 from N, Hazy

WELL IDENTIFICATION: MW-8

DEPTH TO WATER (ft bTOC): 17.91

WELL TOTAL DEPTH (ft bTOC): 27.68

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 9.77 ft of water in casing X 0.163 gallon/foot = 1.59 total gallons/casing volume

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1302	cell full		7.24	15.87	1.69	3.3	69	1.17	17.94
1304	+1000		7.12	14.13	1.85	7.3	88	0.07	17.92
1307	+2000		7.11	14.14	1.84	3.2	0	0.00	17.92
1310	+3000		7.10	14.08	1.83	3.1	-6	0.00	17.92
1312	+4000		7.10	14.08	1.83	2.9	-10	0.00	17.92
1315	+5000		7.10	14.18	1.83	3.6	-13	0.00	17.92
Continued on back (circle one) yes / no									

Well Purged Below Top of Pump? (Y/N): Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: Same as Above Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1315	+5000	7.10	14.18	1.83	3.6	-13	0.00	17.92	—

FINAL DEPTH TO WATER (ft bTOC): 17.92 TIME FINAL DEPTH TAKEN: 1315

SAMPLE ID: MW-8 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +5000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	R10/05 @ 20psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	rusty ✓	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		9-11-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	9-20-17

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 9-11-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 80°F, clear 5-10 from S

WELL IDENTIFICATION: MW-10

DEPTH TO WATER (ft bTOC): 15.78

WELL TOTAL DEPTH (ft bTOC): 25.71

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 9.93 ft of water in casing X 0.163 gallon/foot = 1.62 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1332	cell full		7.37	16.30	1.40	60.9	-109	4.33	15.76
1334	+1000		7.30	13.90	1.38	23.1	-157	4.47	15.79
1337	+2000		7.34	13.47	1.35	15.3	-172	3.80	15.79
1339	+3000		7.35	13.44	1.35	13.9	-173	3.32	15.79
1342	+4000		7.35	13.47	1.35	8.9	-175	3.00	15.79
1345	+5000		7.35	13.47	1.35	6.4	-174	2.89	15.79
1347	+6000		7.35	13.35	1.35	4.3	-175	2.76	15.79
1350	+7000		7.35	13.47	1.35	4.1	-174	2.71	15.79
Continued on back (circle one) yes (no)									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1350	+7000	7.35	13.47	1.35	4.1	-174	2.71	15.79	—

FINAL DEPTH TO WATER (ft bTOC): 15.79 TIME FINAL DEPTH TAKEN: 13:50

SAMPLE ID: MW-10 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +7000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	
Concrete Pad?	✓
Bumper Posts?	✓
Protective Casing?	✓
Paint and Label?	rusty / no label
Lock?	no lock
Well Casing?	✓
Reference Point?	✓

Remarks

R10/05 @ 20 psi

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		9-11-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	9-20-17

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 9-11-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 80°F, clear 5-10 from S

WELL IDENTIFICATION: MW-11

DEPTH TO WATER (ft bTOC): 20.69

WELL TOTAL DEPTH (ft bTOC): 37.38

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 16.69 ft of water in casing X 0.163 gallon/foot = 2.72 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1614	cell full		7.11	17.62	1.58	0.0	216	2.25	20.69
1617	+1000		6.86	15.23	1.64	0.0	210	0.27	20.69
1620	+2000		6.87	14.67	1.64	0.0	205	0.03	20.69
1623	+3000		6.88	14.33	1.63	0.0	201	0.00	20.69
1626	+4000		6.88	14.34	1.63	0.0	199	0.00	20.69

Continued on back (circle one) yes / (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1626	+4000	6.88	14.34	1.63	0.0	199	0.00	20.69	—

FINAL DEPTH TO WATER (ft bTOC): 20.69 TIME FINAL DEPTH TAKEN: 1626

SAMPLE ID: MW-11 SAMPLE FOR QC: DP01 collected

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +4000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	R10/05 @ 25 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	rusty / no label	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		9-11-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	9-20-17

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 9-11-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 80°F, clear, 5-10 from S

WELL IDENTIFICATION: MW-12

DEPTH TO WATER (ft bTOC): 26.35

WELL TOTAL DEPTH (ft bTOC): 35.19

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 8.84 ft of water in casing x 0.163 gallon/foot = 1.44 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1541	Cell Full		7.20	19.07	1.91	0.9	190	8.01	26.35
1544	+1000		6.97	14.84	2.12	0.0	198	6.52	26.35
1547	+2000		6.94	14.80	2.11	1.0	200	6.20	26.35
1550	+3000		6.93	14.77	2.10	0.0	200	5.94	26.35
1552	+4000		6.91	14.62	2.11	0.0	202	5.79	26.35
1555	+5000		6.94	14.61	2.10	0.0	201	5.69	26.35

Continued on back (circle one) yes / (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1555	+5000	6.94	14.61	2.10	0.0	201	5.69	26.35	—

FINAL DEPTH TO WATER (ft bTOC): 26.35 TIME FINAL DEPTH TAKEN: 1555

SAMPLE ID: MW-12 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +5000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓ heaved!	R1/05 @ 25 psi
Bumper Posts?	✓	Protective casing still severely heaved and leaning
Protective Casing?	✓	
Paint and Label?	✓	
Lock?		
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		9-11-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	9-20-17

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 9-11-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 80°F, clear, 5-10 from S

WELL IDENTIFICATION: MW-13

DEPTH TO WATER (ft bTOC): 25.08

WELL TOTAL DEPTH (ft bTOC): 35.30

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 10.22 ft of water in casing X 0.163 gallon/foot = 1.66 total gallons/casing volume

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1500	cell full		7.16	17.11	1.80	13.9	162	3.42	25.08
1502	+1000		6.83	14.93	1.91	6.9	157	0.74	25.08
1505	+2000		6.81	14.57	1.91	3.4	145	0.32	25.08
1508	+3000		6.80	14.52	1.91	1.6	114	0.13	25.08
1510	+4000		6.80	14.61	1.91	1.1	109	0.11	25.08
1513	+5000		6.79	14.60	1.91	0.7	106	0.12	25.08
Continued on back (circle one) yes (no)									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: Same as Above Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1513	+5000	6.79	14.60	1.91	0.7	106	0.12	25.08	—

FINAL DEPTH TO WATER (ft bTOC): 25.08 TIME FINAL DEPTH TAKEN: 1513

SAMPLE ID: MW-13 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +5000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	RIV/05 @ 25 psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	✓	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		9-11-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	9-20-17

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 9-1-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 80°F, clear, 10-15 Gen S

WELL IDENTIFICATION: MW-14

DEPTH TO WATER (ft bTOC): 20.42

WELL TOTAL DEPTH (ft bTOC): 29.25

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 8.83 ft of water in casing x 0.163 gallon/foot = 1.44 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1644	cell full		6.87	16.52	1.67	0.0	220	1.24	20.45
1647	+1000		6.69	14.52	1.79	0.0	212	0.02	20.44
1650	+2000		6.74	14.31	1.79	0.0	201	0.00	20.44
1653	+3000		6.77	14.27	1.80	0.4	187	0.00	20.44
1656	+4000		6.78	14.21	1.80	0.0	169	0.00	20.44
1659	+5000		6.79	14.20	1.80	0.0	149	0.00	20.44
1702	+6000		6.79	14.19	1.80	0.0	136	0.00	20.44
1705	+7000		6.78	14.12	1.80	0.0	126	0.00	20.44
1708	+8000		6.78	14.10	1.80	0.0	121	0.00	20.44

Continued on back (circle one) yes (no)

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: _____ Depth to Water (ft bTOC): _____

SAMPLING Equipment Used: (Same as Above) Other: _____

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1711	+9000	6.78	14.08	1.80	0.0	117	0.00	20.44	

FINAL DEPTH TO WATER (ft bTOC): 20.44 TIME FINAL DEPTH TAKEN: 1711

SAMPLE ID: MW-14 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +9000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition	
Concrete Pad?	✓
Bumper Posts?	✓
Protective Casing?	✓
Paint and Label?	✓
Lock?	✓
Well Casing?	✓
Reference Point?	✓

Remarks

R10/05 @ 20psi

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		9-1-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	9-20-17

FIELD GROUNDWATER SAMPLING DATA FORM

DATE: 9-11-17 SITE: Neal South Monofill PROJECT 11114654

WEATHER: 80°F, clear, 5-10 from SW

WELL IDENTIFICATION: MW-15

DEPTH TO WATER (ft bTOC): 15.45

WELL TOTAL DEPTH (ft bTOC): 25.20

WELL DIAMETER (inches): 2-inch inner diameter

PURGING:

CASING VOLUME CALCULATION: 9.75 ft of water in casing X 0.163 gallon/foot = 1.59 total gallons/casing volume

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other:

Time (24 hr)	Amount Purged (mL)	Flow Rate (mL/min)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1230	cell fill		6.94	16.11	1.63	12.3	36	2.32	15.48
1232	+1000		6.84	14.24	1.73	0.1	67	0.46	15.48
1235	+2000		6.82	13.96	1.74	4.6	87	0.68	15.48
1238	+3000		6.81	13.84	1.74	2.4	83	0.47	15.48
1240	+4000		6.80	13.81	1.75	0.0	71	0.45	15.48
1243	+5000		6.80	13.74	1.74	0.0	59	0.43	15.48
1246	+6000		6.80	13.72	1.74	0.0	55	0.41	15.48
1248	+7000		6.80	13.72	1.74	0.0	53	0.39	15.48
Continued on back (circle one) yes (no)									

Well Purged Below Top of Pump? (Y/N): N Time to Recharge: Depth to Water (ft bTOC):

SAMPLING Equipment Used: (Same as Above) Other:

Sample Time (24 hr)	Total Purged (mL)	pH	Temp (C)	Conductivity (mS/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
12:48	+7000	6.80	13.72	1.74	0.0	53	0.39	15.48	—

FINAL DEPTH TO WATER (ft bTOC): 15.48 TIME FINAL DEPTH TAKEN: 1248

SAMPLE ID: MW-15 SAMPLE FOR QC: None

PARAMETERS REQUESTD FOR ANALYSIS: Appendix III and Appendix IV to 40 CFR Part 257

IDW PURGE WATER TOTAL (mL): +7000 FLOW THROUGH CELL MODEL #: Horiba U-52

Well Condition		Remarks
Concrete Pad?	✓	R101D5@ 20psi
Bumper Posts?	✓	
Protective Casing?	✓	
Paint and Label?	✓ No label	
Lock?	✓	
Well Casing?	✓	
Reference Point?	✓	

Field Sampler(s) Name(s): Tim Wineland

	NAME	SIGNATURE	DATE
PREPARED:	Tim Wineland		9-11-17
REVIEWED:	Kevin Armstrong	Kevin Armstrong	9-20-17

Appendix B
Laboratory Analytical Reports

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319)277-2401

TestAmerica Job ID: 310-70785-1
TestAmerica Sample Delivery Group: 11114654
Client Project/Site: MEC Neal South Energy Center CCR

For:
GHD Services Inc.
1801 Old Highway 8 NW
Suite 114
St Paul, Minnesota 55112

Attn: Mr. Grant Anderson

Authorized for release by:
12/31/2015 8:28:19 AM

Shawn Hayes, Project Manager II
(319)277-2401
shawn.hayes@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

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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Job ID: 310-70785-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-70785-1

Comments
No additional comments.

Receipt
The samples were received on 12/10/2015 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.5º C, 3.0º C and 3.3º C.

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

General Chemistry
Method(s) 9056A: The following sample was diluted due to the nature of the sample matrix: MW-10 (310-70785-4. Elevated reporting limits (RLs) are provided for Chloride.

Method(s) 9056A: The following samples was diluted due to the nature of the sample matrix: MW-2 (310-70785-1), MW-4 (310-70785-2), MW-8 (310-70785-3), MW-11 (310-70785-5), MW-12 (310-70785-6), MW-13 (310-70785-7), MW-14 (310-70785-8), MW-15 (310-70785-9) and DP-01 (310-70785-10). Elevated reporting limits (RLs) are provided for Fluoride.

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

Sample Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-70785-1
SDG: 11114654

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-70785-1	MW-2	Ground Water	12/09/15 14:30	12/10/15 09:15
310-70785-2	MW-4	Ground Water	12/09/15 14:03	12/10/15 09:15
310-70785-3	MW-8	Ground Water	12/09/15 15:16	12/10/15 09:15
310-70785-4	MW-10	Ground Water	12/09/15 16:40	12/10/15 09:15
310-70785-5	MW-11	Ground Water	12/09/15 12:50	12/10/15 09:15
310-70785-6	MW-12	Ground Water	12/09/15 11:15	12/10/15 09:15
310-70785-7	MW-13	Ground Water	12/09/15 11:20	12/10/15 09:15
310-70785-8	MW-14	Ground Water	12/09/15 16:00	12/10/15 09:15
310-70785-9	MW-15	Ground Water	12/09/15 12:50	12/10/15 09:15
310-70785-10	DP-01	Ground Water	12/09/15 00:00	12/10/15 09:15

Detection Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-70785-1
SDG: 11114654

Client Sample ID: MW-2 — Lab Sample ID: 310-70785-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	6.47		5.00		mg/L	5		9056A	Total/NA
Sulfate	360		20.0		mg/L	20		9056A	Total/NA
Lithium	0.131		0.0500		mg/L	1		6010C	Total/NA
Arsenic	0.0509		0.00200		mg/L	1		6020A	Total/NA
Barium	0.193		0.00200		mg/L	1		6020A	Total/NA
Boron	0.780		0.250		mg/L	5		6020A	Total/NA
Calcium	287		4.00		mg/L	20		6020A	Total/NA
Cobalt	0.00331		0.000500		mg/L	1		6020A	Total/NA
Molybdenum	0.00266		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1280		30.0		mg/L	1		SM 2540C	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.88	HF	0.100	0.100	SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW-4 — Lab Sample ID: 310-70785-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	18.3		5.00		mg/L	5		9056A	Total/NA
Sulfate	996		20.0		mg/L	20		9056A	Total/NA
Lithium	0.254		0.0500		mg/L	1		6010C	Total/NA
Barium	0.0275		0.00200		mg/L	1		6020A	Total/NA
Boron	3.30		1.00		mg/L	20		6020A	Total/NA
Calcium	366		4.00		mg/L	20		6020A	Total/NA
Cobalt	0.00154		0.000500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	2340		150		mg/L	1		SM 2540C	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.87	HF	0.100	0.100	SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW-8 — Lab Sample ID: 310-70785-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.07		5.00		mg/L	5		9056A	Total/NA
Sulfate	694	F1	20.0		mg/L	20		9056A	Total/NA
Lithium	0.0950		0.0500		mg/L	1		6010C	Total/NA
Barium	0.111		0.00200		mg/L	1		6020A	Total/NA
Boron	3.44		1.00		mg/L	20		6020A	Total/NA
Calcium	212		4.00		mg/L	20		6020A	Total/NA
Cobalt	0.00253		0.000500		mg/L	1		6020A	Total/NA
Molybdenum	0.00589		0.00200		mg/L	1		6020A	Total/NA
Selenium	0.0985		0.00500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1590		60.0		mg/L	1		SM 2540C	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.08	HF	0.100	0.100	SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW-10 — Lab Sample ID: 310-70785-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	264		5.00		mg/L	5		9056A	Total/NA
Fluoride	3.43		0.500		mg/L	5		9056A	Total/NA
Lithium	0.138		0.0500		mg/L	1		6010C	Total/NA
Arsenic	0.00312		0.00200		mg/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-10 (Continued) — Lab Sample ID: 310-70785-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.179		0.00200		mg/L	1		6020A	Total/NA
Boron	2.24		0.500		mg/L	10		6020A	Total/NA
Calcium	174		2.00		mg/L	10		6020A	Total/NA
Cobalt	0.00394		0.000500		mg/L	1		6020A	Total/NA
Molybdenum	0.00346		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1130		30.0		mg/L	1		SM 2540C	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH	6.94	HF	0.100	0.100	SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW-11 — Lab Sample ID: 310-70785-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	12.9		5.00		mg/L	5		9056A	Total/NA
Sulfate	303		20.0		mg/L	20		9056A	Total/NA
Lithium	0.132		0.0500		mg/L	1		6010C	Total/NA
Barium	0.0853		0.00200		mg/L	1		6020A	Total/NA
Boron	0.697		0.150		mg/L	3		6020A	Total/NA
Calcium	225		3.00		mg/L	15		6020A	Total/NA
Cobalt	0.00238		0.000500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1180		30.0		mg/L	1		SM 2540C	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH	6.93	HF	0.100	0.100	SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW-12 — Lab Sample ID: 310-70785-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	143		5.00		mg/L	5		9056A	Total/NA
Sulfate	457		20.0		mg/L	20		9056A	Total/NA
Lithium	0.136		0.0500		mg/L	1		6010C	Total/NA
Barium	0.0838		0.00200		mg/L	1		6020A	Total/NA
Boron	3.86		0.750		mg/L	15		6020A	Total/NA
Calcium	199		3.00		mg/L	15		6020A	Total/NA
Selenium	0.0582		0.00500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1460		30.0		mg/L	1		SM 2540C	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH	7.05	HF	0.100	0.100	SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW-13 — Lab Sample ID: 310-70785-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	6.18		5.00		mg/L	5		9056A	Total/NA
Sulfate	352		20.0		mg/L	20		9056A	Total/NA
Lithium	0.122		0.0500		mg/L	1		6010C	Total/NA
Barium	0.0530		0.00200		mg/L	1		6020A	Total/NA
Boron	0.694		0.150		mg/L	3		6020A	Total/NA
Calcium	230		3.00		mg/L	15		6020A	Total/NA
Cobalt	0.000796		0.000500		mg/L	1		6020A	Total/NA
Selenium	0.0405		0.00500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1220		30.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-13 (Continued) — Lab Sample ID: 310-70785-7

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.90	HF	0.100	0.100	SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW-14 — Lab Sample ID: 310-70785-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	6.40		5.00		mg/L	5		9056A	Total/NA
Sulfate	386		20.0		mg/L	20		9056A	Total/NA
Lithium	0.162		0.0500		mg/L	1		6010C	Total/NA
Barium	0.133		0.00200		mg/L	1		6020A	Total/NA
Boron	1.19		0.750		mg/L	15		6020A	Total/NA
Calcium	263		3.00		mg/L	15		6020A	Total/NA
Cobalt	0.00311		0.000500		mg/L	1		6020A	Total/NA
Molybdenum	0.00207		0.00200		mg/L	1		6020A	Total/NA
Selenium	0.0148		0.00500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1370		30.0		mg/L	1		SM 2540C	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.80	HF	0.100	0.100	SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW-15 — Lab Sample ID: 310-70785-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.00		5.00		mg/L	5		9056A	Total/NA
Sulfate	501		20.0		mg/L	20		9056A	Total/NA
Lithium	0.0652		0.0500		mg/L	1		6010C	Total/NA
Barium	0.0583		0.00200		mg/L	1		6020A	Total/NA
Boron	2.88		0.750		mg/L	15		6020A	Total/NA
Calcium	188		3.00		mg/L	15		6020A	Total/NA
Cobalt	0.00212		0.000500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1580		60.0		mg/L	1		SM 2540C	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.80	HF	0.100	0.100	SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: DP-01 — Lab Sample ID: 310-70785-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	14.5		5.00		mg/L	5		9056A	Total/NA
Sulfate	301		20.0		mg/L	20		9056A	Total/NA
Lithium	0.120		0.0500		mg/L	1		6010C	Total/NA
Barium	0.0864		0.00200		mg/L	1		6020A	Total/NA
Boron	0.722		0.150		mg/L	3		6020A	Total/NA
Calcium	222		3.00		mg/L	15		6020A	Total/NA
Cobalt	0.00240		0.000500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1170		30.0		mg/L	1		SM 2540C	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.00	HF	0.100	0.100	SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-2

Date Collected: 12/09/15 14:30
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-1

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**6.47**		5.00		mg/L			12/22/15 21:07	5
Sulfate	**360**		20.0		mg/L			12/23/15 17:39	20
Fluoride	<0.500		0.500		mg/L			12/22/15 21:07	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.131**		0.0500		mg/L		12/11/15 08:10	12/12/15 02:28	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 19:52	1
Arsenic	**0.0509**		0.00200		mg/L		12/11/15 07:45	12/11/15 19:52	1
Barium	**0.193**		0.00200		mg/L		12/11/15 07:45	12/11/15 19:52	1
Beryllium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 19:52	1
Boron	**0.780**		0.250		mg/L		12/11/15 07:45	12/15/15 13:07	5
Cadmium	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 19:52	1
Calcium	**287**		4.00		mg/L		12/11/15 07:45	12/11/15 22:05	20
Chromium	<0.00500		0.00500		mg/L		12/11/15 07:45	12/11/15 19:52	1
Cobalt	**0.00331**		0.000500		mg/L		12/11/15 07:45	12/11/15 19:52	1
Lead	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 19:52	1
Molybdenum	**0.00266**		0.00200		mg/L		12/11/15 07:45	12/11/15 19:52	1
Selenium	<0.00500		0.00500		mg/L		12/11/15 07:45	12/11/15 19:52	1
Thallium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 19:52	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/14/15 12:18	12/15/15 14:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1280**		30.0		mg/L			12/11/15 17:19	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.88**	**HF**	0.100	0.100	SU			12/10/15 17:08	1

Client Sample ID: MW-4

Date Collected: 12/09/15 14:03
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-2

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**18.3**		5.00		mg/L			12/22/15 21:07	5
Sulfate	**996**		20.0		mg/L			12/23/15 17:39	20
Fluoride	<0.500		0.500		mg/L			12/22/15 21:07	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.254**		0.0500		mg/L		12/11/15 08:10	12/12/15 02:46	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:06	1
Arsenic	<0.00200		0.00200		mg/L		12/11/15 07:45	12/11/15 20:06	1
Barium	**0.0275**		0.00200		mg/L		12/11/15 07:45	12/11/15 20:06	1
Beryllium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:06	1
Boron	**3.30**		1.00		mg/L		12/11/15 07:45	12/11/15 22:29	20
Cadmium	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 20:06	1
Calcium	**366**		4.00		mg/L		12/11/15 07:45	12/11/15 22:29	20
Chromium	<0.00500		0.00500		mg/L		12/11/15 07:45	12/11/15 20:06	1
Cobalt	**0.00154**		0.000500		mg/L		12/11/15 07:45	12/11/15 20:06	1
Lead	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 20:06	1
Molybdenum	<0.00200		0.00200		mg/L		12/11/15 07:45	12/11/15 20:06	1
Selenium	<0.00500		0.00500		mg/L		12/11/15 07:45	12/11/15 20:06	1
Thallium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:06	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/14/15 12:18	12/15/15 14:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**2340**		150		mg/L			12/11/15 08:54	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.87**	**HF**	0.100	0.100	SU			12/10/15 17:10	1

Client Sample ID: MW-8

Date Collected: 12/09/15 15:16
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-3

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.07**		5.00		mg/L			12/23/15 04:18	5
Sulfate	**694**	**F1**	20.0		mg/L			12/23/15 17:39	20
Fluoride	<0.500		0.500		mg/L			12/23/15 04:18	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0950**		0.0500		mg/L		12/11/15 08:10	12/12/15 02:51	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:09	1
Arsenic	<0.00200		0.00200		mg/L		12/11/15 07:45	12/11/15 20:09	1
Barium	**0.111**		0.00200		mg/L		12/11/15 07:45	12/11/15 20:09	1
Beryllium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:09	1
Boron	**3.44**		1.00		mg/L		12/11/15 07:45	12/11/15 22:32	20
Cadmium	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 20:09	1
Calcium	**212**		4.00		mg/L		12/11/15 07:45	12/11/15 22:32	20
Chromium	<0.00500		0.00500		mg/L		12/11/15 07:45	12/11/15 20:09	1
Cobalt	**0.00253**		0.000500		mg/L		12/11/15 07:45	12/11/15 20:09	1
Lead	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 20:09	1
Molybdenum	**0.00589**		0.00200		mg/L		12/11/15 07:45	12/11/15 20:09	1
Selenium	**0.0985**		0.00500		mg/L		12/11/15 07:45	12/11/15 20:09	1
Thallium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:09	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/14/15 12:18	12/15/15 14:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1590**		60.0		mg/L			12/11/15 08:54	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.08**	**HF**	0.100	0.100	SU			12/10/15 17:11	1

Client Sample ID: MW-10

Date Collected: 12/09/15 16:40
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-4

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			12/23/15 04:18	5
Sulfate	**264**		5.00		mg/L			12/23/15 04:18	5
Fluoride	**3.43**		0.500		mg/L			12/23/15 04:18	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.138**		0.0500		mg/L		12/11/15 08:10	12/12/15 02:55	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:26	1
Arsenic	**0.00312**		0.00200		mg/L		12/11/15 07:45	12/11/15 20:26	1
Barium	**0.179**		0.00200		mg/L		12/11/15 07:45	12/11/15 20:26	1
Beryllium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:26	1
Boron	**2.24**		0.500		mg/L		12/11/15 07:45	12/11/15 22:38	10
Cadmium	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 20:26	1
Calcium	**174**		2.00		mg/L		12/11/15 07:45	12/11/15 22:38	10
Chromium	<0.00500		0.00500		mg/L		12/11/15 07:45	12/11/15 20:26	1
Cobalt	**0.00394**		0.000500		mg/L		12/11/15 07:45	12/11/15 20:26	1
Lead	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 20:26	1
Molybdenum	**0.00346**		0.00200		mg/L		12/11/15 07:45	12/11/15 20:26	1
Selenium	<0.00500		0.00500		mg/L		12/11/15 07:45	12/11/15 20:26	1
Thallium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:26	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/14/15 12:18	12/15/15 14:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1130**		30.0		mg/L			12/11/15 17:19	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.94**	**HF**	0.100	0.100	SU			12/10/15 17:12	1

Client Sample ID: MW-11

Date Collected: 12/09/15 12:50
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-5

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**12.9**		5.00		mg/L			12/23/15 04:18	5
Sulfate	**303**		20.0		mg/L			12/23/15 17:39	20
Fluoride	<0.500		0.500		mg/L			12/23/15 04:18	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.132**		0.0500		mg/L		12/11/15 08:10	12/12/15 03:09	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:29	1
Arsenic	<0.00200		0.00200		mg/L		12/11/15 07:45	12/11/15 20:29	1
Barium	**0.0853**		0.00200		mg/L		12/11/15 07:45	12/11/15 20:29	1
Beryllium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:29	1
Boron	**0.697**		0.150		mg/L		12/11/15 07:45	12/15/15 13:27	3
Cadmium	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 20:29	1
Calcium	**225**		3.00		mg/L		12/11/15 07:45	12/11/15 22:42	15
Chromium	<0.00500		0.00500		mg/L		12/11/15 07:45	12/11/15 20:29	1
Cobalt	**0.00238**		0.000500		mg/L		12/11/15 07:45	12/11/15 20:29	1
Lead	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 20:29	1
Molybdenum	<0.00200		0.00200		mg/L		12/11/15 07:45	12/11/15 20:29	1
Selenium	<0.00500		0.00500		mg/L		12/11/15 07:45	12/11/15 20:29	1
Thallium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:29	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/14/15 12:18	12/15/15 14:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1180**		30.0		mg/L			12/11/15 17:19	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.93**	**HF**	0.100	0.100	SU			12/10/15 17:13	1

Client Sample ID: MW-12

Date Collected: 12/09/15 11:15
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-6

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**143**		5.00		mg/L			12/23/15 04:18	5
Sulfate	**457**		20.0		mg/L			12/23/15 17:39	20
Fluoride	<0.500		0.500		mg/L			12/23/15 04:18	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.136**		0.0500		mg/L		12/11/15 08:10	12/12/15 03:13	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:32	1
Arsenic	<0.00200		0.00200		mg/L		12/11/15 07:45	12/11/15 20:32	1
Barium	**0.0838**		0.00200		mg/L		12/11/15 07:45	12/11/15 20:32	1
Beryllium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:32	1
Boron	**3.86**		0.750		mg/L		12/11/15 07:45	12/11/15 22:45	15
Cadmium	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 20:32	1
Calcium	**199**		3.00		mg/L		12/11/15 07:45	12/11/15 22:45	15
Chromium	<0.00500		0.00500		mg/L		12/11/15 07:45	12/11/15 20:32	1
Cobalt	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 20:32	1
Lead	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 20:32	1
Molybdenum	<0.00200		0.00200		mg/L		12/11/15 07:45	12/11/15 20:32	1
Selenium	**0.0582**		0.00500		mg/L		12/11/15 07:45	12/11/15 20:32	1
Thallium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:32	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/14/15 12:18	12/15/15 14:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1460**		30.0		mg/L			12/11/15 17:19	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.05**	**HF**	0.100	0.100	SU			12/10/15 17:13	1

Client Sample ID: MW-13

Date Collected: 12/09/15 11:20
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-7

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**6.18**		5.00		mg/L			12/23/15 04:18	5
Sulfate	**352**		20.0		mg/L			12/23/15 17:39	20
Fluoride	<0.500		0.500		mg/L			12/23/15 04:18	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.122**		0.0500		mg/L		12/11/15 08:10	12/12/15 03:23	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:39	1
Arsenic	<0.00200		0.00200		mg/L		12/11/15 07:45	12/11/15 20:39	1
Barium	**0.0530**		0.00200		mg/L		12/11/15 07:45	12/11/15 20:39	1
Beryllium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:39	1
Boron	**0.694**		0.150		mg/L		12/11/15 07:45	12/15/15 13:33	3
Cadmium	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 20:39	1
Calcium	**230**		3.00		mg/L		12/11/15 07:45	12/11/15 22:52	15
Chromium	<0.00500		0.00500		mg/L		12/11/15 07:45	12/11/15 20:39	1
Cobalt	**0.000796**		0.000500		mg/L		12/11/15 07:45	12/11/15 20:39	1
Lead	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 20:39	1
Molybdenum	<0.00200		0.00200		mg/L		12/11/15 07:45	12/11/15 20:39	1
Selenium	**0.0405**		0.00500		mg/L		12/11/15 07:45	12/11/15 20:39	1
Thallium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:39	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/14/15 12:18	12/15/15 14:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1220**		30.0		mg/L			12/11/15 17:19	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.90**	**HF**	0.100	0.100	SU			12/10/15 17:15	1

Client Sample ID: MW-14

Date Collected: 12/09/15 16:00
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-8

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**6.40**		5.00		mg/L			12/23/15 04:18	5
Sulfate	**386**		20.0		mg/L			12/23/15 17:39	20
Fluoride	<0.500		0.500		mg/L			12/23/15 04:18	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.162**		0.0500		mg/L		12/11/15 08:10	12/12/15 03:27	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:42	1
Arsenic	<0.00200		0.00200		mg/L		12/11/15 07:45	12/11/15 20:42	1
Barium	**0.133**		0.00200		mg/L		12/11/15 07:45	12/11/15 20:42	1
Beryllium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:42	1
Boron	**1.19**		0.750		mg/L		12/11/15 07:45	12/11/15 23:05	15
Cadmium	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 20:42	1
Calcium	**263**		3.00		mg/L		12/11/15 07:45	12/11/15 23:05	15
Chromium	<0.00500		0.00500		mg/L		12/11/15 07:45	12/11/15 20:42	1
Cobalt	**0.00311**		0.000500		mg/L		12/11/15 07:45	12/11/15 20:42	1
Lead	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 20:42	1
Molybdenum	**0.00207**		0.00200		mg/L		12/11/15 07:45	12/11/15 20:42	1
Selenium	**0.0148**		0.00500		mg/L		12/11/15 07:45	12/11/15 20:42	1
Thallium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:42	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/14/15 12:18	12/15/15 14:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1370**		30.0		mg/L			12/11/15 17:19	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.80**	**HF**	0.100	0.100	SU			12/10/15 17:15	1

Client Sample ID: MW-15

Date Collected: 12/09/15 12:50
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-9

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**8.00**		5.00		mg/L			12/23/15 04:18	5
Sulfate	**501**		20.0		mg/L			12/23/15 17:39	20
Fluoride	<0.500		0.500		mg/L			12/23/15 04:18	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0652**		0.0500		mg/L		12/11/15 08:10	12/12/15 03:32	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:46	1
Arsenic	<0.00200		0.00200		mg/L		12/11/15 07:45	12/11/15 20:46	1
Barium	**0.0583**		0.00200		mg/L		12/11/15 07:45	12/11/15 20:46	1
Beryllium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:46	1
Boron	**2.88**		0.750		mg/L		12/11/15 07:45	12/11/15 23:08	15
Cadmium	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 20:46	1
Calcium	**188**		3.00		mg/L		12/11/15 07:45	12/11/15 23:08	15
Chromium	<0.00500		0.00500		mg/L		12/11/15 07:45	12/11/15 20:46	1
Cobalt	**0.00212**		0.000500		mg/L		12/11/15 07:45	12/11/15 20:46	1
Lead	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 20:46	1
Molybdenum	<0.00200		0.00200		mg/L		12/11/15 07:45	12/11/15 20:46	1
Selenium	<0.00500		0.00500		mg/L		12/11/15 07:45	12/11/15 20:46	1
Thallium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:46	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/14/15 12:18	12/15/15 14:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1580**		60.0		mg/L			12/11/15 17:19	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.80**	**HF**	0.100	0.100	SU			12/10/15 17:16	1

Client Sample ID: DP-01

Date Collected: 12/09/15 00:00
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-10

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**14.5**		5.00		mg/L			12/23/15 04:18	5
Sulfate	**301**		20.0		mg/L			12/23/15 17:39	20
Fluoride	<0.500		0.500		mg/L			12/23/15 04:18	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.120**		0.0500		mg/L		12/11/15 08:10	12/12/15 03:18	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:36	1
Arsenic	<0.00200		0.00200		mg/L		12/11/15 07:45	12/11/15 20:36	1
Barium	**0.0864**		0.00200		mg/L		12/11/15 07:45	12/11/15 20:36	1
Beryllium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:36	1
Boron	**0.722**		0.150		mg/L		12/11/15 07:45	12/15/15 13:30	3
Cadmium	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 20:36	1
Calcium	**222**		3.00		mg/L		12/11/15 07:45	12/11/15 22:48	15
Chromium	<0.00500		0.00500		mg/L		12/11/15 07:45	12/11/15 20:36	1
Cobalt	**0.00240**		0.000500		mg/L		12/11/15 07:45	12/11/15 20:36	1
Lead	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 20:36	1
Molybdenum	<0.00200		0.00200		mg/L		12/11/15 07:45	12/11/15 20:36	1
Selenium	<0.00500		0.00500		mg/L		12/11/15 07:45	12/11/15 20:36	1
Thallium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 20:36	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/14/15 12:18	12/15/15 14:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1170**		30.0		mg/L			12/11/15 17:19	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.00**	**HF**	0.100	0.100	SU			12/10/15 17:16	1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery 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.

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.
¤	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)

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-113477/3
Matrix: Water
Analysis Batch: 113477

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			12/22/15 21:07	1
Sulfate	<1.00		1.00		mg/L			12/22/15 21:07	1
Fluoride	<0.100		0.100		mg/L			12/22/15 21:07	1

Lab Sample ID: LCS 310-113477/4
Matrix: Water
Analysis Batch: 113477

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.50	7.613		mg/L		102	90 - 110
Sulfate	7.50	7.576		mg/L		101	90 - 110
Fluoride	1.50	1.609		mg/L		107	90 - 110

Lab Sample ID: 310-70785-1 MS
Matrix: Ground Water
Analysis Batch: 113477

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	6.47		25.0	30.89		mg/L		98	80 - 120
Fluoride	<0.500		5.00	5.149		mg/L		103	80 - 120

Lab Sample ID: 310-70785-1 MSD
Matrix: Ground Water
Analysis Batch: 113477

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	6.47		25.0	31.47		mg/L		100	80 - 120	2	15
Fluoride	<0.500		5.00	5.227		mg/L		105	80 - 120	2	15

Lab Sample ID: MB 310-113480/3
Matrix: Water
Analysis Batch: 113480

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			12/23/15 04:18	1
Sulfate	<1.00		1.00		mg/L			12/23/15 04:18	1
Fluoride	<0.100		0.100		mg/L			12/23/15 04:18	1

Lab Sample ID: LCS 310-113480/4
Matrix: Water
Analysis Batch: 113480

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.50	7.598		mg/L		101	90 - 110
Sulfate	7.50	7.588		mg/L		101	90 - 110
Fluoride	1.50	1.591		mg/L		106	90 - 110

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: 310-70785-3 MS
Matrix: Ground Water
Analysis Batch: 113480

Client Sample ID: MW-8
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.07		25.0	28.79		mg/L		95	80 - 120
Sulfate	675		25.0	699.7	4	mg/L		98	80 - 120
Fluoride	<0.500		5.00	5.043		mg/L		101	80 - 120

Lab Sample ID: 310-70785-3 MSD
Matrix: Ground Water
Analysis Batch: 113480

Client Sample ID: MW-8
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	5.07		25.0	29.62		mg/L		98	80 - 120	3	15
Sulfate	675		25.0	693.1	4 F1	mg/L		72	80 - 120	1	15
Fluoride	<0.500		5.00	5.464		mg/L		109	80 - 120	8	15

Lab Sample ID: MB 310-113557/3
Matrix: Water
Analysis Batch: 113557

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			12/23/15 17:39	1
Sulfate	<1.00		1.00		mg/L			12/23/15 17:39	1
Fluoride	<0.100		0.100		mg/L			12/23/15 17:39	1

Lab Sample ID: LCS 310-113557/4
Matrix: Water
Analysis Batch: 113557

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.50	7.533		mg/L		100	90 - 110
Sulfate	7.50	7.725		mg/L		103	90 - 110
Fluoride	1.50	1.475		mg/L		98	90 - 110

Lab Sample ID: 310-70785-1 MS
Matrix: Ground Water
Analysis Batch: 113557

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	360		100	446.1		mg/L		86	80 - 120

Lab Sample ID: 310-70785-1 MSD
Matrix: Ground Water
Analysis Batch: 113557

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	360		100	441.4		mg/L		82	80 - 120	1	15

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 310-112040/1-A
Matrix: Water
Analysis Batch: 112260

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 112040

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.0500		0.0500		mg/L		12/11/15 08:10	12/12/15 02:19	1

Lab Sample ID: LCS 310-112040/2-A
Matrix: Water
Analysis Batch: 112260

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 112040

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	2.00	2.035		mg/L		102	80 - 120

Lab Sample ID: 310-70785-1 MS
Matrix: Ground Water
Analysis Batch: 112260

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 112040

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.131		2.00	2.294		mg/L		108	75 - 125

Lab Sample ID: 310-70785-1 MSD
Matrix: Ground Water
Analysis Batch: 112260

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 112040

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	0.131		2.00	2.243		mg/L		106	75 - 125	2	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-112032/1-A
Matrix: Water
Analysis Batch: 112247

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 112032

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 18:42	1
Arsenic	<0.00200		0.00200		mg/L		12/11/15 07:45	12/11/15 18:42	1
Barium	<0.00200		0.00200		mg/L		12/11/15 07:45	12/11/15 18:42	1
Beryllium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 18:42	1
Boron	<0.0500		0.0500		mg/L		12/11/15 07:45	12/11/15 18:42	1
Cadmium	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 18:42	1
Calcium	<0.200		0.200		mg/L		12/11/15 07:45	12/11/15 18:42	1
Chromium	<0.00500		0.00500		mg/L		12/11/15 07:45	12/11/15 18:42	1
Cobalt	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 18:42	1
Lead	<0.000500		0.000500		mg/L		12/11/15 07:45	12/11/15 18:42	1
Molybdenum	<0.00200		0.00200		mg/L		12/11/15 07:45	12/11/15 18:42	1
Selenium	<0.00500		0.00500		mg/L		12/11/15 07:45	12/11/15 18:42	1
Thallium	<0.00100		0.00100		mg/L		12/11/15 07:45	12/11/15 18:42	1

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

Lab Sample ID: LCS 310-112032/2-A
Matrix: Water
Analysis Batch: 112247

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 112032

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0200	0.02126		mg/L		106	80 - 120
Arsenic	0.0400	0.03940		mg/L		99	80 - 120
Barium	0.0400	0.04037		mg/L		101	80 - 120
Beryllium	0.0200	0.02116		mg/L		106	80 - 120
Boron	0.0800	0.08848		mg/L		111	80 - 120
Cadmium	0.0200	0.02201		mg/L		110	80 - 120
Calcium	2.00	2.195		mg/L		110	80 - 120
Chromium	0.0400	0.04074		mg/L		102	80 - 120
Cobalt	0.0200	0.01997		mg/L		100	80 - 120
Lead	0.0200	0.02156		mg/L		108	80 - 120
Molybdenum	0.0400	0.04156		mg/L		104	80 - 120
Selenium	0.0400	0.03888		mg/L		97	80 - 120
Thallium	0.0160	0.01645		mg/L		103	80 - 120

Lab Sample ID: 310-70785-1 MS
Matrix: Ground Water
Analysis Batch: 112247

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 112032

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.0200		0.0200	0.02282		mg/L		114	75 - 125
Arsenic	0.0511		0.0400	0.09340		mg/L		106	75 - 125
Barium	0.195		0.0400	0.2355	4	mg/L		102	75 - 125
Beryllium	<0.0200		0.0200	0.02299		mg/L		109	75 - 125
Cadmium	<0.0100		0.0200	0.02270		mg/L		114	75 - 125
Chromium	<0.100		0.0400	0.04405		mg/L		110	75 - 125
Cobalt	<0.0100		0.0200	0.02393		mg/L		100	75 - 125
Lead	<0.0100		0.0200	0.02312		mg/L		100	75 - 125
Molybdenum	<0.0400		0.0400	0.04898		mg/L		108	75 - 125
Selenium	<0.100		0.0400	0.04326		mg/L		108	75 - 125
Thallium	<0.0200		0.0160	0.01802		mg/L		113	75 - 125

Lab Sample ID: 310-70785-1 MS
Matrix: Ground Water
Analysis Batch: 112247

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 112032

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	287		2.00	262.4	4	mg/L		-1231	75 - 125

Lab Sample ID: 310-70785-1 MS
Matrix: Ground Water
Analysis Batch: 112553

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 112032

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.780		0.0800	0.8497	4	mg/L		87	75 - 125

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

Lab Sample ID: 310-70785-1 MSD
Matrix: Ground Water
Analysis Batch: 112247

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 112032

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	<0.0200		0.0200	0.02289		mg/L		114	75 - 125	0	20
Arsenic	0.0511		0.0400	0.09484		mg/L		109	75 - 125	2	20
Barium	0.195		0.0400	0.2400	4	mg/L		113	75 - 125	2	20
Beryllium	<0.0200		0.0200	0.02308		mg/L		109	75 - 125	0	20
Cadmium	<0.0100		0.0200	0.02276		mg/L		114	75 - 125	0	20
Chromium	<0.100		0.0400	0.04403		mg/L		110	75 - 125	0	20
Cobalt	<0.0100		0.0200	0.02397		mg/L		100	75 - 125	0	20
Lead	<0.0100		0.0200	0.02320		mg/L		101	75 - 125	0	20
Molybdenum	<0.0400		0.0400	0.04905		mg/L		108	75 - 125	0	20
Selenium	<0.100		0.0400	0.04315		mg/L		108	75 - 125	0	20
Thallium	<0.0200		0.0160	0.01816		mg/L		113	75 - 125	1	20

Lab Sample ID: 310-70785-1 MSD
Matrix: Ground Water
Analysis Batch: 112247

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 112032

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	287		2.00	224.1	4	mg/L		-3147	75 - 125	16	20

Lab Sample ID: 310-70785-1 MSD
Matrix: Ground Water
Analysis Batch: 112553

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 112032

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	0.780		0.0800	0.8093	4	mg/L		37	75 - 125	5	20

Lab Sample ID: 310-70785-3 DU
Matrix: Ground Water
Analysis Batch: 112247

Client Sample ID: MW-8
Prep Type: Total/NA
Prep Batch: 112032

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Antimony	<0.0200			<0.00100		mg/L				NC	20
Arsenic	<0.0400			<0.00200		mg/L				NC	20
Barium	0.100			0.1210		mg/L				19	20
Beryllium	<0.0200			<0.00100		mg/L				NC	20
Cadmium	<0.0100			<0.000500		mg/L				NC	20
Chromium	<0.100			<0.00500		mg/L				NC	20
Cobalt	<0.0100			0.002743		mg/L				NC	20
Lead	<0.0100			<0.000500		mg/L				NC	20
Molybdenum	<0.0400			0.006426		mg/L				NC	20
Selenium	<0.100			0.1064		mg/L				NC	20
Thallium	<0.0200			<0.00100		mg/L				NC	20

Lab Sample ID: 310-70785-3 DU
Matrix: Ground Water
Analysis Batch: 112247

Client Sample ID: MW-8
Prep Type: Total/NA
Prep Batch: 112032

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Boron	3.44			4.073		mg/L				17	20

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

Lab Sample ID: 310-70785-3 DU
Matrix: Ground Water
Analysis Batch: 112247

Client Sample ID: MW-8
Prep Type: Total/NA
Prep Batch: 112032

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Calcium	212			254.9		mg/L				19	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-112318/1-A
Matrix: Water
Analysis Batch: 112537

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 112318

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/14/15 12:18	12/15/15 14:26	1

Lab Sample ID: LCS 310-112318/2-A
Matrix: Water
Analysis Batch: 112537

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 112318

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			0.00167	0.001655		mg/L		99	80 - 120		

Lab Sample ID: 310-70785-1 MS
Matrix: Ground Water
Analysis Batch: 112537

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 112318

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	<0.000200		0.00167	0.001854		mg/L		111	80 - 120		

Lab Sample ID: 310-70785-1 MSD
Matrix: Ground Water
Analysis Batch: 112537

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 112318

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.000200		0.00167	0.001874		mg/L		112	80 - 120	1	20

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

Lab Sample ID: MB 310-112078/1
Matrix: Water
Analysis Batch: 112078

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	<30.0		30.0		mg/L			12/11/15 08:54	1

Lab Sample ID: LCS 310-112078/2
Matrix: Water
Analysis Batch: 112078

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			1000	1022		mg/L		102	90 - 110		

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

Lab Sample ID: MB 310-112185/1
Matrix: Water
Analysis Batch: 112185

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	<30.0		30.0		mg/L			12/11/15 17:19	1

Lab Sample ID: LCS 310-112185/2
Matrix: Water
Analysis Batch: 112185

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	1000	1046		mg/L		105	90 - 110

Lab Sample ID: 310-70785-1 DU
Matrix: Ground Water
Analysis Batch: 112185

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1280		1250		mg/L		2	20

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-112016/1
Matrix: Water
Analysis Batch: 112016

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	7.010		SU		100	98 - 102

Lab Sample ID: 310-70785-1 DU
Matrix: Ground Water
Analysis Batch: 112016

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.88	HF	6.830		SU		0.7	20

Lab Sample ID: 310-70785-7 DU
Matrix: Ground Water
Analysis Batch: 112016

Client Sample ID: MW-13
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.90	HF	6.910		SU		0.1	20

HPLC/IC

Analysis Batch: 113477

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-1	MW-2	Total/NA	Ground Water	9056A	
310-70785-1 MS	MW-2	Total/NA	Ground Water	9056A	
310-70785-1 MSD	MW-2	Total/NA	Ground Water	9056A	
310-70785-2	MW-4	Total/NA	Ground Water	9056A	
LCS 310-113477/4	Lab Control Sample	Total/NA	Water	9056A	
MB 310-113477/3	Method Blank	Total/NA	Water	9056A	

Analysis Batch: 113480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-3	MW-8	Total/NA	Ground Water	9056A	
310-70785-3 MS	MW-8	Total/NA	Ground Water	9056A	
310-70785-3 MSD	MW-8	Total/NA	Ground Water	9056A	
310-70785-4	MW-10	Total/NA	Ground Water	9056A	
310-70785-5	MW-11	Total/NA	Ground Water	9056A	
310-70785-6	MW-12	Total/NA	Ground Water	9056A	
310-70785-7	MW-13	Total/NA	Ground Water	9056A	
310-70785-8	MW-14	Total/NA	Ground Water	9056A	
310-70785-9	MW-15	Total/NA	Ground Water	9056A	
310-70785-10	DP-01	Total/NA	Ground Water	9056A	
LCS 310-113480/4	Lab Control Sample	Total/NA	Water	9056A	
MB 310-113480/3	Method Blank	Total/NA	Water	9056A	

Analysis Batch: 113557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-1	MW-2	Total/NA	Ground Water	9056A	
310-70785-1 MS	MW-2	Total/NA	Ground Water	9056A	
310-70785-1 MSD	MW-2	Total/NA	Ground Water	9056A	
310-70785-2	MW-4	Total/NA	Ground Water	9056A	
310-70785-3	MW-8	Total/NA	Ground Water	9056A	
310-70785-5	MW-11	Total/NA	Ground Water	9056A	
310-70785-6	MW-12	Total/NA	Ground Water	9056A	
310-70785-7	MW-13	Total/NA	Ground Water	9056A	
310-70785-8	MW-14	Total/NA	Ground Water	9056A	
310-70785-9	MW-15	Total/NA	Ground Water	9056A	
310-70785-10	DP-01	Total/NA	Ground Water	9056A	
LCS 310-113557/4	Lab Control Sample	Total/NA	Water	9056A	
MB 310-113557/3	Method Blank	Total/NA	Water	9056A	

Metals

Prep Batch: 112032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-1	MW-2	Total/NA	Ground Water	3010A	
310-70785-1 MS	MW-2	Total/NA	Ground Water	3010A	
310-70785-1 MSD	MW-2	Total/NA	Ground Water	3010A	
310-70785-2	MW-4	Total/NA	Ground Water	3010A	
310-70785-3	MW-8	Total/NA	Ground Water	3010A	
310-70785-3 DU	MW-8	Total/NA	Ground Water	3010A	
310-70785-4	MW-10	Total/NA	Ground Water	3010A	
310-70785-5	MW-11	Total/NA	Ground Water	3010A	

Metals (Continued)

Prep Batch: 112032 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-6	MW-12	Total/NA	Ground Water	3010A	
310-70785-7	MW-13	Total/NA	Ground Water	3010A	
310-70785-8	MW-14	Total/NA	Ground Water	3010A	
310-70785-9	MW-15	Total/NA	Ground Water	3010A	
310-70785-10	DP-01	Total/NA	Ground Water	3010A	
LCS 310-112032/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 310-112032/1-A	Method Blank	Total/NA	Water	3010A	

Prep Batch: 112040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-1	MW-2	Total/NA	Ground Water	3010A	
310-70785-1 MS	MW-2	Total/NA	Ground Water	3010A	
310-70785-1 MSD	MW-2	Total/NA	Ground Water	3010A	
310-70785-2	MW-4	Total/NA	Ground Water	3010A	
310-70785-3	MW-8	Total/NA	Ground Water	3010A	
310-70785-4	MW-10	Total/NA	Ground Water	3010A	
310-70785-5	MW-11	Total/NA	Ground Water	3010A	
310-70785-6	MW-12	Total/NA	Ground Water	3010A	
310-70785-7	MW-13	Total/NA	Ground Water	3010A	
310-70785-8	MW-14	Total/NA	Ground Water	3010A	
310-70785-9	MW-15	Total/NA	Ground Water	3010A	
310-70785-10	DP-01	Total/NA	Ground Water	3010A	
LCS 310-112040/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 310-112040/1-A	Method Blank	Total/NA	Water	3010A	

Analysis Batch: 112247

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-1	MW-2	Total/NA	Ground Water	6020A	112032
310-70785-1	MW-2	Total/NA	Ground Water	6020A	112032
310-70785-1 MS	MW-2	Total/NA	Ground Water	6020A	112032
310-70785-1 MS	MW-2	Total/NA	Ground Water	6020A	112032
310-70785-1 MSD	MW-2	Total/NA	Ground Water	6020A	112032
310-70785-1 MSD	MW-2	Total/NA	Ground Water	6020A	112032
310-70785-2	MW-4	Total/NA	Ground Water	6020A	112032
310-70785-2	MW-4	Total/NA	Ground Water	6020A	112032
310-70785-3	MW-8	Total/NA	Ground Water	6020A	112032
310-70785-3	MW-8	Total/NA	Ground Water	6020A	112032
310-70785-3 DU	MW-8	Total/NA	Ground Water	6020A	112032
310-70785-3 DU	MW-8	Total/NA	Ground Water	6020A	112032
310-70785-4	MW-10	Total/NA	Ground Water	6020A	112032
310-70785-4	MW-10	Total/NA	Ground Water	6020A	112032
310-70785-5	MW-11	Total/NA	Ground Water	6020A	112032
310-70785-5	MW-11	Total/NA	Ground Water	6020A	112032
310-70785-6	MW-12	Total/NA	Ground Water	6020A	112032
310-70785-6	MW-12	Total/NA	Ground Water	6020A	112032
310-70785-7	MW-13	Total/NA	Ground Water	6020A	112032
310-70785-7	MW-13	Total/NA	Ground Water	6020A	112032
310-70785-8	MW-14	Total/NA	Ground Water	6020A	112032
310-70785-8	MW-14	Total/NA	Ground Water	6020A	112032
310-70785-9	MW-15	Total/NA	Ground Water	6020A	112032
310-70785-9	MW-15	Total/NA	Ground Water	6020A	112032

Metals (Continued)

Analysis Batch: 112247 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-10	DP-01	Total/NA	Ground Water	6020A	112032
310-70785-10	DP-01	Total/NA	Ground Water	6020A	112032
LCS 310-112032/2-A	Lab Control Sample	Total/NA	Water	6020A	112032
MB 310-112032/1-A	Method Blank	Total/NA	Water	6020A	112032

Analysis Batch: 112260

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-1	MW-2	Total/NA	Ground Water	6010C	112040
310-70785-1 MS	MW-2	Total/NA	Ground Water	6010C	112040
310-70785-1 MSD	MW-2	Total/NA	Ground Water	6010C	112040
310-70785-2	MW-4	Total/NA	Ground Water	6010C	112040
310-70785-3	MW-8	Total/NA	Ground Water	6010C	112040
310-70785-4	MW-10	Total/NA	Ground Water	6010C	112040
310-70785-5	MW-11	Total/NA	Ground Water	6010C	112040
310-70785-6	MW-12	Total/NA	Ground Water	6010C	112040
310-70785-7	MW-13	Total/NA	Ground Water	6010C	112040
310-70785-8	MW-14	Total/NA	Ground Water	6010C	112040
310-70785-9	MW-15	Total/NA	Ground Water	6010C	112040
310-70785-10	DP-01	Total/NA	Ground Water	6010C	112040
LCS 310-112040/2-A	Lab Control Sample	Total/NA	Water	6010C	112040
MB 310-112040/1-A	Method Blank	Total/NA	Water	6010C	112040

Prep Batch: 112318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-1	MW-2	Total/NA	Ground Water	7470A	
310-70785-1 MS	MW-2	Total/NA	Ground Water	7470A	
310-70785-1 MSD	MW-2	Total/NA	Ground Water	7470A	
310-70785-2	MW-4	Total/NA	Ground Water	7470A	
310-70785-3	MW-8	Total/NA	Ground Water	7470A	
310-70785-4	MW-10	Total/NA	Ground Water	7470A	
310-70785-5	MW-11	Total/NA	Ground Water	7470A	
310-70785-6	MW-12	Total/NA	Ground Water	7470A	
310-70785-7	MW-13	Total/NA	Ground Water	7470A	
310-70785-8	MW-14	Total/NA	Ground Water	7470A	
310-70785-9	MW-15	Total/NA	Ground Water	7470A	
310-70785-10	DP-01	Total/NA	Ground Water	7470A	
LCS 310-112318/2-A	Lab Control Sample	Total/NA	Water	7470A	
MB 310-112318/1-A	Method Blank	Total/NA	Water	7470A	

Analysis Batch: 112537

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-1	MW-2	Total/NA	Ground Water	7470A	112318
310-70785-1 MS	MW-2	Total/NA	Ground Water	7470A	112318
310-70785-1 MSD	MW-2	Total/NA	Ground Water	7470A	112318
310-70785-2	MW-4	Total/NA	Ground Water	7470A	112318
310-70785-3	MW-8	Total/NA	Ground Water	7470A	112318
310-70785-4	MW-10	Total/NA	Ground Water	7470A	112318
310-70785-5	MW-11	Total/NA	Ground Water	7470A	112318
310-70785-6	MW-12	Total/NA	Ground Water	7470A	112318
310-70785-7	MW-13	Total/NA	Ground Water	7470A	112318
310-70785-8	MW-14	Total/NA	Ground Water	7470A	112318

Metals (Continued)

Analysis Batch: 112537 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-9	MW-15	Total/NA	Ground Water	7470A	112318
310-70785-10	DP-01	Total/NA	Ground Water	7470A	112318
LCS 310-112318/2-A	Lab Control Sample	Total/NA	Water	7470A	112318
MB 310-112318/1-A	Method Blank	Total/NA	Water	7470A	112318

Analysis Batch: 112553

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-1	MW-2	Total/NA	Ground Water	6020A	112032
310-70785-1 MS	MW-2	Total/NA	Ground Water	6020A	112032
310-70785-1 MSD	MW-2	Total/NA	Ground Water	6020A	112032
310-70785-5	MW-11	Total/NA	Ground Water	6020A	112032
310-70785-7	MW-13	Total/NA	Ground Water	6020A	112032
310-70785-10	DP-01	Total/NA	Ground Water	6020A	112032

General Chemistry

Analysis Batch: 112016

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-1	MW-2	Total/NA	Ground Water	SM 4500 H+ B	
310-70785-1 DU	MW-2	Total/NA	Ground Water	SM 4500 H+ B	
310-70785-2	MW-4	Total/NA	Ground Water	SM 4500 H+ B	
310-70785-3	MW-8	Total/NA	Ground Water	SM 4500 H+ B	
310-70785-4	MW-10	Total/NA	Ground Water	SM 4500 H+ B	
310-70785-5	MW-11	Total/NA	Ground Water	SM 4500 H+ B	
310-70785-6	MW-12	Total/NA	Ground Water	SM 4500 H+ B	
310-70785-7	MW-13	Total/NA	Ground Water	SM 4500 H+ B	
310-70785-7 DU	MW-13	Total/NA	Ground Water	SM 4500 H+ B	
310-70785-8	MW-14	Total/NA	Ground Water	SM 4500 H+ B	
310-70785-9	MW-15	Total/NA	Ground Water	SM 4500 H+ B	
310-70785-10	DP-01	Total/NA	Ground Water	SM 4500 H+ B	
LCS 310-112016/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 112078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-2	MW-4	Total/NA	Ground Water	SM 2540C	
310-70785-3	MW-8	Total/NA	Ground Water	SM 2540C	
LCS 310-112078/2	Lab Control Sample	Total/NA	Water	SM 2540C	
MB 310-112078/1	Method Blank	Total/NA	Water	SM 2540C	

Analysis Batch: 112185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-1	MW-2	Total/NA	Ground Water	SM 2540C	
310-70785-1 DU	MW-2	Total/NA	Ground Water	SM 2540C	
310-70785-4	MW-10	Total/NA	Ground Water	SM 2540C	
310-70785-5	MW-11	Total/NA	Ground Water	SM 2540C	
310-70785-6	MW-12	Total/NA	Ground Water	SM 2540C	
310-70785-7	MW-13	Total/NA	Ground Water	SM 2540C	
310-70785-8	MW-14	Total/NA	Ground Water	SM 2540C	
310-70785-9	MW-15	Total/NA	Ground Water	SM 2540C	
310-70785-10	DP-01	Total/NA	Ground Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 112185 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-112185/2	Lab Control Sample	Total/NA	Water	SM 2540C	
MB 310-112185/1	Method Blank	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-70785-1
SDG: 11114654

Client Sample ID: MW-2

Date Collected: 12/09/15 14:30
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-1

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	113477	12/22/15 21:07	AJG	TAL CF
Total/NA	Analysis	9056A		20	113557	12/23/15 17:39	AJG	TAL CF
Total/NA	Prep	3010A			112040	12/11/15 08:10	JNR	TAL CF
Total/NA	Analysis	6010C		1	112260	12/12/15 02:28	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		1	112247	12/11/15 19:52	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		20	112247	12/11/15 22:05	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		5	112553	12/15/15 13:07	OAD	TAL CF
Total/NA	Prep	7470A			112318	12/14/15 12:18	SAD	TAL CF
Total/NA	Analysis	7470A		1	112537	12/15/15 14:32	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	112185	12/11/15 17:19	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	112016	12/10/15 17:08	SAS	TAL CF

Client Sample ID: MW-4

Date Collected: 12/09/15 14:03
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-2

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	113477	12/22/15 21:07	AJG	TAL CF
Total/NA	Analysis	9056A		20	113557	12/23/15 17:39	AJG	TAL CF
Total/NA	Prep	3010A			112040	12/11/15 08:10	JNR	TAL CF
Total/NA	Analysis	6010C		1	112260	12/12/15 02:46	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		1	112247	12/11/15 20:06	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		20	112247	12/11/15 22:29	OAD	TAL CF
Total/NA	Prep	7470A			112318	12/14/15 12:18	SAD	TAL CF
Total/NA	Analysis	7470A		1	112537	12/15/15 14:37	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	112078	12/11/15 08:54	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	112016	12/10/15 17:10	SAS	TAL CF

Client Sample ID: MW-8

Date Collected: 12/09/15 15:16
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-3

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	113480	12/23/15 04:18	AJG	TAL CF
Total/NA	Analysis	9056A		20	113557	12/23/15 17:39	AJG	TAL CF
Total/NA	Prep	3010A			112040	12/11/15 08:10	JNR	TAL CF
Total/NA	Analysis	6010C		1	112260	12/12/15 02:51	OAD	TAL CF

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-70785-1
SDG: 11114654

Client Sample ID: MW-8

Date Collected: 12/09/15 15:16
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-3

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		1	112247	12/11/15 20:09	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		20	112247	12/11/15 22:32	OAD	TAL CF
Total/NA	Prep	7470A			112318	12/14/15 12:18	SAD	TAL CF
Total/NA	Analysis	7470A		1	112537	12/15/15 14:39	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	112078	12/11/15 08:54	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	112016	12/10/15 17:11	SAS	TAL CF

Client Sample ID: MW-10

Date Collected: 12/09/15 16:40
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-4

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	113480	12/23/15 04:18	AJG	TAL CF
Total/NA	Prep	3010A			112040	12/11/15 08:10	JNR	TAL CF
Total/NA	Analysis	6010C		1	112260	12/12/15 02:55	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		1	112247	12/11/15 20:26	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		10	112247	12/11/15 22:38	OAD	TAL CF
Total/NA	Prep	7470A			112318	12/14/15 12:18	SAD	TAL CF
Total/NA	Analysis	7470A		1	112537	12/15/15 14:40	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	112185	12/11/15 17:19	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	112016	12/10/15 17:12	SAS	TAL CF

Client Sample ID: MW-11

Date Collected: 12/09/15 12:50
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	113480	12/23/15 04:18	AJG	TAL CF
Total/NA	Analysis	9056A		20	113557	12/23/15 17:39	AJG	TAL CF
Total/NA	Prep	3010A			112040	12/11/15 08:10	JNR	TAL CF
Total/NA	Analysis	6010C		1	112260	12/12/15 03:09	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		1	112247	12/11/15 20:29	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		15	112247	12/11/15 22:42	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		3	112553	12/15/15 13:27	OAD	TAL CF
Total/NA	Prep	7470A			112318	12/14/15 12:18	SAD	TAL CF
Total/NA	Analysis	7470A		1	112537	12/15/15 14:42	SAD	TAL CF

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-70785-1
SDG: 11114654

Client Sample ID: MW-11

Date Collected: 12/09/15 12:50
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	112185	12/11/15 17:19	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	112016	12/10/15 17:13	SAS	TAL CF

Client Sample ID: MW-12

Date Collected: 12/09/15 11:15
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-6

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	113480	12/23/15 04:18	AJG	TAL CF
Total/NA	Analysis	9056A		20	113557	12/23/15 17:39	AJG	TAL CF
Total/NA	Prep	3010A			112040	12/11/15 08:10	JNR	TAL CF
Total/NA	Analysis	6010C		1	112260	12/12/15 03:13	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		1	112247	12/11/15 20:32	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		15	112247	12/11/15 22:45	OAD	TAL CF
Total/NA	Prep	7470A			112318	12/14/15 12:18	SAD	TAL CF
Total/NA	Analysis	7470A		1	112537	12/15/15 14:43	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	112185	12/11/15 17:19	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	112016	12/10/15 17:13	SAS	TAL CF

Client Sample ID: MW-13

Date Collected: 12/09/15 11:20
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-7

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	113480	12/23/15 04:18	AJG	TAL CF
Total/NA	Analysis	9056A		20	113557	12/23/15 17:39	AJG	TAL CF
Total/NA	Prep	3010A			112040	12/11/15 08:10	JNR	TAL CF
Total/NA	Analysis	6010C		1	112260	12/12/15 03:23	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		1	112247	12/11/15 20:39	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		15	112247	12/11/15 22:52	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		3	112553	12/15/15 13:33	OAD	TAL CF
Total/NA	Prep	7470A			112318	12/14/15 12:18	SAD	TAL CF
Total/NA	Analysis	7470A		1	112537	12/15/15 14:45	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	112185	12/11/15 17:19	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	112016	12/10/15 17:15	SAS	TAL CF

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-70785-1
SDG: 11114654

Client Sample ID: MW-14

Date Collected: 12/09/15 16:00
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-8

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	113480	12/23/15 04:18	AJG	TAL CF
Total/NA	Analysis	9056A		20	113557	12/23/15 17:39	AJG	TAL CF
Total/NA	Prep	3010A			112040	12/11/15 08:10	JNR	TAL CF
Total/NA	Analysis	6010C		1	112260	12/12/15 03:27	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		1	112247	12/11/15 20:42	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		15	112247	12/11/15 23:05	OAD	TAL CF
Total/NA	Prep	7470A			112318	12/14/15 12:18	SAD	TAL CF
Total/NA	Analysis	7470A		1	112537	12/15/15 14:47	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	112185	12/11/15 17:19	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	112016	12/10/15 17:15	SAS	TAL CF

Client Sample ID: MW-15

Date Collected: 12/09/15 12:50
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-9

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	113480	12/23/15 04:18	AJG	TAL CF
Total/NA	Analysis	9056A		20	113557	12/23/15 17:39	AJG	TAL CF
Total/NA	Prep	3010A			112040	12/11/15 08:10	JNR	TAL CF
Total/NA	Analysis	6010C		1	112260	12/12/15 03:32	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		1	112247	12/11/15 20:46	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		15	112247	12/11/15 23:08	OAD	TAL CF
Total/NA	Prep	7470A			112318	12/14/15 12:18	SAD	TAL CF
Total/NA	Analysis	7470A		1	112537	12/15/15 14:53	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	112185	12/11/15 17:19	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	112016	12/10/15 17:16	SAS	TAL CF

Client Sample ID: DP-01

Date Collected: 12/09/15 00:00
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-10

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	113480	12/23/15 04:18	AJG	TAL CF
Total/NA	Analysis	9056A		20	113557	12/23/15 17:39	AJG	TAL CF
Total/NA	Prep	3010A			112040	12/11/15 08:10	JNR	TAL CF
Total/NA	Analysis	6010C		1	112260	12/12/15 03:18	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		1	112247	12/11/15 20:36	OAD	TAL CF

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-70785-1
SDG: 11114654

Client Sample ID: DP-01

Date Collected: 12/09/15 00:00
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-10

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		15	112247	12/11/15 22:48	OAD	TAL CF
Total/NA	Prep	3010A			112032	12/11/15 07:45	JNR	TAL CF
Total/NA	Analysis	6020A		3	112553	12/15/15 13:30	OAD	TAL CF
Total/NA	Prep	7470A			112318	12/14/15 12:18	SAD	TAL CF
Total/NA	Analysis	7470A		1	112537	12/15/15 14:54	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	112185	12/11/15 17:19	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	112016	12/10/15 17:16	SAS	TAL CF

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

Certification Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-70785-1
SDG: 11114654

Laboratory: TestAmerica Cedar Falls

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA-LAP, LLC	IHLAP		101044	11-01-16
Georgia	State Program	4	N/A	09-29-16
Illinois	NELAP	5	200024	11-29-16
Iowa	State Program	7	007	12-01-15 *
Kansas	NELAP	7	E-10341	01-31-15 *
Minnesota	NELAP	5	019-999-319	12-31-16
Minnesota (Petrofund)	State Program	1	3349	08-22-16
North Dakota	State Program	8	R-186	09-29-16
Oregon	NELAP	10	IA100001	09-29-16
Wisconsin	State Program	5	999917270	08-31-16

* Certification renewal pending - certification considered valid.

Method Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-70785-1
SDG: 11114654

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL CF
6010C	Metals (ICP)	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CF
SM 4500 H+ B	pH	SM	TAL CF

Protocol References:

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 CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-70785 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Mid Amer. Energy / GHD

City/State:

Project: Neal South CCR

Receipt Information

Date/Time Received: 12-10-15 9:15

Received By: CH

Delivery Type: ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID: M15 DSM

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 1 of 3

Cooler Custody Seals Present? ☒ Yes ☐ No *If yes:* Cooler custody seals intact? ☒ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☒ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Temperature Blank? ☒ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: 4

Correction Factor (°C): -0.1°C

Uncorrected Temp (°C): 1.6°C

Corrected Temp (°C): 1.5°C

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Cooler/Sample Receipt and Temperature Log Form

310503

Client Information					
Client: Mid Amer. Energy / GHD					
City/State:			Project: Neal S. CCR		
Receipt Information					
Date/Time Received: 12-10-15 9:15			Received By: CH		
Delivery Type: ☐ UPS	☒ FedEx	☐ FedEx Ground	☐ US Mail	☐ Spee-Dee	
☐ TA Courier	☐ TA Field Services	☐ Client Drop-off	☐ Other:		
Condition of Cooler/Containers					
Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:	L-2 DSM	
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 2 of 3		
Cooler Custody Seals Present?	☒ Yes	☐ No	*If yes:* Cooler custody seals intact?	☒ Yes	☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact?	☐ Yes	☒ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓		
Temperature Record					
Coolant:	☒ Wet ice	☐ Blue ice	☐ Dry ice	☐ Other:	☐ NONE
Temperature Blank?	☒ Yes	☐ No	ID & Bottle Type:		
NOTE: If yes, use temp blank for measurement.			If no, specify sample ID(s) and bottle type used to take measurement.		
Thermometer ID: H			Correction Factor (°C): -0.1°C		
Uncorrected Temp (°C): 3.1°C			Corrected Temp (°C): 3.0C		
Exceptions Noted					
1) If temperature exceeds criteria, was sample(s) received same day of sampling?			☐ Yes	☐ No	
a) *If yes:* Is there evidence that the chilling process began?			☐ Yes	☐ No	
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?)			☐ Yes	☐ No	
NOTE: If yes, contact PM before proceeding. If no, proceed with login					
Additional Comments					

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Mid Amer. Energy | GHD

City/State: | Project: Neal S. CCR

Receipt Information

Date/Time Received: 12-10-15 9:15 | Received By CH

Delivery Type: ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other: _____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID: N6 D3m
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 3 of 3
Cooler Custody Seals Present?	☒ Yes	☐ No	*If yes:* Cooler custody seals intact? ☒ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☒ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE

Temperature Blank? ☒ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: N | Correction Factor (°C): −0.1°C

Uncorrected Temp (°C): 3.4°C | Corrected Temp (°C): 3.3°C

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

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Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613

Phone 319-277-2401 or 800-750-2401
Fax 319-277-2425

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring _____

Client Name: MidAmerican Energy / GHD Client #: _____
Address: 11228 Aurora Avenue
City/State/Zip Code: Des Moines Iowa 50322
Project Manager: Kevin Armstrong
Email Address: Kevin.armstrong@ghd.com
Telephone Number: 515-414-3935 Fax: 515-414-3943
Sampler Name: (Print Name) Kevin Armstrong, Steven J. Roste
Sampler Signature: Kevin Armstrong, Steven J. Roste

Project Name: Neal South-CCR Monitoring
Project #: 11114654-CCR15
Site/Location ID: Neal South State: Iowa
Report To: Kevin Armstrong-GHD
Invoice To: Grant Anderson-GHD
Quote #: _____ PO#: _____

TAT: X Standard; ___ Rush (surcharges may apply)
Date Needed: _____
Fax Results: Y (N)
Email Results: (Y) N

QC Deliverables: ___ None; X Level 2 (Batch QC); ___ Level 3; ___ Level 4; Other: _____

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix (SL - Sludge, DW - Drinking Water, GW - Groundwater, S - Soil/Solid, WW - Wastewater, Specify, Other)	Preservation & # of Containers: HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify)	Analyze For: 9251/9320 Ra 226/228	9056 - Chloride & Sulfate	Metals (See Guide) 6020A/7470A/6010C	SM4500 - NH3 2540 - TDS	REMARKS
MW-2	12/9/15	1430	G		GW	9					6		✓	✓	✓	✓	extra vol for MS/MSD
MW-4	12/9/15	1403	G		GW	3					2		✓	✓	✓	✓	
MW-8 12-9-15	12/9/15	1516	G		GW	3					2		✓	✓	✓	✓	
MW-10	12/9/15	1640	G		GW	3					2		✓	✓	✓	✓	
MW-11	12/9/15	1250	G		GW	3					2		✓	✓	✓	✓	
MW-12	12/9/15	1115	G		GW	3					2		✓	✓	✓	✓	
MW-13	12/9/15	1120	G		GW	3					2		✓	✓	✓	✓	
MW-14	12/9/15	1600	G		GW	3					2		✓	✓	✓	✓	
MW-15	12/9/15	1250	G		GW	3					2		✓	✓	✓	✓	
DP-01	12/9/15	—	G		GW	3					2		✓	✓	✓	✓	

Special Instructions:

LABORATORY COMMENTS:

	Date:	Time:		Date:	Time:
Relinquished By: Kevin Armstrong	12-9-15	1800	Received By: Helen Lasecki	12/10/15	915
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAL-0033 (0708)

Page 1 of 1

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW-2	310-70785-C-1	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-70785-C-1 MS	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-70785-C-1 MSD	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-70785-D-1	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-70785-D-1 MS	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-70785-D-1 MSD	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-70785-E-1	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-70785-E-1 MS	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-70785-E-1 MSD	Plastic 1 liter - Nitric Acid	<2		
MW-4	310-70785-C-2	Plastic 250ml - with Nitric Acid	<2		
MW-4	310-70785-D-2	Plastic 1 liter - Nitric Acid	<2		
MW-4	310-70785-E-2	Plastic 1 liter - Nitric Acid	<2		
MW-8	310-70785-C-3	Plastic 250ml - with Nitric Acid	<2		
MW-8	310-70785-D-3	Plastic 1 liter - Nitric Acid	<2		
MW-8	310-70785-E-3	Plastic 1 liter - Nitric Acid	<2		
MW-10	310-70785-C-4	Plastic 250ml - with Nitric Acid	<2		
MW-10	310-70785-D-4	Plastic 1 liter - Nitric Acid	<2		
MW-10	310-70785-E-4	Plastic 1 liter - Nitric Acid	<2		
MW-11	310-70785-C-5	Plastic 250ml - with Nitric Acid	<2		
MW-11	310-70785-D-5	Plastic 1 liter - Nitric Acid	<2		
MW-11	310-70785-E-5	Plastic 1 liter - Nitric Acid	<2		
MW-12	310-70785-C-6	Plastic 250ml - with Nitric Acid	<2		
MW-12	310-70785-D-6	Plastic 1 liter - Nitric Acid	<2		
MW-12	310-70785-E-6	Plastic 1 liter - Nitric Acid	<2		
MW-13	310-70785-C-7	Plastic 250ml - with Nitric Acid	<2		
MW-13	310-70785-D-7	Plastic 1 liter - Nitric Acid	<2		
MW-13	310-70785-E-7	Plastic 1 liter - Nitric Acid	<2		
MW-14	310-70785-C-8	Plastic 250ml - with Nitric Acid	<2		
MW-14	310-70785-D-8	Plastic 1 liter - Nitric Acid	<2		
MW-14	310-70785-E-8	Plastic 1 liter - Nitric Acid	<2		
MW-15	310-70785-C-9	Plastic 250ml - with Nitric Acid	<2		
MW-15	310-70785-D-9	Plastic 1 liter - Nitric Acid	<2		
MW-15	310-70785-E-9	Plastic 1 liter - Nitric Acid	<2		
DP-01	310-70785-C-10	Plastic 250ml - with Nitric Acid	<2		
DP-01	310-70785-D-10	Plastic 1 liter - Nitric Acid	<2		
DP-01	310-70785-E-10	Plastic 1 liter - Nitric Acid	<2		

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No: 310-5786.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: shawn.hayes@testamericainc.com		Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.				Job #: 310-70785-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 1/12/2016			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: MEC Neal South - CCR Monitoring	Project #: 31007315			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Ra226_Ra228	9315_Ra226/PrecSep_21 Standard Target List	9320_Ra228/PrecSep_0 Standard Target List	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-2 (310-70785-1)	12/9/15	14:30 Central		Water			X	X	X	2	
MW-2 (310-70785-1MS)	12/9/15	14:30 Central	MS	Water			X	X	X	2	
MW-2 (310-70785-1MSD)	12/9/15	14:30 Central	MSD	Water			X	X	X	2	
MW-4 (310-70785-2)	12/9/15	14:03 Central		Water			X	X	X	2	
MW-8 (310-70785-3)	12/9/15	15:16 Central		Water			X	X	X	2	
MW-10 (310-70785-4)	12/9/15	16:40 Central		Water			X	X	X	2	
MW-11 (310-70785-5)	12/9/15	12:50 Central		Water			X	X	X	2	
MW-12 (310-70785-6)	12/9/15	11:15 Central		Water			X	X	X	2	
MW-13 (310-70785-7)	12/9/15	11:20 Central		Water			X	X	X	2	
MW-14 (310-70785-8)	12/9/15	16:00 Central		Water			X	X	X	2	
MW-15 (310-70785-9)	12/9/15	12:50 Central		Water			X	X	X	2	

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 12/10/15 1537	Company	Received by:	Date/Time: 12-11-15 0940	Company TAS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No: 310-5786.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: shawn.hayes@testamericainc.com		Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.				Job #: 310-70785-1
Address: 13715 Rider Trail North,	Due Date Requested: 1/12/2016	Analysis Requested		Preservation Codes:
City: Earth City	TAT Requested (days):			A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2SO3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - ph 4-5 L - EDA Z - other (specify) Other:
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: MEC Neal South - CCR Monitoring	Project #: 31007315			
Site:	SSOW#:			

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Ra226_Ra228	9315_Ra226/PrecSep_21 Standard Target List	9320_Ra228/PrecSep_0 Standard Target List	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
DP-01 (310-70785-10)	12/9/15	Central		Water			X	X	X	2	

Possible Hazard Identification
Unconfirmed

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

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:				
Relinquished by:	Date/Time: 12/10/15 1537	Company	Received by:	Date/Time: 12-11-15 0940	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

12/31/2015

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 310-70785-1
SDG Number: 11114654

Login Number: 70785
List Number: 1
Creator: Facciani, Melene K

List Source: TestAmerica Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
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	
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 containers received and the COC.	True	
Samples are received within Holding Time.	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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319)277-2401

TestAmerica Job ID: 310-70785-2
TestAmerica Sample Delivery Group: 11114654
Client Project/Site: MEC Neal South Energy Center CCR

For:
GHD Services Inc.
1801 Old Highway 8 NW
Suite 114
St Paul, Minnesota 55112

Attn: Mr. Grant Anderson

Authorized for release by:
2/26/2016 1:36:35 PM

Shawn Hayes, Project Manager II
(319)277-2401
shawn.hayes@testamericainc.com

LINKS

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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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Job ID: 310-70785-2

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-70785-2

Comments
No additional comments.

Receipt
The samples were received on 12/10/2015 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.5º C, 3.0º C and 3.3º C.

RAD
Method(s) 9315: Radium-226 Prep Batch 160-228266:
The following sample has a barium carrier recovery above the 110% QC limit; (160-15441-B-1-B; 182.32%). There was physical evidence of abnormalities observed in the prep process (see prep NCM 75604). The LCS (laboratory control sample) has an acceptable spike recovery demonstrating acceptable sample preparation and instrument performance. The samples associated with the batch have been truncated to 100% to reduce any potential bias a high carrier recovery may have. The data have been qualified and reported.
MW-2 (310-70785-1), MW-2 (310-70785-1[MS]), MW-2 (310-70785-1[MSD]), MW-4 (310-70785-2), MW-8 (310-70785-3), MW-10 (310-70785-4), (LCS 160-228266/2-A), (MB 160-228266/1-A), (490-93666-E-3-B), (490-93666-D-3-C MS) and (490-93666-D-3-D MSD)

Method(s) 9320: Radium-228 Prep Batch 160-228261:
The following sample has a barium carrier recovery above the 110% QC limit; (160-15441-B-1-A; 182.32%). There was physical evidence of abnormalities observed in the prep process (see prep NCM 75606). The LCS (laboratory control sample) has an acceptable spike recovery demonstrating acceptable sample preparation and instrument performance. The samples associated with the batch have been truncated to 100% to reduce any potential bias a high carrier recovery may have. The data have been qualified and reported. MW-2 (310-70785-1), MW-2 (310-70785-1[MS]), MW-2 (310-70785-1[MSD]), MW-4 (310-70785-2), MW-8 (310-70785-3), MW-10 (310-70785-4), (LCS 160-228261/2-A), (MB 160-228261/1-A), (490-93666-E-3-A), (490-93666-D-3-A MS) and (490-93666-D-3-B MSD).

Method(s) 9320: Radium-228 Prep Batch 160-232627:
The radium-228 detection goal was not met for the following samples due to insufficient sample available for analysis (see prep NCM 76801): MW-13 (310-70785-7). Analytical results are reported with the detection limit achieved.

Method(s) PrecSep_0: Radium-228 Prep Batch 160-228287:
The barium carrier recovery is outside the lower control limit (40%) for the following samples: MW-12 (310-70785-6), MW-14 (310-70785-8) and MW-15 (310-70785-9). The samples were brought to the ideal pH and seeded with barium carrier to ensure that all barium had precipitated out.

Method(s) PrecSep_0: Radium-228 prep batch (160-232627): Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 160-232627, due to re-analysis. A reduced aliquot and laboratory control sample and laboratory control sample duplicate were used instead.

Method(s) PrecSep_0: Radium-228 Prep Batch 160-232889:
The following sample was prepared at a reduced aliquot due to limited sample available: MW-12 (310-70785-6).

Method(s) PrecSep-21: Radium-226 prep batch (160-228266): The samples contain sediment, therefore a reduced aliquot of 500 mL was used. MW-10 (310-70785-4)

Method(s) PrecSep-21: Radium-226 Prep Batch 160-228290:
The barium carrier recovery is outside the lower control limit (40%) for the following samples: MW-12 (310-70785-6), MW-14 (310-70785-8) and MW-15 (310-70785-9). The samples were brought to ideal pH and seeded with barium carrier to ensure that all barium was precipitated out.

Method(s) PrecSep-21: Radium-226 prep batch (160-232622): Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 160-232622, due to re-analysis. A reduced aliquot and laboratory control sample and laboratory control sample duplicate were used instead.

Job ID: 310-70785-2 (Continued)

Laboratory: TestAmerica Cedar Falls (Continued)

Method(s) PrecSep-21: Radium-226 Prep Batch 160-232884:
The following sample was prepared at a reduced aliquot due to limited sample available: MW-12 (310-70785-6).

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

Sample Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-70785-2
SDG: 11114654

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-70785-1	MW-2	Ground Water	12/09/15 14:30	12/10/15 09:15
310-70785-2	MW-4	Ground Water	12/09/15 14:03	12/10/15 09:15
310-70785-3	MW-8	Ground Water	12/09/15 15:16	12/10/15 09:15
310-70785-4	MW-10	Ground Water	12/09/15 16:40	12/10/15 09:15
310-70785-5	MW-11	Ground Water	12/09/15 12:50	12/10/15 09:15
310-70785-6	MW-12	Ground Water	12/09/15 11:15	12/10/15 09:15
310-70785-7	MW-13	Ground Water	12/09/15 11:20	12/10/15 09:15
310-70785-8	MW-14	Ground Water	12/09/15 16:00	12/10/15 09:15
310-70785-9	MW-15	Ground Water	12/09/15 12:50	12/10/15 09:15
310-70785-10	DP-01	Ground Water	12/09/15 00:00	12/10/15 09:15

Client Sample ID: MW-2

Date Collected: 12/09/15 14:30
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-1

Matrix: Ground Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.165**		0.0636	0.0653	1.00	0.0661	pCi/L	12/18/15 14:35	01/11/16 08:11	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*68.7*		*40 - 110*	*12/18/15 14:35*	*01/11/16 08:11*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0686	U	0.184	0.184	1.00	0.324	pCi/L	12/18/15 14:35	12/24/15 13:25	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*68.7*		*40 - 110*	*12/18/15 14:35*	*12/24/15 13:25*	*1*
Y Carrier	*99.8*		*40 - 110*	*12/18/15 14:35*	*12/24/15 13:25*	*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	0.234	U	0.195	0.195	5.00	0.324	pCi/L		02/26/16 01:07	1

Client Sample ID: MW-4

Date Collected: 12/09/15 14:03
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-2

Matrix: Ground Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.0798**		0.0446	0.0452	1.00	0.0580	pCi/L	12/18/15 14:35	01/11/16 08:12	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.2*		*40 - 110*	*12/18/15 14:35*	*01/11/16 08:12*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.148	U	0.222	0.222	1.00	0.372	pCi/L	12/18/15 14:35	12/24/15 13:27	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.2*		*40 - 110*	*12/18/15 14:35*	*12/24/15 13:27*	*1*
Y Carrier	*97.6*		*40 - 110*	*12/18/15 14:35*	*12/24/15 13:27*	*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	0.228	U	0.226	0.227	5.00	0.372	pCi/L		02/26/16 01:07	1

Client Sample ID: MW-8

Date Collected: 12/09/15 15:16
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-3

Matrix: Ground Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.108		0.0596	0.0604	1.00	0.0848	pCi/L	12/18/15 14:35	01/11/16 07:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.1*		*40 - 110*	*12/18/15 14:35*	*01/11/16 07:50*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.428		0.208	0.212	1.00	0.305	pCi/L	12/18/15 14:35	12/24/15 13:27	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.1*		*40 - 110*	*12/18/15 14:35*	*12/24/15 13:27*	*1*
Y Carrier	*102*		*40 - 110*	*12/18/15 14:35*	*12/24/15 13:27*	*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	0.535		0.217	0.220	5.00	0.305	pCi/L		02/26/16 01:07	1

Client Sample ID: MW-10

Date Collected: 12/09/15 16:40
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-4

Matrix: Ground Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.260		0.0727	0.0763	1.00	0.0738	pCi/L	12/18/15 14:37	01/11/16 07:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.3*		*40 - 110*	*12/18/15 14:37*	*01/11/16 07:50*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.367		0.205	0.208	1.00	0.306	pCi/L	12/18/15 14:37	12/24/15 13:27	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.0*		*40 - 110*	*12/18/15 14:37*	*12/24/15 13:27*	*1*
Y Carrier	*106*		*40 - 110*	*12/18/15 14:37*	*12/24/15 13:27*	*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	0.627		0.217	0.221	5.00	0.306	pCi/L		02/26/16 01:07	1

Client Sample ID: MW-11

Date Collected: 12/09/15 12:50
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-5

Matrix: Ground Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.114	U	0.128	0.128	1.00	0.208	pCi/L	01/15/16 14:32	02/08/16 16:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.2*		*40 - 110*	*01/15/16 14:32*	*02/08/16 16:38*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.207	U	0.492	0.493	1.00	0.840	pCi/L	01/15/16 14:32	02/02/16 20:57	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.2*		*40 - 110*	*01/15/16 14:32*	*02/02/16 20:57*	*1*
Y Carrier	*92.3*		*40 - 110*	*01/15/16 14:32*	*02/02/16 20:57*	*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	0.321	U	0.509	0.509	5.00	0.840	pCi/L		02/26/16 01:07	1

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-70785-2
SDG: 11114654

Client Sample ID: MW-12

Date Collected: 12/09/15 11:15
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-6

Matrix: Ground Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0613	U	0.0787	0.0789	1.00	0.131	pCi/L	01/18/16 16:19	02/19/16 07:44	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*81.2*		*40 - 110*	*01/18/16 16:19*	*02/19/16 07:44*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.148	U	0.427	0.428	1.00	0.744	pCi/L	01/18/16 16:55	02/04/16 16:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*81.2*		*40 - 110*	*01/18/16 16:55*	*02/04/16 16:38*	*1*
Y Carrier	*89.0*		*40 - 110*	*01/18/16 16:55*	*02/04/16 16:38*	*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	0.209	U	0.435	0.435	5.00	0.744	pCi/L		02/26/16 01:07	1

Client Sample ID: MW-13

Date Collected: 12/09/15 11:20
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-7

Matrix: Ground Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0304	U	0.107	0.108	1.00	0.205	pCi/L	01/15/16 14:32	02/08/16 20:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*55.0*		*40 - 110*	*01/15/16 14:32*	*02/08/16 20:21*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**1.22**	**G**	0.790	0.797	1.00	1.22	pCi/L	01/15/16 14:32	02/02/16 20:57	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*55.0*		*40 - 110*	*01/15/16 14:32*	*02/02/16 20:57*	*1*
Y Carrier	*89.0*		*40 - 110*	*01/15/16 14:32*	*02/02/16 20:57*	*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	**1.25**		0.797	0.805	5.00	1.22	pCi/L		02/26/16 01:07	1

Client Sample ID: MW-14

Date Collected: 12/09/15 16:00
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-8

Matrix: Ground Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.454		0.159	0.165	1.00	0.167	pCi/L	01/15/16 14:32	02/08/16 20:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.6*		*40 - 110*	*01/15/16 14:32*	*02/08/16 20:21*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.34		0.567	0.580	1.00	0.805	pCi/L	01/15/16 14:32	02/02/16 20:57	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.6*		*40 - 110*	*01/15/16 14:32*	*02/02/16 20:57*	*1*
Y Carrier	*90.1*		*40 - 110*	*01/15/16 14:32*	*02/02/16 20:57*	*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	1.79		0.589	0.603	5.00	0.805	pCi/L		02/26/16 01:07	1

Client Sample ID: MW-15

Date Collected: 12/09/15 12:50
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-9

Matrix: Ground Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.180**		0.122	0.123	1.00	0.174	pCi/L	01/15/16 14:32	02/08/16 20:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.2*		*40 - 110*	*01/15/16 14:32*	*02/08/16 20:21*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.714	U	0.514	0.519	1.00	0.807	pCi/L	01/15/16 14:32	02/02/16 20:57	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.2*		*40 - 110*	*01/15/16 14:32*	*02/02/16 20:57*	*1*
Y Carrier	*87.1*		*40 - 110*	*01/15/16 14:32*	*02/02/16 20:57*	*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	**0.894**		0.529	0.533	5.00	0.807	pCi/L		02/26/16 01:07	1

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-70785-2
SDG: 11114654

Client Sample ID: DP-01
Date Collected: 12/09/15 00:00
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-10
Matrix: Ground Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.113	U	0.105	0.106	1.00	0.164	pCi/L	01/15/16 14:32	02/08/16 20:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.7*		*40 - 110*	*01/15/16 14:32*	*02/08/16 20:21*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.714	U	0.535	0.539	1.00	0.844	pCi/L	01/15/16 14:32	02/02/16 20:57	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.7*		*40 - 110*	*01/15/16 14:32*	*02/02/16 20:57*	*1*
Y Carrier	*87.1*		*40 - 110*	*01/15/16 14:32*	*02/02/16 20:57*	*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	0.827	U	0.546	0.550	5.00	0.844	pCi/L		02/26/16 01:07	1

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.
¤	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)

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-228266/1-A
Matrix: Water
Analysis Batch: 231505

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 228266

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.02334	U	0.0375	0.0376	1.00	0.0645	pCi/L	12/18/15 14:35	01/11/16 08:00	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*106*		*40 - 110*	*12/18/15 14:35*	*01/11/16 08:00*	*1*

Lab Sample ID: LCS 160-228266/2-A
Matrix: Water
Analysis Batch: 231505

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 228266

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.2	8.809		0.875	1.00	0.0724	pCi/L	79	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*83.8*		*40 - 110*

Lab Sample ID: 310-70785-1 MS
Matrix: Ground Water
Analysis Batch: 231698

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 228266

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	0.165		11.2	10.08		1.00	1.00	0.0607	pCi/L	89	75 - 138		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*68.1*		*40 - 110*

Lab Sample ID: 310-70785-1 MSD
Matrix: Ground Water
Analysis Batch: 231698

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 228266

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.165		11.2	9.029		0.899	1.00	0.0698	pCi/L	79	75 - 138	0.56	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*75.4*		*40 - 110*

Lab Sample ID: MB 160-232622/1-A
Matrix: Water
Analysis Batch: 237239

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 232622

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.01823	U	0.0701	0.0702	1.00	0.150	pCi/L	01/15/16 14:32	02/08/16 16:37	1

Method: 9315 - Radium-226 (GFPC) (Continued)

Lab Sample ID: MB 160-232622/1-A
Matrix: Water
Analysis Batch: 237239

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 232622

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110	01/15/16 14:32	02/08/16 16:37	1

Lab Sample ID: LCS 160-232622/2-A
Matrix: Water
Analysis Batch: 237239

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 232622

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			22.3	24.93		2.45	1.00	0.229	pCi/L	112	68 - 137		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	95.4		40 - 110

Lab Sample ID: LCSD 160-232622/3-A
Matrix: Water
Analysis Batch: 237239

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 232622

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			22.3	24.74		2.43	1.00	0.193	pCi/L	111	68 - 137	0.04	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	94.3		40 - 110

Lab Sample ID: MB 160-232884/1-A
Matrix: Water
Analysis Batch: 237343

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 232884

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.03107	U	0.0718	0.0718	1.00	0.131	pCi/L	01/18/16 16:19	02/18/16 16:02	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	75.5		40 - 110	01/18/16 16:19	02/18/16 16:02	1

Lab Sample ID: LCS 160-232884/2-A
Matrix: Water
Analysis Batch: 237343

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 232884

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			22.3	26.74		2.57	1.00	0.131	pCi/L	120	68 - 137		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	90.9		40 - 110

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-228261/1-A
Matrix: Water
Analysis Batch: 229532

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 228261

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.06922	U	0.173	0.173	1.00	0.298	pCi/L	12/18/15 14:35	12/24/15 13:23	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*106*		*40 - 110*	*12/18/15 14:35*	*12/24/15 13:23*	*1*
Y Carrier	*102*		*40 - 110*	*12/18/15 14:35*	*12/24/15 13:23*	*1*

Lab Sample ID: LCS 160-228261/2-A
Matrix: Water
Analysis Batch: 229532

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 228261

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			3.18	2.386		0.433	1.00	0.377	pCi/L	75	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*83.8*		*40 - 110*
Y Carrier	*104*		*40 - 110*

Lab Sample ID: 310-70785-1 MS
Matrix: Ground Water
Analysis Batch: 229531

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 228261

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228	0.0686	U	3.18	2.501		0.497	1.00	0.475	pCi/L	79	45 - 150		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*68.1*		*40 - 110*
Y Carrier	*104*		*40 - 110*

Lab Sample ID: 310-70785-1 MSD
Matrix: Ground Water
Analysis Batch: 229531

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 228261

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	0.0686	U	3.18	2.801		0.493	1.00	0.407	pCi/L	88	45 - 150	0.30	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*75.4*		*40 - 110*
Y Carrier	*102*		*40 - 110*

Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: MB 160-232627/1-A
Matrix: Water
Analysis Batch: 235705

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 232627

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.7207	U	0.474	0.479	1.00	0.740	pCi/L	01/15/16 14:32	02/02/16 20:56	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*01/15/16 14:32*	*02/02/16 20:56*	*1*
Y Carrier	*93.1*		*40 - 110*	*01/15/16 14:32*	*02/02/16 20:56*	*1*

Lab Sample ID: LCS 160-232627/2-A
Matrix: Water
Analysis Batch: 235705

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 232627

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			6.27	6.620		1.04	1.00	0.777	pCi/L	106	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*95.4*		*40 - 110*
Y Carrier	*88.6*		*40 - 110*

Lab Sample ID: LCSD 160-232627/3-A
Matrix: Water
Analysis Batch: 235705

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 232627

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			6.27	5.935		0.958	1.00	0.749	pCi/L	95	56 - 140	0.34	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*94.3*		*40 - 110*
Y Carrier	*92.7*		*40 - 110*

Lab Sample ID: MB 160-232889/1-A
Matrix: Water
Analysis Batch: 236235

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 232889

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.3583	U	0.502	0.503	1.00	0.953	pCi/L	01/18/16 16:55	02/04/16 16:36	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*75.5*		*40 - 110*	*01/18/16 16:55*	*02/04/16 16:36*	*1*
Y Carrier	*86.7*		*40 - 110*	*01/18/16 16:55*	*02/04/16 16:36*	*1*

Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-232889/2-A
Matrix: Water
Analysis Batch: 236235

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 232889

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			18.8	16.13		1.92	1.00	0.760	pCi/L	86	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*90.9*		*40 - 110*
Y Carrier	*88.6*		*40 - 110*

Rad

Prep Batch: 228261

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-1	MW-2	Total/NA	Ground Water	PrecSep_0	
310-70785-1 MS	MW-2	Total/NA	Ground Water	PrecSep_0	
310-70785-1 MSD	MW-2	Total/NA	Ground Water	PrecSep_0	
310-70785-2	MW-4	Total/NA	Ground Water	PrecSep_0	
310-70785-3	MW-8	Total/NA	Ground Water	PrecSep_0	
310-70785-4	MW-10	Total/NA	Ground Water	PrecSep_0	
LCS 160-228261/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
MB 160-228261/1-A	Method Blank	Total/NA	Water	PrecSep_0	

Prep Batch: 228266

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-1	MW-2	Total/NA	Ground Water	PrecSep-21	
310-70785-1 MS	MW-2	Total/NA	Ground Water	PrecSep-21	
310-70785-1 MSD	MW-2	Total/NA	Ground Water	PrecSep-21	
310-70785-2	MW-4	Total/NA	Ground Water	PrecSep-21	
310-70785-3	MW-8	Total/NA	Ground Water	PrecSep-21	
310-70785-4	MW-10	Total/NA	Ground Water	PrecSep-21	
LCS 160-228266/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
MB 160-228266/1-A	Method Blank	Total/NA	Water	PrecSep-21	

Prep Batch: 232622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-5	MW-11	Total/NA	Ground Water	PrecSep-21	
310-70785-7	MW-13	Total/NA	Ground Water	PrecSep-21	
310-70785-8	MW-14	Total/NA	Ground Water	PrecSep-21	
310-70785-9	MW-15	Total/NA	Ground Water	PrecSep-21	
310-70785-10	DP-01	Total/NA	Ground Water	PrecSep-21	
LCS 160-232622/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-232622/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	
MB 160-232622/1-A	Method Blank	Total/NA	Water	PrecSep-21	

Prep Batch: 232627

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-5	MW-11	Total/NA	Ground Water	PrecSep_0	
310-70785-7	MW-13	Total/NA	Ground Water	PrecSep_0	
310-70785-8	MW-14	Total/NA	Ground Water	PrecSep_0	
310-70785-9	MW-15	Total/NA	Ground Water	PrecSep_0	
310-70785-10	DP-01	Total/NA	Ground Water	PrecSep_0	
LCS 160-232627/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-232627/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	
MB 160-232627/1-A	Method Blank	Total/NA	Water	PrecSep_0	

Prep Batch: 232884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-6	MW-12	Total/NA	Ground Water	PrecSep-21	
LCS 160-232884/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
MB 160-232884/1-A	Method Blank	Total/NA	Water	PrecSep-21	

Prep Batch: 232889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-70785-6	MW-12	Total/NA	Ground Water	PrecSep_0	

Rad (Continued)

Prep Batch: 232889 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 160-232889/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
MB 160-232889/1-A	Method Blank	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-70785-2
SDG: 11114654

Client Sample ID: MW-2

Lab Sample ID: 310-70785-1
Date Collected: 12/09/15 14:30
Matrix: Ground Water
Date Received: 12/10/15 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			228266	12/18/15 14:35	SCB	TAL SL
Total/NA	Analysis	9315		1	231698	01/11/16 08:11	RTM	TAL SL
Total/NA	Prep	PrecSep_0			228261	12/18/15 14:35	SCB	TAL SL
Total/NA	Analysis	9320		1	229532	12/24/15 13:25	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	238032	02/26/16 01:07	ALS	TAL SL

Client Sample ID: MW-4

Lab Sample ID: 310-70785-2
Date Collected: 12/09/15 14:03
Matrix: Ground Water
Date Received: 12/10/15 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			228266	12/18/15 14:35	SCB	TAL SL
Total/NA	Analysis	9315		1	231698	01/11/16 08:12	RTM	TAL SL
Total/NA	Prep	PrecSep_0			228261	12/18/15 14:35	SCB	TAL SL
Total/NA	Analysis	9320		1	229531	12/24/15 13:27	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	238032	02/26/16 01:07	ALS	TAL SL

Client Sample ID: MW-8

Lab Sample ID: 310-70785-3
Date Collected: 12/09/15 15:16
Matrix: Ground Water
Date Received: 12/10/15 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			228266	12/18/15 14:35	SCB	TAL SL
Total/NA	Analysis	9315		1	231475	01/11/16 07:50	RTM	TAL SL
Total/NA	Prep	PrecSep_0			228261	12/18/15 14:35	SCB	TAL SL
Total/NA	Analysis	9320		1	229531	12/24/15 13:27	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	238032	02/26/16 01:07	ALS	TAL SL

Client Sample ID: MW-10

Lab Sample ID: 310-70785-4
Date Collected: 12/09/15 16:40
Matrix: Ground Water
Date Received: 12/10/15 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			228266	12/18/15 14:37	SCB	TAL SL
Total/NA	Analysis	9315		1	231475	01/11/16 07:50	RTM	TAL SL
Total/NA	Prep	PrecSep_0			228261	12/18/15 14:37	SCB	TAL SL
Total/NA	Analysis	9320		1	229531	12/24/15 13:27	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	238032	02/26/16 01:07	ALS	TAL SL

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-70785-2
SDG: 11114654

Client Sample ID: MW-11

Date Collected: 12/09/15 12:50
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			232622	01/15/16 14:32	SCB	TAL SL
Total/NA	Analysis	9315		1	237239	02/08/16 16:38	RTM	TAL SL
Total/NA	Prep	PrecSep_0			232627	01/15/16 14:32	SCB	TAL SL
Total/NA	Analysis	9320		1	235705	02/02/16 20:57	ALS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	238032	02/26/16 01:07	ALS	TAL SL

Client Sample ID: MW-12

Date Collected: 12/09/15 11:15
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-6

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			232884	01/18/16 16:19	CMC	TAL SL
Total/NA	Analysis	9315		1	237319	02/19/16 07:44	RTM	TAL SL
Total/NA	Prep	PrecSep_0			232889	01/18/16 16:55	CMC	TAL SL
Total/NA	Analysis	9320		1	236134	02/04/16 16:38	ALS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	238032	02/26/16 01:07	ALS	TAL SL

Client Sample ID: MW-13

Date Collected: 12/09/15 11:20
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-7

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			232622	01/15/16 14:32	SCB	TAL SL
Total/NA	Analysis	9315		1	237239	02/08/16 20:21	RTM	TAL SL
Total/NA	Prep	PrecSep_0			232627	01/15/16 14:32	SCB	TAL SL
Total/NA	Analysis	9320		1	235705	02/02/16 20:57	ALS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	238032	02/26/16 01:07	ALS	TAL SL

Client Sample ID: MW-14

Date Collected: 12/09/15 16:00
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-8

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			232622	01/15/16 14:32	SCB	TAL SL
Total/NA	Analysis	9315		1	237239	02/08/16 20:21	RTM	TAL SL
Total/NA	Prep	PrecSep_0			232627	01/15/16 14:32	SCB	TAL SL
Total/NA	Analysis	9320		1	235705	02/02/16 20:57	ALS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	238032	02/26/16 01:07	ALS	TAL SL

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-70785-2
SDG: 11114654

Client Sample ID: MW-15

Date Collected: 12/09/15 12:50
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-9

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			232622	01/15/16 14:32	SCB	TAL SL
Total/NA	Analysis	9315		1	237239	02/08/16 20:21	RTM	TAL SL
Total/NA	Prep	PrecSep_0			232627	01/15/16 14:32	SCB	TAL SL
Total/NA	Analysis	9320		1	235705	02/02/16 20:57	ALS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	238032	02/26/16 01:07	ALS	TAL SL

Client Sample ID: DP-01

Date Collected: 12/09/15 00:00
Date Received: 12/10/15 09:15

Lab Sample ID: 310-70785-10

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			232622	01/15/16 14:32	SCB	TAL SL
Total/NA	Analysis	9315		1	237239	02/08/16 20:21	RTM	TAL SL
Total/NA	Prep	PrecSep_0			232627	01/15/16 14:32	SCB	TAL SL
Total/NA	Analysis	9320		1	235705	02/02/16 20:57	ALS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	238032	02/26/16 01:07	ALS	TAL SL

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Certification Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-70785-2
SDG: 11114654

Laboratory: TestAmerica Cedar Falls

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA-LAP, LLC	IHLAP		101044	11-01-16
Georgia	State Program	4	N/A	09-29-16
Illinois	NELAP	5	200024	11-29-16
Iowa	State Program	7	007	12-01-15 *
Kansas	NELAP	7	E-10341	01-31-15 *
Minnesota	NELAP	5	019-999-319	12-31-16
Minnesota (Petrofund)	State Program	1	3349	08-22-16
North Dakota	State Program	8	R-186	09-29-16
Oregon	NELAP	10	IA100001	09-29-16

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	06-30-16
California	ELAP	9	2886	03-31-16 *
Connecticut	State Program	1	PH-0241	03-31-17
Florida	NELAP	4	E87689	06-30-16
Illinois	NELAP	5	003757	11-30-16
Iowa	State Program	7	373	12-01-16
Kansas	NELAP	7	E-10236	05-31-16
Kentucky (DW)	State Program	4	90125	12-31-16
L-A-B	DoD ELAP		L2305	04-10-16 *
Louisiana	NELAP	6	04080	06-30-16
Louisiana (DW)	NELAP	6	LA160008	12-31-16
Maryland	State Program	3	310	09-30-16
Missouri	State Program	7	780	06-30-16
Nevada	State Program	9	MO000542016-1	07-31-16
New Jersey	NELAP	2	MO002	06-30-16
New York	NELAP	2	11616	03-31-16 *
North Dakota	State Program	8	R207	06-30-16
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-16
Pennsylvania	NELAP	3	68-00540	02-28-16 *
South Carolina	State Program	4	85002001	06-30-16
Texas	NELAP	6	T104704193-15-9	07-31-16
USDA	Federal		P330-07-00122	01-09-17
Utah	NELAP	8	MO000542015-7	07-31-16
Virginia	NELAP	3	460230	06-14-16
Washington	State Program	10	C592	08-30-16
West Virginia DEP	State Program	3	381	08-31-16

* Certification renewal pending - certification considered valid.

Method Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-70785-2
SDG: 11114654

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL

Protocol References:

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-70785 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Mid Amer. Energy / GHD

City/State:

Project: Neal South CCR

Receipt Information

Date/Time Received: 12-10-15 9:15

Received By: CH

Delivery Type: ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID: M15 DSM

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 1 of 3

Cooler Custody Seals Present? ☒ Yes ☐ No *If yes:* Cooler custody seals intact? ☒ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☒ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Temperature Blank? ☒ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: 4

Correction Factor (°C): -0.1°C

Uncorrected Temp (°C): 1.6°C

Corrected Temp (°C): 1.5°C

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Cooler/Sample Receipt and Temperature Log Form

310503

Client Information					
Client: Mid Amer. Energy / GHD					
City/State:			Project: Neal S. CCR		
Receipt Information					
Date/Time Received: 12-10-15 9:15			Received By: CH		
Delivery Type: ☐ UPS	☒ FedEx	☐ FedEx Ground	☐ US Mail	☐ Spee-Dee	
☐ TA Courier	☐ TA Field Services	☐ Client Drop-off	☐ Other:		
Condition of Cooler/Containers					
Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:	L-2 DSM	
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 2 of 3		
Cooler Custody Seals Present?	☒ Yes	☐ No	*If yes:* Cooler custody seals intact?	☒ Yes	☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact?	☐ Yes	☒ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓		
Temperature Record					
Coolant:	☒ Wet ice	☐ Blue ice	☐ Dry ice	☐ Other:	☐ NONE
Temperature Blank?	☒ Yes	☐ No	ID & Bottle Type:		
NOTE: If yes, use temp blank for measurement.			If no, specify sample ID(s) and bottle type used to take measurement.		
Thermometer ID: H			Correction Factor (°C): -0.1°C		
Uncorrected Temp (°C): 3.1°C			Corrected Temp (°C): 3.0C		
Exceptions Noted					
1) If temperature exceeds criteria, was sample(s) received same day of sampling?			☐ Yes	☐ No	
a) *If yes:* Is there evidence that the chilling process began?			☐ Yes	☐ No	
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?)			☐ Yes	☐ No	
NOTE: If yes, contact PM before proceeding. If no, proceed with login					
Additional Comments					

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Mid Amer. Energy | GHD

City/State: | Project: Neal S. CCR

Receipt Information

Date/Time Received: 12-10-15 9:15 | Received By CH

Delivery Type: ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other: _____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID: N6 Dsm
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 3 of 3
Cooler Custody Seals Present?	☒ Yes	☐ No	*If yes:* Cooler custody seals intact? ☒ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☒ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE

Temperature Blank? ☒ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: N | Correction Factor (°C): −0.1°C

Uncorrected Temp (°C): 3.4°C | Corrected Temp (°C): 3.3°C

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613

Phone 319-277-2401 or 800-750-2401
Fax 319-277-2425

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring _____

Client Name: MidAmerican Energy / GHD Client #: _____
Address: 11228 Aurora Avenue
City/State/Zip Code: Des Moines Iowa 50322
Project Manager: Kevin Armstrong
Email Address: Kevin.armstrong@ghd.com
Telephone Number: 515-414-3935 Fax: 515-414-3943
Sampler Name: (Print Name) Kevin Armstrong, Steven J. Roste
Sampler Signature: Kevin Armstrong, Steven J. Roste

Project Name: Neal South-CCR Monitoring
Project #: 11114654-CCR15
Site/Location ID: Neal South State: Iowa
Report To: Kevin Armstrong-GHD
Invoice To: Grant Anderson-GHD
Quote #: _____ PO#: _____

TAT: X Standard; ___ Rush (surcharges may apply)
Date Needed: _____
Fax Results: Y (N)
Email Results: (Y) N

QC Deliverables: ___ None; X Level 2 (Batch QC); ___ Level 3; ___ Level 4; Other: _____

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix (SL - Sludge, DW - Drinking Water, GW - Groundwater, S - Soil/Solid, WW - Wastewater, Specify, Other)	Preservation & # of Containers: HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify)	Analyze For: 9315/9320 Ra 226/228	9056 - Chloride & Sulfate	Metals (See Guide) 6020A/7470A/6010C	SM4500 - NH3 2540 - TDS	REMARKS
MW-2	12/9/15	1430	G		GW	9					6		✓	✓	✓	✓	extra vol for MS/MSD
MW-4	12/9/15	1403	G		GW	3					2		✓	✓	✓	✓	
MW-8 12-9-15	12/9/15	1516	G		GW	3					2		✓	✓	✓	✓	
MW-10	12/9/15	1640	G		GW	3					2		✓	✓	✓	✓	
MW-11	12/9/15	1250	G		GW	3					2		✓	✓	✓	✓	
MW-12	12/9/15	1115	G		GW	3					2		✓	✓	✓	✓	
MW-13	12/9/15	1120	G		GW	3					2		✓	✓	✓	✓	
MW-14	12/9/15	1600	G		GW	3					2		✓	✓	✓	✓	
MW-15	12/9/15	1250	G		GW	3					2		✓	✓	✓	✓	
DP-01	12/9/15	—	G		GW	3					2		✓	✓	✓	✓	

Special Instructions:

LABORATORY COMMENTS:

	Date:	Time:		Date:	Time:
Relinquished By: Kevin Armstrong	12-9-15	1800	Received By: Helen Lasecki	12/10/15	915
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAL-0033 (0708)

Page 1 of 1

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW-2	310-70785-C-1	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-70785-C-1 MS	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-70785-C-1 MSD	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-70785-D-1	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-70785-D-1 MS	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-70785-D-1 MSD	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-70785-E-1	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-70785-E-1 MS	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-70785-E-1 MSD	Plastic 1 liter - Nitric Acid	<2		
MW-4	310-70785-C-2	Plastic 250ml - with Nitric Acid	<2		
MW-4	310-70785-D-2	Plastic 1 liter - Nitric Acid	<2		
MW-4	310-70785-E-2	Plastic 1 liter - Nitric Acid	<2		
MW-8	310-70785-C-3	Plastic 250ml - with Nitric Acid	<2		
MW-8	310-70785-D-3	Plastic 1 liter - Nitric Acid	<2		
MW-8	310-70785-E-3	Plastic 1 liter - Nitric Acid	<2		
MW-10	310-70785-C-4	Plastic 250ml - with Nitric Acid	<2		
MW-10	310-70785-D-4	Plastic 1 liter - Nitric Acid	<2		
MW-10	310-70785-E-4	Plastic 1 liter - Nitric Acid	<2		
MW-11	310-70785-C-5	Plastic 250ml - with Nitric Acid	<2		
MW-11	310-70785-D-5	Plastic 1 liter - Nitric Acid	<2		
MW-11	310-70785-E-5	Plastic 1 liter - Nitric Acid	<2		
MW-12	310-70785-C-6	Plastic 250ml - with Nitric Acid	<2		
MW-12	310-70785-D-6	Plastic 1 liter - Nitric Acid	<2		
MW-12	310-70785-E-6	Plastic 1 liter - Nitric Acid	<2		
MW-13	310-70785-C-7	Plastic 250ml - with Nitric Acid	<2		
MW-13	310-70785-D-7	Plastic 1 liter - Nitric Acid	<2		
MW-13	310-70785-E-7	Plastic 1 liter - Nitric Acid	<2		
MW-14	310-70785-C-8	Plastic 250ml - with Nitric Acid	<2		
MW-14	310-70785-D-8	Plastic 1 liter - Nitric Acid	<2		
MW-14	310-70785-E-8	Plastic 1 liter - Nitric Acid	<2		
MW-15	310-70785-C-9	Plastic 250ml - with Nitric Acid	<2		
MW-15	310-70785-D-9	Plastic 1 liter - Nitric Acid	<2		
MW-15	310-70785-E-9	Plastic 1 liter - Nitric Acid	<2		
DP-01	310-70785-C-10	Plastic 250ml - with Nitric Acid	<2		
DP-01	310-70785-D-10	Plastic 1 liter - Nitric Acid	<2		
DP-01	310-70785-E-10	Plastic 1 liter - Nitric Acid	<2		

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 310-70785-2
SDG Number: 11114654

Login Number: 70785
List Number: 1
Creator: Facciani, Melene K

List Source: TestAmerica Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
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	
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 containers received and the COC.	True	
Samples are received within Holding Time.	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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 310-70785-2
SDG Number: 11114654

Login Number: 70785
List Number: 2
Creator: Daniels, Brian J

List Source: TestAmerica St. Louis
List Creation: 12/11/15 03:06 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.	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	3.3,4.9,4.4,4.9
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 containers received and the COC.	True	
Samples are received within Holding Time.	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	

Tracer/Carrier Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-70785-2
SDG: 11114654

Method: 9315 - Radium-226 (GFPC)

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba (40-110)
310-70785-1	MW-2	68.7
310-70785-1 MS	MW-2	68.1
310-70785-1 MSD	MW-2	75.4
310-70785-2	MW-4	87.2
310-70785-3	MW-8	99.1
310-70785-4	MW-10	93.3
310-70785-5	MW-11	93.2
310-70785-6	MW-12	81.2
310-70785-7	MW-13	55.0
310-70785-8	MW-14	80.6
310-70785-9	MW-15	89.2
310-70785-10	DP-01	87.7

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9315 - Radium-226 (GFPC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba (40-110)
LCS 160-228266/2-A	Lab Control Sample	83.8
LCS 160-232622/2-A	Lab Control Sample	95.4
LCS 160-232884/2-A	Lab Control Sample	90.9
LCSD 160-232622/3-A	Lab Control Sample Dup	94.3
MB 160-228266/1-A	Method Blank	106
MB 160-232622/1-A	Method Blank	101
MB 160-232884/1-A	Method Blank	75.5

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
310-70785-1	MW-2	68.7	99.8
310-70785-1 MS	MW-2	68.1	104
310-70785-1 MSD	MW-2	75.4	102
310-70785-2	MW-4	87.2	97.6
310-70785-3	MW-8	99.1	102
310-70785-4	MW-10	93.0	106
310-70785-5	MW-11	93.2	92.3
310-70785-6	MW-12	81.2	89.0
310-70785-7	MW-13	55.0	89.0
310-70785-8	MW-14	80.6	90.1
310-70785-9	MW-15	89.2	87.1

Tracer/Carrier Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-70785-2
SDG: 11114654

Method: 9320 - Radium-228 (GFPC) (Continued)

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
310-70785-10	DP-01	87.7	87.1

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

Method: 9320 - 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)
LCS 160-228261/2-A	Lab Control Sample	83.8	104
LCS 160-232627/2-A	Lab Control Sample	95.4	88.6
LCS 160-232889/2-A	Lab Control Sample	90.9	88.6
LCSD 160-232627/3-A	Lab Control Sample Dup	94.3	92.7
MB 160-228261/1-A	Method Blank	106	102
MB 160-232627/1-A	Method Blank	101	93.1
MB 160-232889/1-A	Method Blank	75.5	86.7

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319)277-2401

TestAmerica Job ID: 310-75413-1
TestAmerica Sample Delivery Group: 11114654-CCR16-01
Client Project/Site: MEC Neal South Energy Center CCR
Sampling Event: Neal South CCR Qtrly

For:
GHD Services Inc.
1801 Old Highway 8 NW
Suite 114
St Paul, Minnesota 55112

Attn: Mr. Grant Anderson

Authorized for release by:
3/31/2016 11:21:23 AM

Shawn Hayes, Project Manager II
(319)277-2401
shawn.hayes@testamericainc.com

LINKS

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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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Job ID: 310-75413-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-75413-1

Comments
No additional comments.

Receipt
The samples were received on 3/2/2016 5:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.5º C, 0.7º C and 2.5º C.

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

General Chemistry
Method(s) 9056A: The following samples was diluted due to the nature of the sample matrix: MW-2 (310-75413-11), MW-4 (310-75413-12), MW-8 (310-75413-13), MW-10 (310-75413-14), MW-11 (310-75413-15), MW-12 (310-75413-16), MW-13 (310-75413-17), MW-14 (310-75413-18), MW-15 (310-75413-19) and DP-01 (310-75413-20). Elevated reporting limits (RLs) are provided for fluoride.

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

Job ID: 310-75413-2

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-75413-2

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

Sample Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-75413-1
SDG: 11114654-CCR16-01

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-75413-11	MW-2	Ground Water	03/01/16 11:58	03/02/16 17:50
310-75413-12	MW-4	Ground Water	03/01/16 13:24	03/02/16 17:50
310-75413-13	MW-8	Ground Water	02/29/16 16:55	03/02/16 17:50
310-75413-14	MW-10	Ground Water	02/29/16 17:40	03/02/16 17:50
310-75413-15	MW-11	Ground Water	03/01/16 10:09	03/02/16 17:50
310-75413-16	MW-12	Ground Water	03/01/16 09:15	03/02/16 17:50
310-75413-17	MW-13	Ground Water	03/01/16 08:15	03/02/16 17:50
310-75413-18	MW-14	Ground Water	03/01/16 11:08	03/02/16 17:50
310-75413-19	MW-15	Ground Water	02/29/16 16:10	03/02/16 17:50
310-75413-20	DP-01	Ground Water	03/01/16 00:00	03/02/16 17:50

Client Sample ID: MW-2

Date Collected: 03/01/16 11:58
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-11

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**13.5**	**F1**	5.00		mg/L			03/08/16 14:11	5
Sulfate	**182**		5.00		mg/L			03/08/16 14:11	5
Fluoride	<0.500	F2	0.500		mg/L			03/08/16 14:11	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.100**		0.0500		mg/L		03/04/16 07:44	03/07/16 12:41	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 18:33	1
Arsenic	**0.0632**		0.00200		mg/L		03/04/16 07:30	03/04/16 18:33	1
Barium	**0.130**		0.00200		mg/L		03/04/16 07:30	03/04/16 18:33	1
Beryllium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 18:33	1
Boron	**1.13**		0.200		mg/L		03/04/16 07:30	03/09/16 16:36	1
Cadmium	<0.000500		0.000500		mg/L		03/04/16 07:30	03/09/16 16:36	1
Calcium	**185**		1.00		mg/L		03/04/16 07:30	03/09/16 22:57	5
Chromium	<0.00500		0.00500		mg/L		03/04/16 07:30	03/04/16 18:33	1
Cobalt	**0.00201**		0.000500		mg/L		03/04/16 07:30	03/04/16 18:33	1
Lead	<0.000500		0.000500		mg/L		03/04/16 07:30	03/04/16 18:33	1
Molybdenum	**0.00218**		0.00200		mg/L		03/04/16 07:30	03/04/16 18:33	1
Selenium	<0.00500		0.00500		mg/L		03/04/16 07:30	03/04/16 18:33	1
Thallium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 18:33	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/07/16 10:06	03/08/16 09:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**864**		30.0		mg/L			03/03/16 11:46	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.99**	**HF**	0.100		SU			03/02/16 19:45	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.117**		0.0631	0.0640	1.00	0.0838	pCi/L	03/07/16 13:43	03/29/16 08:40	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*03/07/16 13:43*	*03/29/16 08:40*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.242	U	0.260	0.261	1.00	0.426	pCi/L	03/08/16 10:28	03/23/16 08:31	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*03/08/16 10:28*	*03/23/16 08:31*	*1*

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-75413-1
SDG: 11114654-CCR16-01

Client Sample ID: MW-2
Date Collected: 03/01/16 11:58
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-11
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*82.6*		*40 - 110*	*03/08/16 10:28*	*03/23/16 08:31*	*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	0.360	U	0.268	0.269	5.00	0.426	pCi/L		03/30/16 20:35	1

Client Sample ID: MW-4

Date Collected: 03/01/16 13:24
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-12

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			03/08/16 14:11	5
Sulfate	**628**		50.0		mg/L			03/09/16 13:35	50
Fluoride	<0.500		0.500		mg/L			03/08/16 14:11	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.180**		0.0500		mg/L		03/04/16 07:44	03/07/16 12:56	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 18:45	1
Arsenic	<0.00200		0.00200		mg/L		03/04/16 07:30	03/04/16 18:45	1
Barium	**0.0245**		0.00200		mg/L		03/04/16 07:30	03/04/16 18:45	1
Beryllium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 18:45	1
Boron	**3.49**		0.200		mg/L		03/04/16 07:30	03/09/16 16:45	1
Cadmium	<0.000500		0.000500		mg/L		03/04/16 07:30	03/09/16 16:45	1
Calcium	**252**		2.00		mg/L		03/04/16 07:30	03/09/16 23:06	10
Chromium	<0.00500		0.00500		mg/L		03/04/16 07:30	03/04/16 18:45	1
Cobalt	<0.000500		0.000500		mg/L		03/04/16 07:30	03/04/16 18:45	1
Lead	<0.000500		0.000500		mg/L		03/04/16 07:30	03/04/16 18:45	1
Molybdenum	<0.00200		0.00200		mg/L		03/04/16 07:30	03/04/16 18:45	1
Selenium	**0.0113**		0.00500		mg/L		03/04/16 07:30	03/04/16 18:45	1
Thallium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 18:45	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/07/16 10:06	03/08/16 09:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1830**		150		mg/L			03/03/16 11:46	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.00**	**HF**	0.100		SU			03/02/16 19:45	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0639	U	0.0483	0.0487	1.00	0.0698	pCi/L	03/07/16 13:43	03/29/16 08:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*03/07/16 13:43*	*03/29/16 08:41*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.148	U	0.253	0.253	1.00	0.427	pCi/L	03/08/16 10:28	03/23/16 08:32	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*03/08/16 10:28*	*03/23/16 08:32*	*1*

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-75413-1
SDG: 11114654-CCR16-01

Client Sample ID: MW-4
Date Collected: 03/01/16 13:24
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-12
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*81.9*		*40 - 110*	*03/08/16 10:28*	*03/23/16 08:32*	*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	0.212	U	0.257	0.258	5.00	0.427	pCi/L		03/30/16 20:35	1

Client Sample ID: MW-8

Date Collected: 02/29/16 16:55
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-13

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.90**		5.00		mg/L			03/08/16 14:11	5
Sulfate	**734**		50.0		mg/L			03/09/16 13:35	50
Fluoride	<0.500		0.500		mg/L			03/08/16 14:11	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0743**		0.0500		mg/L		03/04/16 07:44	03/07/16 12:58	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 18:48	1
Arsenic	<0.00200		0.00200		mg/L		03/04/16 07:30	03/04/16 18:48	1
Barium	**0.0862**		0.00200		mg/L		03/04/16 07:30	03/04/16 18:48	1
Beryllium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 18:48	1
Boron	**4.01**		0.200		mg/L		03/04/16 07:30	03/09/16 16:58	1
Cadmium	<0.000500		0.000500		mg/L		03/04/16 07:30	03/09/16 16:58	1
Calcium	**204**		2.00		mg/L		03/04/16 07:30	03/09/16 23:09	10
Chromium	<0.00500		0.00500		mg/L		03/04/16 07:30	03/04/16 18:48	1
Cobalt	**0.00344**		0.000500		mg/L		03/04/16 07:30	03/04/16 18:48	1
Lead	<0.000500		0.000500		mg/L		03/04/16 07:30	03/04/16 18:48	1
Molybdenum	**0.0565**		0.00200		mg/L		03/04/16 07:30	03/04/16 18:48	1
Selenium	**0.0620**		0.00500		mg/L		03/04/16 07:30	03/04/16 18:48	1
Thallium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 18:48	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/07/16 10:06	03/08/16 09:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1700**		150		mg/L			03/03/16 11:46	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.23**	**HF**	0.100		SU			03/02/16 19:46	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.181**		0.0656	0.0675	1.00	0.0616	pCi/L	03/07/16 13:43	03/29/16 08:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.0*		*40 - 110*	*03/07/16 13:43*	*03/29/16 08:41*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.109	U	0.278	0.278	1.00	0.479	pCi/L	03/08/16 10:28	03/23/16 08:32	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.0*		*40 - 110*	*03/08/16 10:28*	*03/23/16 08:32*	*1*

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-75413-1
SDG: 11114654-CCR16-01

Client Sample ID: MW-8
Date Collected: 02/29/16 16:55
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-13
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	72.5		40 - 110	03/08/16 10:28	03/23/16 08:32	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	0.290	U	0.285	0.286	5.00	0.479	pCi/L		03/30/16 20:35	1

Client Sample ID: MW-10

Date Collected: 02/29/16 17:40
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-14

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			03/08/16 14:11	5
Sulfate	**250**		5.00		mg/L			03/08/16 14:11	5
Fluoride	<0.500		0.500		mg/L			03/08/16 14:11	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.126**		0.0500		mg/L		03/04/16 07:44	03/07/16 13:00	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 18:51	1
Arsenic	**0.00551**		0.00200		mg/L		03/04/16 07:30	03/04/16 18:51	1
Barium	**0.208**		0.00200		mg/L		03/04/16 07:30	03/04/16 18:51	1
Beryllium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 18:51	1
Boron	**2.13**		0.200		mg/L		03/04/16 07:30	03/09/16 17:04	1
Cadmium	<0.000500		0.000500		mg/L		03/04/16 07:30	03/09/16 17:04	1
Calcium	**174**		2.00		mg/L		03/04/16 07:30	03/09/16 23:13	10
Chromium	<0.00500		0.00500		mg/L		03/04/16 07:30	03/04/16 18:51	1
Cobalt	**0.00311**		0.000500		mg/L		03/04/16 07:30	03/04/16 18:51	1
Lead	<0.000500		0.000500		mg/L		03/04/16 07:30	03/04/16 18:51	1
Molybdenum	**0.00248**		0.00200		mg/L		03/04/16 07:30	03/04/16 18:51	1
Selenium	<0.00500		0.00500		mg/L		03/04/16 07:30	03/04/16 18:51	1
Thallium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 18:51	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/07/16 10:06	03/08/16 09:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1080**		30.0		mg/L			03/03/16 11:46	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.02**	**HF**	0.100		SU			03/02/16 19:47	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.215**		0.0730	0.0755	1.00	0.0739	pCi/L	03/07/16 13:43	03/29/16 08:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*102*		*40 - 110*	*03/07/16 13:43*	*03/29/16 08:42*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.486**		0.265	0.268	1.00	0.399	pCi/L	03/08/16 10:28	03/23/16 08:32	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*102*		*40 - 110*	*03/08/16 10:28*	*03/23/16 08:32*	*1*

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-75413-1
SDG: 11114654-CCR16-01

Client Sample ID: MW-10
Date Collected: 02/29/16 17:40
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-14
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	84.9		40 - 110	03/08/16 10:28	03/23/16 08:32	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	0.701		0.275	0.279	5.00	0.399	pCi/L		03/30/16 20:35	1

Client Sample ID: MW-11

Date Collected: 03/01/16 10:09
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-15

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**7.24**		5.00		mg/L			03/08/16 14:11	5
Sulfate	**315**		20.0		mg/L			03/09/16 13:35	20
Fluoride	<0.500		0.500		mg/L			03/08/16 14:11	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.119**		0.0500		mg/L		03/04/16 07:44	03/07/16 13:02	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 18:54	1
Arsenic	<0.00200		0.00200		mg/L		03/04/16 07:30	03/04/16 18:54	1
Barium	**0.0651**		0.00200		mg/L		03/04/16 07:30	03/04/16 18:54	1
Beryllium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 18:54	1
Boron	**0.322**		0.200		mg/L		03/04/16 07:30	03/09/16 17:20	1
Cadmium	<0.000500		0.000500		mg/L		03/04/16 07:30	03/09/16 17:20	1
Calcium	**243**		2.00		mg/L		03/04/16 07:30	03/09/16 23:16	10
Chromium	<0.00500		0.00500		mg/L		03/04/16 07:30	03/04/16 18:54	1
Cobalt	**0.00153**		0.000500		mg/L		03/04/16 07:30	03/04/16 18:54	1
Lead	<0.000500		0.000500		mg/L		03/04/16 07:30	03/04/16 18:54	1
Molybdenum	<0.00200		0.00200		mg/L		03/04/16 07:30	03/04/16 18:54	1
Selenium	<0.00500		0.00500		mg/L		03/04/16 07:30	03/04/16 18:54	1
Thallium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 18:54	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/07/16 10:06	03/08/16 09:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1140**		30.0		mg/L			03/03/16 11:46	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.02**	**HF**	0.100		SU			03/02/16 19:48	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0605	U	0.0453	0.0456	1.00	0.0631	pCi/L	03/07/16 13:43	03/29/16 08:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.2*		*40 - 110*	*03/07/16 13:43*	*03/29/16 08:42*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.185	U	0.259	0.260	1.00	0.433	pCi/L	03/08/16 10:28	03/23/16 08:32	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.2*		*40 - 110*	*03/08/16 10:28*	*03/23/16 08:32*	*1*

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-75413-1
SDG: 11114654-CCR16-01

Client Sample ID: MW-11
Date Collected: 03/01/16 10:09
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-15
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	*79.3*		*40 - 110*	*03/08/16 10:28*	*03/23/16 08:32*	*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	0.246	U	0.263	0.264	5.00	0.433	pCi/L		03/30/16 20:35	1

Client Sample ID: MW-12
Date Collected: 03/01/16 09:15
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-16
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**149**		5.00		mg/L			03/08/16 14:11	5
Sulfate	**511**		20.0		mg/L			03/09/16 13:35	20
Fluoride	<0.500		0.500		mg/L			03/08/16 14:11	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.109**		0.0500		mg/L		03/04/16 07:44	03/07/16 13:04	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 18:58	1
Arsenic	<0.00200		0.00200		mg/L		03/04/16 07:30	03/04/16 18:58	1
Barium	**0.0577**		0.00200		mg/L		03/04/16 07:30	03/04/16 18:58	1
Beryllium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 18:58	1
Boron	**5.14**		0.200		mg/L		03/04/16 07:30	03/09/16 17:23	1
Cadmium	<0.000500		0.000500		mg/L		03/04/16 07:30	03/09/16 17:23	1
Calcium	**235**		2.00		mg/L		03/04/16 07:30	03/09/16 23:28	10
Chromium	<0.00500		0.00500		mg/L		03/04/16 07:30	03/04/16 18:58	1
Cobalt	<0.000500		0.000500		mg/L		03/04/16 07:30	03/04/16 18:58	1
Lead	<0.000500		0.000500		mg/L		03/04/16 07:30	03/04/16 18:58	1
Molybdenum	<0.00200		0.00200		mg/L		03/04/16 07:30	03/04/16 18:58	1
Selenium	**0.0674**		0.00500		mg/L		03/04/16 07:30	03/04/16 18:58	1
Thallium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 18:58	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/07/16 10:06	03/08/16 09:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1730**		150		mg/L			03/03/16 11:46	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.09**	**HF**	0.100		SU			03/02/16 19:49	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0419	U	0.0425	0.0426	1.00	0.0664	pCi/L	03/07/16 13:43	03/29/16 08:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.3*		*40 - 110*	*03/07/16 13:43*	*03/29/16 08:42*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.494**		0.255	0.259	1.00	0.376	pCi/L	03/08/16 10:28	03/23/16 08:32	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.3*		*40 - 110*	*03/08/16 10:28*	*03/23/16 08:32*	*1*

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-75413-1
SDG: 11114654-CCR16-01

Client Sample ID: MW-12
Date Collected: 03/01/16 09:15
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-16
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	82.6		40 - 110	03/08/16 10:28	03/23/16 08:32	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	0.536		0.258	0.262	5.00	0.376	pCi/L		03/30/16 20:35	1

Client Sample ID: MW-13
Date Collected: 03/01/16 08:15
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-17
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			03/08/16 14:11	5
Sulfate	**364**		20.0		mg/L			03/09/16 13:35	20
Fluoride	<0.500		0.500		mg/L			03/08/16 14:11	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.116**		0.0500		mg/L		03/04/16 07:44	03/07/16 13:07	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 19:10	1
Arsenic	<0.00200		0.00200		mg/L		03/04/16 07:30	03/04/16 19:10	1
Barium	**0.0439**		0.00200		mg/L		03/04/16 07:30	03/04/16 19:10	1
Beryllium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 19:10	1
Boron	**0.726**		0.200		mg/L		03/04/16 07:30	03/09/16 17:27	1
Cadmium	<0.000500		0.000500		mg/L		03/04/16 07:30	03/09/16 17:27	1
Calcium	**258**		2.00		mg/L		03/04/16 07:30	03/09/16 23:32	10
Chromium	<0.00500		0.00500		mg/L		03/04/16 07:30	03/04/16 19:10	1
Cobalt	**0.00139**		0.000500		mg/L		03/04/16 07:30	03/04/16 19:10	1
Lead	<0.000500		0.000500		mg/L		03/04/16 07:30	03/04/16 19:10	1
Molybdenum	<0.00200		0.00200		mg/L		03/04/16 07:30	03/04/16 19:10	1
Selenium	**0.0624**		0.00500		mg/L		03/04/16 07:30	03/04/16 19:10	1
Thallium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 19:10	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/07/16 10:06	03/08/16 09:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1280**		30.0		mg/L			03/03/16 11:46	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.98**	**HF**	0.100		SU			03/02/16 19:51	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0584	U	0.0445	0.0448	1.00	0.0626	pCi/L	03/07/16 13:43	03/29/16 08:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.3*		*40 - 110*	*03/07/16 13:43*	*03/29/16 08:42*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.435**		0.265	0.268	1.00	0.407	pCi/L	03/08/16 10:28	03/23/16 08:32	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.3*		*40 - 110*	*03/08/16 10:28*	*03/23/16 08:32*	*1*

Client Sample ID: MW-13
Date Collected: 03/01/16 08:15
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-17
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	*83.7*		*40 - 110*	*03/08/16 10:28*	*03/23/16 08:32*	*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	**0.493**		0.269	0.272	5.00	0.407	pCi/L		03/30/16 20:35	1

Client Sample ID: MW-14

Date Collected: 03/01/16 11:08
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-18

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			03/08/16 14:11	5
Sulfate	**346**		20.0		mg/L			03/09/16 13:35	20
Fluoride	<0.500		0.500		mg/L			03/08/16 14:11	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.143**		0.0500		mg/L		03/04/16 07:44	03/07/16 13:09	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 19:16	1
Arsenic	<0.00200		0.00200		mg/L		03/04/16 07:30	03/04/16 19:16	1
Barium	**0.0798**		0.00200		mg/L		03/04/16 07:30	03/04/16 19:16	1
Beryllium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 19:16	1
Boron	**1.11**		0.200		mg/L		03/04/16 07:30	03/09/16 17:42	1
Cadmium	<0.000500		0.000500		mg/L		03/04/16 07:30	03/09/16 17:42	1
Calcium	**256**		2.00		mg/L		03/04/16 07:30	03/09/16 23:38	10
Chromium	<0.00500		0.00500		mg/L		03/04/16 07:30	03/04/16 19:16	1
Cobalt	**0.00278**		0.000500		mg/L		03/04/16 07:30	03/04/16 19:16	1
Lead	<0.000500		0.000500		mg/L		03/04/16 07:30	03/04/16 19:16	1
Molybdenum	<0.00200		0.00200		mg/L		03/04/16 07:30	03/04/16 19:16	1
Selenium	**0.0216**		0.00500		mg/L		03/04/16 07:30	03/04/16 19:16	1
Thallium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 19:16	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/07/16 10:06	03/08/16 09:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1280**		30.0		mg/L			03/03/16 11:46	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.91**	**HF**	0.100		SU			03/02/16 19:53	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.319**		0.0875	0.0921	1.00	0.0745	pCi/L	03/07/16 13:43	03/29/16 08:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*86.6*		*40 - 110*	*03/07/16 13:43*	*03/29/16 08:42*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.278	U	0.253	0.255	1.00	0.407	pCi/L	03/08/16 10:28	03/23/16 08:45	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*86.6*		*40 - 110*	*03/08/16 10:28*	*03/23/16 08:45*	*1*

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-75413-1
SDG: 11114654-CCR16-01

Client Sample ID: MW-14
Date Collected: 03/01/16 11:08
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-18
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	85.2		40 - 110	03/08/16 10:28	03/23/16 08:45	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	0.597		0.268	0.271	5.00	0.407	pCi/L		03/30/16 20:35	1

Client Sample ID: MW-15

Date Collected: 02/29/16 16:10
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-19

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**7.87**		5.00		mg/L			03/08/16 14:11	5
Sulfate	**515**		20.0		mg/L			03/09/16 13:35	20
Fluoride	<0.500		0.500		mg/L			03/08/16 14:11	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0541**		0.0500		mg/L		03/04/16 07:44	03/07/16 13:11	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 19:19	1
Arsenic	<0.00200		0.00200		mg/L		03/04/16 07:30	03/04/16 19:19	1
Barium	**0.0450**		0.00200		mg/L		03/04/16 07:30	03/04/16 19:19	1
Beryllium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 19:19	1
Boron	**2.92**		0.200		mg/L		03/04/16 07:30	03/09/16 17:45	1
Cadmium	<0.000500		0.000500		mg/L		03/04/16 07:30	03/09/16 17:45	1
Calcium	**196**		2.00		mg/L		03/04/16 07:30	03/09/16 23:41	10
Chromium	<0.00500		0.00500		mg/L		03/04/16 07:30	03/04/16 19:19	1
Cobalt	**0.00188**		0.000500		mg/L		03/04/16 07:30	03/04/16 19:19	1
Lead	<0.000500		0.000500		mg/L		03/04/16 07:30	03/04/16 19:19	1
Molybdenum	<0.00200		0.00200		mg/L		03/04/16 07:30	03/04/16 19:19	1
Selenium	**0.00799**		0.00500		mg/L		03/04/16 07:30	03/04/16 19:19	1
Thallium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 19:19	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/07/16 10:06	03/08/16 09:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1560**		150		mg/L			03/03/16 11:46	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.93**	**HF**	0.100		SU			03/02/16 19:54	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.106**		0.0619	0.0626	1.00	0.0789	pCi/L	03/07/16 13:43	03/29/16 08:43	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*75.5*		*40 - 110*	*03/07/16 13:43*	*03/29/16 08:43*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.194	U	0.304	0.304	1.00	0.512	pCi/L	03/08/16 10:28	03/23/16 08:45	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*75.5*		*40 - 110*	*03/08/16 10:28*	*03/23/16 08:45*	*1*

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-75413-1
SDG: 11114654-CCR16-01

Client Sample ID: MW-15
Date Collected: 02/29/16 16:10
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-19
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	81.1		40 - 110	03/08/16 10:28	03/23/16 08:45	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	0.300	U	0.310	0.311	5.00	0.512	pCi/L		03/30/16 20:35	1

Client Sample ID: DP-01
Date Collected: 03/01/16 00:00
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-20
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**6.37**		5.00		mg/L			03/08/16 14:11	5
Sulfate	**323**		20.0		mg/L			03/09/16 13:35	20
Fluoride	<0.500		0.500		mg/L			03/08/16 14:11	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.122**		0.0500		mg/L		03/04/16 07:44	03/07/16 13:13	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 19:22	1
Arsenic	<0.00200		0.00200		mg/L		03/04/16 07:30	03/04/16 19:22	1
Barium	**0.0757**		0.00200		mg/L		03/04/16 07:30	03/04/16 19:22	1
Beryllium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 19:22	1
Boron	**0.368**		0.200		mg/L		03/04/16 07:30	03/09/16 17:48	1
Cadmium	<0.000500		0.000500		mg/L		03/04/16 07:30	03/09/16 17:48	1
Calcium	**237**		2.00		mg/L		03/04/16 07:30	03/09/16 23:44	10
Chromium	<0.00500		0.00500		mg/L		03/04/16 07:30	03/04/16 19:22	1
Cobalt	**0.00182**		0.000500		mg/L		03/04/16 07:30	03/04/16 19:22	1
Lead	<0.000500		0.000500		mg/L		03/04/16 07:30	03/04/16 19:22	1
Molybdenum	<0.00200		0.00200		mg/L		03/04/16 07:30	03/04/16 19:22	1
Selenium	<0.00500		0.00500		mg/L		03/04/16 07:30	03/04/16 19:22	1
Thallium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 19:22	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/07/16 10:06	03/08/16 10:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1190**		30.0		mg/L			03/03/16 11:46	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.02**	**HF**	0.100		SU			03/02/16 19:55	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0289	U	0.0409	0.0409	1.00	0.0693	pCi/L	03/07/16 13:43	03/29/16 08:43	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.6*		*40 - 110*	*03/07/16 13:43*	*03/29/16 08:43*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0205	U	0.214	0.214	1.00	0.382	pCi/L	03/08/16 10:28	03/23/16 08:45	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.6*		*40 - 110*	*03/08/16 10:28*	*03/23/16 08:45*	*1*

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-75413-1
SDG: 11114654-CCR16-01

Client Sample ID: DP-01
Date Collected: 03/01/16 00:00
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-20
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*82.6*		*40 - 110*	*03/08/16 10:28*	*03/23/16 08:45*	*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	0.0494	U	0.218	0.218	5.00	0.382	pCi/L		03/30/16 20:35	1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control 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.

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.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.
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)

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-119923/3
Matrix: Water
Analysis Batch: 119923

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			03/08/16 14:11	1
Sulfate	<1.00		1.00		mg/L			03/08/16 14:11	1
Fluoride	<0.100		0.100		mg/L			03/08/16 14:11	1

Lab Sample ID: LCS 310-119923/4
Matrix: Water
Analysis Batch: 119923

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.50	7.767		mg/L		104	90 - 110
Sulfate	7.50	7.316		mg/L		98	90 - 110
Fluoride	1.50	1.475		mg/L		98	90 - 110

Lab Sample ID: 310-75413-11 MS
Matrix: Ground Water
Analysis Batch: 119923

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	13.5	F1	25.0	44.19	F1	mg/L		123	80 - 120
Sulfate	182		25.0	201.8	4	mg/L		78	80 - 120
Fluoride	<0.500	F2	5.00	5.934		mg/L		119	80 - 120

Lab Sample ID: 310-75413-11 MSD
Matrix: Ground Water
Analysis Batch: 119923

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	13.5	F1	25.0	38.31		mg/L		99	80 - 120	14	15
Sulfate	182		25.0	184.4	4	mg/L		9	80 - 120	9	15
Fluoride	<0.500	F2	5.00	5.043	F2	mg/L		101	80 - 120	16	15

Lab Sample ID: MB 310-120046/3
Matrix: Water
Analysis Batch: 120046

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			03/09/16 13:35	1
Sulfate	<1.00		1.00		mg/L			03/09/16 13:35	1
Fluoride	<0.100		0.100		mg/L			03/09/16 13:35	1

Lab Sample ID: LCS 310-120046/4
Matrix: Water
Analysis Batch: 120046

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.50	7.298		mg/L		97	90 - 110
Sulfate	7.50	6.989		mg/L		93	90 - 110
Fluoride	1.50	1.436		mg/L		96	90 - 110

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 310-119462/1-A
Matrix: Water
Analysis Batch: 119680

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 119462

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.0500		0.0500		mg/L		03/04/16 07:44	03/07/16 12:35	1

Lab Sample ID: LCS 310-119462/2-A
Matrix: Water
Analysis Batch: 119680

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 119462

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	2.00	1.719		mg/L		86	80 - 120

Lab Sample ID: 310-75413-11 MS
Matrix: Ground Water
Analysis Batch: 119680

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 119462

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.100		2.00	1.947		mg/L		92	75 - 125

Lab Sample ID: 310-75413-11 MSD
Matrix: Ground Water
Analysis Batch: 119680

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 119462

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	0.100		2.00	1.946		mg/L		92	75 - 125	0	20

Lab Sample ID: 310-75413-20 DU
Matrix: Ground Water
Analysis Batch: 119680

Client Sample ID: DP-01
Prep Type: Total/NA
Prep Batch: 119462

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Lithium	0.122		0.1230		mg/L		1	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-119458/1-A
Matrix: Water
Analysis Batch: 119608

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 119458

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 18:05	1
Arsenic	<0.00200		0.00200		mg/L		03/04/16 07:30	03/04/16 18:05	1
Barium	<0.00200		0.00200		mg/L		03/04/16 07:30	03/04/16 18:05	1
Beryllium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 18:05	1
Calcium	<0.200		0.200		mg/L		03/04/16 07:30	03/04/16 18:05	1
Chromium	<0.00500		0.00500		mg/L		03/04/16 07:30	03/04/16 18:05	1
Cobalt	<0.000500		0.000500		mg/L		03/04/16 07:30	03/04/16 18:05	1
Lead	<0.000500		0.000500		mg/L		03/04/16 07:30	03/04/16 18:05	1
Molybdenum	<0.00200		0.00200		mg/L		03/04/16 07:30	03/04/16 18:05	1
Selenium	<0.00500		0.00500		mg/L		03/04/16 07:30	03/04/16 18:05	1
Thallium	<0.00100		0.00100		mg/L		03/04/16 07:30	03/04/16 18:05	1

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

Lab Sample ID: MB 310-119458/1-A
Matrix: Water
Analysis Batch: 120070

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 119458

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.200		0.200		mg/L		03/04/16 07:30	03/09/16 16:17	1
Cadmium	<0.000500		0.000500		mg/L		03/04/16 07:30	03/09/16 16:17	1

Lab Sample ID: LCS 310-119458/2-A
Matrix: Water
Analysis Batch: 119608

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 119458

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0200	0.02006		mg/L		100	80 - 120
Arsenic	0.0400	0.04523		mg/L		113	80 - 120
Barium	0.0400	0.04075		mg/L		102	80 - 120
Beryllium	0.0200	0.01991		mg/L		100	80 - 120
Calcium	2.00	2.125		mg/L		106	80 - 120
Chromium	0.0400	0.04032		mg/L		101	80 - 120
Cobalt	0.0200	0.01961		mg/L		98	80 - 120
Lead	0.0200	0.01932		mg/L		97	80 - 120
Molybdenum	0.0400	0.03974		mg/L		99	80 - 120
Selenium	0.0400	0.04149		mg/L		104	80 - 120
Thallium	0.0160	0.01554		mg/L		97	80 - 120

Lab Sample ID: LCS 310-119458/2-A
Matrix: Water
Analysis Batch: 120070

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 119458

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.880	0.8371		mg/L		95	80 - 120
Cadmium	0.0200	0.02000		mg/L		100	80 - 120

Lab Sample ID: 310-75413-11 MS
Matrix: Ground Water
Analysis Batch: 119608

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 119458

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.00100		0.0200	0.01992		mg/L		100	75 - 125
Arsenic	0.0632		0.0400	0.1067		mg/L		109	75 - 125
Barium	0.130		0.0400	0.1670		mg/L		93	75 - 125
Beryllium	<0.00100		0.0200	0.02165		mg/L		108	75 - 125
Chromium	<0.00500		0.0400	0.04043		mg/L		101	75 - 125
Cobalt	0.00201		0.0200	0.02167		mg/L		98	75 - 125
Lead	<0.000500		0.0200	0.01985		mg/L		99	75 - 125
Molybdenum	0.00218		0.0400	0.04411		mg/L		105	75 - 125
Selenium	<0.00500		0.0400	0.04209		mg/L		101	75 - 125
Thallium	<0.00100		0.0160	0.01526		mg/L		95	75 - 125

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

Lab Sample ID: 310-75413-11 MS
Matrix: Ground Water
Analysis Batch: 120070

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 119458

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.13		0.880	2.003		mg/L		99	75 - 125
Cadmium	<0.000500		0.0200	0.02071		mg/L		104	75 - 125

Lab Sample ID: 310-75413-11 MS
Matrix: Ground Water
Analysis Batch: 120070

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 119458

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	185		2.00	181.6	4	mg/L		-150	75 - 125

Lab Sample ID: 310-75413-11 MSD
Matrix: Ground Water
Analysis Batch: 119608

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 119458

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	<0.00100		0.0200	0.02030		mg/L		101	75 - 125	2	20
Arsenic	0.0632		0.0400	0.1075		mg/L		111	75 - 125	1	20
Barium	0.130		0.0400	0.1693		mg/L		98	75 - 125	1	20
Beryllium	<0.00100		0.0200	0.02137		mg/L		107	75 - 125	1	20
Chromium	<0.00500		0.0400	0.04131		mg/L		103	75 - 125	2	20
Cobalt	0.00201		0.0200	0.02176		mg/L		99	75 - 125	0	20
Lead	<0.000500		0.0200	0.02034		mg/L		102	75 - 125	2	20
Molybdenum	0.00218		0.0400	0.04514		mg/L		107	75 - 125	2	20
Selenium	<0.00500		0.0400	0.04312		mg/L		103	75 - 125	2	20
Thallium	<0.00100		0.0160	0.01568		mg/L		98	75 - 125	3	20

Lab Sample ID: 310-75413-11 MSD
Matrix: Ground Water
Analysis Batch: 120070

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 119458

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	1.13		0.880	2.004		mg/L		100	75 - 125	0	20
Cadmium	<0.000500		0.0200	0.02098		mg/L		105	75 - 125	1	20

Lab Sample ID: 310-75413-11 MSD
Matrix: Ground Water
Analysis Batch: 120070

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 119458

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	185		2.00	184.8	4	mg/L		10	75 - 125	2	20

Lab Sample ID: 310-75413-17 DU
Matrix: Ground Water
Analysis Batch: 119608

Client Sample ID: MW-13
Prep Type: Total/NA
Prep Batch: 119458

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	<0.00100		<0.00100		mg/L		NC	20
Arsenic	<0.00200		<0.00200		mg/L		NC	20
Barium	0.0439		0.04486		mg/L		2	20

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

Lab Sample ID: 310-75413-17 DU
Matrix: Ground Water
Analysis Batch: 119608

Client Sample ID: MW-13
Prep Type: Total/NA
Prep Batch: 119458

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Beryllium	<0.00100			<0.00100		mg/L				NC	20
Chromium	<0.00500			<0.00500		mg/L				NC	20
Cobalt	0.00139			0.001410		mg/L				2	20
Lead	<0.000500			<0.000500		mg/L				NC	20
Molybdenum	<0.00200			<0.00200		mg/L				NC	20
Selenium	0.0624			0.06520		mg/L				4	20
Thallium	<0.00100			<0.00100		mg/L				NC	20

Lab Sample ID: 310-75413-17 DU
Matrix: Ground Water
Analysis Batch: 120070

Client Sample ID: MW-13
Prep Type: Total/NA
Prep Batch: 119458

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Boron	0.726			0.7270		mg/L				0.2	20
Cadmium	<0.000500			<0.000500		mg/L				NC	20

Lab Sample ID: 310-75413-17 DU
Matrix: Ground Water
Analysis Batch: 120070

Client Sample ID: MW-13
Prep Type: Total/NA
Prep Batch: 119458

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Calcium	258			263.6		mg/L				2	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-119644/1-A
Matrix: Water
Analysis Batch: 119888

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 119644

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/07/16 10:06	03/08/16 09:36	1

Lab Sample ID: LCS 310-119644/2-A
Matrix: Water
Analysis Batch: 119888

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 119644

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			0.00167	0.001557		mg/L		93	80 - 120		

Lab Sample ID: 310-75413-11 MS
Matrix: Ground Water
Analysis Batch: 119888

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 119644

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	<0.000200		0.00167	0.001791		mg/L		107	80 - 120		

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

Lab Sample ID: 310-75413-11 MSD
Matrix: Ground Water
Analysis Batch: 119888

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 119644

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.000200		0.00167	0.001784		mg/L		107	80 - 120	0	20

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

Lab Sample ID: MB 310-119372/1
Matrix: Water
Analysis Batch: 119372

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	<30.0		30.0		mg/L			03/03/16 11:46	1

Lab Sample ID: LCS 310-119372/2
Matrix: Water
Analysis Batch: 119372

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			1000	972.0		mg/L		97	90 - 110		

Lab Sample ID: 310-75413-11 DU
Matrix: Ground Water
Analysis Batch: 119372

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

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	864			834.0		mg/L				4	20

Lab Sample ID: 310-75413-18 DU
Matrix: Ground Water
Analysis Batch: 119372

Client Sample ID: MW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	1280			1272		mg/L				0.8	20

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-119302/2
Matrix: Water
Analysis Batch: 119302

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	7.030		SU		100	98 - 102		

Lab Sample ID: 310-75413-17 DU
Matrix: Ground Water
Analysis Batch: 119302

Client Sample ID: MW-13
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	6.98	HF		7.000		SU				0.3	20

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-239388/1-A
Matrix: Water
Analysis Batch: 242773

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 239388

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.02357	U	0.0443	0.0443	1.00	0.0777	pCi/L	03/07/16 13:43	03/29/16 08:39	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*03/07/16 13:43*	*03/29/16 08:39*	*1*

Lab Sample ID: LCS 160-239388/2-A
Matrix: Water
Analysis Batch: 242773

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 239388

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.2	12.03		1.17	1.00	0.0831	pCi/L	108	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*103*		*40 - 110*

Lab Sample ID: 310-75413-11 MS
Matrix: Ground Water
Analysis Batch: 242773

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 239388

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	0.117		11.5	12.11		1.19	1.00	0.0770	pCi/L	104	75 - 138		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*99.4*		*40 - 110*

Lab Sample ID: 310-75413-11 MSD
Matrix: Ground Water
Analysis Batch: 242773

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 239388

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.117		11.4	13.24		1.29	1.00	0.0625	pCi/L	115	75 - 138	0.46	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*92.9*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-239468/1-A
Matrix: Water
Analysis Batch: 241797

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 239468

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.136		0.357	0.372	1.00	0.487	pCi/L	03/08/16 10:28	03/23/16 08:30	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*03/08/16 10:28*	*03/23/16 08:30*	*1*
Y Carrier	*72.1*		*40 - 110*	*03/08/16 10:28*	*03/23/16 08:30*	*1*

Lab Sample ID: LCS 160-239468/2-A
Matrix: Water
Analysis Batch: 241797

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 239468

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.26	9.559		1.08	1.00	0.361	pCi/L	103	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*103*		*40 - 110*
Y Carrier	*84.5*		*40 - 110*

Lab Sample ID: 310-75413-11 MS
Matrix: Ground Water
Analysis Batch: 241797

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 239468

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228	0.242	U	9.53	10.23		1.17	1.00	0.413	pCi/L	107	45 - 150		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*99.4*		*40 - 110*
Y Carrier	*81.1*		*40 - 110*

Lab Sample ID: 310-75413-11 MSD
Matrix: Ground Water
Analysis Batch: 241797

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 239468

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	0.242	U	9.44	10.81		1.36	1.00	0.699	pCi/L	115	45 - 150	0.23	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*92.9*		*40 - 110*
Y Carrier	*82.6*		*40 - 110*

HPLC/IC

Analysis Batch: 119923

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-75413-11	MW-2	Total/NA	Ground Water	9056A	
310-75413-11 MS	MW-2	Total/NA	Ground Water	9056A	
310-75413-11 MSD	MW-2	Total/NA	Ground Water	9056A	
310-75413-12	MW-4	Total/NA	Ground Water	9056A	
310-75413-13	MW-8	Total/NA	Ground Water	9056A	
310-75413-14	MW-10	Total/NA	Ground Water	9056A	
310-75413-15	MW-11	Total/NA	Ground Water	9056A	
310-75413-16	MW-12	Total/NA	Ground Water	9056A	
310-75413-17	MW-13	Total/NA	Ground Water	9056A	
310-75413-18	MW-14	Total/NA	Ground Water	9056A	
310-75413-19	MW-15	Total/NA	Ground Water	9056A	
310-75413-20	DP-01	Total/NA	Ground Water	9056A	
LCS 310-119923/4	Lab Control Sample	Total/NA	Water	9056A	
MB 310-119923/3	Method Blank	Total/NA	Water	9056A	

Analysis Batch: 120046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-75413-12	MW-4	Total/NA	Ground Water	9056A	
310-75413-13	MW-8	Total/NA	Ground Water	9056A	
310-75413-15	MW-11	Total/NA	Ground Water	9056A	
310-75413-16	MW-12	Total/NA	Ground Water	9056A	
310-75413-17	MW-13	Total/NA	Ground Water	9056A	
310-75413-18	MW-14	Total/NA	Ground Water	9056A	
310-75413-19	MW-15	Total/NA	Ground Water	9056A	
310-75413-20	DP-01	Total/NA	Ground Water	9056A	
LCS 310-120046/4	Lab Control Sample	Total/NA	Water	9056A	
MB 310-120046/3	Method Blank	Total/NA	Water	9056A	

Metals

Prep Batch: 119458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-75413-11	MW-2	Total/NA	Ground Water	3010A	
310-75413-11 MS	MW-2	Total/NA	Ground Water	3010A	
310-75413-11 MSD	MW-2	Total/NA	Ground Water	3010A	
310-75413-12	MW-4	Total/NA	Ground Water	3010A	
310-75413-13	MW-8	Total/NA	Ground Water	3010A	
310-75413-14	MW-10	Total/NA	Ground Water	3010A	
310-75413-15	MW-11	Total/NA	Ground Water	3010A	
310-75413-16	MW-12	Total/NA	Ground Water	3010A	
310-75413-17	MW-13	Total/NA	Ground Water	3010A	
310-75413-17 DU	MW-13	Total/NA	Ground Water	3010A	
310-75413-18	MW-14	Total/NA	Ground Water	3010A	
310-75413-19	MW-15	Total/NA	Ground Water	3010A	
310-75413-20	DP-01	Total/NA	Ground Water	3010A	
LCS 310-119458/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 310-119458/1-A	Method Blank	Total/NA	Water	3010A	

Metals (Continued)

Prep Batch: 119462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-75413-11	MW-2	Total/NA	Ground Water	3010A	
310-75413-11 MS	MW-2	Total/NA	Ground Water	3010A	
310-75413-11 MSD	MW-2	Total/NA	Ground Water	3010A	
310-75413-12	MW-4	Total/NA	Ground Water	3010A	
310-75413-13	MW-8	Total/NA	Ground Water	3010A	
310-75413-14	MW-10	Total/NA	Ground Water	3010A	
310-75413-15	MW-11	Total/NA	Ground Water	3010A	
310-75413-16	MW-12	Total/NA	Ground Water	3010A	
310-75413-17	MW-13	Total/NA	Ground Water	3010A	
310-75413-18	MW-14	Total/NA	Ground Water	3010A	
310-75413-19	MW-15	Total/NA	Ground Water	3010A	
310-75413-20	DP-01	Total/NA	Ground Water	3010A	
310-75413-20 DU	DP-01	Total/NA	Ground Water	3010A	
LCS 310-119462/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 310-119462/1-A	Method Blank	Total/NA	Water	3010A	

Analysis Batch: 119608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-75413-11	MW-2	Total/NA	Ground Water	6020A	119458
310-75413-11 MS	MW-2	Total/NA	Ground Water	6020A	119458
310-75413-11 MSD	MW-2	Total/NA	Ground Water	6020A	119458
310-75413-12	MW-4	Total/NA	Ground Water	6020A	119458
310-75413-13	MW-8	Total/NA	Ground Water	6020A	119458
310-75413-14	MW-10	Total/NA	Ground Water	6020A	119458
310-75413-15	MW-11	Total/NA	Ground Water	6020A	119458
310-75413-16	MW-12	Total/NA	Ground Water	6020A	119458
310-75413-17	MW-13	Total/NA	Ground Water	6020A	119458
310-75413-17 DU	MW-13	Total/NA	Ground Water	6020A	119458
310-75413-18	MW-14	Total/NA	Ground Water	6020A	119458
310-75413-19	MW-15	Total/NA	Ground Water	6020A	119458
310-75413-20	DP-01	Total/NA	Ground Water	6020A	119458
LCS 310-119458/2-A	Lab Control Sample	Total/NA	Water	6020A	119458
MB 310-119458/1-A	Method Blank	Total/NA	Water	6020A	119458

Prep Batch: 119644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-75413-11	MW-2	Total/NA	Ground Water	7470A	
310-75413-11 MS	MW-2	Total/NA	Ground Water	7470A	
310-75413-11 MSD	MW-2	Total/NA	Ground Water	7470A	
310-75413-12	MW-4	Total/NA	Ground Water	7470A	
310-75413-13	MW-8	Total/NA	Ground Water	7470A	
310-75413-14	MW-10	Total/NA	Ground Water	7470A	
310-75413-15	MW-11	Total/NA	Ground Water	7470A	
310-75413-16	MW-12	Total/NA	Ground Water	7470A	
310-75413-17	MW-13	Total/NA	Ground Water	7470A	
310-75413-18	MW-14	Total/NA	Ground Water	7470A	
310-75413-19	MW-15	Total/NA	Ground Water	7470A	
310-75413-20	DP-01	Total/NA	Ground Water	7470A	
LCS 310-119644/2-A	Lab Control Sample	Total/NA	Water	7470A	
MB 310-119644/1-A	Method Blank	Total/NA	Water	7470A	

Metals (Continued)

Analysis Batch: 119680

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-75413-11	MW-2	Total/NA	Ground Water	6010C	119462
310-75413-11 MS	MW-2	Total/NA	Ground Water	6010C	119462
310-75413-11 MSD	MW-2	Total/NA	Ground Water	6010C	119462
310-75413-12	MW-4	Total/NA	Ground Water	6010C	119462
310-75413-13	MW-8	Total/NA	Ground Water	6010C	119462
310-75413-14	MW-10	Total/NA	Ground Water	6010C	119462
310-75413-15	MW-11	Total/NA	Ground Water	6010C	119462
310-75413-16	MW-12	Total/NA	Ground Water	6010C	119462
310-75413-17	MW-13	Total/NA	Ground Water	6010C	119462
310-75413-18	MW-14	Total/NA	Ground Water	6010C	119462
310-75413-19	MW-15	Total/NA	Ground Water	6010C	119462
310-75413-20	DP-01	Total/NA	Ground Water	6010C	119462
310-75413-20 DU	DP-01	Total/NA	Ground Water	6010C	119462
LCS 310-119462/2-A	Lab Control Sample	Total/NA	Water	6010C	119462
MB 310-119462/1-A	Method Blank	Total/NA	Water	6010C	119462

Analysis Batch: 119888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-75413-11	MW-2	Total/NA	Ground Water	7470A	119644
310-75413-11 MS	MW-2	Total/NA	Ground Water	7470A	119644
310-75413-11 MSD	MW-2	Total/NA	Ground Water	7470A	119644
310-75413-12	MW-4	Total/NA	Ground Water	7470A	119644
310-75413-13	MW-8	Total/NA	Ground Water	7470A	119644
310-75413-14	MW-10	Total/NA	Ground Water	7470A	119644
310-75413-15	MW-11	Total/NA	Ground Water	7470A	119644
310-75413-16	MW-12	Total/NA	Ground Water	7470A	119644
310-75413-17	MW-13	Total/NA	Ground Water	7470A	119644
310-75413-18	MW-14	Total/NA	Ground Water	7470A	119644
310-75413-19	MW-15	Total/NA	Ground Water	7470A	119644
310-75413-20	DP-01	Total/NA	Ground Water	7470A	119644
LCS 310-119644/2-A	Lab Control Sample	Total/NA	Water	7470A	119644
MB 310-119644/1-A	Method Blank	Total/NA	Water	7470A	119644

Analysis Batch: 120070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-75413-11	MW-2	Total/NA	Ground Water	6020A	119458
310-75413-11	MW-2	Total/NA	Ground Water	6020A	119458
310-75413-11 MS	MW-2	Total/NA	Ground Water	6020A	119458
310-75413-11 MS	MW-2	Total/NA	Ground Water	6020A	119458
310-75413-11 MSD	MW-2	Total/NA	Ground Water	6020A	119458
310-75413-11 MSD	MW-2	Total/NA	Ground Water	6020A	119458
310-75413-12	MW-4	Total/NA	Ground Water	6020A	119458
310-75413-12	MW-4	Total/NA	Ground Water	6020A	119458
310-75413-13	MW-8	Total/NA	Ground Water	6020A	119458
310-75413-13	MW-8	Total/NA	Ground Water	6020A	119458
310-75413-14	MW-10	Total/NA	Ground Water	6020A	119458
310-75413-14	MW-10	Total/NA	Ground Water	6020A	119458
310-75413-15	MW-11	Total/NA	Ground Water	6020A	119458
310-75413-15	MW-11	Total/NA	Ground Water	6020A	119458
310-75413-16	MW-12	Total/NA	Ground Water	6020A	119458
310-75413-16	MW-12	Total/NA	Ground Water	6020A	119458

Metals (Continued)

Analysis Batch: 120070 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-75413-17	MW-13	Total/NA	Ground Water	6020A	119458
310-75413-17	MW-13	Total/NA	Ground Water	6020A	119458
310-75413-17 DU	MW-13	Total/NA	Ground Water	6020A	119458
310-75413-17 DU	MW-13	Total/NA	Ground Water	6020A	119458
310-75413-18	MW-14	Total/NA	Ground Water	6020A	119458
310-75413-18	MW-14	Total/NA	Ground Water	6020A	119458
310-75413-19	MW-15	Total/NA	Ground Water	6020A	119458
310-75413-19	MW-15	Total/NA	Ground Water	6020A	119458
310-75413-20	DP-01	Total/NA	Ground Water	6020A	119458
310-75413-20	DP-01	Total/NA	Ground Water	6020A	119458
LCS 310-119458/2-A	Lab Control Sample	Total/NA	Water	6020A	119458
MB 310-119458/1-A	Method Blank	Total/NA	Water	6020A	119458

General Chemistry

Analysis Batch: 119302

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-75413-11	MW-2	Total/NA	Ground Water	SM 4500 H+ B	
310-75413-12	MW-4	Total/NA	Ground Water	SM 4500 H+ B	
310-75413-13	MW-8	Total/NA	Ground Water	SM 4500 H+ B	
310-75413-14	MW-10	Total/NA	Ground Water	SM 4500 H+ B	
310-75413-15	MW-11	Total/NA	Ground Water	SM 4500 H+ B	
310-75413-16	MW-12	Total/NA	Ground Water	SM 4500 H+ B	
310-75413-17	MW-13	Total/NA	Ground Water	SM 4500 H+ B	
310-75413-17 DU	MW-13	Total/NA	Ground Water	SM 4500 H+ B	
310-75413-18	MW-14	Total/NA	Ground Water	SM 4500 H+ B	
310-75413-19	MW-15	Total/NA	Ground Water	SM 4500 H+ B	
310-75413-20	DP-01	Total/NA	Ground Water	SM 4500 H+ B	
LCS 310-119302/2	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 119372

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-75413-11	MW-2	Total/NA	Ground Water	SM 2540C	
310-75413-11 DU	MW-2	Total/NA	Ground Water	SM 2540C	
310-75413-12	MW-4	Total/NA	Ground Water	SM 2540C	
310-75413-13	MW-8	Total/NA	Ground Water	SM 2540C	
310-75413-14	MW-10	Total/NA	Ground Water	SM 2540C	
310-75413-15	MW-11	Total/NA	Ground Water	SM 2540C	
310-75413-16	MW-12	Total/NA	Ground Water	SM 2540C	
310-75413-17	MW-13	Total/NA	Ground Water	SM 2540C	
310-75413-18	MW-14	Total/NA	Ground Water	SM 2540C	
310-75413-18 DU	MW-14	Total/NA	Ground Water	SM 2540C	
310-75413-19	MW-15	Total/NA	Ground Water	SM 2540C	
310-75413-20	DP-01	Total/NA	Ground Water	SM 2540C	
LCS 310-119372/2	Lab Control Sample	Total/NA	Water	SM 2540C	
MB 310-119372/1	Method Blank	Total/NA	Water	SM 2540C	

Rad

Prep Batch: 239388

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-75413-11	MW-2	Total/NA	Ground Water	PrecSep-21	
310-75413-11 MS	MW-2	Total/NA	Ground Water	PrecSep-21	
310-75413-11 MSD	MW-2	Total/NA	Ground Water	PrecSep-21	
310-75413-12	MW-4	Total/NA	Ground Water	PrecSep-21	
310-75413-13	MW-8	Total/NA	Ground Water	PrecSep-21	
310-75413-14	MW-10	Total/NA	Ground Water	PrecSep-21	
310-75413-15	MW-11	Total/NA	Ground Water	PrecSep-21	
310-75413-16	MW-12	Total/NA	Ground Water	PrecSep-21	
310-75413-17	MW-13	Total/NA	Ground Water	PrecSep-21	
310-75413-18	MW-14	Total/NA	Ground Water	PrecSep-21	
310-75413-19	MW-15	Total/NA	Ground Water	PrecSep-21	
310-75413-20	DP-01	Total/NA	Ground Water	PrecSep-21	
LCS 160-239388/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
MB 160-239388/1-A	Method Blank	Total/NA	Water	PrecSep-21	

Prep Batch: 239468

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-75413-11	MW-2	Total/NA	Ground Water	PrecSep_0	
310-75413-11 MS	MW-2	Total/NA	Ground Water	PrecSep_0	
310-75413-11 MSD	MW-2	Total/NA	Ground Water	PrecSep_0	
310-75413-12	MW-4	Total/NA	Ground Water	PrecSep_0	
310-75413-13	MW-8	Total/NA	Ground Water	PrecSep_0	
310-75413-14	MW-10	Total/NA	Ground Water	PrecSep_0	
310-75413-15	MW-11	Total/NA	Ground Water	PrecSep_0	
310-75413-16	MW-12	Total/NA	Ground Water	PrecSep_0	
310-75413-17	MW-13	Total/NA	Ground Water	PrecSep_0	
310-75413-18	MW-14	Total/NA	Ground Water	PrecSep_0	
310-75413-19	MW-15	Total/NA	Ground Water	PrecSep_0	
310-75413-20	DP-01	Total/NA	Ground Water	PrecSep_0	
LCS 160-239468/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
MB 160-239468/1-A	Method Blank	Total/NA	Water	PrecSep_0	

Client Sample ID: MW-2

Date Collected: 03/01/16 11:58
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-11

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	119923	03/08/16 14:11	AJG	TAL CF
Total/NA	Prep	3010A			119462	03/04/16 07:44	JNR	TAL CF
Total/NA	Analysis	6010C		1	119680	03/07/16 12:41	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		1	119608	03/04/16 18:33	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		1	120070	03/09/16 16:36	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		5	120070	03/09/16 22:57	OAD	TAL CF
Total/NA	Prep	7470A			119644	03/07/16 10:06	SAD	TAL CF
Total/NA	Analysis	7470A		1	119888	03/08/16 09:39	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	119372	03/03/16 11:46	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	119302	03/02/16 19:45	TRR	TAL CF
Total/NA	Prep	PrecSep-21			239388	03/07/16 13:43	MRB	TAL SL
Total/NA	Analysis	9315		1	242773	03/29/16 08:40	RTM	TAL SL
Total/NA	Prep	PrecSep_0			239468	03/08/16 10:28	CMC	TAL SL
Total/NA	Analysis	9320		1	241797	03/23/16 08:31	ALS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	242979	03/30/16 20:35	RTM	TAL SL

Client Sample ID: MW-4

Date Collected: 03/01/16 13:24
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-12

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	119923	03/08/16 14:11	AJG	TAL CF
Total/NA	Analysis	9056A		50	120046	03/09/16 13:35	AJG	TAL CF
Total/NA	Prep	3010A			119462	03/04/16 07:44	JNR	TAL CF
Total/NA	Analysis	6010C		1	119680	03/07/16 12:56	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		1	119608	03/04/16 18:45	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		1	120070	03/09/16 16:45	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		10	120070	03/09/16 23:06	OAD	TAL CF
Total/NA	Prep	7470A			119644	03/07/16 10:06	SAD	TAL CF
Total/NA	Analysis	7470A		1	119888	03/08/16 09:47	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	119372	03/03/16 11:46	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	119302	03/02/16 19:45	TRR	TAL CF
Total/NA	Prep	PrecSep-21			239388	03/07/16 13:43	MRB	TAL SL
Total/NA	Analysis	9315		1	242773	03/29/16 08:41	RTM	TAL SL
Total/NA	Prep	PrecSep_0			239468	03/08/16 10:28	CMC	TAL SL
Total/NA	Analysis	9320		1	241797	03/23/16 08:32	ALS	TAL SL

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-75413-1
SDG: 11114654-CCR16-01

Client Sample ID: MW-4

Date Collected: 03/01/16 13:24
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-12

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Ra226_Ra228		1	242979	03/30/16 20:35	RTM	TAL SL

Client Sample ID: MW-8

Date Collected: 02/29/16 16:55
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-13

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	119923	03/08/16 14:11	AJG	TAL CF
Total/NA	Analysis	9056A		50	120046	03/09/16 13:35	AJG	TAL CF
Total/NA	Prep	3010A			119462	03/04/16 07:44	JNR	TAL CF
Total/NA	Analysis	6010C		1	119680	03/07/16 12:58	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		1	119608	03/04/16 18:48	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		1	120070	03/09/16 16:58	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		10	120070	03/09/16 23:09	OAD	TAL CF
Total/NA	Prep	7470A			119644	03/07/16 10:06	SAD	TAL CF
Total/NA	Analysis	7470A		1	119888	03/08/16 09:49	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	119372	03/03/16 11:46	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	119302	03/02/16 19:46	TRR	TAL CF
Total/NA	Prep	PrecSep-21			239388	03/07/16 13:43	MRB	TAL SL
Total/NA	Analysis	9315		1	242773	03/29/16 08:41	RTM	TAL SL
Total/NA	Prep	PrecSep_0			239468	03/08/16 10:28	CMC	TAL SL
Total/NA	Analysis	9320		1	241797	03/23/16 08:32	ALS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	242979	03/30/16 20:35	RTM	TAL SL

Client Sample ID: MW-10

Date Collected: 02/29/16 17:40
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-14

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	119923	03/08/16 14:11	AJG	TAL CF
Total/NA	Prep	3010A			119462	03/04/16 07:44	JNR	TAL CF
Total/NA	Analysis	6010C		1	119680	03/07/16 13:00	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		1	119608	03/04/16 18:51	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		1	120070	03/09/16 17:04	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		10	120070	03/09/16 23:13	OAD	TAL CF
Total/NA	Prep	7470A			119644	03/07/16 10:06	SAD	TAL CF
Total/NA	Analysis	7470A		1	119888	03/08/16 09:50	SAD	TAL CF

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-75413-1
SDG: 11114654-CCR16-01

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	119372	03/03/16 11:46	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	119302	03/02/16 19:47	TRR	TAL CF
Total/NA	Prep	PrecSep-21			239388	03/07/16 13:43	MRB	TAL SL
Total/NA	Analysis	9315		1	242773	03/29/16 08:42	RTM	TAL SL
Total/NA	Prep	PrecSep_0			239468	03/08/16 10:28	CMC	TAL SL
Total/NA	Analysis	9320		1	241797	03/23/16 08:32	ALS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	242979	03/30/16 20:35	RTM	TAL SL

Client Sample ID: MW-11

Date Collected: 03/01/16 10:09
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-15

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	119923	03/08/16 14:11	AJG	TAL CF
Total/NA	Analysis	9056A		20	120046	03/09/16 13:35	AJG	TAL CF
Total/NA	Prep	3010A			119462	03/04/16 07:44	JNR	TAL CF
Total/NA	Analysis	6010C		1	119680	03/07/16 13:02	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		1	119608	03/04/16 18:54	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		1	120070	03/09/16 17:20	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		10	120070	03/09/16 23:16	OAD	TAL CF
Total/NA	Prep	7470A			119644	03/07/16 10:06	SAD	TAL CF
Total/NA	Analysis	7470A		1	119888	03/08/16 09:52	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	119372	03/03/16 11:46	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	119302	03/02/16 19:48	TRR	TAL CF
Total/NA	Prep	PrecSep-21			239388	03/07/16 13:43	MRB	TAL SL
Total/NA	Analysis	9315		1	242773	03/29/16 08:42	RTM	TAL SL
Total/NA	Prep	PrecSep_0			239468	03/08/16 10:28	CMC	TAL SL
Total/NA	Analysis	9320		1	241797	03/23/16 08:32	ALS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	242979	03/30/16 20:35	RTM	TAL SL

Client Sample ID: MW-12

Date Collected: 03/01/16 09:15
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-16

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	119923	03/08/16 14:11	AJG	TAL CF
Total/NA	Analysis	9056A		20	120046	03/09/16 13:35	AJG	TAL CF
Total/NA	Prep	3010A			119462	03/04/16 07:44	JNR	TAL CF
Total/NA	Analysis	6010C		1	119680	03/07/16 13:04	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		1	119608	03/04/16 18:58	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		1	120070	03/09/16 17:23	OAD	TAL CF

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-75413-1
SDG: 11114654-CCR16-01

Client Sample ID: MW-12

Date Collected: 03/01/16 09:15
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-16

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		10	120070	03/09/16 23:28	OAD	TAL CF
Total/NA	Prep	7470A			119644	03/07/16 10:06	SAD	TAL CF
Total/NA	Analysis	7470A		1	119888	03/08/16 09:53	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	119372	03/03/16 11:46	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	119302	03/02/16 19:49	TRR	TAL CF
Total/NA	Prep	PrecSep-21			239388	03/07/16 13:43	MRB	TAL SL
Total/NA	Analysis	9315		1	242773	03/29/16 08:42	RTM	TAL SL
Total/NA	Prep	PrecSep_0			239468	03/08/16 10:28	CMC	TAL SL
Total/NA	Analysis	9320		1	241797	03/23/16 08:32	ALS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	242979	03/30/16 20:35	RTM	TAL SL

Client Sample ID: MW-13

Date Collected: 03/01/16 08:15
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-17

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	119923	03/08/16 14:11	AJG	TAL CF
Total/NA	Analysis	9056A		20	120046	03/09/16 13:35	AJG	TAL CF
Total/NA	Prep	3010A			119462	03/04/16 07:44	JNR	TAL CF
Total/NA	Analysis	6010C		1	119680	03/07/16 13:07	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		1	119608	03/04/16 19:10	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		1	120070	03/09/16 17:27	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		10	120070	03/09/16 23:32	OAD	TAL CF
Total/NA	Prep	7470A			119644	03/07/16 10:06	SAD	TAL CF
Total/NA	Analysis	7470A		1	119888	03/08/16 09:55	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	119372	03/03/16 11:46	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	119302	03/02/16 19:51	TRR	TAL CF
Total/NA	Prep	PrecSep-21			239388	03/07/16 13:43	MRB	TAL SL
Total/NA	Analysis	9315		1	242773	03/29/16 08:42	RTM	TAL SL
Total/NA	Prep	PrecSep_0			239468	03/08/16 10:28	CMC	TAL SL
Total/NA	Analysis	9320		1	241797	03/23/16 08:32	ALS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	242979	03/30/16 20:35	RTM	TAL SL

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-75413-1
SDG: 11114654-CCR16-01

Client Sample ID: MW-14

Date Collected: 03/01/16 11:08
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-18

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	119923	03/08/16 14:11	AJG	TAL CF
Total/NA	Analysis	9056A		20	120046	03/09/16 13:35	AJG	TAL CF
Total/NA	Prep	3010A			119462	03/04/16 07:44	JNR	TAL CF
Total/NA	Analysis	6010C		1	119680	03/07/16 13:09	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		1	119608	03/04/16 19:16	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		1	120070	03/09/16 17:42	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		10	120070	03/09/16 23:38	OAD	TAL CF
Total/NA	Prep	7470A			119644	03/07/16 10:06	SAD	TAL CF
Total/NA	Analysis	7470A		1	119888	03/08/16 09:57	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	119372	03/03/16 11:46	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	119302	03/02/16 19:53	TRR	TAL CF
Total/NA	Prep	PrecSep-21			239388	03/07/16 13:43	MRB	TAL SL
Total/NA	Analysis	9315		1	242773	03/29/16 08:42	RTM	TAL SL
Total/NA	Prep	PrecSep_0			239468	03/08/16 10:28	CMC	TAL SL
Total/NA	Analysis	9320		1	241800	03/23/16 08:45	ALS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	242979	03/30/16 20:35	RTM	TAL SL

Client Sample ID: MW-15

Date Collected: 02/29/16 16:10
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-19

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	119923	03/08/16 14:11	AJG	TAL CF
Total/NA	Analysis	9056A		20	120046	03/09/16 13:35	AJG	TAL CF
Total/NA	Prep	3010A			119462	03/04/16 07:44	JNR	TAL CF
Total/NA	Analysis	6010C		1	119680	03/07/16 13:11	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		1	119608	03/04/16 19:19	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		1	120070	03/09/16 17:45	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		10	120070	03/09/16 23:41	OAD	TAL CF
Total/NA	Prep	7470A			119644	03/07/16 10:06	SAD	TAL CF
Total/NA	Analysis	7470A		1	119888	03/08/16 09:58	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	119372	03/03/16 11:46	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	119302	03/02/16 19:54	TRR	TAL CF
Total/NA	Prep	PrecSep-21			239388	03/07/16 13:43	MRB	TAL SL
Total/NA	Analysis	9315		1	242773	03/29/16 08:43	RTM	TAL SL
Total/NA	Prep	PrecSep_0			239468	03/08/16 10:28	CMC	TAL SL
Total/NA	Analysis	9320		1	241800	03/23/16 08:45	ALS	TAL SL

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-75413-1
SDG: 11114654-CCR16-01

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Ra226_Ra228		1	242979	03/30/16 20:35	RTM	TAL SL

Client Sample ID: DP-01

Date Collected: 03/01/16 00:00
Date Received: 03/02/16 17:50

Lab Sample ID: 310-75413-20

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	119923	03/08/16 14:11	AJG	TAL CF
Total/NA	Analysis	9056A		20	120046	03/09/16 13:35	AJG	TAL CF
Total/NA	Prep	3010A			119462	03/04/16 07:44	JNR	TAL CF
Total/NA	Analysis	6010C		1	119680	03/07/16 13:13	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		1	119608	03/04/16 19:22	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		1	120070	03/09/16 17:48	OAD	TAL CF
Total/NA	Prep	3010A			119458	03/04/16 07:30	JNR	TAL CF
Total/NA	Analysis	6020A		10	120070	03/09/16 23:44	OAD	TAL CF
Total/NA	Prep	7470A			119644	03/07/16 10:06	SAD	TAL CF
Total/NA	Analysis	7470A		1	119888	03/08/16 10:03	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	119372	03/03/16 11:46	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	119302	03/02/16 19:55	TRR	TAL CF
Total/NA	Prep	PrecSep-21			239388	03/07/16 13:43	MRB	TAL SL
Total/NA	Analysis	9315		1	242773	03/29/16 08:43	RTM	TAL SL
Total/NA	Prep	PrecSep_0			239468	03/08/16 10:28	CMC	TAL SL
Total/NA	Analysis	9320		1	241800	03/23/16 08:45	ALS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	242979	03/30/16 20:35	RTM	TAL SL

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Certification Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-75413-1
SDG: 11114654-CCR16-01

Laboratory: TestAmerica Cedar Falls

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA-LAP, LLC	IHLAP		101044	11-01-16
Georgia	State Program	4	N/A	09-29-16
Illinois	NELAP	5	200024	11-29-16
Iowa	State Program	7	007	12-01-15 *
Kansas	NELAP	7	E-10341	01-31-15 *
Minnesota	NELAP	5	019-999-319	12-31-16
Minnesota (Petrofund)	State Program	1	3349	08-22-16
North Dakota	State Program	8	R-186	09-29-16
Oregon	NELAP	10	IA100001	09-29-16

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	06-30-16
California	ELAP	9	2886	03-31-16 *
Connecticut	State Program	1	PH-0241	03-31-17
Florida	NELAP	4	E87689	06-30-16
Illinois	NELAP	5	003757	11-30-16
Iowa	State Program	7	373	12-01-16
Kansas	NELAP	7	E-10236	05-31-16
Kentucky (DW)	State Program	4	90125	12-31-16
L-A-B	DoD ELAP		L2305	04-10-16 *
Louisiana	NELAP	6	04080	06-30-16
Louisiana (DW)	NELAP	6	LA160008	12-31-16
Maryland	State Program	3	310	09-30-16
Missouri	State Program	7	780	06-30-16
Nevada	State Program	9	MO000542016-1	07-31-16
New Jersey	NELAP	2	MO002	06-30-16
New York	NELAP	2	11616	03-31-16 *
North Dakota	State Program	8	R207	06-30-16
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-16
Pennsylvania	NELAP	3	68-00540	02-28-17 *
South Carolina	State Program	4	85002001	06-30-16
Texas	NELAP	6	T104704193-15-9	07-31-16
USDA	Federal		P330-07-00122	01-09-17
Utah	NELAP	8	MO000542015-7	07-31-16
Virginia	NELAP	3	460230	06-14-16
Washington	State Program	10	C592	08-30-16
West Virginia DEP	State Program	3	381	08-31-16

* Certification renewal pending - certification considered valid.

Method Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-75413-1
SDG: 11114654-CCR16-01

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL CF
6010C	Metals (ICP)	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CF
SM 4500 H+ B	pH	SM	TAL CF
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL

Protocol References:

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.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-75413 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: Des Moines, Ia | Project: MEC NEAL

Receipt Information

Date/Time Received: 3/2/16 1750 | Received By: JMH

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☑ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☑ Yes	☐ No	*If yes:* Cooler ID: I - 5
Multiple Coolers?	☑ Yes	☐ No	*If yes:* Cooler # 2 of 3
Cooler Custody Seals Present?	☑ Yes	☐ No	*If yes:* Cooler custody seals intact? ☑ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☑ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☑ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Temperature Blank? ☑ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: H | Correction Factor (°C): +0.1°C

Uncorrected Temp (°C): 0.4°C | Corrected Temp (°C): 0.5°C

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: Des Moines, IA | Project: MEC NEAL

Receipt Information

Date/Time Received: 3/2/16 1750 | Received By: JMH

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☑ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other: _____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☑ Yes ☐ No	*If yes:* Cooler ID:	E-4
Multiple Coolers?	☑ Yes ☐ No	*If yes:* Cooler #	1 of 3
Cooler Custody Seals Present?	☑ Yes ☐ No	*If yes:* Cooler custody seals intact?	☑ Yes ☐ No
Sample Custody Seals Present?	☐ Yes ☑ No	*If yes:* Sample custody seals intact?	☐ Yes ☐ No
Trip Blank Present?	☐ Yes ☑ No	*If yes:* Which VOA samples are in cooler?	↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE

Temperature Blank? ☑ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: H | Correction Factor (°C): +0.1°C

Uncorrected Temp (°C): 0.6°C | Corrected Temp (°C): 0.7°C

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: Des Moines, IA | Project: MEC NEAL

Receipt Information

Date/Time Received: 3/2/16 1750 | Received By: JMH

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☑ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☑ Yes ☐ No	*If yes:* Cooler ID:	14-9
Multiple Coolers?	☑ Yes ☐ No	*If yes:* Cooler #	3 of 3
Cooler Custody Seals Present?	☑ Yes ☐ No	*If yes:* Cooler custody seals intact?	☑ Yes ☐ No
Sample Custody Seals Present?	☐ Yes ☑ No	*If yes:* Sample custody seals intact?	☐ Yes ☐ No
Trip Blank Present?	☐ Yes ☑ No	*If yes:* Which VOA samples are in cooler?	↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Temperature Blank? ☑ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: H | Correction Factor (°C): +0.1°C

Uncorrected Temp (°C): 2.4°C | Corrected Temp (°C): 2.5°C

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Tina Wineland	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No:
Client Contact: Kevin Armstrong	Phone: 515 710 8336	E-Mail: shawn.hayes@testamericainc.com		Page: 1 of 1
Company: GHD Services Inc.				Job #:

Address: 11228 Aurora Avenue	Due Date Requested:	Analysis Requested
City: Des Moines	TAT Requested (days): Standard turn	
State, Zip: IA, 50322-7905		
Phone: 515-414-3935	PO #: 34003921	
Email: Kevin.Armstrong@ghd.com	WO #:	
Project Name: MEC Neal South Energy Center CCR	TestAmerica Project #: 31007315	
Project Number: 11114654-CCR16-01	SSOW#: 11114654-002	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228	6010C, 6020A, 7470A Select List	2540C TDS	9056A Chloride, Sulfate, and Fluoride	SM4500 H+ pH										Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N	N	N											
MW-2	3-1-16	1158	G	GW	N	N	X	X	X	X	X											MS/MSD
MW-4	3-1-16	1324		GW			X	X	X	X	X											
MW-8	2-29-16	1655		GW			X	X	X	X	X											
MW-10	2-29-16	1740		GW			X	X	X	X	X											
MW-11	3-1-16	1009		GW			X	X	X	X	X											
MW-12	3-1-16	0915		GW			X	X	X	X	X											
MW-13	3-1-16	0815		GW			X	X	X	X	X											
MW-14	3-1-16	1108		GW			X	X	X	X	X											
MW-15	2-29-16	1610		GW			X	X	X	X	X											
DP-01	3-1-16	—	↓	GW	↓	↓	X	X	X	X	X											

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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) level II QC

Special Instructions/QC Requirements: Report all parameters together with Radiologicals

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment: Test America Courier

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Kevin J Armstrong	3-2-2016 0930	GHD		03/02/16 / 14:49	Test America
2		03/03/16 14:49	Test America	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 3/2/16 1750	Company

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.: 538046, 814838, 154017

Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 310-75413-1
SDG Number: 11114654-CCR16-01

Login Number: 75413
List Number: 1
Creator: Worthy, Ashley L

List Source: TestAmerica Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
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	
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 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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-75413-1
SDG: 11114654-CCR16-01

Method: 9315 - Radium-226 (GFPC)

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	Client Sample ID	Ba (40-110)							
310-75413-11	MW-2	101							
310-75413-11 MS	MW-2	99.4							
310-75413-11 MSD	MW-2	92.9							
310-75413-12	MW-4	100							
310-75413-13	MW-8	92.0							
310-75413-14	MW-10	102							
310-75413-15	MW-11	93.2							
310-75413-16	MW-12	96.3							
310-75413-17	MW-13	96.3							
310-75413-18	MW-14	86.6							
310-75413-19	MW-15	75.5							
310-75413-20	DP-01	92.6							

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9315 - Radium-226 (GFPC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	Client Sample ID	Ba (40-110)							
LCS 160-239388/2-A	Lab Control Sample	103							
MB 160-239388/1-A	Method Blank	100							

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)						
310-75413-11	MW-2	101	82.6						
310-75413-11 MS	MW-2	99.4	81.1						
310-75413-11 MSD	MW-2	92.9	82.6						
310-75413-12	MW-4	100	81.9						
310-75413-13	MW-8	92.0	72.5						
310-75413-14	MW-10	102	84.9						
310-75413-15	MW-11	93.2	79.3						
310-75413-16	MW-12	96.3	82.6						
310-75413-17	MW-13	96.3	83.7						
310-75413-18	MW-14	86.6	85.2						
310-75413-19	MW-15	75.5	81.1						
310-75413-20	DP-01	92.6	82.6						

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

Tracer/Carrier Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-75413-1
SDG: 11114654-CCR16-01

Method: 9320 - 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)								
LCS 160-239468/2-A	Lab Control Sample	103	84.5								
MB 160-239468/1-A	Method Blank	100	72.1								

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319)277-2401

TestAmerica Job ID: 310-82517-1
TestAmerica Sample Delivery Group: 11114654-CCR16
Client Project/Site: MEC Neal South Energy Center CCR
Sampling Event: Neal South CCR Qtrly

For:
GHD Services Inc.
11228 Aurora Avenue
Des Moines, Iowa 50322-7905

Attn: Kevin Armstrong

Authorized for release by:
7/18/2016 3:24:39 PM

Shawn Hayes, Project Manager II
(319)277-2401
shawn.hayes@testamericainc.com

LINKS

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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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Job ID: 310-82517-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-82517-1

Comments
No additional comments.

Receipt
The samples were received on 6/9/2016 5:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 3.2º C, 4.7º C and 5.2º C.

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

General Chemistry
Method(s) SM 2540C: Reanalysis of the following samples was performed outside of the analytical holding time due to initial batch had blank hit. : MW-2 (310-82517-1), MW-4 (310-82517-2), MW-8 (310-82517-3), MW-10 (310-82517-4), MW-11 (310-82517-5), MW-12 (310-82517-6), MW-13 (310-82517-7), MW-14 (310-82517-8), MW-15 (310-82517-9), and DP-01 (310-82517-10)

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

Job ID: 310-82517-2

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-82517-2

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

Sample Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-82517-1
SDG: 11114654-CCR16

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-82517-1	MW-2	Ground Water	06/06/16 14:27	06/09/16 17:40
310-82517-2	MW-4	Ground Water	06/06/16 13:41	06/09/16 17:40
310-82517-3	MW-8	Ground Water	06/06/16 16:00	06/09/16 17:40
310-82517-4	MW-10	Ground Water	06/06/16 16:36	06/09/16 17:40
310-82517-5	MW-11	Ground Water	06/06/16 10:59	06/09/16 17:40
310-82517-6	MW-12	Ground Water	06/06/16 10:17	06/09/16 17:40
310-82517-7	MW-13	Ground Water	06/06/16 09:40	06/09/16 17:40
310-82517-8	MW-14	Ground Water	06/06/16 11:42	06/09/16 17:40
310-82517-9	MW-15	Ground Water	06/06/16 15:21	06/09/16 17:40
310-82517-10	DP-01	Ground Water	06/06/16 00:00	06/09/16 17:40

Client Sample ID: MW-2

Date Collected: 06/06/16 14:27
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-1

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.99**		5.00		mg/L			06/10/16 11:22	5
Sulfate	**178**		5.00		mg/L			06/10/16 11:22	5
Fluoride	<0.500		0.500		mg/L			06/10/16 11:22	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.108**		0.0500		mg/L		06/13/16 10:00	06/14/16 15:51	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:22	1
Arsenic	**0.0694**		0.00200		mg/L		06/13/16 10:00	07/10/16 00:22	1
Barium	**0.136**		0.00200		mg/L		06/13/16 10:00	07/10/16 00:22	1
Beryllium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:22	1
Boron	**1.33**		0.200		mg/L		06/13/16 10:00	07/10/16 00:22	1
Cadmium	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:22	1
Calcium	**200**		0.200		mg/L		06/13/16 10:00	07/10/16 00:22	1
Chromium	<0.00500		0.00500		mg/L		06/13/16 10:00	07/10/16 00:22	1
Cobalt	**0.00159**		0.000500		mg/L		06/13/16 10:00	07/10/16 00:22	1
Lead	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:22	1
Molybdenum	**0.00243**		0.00200		mg/L		06/13/16 10:00	07/10/16 00:22	1
Selenium	<0.00500		0.00500		mg/L		06/13/16 10:00	07/10/16 00:22	1
Thallium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:22	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/13/16 09:23	06/14/16 13:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**848**	**H**	30.0		mg/L			06/15/16 11:28	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.74**	**HF**	0.100		SU			06/09/16 22:15	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.213**		0.0711	0.0736	1.00	0.0686	pCi/L	06/15/16 14:42	07/07/16 11:32	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.2*		*40 - 110*	*06/15/16 14:42*	*07/07/16 11:32*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.683**		0.255	0.263	1.00	0.346	pCi/L	06/15/16 16:07	06/30/16 12:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.2*		*40 - 110*	*06/15/16 16:07*	*06/30/16 12:36*	*1*

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-82517-1
SDG: 11114654-CCR16

Client Sample ID: MW-2
Date Collected: 06/06/16 14:27
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-1
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	89.0		40 - 110	06/15/16 16:07	06/30/16 12:36	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	0.896		0.265	0.273	5.00	0.346	pCi/L		07/08/16 20:20	1

Client Sample ID: MW-4

Date Collected: 06/06/16 13:41
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-2

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**15.2**		5.00		mg/L			06/10/16 11:22	5
Sulfate	**852**		20.0		mg/L			06/14/16 11:18	20
Fluoride	<0.500		0.500		mg/L			06/10/16 11:22	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.188**		0.0500		mg/L		06/13/16 10:00	06/14/16 16:00	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:31	1
Arsenic	<0.00200		0.00200		mg/L		06/13/16 10:00	07/10/16 00:31	1
Barium	**0.0374**		0.00200		mg/L		06/13/16 10:00	07/10/16 00:31	1
Beryllium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:31	1
Boron	**2.32**		0.200		mg/L		06/13/16 10:00	07/10/16 00:31	1
Cadmium	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:31	1
Calcium	**324**		0.200		mg/L		06/13/16 10:00	07/10/16 00:31	1
Chromium	<0.00500		0.00500		mg/L		06/13/16 10:00	07/10/16 00:31	1
Cobalt	**0.000997**		0.000500		mg/L		06/13/16 10:00	07/10/16 00:31	1
Lead	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:31	1
Molybdenum	<0.00200		0.00200		mg/L		06/13/16 10:00	07/10/16 00:31	1
Selenium	<0.00500		0.00500		mg/L		06/13/16 10:00	07/10/16 00:31	1
Thallium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:31	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/13/16 09:23	06/14/16 13:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1960**	**H**	150		mg/L			06/15/16 11:28	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.73**	**HF**	0.100		SU			06/09/16 22:17	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.168**		0.0720	0.0736	1.00	0.0794	pCi/L	06/15/16 14:42	07/07/16 11:33	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*70.7*		*40 - 110*	*06/15/16 14:42*	*07/07/16 11:33*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.293	U	0.255	0.256	1.00	0.406	pCi/L	06/15/16 16:07	06/30/16 12:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*70.7*		*40 - 110*	*06/15/16 16:07*	*06/30/16 12:36*	*1*

Client Sample ID: MW-4
Date Collected: 06/06/16 13:41
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-2
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*89.7*		*40 - 110*	*06/15/16 16:07*	*06/30/16 12:36*	*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	**0.460**		0.265	0.267	5.00	0.406	pCi/L		07/08/16 20:20	1

Client Sample ID: MW-8

Date Collected: 06/06/16 16:00
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-3

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			06/10/16 11:22	5
Sulfate	**313**		20.0		mg/L			06/14/16 11:18	20
Fluoride	<0.500		0.500		mg/L			06/10/16 11:22	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.106**		0.0500		mg/L		06/13/16 10:00	06/14/16 16:02	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:34	1
Arsenic	<0.00200		0.00200		mg/L		06/13/16 10:00	07/10/16 00:34	1
Barium	**0.0926**		0.00200		mg/L		06/13/16 10:00	07/10/16 00:34	1
Beryllium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:34	1
Boron	**1.23**		0.200		mg/L		06/13/16 10:00	07/10/16 00:34	1
Cadmium	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:34	1
Calcium	**213**		0.200		mg/L		06/13/16 10:00	07/10/16 00:34	1
Chromium	<0.00500		0.00500		mg/L		06/13/16 10:00	07/10/16 00:34	1
Cobalt	**0.00303**		0.000500		mg/L		06/13/16 10:00	07/10/16 00:34	1
Lead	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:34	1
Molybdenum	**0.0184**		0.00200		mg/L		06/13/16 10:00	07/10/16 00:34	1
Selenium	<0.00500		0.00500		mg/L		06/13/16 10:00	07/10/16 00:34	1
Thallium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:34	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/13/16 09:23	06/14/16 13:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1060**	**H**	30.0		mg/L			06/15/16 11:28	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.04**	**HF**	0.100		SU			06/09/16 22:18	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.308**		0.0857	0.0901	1.00	0.0711	pCi/L	06/15/16 14:42	07/07/16 11:33	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.6*		*40 - 110*	*06/15/16 14:42*	*07/07/16 11:33*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.336	U	0.238	0.240	1.00	0.370	pCi/L	06/15/16 16:07	06/30/16 12:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.6*		*40 - 110*	*06/15/16 16:07*	*06/30/16 12:36*	*1*

Client Sample ID: MW-8
Date Collected: 06/06/16 16:00
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-3
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*89.7*		*40 - 110*	*06/15/16 16:07*	*06/30/16 12:36*	*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	**0.644**		0.253	0.256	5.00	0.370	pCi/L		07/08/16 20:20	1

Client Sample ID: MW-10

Date Collected: 06/06/16 16:36
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-4

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.02**		5.00		mg/L			06/10/16 11:22	5
Sulfate	**189**		5.00		mg/L			06/10/16 11:22	5
Fluoride	<0.500		0.500		mg/L			06/10/16 11:22	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.117**		0.0500		mg/L		06/13/16 10:00	06/14/16 16:04	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:37	1
Arsenic	<0.00200		0.00200		mg/L		06/13/16 10:00	07/10/16 00:37	1
Barium	**0.111**		0.00200		mg/L		06/13/16 10:00	07/10/16 00:37	1
Beryllium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:37	1
Boron	**1.64**		0.200		mg/L		06/13/16 10:00	07/10/16 00:37	1
Cadmium	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:37	1
Calcium	**181**		0.200		mg/L		06/13/16 10:00	07/10/16 00:37	1
Chromium	<0.00500		0.00500		mg/L		06/13/16 10:00	07/10/16 00:37	1
Cobalt	**0.000854**		0.000500		mg/L		06/13/16 10:00	07/10/16 00:37	1
Lead	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:37	1
Molybdenum	**0.00239**		0.00200		mg/L		06/13/16 10:00	07/10/16 00:37	1
Selenium	<0.00500		0.00500		mg/L		06/13/16 10:00	07/10/16 00:37	1
Thallium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:37	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/13/16 09:23	06/14/16 13:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**988**	**H**	60.0		mg/L			06/15/16 11:28	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.92**	**HF**	0.100		SU			06/09/16 22:19	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.170**		0.0855	0.0869	1.00	0.117	pCi/L	06/15/16 14:42	07/07/16 11:33	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*77.5*		*40 - 110*	*06/15/16 14:42*	*07/07/16 11:33*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0863	U	0.241	0.241	1.00	0.417	pCi/L	06/15/16 16:07	06/30/16 12:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*77.5*		*40 - 110*	*06/15/16 16:07*	*06/30/16 12:36*	*1*

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-82517-1
SDG: 11114654-CCR16

Client Sample ID: MW-10
Date Collected: 06/06/16 16:36
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-4
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	89.7		40 - 110	06/15/16 16:07	06/30/16 12:36	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	0.256	U	0.255	0.256	5.00	0.417	pCi/L		07/08/16 20:20	1

Client Sample ID: MW-11

Date Collected: 06/06/16 10:59
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-5

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**37.5**		5.00		mg/L			06/10/16 11:22	5
Sulfate	**240**		5.00		mg/L			06/10/16 11:22	5
Fluoride	<0.500		0.500		mg/L			06/10/16 11:22	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.135**		0.0500		mg/L		06/13/16 10:00	06/14/16 16:06	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:40	1
Arsenic	<0.00200		0.00200		mg/L		06/13/16 10:00	07/10/16 00:40	1
Barium	**0.121**		0.00200		mg/L		06/13/16 10:00	07/10/16 00:40	1
Beryllium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:40	1
Boron	**0.221**		0.200		mg/L		06/13/16 10:00	07/10/16 00:40	1
Cadmium	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:40	1
Calcium	**238**		0.200		mg/L		06/13/16 10:00	07/10/16 00:40	1
Chromium	<0.00500		0.00500		mg/L		06/13/16 10:00	07/10/16 00:40	1
Cobalt	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:40	1
Lead	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:40	1
Molybdenum	<0.00200		0.00200		mg/L		06/13/16 10:00	07/10/16 00:40	1
Selenium	**0.0580**		0.00500		mg/L		06/13/16 10:00	07/10/16 00:40	1
Thallium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:40	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/13/16 09:23	06/14/16 13:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1070**	**H**	30.0		mg/L			06/15/16 11:28	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.88**	**HF**	0.100		SU			06/09/16 22:19	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.105**		0.0636	0.0643	1.00	0.0854	pCi/L	06/15/16 14:42	07/07/16 11:33	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*69.5*		*40 - 110*	*06/15/16 14:42*	*07/07/16 11:33*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.114	U	0.219	0.219	1.00	0.418	pCi/L	06/15/16 16:07	06/30/16 12:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*69.5*		*40 - 110*	*06/15/16 16:07*	*06/30/16 12:36*	*1*

Client Sample ID: MW-11
Date Collected: 06/06/16 10:59
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-5
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*92.0*		*40 - 110*	*06/15/16 16:07*	*06/30/16 12:36*	*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	-0.00864	U	0.228	0.228	5.00	0.418	pCi/L		07/08/16 20:20	1

Client Sample ID: MW-12

Date Collected: 06/06/16 10:17
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-6

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**303**		20.0		mg/L			06/14/16 11:18	20
Sulfate	**524**		20.0		mg/L			06/14/16 11:18	20
Fluoride	<0.500		0.500		mg/L			06/10/16 11:22	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.108**		0.0500		mg/L		06/13/16 10:00	06/14/16 16:08	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:43	1
Arsenic	<0.00200		0.00200		mg/L		06/13/16 10:00	07/10/16 00:43	1
Barium	**0.116**		0.00200		mg/L		06/13/16 10:00	07/10/16 00:43	1
Beryllium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:43	1
Boron	**4.78**		0.200		mg/L		06/13/16 10:00	07/10/16 00:43	1
Cadmium	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:43	1
Calcium	**287**		0.200		mg/L		06/13/16 10:00	07/10/16 00:43	1
Chromium	**0.0340**		0.00500		mg/L		06/13/16 10:00	07/10/16 00:43	1
Cobalt	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:43	1
Lead	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:43	1
Molybdenum	**0.00234**		0.00200		mg/L		06/13/16 10:00	07/10/16 00:43	1
Selenium	**0.0522**		0.00500		mg/L		06/13/16 10:00	07/10/16 00:43	1
Thallium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:43	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/13/16 09:23	06/14/16 13:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1590**	**H**	150		mg/L			06/15/16 11:32	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.03**	**HF**	0.100		SU			06/09/16 22:21	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.136**		0.0622	0.0634	1.00	0.0736	pCi/L	06/15/16 14:42	07/07/16 11:33	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.5*		*40 - 110*	*06/15/16 14:42*	*07/07/16 11:33*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.312	U	0.222	0.224	1.00	0.344	pCi/L	06/15/16 16:07	06/30/16 12:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.5*		*40 - 110*	*06/15/16 16:07*	*06/30/16 12:36*	*1*

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-82517-1
SDG: 11114654-CCR16

Client Sample ID: MW-12
Date Collected: 06/06/16 10:17
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-6
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	90.8		40 - 110	06/15/16 16:07	06/30/16 12:36	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	0.448		0.231	0.233	5.00	0.344	pCi/L		07/08/16 20:20	1

Client Sample ID: MW-13

Date Collected: 06/06/16 09:40
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-7

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**13.1**		5.00		mg/L			06/10/16 11:22	5
Sulfate	**484**		20.0		mg/L			06/14/16 11:18	20
Fluoride	**0.775**		0.500		mg/L			06/10/16 11:22	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.102**		0.0500		mg/L		06/13/16 10:00	06/14/16 16:10	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:56	1
Arsenic	<0.00200		0.00200		mg/L		06/13/16 10:00	07/10/16 00:56	1
Barium	**0.161**		0.00200		mg/L		06/13/16 10:00	07/10/16 00:56	1
Beryllium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:56	1
Boron	<0.200		0.200		mg/L		06/13/16 10:00	07/10/16 00:56	1
Cadmium	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:56	1
Calcium	**194**		0.200		mg/L		06/13/16 10:00	07/10/16 00:56	1
Chromium	<0.00500		0.00500		mg/L		06/13/16 10:00	07/10/16 00:56	1
Cobalt	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:56	1
Lead	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:56	1
Molybdenum	**0.00208**		0.00200		mg/L		06/13/16 10:00	07/10/16 00:56	1
Selenium	**0.0831**		0.00500		mg/L		06/13/16 10:00	07/10/16 00:56	1
Thallium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:56	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/13/16 09:23	06/14/16 13:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1500**	**H**	60.0		mg/L			06/15/16 11:32	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.91**	**HF**	0.100		SU			06/09/16 22:22	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.167**		0.0744	0.0759	1.00	0.0850	pCi/L	06/15/16 14:42	07/07/16 11:33	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.6*		*40 - 110*	*06/15/16 14:42*	*07/07/16 11:33*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.319	U	0.253	0.254	1.00	0.400	pCi/L	06/15/16 16:07	06/30/16 12:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.6*		*40 - 110*	*06/15/16 16:07*	*06/30/16 12:36*	*1*

Client Sample ID: MW-13
Date Collected: 06/06/16 09:40
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-7
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*87.1*		*40 - 110*	*06/15/16 16:07*	*06/30/16 12:36*	*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	**0.486**		0.263	0.265	5.00	0.400	pCi/L		07/08/16 20:20	1

Client Sample ID: MW-14

Date Collected: 06/06/16 11:42
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-8

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.66**		5.00		mg/L			06/10/16 11:22	5
Sulfate	**311**		20.0		mg/L			06/14/16 11:18	20
Fluoride	<0.500		0.500		mg/L			06/10/16 11:22	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.129**		0.0500		mg/L		06/13/16 10:00	06/14/16 16:13	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:59	1
Arsenic	<0.00200		0.00200		mg/L		06/13/16 10:00	07/10/16 00:59	1
Barium	**0.0857**		0.00200		mg/L		06/13/16 10:00	07/10/16 00:59	1
Beryllium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:59	1
Boron	**0.593**		0.200		mg/L		06/13/16 10:00	07/10/16 00:59	1
Cadmium	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:59	1
Calcium	**246**		0.200		mg/L		06/13/16 10:00	07/10/16 00:59	1
Chromium	<0.00500		0.00500		mg/L		06/13/16 10:00	07/10/16 00:59	1
Cobalt	**0.00237**		0.000500		mg/L		06/13/16 10:00	07/10/16 00:59	1
Lead	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:59	1
Molybdenum	<0.00200		0.00200		mg/L		06/13/16 10:00	07/10/16 00:59	1
Selenium	**0.0146**		0.00500		mg/L		06/13/16 10:00	07/10/16 00:59	1
Thallium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:59	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/13/16 09:23	06/14/16 13:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1160**	**H**	30.0		mg/L			06/15/16 11:32	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.87**	**HF**	0.100		SU			06/09/16 22:23	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.368**		0.0940	0.0997	1.00	0.0773	pCi/L	06/15/16 14:42	07/07/16 11:33	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.3*		*40 - 110*	*06/15/16 14:42*	*07/07/16 11:33*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.421	U	0.293	0.296	1.00	0.459	pCi/L	06/15/16 16:07	06/30/16 12:37	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.3*		*40 - 110*	*06/15/16 16:07*	*06/30/16 12:37*	*1*

Client Sample ID: MW-14
Date Collected: 06/06/16 11:42
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-8
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*88.6*		*40 - 110*	*06/15/16 16:07*	*06/30/16 12:37*	*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	**0.789**		0.308	0.312	5.00	0.459	pCi/L		07/08/16 20:20	1

Client Sample ID: MW-15

Date Collected: 06/06/16 15:21
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-9

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**8.63**		5.00		mg/L			06/10/16 11:22	5
Sulfate	**642**		20.0		mg/L			06/14/16 11:18	20
Fluoride	<0.500		0.500		mg/L			06/10/16 11:22	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0540**		0.0500		mg/L		06/13/16 10:00	06/14/16 16:15	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 01:02	1
Arsenic	<0.00200		0.00200		mg/L		06/13/16 10:00	07/10/16 01:02	1
Barium	**0.0428**		0.00200		mg/L		06/13/16 10:00	07/10/16 01:02	1
Beryllium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 01:02	1
Boron	**2.31**		0.200		mg/L		06/13/16 10:00	07/10/16 01:02	1
Cadmium	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 01:02	1
Calcium	**231**		0.200		mg/L		06/13/16 10:00	07/10/16 01:02	1
Chromium	<0.00500		0.00500		mg/L		06/13/16 10:00	07/10/16 01:02	1
Cobalt	**0.00165**		0.000500		mg/L		06/13/16 10:00	07/10/16 01:02	1
Lead	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 01:02	1
Molybdenum	<0.00200		0.00200		mg/L		06/13/16 10:00	07/10/16 01:02	1
Selenium	**0.00657**		0.00500		mg/L		06/13/16 10:00	07/10/16 01:02	1
Thallium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 01:02	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/13/16 09:23	06/14/16 13:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1580**	**H**	60.0		mg/L			06/15/16 11:32	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.78**	**HF**	0.100		SU			06/09/16 22:24	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.204**		0.0742	0.0765	1.00	0.0780	pCi/L	06/15/16 14:42	07/07/16 11:33	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.9*		*40 - 110*	*06/15/16 14:42*	*07/07/16 11:33*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.250	U	0.262	0.263	1.00	0.427	pCi/L	06/15/16 16:07	06/30/16 12:37	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.9*		*40 - 110*	*06/15/16 16:07*	*06/30/16 12:37*	*1*

Client Sample ID: MW-15
Date Collected: 06/06/16 15:21
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-9
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*89.0*		*40 - 110*	*06/15/16 16:07*	*06/30/16 12:37*	*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	**0.454**		0.272	0.273	5.00	0.427	pCi/L		07/08/16 20:20	1

Client Sample ID: DP-01

Date Collected: 06/06/16 00:00
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-10

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**40.6**		5.00		mg/L			06/10/16 11:22	5
Sulfate	**249**		5.00		mg/L			06/10/16 11:22	5
Fluoride	<0.500		0.500		mg/L			06/10/16 11:22	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.107**		0.0500		mg/L		06/13/16 10:00	06/14/16 16:17	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 01:05	1
Arsenic	<0.00200		0.00200		mg/L		06/13/16 10:00	07/10/16 01:05	1
Barium	**0.0752**		0.00200		mg/L		06/13/16 10:00	07/10/16 01:05	1
Beryllium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 01:05	1
Boron	**0.688**		0.200		mg/L		06/13/16 10:00	07/10/16 01:05	1
Cadmium	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 01:05	1
Calcium	**255**		0.200		mg/L		06/13/16 10:00	07/10/16 01:05	1
Chromium	<0.00500		0.00500		mg/L		06/13/16 10:00	07/12/16 01:13	1
Cobalt	**0.000792**		0.000500		mg/L		06/13/16 10:00	07/10/16 01:05	1
Lead	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 01:05	1
Molybdenum	<0.00200		0.00200		mg/L		06/13/16 10:00	07/10/16 01:05	1
Selenium	**0.00609**		0.00500		mg/L		06/13/16 10:00	07/10/16 01:05	1
Thallium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 01:05	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/13/16 09:23	06/14/16 13:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1100**	**H**	30.0		mg/L			06/15/16 11:32	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.71**	**HF**	0.100		SU			06/09/16 22:33	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0267	U	0.0448	0.0448	1.00	0.0781	pCi/L	06/15/16 14:42	07/07/16 11:33	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.9*		*40 - 110*	*06/15/16 14:42*	*07/07/16 11:33*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0374	U	0.232	0.232	1.00	0.421	pCi/L	06/15/16 16:07	06/30/16 12:37	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.9*		*40 - 110*	*06/15/16 16:07*	*06/30/16 12:37*	*1*

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-82517-1
SDG: 11114654-CCR16

Client Sample ID: DP-01
Date Collected: 06/06/16 00:00
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-10
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	90.8		40 - 110	06/15/16 16:07	06/30/16 12:37	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	-0.0107	U	0.236	0.236	5.00	0.421	pCi/L		07/08/16 20:20	1

Qualifiers

HPLC/IC

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.

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.
H	Sample was prepped or analyzed beyond the specified holding time

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.
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)

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-130647/3
Matrix: Water
Analysis Batch: 130647

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			06/10/16 11:22	1
Sulfate	<1.00		1.00		mg/L			06/10/16 11:22	1
Fluoride	<0.100		0.100		mg/L			06/10/16 11:22	1

Lab Sample ID: LCS 310-130647/4
Matrix: Water
Analysis Batch: 130647

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.50	8.136		mg/L		108	90 - 110
Sulfate	7.50	8.106		mg/L		108	90 - 110
Fluoride	1.50	1.583		mg/L		106	90 - 110

Lab Sample ID: 310-82517-1 MS
Matrix: Ground Water
Analysis Batch: 130647

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.99		25.0	32.62		mg/L		107	80 - 120
Sulfate	178		25.0	195.9	4	mg/L		71	80 - 120
Fluoride	<0.500		5.00	5.030		mg/L		101	80 - 120

Lab Sample ID: 310-82517-1 MSD
Matrix: Ground Water
Analysis Batch: 130647

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	5.99		25.0	35.28		mg/L		117	80 - 120	8	15
Sulfate	178		25.0	193.7	4	mg/L		62	80 - 120	1	15
Fluoride	<0.500		5.00	5.415		mg/L		108	80 - 120	7	15

Lab Sample ID: MB 310-131097/3
Matrix: Water
Analysis Batch: 131097

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			06/14/16 11:18	1
Sulfate	<1.00		1.00		mg/L			06/14/16 11:18	1

Lab Sample ID: LCS 310-131097/4
Matrix: Water
Analysis Batch: 131097

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.50	7.745		mg/L		103	90 - 110
Sulfate	7.50	7.854		mg/L		105	90 - 110

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 310-130578/1-A
Matrix: Water
Analysis Batch: 130862

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 130578

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.0500		0.0500		mg/L		06/13/16 10:00	06/13/16 18:35	1

Lab Sample ID: LCS 310-130578/2-A
Matrix: Water
Analysis Batch: 131040

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 130578

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	2.00	1.907		mg/L		95	80 - 120

Lab Sample ID: 310-82517-1 MS
Matrix: Ground Water
Analysis Batch: 131040

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 130578

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.108		2.00	1.994		mg/L		94	75 - 125

Lab Sample ID: 310-82517-1 MSD
Matrix: Ground Water
Analysis Batch: 131040

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 130578

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	0.108		2.00	2.001		mg/L		95	75 - 125	0	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-130574/1-A
Matrix: Water
Analysis Batch: 133568

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 130574

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:15	1
Arsenic	<0.00200		0.00200		mg/L		06/13/16 10:00	07/10/16 00:15	1
Barium	<0.00200		0.00200		mg/L		06/13/16 10:00	07/10/16 00:15	1
Beryllium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:15	1
Boron	<0.200		0.200		mg/L		06/13/16 10:00	07/10/16 00:15	1
Cadmium	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:15	1
Calcium	<0.200		0.200		mg/L		06/13/16 10:00	07/10/16 00:15	1
Cobalt	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:15	1
Lead	<0.000500		0.000500		mg/L		06/13/16 10:00	07/10/16 00:15	1
Molybdenum	<0.00200		0.00200		mg/L		06/13/16 10:00	07/10/16 00:15	1
Selenium	<0.00500		0.00500		mg/L		06/13/16 10:00	07/10/16 00:15	1
Thallium	<0.00100		0.00100		mg/L		06/13/16 10:00	07/10/16 00:15	1

Lab Sample ID: MB 310-130574/1-A
Matrix: Water
Analysis Batch: 133747

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 130574

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	<0.00500		0.00500		mg/L		06/13/16 10:00	07/12/16 01:10	1

Lab Sample ID: LCS 310-130574/2-A
Matrix: Water
Analysis Batch: 133568

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 130574

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0200	0.01981		mg/L		99	80 - 120
Arsenic	0.0400	0.04048		mg/L		101	80 - 120
Barium	0.0400	0.04298		mg/L		107	80 - 120
Beryllium	0.0200	0.01927		mg/L		96	80 - 120
Boron	0.880	0.8428		mg/L		96	80 - 120
Cadmium	0.0200	0.02159		mg/L		108	80 - 120
Calcium	2.00	2.188		mg/L		109	80 - 120
Chromium	0.0400	0.04514		mg/L		113	80 - 120
Cobalt	0.0200	0.02001		mg/L		100	80 - 120
Lead	0.0200	0.02044		mg/L		102	80 - 120
Molybdenum	0.0400	0.04245		mg/L		106	80 - 120
Selenium	0.0400	0.04177		mg/L		104	80 - 120
Thallium	0.0160	0.01635		mg/L		102	80 - 120

Lab Sample ID: 310-82517-1 MS
Matrix: Ground Water
Analysis Batch: 133568

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 130574

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.00100		0.0200	0.02041		mg/L		102	75 - 125
Arsenic	0.0694		0.0400	0.1129		mg/L		109	75 - 125
Barium	0.136		0.0400	0.1816		mg/L		115	75 - 125
Beryllium	<0.00100		0.0200	0.01996		mg/L		100	75 - 125
Boron	1.33		0.880	2.184		mg/L		97	75 - 125
Cadmium	<0.000500		0.0200	0.02143		mg/L		107	75 - 125
Calcium	200		2.00	204.4	4	mg/L		229	75 - 125
Cobalt	0.00159		0.0200	0.02253		mg/L		105	75 - 125
Lead	<0.000500		0.0200	0.02054		mg/L		103	75 - 125
Molybdenum	0.00243		0.0400	0.05002		mg/L		119	75 - 125
Selenium	<0.00500		0.0400	0.04434		mg/L		107	75 - 125
Thallium	<0.00100		0.0160	0.01612		mg/L		101	75 - 125

Lab Sample ID: 310-82517-1 MS
Matrix: Ground Water
Analysis Batch: 134329

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 130574

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	<0.00500		0.0400	0.03994		mg/L		97	75 - 125

Lab Sample ID: 310-82517-1 MSD
Matrix: Ground Water
Analysis Batch: 133568

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 130574

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	<0.00100		0.0200	0.02072		mg/L		104	75 - 125	5	20
Arsenic	0.0694		0.0400	0.1108		mg/L		103	75 - 125	2	20
Barium	0.136		0.0400	0.1773		mg/L		105	75 - 125	5	20
Beryllium	<0.00100		0.0200	0.02043		mg/L		102	75 - 125	4	20
Boron	1.33		0.880	2.187		mg/L		97	75 - 125	4	20
Cadmium	<0.000500		0.0200	0.02213		mg/L		111	75 - 125	8	20
Calcium	200		2.00	202.4	4	mg/L		129	75 - 125	6	20

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

Lab Sample ID: 310-82517-1 MSD
Matrix: Ground Water
Analysis Batch: 133568

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 130574

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	<0.00500		0.0400	0.04447		mg/L		108	75 - 125	11	20
Cobalt	0.00159		0.0200	0.02192		mg/L		102	75 - 125	4	20
Lead	<0.000500		0.0200	0.02188		mg/L		109	75 - 125	10	20
Molybdenum	0.00243		0.0400	0.04587		mg/L		109	75 - 125	7	20
Selenium	<0.00500		0.0400	0.04536		mg/L		110	75 - 125	7	20
Thallium	<0.00100		0.0160	0.01638		mg/L		102	75 - 125	12	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-130716/1-A
Matrix: Water
Analysis Batch: 130934

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 130716

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/13/16 09:23	06/14/16 12:44	1

Lab Sample ID: LCS 310-130716/2-A
Matrix: Water
Analysis Batch: 130934

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 130716

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00167	0.001527		mg/L		92	80 - 120

Lab Sample ID: 310-82517-1 MS
Matrix: Ground Water
Analysis Batch: 130934

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 130716

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.000200		0.00167	0.001812		mg/L		109	80 - 120

Lab Sample ID: 310-82517-1 MSD
Matrix: Ground Water
Analysis Batch: 130934

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 130716

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.000200		0.00167	0.001704		mg/L		102	80 - 120	6	20

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

Lab Sample ID: MB 310-131082/1
Matrix: Water
Analysis Batch: 131082

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	<30.0		30.0		mg/L			06/15/16 10:58	1

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

Lab Sample ID: LCS 310-131082/2
Matrix: Water
Analysis Batch: 131082

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	1000	1010		mg/L		101	90 - 110

Lab Sample ID: 310-82517-1 DU
Matrix: Ground Water
Analysis Batch: 131082

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	848	H	902.0		mg/L		6	20

Lab Sample ID: MB 310-131091/1
Matrix: Water
Analysis Batch: 131091

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	<30.0		30.0		mg/L			06/15/16 11:32	1

Lab Sample ID: LCS 310-131091/2
Matrix: Water
Analysis Batch: 131091

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	1000	964.0		mg/L		96	90 - 110

Lab Sample ID: 310-82517-7 DU
Matrix: Ground Water
Analysis Batch: 131091

Client Sample ID: MW-13
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1500	H	1420		mg/L		5	20

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-130486/1
Matrix: Water
Analysis Batch: 130486

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	6.940		SU		99	98 - 102

Lab Sample ID: 310-82517-1 DU
Matrix: Ground Water
Analysis Batch: 130486

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.74	HF	6.750		SU		0.1	20

Method: SM 4500 H+ B - pH (Continued)

Lab Sample ID: 310-82517-10 DU
Matrix: Ground Water
Analysis Batch: 130486

Client Sample ID: DP-01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	6.71	HF		6.760		SU				0.7	20

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-256541/1-A
Matrix: Water
Analysis Batch: 259442

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 256541

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.04992	U	0.0473	0.0476	1.00	0.0733	pCi/L	06/15/16 14:42	07/07/16 11:24	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.6*		*40 - 110*	*06/15/16 14:42*	*07/07/16 11:24*	*1*

Lab Sample ID: LCS 160-256541/2-A
Matrix: Water
Analysis Batch: 259442

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 256541

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.2	14.76		1.43	1.00	0.100	pCi/L	132	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*86.0*		*40 - 110*

Lab Sample ID: 310-82517-1 MS
Matrix: Ground Water
Analysis Batch: 259552

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 256541

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	0.213		11.2	15.01		1.45	1.00	0.0895	pCi/L	133	75 - 138		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*87.2*		*40 - 110*

Lab Sample ID: 310-82517-1 MSD
Matrix: Ground Water
Analysis Batch: 259552

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 256541

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.213		11.2	14.58		1.42	1.00	0.0698	pCi/L	129	75 - 138	0.15	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*85.5*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-256569/1-A
Matrix: Water
Analysis Batch: 258661

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 256569

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.06822	U	0.221	0.221	1.00	0.383	pCi/L	06/15/16 16:07	06/30/16 12:35	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.6*		*40 - 110*	*06/15/16 16:07*	*06/30/16 12:35*	*1*
Y Carrier	*87.5*		*40 - 110*	*06/15/16 16:07*	*06/30/16 12:35*	*1*

Lab Sample ID: LCS 160-256569/2-A
Matrix: Water
Analysis Batch: 258661

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 256569

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			14.9	17.07		1.80	1.00	0.363	pCi/L	114	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*86.0*		*40 - 110*
Y Carrier	*89.7*		*40 - 110*

Lab Sample ID: 310-82517-1 MS
Matrix: Ground Water
Analysis Batch: 258661

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 256569

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228	0.683		14.9	17.59		1.84	1.00	0.426	pCi/L	113	45 - 150		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*87.2*		*40 - 110*
Y Carrier	*90.5*		*40 - 110*

Lab Sample ID: 310-82517-1 MSD
Matrix: Ground Water
Analysis Batch: 258661

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 256569

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	0.683		14.9	16.66		1.76	1.00	0.351	pCi/L	107	45 - 150	0.26	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*85.5*		*40 - 110*
Y Carrier	*91.2*		*40 - 110*

HPLC/IC

Analysis Batch: 130647

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-82517-1	MW-2	Total/NA	Ground Water	9056A	
310-82517-1 MS	MW-2	Total/NA	Ground Water	9056A	
310-82517-1 MSD	MW-2	Total/NA	Ground Water	9056A	
310-82517-2	MW-4	Total/NA	Ground Water	9056A	
310-82517-3	MW-8	Total/NA	Ground Water	9056A	
310-82517-4	MW-10	Total/NA	Ground Water	9056A	
310-82517-5	MW-11	Total/NA	Ground Water	9056A	
310-82517-6	MW-12	Total/NA	Ground Water	9056A	
310-82517-7	MW-13	Total/NA	Ground Water	9056A	
310-82517-8	MW-14	Total/NA	Ground Water	9056A	
310-82517-9	MW-15	Total/NA	Ground Water	9056A	
310-82517-10	DP-01	Total/NA	Ground Water	9056A	
LCS 310-130647/4	Lab Control Sample	Total/NA	Water	9056A	
MB 310-130647/3	Method Blank	Total/NA	Water	9056A	

Analysis Batch: 131097

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-82517-2	MW-4	Total/NA	Ground Water	9056A	
310-82517-3	MW-8	Total/NA	Ground Water	9056A	
310-82517-6	MW-12	Total/NA	Ground Water	9056A	
310-82517-7	MW-13	Total/NA	Ground Water	9056A	
310-82517-8	MW-14	Total/NA	Ground Water	9056A	
310-82517-9	MW-15	Total/NA	Ground Water	9056A	
LCS 310-131097/4	Lab Control Sample	Total/NA	Water	9056A	
MB 310-131097/3	Method Blank	Total/NA	Water	9056A	

Metals

Prep Batch: 130574

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-82517-1	MW-2	Total/NA	Ground Water	3010A	
310-82517-1 MS	MW-2	Total/NA	Ground Water	3010A	
310-82517-1 MSD	MW-2	Total/NA	Ground Water	3010A	
310-82517-2	MW-4	Total/NA	Ground Water	3010A	
310-82517-3	MW-8	Total/NA	Ground Water	3010A	
310-82517-4	MW-10	Total/NA	Ground Water	3010A	
310-82517-5	MW-11	Total/NA	Ground Water	3010A	
310-82517-6	MW-12	Total/NA	Ground Water	3010A	
310-82517-7	MW-13	Total/NA	Ground Water	3010A	
310-82517-8	MW-14	Total/NA	Ground Water	3010A	
310-82517-9	MW-15	Total/NA	Ground Water	3010A	
310-82517-10	DP-01	Total/NA	Ground Water	3010A	
LCS 310-130574/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 310-130574/1-A	Method Blank	Total/NA	Water	3010A	

Prep Batch: 130578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-82517-1	MW-2	Total/NA	Ground Water	3010A	
310-82517-1 MS	MW-2	Total/NA	Ground Water	3010A	
310-82517-1 MSD	MW-2	Total/NA	Ground Water	3010A	

Metals (Continued)

Prep Batch: 130578 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-82517-2	MW-4	Total/NA	Ground Water	3010A	
310-82517-3	MW-8	Total/NA	Ground Water	3010A	
310-82517-4	MW-10	Total/NA	Ground Water	3010A	
310-82517-5	MW-11	Total/NA	Ground Water	3010A	
310-82517-6	MW-12	Total/NA	Ground Water	3010A	
310-82517-7	MW-13	Total/NA	Ground Water	3010A	
310-82517-8	MW-14	Total/NA	Ground Water	3010A	
310-82517-9	MW-15	Total/NA	Ground Water	3010A	
310-82517-10	DP-01	Total/NA	Ground Water	3010A	
LCS 310-130578/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 310-130578/1-A	Method Blank	Total/NA	Water	3010A	

Prep Batch: 130716

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-82517-1	MW-2	Total/NA	Ground Water	7470A	
310-82517-1 MS	MW-2	Total/NA	Ground Water	7470A	
310-82517-1 MSD	MW-2	Total/NA	Ground Water	7470A	
310-82517-2	MW-4	Total/NA	Ground Water	7470A	
310-82517-3	MW-8	Total/NA	Ground Water	7470A	
310-82517-4	MW-10	Total/NA	Ground Water	7470A	
310-82517-5	MW-11	Total/NA	Ground Water	7470A	
310-82517-6	MW-12	Total/NA	Ground Water	7470A	
310-82517-7	MW-13	Total/NA	Ground Water	7470A	
310-82517-8	MW-14	Total/NA	Ground Water	7470A	
310-82517-9	MW-15	Total/NA	Ground Water	7470A	
310-82517-10	DP-01	Total/NA	Ground Water	7470A	
LCS 310-130716/2-A	Lab Control Sample	Total/NA	Water	7470A	
MB 310-130716/1-A	Method Blank	Total/NA	Water	7470A	

Analysis Batch: 130862

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-130578/1-A	Method Blank	Total/NA	Water	6010C	130578

Analysis Batch: 130934

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-82517-1	MW-2	Total/NA	Ground Water	7470A	130716
310-82517-1 MS	MW-2	Total/NA	Ground Water	7470A	130716
310-82517-1 MSD	MW-2	Total/NA	Ground Water	7470A	130716
310-82517-2	MW-4	Total/NA	Ground Water	7470A	130716
310-82517-3	MW-8	Total/NA	Ground Water	7470A	130716
310-82517-4	MW-10	Total/NA	Ground Water	7470A	130716
310-82517-5	MW-11	Total/NA	Ground Water	7470A	130716
310-82517-6	MW-12	Total/NA	Ground Water	7470A	130716
310-82517-7	MW-13	Total/NA	Ground Water	7470A	130716
310-82517-8	MW-14	Total/NA	Ground Water	7470A	130716
310-82517-9	MW-15	Total/NA	Ground Water	7470A	130716
310-82517-10	DP-01	Total/NA	Ground Water	7470A	130716
LCS 310-130716/2-A	Lab Control Sample	Total/NA	Water	7470A	130716
MB 310-130716/1-A	Method Blank	Total/NA	Water	7470A	130716

Metals (Continued)

Analysis Batch: 131040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-82517-1	MW-2	Total/NA	Ground Water	6010C	130578
310-82517-1 MS	MW-2	Total/NA	Ground Water	6010C	130578
310-82517-1 MSD	MW-2	Total/NA	Ground Water	6010C	130578
310-82517-2	MW-4	Total/NA	Ground Water	6010C	130578
310-82517-3	MW-8	Total/NA	Ground Water	6010C	130578
310-82517-4	MW-10	Total/NA	Ground Water	6010C	130578
310-82517-5	MW-11	Total/NA	Ground Water	6010C	130578
310-82517-6	MW-12	Total/NA	Ground Water	6010C	130578
310-82517-7	MW-13	Total/NA	Ground Water	6010C	130578
310-82517-8	MW-14	Total/NA	Ground Water	6010C	130578
310-82517-9	MW-15	Total/NA	Ground Water	6010C	130578
310-82517-10	DP-01	Total/NA	Ground Water	6010C	130578
LCS 310-130578/2-A	Lab Control Sample	Total/NA	Water	6010C	130578

Analysis Batch: 133568

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-82517-1	MW-2	Total/NA	Ground Water	6020A	130574
310-82517-1 MS	MW-2	Total/NA	Ground Water	6020A	130574
310-82517-1 MSD	MW-2	Total/NA	Ground Water	6020A	130574
310-82517-2	MW-4	Total/NA	Ground Water	6020A	130574
310-82517-3	MW-8	Total/NA	Ground Water	6020A	130574
310-82517-4	MW-10	Total/NA	Ground Water	6020A	130574
310-82517-5	MW-11	Total/NA	Ground Water	6020A	130574
310-82517-6	MW-12	Total/NA	Ground Water	6020A	130574
310-82517-7	MW-13	Total/NA	Ground Water	6020A	130574
310-82517-8	MW-14	Total/NA	Ground Water	6020A	130574
310-82517-9	MW-15	Total/NA	Ground Water	6020A	130574
310-82517-10	DP-01	Total/NA	Ground Water	6020A	130574
LCS 310-130574/2-A	Lab Control Sample	Total/NA	Water	6020A	130574
MB 310-130574/1-A	Method Blank	Total/NA	Water	6020A	130574

Analysis Batch: 133747

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-82517-10	DP-01	Total/NA	Ground Water	6020A	130574
MB 310-130574/1-A	Method Blank	Total/NA	Water	6020A	130574

Analysis Batch: 134329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-82517-1 MS	MW-2	Total/NA	Ground Water	6020A	130574

General Chemistry

Analysis Batch: 130486

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-82517-1	MW-2	Total/NA	Ground Water	SM 4500 H+ B	
310-82517-1 DU	MW-2	Total/NA	Ground Water	SM 4500 H+ B	
310-82517-2	MW-4	Total/NA	Ground Water	SM 4500 H+ B	
310-82517-3	MW-8	Total/NA	Ground Water	SM 4500 H+ B	
310-82517-4	MW-10	Total/NA	Ground Water	SM 4500 H+ B	
310-82517-5	MW-11	Total/NA	Ground Water	SM 4500 H+ B	

General Chemistry (Continued)

Analysis Batch: 130486 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-82517-6	MW-12	Total/NA	Ground Water	SM 4500 H+ B	
310-82517-7	MW-13	Total/NA	Ground Water	SM 4500 H+ B	
310-82517-8	MW-14	Total/NA	Ground Water	SM 4500 H+ B	
310-82517-9	MW-15	Total/NA	Ground Water	SM 4500 H+ B	
310-82517-10	DP-01	Total/NA	Ground Water	SM 4500 H+ B	
310-82517-10 DU	DP-01	Total/NA	Ground Water	SM 4500 H+ B	
LCS 310-130486/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 131082

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-82517-1	MW-2	Total/NA	Ground Water	SM 2540C	
310-82517-1 DU	MW-2	Total/NA	Ground Water	SM 2540C	
310-82517-2	MW-4	Total/NA	Ground Water	SM 2540C	
310-82517-3	MW-8	Total/NA	Ground Water	SM 2540C	
310-82517-4	MW-10	Total/NA	Ground Water	SM 2540C	
310-82517-5	MW-11	Total/NA	Ground Water	SM 2540C	
LCS 310-131082/2	Lab Control Sample	Total/NA	Water	SM 2540C	
MB 310-131082/1	Method Blank	Total/NA	Water	SM 2540C	

Analysis Batch: 131091

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-82517-6	MW-12	Total/NA	Ground Water	SM 2540C	
310-82517-7	MW-13	Total/NA	Ground Water	SM 2540C	
310-82517-7 DU	MW-13	Total/NA	Ground Water	SM 2540C	
310-82517-8	MW-14	Total/NA	Ground Water	SM 2540C	
310-82517-9	MW-15	Total/NA	Ground Water	SM 2540C	
310-82517-10	DP-01	Total/NA	Ground Water	SM 2540C	
LCS 310-131091/2	Lab Control Sample	Total/NA	Water	SM 2540C	
MB 310-131091/1	Method Blank	Total/NA	Water	SM 2540C	

Rad

Prep Batch: 256541

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-82517-1	MW-2	Total/NA	Ground Water	PrecSep-21	
310-82517-1 MS	MW-2	Total/NA	Ground Water	PrecSep-21	
310-82517-1 MSD	MW-2	Total/NA	Ground Water	PrecSep-21	
310-82517-2	MW-4	Total/NA	Ground Water	PrecSep-21	
310-82517-3	MW-8	Total/NA	Ground Water	PrecSep-21	
310-82517-4	MW-10	Total/NA	Ground Water	PrecSep-21	
310-82517-5	MW-11	Total/NA	Ground Water	PrecSep-21	
310-82517-6	MW-12	Total/NA	Ground Water	PrecSep-21	
310-82517-7	MW-13	Total/NA	Ground Water	PrecSep-21	
310-82517-8	MW-14	Total/NA	Ground Water	PrecSep-21	
310-82517-9	MW-15	Total/NA	Ground Water	PrecSep-21	
310-82517-10	DP-01	Total/NA	Ground Water	PrecSep-21	
LCS 160-256541/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
MB 160-256541/1-A	Method Blank	Total/NA	Water	PrecSep-21	

Rad (Continued)

Prep Batch: 256569

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-82517-1	MW-2	Total/NA	Ground Water	PrecSep_0	
310-82517-1 MS	MW-2	Total/NA	Ground Water	PrecSep_0	
310-82517-1 MSD	MW-2	Total/NA	Ground Water	PrecSep_0	
310-82517-2	MW-4	Total/NA	Ground Water	PrecSep_0	
310-82517-3	MW-8	Total/NA	Ground Water	PrecSep_0	
310-82517-4	MW-10	Total/NA	Ground Water	PrecSep_0	
310-82517-5	MW-11	Total/NA	Ground Water	PrecSep_0	
310-82517-6	MW-12	Total/NA	Ground Water	PrecSep_0	
310-82517-7	MW-13	Total/NA	Ground Water	PrecSep_0	
310-82517-8	MW-14	Total/NA	Ground Water	PrecSep_0	
310-82517-9	MW-15	Total/NA	Ground Water	PrecSep_0	
310-82517-10	DP-01	Total/NA	Ground Water	PrecSep_0	
LCS 160-256569/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
MB 160-256569/1-A	Method Blank	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-82517-1
SDG: 11114654-CCR16

Client Sample ID: MW-2

Date Collected: 06/06/16 14:27
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-1
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	130647	06/10/16 11:22	AJG	TAL CF
Total/NA	Prep	3010A			130578	06/13/16 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	131040	06/14/16 15:51	OAD	TAL CF
Total/NA	Prep	3010A			130574	06/13/16 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	133568	07/10/16 00:22	OAD	TAL CF
Total/NA	Prep	7470A			130716	06/13/16 09:23	SAD	TAL CF
Total/NA	Analysis	7470A		1	130934	06/14/16 13:01	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	131082	06/15/16 11:28	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	130486	06/09/16 22:15	JMH	TAL CF
Total/NA	Prep	PrecSep-21			256541	06/15/16 14:42	MCJ	TAL SL
Total/NA	Analysis	9315		1	259552	07/07/16 11:32	RTM	TAL SL
Total/NA	Prep	PrecSep_0			256569	06/15/16 16:07	MCJ	TAL SL
Total/NA	Analysis	9320		1	258661	06/30/16 12:36	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	259792	07/08/16 20:20	RTM	TAL SL

Client Sample ID: MW-4

Date Collected: 06/06/16 13:41
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-2
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		20	131097	06/14/16 11:18	AJG	TAL CF
Total/NA	Analysis	9056A		5	130647	06/10/16 11:22	AJG	TAL CF
Total/NA	Prep	3010A			130578	06/13/16 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	131040	06/14/16 16:00	OAD	TAL CF
Total/NA	Prep	3010A			130574	06/13/16 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	133568	07/10/16 00:31	OAD	TAL CF
Total/NA	Prep	7470A			130716	06/13/16 09:23	SAD	TAL CF
Total/NA	Analysis	7470A		1	130934	06/14/16 13:06	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	131082	06/15/16 11:28	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	130486	06/09/16 22:17	JMH	TAL CF
Total/NA	Prep	PrecSep-21			256541	06/15/16 14:42	MCJ	TAL SL
Total/NA	Analysis	9315		1	259552	07/07/16 11:33	RTM	TAL SL
Total/NA	Prep	PrecSep_0			256569	06/15/16 16:07	MCJ	TAL SL
Total/NA	Analysis	9320		1	258661	06/30/16 12:36	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	259792	07/08/16 20:20	RTM	TAL SL

Client Sample ID: MW-8

Date Collected: 06/06/16 16:00
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-3
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		20	131097	06/14/16 11:18	AJG	TAL CF

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-82517-1
SDG: 11114654-CCR16

Client Sample ID: MW-8

Date Collected: 06/06/16 16:00
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-3
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	130647	06/10/16 11:22	AJG	TAL CF
Total/NA	Prep	3010A			130578	06/13/16 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	131040	06/14/16 16:02	OAD	TAL CF
Total/NA	Prep	3010A			130574	06/13/16 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	133568	07/10/16 00:34	OAD	TAL CF
Total/NA	Prep	7470A			130716	06/13/16 09:23	SAD	TAL CF
Total/NA	Analysis	7470A		1	130934	06/14/16 13:08	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	131082	06/15/16 11:28	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	130486	06/09/16 22:18	JMH	TAL CF
Total/NA	Prep	PrecSep-21			256541	06/15/16 14:42	MCJ	TAL SL
Total/NA	Analysis	9315		1	259552	07/07/16 11:33	RTM	TAL SL
Total/NA	Prep	PrecSep_0			256569	06/15/16 16:07	MCJ	TAL SL
Total/NA	Analysis	9320		1	258661	06/30/16 12:36	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	259792	07/08/16 20:20	RTM	TAL SL

Client Sample ID: MW-10

Date Collected: 06/06/16 16:36
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-4
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	130647	06/10/16 11:22	AJG	TAL CF
Total/NA	Prep	3010A			130578	06/13/16 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	131040	06/14/16 16:04	OAD	TAL CF
Total/NA	Prep	3010A			130574	06/13/16 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	133568	07/10/16 00:37	OAD	TAL CF
Total/NA	Prep	7470A			130716	06/13/16 09:23	SAD	TAL CF
Total/NA	Analysis	7470A		1	130934	06/14/16 13:09	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	131082	06/15/16 11:28	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	130486	06/09/16 22:19	JMH	TAL CF
Total/NA	Prep	PrecSep-21			256541	06/15/16 14:42	MCJ	TAL SL
Total/NA	Analysis	9315		1	259552	07/07/16 11:33	RTM	TAL SL
Total/NA	Prep	PrecSep_0			256569	06/15/16 16:07	MCJ	TAL SL
Total/NA	Analysis	9320		1	258661	06/30/16 12:36	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	259792	07/08/16 20:20	RTM	TAL SL

Client Sample ID: MW-11

Date Collected: 06/06/16 10:59
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-5
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	130647	06/10/16 11:22	AJG	TAL CF
Total/NA	Prep	3010A			130578	06/13/16 10:00	JNR	TAL CF

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-82517-1
SDG: 11114654-CCR16

Client Sample ID: MW-11

Date Collected: 06/06/16 10:59
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010C		1	131040	06/14/16 16:06	OAD	TAL CF
Total/NA	Prep	3010A			130574	06/13/16 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	133568	07/10/16 00:40	OAD	TAL CF
Total/NA	Prep	7470A			130716	06/13/16 09:23	SAD	TAL CF
Total/NA	Analysis	7470A		1	130934	06/14/16 13:11	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	131082	06/15/16 11:28	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	130486	06/09/16 22:19	JMH	TAL CF
Total/NA	Prep	PrecSep-21			256541	06/15/16 14:42	MCJ	TAL SL
Total/NA	Analysis	9315		1	259552	07/07/16 11:33	RTM	TAL SL
Total/NA	Prep	PrecSep_0			256569	06/15/16 16:07	MCJ	TAL SL
Total/NA	Analysis	9320		1	258661	06/30/16 12:36	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	259792	07/08/16 20:20	RTM	TAL SL

Client Sample ID: MW-12

Date Collected: 06/06/16 10:17
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-6

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		20	131097	06/14/16 11:18	AJG	TAL CF
Total/NA	Analysis	9056A		5	130647	06/10/16 11:22	AJG	TAL CF
Total/NA	Prep	3010A			130578	06/13/16 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	131040	06/14/16 16:08	OAD	TAL CF
Total/NA	Prep	3010A			130574	06/13/16 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	133568	07/10/16 00:43	OAD	TAL CF
Total/NA	Prep	7470A			130716	06/13/16 09:23	SAD	TAL CF
Total/NA	Analysis	7470A		1	130934	06/14/16 13:16	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	131091	06/15/16 11:32	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	130486	06/09/16 22:21	JMH	TAL CF
Total/NA	Prep	PrecSep-21			256541	06/15/16 14:42	MCJ	TAL SL
Total/NA	Analysis	9315		1	259552	07/07/16 11:33	RTM	TAL SL
Total/NA	Prep	PrecSep_0			256569	06/15/16 16:07	MCJ	TAL SL
Total/NA	Analysis	9320		1	258661	06/30/16 12:36	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	259792	07/08/16 20:20	RTM	TAL SL

Client Sample ID: MW-13

Date Collected: 06/06/16 09:40
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-7

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		20	131097	06/14/16 11:18	AJG	TAL CF
Total/NA	Analysis	9056A		5	130647	06/10/16 11:22	AJG	TAL CF
Total/NA	Prep	3010A			130578	06/13/16 10:00	JNR	TAL CF

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-82517-1
SDG: 11114654-CCR16

Client Sample ID: MW-13

Date Collected: 06/06/16 09:40
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-7
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010C		1	131040	06/14/16 16:10	OAD	TAL CF
Total/NA	Prep	3010A			130574	06/13/16 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	133568	07/10/16 00:56	OAD	TAL CF
Total/NA	Prep	7470A			130716	06/13/16 09:23	SAD	TAL CF
Total/NA	Analysis	7470A		1	130934	06/14/16 13:18	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	131091	06/15/16 11:32	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	130486	06/09/16 22:22	JMH	TAL CF
Total/NA	Prep	PrecSep-21			256541	06/15/16 14:42	MCJ	TAL SL
Total/NA	Analysis	9315		1	259552	07/07/16 11:33	RTM	TAL SL
Total/NA	Prep	PrecSep_0			256569	06/15/16 16:07	MCJ	TAL SL
Total/NA	Analysis	9320		1	258661	06/30/16 12:36	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	259792	07/08/16 20:20	RTM	TAL SL

Client Sample ID: MW-14

Date Collected: 06/06/16 11:42
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-8
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		20	131097	06/14/16 11:18	AJG	TAL CF
Total/NA	Analysis	9056A		5	130647	06/10/16 11:22	AJG	TAL CF
Total/NA	Prep	3010A			130578	06/13/16 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	131040	06/14/16 16:13	OAD	TAL CF
Total/NA	Prep	3010A			130574	06/13/16 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	133568	07/10/16 00:59	OAD	TAL CF
Total/NA	Prep	7470A			130716	06/13/16 09:23	SAD	TAL CF
Total/NA	Analysis	7470A		1	130934	06/14/16 13:19	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	131091	06/15/16 11:32	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	130486	06/09/16 22:23	JMH	TAL CF
Total/NA	Prep	PrecSep-21			256541	06/15/16 14:42	MCJ	TAL SL
Total/NA	Analysis	9315		1	259552	07/07/16 11:33	RTM	TAL SL
Total/NA	Prep	PrecSep_0			256569	06/15/16 16:07	MCJ	TAL SL
Total/NA	Analysis	9320		1	258661	06/30/16 12:37	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	259792	07/08/16 20:20	RTM	TAL SL

Client Sample ID: MW-15

Date Collected: 06/06/16 15:21
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-9
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		20	131097	06/14/16 11:18	AJG	TAL CF
Total/NA	Analysis	9056A		5	130647	06/10/16 11:22	AJG	TAL CF
Total/NA	Prep	3010A			130578	06/13/16 10:00	JNR	TAL CF

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-82517-1
SDG: 11114654-CCR16

Client Sample ID: MW-15

Date Collected: 06/06/16 15:21
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-9
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010C		1	131040	06/14/16 16:15	OAD	TAL CF
Total/NA	Prep	3010A			130574	06/13/16 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	133568	07/10/16 01:02	OAD	TAL CF
Total/NA	Prep	7470A			130716	06/13/16 09:23	SAD	TAL CF
Total/NA	Analysis	7470A		1	130934	06/14/16 13:21	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	131091	06/15/16 11:32	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	130486	06/09/16 22:24	JMH	TAL CF
Total/NA	Prep	PrecSep-21			256541	06/15/16 14:42	MCJ	TAL SL
Total/NA	Analysis	9315		1	259552	07/07/16 11:33	RTM	TAL SL
Total/NA	Prep	PrecSep_0			256569	06/15/16 16:07	MCJ	TAL SL
Total/NA	Analysis	9320		1	258661	06/30/16 12:37	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	259792	07/08/16 20:20	RTM	TAL SL

Client Sample ID: DP-01

Date Collected: 06/06/16 00:00
Date Received: 06/09/16 17:40

Lab Sample ID: 310-82517-10
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	130647	06/10/16 11:22	AJG	TAL CF
Total/NA	Prep	3010A			130578	06/13/16 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	131040	06/14/16 16:17	OAD	TAL CF
Total/NA	Prep	3010A			130574	06/13/16 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	133568	07/10/16 01:05	OAD	TAL CF
Total/NA	Prep	3010A			130574	06/13/16 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	133747	07/12/16 01:13	OAD	TAL CF
Total/NA	Prep	7470A			130716	06/13/16 09:23	SAD	TAL CF
Total/NA	Analysis	7470A		1	130934	06/14/16 13:22	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	131091	06/15/16 11:32	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	130486	06/09/16 22:33	JMH	TAL CF
Total/NA	Prep	PrecSep-21			256541	06/15/16 14:42	MCJ	TAL SL
Total/NA	Analysis	9315		1	259552	07/07/16 11:33	RTM	TAL SL
Total/NA	Prep	PrecSep_0			256569	06/15/16 16:07	MCJ	TAL SL
Total/NA	Analysis	9320		1	258661	06/30/16 12:37	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	259792	07/08/16 20:20	RTM	TAL SL

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401
TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Certification Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-82517-1
SDG: 11114654-CCR16

Laboratory: TestAmerica Cedar Falls

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA-LAP, LLC	IHLAP		101044	11-01-16
Georgia	State Program	4	N/A	09-29-16
Illinois	NELAP	5	200024	11-29-16
Iowa	State Program	7	007	12-01-17
Kansas	NELAP	7	E-10341	01-31-15 *
Minnesota	NELAP	5	019-999-319	12-31-16
Minnesota (Petrofund)	State Program	1	3349	08-22-16
North Dakota	State Program	8	R-186	09-29-16
Oregon	NELAP	10	IA100001	09-29-16

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	003757	11-30-16
Iowa	State Program	7	373	12-01-16
Kansas	NELAP	7	E-10236	07-31-16 *
Kentucky (DW)	State Program	4	90125	12-31-16
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-17
Louisiana (DW)	NELAP	6	LA160008	12-31-16
Maryland	State Program	3	310	09-30-16 *
Missouri	State Program	7	780	06-30-17
Nevada	State Program	9	MO000542016-1	07-31-16 *
New Jersey	NELAP	2	MO002	06-30-17
New York	NELAP	2	11616	03-31-17
North Dakota	State Program	8	R207	06-30-16 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-16 *
Pennsylvania	NELAP	3	68-00540	02-28-17 *
South Carolina	State Program	4	85002001	06-30-16 *
Texas	NELAP	6	T104704193-15-9	07-31-16 *
USDA	Federal		P330-07-00122	01-09-17
Utah	NELAP	8	MO000542015-7	07-31-16 *
Virginia	NELAP	3	460230	06-14-17
Washington	State Program	10	C592	08-30-16 *
West Virginia DEP	State Program	3	381	08-31-16 *

* Certification renewal pending - certification considered valid.

Method Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-82517-1
SDG: 11114654-CCR16

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL CF
6010C	Metals (ICP)	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CF
SM 4500 H+ B	pH	SM	TAL CF
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL

Protocol References:

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.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Des Moines

310-82517 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: Des Moines, Ia | Project:

Receipt Information

Date/Time Received: 6/9/16 1740 | Received By: JMH

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☑ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:

Condition of Cooler/Containers

Sample(s) received in Cooler?	☑ Yes ☐ No	*If yes:* Cooler ID:	AA-6
Multiple Coolers?	☐ Yes ☐ No	*If yes:* Cooler #	1 of 6
Cooler Custody Seals Present?	☑ Yes ☐ No	*If yes:* Cooler custody seals intact?	☑ Yes ☐ No
Sample Custody Seals Present?	☐ Yes ☑ No	*If yes:* Sample custody seals intact?	☐ Yes ☐ No
Trip Blank Present?	☐ Yes ☑ No	*If yes:* Which VOA samples are in cooler?	↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Temperature Blank? ☑ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: N | Correction Factor (°C): +0.1°C

Uncorrected Temp (°C): 4.6°C | Corrected Temp (°C): 4.7°C

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

MW-2, MW-8, MW-10, MW-15

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Des Moines
310503

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: Des Moines, Ia | Project:

Receipt Information

Date/Time Received: 6/9/16 1740 | Received By: JMH

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☑ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☑ Yes ☐ No *If yes:* Cooler ID: C-5

Multiple Coolers? ☑ Yes ☐ No *If yes:* Cooler # 5 of 6

Cooler Custody Seals Present? ☑ Yes ☐ No *If yes:* Cooler custody seals intact? ☑ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☑ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☑ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☑ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Temperature Blank? ☑ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: G | Correction Factor (°C): +0.2°C

Uncorrected Temp (°C): 3.0°C | Corrected Temp (°C): 3.2°C

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

MW-4, MW-12, MW-14, DP-01
MW-11, MW-13 - North Neal

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Des Moines
310503

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: Des Moines, IA | Project:

Receipt Information

Date/Time Received: 6/9/16 1740 | Received By: JMA

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☑ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☑ Yes ☐ No *If yes:* Cooler ID: E-44

Multiple Coolers? ☑ Yes ☐ No *If yes:* Cooler # 3 of 6

Cooler Custody Seals Present? ☑ Yes ☐ No *If yes:* Cooler custody seals intact? ☑ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☑ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☑ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Temperature Blank? ☑ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: JMA Gallo | Correction Factor (°C): +0.2°C

Uncorrected Temp (°C): 5.1°C | Corrected Temp (°C): 5.2°C

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

MW-11, MW-13, MW-25, MW-29, MW-217S, MW-218S

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Jim Wineland	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No: 11114654
Client Contact: Kevin Armstrong	Phone: 515 710 8336	E-Mail: shawn.hayes@testamericainc.com		Page: 1 of 1
Company: GHD Services Inc.				Job #: 11114654-CCR16-02
Address: 11228 Aurora Avenue	Due Date Requested:			
City: Des Moines	TAT Requested (days): Standard			
State, Zip: IA, 50322-7905				
Phone: 515-414-3935	PO #: 34003921			
Email: Kevin.Armstrong@ghd.com	WO #:			
Project Name: MEC Neal South Energy Center CCR	TestAmerica Project #: 31007315			
Project Number: 11114654-CCR16-01	SSOW#: 11114654-002			

Analysis Requested

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, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228	6010C, 6020A, 7470A Select List	2540C TDS	9056A Chloride, Sulfate, and Fluoride	SM4500 H+ pH	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N	N	N		
MW-2	6-6-16	1427	G	GW	N	Y	x	x	x	x	x		
MW-4		1341		GW	N	N	x	x	x	x	x		
MW-8		1600		GW	N	N	x	x	x	x	x		
MW-10		1636		GW	N	N	x	x	x	x	x		
MW-11		1059		GW	N	N	x	x	x	x	x		
MW-12		1017		GW	N	N	x	x	x	x	x		
MW-13		0940		GW	N	N	x	x	x	x	x		
MW-14		1142		GW	N	N	x	x	x	x	x		
MW-15		1521		GW	N	N	x	x	x	x	x		
DP-01	↓	—	↓	GW	N	N	x	x	x	x	x		

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

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

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Report all parameters together with Radiologicals

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Jim Wineland	6-9-16 1450	GHD		6.9.16 1450	
2		6.9.16 1450				
3					6/9/16 1740	

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW-2	310-82517-A-1	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-82517-A-1 MS	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-82517-A-1 MSD	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-82517-B-1	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-82517-B-1 MS	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-82517-B-1 MSD	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-82517-C-1	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-82517-C-1 MS	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-82517-C-1 MSD	Plastic 1 liter - Nitric Acid	<2		
MW-4	310-82517-A-2	Plastic 250ml - with Nitric Acid	<2		
MW-4	310-82517-B-2	Plastic 1 liter - Nitric Acid	<2		
MW-4	310-82517-C-2	Plastic 1 liter - Nitric Acid	<2		
MW-8	310-82517-A-3	Plastic 250ml - with Nitric Acid	<2		
MW-8	310-82517-B-3	Plastic 1 liter - Nitric Acid	<2		
MW-8	310-82517-C-3	Plastic 1 liter - Nitric Acid	<2		
MW-10	310-82517-A-4	Plastic 250ml - with Nitric Acid	<2		
MW-10	310-82517-B-4	Plastic 1 liter - Nitric Acid	<2		
MW-10	310-82517-C-4	Plastic 1 liter - Nitric Acid	<2		
MW-11	310-82517-A-5	Plastic 250ml - with Nitric Acid	<2		
MW-11	310-82517-B-5	Plastic 1 liter - Nitric Acid	<2		
MW-11	310-82517-C-5	Plastic 1 liter - Nitric Acid	<2		
MW-12	310-82517-A-6	Plastic 250ml - with Nitric Acid	<2		
MW-12	310-82517-B-6	Plastic 1 liter - Nitric Acid	<2		
MW-12	310-82517-C-6	Plastic 1 liter - Nitric Acid	<2		
MW-13	310-82517-A-7	Plastic 250ml - with Nitric Acid	<2		
MW-13	310-82517-B-7	Plastic 1 liter - Nitric Acid	<2		
MW-13	310-82517-C-7	Plastic 1 liter - Nitric Acid	<2		
MW-14	310-82517-A-8	Plastic 250ml - with Nitric Acid	<2		
MW-14	310-82517-B-8	Plastic 1 liter - Nitric Acid	<2		
MW-14	310-82517-C-8	Plastic 1 liter - Nitric Acid	<2		
MW-15	310-82517-A-9	Plastic 250ml - with Nitric Acid	<2		
MW-15	310-82517-B-9	Plastic 1 liter - Nitric Acid	<2		
MW-15	310-82517-C-9	Plastic 1 liter - Nitric Acid	<2		
DP-01	310-82517-A-10	Plastic 250ml - with Nitric Acid	<2		
DP-01	310-82517-B-10	Plastic 1 liter - Nitric Acid	<2		
DP-01	310-82517-C-10	Plastic 1 liter - Nitric Acid	<2		

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 310-82517-1
SDG Number: 11114654-CCR16

Login Number: 82517
List Number: 1
Creator: Muehling, Angela C

List Source: TestAmerica Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
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	
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 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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-82517-1
SDG: 11114654-CCR16

Method: 9315 - Radium-226 (GFPC)

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
		Ba							
Lab Sample ID	Client Sample ID	(40-110)							
310-82517-1	MW-2	87.2							
310-82517-1 MS	MW-2	87.2							
310-82517-1 MSD	MW-2	85.5							
310-82517-2	MW-4	70.7							
310-82517-3	MW-8	82.6							
310-82517-4	MW-10	77.5							
310-82517-5	MW-11	69.5							
310-82517-6	MW-12	83.5							
310-82517-7	MW-13	82.6							
310-82517-8	MW-14	80.3							
310-82517-9	MW-15	80.9							
310-82517-10	DP-01	80.9							

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9315 - Radium-226 (GFPC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
		Ba							
Lab Sample ID	Client Sample ID	(40-110)							
LCS 160-256541/2-A	Lab Control Sample	86.0							
MB 160-256541/1-A	Method Blank	88.6							

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
		Ba	Y						
Lab Sample ID	Client Sample ID	(40-110)	(40-110)						
310-82517-1	MW-2	87.2	89.0						
310-82517-1 MS	MW-2	87.2	90.5						
310-82517-1 MSD	MW-2	85.5	91.2						
310-82517-2	MW-4	70.7	89.7						
310-82517-3	MW-8	82.6	89.7						
310-82517-4	MW-10	77.5	89.7						
310-82517-5	MW-11	69.5	92.0						
310-82517-6	MW-12	83.5	90.8						
310-82517-7	MW-13	82.6	87.1						
310-82517-8	MW-14	80.3	88.6						
310-82517-9	MW-15	80.9	89.0						
310-82517-10	DP-01	80.9	90.8						

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

Tracer/Carrier Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR

TestAmerica Job ID: 310-82517-1
SDG: 11114654-CCR16

Method: 9320 - Radium-228 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)									
		Ba	Y								
Lab Sample ID	Client Sample ID	(40-110)	(40-110)								
LCS 160-256569/2-A	Lab Control Sample	86.0	89.7								
MB 160-256569/1-A	Method Blank	88.6	87.5								

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319)277-2401

TestAmerica Job ID: 310-89888-1
TestAmerica Sample Delivery Group: 111146554-CCR16-01
Client Project/Site: MEC Neal South Monofill Wells CCR
Revision: 1

For:
GHD Services Inc.
11228 Aurora Avenue
Des Moines, Iowa 50322-7905

Attn: Kevin Armstrong

Authorized for release by:
10/26/2016 6:11:49 PM

Shawn Hayes, Project Manager II
(319)277-2401
shawn.hayes@testamericainc.com

LINKS

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Visit us at: www.testamericainc.com

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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Job ID: 310-89888-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-89888-1

Comments
No additional comments.

Receipt
The samples were received on 9/22/2016 9:35 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.1º C.

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

Job ID: 310-90051-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-90051-1

Comments
No additional comments.

Receipt
The samples were received on 9/23/2016 6:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.6º C and 4.9º C.

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

Job ID: 310-90051-2

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-90051-2

RAD
Method(s) 9320: Radium-228 Prep Batch: 160-272420

The following samples have an RER (replicate error ratio) result outside of the acceptance criteria of 1 (1.58) for Ra-228. Duplicate precision is demonstrated by acceptable relative percent difference (RPD), within the limit of 40% (35%). The data have been qualified and reported. MW-2 (310-90051-1), MW-2 (310-90051-1[MS]), MW-2 (310-90051-1[MSD]), MW-4 (310-90051-2), MW-8 (310-90051-3), MW-10 (310-90051-4), MW-11 (310-90051-5), MW-12 (310-90051-6), MW-13 (310-90051-7), MW-14 (310-90051-8), MW-15 (310-90051-9), DP-01 (310-90051-10), (LCS 160-272420/2-A) and (MB 160-272420/1-A)

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

Sample Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-89888-1
SDG: 111146554-CCR16-01

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-89888-1	MW-2	Ground Water	09/20/16 09:26	09/22/16 09:35
310-89888-2	MW-4	Ground Water	09/20/16 08:18	09/22/16 09:35
310-89888-3	MW-8	Ground Water	09/19/16 17:12	09/22/16 09:35
310-89888-4	MW-10	Ground Water	09/19/16 17:55	09/22/16 09:35
310-89888-5	MW-11	Ground Water	09/20/16 10:23	09/22/16 09:35
310-89888-6	MW-12	Ground Water	09/19/16 19:24	09/22/16 09:35
310-89888-7	MW-13	Ground Water	09/19/16 18:37	09/22/16 09:35
310-89888-8	MW-14	Ground Water	09/20/16 11:06	09/22/16 09:35
310-89888-9	MW-15	Ground Water	09/19/16 16:20	09/22/16 09:35
310-89888-10	DP-01	Ground Water	09/20/16 00:00	09/22/16 09:35
310-90051-1	MW-2	Ground Water	09/20/16 09:26	09/23/16 18:00
310-90051-2	MW-4	Ground Water	09/20/16 08:18	09/23/16 18:00
310-90051-3	MW-8	Ground Water	09/19/16 17:12	09/23/16 18:00
310-90051-4	MW-10	Ground Water	09/19/16 17:55	09/23/16 18:00
310-90051-5	MW-11	Ground Water	09/20/16 10:23	09/23/16 18:00
310-90051-6	MW-12	Ground Water	09/19/16 19:24	09/23/16 18:00
310-90051-7	MW-13	Ground Water	09/19/16 18:37	09/23/16 18:00
310-90051-8	MW-14	Ground Water	09/20/16 11:06	09/23/16 18:00
310-90051-9	MW-15	Ground Water	09/19/16 16:20	09/23/16 18:00
310-90051-10	DP-01	Ground Water	09/20/16 00:00	09/23/16 18:00

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-89888-1
SDG: 111146554-CCR16-01

Client Sample ID: MW-2

Date Collected: 09/20/16 09:26
Date Received: 09/22/16 09:35

Lab Sample ID: 310-89888-1

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**11.5**		5.00		mg/L			09/26/16 20:14	5
Sulfate	**98.3**		5.00		mg/L			09/26/16 20:14	5
Fluoride	<0.500		0.500		mg/L			09/26/16 20:14	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**760**		30.0		mg/L			09/23/16 10:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.2**	**HF**	0.1		SU			09/23/16 15:42	1

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-89888-1
SDG: 111146554-CCR16-01

Client Sample ID: MW-4
Date Collected: 09/20/16 08:18
Date Received: 09/22/16 09:35

Lab Sample ID: 310-89888-2
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	20.1		5.00		mg/L			09/26/16 20:14	5
Sulfate	975		50.0		mg/L			09/27/16 16:06	50
Fluoride	<0.500		0.500		mg/L			09/26/16 20:14	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2310		150		mg/L			09/23/16 10:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.8	HF	0.1		SU			09/23/16 15:44	1

Client Sample ID: MW-8

Date Collected: 09/19/16 17:12
Date Received: 09/22/16 09:35

Lab Sample ID: 310-89888-3

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			09/26/16 20:14	5
Sulfate	**803**		50.0		mg/L			09/27/16 16:06	50
Fluoride	<0.500		0.500		mg/L			09/26/16 20:14	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1730**		60.0		mg/L			09/23/16 10:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.4**	**HF**	0.1		SU			09/23/16 15:45	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-89888-1
SDG: 111146554-CCR16-01

Client Sample ID: MW-10

Date Collected: 09/19/16 17:55
Date Received: 09/22/16 09:35

Lab Sample ID: 310-89888-4

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.59**		5.00		mg/L			09/26/16 20:14	5
Sulfate	**98.2**		5.00		mg/L			09/26/16 20:14	5
Fluoride	<0.500		0.500		mg/L			09/26/16 20:14	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**948**		30.0		mg/L			09/23/16 10:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.3**	**HF**	0.1		SU			09/23/16 15:46	1

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-89888-1
SDG: 111146554-CCR16-01

Client Sample ID: MW-11
Date Collected: 09/20/16 10:23
Date Received: 09/22/16 09:35

Lab Sample ID: 310-89888-5
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16.8		5.00		mg/L			09/26/16 20:14	5
Sulfate	352		50.0		mg/L			09/27/16 16:07	50
Fluoride	<0.500		0.500		mg/L			09/26/16 20:14	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1300		30.0		mg/L			09/23/16 10:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.1	HF	0.1		SU			09/23/16 15:47	1

Client Sample ID: MW-12

Date Collected: 09/19/16 19:24
Date Received: 09/22/16 09:35

Lab Sample ID: 310-89888-6

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**86.3**		5.00		mg/L			09/26/16 15:28	5
Sulfate	**526**		50.0		mg/L			09/27/16 16:06	50
Fluoride	<0.500		0.500		mg/L			09/26/16 15:28	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1440**		60.0		mg/L			09/23/16 10:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.2**	**HF**	0.1		SU			09/23/16 15:47	1

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-89888-1
SDG: 111146554-CCR16-01

Client Sample ID: MW-13
Date Collected: 09/19/16 18:37
Date Received: 09/22/16 09:35

Lab Sample ID: 310-89888-7
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	15.7		5.00		mg/L			09/26/16 15:28	5
Sulfate	344		50.0		mg/L			09/27/16 16:06	50
Fluoride	<0.500		0.500		mg/L			09/26/16 15:28	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1270		60.0		mg/L			09/23/16 10:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.1	HF	0.1		SU			09/23/16 15:48	1

Client Sample ID: MW-14

Date Collected: 09/20/16 11:06
Date Received: 09/22/16 09:35

Lab Sample ID: 310-89888-8

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.47**		5.00		mg/L			09/26/16 15:28	5
Sulfate	**324**		50.0		mg/L			09/27/16 16:06	50
Fluoride	<0.500		0.500		mg/L			09/26/16 15:28	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1300**		60.0		mg/L			09/23/16 10:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.0**	**HF**	0.1		SU			09/23/16 15:50	1

Client Sample ID: MW-15

Date Collected: 09/19/16 16:20
Date Received: 09/22/16 09:35

Lab Sample ID: 310-89888-9

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			09/26/16 15:28	5
Sulfate	**520**		50.0		mg/L			09/27/16 16:06	50
Fluoride	<0.500		0.500		mg/L			09/26/16 15:28	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1570**		60.0		mg/L			09/23/16 10:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.9**	**HF**	0.1		SU			09/23/16 15:50	1

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-89888-1
SDG: 111146554-CCR16-01

Client Sample ID: DP-01
Date Collected: 09/20/16 00:00
Date Received: 09/22/16 09:35

Lab Sample ID: 310-89888-10
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**17.8**		5.00		mg/L			09/26/16 15:28	5
Sulfate	**349**		50.0		mg/L			09/27/16 16:06	50
Fluoride	<0.500		0.500		mg/L			09/26/16 15:28	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1260**		60.0		mg/L			09/23/16 10:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.3**	**HF**	0.1		SU			09/23/16 16:05	1

Client Sample ID: MW-2

Date Collected: 09/20/16 09:26
Date Received: 09/23/16 18:00

Lab Sample ID: 310-90051-1

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0889**		0.0500		mg/L		09/27/16 10:00	09/27/16 20:19	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 14:21	1
Arsenic	**0.0539**		0.00200		mg/L		09/27/16 10:00	09/30/16 14:21	1
Barium	**0.125**		0.00200		mg/L		09/27/16 10:00	09/30/16 14:21	1
Beryllium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 14:21	1
Boron	**1.11**		0.200		mg/L		09/27/16 10:00	09/30/16 14:21	1
Cadmium	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 14:21	1
Calcium	**171**		0.200		mg/L		09/27/16 10:00	09/30/16 14:21	1
Chromium	<0.00500		0.00500		mg/L		09/27/16 10:00	09/30/16 14:21	1
Cobalt	**0.00175**		0.000500		mg/L		09/27/16 10:00	09/30/16 14:21	1
Lead	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 14:21	1
Molybdenum	**0.00242**		0.00200		mg/L		09/27/16 10:00	09/30/16 14:21	1
Selenium	<0.00500		0.00500		mg/L		09/27/16 10:00	09/30/16 14:21	1
Thallium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 14:21	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200	F1	0.000200		mg/L		09/26/16 10:41	09/27/16 11:19	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.234**		0.0871	0.0896	1.00	0.0963	pCi/L	09/29/16 14:38	10/21/16 09:28	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.9*		*40 - 110*	*09/29/16 14:38*	*10/21/16 09:28*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.341	U F	0.283	0.285	1.00	0.453	pCi/L	09/29/16 16:20	10/17/16 14:16	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.9*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:16*	*1*
Y Carrier	*88.6*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:16*	*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	**0.575**		0.296	0.299	5.00	0.453	pCi/L		10/24/16 09:50	1

Client Sample ID: MW-4

Date Collected: 09/20/16 08:18
Date Received: 09/23/16 18:00

Lab Sample ID: 310-90051-2

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.195**		0.0500		mg/L		09/27/16 10:00	09/27/16 20:31	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 14:34	1
Arsenic	<0.00200		0.00200		mg/L		09/27/16 10:00	09/30/16 14:34	1
Barium	**0.0364**		0.00200		mg/L		09/27/16 10:00	09/30/16 14:34	1
Beryllium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 14:34	1
Boron	**1.49**		0.200		mg/L		09/27/16 10:00	09/30/16 14:34	1
Cadmium	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 14:34	1
Calcium	**378**		0.200		mg/L		09/27/16 10:00	09/30/16 14:34	1
Chromium	<0.00500		0.00500		mg/L		09/27/16 10:00	09/30/16 14:34	1
Cobalt	**0.0104**		0.000500		mg/L		09/27/16 10:00	09/30/16 14:34	1
Lead	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 14:34	1
Molybdenum	<0.00200		0.00200		mg/L		09/27/16 10:00	09/30/16 14:34	1
Selenium	<0.00500		0.00500		mg/L		09/27/16 10:00	09/30/16 14:34	1
Thallium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 14:34	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/26/16 10:41	09/27/16 11:24	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.147**		0.0748	0.0760	1.00	0.0939	pCi/L	09/29/16 14:38	10/21/16 09:29	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.0*		*40 - 110*	*09/29/16 14:38*	*10/21/16 09:29*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.682**	**F**	0.296	0.302	1.00	0.424	pCi/L	09/29/16 16:20	10/17/16 14:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.0*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:10*	*1*
Y Carrier	*86.7*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:10*	*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	**0.829**		0.305	0.312	5.00	0.424	pCi/L		10/24/16 09:50	1

Client Sample ID: MW-8

Date Collected: 09/19/16 17:12
Date Received: 09/23/16 18:00

Lab Sample ID: 310-90051-3

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.0500		0.0500		mg/L		09/27/16 10:00	09/27/16 20:33	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 14:37	1
Arsenic	<0.00200		0.00200		mg/L		09/27/16 10:00	09/30/16 14:37	1
Barium	**0.0731**		0.00200		mg/L		09/27/16 10:00	09/30/16 14:37	1
Beryllium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 14:37	1
Boron	**4.91**		1.00		mg/L		09/27/16 10:00	09/30/16 15:11	5
Cadmium	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 14:37	1
Calcium	**187**		0.200		mg/L		09/27/16 10:00	09/30/16 14:37	1
Chromium	<0.00500		0.00500		mg/L		09/27/16 10:00	09/30/16 14:37	1
Cobalt	**0.00248**		0.000500		mg/L		09/27/16 10:00	09/30/16 14:37	1
Lead	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 14:37	1
Molybdenum	**0.143**		0.00200		mg/L		09/27/16 10:00	09/30/16 14:37	1
Selenium	**0.0672**		0.00500		mg/L		09/27/16 10:00	09/30/16 14:37	1
Thallium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 14:37	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/26/16 10:41	09/27/16 11:25	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.251**		0.0998	0.102	1.00	0.117	pCi/L	09/29/16 14:38	10/21/16 09:29	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*75.8*		*40 - 110*	*09/29/16 14:38*	*10/21/16 09:29*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.390	U F	0.275	0.277	1.00	0.426	pCi/L	09/29/16 16:20	10/17/16 14:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*75.8*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:10*	*1*
Y Carrier	*86.4*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:10*	*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	**0.641**		0.293	0.296	5.00	0.426	pCi/L		10/24/16 09:50	1

Client Sample ID: MW-10

Date Collected: 09/19/16 17:55
Date Received: 09/23/16 18:00

Lab Sample ID: 310-90051-4

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0958**		0.0500		mg/L		09/27/16 10:00	09/27/16 20:35	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 14:49	1
Arsenic	**0.00489**		0.00200		mg/L		09/27/16 10:00	09/30/16 14:49	1
Barium	**0.255**		0.00200		mg/L		09/27/16 10:00	09/30/16 14:49	1
Beryllium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 14:49	1
Boron	**0.953**		0.200		mg/L		09/27/16 10:00	09/30/16 14:49	1
Cadmium	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 14:49	1
Calcium	**162**		0.200		mg/L		09/27/16 10:00	09/30/16 14:49	1
Chromium	<0.00500		0.00500		mg/L		09/27/16 10:00	09/30/16 14:49	1
Cobalt	**0.00262**		0.000500		mg/L		09/27/16 10:00	09/30/16 14:49	1
Lead	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 14:49	1
Molybdenum	**0.00292**		0.00200		mg/L		09/27/16 10:00	09/30/16 14:49	1
Selenium	<0.00500		0.00500		mg/L		09/27/16 10:00	09/30/16 14:49	1
Thallium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 14:49	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/26/16 10:41	09/27/16 11:27	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.252**		0.106	0.108	1.00	0.137	pCi/L	09/29/16 14:38	10/21/16 09:29	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.8*		*40 - 110*	*09/29/16 14:38*	*10/21/16 09:29*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.278	U F	0.225	0.226	1.00	0.355	pCi/L	09/29/16 16:20	10/17/16 14:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.8*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:10*	*1*
Y Carrier	*88.6*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:10*	*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	**0.530**		0.249	0.251	5.00	0.355	pCi/L		10/24/16 09:50	1

Client Sample ID: MW-11

Date Collected: 09/20/16 10:23
Date Received: 09/23/16 18:00

Lab Sample ID: 310-90051-5

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.136**		0.0500		mg/L		09/27/16 10:00	09/27/16 20:37	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 14:52	1
Arsenic	<0.00200		0.00200		mg/L		09/27/16 10:00	09/30/16 14:52	1
Barium	**0.0827**		0.00200		mg/L		09/27/16 10:00	09/30/16 14:52	1
Beryllium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 14:52	1
Boron	**0.602**		0.200		mg/L		09/27/16 10:00	09/30/16 14:52	1
Cadmium	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 14:52	1
Calcium	**279**		0.200		mg/L		09/27/16 10:00	09/30/16 14:52	1
Chromium	<0.00500		0.00500		mg/L		09/27/16 10:00	09/30/16 14:52	1
Cobalt	**0.00155**		0.000500		mg/L		09/27/16 10:00	09/30/16 14:52	1
Lead	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 14:52	1
Molybdenum	<0.00200		0.00200		mg/L		09/27/16 10:00	09/30/16 14:52	1
Selenium	<0.00500		0.00500		mg/L		09/27/16 10:00	09/30/16 14:52	1
Thallium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 14:52	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/26/16 10:41	09/27/16 11:28	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.124**		0.0758	0.0766	1.00	0.105	pCi/L	09/29/16 14:38	10/21/16 09:29	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.3*		*40 - 110*	*09/29/16 14:38*	*10/21/16 09:29*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0391	U F	0.264	0.264	1.00	0.463	pCi/L	09/29/16 16:20	10/17/16 14:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.3*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:10*	*1*
Y Carrier	*87.9*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:10*	*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	0.163	U	0.274	0.275	5.00	0.463	pCi/L		10/24/16 09:50	1

Client Sample ID: MW-12

Date Collected: 09/19/16 19:24
Date Received: 09/23/16 18:00

Lab Sample ID: 310-90051-6

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0871**		0.0500		mg/L		09/27/16 10:00	09/27/16 20:39	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 14:55	1
Arsenic	<0.00200		0.00200		mg/L		09/27/16 10:00	09/30/16 14:55	1
Barium	**0.0509**		0.00200		mg/L		09/27/16 10:00	09/30/16 14:55	1
Beryllium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 14:55	1
Boron	**4.81**		1.00		mg/L		09/27/16 10:00	09/30/16 15:14	5
Cadmium	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 14:55	1
Calcium	**225**		0.200		mg/L		09/27/16 10:00	09/30/16 14:55	1
Chromium	<0.00500		0.00500		mg/L		09/27/16 10:00	09/30/16 14:55	1
Cobalt	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 14:55	1
Lead	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 14:55	1
Molybdenum	<0.00200		0.00200		mg/L		09/27/16 10:00	09/30/16 14:55	1
Selenium	**0.0766**		0.00500		mg/L		09/27/16 10:00	09/30/16 14:55	1
Thallium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 14:55	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/26/16 10:41	09/27/16 11:30	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0591	U	0.0638	0.0641	1.00	0.103	pCi/L	09/29/16 14:38	10/21/16 09:29	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*86.0*		*40 - 110*	*09/29/16 14:38*	*10/21/16 09:29*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.685**	**F**	0.269	0.276	1.00	0.368	pCi/L	09/29/16 16:20	10/17/16 14:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*86.0*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:10*	*1*
Y Carrier	*86.4*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:10*	*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	**0.744**		0.276	0.284	5.00	0.368	pCi/L		10/24/16 09:50	1

Client Sample ID: MW-13

Date Collected: 09/19/16 18:37
Date Received: 09/23/16 18:00

Lab Sample ID: 310-90051-7

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.121**		0.0500		mg/L		09/27/16 10:00	09/27/16 20:41	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 14:58	1
Arsenic	<0.00200		0.00200		mg/L		09/27/16 10:00	09/30/16 14:58	1
Barium	**0.0418**		0.00200		mg/L		09/27/16 10:00	09/30/16 14:58	1
Beryllium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 14:58	1
Boron	**1.60**		0.200		mg/L		09/27/16 10:00	09/30/16 14:58	1
Cadmium	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 14:58	1
Calcium	**262**		0.200		mg/L		09/27/16 10:00	09/30/16 14:58	1
Chromium	<0.00500		0.00500		mg/L		09/27/16 10:00	09/30/16 14:58	1
Cobalt	**0.00103**		0.000500		mg/L		09/27/16 10:00	09/30/16 14:58	1
Lead	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 14:58	1
Molybdenum	<0.00200		0.00200		mg/L		09/27/16 10:00	09/30/16 14:58	1
Selenium	**0.0258**		0.00500		mg/L		09/27/16 10:00	09/30/16 14:58	1
Thallium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 14:58	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/26/16 10:41	09/27/16 11:31	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.122	U	0.0913	0.0920	1.00	0.137	pCi/L	09/29/16 14:38	10/21/16 09:30	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*71.5*		*40 - 110*	*09/29/16 14:38*	*10/21/16 09:30*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0922	U F	0.275	0.275	1.00	0.479	pCi/L	09/29/16 16:20	10/17/16 14:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*71.5*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:10*	*1*
Y Carrier	*86.7*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:10*	*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	0.214	U	0.290	0.290	5.00	0.479	pCi/L		10/24/16 09:50	1

Client Sample ID: MW-14

Date Collected: 09/20/16 11:06
Date Received: 09/23/16 18:00

Lab Sample ID: 310-90051-8

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.152**		0.0500		mg/L		09/27/16 10:00	09/27/16 20:43	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 15:02	1
Arsenic	<0.00200		0.00200		mg/L		09/27/16 10:00	09/30/16 15:02	1
Barium	**0.0656**		0.00200		mg/L		09/27/16 10:00	09/30/16 15:02	1
Beryllium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 15:02	1
Boron	**1.47**		0.200		mg/L		09/27/16 10:00	09/30/16 15:02	1
Cadmium	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 15:02	1
Calcium	**246**		0.200		mg/L		09/27/16 10:00	09/30/16 15:02	1
Chromium	<0.00500		0.00500		mg/L		09/27/16 10:00	09/30/16 15:02	1
Cobalt	**0.00259**		0.000500		mg/L		09/27/16 10:00	09/30/16 15:02	1
Lead	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 15:02	1
Molybdenum	<0.00200		0.00200		mg/L		09/27/16 10:00	09/30/16 15:02	1
Selenium	**0.0289**		0.00500		mg/L		09/27/16 10:00	09/30/16 15:02	1
Thallium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 15:02	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/26/16 10:41	09/27/16 11:33	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.340**		0.0992	0.104	1.00	0.0885	pCi/L	09/29/16 14:38	10/21/16 09:30	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.5*		*40 - 110*	*09/29/16 14:38*	*10/21/16 09:30*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.539**	**F**	0.265	0.269	1.00	0.389	pCi/L	09/29/16 16:20	10/17/16 14:11	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.5*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:11*	*1*
Y Carrier	*87.5*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:11*	*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	**0.879**		0.283	0.289	5.00	0.389	pCi/L		10/24/16 09:50	1

Client Sample ID: MW-15

Date Collected: 09/19/16 16:20
Date Received: 09/23/16 18:00

Lab Sample ID: 310-90051-9

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0701**		0.0500		mg/L		09/27/16 10:00	09/27/16 20:45	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 15:05	1
Arsenic	<0.00200		0.00200		mg/L		09/27/16 10:00	09/30/16 15:05	1
Barium	**0.0453**		0.00200		mg/L		09/27/16 10:00	09/30/16 15:05	1
Beryllium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 15:05	1
Boron	**2.69**		0.200		mg/L		09/27/16 10:00	09/30/16 15:05	1
Cadmium	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 15:05	1
Calcium	**256**		0.200		mg/L		09/27/16 10:00	09/30/16 15:05	1
Chromium	<0.00500		0.00500		mg/L		09/27/16 10:00	09/30/16 15:05	1
Cobalt	**0.00213**		0.000500		mg/L		09/27/16 10:00	09/30/16 15:05	1
Lead	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 15:05	1
Molybdenum	<0.00200		0.00200		mg/L		09/27/16 10:00	09/30/16 15:05	1
Selenium	<0.00500		0.00500		mg/L		09/27/16 10:00	09/30/16 15:05	1
Thallium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 15:05	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/26/16 10:41	09/27/16 11:38	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.175**		0.0770	0.0786	1.00	0.0896	pCi/L	09/29/16 14:38	10/21/16 09:31	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.5*		*40 - 110*	*09/29/16 14:38*	*10/21/16 09:31*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.107	U F	0.218	0.218	1.00	0.373	pCi/L	09/29/16 16:20	10/17/16 14:11	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.5*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:11*	*1*
Y Carrier	*86.0*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:11*	*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	0.282	U	0.231	0.232	5.00	0.373	pCi/L		10/24/16 09:50	1

Client Sample ID: DP-01

Date Collected: 09/20/16 00:00
Date Received: 09/23/16 18:00

Lab Sample ID: 310-90051-10

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.131**		0.0500		mg/L		09/27/16 10:00	09/27/16 20:51	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 15:08	1
Arsenic	<0.00200		0.00200		mg/L		09/27/16 10:00	09/30/16 15:08	1
Barium	**0.0795**		0.00200		mg/L		09/27/16 10:00	09/30/16 15:08	1
Beryllium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 15:08	1
Boron	**0.583**		0.200		mg/L		09/27/16 10:00	09/30/16 15:08	1
Cadmium	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 15:08	1
Calcium	**272**		0.200		mg/L		09/27/16 10:00	09/30/16 15:08	1
Chromium	<0.00500		0.00500		mg/L		09/27/16 10:00	09/30/16 15:08	1
Cobalt	**0.00163**		0.000500		mg/L		09/27/16 10:00	09/30/16 15:08	1
Lead	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 15:08	1
Molybdenum	<0.00200		0.00200		mg/L		09/27/16 10:00	09/30/16 15:08	1
Selenium	<0.00500		0.00500		mg/L		09/27/16 10:00	09/30/16 15:08	1
Thallium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 15:08	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/26/16 10:41	09/27/16 11:39	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.130**		0.0711	0.0720	1.00	0.0920	pCi/L	09/29/16 14:38	10/21/16 09:31	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.5*		*40 - 110*	*09/29/16 14:38*	*10/21/16 09:31*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.159	U F	0.207	0.207	1.00	0.400	pCi/L	09/29/16 16:20	10/17/16 14:11	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.5*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:11*	*1*
Y Carrier	*86.0*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:11*	*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	-0.0282	U	0.219	0.219	5.00	0.400	pCi/L		10/24/16 09:50	1

Qualifiers

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery 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.

Rad

Qualifier	Qualifier Description
F	MS/MSD Recovery and/or RPD exceeds the control limits
U	Result is less than the sample detection limit.
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)

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-142764/31
Matrix: Water
Analysis Batch: 142764

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			09/26/16 20:14	1
Sulfate	<1.00		1.00		mg/L			09/26/16 20:14	1
Fluoride	<0.100		0.100		mg/L			09/26/16 20:14	1

Lab Sample ID: LCS 310-142764/32
Matrix: Water
Analysis Batch: 142764

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.50	7.296		mg/L		97	90 - 110
Sulfate	7.50	7.254		mg/L		97	90 - 110
Fluoride	1.50	1.353		mg/L		90	90 - 110

Lab Sample ID: 310-89888-1 MS
Matrix: Ground Water
Analysis Batch: 142764

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	11.5		25.0	33.21		mg/L		87	80 - 120
Sulfate	98.3		25.0	127.4		mg/L		117	80 - 120
Fluoride	<0.500		5.00	4.484		mg/L		90	80 - 120

Lab Sample ID: 310-89888-1 MSD
Matrix: Ground Water
Analysis Batch: 142764

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	11.5		25.0	31.94		mg/L		82	80 - 120	4	15
Sulfate	98.3		25.0	122.4		mg/L		97	80 - 120	4	15
Fluoride	<0.500		5.00	4.347		mg/L		87	80 - 120	3	15

Lab Sample ID: MB 310-142769/3
Matrix: Water
Analysis Batch: 142769

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			09/26/16 15:28	1
Sulfate	<1.00		1.00		mg/L			09/26/16 15:28	1
Fluoride	<0.100		0.100		mg/L			09/26/16 15:28	1

Lab Sample ID: LCS 310-142769/4
Matrix: Water
Analysis Batch: 142769

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.50	7.440		mg/L		99	90 - 110
Sulfate	7.50	7.347		mg/L		98	90 - 110
Fluoride	1.50	1.516		mg/L		101	90 - 110

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: 310-89888-6 MS
Matrix: Ground Water
Analysis Batch: 142769

Client Sample ID: MW-12
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	86.3		25.0	109.3		mg/L		92	80 - 120
Fluoride	<0.500		5.00	4.333		mg/L		87	80 - 120

Lab Sample ID: 310-89888-6 MSD
Matrix: Ground Water
Analysis Batch: 142769

Client Sample ID: MW-12
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	86.3		25.0	109.2		mg/L		92	80 - 120	0	15
Fluoride	<0.500		5.00	4.356		mg/L		87	80 - 120	1	15

Lab Sample ID: MB 310-142873/3
Matrix: Water
Analysis Batch: 142873

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			09/27/16 16:06	1
Sulfate	<1.00		1.00		mg/L			09/27/16 16:06	1

Lab Sample ID: LCS 310-142873/4
Matrix: Water
Analysis Batch: 142873

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.50	7.314		mg/L		98	90 - 110
Sulfate	7.50	7.154		mg/L		95	90 - 110

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 310-142616/1-A
Matrix: Water
Analysis Batch: 142791

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 142616

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.0500		0.0500		mg/L		09/27/16 10:00	09/27/16 19:50	1

Lab Sample ID: LCS 310-142616/2-A
Matrix: Water
Analysis Batch: 142791

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 142616

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	2.00	1.780		mg/L		89	80 - 120

Lab Sample ID: 310-90051-1 MS
Matrix: Ground Water
Analysis Batch: 142791

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 142616

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.0889		2.00	1.928		mg/L		92	75 - 125

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

Lab Sample ID: 310-90051-1 MSD
Matrix: Ground Water
Analysis Batch: 142791

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 142616

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	0.0889		2.00	1.981		mg/L		95	75 - 125	3	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-142618/1-A
Matrix: Water
Analysis Batch: 143375

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 142618

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 13:35	1
Arsenic	<0.00200		0.00200		mg/L		09/27/16 10:00	09/30/16 13:35	1
Barium	<0.00200		0.00200		mg/L		09/27/16 10:00	09/30/16 13:35	1
Beryllium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 13:35	1
Boron	<0.200		0.200		mg/L		09/27/16 10:00	09/30/16 13:35	1
Cadmium	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 13:35	1
Calcium	<0.200		0.200		mg/L		09/27/16 10:00	09/30/16 13:35	1
Chromium	<0.00500		0.00500		mg/L		09/27/16 10:00	09/30/16 13:35	1
Cobalt	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 13:35	1
Lead	<0.000500		0.000500		mg/L		09/27/16 10:00	09/30/16 13:35	1
Molybdenum	<0.00200		0.00200		mg/L		09/27/16 10:00	09/30/16 13:35	1
Selenium	<0.00500		0.00500		mg/L		09/27/16 10:00	09/30/16 13:35	1
Thallium	<0.00100		0.00100		mg/L		09/27/16 10:00	09/30/16 13:35	1

Lab Sample ID: LCS 310-142618/2-A
Matrix: Water
Analysis Batch: 143375

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 142618

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0200	0.02017		mg/L		101	80 - 120
Arsenic	0.0400	0.04222		mg/L		106	80 - 120
Barium	0.0400	0.04150		mg/L		104	80 - 120
Beryllium	0.0200	0.02009		mg/L		100	80 - 120
Boron	0.880	0.8721		mg/L		99	80 - 120
Cadmium	0.0200	0.02056		mg/L		103	80 - 120
Calcium	2.00	2.104		mg/L		105	80 - 120
Chromium	0.0400	0.04159		mg/L		104	80 - 120
Cobalt	0.0200	0.02055		mg/L		103	80 - 120
Lead	0.0200	0.02073		mg/L		104	80 - 120
Molybdenum	0.0400	0.04159		mg/L		104	80 - 120
Selenium	0.0400	0.04155		mg/L		104	80 - 120
Thallium	0.0160	0.01515		mg/L		95	80 - 120

Lab Sample ID: 310-90051-1 MS
Matrix: Ground Water
Analysis Batch: 143375

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 142618

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.00100		0.0200	0.02013		mg/L		101	75 - 125

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

Lab Sample ID: 310-90051-1 MS
Matrix: Ground Water
Analysis Batch: 143375

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 142618

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0539		0.0400	0.09474		mg/L		102	75 - 125
Barium	0.125		0.0400	0.1620		mg/L		92	75 - 125
Beryllium	<0.00100		0.0200	0.02026		mg/L		101	75 - 125
Boron	1.11		0.880	2.113		mg/L		114	75 - 125
Cadmium	<0.000500		0.0200	0.02111		mg/L		106	75 - 125
Calcium	171		2.00	176.1	4	mg/L		259	75 - 125
Chromium	<0.00500		0.0400	0.04091		mg/L		102	75 - 125
Cobalt	0.00175		0.0200	0.02149		mg/L		99	75 - 125
Lead	<0.000500		0.0200	0.01991		mg/L		100	75 - 125
Molybdenum	0.00242		0.0400	0.04436		mg/L		105	75 - 125
Selenium	<0.00500		0.0400	0.04326		mg/L		104	75 - 125
Thallium	<0.00100		0.0160	0.01590		mg/L		99	75 - 125

Lab Sample ID: 310-90051-1 MSD
Matrix: Ground Water
Analysis Batch: 143375

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 142618

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	<0.00100		0.0200	0.02099		mg/L		105	75 - 125	4	20
Arsenic	0.0539		0.0400	0.09480		mg/L		102	75 - 125	0	20
Barium	0.125		0.0400	0.1593		mg/L		85	75 - 125	2	20
Beryllium	<0.00100		0.0200	0.02061		mg/L		103	75 - 125	2	20
Boron	1.11		0.880	2.011		mg/L		102	75 - 125	5	20
Cadmium	<0.000500		0.0200	0.02144		mg/L		107	75 - 125	2	20
Calcium	171		2.00	168.2	4	mg/L		-137	75 - 125	5	20
Chromium	<0.00500		0.0400	0.04260		mg/L		107	75 - 125	4	20
Cobalt	0.00175		0.0200	0.02207		mg/L		102	75 - 125	3	20
Lead	<0.000500		0.0200	0.02063		mg/L		103	75 - 125	4	20
Molybdenum	0.00242		0.0400	0.04588		mg/L		109	75 - 125	3	20
Selenium	<0.00500		0.0400	0.04387		mg/L		105	75 - 125	1	20
Thallium	<0.00100		0.0160	0.01648		mg/L		103	75 - 125	4	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-142561/1-A
Matrix: Water
Analysis Batch: 142732

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 142561

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/26/16 10:41	09/27/16 10:55	1

Lab Sample ID: LCS 310-142561/2-A
Matrix: Water
Analysis Batch: 142732

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 142561

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00167	0.001505		mg/L		90	80 - 120

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

Lab Sample ID: 310-90051-1 MS
Matrix: Ground Water
Analysis Batch: 142732

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 142561

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.000200	F1	0.00167	0.001280	F1	mg/L		77	80 - 120

Lab Sample ID: 310-90051-1 MSD
Matrix: Ground Water
Analysis Batch: 142732

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 142561

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.000200	F1	0.00167	0.001274	F1	mg/L		76	80 - 120	0	20

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

Lab Sample ID: MB 310-142372/1
Matrix: Water
Analysis Batch: 142372

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	<30.0		30.0		mg/L			09/23/16 10:10	1

Lab Sample ID: LCS 310-142372/2
Matrix: Water
Analysis Batch: 142372

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	1000	994.0		mg/L		99	90 - 110

Lab Sample ID: 310-89888-1 DU
Matrix: Ground Water
Analysis Batch: 142372

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	760		752.0		mg/L		1	20

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-142429/1
Matrix: Water
Analysis Batch: 142429

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	98 - 102

Lab Sample ID: LCS 310-142429/27
Matrix: Water
Analysis Batch: 142429

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	6.9		SU		99	98 - 102

Method: SM 4500 H+ B - pH (Continued)

Lab Sample ID: 310-89888-1 DU
Matrix: Ground Water
Analysis Batch: 142429

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

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.2	HF		7.2		SU				1	20

Lab Sample ID: 310-89888-10 DU
Matrix: Ground Water
Analysis Batch: 142429

Client Sample ID: DP-01
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				0.7	20

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-272400/1-A
Matrix: Water
Analysis Batch: 275510

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 272400

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.02045	U	0.0681	0.0681	1.00	0.123	pCi/L	09/29/16 14:38	10/21/16 09:28	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.2*		*40 - 110*	*09/29/16 14:38*	*10/21/16 09:28*	*1*

Lab Sample ID: LCS 160-272400/2-A
Matrix: Water
Analysis Batch: 275510

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 272400

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.1	13.62		1.34	1.00	0.116	pCi/L	123	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*99.1*		*40 - 110*

Lab Sample ID: 310-90051-1 MS
Matrix: Ground Water
Analysis Batch: 275510

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 272400

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	0.234		11.1	13.95		1.38	1.00	0.119	pCi/L	123	75 - 138		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*88.6*		*40 - 110*

Method: 9315 - Radium-226 (GFPC) (Continued)

Lab Sample ID: 310-90051-1 MSD
Matrix: Ground Water
Analysis Batch: 275510

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 272400

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.234		11.1	13.89		1.38	1.00	0.123	pCi/L	123	75 - 138	0.02	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*85.8*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-272420/1-A
Matrix: Water
Analysis Batch: 274767

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 272420

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1654	U	0.268	0.268	1.00	0.451	pCi/L	09/29/16 16:20	10/17/16 14:17	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.2*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:17*	*1*
Y Carrier	*86.4*		*40 - 110*	*09/29/16 16:20*	*10/17/16 14:17*	*1*

Lab Sample ID: LCS 160-272420/2-A
Matrix: Water
Analysis Batch: 274767

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 272420

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			14.4	14.09		1.51	1.00	0.369	pCi/L	98	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*99.1*		*40 - 110*
Y Carrier	*90.1*		*40 - 110*

Lab Sample ID: 310-90051-1 MS
Matrix: Ground Water
Analysis Batch: 274767

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 272420

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228	0.341	U F	14.4	15.20		1.63	1.00	0.407	pCi/L	105	45 - 150		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*88.6*		*40 - 110*
Y Carrier	*92.3*		*40 - 110*

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-89888-1
SDG: 111146554-CCR16-01

Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: 310-90051-1 MSD
Matrix: Ground Water
Analysis Batch: 274767

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 272420

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	0.341	U F	14.4	10.67	F	1.24	1.00	0.459	pCi/L	74	45 - 150	1.58	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*85.8*		*40 - 110*
Y Carrier	*87.5*		*40 - 110*

HPLC/IC

Analysis Batch: 142764

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-89888-1	MW-2	Total/NA	Ground Water	9056A	
310-89888-2	MW-4	Total/NA	Ground Water	9056A	
310-89888-3	MW-8	Total/NA	Ground Water	9056A	
310-89888-4	MW-10	Total/NA	Ground Water	9056A	
310-89888-5	MW-11	Total/NA	Ground Water	9056A	
MB 310-142764/31	Method Blank	Total/NA	Water	9056A	
LCS 310-142764/32	Lab Control Sample	Total/NA	Water	9056A	
310-89888-1 MS	MW-2	Total/NA	Ground Water	9056A	
310-89888-1 MSD	MW-2	Total/NA	Ground Water	9056A	

Analysis Batch: 142769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-89888-6	MW-12	Total/NA	Ground Water	9056A	
310-89888-7	MW-13	Total/NA	Ground Water	9056A	
310-89888-8	MW-14	Total/NA	Ground Water	9056A	
310-89888-9	MW-15	Total/NA	Ground Water	9056A	
310-89888-10	DP-01	Total/NA	Ground Water	9056A	
MB 310-142769/3	Method Blank	Total/NA	Water	9056A	
LCS 310-142769/4	Lab Control Sample	Total/NA	Water	9056A	
310-89888-6 MS	MW-12	Total/NA	Ground Water	9056A	
310-89888-6 MSD	MW-12	Total/NA	Ground Water	9056A	

Analysis Batch: 142873

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-89888-2	MW-4	Total/NA	Ground Water	9056A	
310-89888-3	MW-8	Total/NA	Ground Water	9056A	
310-89888-5	MW-11	Total/NA	Ground Water	9056A	
310-89888-6	MW-12	Total/NA	Ground Water	9056A	
310-89888-7	MW-13	Total/NA	Ground Water	9056A	
310-89888-8	MW-14	Total/NA	Ground Water	9056A	
310-89888-9	MW-15	Total/NA	Ground Water	9056A	
310-89888-10	DP-01	Total/NA	Ground Water	9056A	
MB 310-142873/3	Method Blank	Total/NA	Water	9056A	
LCS 310-142873/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 142561

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-90051-1	MW-2	Total/NA	Ground Water	7470A	
310-90051-2	MW-4	Total/NA	Ground Water	7470A	
310-90051-3	MW-8	Total/NA	Ground Water	7470A	
310-90051-4	MW-10	Total/NA	Ground Water	7470A	
310-90051-5	MW-11	Total/NA	Ground Water	7470A	
310-90051-6	MW-12	Total/NA	Ground Water	7470A	
310-90051-7	MW-13	Total/NA	Ground Water	7470A	
310-90051-8	MW-14	Total/NA	Ground Water	7470A	
310-90051-9	MW-15	Total/NA	Ground Water	7470A	
310-90051-10	DP-01	Total/NA	Ground Water	7470A	
MB 310-142561/1-A	Method Blank	Total/NA	Water	7470A	

Metals (Continued)

Prep Batch: 142561 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-142561/2-A	Lab Control Sample	Total/NA	Water	7470A	
310-90051-1 MS	MW-2	Total/NA	Ground Water	7470A	
310-90051-1 MSD	MW-2	Total/NA	Ground Water	7470A	

Prep Batch: 142616

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-90051-1	MW-2	Total/NA	Ground Water	3010A	
310-90051-2	MW-4	Total/NA	Ground Water	3010A	
310-90051-3	MW-8	Total/NA	Ground Water	3010A	
310-90051-4	MW-10	Total/NA	Ground Water	3010A	
310-90051-5	MW-11	Total/NA	Ground Water	3010A	
310-90051-6	MW-12	Total/NA	Ground Water	3010A	
310-90051-7	MW-13	Total/NA	Ground Water	3010A	
310-90051-8	MW-14	Total/NA	Ground Water	3010A	
310-90051-9	MW-15	Total/NA	Ground Water	3010A	
310-90051-10	DP-01	Total/NA	Ground Water	3010A	
MB 310-142616/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-142616/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-90051-1 MS	MW-2	Total/NA	Ground Water	3010A	
310-90051-1 MSD	MW-2	Total/NA	Ground Water	3010A	

Prep Batch: 142618

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-90051-1	MW-2	Total/NA	Ground Water	3010A	
310-90051-2	MW-4	Total/NA	Ground Water	3010A	
310-90051-3	MW-8	Total/NA	Ground Water	3010A	
310-90051-4	MW-10	Total/NA	Ground Water	3010A	
310-90051-5	MW-11	Total/NA	Ground Water	3010A	
310-90051-6	MW-12	Total/NA	Ground Water	3010A	
310-90051-7	MW-13	Total/NA	Ground Water	3010A	
310-90051-8	MW-14	Total/NA	Ground Water	3010A	
310-90051-9	MW-15	Total/NA	Ground Water	3010A	
310-90051-10	DP-01	Total/NA	Ground Water	3010A	
MB 310-142618/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-142618/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-90051-1 MS	MW-2	Total/NA	Ground Water	3010A	
310-90051-1 MSD	MW-2	Total/NA	Ground Water	3010A	

Analysis Batch: 142732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-90051-1	MW-2	Total/NA	Ground Water	7470A	142561
310-90051-2	MW-4	Total/NA	Ground Water	7470A	142561
310-90051-3	MW-8	Total/NA	Ground Water	7470A	142561
310-90051-4	MW-10	Total/NA	Ground Water	7470A	142561
310-90051-5	MW-11	Total/NA	Ground Water	7470A	142561
310-90051-6	MW-12	Total/NA	Ground Water	7470A	142561
310-90051-7	MW-13	Total/NA	Ground Water	7470A	142561
310-90051-8	MW-14	Total/NA	Ground Water	7470A	142561
310-90051-9	MW-15	Total/NA	Ground Water	7470A	142561
310-90051-10	DP-01	Total/NA	Ground Water	7470A	142561
MB 310-142561/1-A	Method Blank	Total/NA	Water	7470A	142561

Metals (Continued)

Analysis Batch: 142732 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-142561/2-A	Lab Control Sample	Total/NA	Water	7470A	142561
310-90051-1 MS	MW-2	Total/NA	Ground Water	7470A	142561
310-90051-1 MSD	MW-2	Total/NA	Ground Water	7470A	142561

Analysis Batch: 142791

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-90051-1	MW-2	Total/NA	Ground Water	6010C	142616
310-90051-2	MW-4	Total/NA	Ground Water	6010C	142616
310-90051-3	MW-8	Total/NA	Ground Water	6010C	142616
310-90051-4	MW-10	Total/NA	Ground Water	6010C	142616
310-90051-5	MW-11	Total/NA	Ground Water	6010C	142616
310-90051-6	MW-12	Total/NA	Ground Water	6010C	142616
310-90051-7	MW-13	Total/NA	Ground Water	6010C	142616
310-90051-8	MW-14	Total/NA	Ground Water	6010C	142616
310-90051-9	MW-15	Total/NA	Ground Water	6010C	142616
310-90051-10	DP-01	Total/NA	Ground Water	6010C	142616
MB 310-142616/1-A	Method Blank	Total/NA	Water	6010C	142616
LCS 310-142616/2-A	Lab Control Sample	Total/NA	Water	6010C	142616
310-90051-1 MS	MW-2	Total/NA	Ground Water	6010C	142616
310-90051-1 MSD	MW-2	Total/NA	Ground Water	6010C	142616

Analysis Batch: 143375

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-90051-1	MW-2	Total/NA	Ground Water	6020A	142618
310-90051-2	MW-4	Total/NA	Ground Water	6020A	142618
310-90051-3	MW-8	Total/NA	Ground Water	6020A	142618
310-90051-3	MW-8	Total/NA	Ground Water	6020A	142618
310-90051-4	MW-10	Total/NA	Ground Water	6020A	142618
310-90051-5	MW-11	Total/NA	Ground Water	6020A	142618
310-90051-6	MW-12	Total/NA	Ground Water	6020A	142618
310-90051-6	MW-12	Total/NA	Ground Water	6020A	142618
310-90051-7	MW-13	Total/NA	Ground Water	6020A	142618
310-90051-8	MW-14	Total/NA	Ground Water	6020A	142618
310-90051-9	MW-15	Total/NA	Ground Water	6020A	142618
310-90051-10	DP-01	Total/NA	Ground Water	6020A	142618
MB 310-142618/1-A	Method Blank	Total/NA	Water	6020A	142618
LCS 310-142618/2-A	Lab Control Sample	Total/NA	Water	6020A	142618
310-90051-1 MS	MW-2	Total/NA	Ground Water	6020A	142618
310-90051-1 MSD	MW-2	Total/NA	Ground Water	6020A	142618

General Chemistry

Analysis Batch: 142372

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-89888-1	MW-2	Total/NA	Ground Water	SM 2540C	
310-89888-2	MW-4	Total/NA	Ground Water	SM 2540C	
310-89888-3	MW-8	Total/NA	Ground Water	SM 2540C	
310-89888-4	MW-10	Total/NA	Ground Water	SM 2540C	
310-89888-5	MW-11	Total/NA	Ground Water	SM 2540C	
310-89888-6	MW-12	Total/NA	Ground Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 142372 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-89888-7	MW-13	Total/NA	Ground Water	SM 2540C	
310-89888-8	MW-14	Total/NA	Ground Water	SM 2540C	
310-89888-9	MW-15	Total/NA	Ground Water	SM 2540C	
310-89888-10	DP-01	Total/NA	Ground Water	SM 2540C	
MB 310-142372/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-142372/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-89888-1 DU	MW-2	Total/NA	Ground Water	SM 2540C	

Analysis Batch: 142429

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-89888-1	MW-2	Total/NA	Ground Water	SM 4500 H+ B	
310-89888-2	MW-4	Total/NA	Ground Water	SM 4500 H+ B	
310-89888-3	MW-8	Total/NA	Ground Water	SM 4500 H+ B	
310-89888-4	MW-10	Total/NA	Ground Water	SM 4500 H+ B	
310-89888-5	MW-11	Total/NA	Ground Water	SM 4500 H+ B	
310-89888-6	MW-12	Total/NA	Ground Water	SM 4500 H+ B	
310-89888-7	MW-13	Total/NA	Ground Water	SM 4500 H+ B	
310-89888-8	MW-14	Total/NA	Ground Water	SM 4500 H+ B	
310-89888-9	MW-15	Total/NA	Ground Water	SM 4500 H+ B	
310-89888-10	DP-01	Total/NA	Ground Water	SM 4500 H+ B	
LCS 310-142429/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 310-142429/27	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-89888-1 DU	MW-2	Total/NA	Ground Water	SM 4500 H+ B	
310-89888-10 DU	DP-01	Total/NA	Ground Water	SM 4500 H+ B	

Rad

Prep Batch: 272400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-90051-1	MW-2	Total/NA	Ground Water	PrecSep-21	
310-90051-2	MW-4	Total/NA	Ground Water	PrecSep-21	
310-90051-3	MW-8	Total/NA	Ground Water	PrecSep-21	
310-90051-4	MW-10	Total/NA	Ground Water	PrecSep-21	
310-90051-5	MW-11	Total/NA	Ground Water	PrecSep-21	
310-90051-6	MW-12	Total/NA	Ground Water	PrecSep-21	
310-90051-7	MW-13	Total/NA	Ground Water	PrecSep-21	
310-90051-8	MW-14	Total/NA	Ground Water	PrecSep-21	
310-90051-9	MW-15	Total/NA	Ground Water	PrecSep-21	
310-90051-10	DP-01	Total/NA	Ground Water	PrecSep-21	
MB 160-272400/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-272400/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
310-90051-1 MS	MW-2	Total/NA	Ground Water	PrecSep-21	
310-90051-1 MSD	MW-2	Total/NA	Ground Water	PrecSep-21	

Prep Batch: 272420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-90051-1	MW-2	Total/NA	Ground Water	PrecSep_0	
310-90051-2	MW-4	Total/NA	Ground Water	PrecSep_0	
310-90051-3	MW-8	Total/NA	Ground Water	PrecSep_0	
310-90051-4	MW-10	Total/NA	Ground Water	PrecSep_0	

Rad (Continued)

Prep Batch: 272420 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-90051-5	MW-11	Total/NA	Ground Water	PrecSep_0	
310-90051-6	MW-12	Total/NA	Ground Water	PrecSep_0	
310-90051-7	MW-13	Total/NA	Ground Water	PrecSep_0	
310-90051-8	MW-14	Total/NA	Ground Water	PrecSep_0	
310-90051-9	MW-15	Total/NA	Ground Water	PrecSep_0	
310-90051-10	DP-01	Total/NA	Ground Water	PrecSep_0	
MB 160-272420/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-272420/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
310-90051-1 MS	MW-2	Total/NA	Ground Water	PrecSep_0	
310-90051-1 MSD	MW-2	Total/NA	Ground Water	PrecSep_0	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-89888-1
SDG: 111146554-CCR16-01

Client Sample ID: MW-2
Date Collected: 09/20/16 09:26
Date Received: 09/22/16 09:35

Lab Sample ID: 310-89888-1
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	142764	09/26/16 20:14	AJG	TAL CF
Total/NA	Analysis	SM 2540C		1	142372	09/23/16 10:10	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	142429	09/23/16 15:42	JMH	TAL CF

Client Sample ID: MW-4
Date Collected: 09/20/16 08:18
Date Received: 09/22/16 09:35

Lab Sample ID: 310-89888-2
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	142764	09/26/16 20:14	AJG	TAL CF
Total/NA	Analysis	9056A		50	142873	09/27/16 16:06	AJG	TAL CF
Total/NA	Analysis	SM 2540C		1	142372	09/23/16 10:10	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	142429	09/23/16 15:44	JMH	TAL CF

Client Sample ID: MW-8
Date Collected: 09/19/16 17:12
Date Received: 09/22/16 09:35

Lab Sample ID: 310-89888-3
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	142764	09/26/16 20:14	AJG	TAL CF
Total/NA	Analysis	9056A		50	142873	09/27/16 16:06	AJG	TAL CF
Total/NA	Analysis	SM 2540C		1	142372	09/23/16 10:10	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	142429	09/23/16 15:45	JMH	TAL CF

Client Sample ID: MW-10
Date Collected: 09/19/16 17:55
Date Received: 09/22/16 09:35

Lab Sample ID: 310-89888-4
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	142764	09/26/16 20:14	AJG	TAL CF
Total/NA	Analysis	SM 2540C		1	142372	09/23/16 10:10	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	142429	09/23/16 15:46	JMH	TAL CF

Client Sample ID: MW-11
Date Collected: 09/20/16 10:23
Date Received: 09/22/16 09:35

Lab Sample ID: 310-89888-5
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	142764	09/26/16 20:14	AJG	TAL CF
Total/NA	Analysis	9056A		50	142873	09/27/16 16:07	AJG	TAL CF
Total/NA	Analysis	SM 2540C		1	142372	09/23/16 10:10	SAS	TAL CF

Client Sample ID: MW-11

Date Collected: 09/20/16 10:23
Date Received: 09/22/16 09:35

Lab Sample ID: 310-89888-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 H+ B		1	142429	09/23/16 15:47	JMH	TAL CF

Client Sample ID: MW-12

Date Collected: 09/19/16 19:24
Date Received: 09/22/16 09:35

Lab Sample ID: 310-89888-6

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		50	142873	09/27/16 16:06	AJG	TAL CF
Total/NA	Analysis	9056A		5	142769	09/26/16 15:28	AJG	TAL CF
Total/NA	Analysis	SM 2540C		1	142372	09/23/16 10:10	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	142429	09/23/16 15:47	JMH	TAL CF

Client Sample ID: MW-13

Date Collected: 09/19/16 18:37
Date Received: 09/22/16 09:35

Lab Sample ID: 310-89888-7

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		50	142873	09/27/16 16:06	AJG	TAL CF
Total/NA	Analysis	9056A		5	142769	09/26/16 15:28	AJG	TAL CF
Total/NA	Analysis	SM 2540C		1	142372	09/23/16 10:10	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	142429	09/23/16 15:48	JMH	TAL CF

Client Sample ID: MW-14

Date Collected: 09/20/16 11:06
Date Received: 09/22/16 09:35

Lab Sample ID: 310-89888-8

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		50	142873	09/27/16 16:06	AJG	TAL CF
Total/NA	Analysis	9056A		5	142769	09/26/16 15:28	AJG	TAL CF
Total/NA	Analysis	SM 2540C		1	142372	09/23/16 10:10	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	142429	09/23/16 15:50	JMH	TAL CF

Client Sample ID: MW-15

Date Collected: 09/19/16 16:20
Date Received: 09/22/16 09:35

Lab Sample ID: 310-89888-9

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		50	142873	09/27/16 16:06	AJG	TAL CF
Total/NA	Analysis	9056A		5	142769	09/26/16 15:28	AJG	TAL CF
Total/NA	Analysis	SM 2540C		1	142372	09/23/16 10:10	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	142429	09/23/16 15:50	JMH	TAL CF

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-89888-1
SDG: 111146554-CCR16-01

Client Sample ID: DP-01

Date Collected: 09/20/16 00:00
Date Received: 09/22/16 09:35

Lab Sample ID: 310-89888-10

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		50	142873	09/27/16 16:06	AJG	TAL CF
Total/NA	Analysis	9056A		5	142769	09/26/16 15:28	AJG	TAL CF
Total/NA	Analysis	SM 2540C		1	142372	09/23/16 10:10	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	142429	09/23/16 16:05	JMH	TAL CF

Client Sample ID: MW-2

Date Collected: 09/20/16 09:26
Date Received: 09/23/16 18:00

Lab Sample ID: 310-90051-1

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			142616	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6010C		1	142791	09/27/16 20:19	OAD	TAL CF
Total/NA	Prep	3010A			142618	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6020A		1	143375	09/30/16 14:21	OAD	TAL CF
Total/NA	Prep	7470A			142561	09/26/16 10:41	SAD	TAL CF
Total/NA	Analysis	7470A		1	142732	09/27/16 11:19	CJT	TAL CF
Total/NA	Prep	PrecSep-21			272400	09/29/16 14:38	KKA	TAL SL
Total/NA	Analysis	9315		1	275510	10/21/16 09:28	RTM	TAL SL
Total/NA	Prep	PrecSep_0			272420	09/29/16 16:20	MCJ	TAL SL
Total/NA	Analysis	9320		1	274767	10/17/16 14:16	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	275751	10/24/16 09:50	RTM	TAL SL

Client Sample ID: MW-4

Date Collected: 09/20/16 08:18
Date Received: 09/23/16 18:00

Lab Sample ID: 310-90051-2

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			142616	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6010C		1	142791	09/27/16 20:31	OAD	TAL CF
Total/NA	Prep	3010A			142618	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6020A		1	143375	09/30/16 14:34	OAD	TAL CF
Total/NA	Prep	7470A			142561	09/26/16 10:41	SAD	TAL CF
Total/NA	Analysis	7470A		1	142732	09/27/16 11:24	CJT	TAL CF
Total/NA	Prep	PrecSep-21			272400	09/29/16 14:38	KKA	TAL SL
Total/NA	Analysis	9315		1	275510	10/21/16 09:29	RTM	TAL SL
Total/NA	Prep	PrecSep_0			272420	09/29/16 16:20	MCJ	TAL SL
Total/NA	Analysis	9320		1	274722	10/17/16 14:10	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	275751	10/24/16 09:50	RTM	TAL SL

Client Sample ID: MW-8

Date Collected: 09/19/16 17:12
Date Received: 09/23/16 18:00

Lab Sample ID: 310-90051-3

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			142616	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6010C		1	142791	09/27/16 20:33	OAD	TAL CF
Total/NA	Prep	3010A			142618	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6020A		1	143375	09/30/16 14:37	OAD	TAL CF
Total/NA	Prep	3010A			142618	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6020A		5	143375	09/30/16 15:11	OAD	TAL CF
Total/NA	Prep	7470A			142561	09/26/16 10:41	SAD	TAL CF
Total/NA	Analysis	7470A		1	142732	09/27/16 11:25	CJT	TAL CF
Total/NA	Prep	PrecSep-21			272400	09/29/16 14:38	KKA	TAL SL
Total/NA	Analysis	9315		1	275510	10/21/16 09:29	RTM	TAL SL
Total/NA	Prep	PrecSep_0			272420	09/29/16 16:20	MCJ	TAL SL
Total/NA	Analysis	9320		1	274722	10/17/16 14:10	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	275751	10/24/16 09:50	RTM	TAL SL

Client Sample ID: MW-10

Date Collected: 09/19/16 17:55
Date Received: 09/23/16 18:00

Lab Sample ID: 310-90051-4

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			142616	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6010C		1	142791	09/27/16 20:35	OAD	TAL CF
Total/NA	Prep	3010A			142618	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6020A		1	143375	09/30/16 14:49	OAD	TAL CF
Total/NA	Prep	7470A			142561	09/26/16 10:41	SAD	TAL CF
Total/NA	Analysis	7470A		1	142732	09/27/16 11:27	CJT	TAL CF
Total/NA	Prep	PrecSep-21			272400	09/29/16 14:38	KKA	TAL SL
Total/NA	Analysis	9315		1	275510	10/21/16 09:29	RTM	TAL SL
Total/NA	Prep	PrecSep_0			272420	09/29/16 16:20	MCJ	TAL SL
Total/NA	Analysis	9320		1	274722	10/17/16 14:10	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	275751	10/24/16 09:50	RTM	TAL SL

Client Sample ID: MW-11

Date Collected: 09/20/16 10:23
Date Received: 09/23/16 18:00

Lab Sample ID: 310-90051-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			142616	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6010C		1	142791	09/27/16 20:37	OAD	TAL CF
Total/NA	Prep	3010A			142618	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6020A		1	143375	09/30/16 14:52	OAD	TAL CF
Total/NA	Prep	7470A			142561	09/26/16 10:41	SAD	TAL CF
Total/NA	Analysis	7470A		1	142732	09/27/16 11:28	CJT	TAL CF
Total/NA	Prep	PrecSep-21			272400	09/29/16 14:38	KKA	TAL SL

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-89888-1
SDG: 111146554-CCR16-01

Client Sample ID: MW-11

Date Collected: 09/20/16 10:23
Date Received: 09/23/16 18:00

Lab Sample ID: 310-90051-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9315		1	275510	10/21/16 09:29	RTM	TAL SL
Total/NA	Prep	PrecSep_0			272420	09/29/16 16:20	MCJ	TAL SL
Total/NA	Analysis	9320		1	274722	10/17/16 14:10	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	275751	10/24/16 09:50	RTM	TAL SL

Client Sample ID: MW-12

Date Collected: 09/19/16 19:24
Date Received: 09/23/16 18:00

Lab Sample ID: 310-90051-6

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			142616	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6010C		1	142791	09/27/16 20:39	OAD	TAL CF
Total/NA	Prep	3010A			142618	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6020A		1	143375	09/30/16 14:55	OAD	TAL CF
Total/NA	Prep	3010A			142618	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6020A		5	143375	09/30/16 15:14	OAD	TAL CF
Total/NA	Prep	7470A			142561	09/26/16 10:41	SAD	TAL CF
Total/NA	Analysis	7470A		1	142732	09/27/16 11:30	CJT	TAL CF
Total/NA	Prep	PrecSep-21			272400	09/29/16 14:38	KKA	TAL SL
Total/NA	Analysis	9315		1	275510	10/21/16 09:29	RTM	TAL SL
Total/NA	Prep	PrecSep_0			272420	09/29/16 16:20	MCJ	TAL SL
Total/NA	Analysis	9320		1	274722	10/17/16 14:10	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	275751	10/24/16 09:50	RTM	TAL SL

Client Sample ID: MW-13

Date Collected: 09/19/16 18:37
Date Received: 09/23/16 18:00

Lab Sample ID: 310-90051-7

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			142616	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6010C		1	142791	09/27/16 20:41	OAD	TAL CF
Total/NA	Prep	3010A			142618	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6020A		1	143375	09/30/16 14:58	OAD	TAL CF
Total/NA	Prep	7470A			142561	09/26/16 10:41	SAD	TAL CF
Total/NA	Analysis	7470A		1	142732	09/27/16 11:31	CJT	TAL CF
Total/NA	Prep	PrecSep-21			272400	09/29/16 14:38	KKA	TAL SL
Total/NA	Analysis	9315		1	275510	10/21/16 09:30	RTM	TAL SL
Total/NA	Prep	PrecSep_0			272420	09/29/16 16:20	MCJ	TAL SL
Total/NA	Analysis	9320		1	274722	10/17/16 14:10	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	275751	10/24/16 09:50	RTM	TAL SL

Client Sample ID: MW-14

Lab Sample ID: 310-90051-8

Date Collected: 09/20/16 11:06
Matrix: Ground Water
Date Received: 09/23/16 18:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			142616	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6010C		1	142791	09/27/16 20:43	OAD	TAL CF
Total/NA	Prep	3010A			142618	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6020A		1	143375	09/30/16 15:02	OAD	TAL CF
Total/NA	Prep	7470A			142561	09/26/16 10:41	SAD	TAL CF
Total/NA	Analysis	7470A		1	142732	09/27/16 11:33	CJT	TAL CF
Total/NA	Prep	PrecSep-21			272400	09/29/16 14:38	KKA	TAL SL
Total/NA	Analysis	9315		1	275510	10/21/16 09:30	RTM	TAL SL
Total/NA	Prep	PrecSep_0			272420	09/29/16 16:20	MCJ	TAL SL
Total/NA	Analysis	9320		1	274722	10/17/16 14:11	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	275751	10/24/16 09:50	RTM	TAL SL

Client Sample ID: MW-15

Lab Sample ID: 310-90051-9

Date Collected: 09/19/16 16:20
Matrix: Ground Water
Date Received: 09/23/16 18:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			142616	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6010C		1	142791	09/27/16 20:45	OAD	TAL CF
Total/NA	Prep	3010A			142618	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6020A		1	143375	09/30/16 15:05	OAD	TAL CF
Total/NA	Prep	7470A			142561	09/26/16 10:41	SAD	TAL CF
Total/NA	Analysis	7470A		1	142732	09/27/16 11:38	CJT	TAL CF
Total/NA	Prep	PrecSep-21			272400	09/29/16 14:38	KKA	TAL SL
Total/NA	Analysis	9315		1	275510	10/21/16 09:31	RTM	TAL SL
Total/NA	Prep	PrecSep_0			272420	09/29/16 16:20	MCJ	TAL SL
Total/NA	Analysis	9320		1	274722	10/17/16 14:11	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	275751	10/24/16 09:50	RTM	TAL SL

Client Sample ID: DP-01

Lab Sample ID: 310-90051-10

Date Collected: 09/20/16 00:00
Matrix: Ground Water
Date Received: 09/23/16 18:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			142616	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6010C		1	142791	09/27/16 20:51	OAD	TAL CF
Total/NA	Prep	3010A			142618	09/27/16 10:00	SAD	TAL CF
Total/NA	Analysis	6020A		1	143375	09/30/16 15:08	OAD	TAL CF
Total/NA	Prep	7470A			142561	09/26/16 10:41	SAD	TAL CF
Total/NA	Analysis	7470A		1	142732	09/27/16 11:39	CJT	TAL CF
Total/NA	Prep	PrecSep-21			272400	09/29/16 14:38	KKA	TAL SL
Total/NA	Analysis	9315		1	275510	10/21/16 09:31	RTM	TAL SL
Total/NA	Prep	PrecSep_0			272420	09/29/16 16:20	MCJ	TAL SL

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-89888-1
SDG: 111146554-CCR16-01

Client Sample ID: DP-01
Date Collected: 09/20/16 00:00
Date Received: 09/23/16 18:00

Lab Sample ID: 310-90051-10
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9320		1	274722	10/17/16 14:11	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	275751	10/24/16 09:50	RTM	TAL SL

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Certification Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-89888-1
SDG: 111146554-CCR16-01

Laboratory: TestAmerica Cedar Falls

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA-LAP, LLC	IHLAP		101044	11-01-16
Georgia	State Program	4	N/A	09-29-17
Illinois	NELAP	5	200024	11-29-16
Iowa	State Program	7	007	12-01-17
Kansas	NELAP	7	E-10341	01-31-17
Minnesota	NELAP	5	019-999-319	12-31-16
Minnesota (Petrofund)	State Program	1	3349	08-22-17
North Dakota	State Program	8	R-186	09-29-17
Oregon	NELAP	10	IA100001	09-29-17

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	003757	11-30-16 *
Iowa	State Program	7	373	12-01-16 *
Kansas	NELAP	7	E-10236	10-31-17
Kentucky (DW)	State Program	4	90125	12-31-16
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-17
Louisiana (DW)	NELAP	6	LA160008	12-31-16
Maryland	State Program	3	310	09-30-17
Missouri	State Program	7	780	06-30-17
Nevada	State Program	9	MO000542016-1	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	02-28-17 *
South Carolina	State Program	4	85002001	06-30-17
Texas	NELAP	6	T104704193-16-10	07-31-17
USDA	Federal		P330-14-0016	01-09-17
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.

Method Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-89888-1
SDG: 111146554-CCR16-01

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL CF
6010C	Metals (ICP)	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CF
SM 4500 H+ B	pH	SM	TAL CF
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL

Protocol References:

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.
TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401
TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Des Moines

310-89888 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD Services Inc. KP 9-22-16

City/State: Des Moines IA | Project: MEC Neal South Energy Center CCRi

Receipt Information

Date/Time Received: 9-22-16 935 | Received By: KP

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other: _____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☑ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☐ Yes	☑ No	*If yes:* Cooler # ____ of ____
Cooler Custody Seals Present?	☑ Yes	☐ No	*If yes:* Cooler custody seals intact? ☑ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☑ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☑ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE

Temperature Blank? ☑ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: G | Correction Factor (°C): -0.1

Uncorrected Temp (°C): 3.2 | Corrected Temp (°C): 3.1

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Tim Wineland	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No:
Client Contact: Kevin Armstrong	Phone: 515 710 8336	E-Mail: shawn.hayes@testamericainc.com		Page: 1 of 1
Company: GHD Services Inc.		Analysis Requested		Job #:
Address: 11228 Aurora Avenue	Due Date Requested:			
City: Des Moines	TAT Requested (days): Standard			
State, Zip: IA, 50322-7905				
Phone: 515-414-3935	PO #: 34003921			
Email: Kevin.Armstrong@ghd.com	WO #:			
Project Name: MEC Neal South Energy Center CCR	TestAMerica Project #: 31007315			
Projct Number: 11114654-CCR16-01	SSOW#: 11114654-002			

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, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228	6010C, 6020A, 7470A Select List	2540C TDS	9056A Chloride, Sulfate, and Fluoride	SM4500 H+ pH	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N	N	N		
MW-2	9-20-16	926	G	GW	N	Y			X				extra vol for MS/MSD
MW-4	9-20-16	818	G	GW	N	N			X				
MW-8	9-19-16	1712	G	GW	N	N			X				
MW-10	9-19-16	1755	G	GW	N	N			X				
MW-11	9-20-16	1023	G	GW	N	N			X				
MW-12	9-19-16	1924	G	GW	N	N			X				
MW-13	9-19-16	1837	G	GW	N	N			X				
MW-14	9-20-16	1106	G	GW	N	N			X				
MW-15	9-19-16	1620	G	GW	N	N			X				
DP-01	9-20-16	—	G	GW	N	N			X				

Possible Hazard Identification
[X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown [ ] Radiological

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

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Report all parameters together with Radiologicals

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment: Fedex

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Tim Wineland	9-21-16 1350	GHD	Relinquished to fedex		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
			Angie Muehling	9/22/16 9:35	TestAmerica
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

10/26/2016

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-90051 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: Des Moines, Ia | Project:

Receipt Information

Date/Time Received: 9/23/16 1000 | Received By: JMH

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☑ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:

Condition of Cooler/Containers

Sample(s) received in Cooler?	☑ Yes ☐ No	*If yes:* Cooler ID:	N-3
Multiple Coolers?	☑ Yes ☐ No	*If yes:* Cooler #	1 of 2
Cooler Custody Seals Present?	☑ Yes ☐ No	*If yes:* Cooler custody seals intact?	☑ Yes ☐ No
Sample Custody Seals Present?	☐ Yes ☑ No	*If yes:* Sample custody seals intact?	☐ Yes ☐ No
Trip Blank Present?	☐ Yes ☑ No	*If yes:* Which VOA samples are in cooler?	↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Temperature Blank? ☑ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: H | Correction Factor (°C): 0.0

Uncorrected Temp (°C): 0.6°C | Corrected Temp (°C): 0.6°C

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Des Moines
310503

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: Des Moines, IA | Project:

Receipt Information

Date/Time Received: 9/23/16 1800 | Received By: JMH

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☑ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:

Condition of Cooler/Containers

Sample(s) received in Cooler? ☑ Yes ☐ No *If yes:* Cooler ID: AA-18

Multiple Coolers? ☑ Yes ☐ No *If yes:* Cooler # 2 of 2

Cooler Custody Seals Present? ☑ Yes ☐ No *If yes:* Cooler custody seals intact? ☑ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☑ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☑ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Temperature Blank? ☑ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: H | Correction Factor (°C): 0°C

Uncorrected Temp (°C): 4.9°C | Corrected Temp (°C): 4.9°C

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Tim Wineland	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No:
Client Contact: Kevin Armstrong	Phone: 515 710 8336	E-Mail: shawn.hayes@testamericainc.com		Page: 1 of 1
Company: GHD Services Inc.				Job #:
Address: 11228 Aurora Avenue	Due Date Requested:			
City: Des Moines	TAT Requested (days): Standard			
State, Zip: IA, 50322-7905				
Phone: 515-414-3935	PO #: 34003921			
Email: Kevin.Armstrong@ghd.com	WO #:			
Project Name: MEC Neal South Energy Center CCR	TestAMerica Project #: 31007315			
Project Number: 11114654-CCR16-01	SSOW#: 11114654-002			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228	6010C, 6020A, 7470A Select List	2540C TDS — Shipped 9-21-16	9056A Chloride, Sulfate, and Fluoride	SM4500 H+ pH	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N	N	N		
MW-2	9-20-16	926	G	GW	N	X	X	X	X	X	X		extra vol for MS/MSD
MW-4	9-20-16	818	G	GW	N	N	X	X	X	X	X		
MW-8	9-19-16	1712	G	GW	N	N	X	X	X	X	X		
MW-10	9-19-16	1755	G	GW	N	N	X	X	X	X	X		
MW-11	9-20-16	1023	G	GW	N	N	X	X	X	X	X		
MW-12	9-19-16	1924	G	GW	N	N	X	X	X	X	X		
MW-13	9-19-16	1837	G	GW	N	N	X	X	X	X	X		
MW-14	9-20-16	1106	G	GW	N	N	X	X	X	X	X		
MW-15	9-19-16	1620	G	GW	N	N	X	X	X	X	X		
DP-01	9-20-16	—	G	GW	N	N	X	X	X	X	X		

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

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

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Report all parameters together with Radiologicals

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Wineland	9-23-16 8:30	GHD	Relinquished to GHD	front desk	
Relinquished by: under Chain of Custody seal	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 9/23/16 1800	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW-2	310-90051-A-1	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-90051-A-1 MS	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-90051-A-1 MSD	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-90051-B-1	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-90051-B-1 MS	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-90051-B-1 MSD	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-90051-C-1	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-90051-C-1 MS	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-90051-C-1 MSD	Plastic 1 liter - Nitric Acid	<2		
MW-4	310-90051-A-2	Plastic 250ml - with Nitric Acid	<2		
MW-4	310-90051-B-2	Plastic 1 liter - Nitric Acid	<2		
MW-4	310-90051-C-2	Plastic 1 liter - Nitric Acid	<2		
MW-8	310-90051-A-3	Plastic 250ml - with Nitric Acid	<2		
MW-8	310-90051-B-3	Plastic 1 liter - Nitric Acid	<2		
MW-8	310-90051-C-3	Plastic 1 liter - Nitric Acid	<2		
MW-10	310-90051-A-4	Plastic 250ml - with Nitric Acid	<2		
MW-10	310-90051-B-4	Plastic 1 liter - Nitric Acid	<2		
MW-10	310-90051-C-4	Plastic 1 liter - Nitric Acid	<2		
MW-11	310-90051-A-5	Plastic 250ml - with Nitric Acid	<2		
MW-11	310-90051-B-5	Plastic 1 liter - Nitric Acid	<2		
MW-11	310-90051-C-5	Plastic 1 liter - Nitric Acid	<2		
MW-12	310-90051-A-6	Plastic 250ml - with Nitric Acid	<2		
MW-12	310-90051-B-6	Plastic 1 liter - Nitric Acid	<2		
MW-12	310-90051-C-6	Plastic 1 liter - Nitric Acid	<2		
MW-13	310-90051-A-7	Plastic 250ml - with Nitric Acid	<2		
MW-13	310-90051-B-7	Plastic 1 liter - Nitric Acid	<2		
MW-13	310-90051-C-7	Plastic 1 liter - Nitric Acid	<2		
MW-14	310-90051-A-8	Plastic 250ml - with Nitric Acid	<2		
MW-14	310-90051-B-8	Plastic 1 liter - Nitric Acid	<2		
MW-14	310-90051-C-8	Plastic 1 liter - Nitric Acid	<2		
MW-15	310-90051-A-9	Plastic 250ml - with Nitric Acid	<2		
MW-15	310-90051-B-9	Plastic 1 liter - Nitric Acid	<2		
MW-15	310-90051-C-9	Plastic 1 liter - Nitric Acid	<2		
DP-01	310-90051-A-10	Plastic 250ml - with Nitric Acid	<2		
DP-01	310-90051-B-10	Plastic 1 liter - Nitric Acid	<2		
DP-01	310-90051-C-10	Plastic 1 liter - Nitric Acid	<2		

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 310-89888-1
SDG Number: 111146554-CCR16-01

Login Number: 89888
List Number: 1
Creator: Muehling, Angela C

List Source: TestAmerica Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
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	
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 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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-89888-1
SDG: 111146554-CCR16-01

Method: 9315 - Radium-226 (GFPC)

Matrix: Ground Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	Client Sample ID	Ba (40-110)							
310-90051-1	MW-2	92.9							
310-90051-1 MS	MW-2	88.6							
310-90051-1 MSD	MW-2	85.8							
310-90051-2	MW-4	84.0							
310-90051-3	MW-8	75.8							
310-90051-4	MW-10	85.8							
310-90051-5	MW-11	84.3							
310-90051-6	MW-12	86.0							
310-90051-7	MW-13	71.5							
310-90051-8	MW-14	91.5							
310-90051-9	MW-15	89.5							
310-90051-10	DP-01	89.5							

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9315 - Radium-226 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	Client Sample ID	Ba (40-110)							
LCS 160-272400/2-A	Lab Control Sample	99.1							
MB 160-272400/1-A	Method Blank	91.2							

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

Matrix: Ground Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)						
310-90051-1	MW-2	92.9	88.6						
310-90051-1 MS	MW-2	88.6	92.3						
310-90051-1 MSD	MW-2	85.8	87.5						
310-90051-2	MW-4	84.0	86.7						
310-90051-3	MW-8	75.8	86.4						
310-90051-4	MW-10	85.8	88.6						
310-90051-5	MW-11	84.3	87.9						
310-90051-6	MW-12	86.0	86.4						
310-90051-7	MW-13	71.5	86.7						
310-90051-8	MW-14	91.5	87.5						
310-90051-9	MW-15	89.5	86.0						
310-90051-10	DP-01	89.5	86.0						

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

Tracer/Carrier Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-89888-1
SDG: 111146554-CCR16-01

Method: 9320 - Radium-228 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)									
		Ba	Y								
Lab Sample ID	Client Sample ID	(40-110)	(40-110)								
LCS 160-272420/2-A	Lab Control Sample	99.1	90.1								
MB 160-272420/1-A	Method Blank	91.2	86.4								

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319)277-2401

TestAmerica Job ID: 310-96257-1
TestAmerica Sample Delivery Group: 11114654
Client Project/Site: MEC Neal South Monofill Wells CCR
Sampling Event: Neal South CCR Qtrly
Revision: 1

For:
GHD Services Inc.
11228 Aurora Avenue
Des Moines, Iowa 50322-7905

Attn: Kevin Armstrong

Authorized for release by:
2/16/2017 1:21:50 PM
Zach Bindert, Project Manager I
zach.bindert@testamericainc.com

Designee for

Shawn Hayes, Senior Project Manager
(319)277-2401
shawn.hayes@testamericainc.com

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.

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

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Case Narrative

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-96257-1
SDG: 11114654

Job ID: 310-96257-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-96257-1

Comments
This report was revised 2/16/2017. The client contacted the laboratory to check the Chloride and Fluoride results for sample MW-11 (310-96257-5). After reviewing the data it was determined that the sample had been contaminated. The laboratory reported the sample from another analytical run at a 1:20 dilution.

Receipt
The samples were received on 12/20/2016 5:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.4º C, 6.4º C and 6.9º C.

Receipt Exceptions

Two of the coolers were received at the laboratory slightly outside the required temperature criteria. The client was contacted regarding this issue, and the laboratory was instructed to proceed with analysis.

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

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

Narrative

Job Narrative
310-96257-2

RAD
Method(s) 904.0, 9320: Radium-228 Prep Batch 160-285666:
The Laboratory Control Sample (LCS) spike recovery (143%) associated with the following samples is outside the upper QC limit of (143%) indicating a potential positive bias for that analyte : MW-2 (310-96257-1), MW-2 (310-96257-1[MS]), MW-2 (310-96257-1[MSD]), MW-4 (310-96257-2), MW-8 (310-96257-3), MW-10 (310-96257-4), MW-11 (310-96257-5), DP-01 (310-96257-10), (LCS 160-285666/2-A) and (MB 160-285666/1-A). This analyte was not observed above the requested limit in the associated samples; therefore the sample data was not adversely affected by this excursion. The data have been qualified and reported. The following samples were re-extracted due to a LCS spike recovery outside the upper limit of 140% (143%): MW-12 (310-96257-6), MW-13 (310-96257-7), MW-14 (310-96257-8) and MW-15 (310-96257-9).

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

Sample Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-96257-1
SDG: 11114654

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-96257-1	MW-2	Ground Water	12/19/16 18:08	12/20/16 17:15
310-96257-2	MW-4	Ground Water	12/19/16 11:26	12/20/16 17:15
310-96257-3	MW-8	Ground Water	12/19/16 16:03	12/20/16 17:15
310-96257-4	MW-10	Ground Water	12/19/16 15:18	12/20/16 17:15
310-96257-5	MW-11	Ground Water	12/19/16 16:40	12/20/16 17:15
310-96257-6	MW-12	Ground Water	12/19/16 09:15	12/20/16 17:15
310-96257-7	MW-13	Ground Water	12/19/16 08:33	12/20/16 17:15
310-96257-8	MW-14	Ground Water	12/19/16 10:17	12/20/16 17:15
310-96257-9	MW-15	Ground Water	12/19/16 13:57	12/20/16 17:15
310-96257-10	DP-01	Ground Water	12/19/16 00:00	12/20/16 17:15

Detection Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-96257-1
SDG: 11114654

Client Sample ID: MW-2 — Lab Sample ID: 310-96257-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.57		5.00		mg/L	5		9056A	Total/NA
Sulfate	105		5.00		mg/L	5		9056A	Total/NA
Lithium	0.102		0.0500		mg/L	1		6010C	Total/NA
Arsenic	0.0720		0.00200		mg/L	1		6020A	Total/NA
Barium	0.129		0.00200		mg/L	1		6020A	Total/NA
Boron	1.32		0.200		mg/L	1		6020A	Total/NA
Calcium	167		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00198		0.000500		mg/L	1		6020A	Total/NA
Molybdenum	0.00269		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	768		30.0		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-4 — Lab Sample ID: 310-96257-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	18.7		5.00		mg/L	5		9056A	Total/NA
Sulfate	844		50.0		mg/L	50		9056A	Total/NA
Lithium	0.174		0.0500		mg/L	1		6010C	Total/NA
Barium	0.0355		0.00200		mg/L	1		6020A	Total/NA
Boron	1.32		0.200		mg/L	1		6020A	Total/NA
Calcium	323		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00841		0.000500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	2570		150		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-8 — Lab Sample ID: 310-96257-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	819		50.0		mg/L	50		9056A	Total/NA
Lithium	0.0585		0.0500		mg/L	1		6010C	Total/NA
Barium	0.0736		0.00200		mg/L	1		6020A	Total/NA
Boron	5.38		2.00		mg/L	10		6020A	Total/NA
Calcium	198		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00272		0.000500		mg/L	1		6020A	Total/NA
Molybdenum	0.0895		0.00200		mg/L	1		6020A	Total/NA
Selenium	0.00768		0.00500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1790		150		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

Client Sample ID: MW-10 — Lab Sample ID: 310-96257-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	24.8		5.00		mg/L	5		9056A	Total/NA
Sulfate	36.8		5.00		mg/L	5		9056A	Total/NA
Fluoride	6.47		0.500		mg/L	5		9056A	Total/NA
Lithium	0.0874		0.0500		mg/L	1		6010C	Total/NA
Arsenic	0.00938		0.00200		mg/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-96257-1
SDG: 11114654

Client Sample ID: MW-10 (Continued) — Lab Sample ID: 310-96257-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.276		0.00200		mg/L	1		6020A	Total/NA
Boron	0.938		0.200		mg/L	1		6020A	Total/NA
Calcium	146		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00197		0.000500		mg/L	1		6020A	Total/NA
Molybdenum	0.00267		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	948		60.0		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: MW-11 — Lab Sample ID: 310-96257-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	309		20.0		mg/L	20		9056A	Total/NA
Lithium	0.127		0.0500		mg/L	1		6010C	Total/NA
Barium	0.0835		0.00200		mg/L	1		6020A	Total/NA
Boron	0.524		0.200		mg/L	1		6020A	Total/NA
Calcium	264		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00212		0.000500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1200		60.0		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

Client Sample ID: MW-12 — Lab Sample ID: 310-96257-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	152		5.00		mg/L	5		9056A	Total/NA
Sulfate	563		20.0		mg/L	20		9056A	Total/NA
Fluoride	21.0		0.500		mg/L	5		9056A	Total/NA
Lithium	0.0893		0.0500		mg/L	1		6010C	Total/NA
Barium	0.0472		0.00200		mg/L	1		6020A	Total/NA
Boron	5.25		2.00		mg/L	10		6020A	Total/NA
Calcium	209		0.200		mg/L	1		6020A	Total/NA
Selenium	0.0728		0.00500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1800		150		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-13 — Lab Sample ID: 310-96257-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	54.9		5.00		mg/L	5		9056A	Total/NA
Sulfate	324		20.0		mg/L	20		9056A	Total/NA
Fluoride	8.21		0.500		mg/L	5		9056A	Total/NA
Lithium	0.110		0.0500		mg/L	1		6010C	Total/NA
Arsenic	0.00388		0.00200		mg/L	1		6020A	Total/NA
Barium	0.0571		0.00200		mg/L	1		6020A	Total/NA
Boron	1.33		0.200		mg/L	1		6020A	Total/NA
Calcium	239		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00105		0.000500		mg/L	1		6020A	Total/NA
Selenium	0.00616		0.00500		mg/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-13 (Continued) — Lab Sample ID: 310-96257-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids	1140		60.0		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-14 — Lab Sample ID: 310-96257-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	274		20.0		mg/L	20		9056A	Total/NA
Lithium	0.133		0.0500		mg/L	1		6010C	Total/NA
Barium	0.0882		0.00200		mg/L	1		6020A	Total/NA
Boron	1.05		0.200		mg/L	1		6020A	Total/NA
Calcium	301		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00465		0.000500		mg/L	1		6020A	Total/NA
Molybdenum	0.00222		0.00200		mg/L	1		6020A	Total/NA
Selenium	0.0126		0.00500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1810		150		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-15 — Lab Sample ID: 310-96257-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.87		5.00		mg/L	5		9056A	Total/NA
Sulfate	507		20.0		mg/L	20		9056A	Total/NA
Lithium	0.0923		0.0500		mg/L	1		6010C	Total/NA
Barium	0.0683		0.00200		mg/L	1		6020A	Total/NA
Boron	3.05		0.200		mg/L	1		6020A	Total/NA
Calcium	264		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00212		0.000500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1970		150		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: DP-01 — Lab Sample ID: 310-96257-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	19.1		5.00		mg/L	5		9056A	Total/NA
Sulfate	326		20.0		mg/L	20		9056A	Total/NA
Lithium	0.132		0.0500		mg/L	1		6010C	Total/NA
Barium	0.0767		0.00200		mg/L	1		6020A	Total/NA
Boron	0.504		0.200		mg/L	1		6020A	Total/NA
Calcium	237		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00204		0.000500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1190		60.0		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

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-2

Date Collected: 12/19/16 18:08
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-1

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**8.57**		5.00		mg/L			12/22/16 15:42	5
Sulfate	**105**		5.00		mg/L			12/22/16 15:42	5
Fluoride	<0.500		0.500		mg/L			12/22/16 15:42	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.102**		0.0500		mg/L		12/22/16 08:00	12/22/16 20:27	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:17	1
Arsenic	**0.0720**		0.00200		mg/L		12/22/16 08:00	12/28/16 18:17	1
Barium	**0.129**		0.00200		mg/L		12/22/16 08:00	12/28/16 18:17	1
Beryllium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:17	1
Boron	**1.32**		0.200		mg/L		12/22/16 08:00	12/28/16 18:17	1
Cadmium	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 18:17	1
Calcium	**167**		0.200		mg/L		12/22/16 08:00	12/28/16 18:17	1
Chromium	<0.00500		0.00500		mg/L		12/22/16 08:00	12/28/16 18:17	1
Cobalt	**0.00198**		0.000500		mg/L		12/22/16 08:00	12/28/16 18:17	1
Lead	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 18:17	1
Molybdenum	**0.00269**		0.00200		mg/L		12/22/16 08:00	12/28/16 18:17	1
Selenium	<0.00500		0.00500		mg/L		12/22/16 08:00	12/28/16 18:17	1
Thallium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:17	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/22/16 12:35	12/23/16 13:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**768**		30.0		mg/L			12/21/16 08:56	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.0**	**HF**	0.1		SU			12/20/16 20:10	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.387	U	0.287	0.290	1.00	0.415	pCi/L	12/28/16 08:18	01/31/17 20:31	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*77.5*		*40 - 110*	*12/28/16 08:18*	*01/31/17 20:31*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.403	U *	0.311	0.313	1.00	0.489	pCi/L	12/28/16 08:57	01/31/17 13:18	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*77.5*		*40 - 110*	*12/28/16 08:57*	*01/31/17 13:18*	*1*

Client Sample ID: MW-2
Date Collected: 12/19/16 18:08
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-1
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	75.1		40 - 110	12/28/16 08:57	01/31/17 13:18	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	0.791		0.423	0.426	5.00	0.489	pCi/L		02/06/17 11:47	1

Client Sample ID: MW-4

Date Collected: 12/19/16 11:26
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-2

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**18.7**		5.00		mg/L			12/22/16 16:27	5
Sulfate	**844**		50.0		mg/L			12/22/16 21:02	50
Fluoride	<0.500		0.500		mg/L			12/22/16 16:27	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.174**		0.0500		mg/L		12/22/16 08:00	12/22/16 20:35	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:38	1
Arsenic	<0.00200		0.00200		mg/L		12/22/16 08:00	12/28/16 18:38	1
Barium	**0.0355**		0.00200		mg/L		12/22/16 08:00	12/28/16 18:38	1
Beryllium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:38	1
Boron	**1.32**		0.200		mg/L		12/22/16 08:00	12/28/16 18:38	1
Cadmium	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 18:38	1
Calcium	**323**		0.200		mg/L		12/22/16 08:00	12/28/16 18:38	1
Chromium	<0.00500		0.00500		mg/L		12/22/16 08:00	12/28/16 18:38	1
Cobalt	**0.00841**		0.000500		mg/L		12/22/16 08:00	12/28/16 18:38	1
Lead	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 18:38	1
Molybdenum	<0.00200		0.00200		mg/L		12/22/16 08:00	12/28/16 18:38	1
Selenium	<0.00500		0.00500		mg/L		12/22/16 08:00	12/28/16 18:38	1
Thallium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:38	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/22/16 12:35	12/23/16 13:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**2570**		150		mg/L			12/21/16 08:56	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.9**	**HF**	0.1		SU			12/20/16 20:13	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0956	U	0.219	0.220	1.00	0.401	pCi/L	12/28/16 08:18	01/31/17 20:31	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*75.8*		*40 - 110*	*12/28/16 08:18*	*01/31/17 20:31*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.653**	*	0.381	0.385	1.00	0.579	pCi/L	12/28/16 08:57	01/31/17 13:18	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*75.8*		*40 - 110*	*12/28/16 08:57*	*01/31/17 13:18*	*1*

Client Sample ID: MW-4
Date Collected: 12/19/16 11:26
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-2
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	72.1		40 - 110	12/28/16 08:57	01/31/17 13:18	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	0.748		0.439	0.444	5.00	0.579	pCi/L		02/06/17 11:47	1

Client Sample ID: MW-8

Date Collected: 12/19/16 16:03
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-3

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			12/22/16 16:43	5
Sulfate	**819**		50.0		mg/L			12/22/16 21:18	50
Fluoride	<0.500		0.500		mg/L			12/22/16 16:43	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0585**		0.0500		mg/L		12/22/16 08:00	12/22/16 20:41	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:42	1
Arsenic	<0.00200		0.00200		mg/L		12/22/16 08:00	12/28/16 18:42	1
Barium	**0.0736**		0.00200		mg/L		12/22/16 08:00	12/28/16 18:42	1
Beryllium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:42	1
Boron	**5.38**		2.00		mg/L		12/22/16 08:00	12/30/16 11:13	10
Cadmium	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 18:42	1
Calcium	**198**		0.200		mg/L		12/22/16 08:00	12/28/16 18:42	1
Chromium	<0.00500		0.00500		mg/L		12/22/16 08:00	12/28/16 18:42	1
Cobalt	**0.00272**		0.000500		mg/L		12/22/16 08:00	12/28/16 18:42	1
Lead	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 18:42	1
Molybdenum	**0.0895**		0.00200		mg/L		12/22/16 08:00	12/28/16 18:42	1
Selenium	**0.00768**		0.00500		mg/L		12/22/16 08:00	12/28/16 18:42	1
Thallium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:42	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/22/16 12:35	12/23/16 13:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1790**		150		mg/L			12/21/16 08:56	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.3**	**HF**	0.1		SU			12/20/16 20:14	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.165	U	0.226	0.227	1.00	0.382	pCi/L	12/28/16 08:18	01/31/17 20:31	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*70.7*		*40 - 110*	*12/28/16 08:18*	*01/31/17 20:31*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.493	U *	0.330	0.333	1.00	0.504	pCi/L	12/28/16 08:57	01/31/17 13:19	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*70.7*		*40 - 110*	*12/28/16 08:57*	*01/31/17 13:19*	*1*

Client Sample ID: MW-8
Date Collected: 12/19/16 16:03
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-3
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*72.1*		*40 - 110*	*12/28/16 08:57*	*01/31/17 13:19*	*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	**0.657**		0.400	0.403	5.00	0.504	pCi/L		02/06/17 11:47	1

Client Sample ID: MW-10

Date Collected: 12/19/16 15:18
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-4

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**24.8**		5.00		mg/L			12/22/16 17:29	5
Sulfate	**36.8**		5.00		mg/L			12/22/16 17:29	5
Fluoride	**6.47**		0.500		mg/L			12/22/16 17:29	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0874**		0.0500		mg/L		12/22/16 08:00	12/22/16 20:43	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:45	1
Arsenic	**0.00938**		0.00200		mg/L		12/22/16 08:00	12/28/16 18:45	1
Barium	**0.276**		0.00200		mg/L		12/22/16 08:00	12/28/16 18:45	1
Beryllium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:45	1
Boron	**0.938**		0.200		mg/L		12/22/16 08:00	12/28/16 18:45	1
Cadmium	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 18:45	1
Calcium	**146**		0.200		mg/L		12/22/16 08:00	12/28/16 18:45	1
Chromium	<0.00500		0.00500		mg/L		12/22/16 08:00	12/28/16 18:45	1
Cobalt	**0.00197**		0.000500		mg/L		12/22/16 08:00	12/28/16 18:45	1
Lead	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 18:45	1
Molybdenum	**0.00267**		0.00200		mg/L		12/22/16 08:00	12/28/16 18:45	1
Selenium	<0.00500		0.00500		mg/L		12/22/16 08:00	12/28/16 18:45	1
Thallium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:45	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/22/16 12:35	12/23/16 13:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**948**		60.0		mg/L			12/21/16 08:56	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.2**	**HF**	0.1		SU			12/20/16 20:15	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.445**		0.266	0.269	1.00	0.344	pCi/L	12/28/16 08:18	01/31/17 20:31	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*86.0*		*40 - 110*	*12/28/16 08:18*	*01/31/17 20:31*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.613**	*	0.379	0.384	1.00	0.587	pCi/L	12/28/16 08:57	01/31/17 13:19	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*86.0*		*40 - 110*	*12/28/16 08:57*	*01/31/17 13:19*	*1*

Client Sample ID: MW-10
Date Collected: 12/19/16 15:18
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-4
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	72.9		40 - 110	12/28/16 08:57	01/31/17 13:19	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	1.06		0.463	0.468	5.00	0.587	pCi/L		02/06/17 11:47	1

Client Sample ID: MW-11

Date Collected: 12/19/16 16:40
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-5

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<20.0		20.0		mg/L			12/22/16 21:33	20
Sulfate	**309**		20.0		mg/L			12/22/16 21:33	20
Fluoride	<2.00		2.00		mg/L			12/22/16 21:33	20

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.127**		0.0500		mg/L		12/22/16 08:00	12/22/16 20:45	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:48	1
Arsenic	<0.00200		0.00200		mg/L		12/22/16 08:00	12/28/16 18:48	1
Barium	**0.0835**		0.00200		mg/L		12/22/16 08:00	12/28/16 18:48	1
Beryllium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:48	1
Boron	**0.524**		0.200		mg/L		12/22/16 08:00	12/28/16 18:48	1
Cadmium	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 18:48	1
Calcium	**264**		0.200		mg/L		12/22/16 08:00	12/28/16 18:48	1
Chromium	<0.00500		0.00500		mg/L		12/22/16 08:00	12/28/16 18:48	1
Cobalt	**0.00212**		0.000500		mg/L		12/22/16 08:00	12/28/16 18:48	1
Lead	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 18:48	1
Molybdenum	<0.00200		0.00200		mg/L		12/22/16 08:00	12/28/16 18:48	1
Selenium	<0.00500		0.00500		mg/L		12/22/16 08:00	12/28/16 18:48	1
Thallium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:48	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/22/16 12:35	12/23/16 13:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1200**		60.0		mg/L			12/21/16 08:56	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.3**	**HF**	0.1		SU			12/20/16 20:16	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.147	U	0.206	0.206	1.00	0.348	pCi/L	12/28/16 08:18	01/31/17 20:31	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.6*		*40 - 110*	*12/28/16 08:18*	*01/31/17 20:31*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.512	U *	0.377	0.380	1.00	0.596	pCi/L	12/28/16 08:57	01/31/17 13:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.6*		*40 - 110*	*12/28/16 08:57*	*01/31/17 13:14*	*1*

Client Sample ID: MW-11
Date Collected: 12/19/16 16:40
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-5
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	74.4		40 - 110	12/28/16 08:57	01/31/17 13:14	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	0.659		0.429	0.432	5.00	0.596	pCi/L		02/06/17 11:47	1

Client Sample ID: MW-12

Date Collected: 12/19/16 09:15
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-6

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**152**		5.00		mg/L			12/22/16 17:59	5
Sulfate	**563**		20.0		mg/L			12/22/16 21:48	20
Fluoride	**21.0**		0.500		mg/L			12/22/16 17:59	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0893**		0.0500		mg/L		12/22/16 08:00	12/22/16 20:48	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:51	1
Arsenic	<0.00200		0.00200		mg/L		12/22/16 08:00	12/28/16 18:51	1
Barium	**0.0472**		0.00200		mg/L		12/22/16 08:00	12/28/16 18:51	1
Beryllium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:51	1
Boron	**5.25**		2.00		mg/L		12/22/16 08:00	12/30/16 11:17	10
Cadmium	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 18:51	1
Calcium	**209**		0.200		mg/L		12/22/16 08:00	12/28/16 18:51	1
Chromium	<0.00500		0.00500		mg/L		12/22/16 08:00	12/28/16 18:51	1
Cobalt	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 18:51	1
Lead	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 18:51	1
Molybdenum	<0.00200		0.00200		mg/L		12/22/16 08:00	12/28/16 18:51	1
Selenium	**0.0728**		0.00500		mg/L		12/22/16 08:00	12/28/16 18:51	1
Thallium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:51	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/22/16 12:35	12/23/16 13:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1800**		150		mg/L			12/21/16 08:56	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.1**	**HF**	0.1		SU			12/20/16 20:17	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0605	U	0.205	0.205	1.00	0.389	pCi/L	12/28/16 08:18	01/31/17 21:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*75.2*		*40 - 110*	*12/28/16 08:18*	*01/31/17 21:47*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.101	U	0.332	0.332	1.00	0.578	pCi/L	02/01/17 14:12	02/04/17 15:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*66.1*		*40 - 110*	*02/01/17 14:12*	*02/04/17 15:56*	*1*

Client Sample ID: MW-12
Date Collected: 12/19/16 09:15
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-6
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*83.0*		*40 - 110*	*02/01/17 14:12*	*02/04/17 15:56*	*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	0.161	U	0.390	0.390	5.00	0.578	pCi/L		02/06/17 11:47	1

Client Sample ID: MW-13

Date Collected: 12/19/16 08:33
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-7

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**54.9**		5.00		mg/L			12/22/16 18:14	5
Sulfate	**324**		20.0		mg/L			12/22/16 22:03	20
Fluoride	**8.21**		0.500		mg/L			12/22/16 18:14	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.110**		0.0500		mg/L		12/22/16 08:00	12/22/16 20:50	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:54	1
Arsenic	**0.00388**		0.00200		mg/L		12/22/16 08:00	12/28/16 18:54	1
Barium	**0.0571**		0.00200		mg/L		12/22/16 08:00	12/28/16 18:54	1
Beryllium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:54	1
Boron	**1.33**		0.200		mg/L		12/22/16 08:00	12/28/16 18:54	1
Cadmium	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 18:54	1
Calcium	**239**		0.200		mg/L		12/22/16 08:00	12/28/16 18:54	1
Chromium	<0.00500		0.00500		mg/L		12/22/16 08:00	12/28/16 18:54	1
Cobalt	**0.00105**		0.000500		mg/L		12/22/16 08:00	12/28/16 18:54	1
Lead	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 18:54	1
Molybdenum	<0.00200		0.00200		mg/L		12/22/16 08:00	12/28/16 18:54	1
Selenium	**0.00616**		0.00500		mg/L		12/22/16 08:00	12/28/16 18:54	1
Thallium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:54	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/22/16 12:35	12/23/16 13:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1140**		60.0		mg/L			12/21/16 08:56	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.1**	**HF**	0.1		SU			12/20/16 20:18	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.107	U	0.238	0.238	1.00	0.434	pCi/L	12/28/16 08:18	01/31/17 21:57	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*65.5*		*40 - 110*	*12/28/16 08:18*	*01/31/17 21:57*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.263	U	0.297	0.298	1.00	0.488	pCi/L	02/01/17 14:12	02/04/17 15:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*74.6*		*40 - 110*	*02/01/17 14:12*	*02/04/17 15:56*	*1*

Client Sample ID: MW-13
Date Collected: 12/19/16 08:33
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-7
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*82.6*		*40 - 110*	*02/01/17 14:12*	*02/04/17 15:56*	*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	0.370	U	0.381	0.382	5.00	0.488	pCi/L		02/06/17 11:47	1

Client Sample ID: MW-14

Date Collected: 12/19/16 10:17
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-8

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			12/22/16 18:30	5
Sulfate	**274**		20.0		mg/L			12/22/16 22:19	20
Fluoride	<0.500		0.500		mg/L			12/22/16 18:30	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.133**		0.0500		mg/L		12/22/16 08:00	12/22/16 20:52	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:57	1
Arsenic	<0.00200		0.00200		mg/L		12/22/16 08:00	12/28/16 18:57	1
Barium	**0.0882**		0.00200		mg/L		12/22/16 08:00	12/28/16 18:57	1
Beryllium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:57	1
Boron	**1.05**		0.200		mg/L		12/22/16 08:00	12/28/16 18:57	1
Cadmium	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 18:57	1
Calcium	**301**		0.200		mg/L		12/22/16 08:00	12/28/16 18:57	1
Chromium	<0.00500		0.00500		mg/L		12/22/16 08:00	12/28/16 18:57	1
Cobalt	**0.00465**		0.000500		mg/L		12/22/16 08:00	12/28/16 18:57	1
Lead	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 18:57	1
Molybdenum	**0.00222**		0.00200		mg/L		12/22/16 08:00	12/28/16 18:57	1
Selenium	**0.0126**		0.00500		mg/L		12/22/16 08:00	12/28/16 18:57	1
Thallium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:57	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/22/16 12:35	12/23/16 13:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1810**		150		mg/L			12/21/16 08:56	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.9**	**HF**	0.1		SU			12/20/16 20:19	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.265	U	0.238	0.239	1.00	0.358	pCi/L	12/28/16 08:18	01/31/17 21:57	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.5*		*40 - 110*	*12/28/16 08:18*	*01/31/17 21:57*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.789**		0.417	0.423	1.00	0.618	pCi/L	02/01/17 14:12	02/04/17 15:57	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*63.0*		*40 - 110*	*02/01/17 14:12*	*02/04/17 15:57*	*1*

Client Sample ID: MW-14
Date Collected: 12/19/16 10:17
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-8
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*79.3*		*40 - 110*	*02/01/17 14:12*	*02/04/17 15:57*	*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	**1.05**		0.480	0.486	5.00	0.618	pCi/L		02/06/17 11:47	1

Client Sample ID: MW-15

Date Collected: 12/19/16 13:57
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-9

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.87**		5.00		mg/L			12/22/16 18:45	5
Sulfate	**507**		20.0		mg/L			12/22/16 22:34	20
Fluoride	<0.500		0.500		mg/L			12/22/16 18:45	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0923**		0.0500		mg/L		12/22/16 08:00	12/22/16 20:54	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 19:00	1
Arsenic	<0.00200		0.00200		mg/L		12/22/16 08:00	12/28/16 19:00	1
Barium	**0.0683**		0.00200		mg/L		12/22/16 08:00	12/28/16 19:00	1
Beryllium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 19:00	1
Boron	**3.05**		0.200		mg/L		12/22/16 08:00	12/28/16 19:00	1
Cadmium	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 19:00	1
Calcium	**264**		0.200		mg/L		12/22/16 08:00	12/28/16 19:00	1
Chromium	<0.00500		0.00500		mg/L		12/22/16 08:00	12/28/16 19:00	1
Cobalt	**0.00212**		0.000500		mg/L		12/22/16 08:00	12/28/16 19:00	1
Lead	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 19:00	1
Molybdenum	<0.00200		0.00200		mg/L		12/22/16 08:00	12/28/16 19:00	1
Selenium	<0.00500		0.00500		mg/L		12/22/16 08:00	12/28/16 19:00	1
Thallium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 19:00	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/22/16 12:35	12/23/16 13:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1970**		150		mg/L			12/21/16 08:56	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.0**	**HF**	0.1		SU			12/20/16 20:25	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.299	U	0.281	0.282	1.00	0.429	pCi/L	12/28/16 08:18	01/31/17 21:57	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*62.7*		*40 - 110*	*12/28/16 08:18*	*01/31/17 21:57*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.207	U	0.330	0.331	1.00	0.557	pCi/L	02/01/17 14:12	02/04/17 15:57	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*68.7*		*40 - 110*	*02/01/17 14:12*	*02/04/17 15:57*	*1*

Client Sample ID: MW-15
Date Collected: 12/19/16 13:57
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-9
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*80.0*		*40 - 110*	*02/01/17 14:12*	*02/04/17 15:57*	*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	0.506	U	0.434	0.435	5.00	0.557	pCi/L		02/06/17 11:47	1

Client Sample ID: DP-01

Date Collected: 12/19/16 00:00
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-10

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**19.1**		5.00		mg/L			12/22/16 19:00	5
Sulfate	**326**		20.0		mg/L			12/22/16 22:49	20
Fluoride	<0.500		0.500		mg/L			12/22/16 19:00	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.132**		0.0500		mg/L		12/22/16 08:00	12/22/16 20:56	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 19:03	1
Arsenic	<0.00200		0.00200		mg/L		12/22/16 08:00	12/28/16 19:03	1
Barium	**0.0767**		0.00200		mg/L		12/22/16 08:00	12/28/16 19:03	1
Beryllium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 19:03	1
Boron	**0.504**		0.200		mg/L		12/22/16 08:00	12/28/16 19:03	1
Cadmium	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 19:03	1
Calcium	**237**		0.200		mg/L		12/22/16 08:00	12/28/16 19:03	1
Chromium	<0.00500		0.00500		mg/L		12/22/16 08:00	12/28/16 19:03	1
Cobalt	**0.00204**		0.000500		mg/L		12/22/16 08:00	12/28/16 19:03	1
Lead	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 19:03	1
Molybdenum	<0.00200		0.00200		mg/L		12/22/16 08:00	12/28/16 19:03	1
Selenium	<0.00500		0.00500		mg/L		12/22/16 08:00	12/28/16 19:03	1
Thallium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 19:03	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/22/16 12:35	12/23/16 13:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1190**		60.0		mg/L			12/21/16 08:56	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.0**	**HF**	0.1		SU			12/20/16 20:27	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0449	U	0.157	0.157	1.00	0.368	pCi/L	12/28/16 08:18	01/31/17 21:57	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.1*		*40 - 110*	*12/28/16 08:18*	*01/31/17 21:57*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.262	U *	0.329	0.330	1.00	0.546	pCi/L	12/28/16 08:57	01/31/17 13:15	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.1*		*40 - 110*	*12/28/16 08:57*	*01/31/17 13:15*	*1*

Client Sample ID: DP-01
Date Collected: 12/19/16 00:00
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-10
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*77.0*		*40 - 110*	*12/28/16 08:57*	*01/31/17 13:15*	*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	0.217	U	0.365	0.366	5.00	0.546	pCi/L		02/06/17 11:47	1

Qualifiers

HPLC/IC

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.

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.

Rad

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
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)

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-152683/3
Matrix: Water
Analysis Batch: 152683

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			12/22/16 14:10	1
Sulfate	<1.00		1.00		mg/L			12/22/16 14:10	1
Fluoride	<0.100		0.100		mg/L			12/22/16 14:10	1

Lab Sample ID: LCS 310-152683/4
Matrix: Water
Analysis Batch: 152683

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.50	8.149		mg/L		109	90 - 110
Sulfate	7.50	8.174		mg/L		109	90 - 110
Fluoride	1.50	1.649		mg/L		110	90 - 110

Lab Sample ID: 310-96257-1 MS
Matrix: Ground Water
Analysis Batch: 152683

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	8.57		25.0	33.42		mg/L		99	80 - 120
Sulfate	105		25.0	129.5	4	mg/L		96	80 - 120
Fluoride	<0.500		5.00	5.222		mg/L		104	80 - 120

Lab Sample ID: 310-96257-1 MSD
Matrix: Ground Water
Analysis Batch: 152683

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	8.57		25.0	34.93		mg/L		105	80 - 120	4	15
Sulfate	105		25.0	130.1	4	mg/L		98	80 - 120	0	15
Fluoride	<0.500		5.00	5.762		mg/L		115	80 - 120	10	15

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 310-152422/1-A
Matrix: Water
Analysis Batch: 152627

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 152422

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.0500		0.0500		mg/L		12/22/16 08:00	12/22/16 20:23	1

Lab Sample ID: LCS 310-152422/2-A
Matrix: Water
Analysis Batch: 152627

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 152422

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	2.00	2.037		mg/L		102	80 - 120

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

Lab Sample ID: 310-96257-1 MS
Matrix: Ground Water
Analysis Batch: 152627

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 152422

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.102		2.00	2.107		mg/L		100	75 - 125

Lab Sample ID: 310-96257-1 MSD
Matrix: Ground Water
Analysis Batch: 152627

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 152422

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	0.102		2.00	2.141		mg/L		102	75 - 125	2	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-152421/1-A
Matrix: Water
Analysis Batch: 152982

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 152421

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:10	1
Arsenic	<0.00200		0.00200		mg/L		12/22/16 08:00	12/28/16 18:10	1
Barium	<0.00200		0.00200		mg/L		12/22/16 08:00	12/28/16 18:10	1
Beryllium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:10	1
Boron	<0.200		0.200		mg/L		12/22/16 08:00	12/28/16 18:10	1
Cadmium	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 18:10	1
Calcium	<0.200		0.200		mg/L		12/22/16 08:00	12/28/16 18:10	1
Chromium	<0.00500		0.00500		mg/L		12/22/16 08:00	12/28/16 18:10	1
Cobalt	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 18:10	1
Lead	<0.000500		0.000500		mg/L		12/22/16 08:00	12/28/16 18:10	1
Molybdenum	<0.00200		0.00200		mg/L		12/22/16 08:00	12/28/16 18:10	1
Selenium	<0.00500		0.00500		mg/L		12/22/16 08:00	12/28/16 18:10	1
Thallium	<0.00100		0.00100		mg/L		12/22/16 08:00	12/28/16 18:10	1

Lab Sample ID: LCS 310-152421/2-A
Matrix: Water
Analysis Batch: 152982

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 152421

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0200	0.02111		mg/L		106	80 - 120
Arsenic	0.0400	0.04704		mg/L		118	80 - 120
Barium	0.0400	0.04494		mg/L		112	80 - 120
Beryllium	0.0200	0.02318		mg/L		116	80 - 120
Boron	0.880	0.9142		mg/L		104	80 - 120
Cadmium	0.0200	0.02247		mg/L		112	80 - 120
Calcium	2.00	2.247		mg/L		112	80 - 120
Chromium	0.0400	0.04197		mg/L		105	80 - 120
Cobalt	0.0200	0.02148		mg/L		107	80 - 120
Lead	0.0200	0.02230		mg/L		111	80 - 120
Molybdenum	0.0400	0.04406		mg/L		110	80 - 120
Selenium	0.0400	0.04210		mg/L		105	80 - 120
Thallium	0.0160	0.01724		mg/L		108	80 - 120

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

Lab Sample ID: 310-96257-1 MS
Matrix: Ground Water
Analysis Batch: 152982

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 152421

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.00100		0.0200	0.02054		mg/L		103	75 - 125
Arsenic	0.0720		0.0400	0.1158		mg/L		109	75 - 125
Barium	0.129		0.0400	0.1709		mg/L		104	75 - 125
Beryllium	<0.00100		0.0200	0.02150		mg/L		107	75 - 125
Boron	1.32		0.880	2.039		mg/L		82	75 - 125
Cadmium	<0.000500		0.0200	0.02149		mg/L		107	75 - 125
Calcium	167		2.00	161.6	4	mg/L		-260	75 - 125
Chromium	<0.00500		0.0400	0.03933		mg/L		98	75 - 125
Cobalt	0.00198		0.0200	0.02144		mg/L		97	75 - 125
Lead	<0.000500		0.0200	0.02050		mg/L		103	75 - 125
Molybdenum	0.00269		0.0400	0.04466		mg/L		105	75 - 125
Selenium	<0.00500		0.0400	0.04054		mg/L		101	75 - 125
Thallium	<0.00100		0.0160	0.01614		mg/L		101	75 - 125

Lab Sample ID: 310-96257-1 MSD
Matrix: Ground Water
Analysis Batch: 152982

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 152421

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	<0.00100		0.0200	0.02075		mg/L		104	75 - 125	1	20
Arsenic	0.0720		0.0400	0.1138		mg/L		105	75 - 125	2	20
Barium	0.129		0.0400	0.1731		mg/L		109	75 - 125	1	20
Beryllium	<0.00100		0.0200	0.02347		mg/L		117	75 - 125	9	20
Boron	1.32		0.880	2.293		mg/L		111	75 - 125	12	20
Cadmium	<0.000500		0.0200	0.02166		mg/L		108	75 - 125	1	20
Calcium	167		2.00	168.7	4	mg/L		98	75 - 125	4	20
Chromium	<0.00500		0.0400	0.03982		mg/L		100	75 - 125	1	20
Cobalt	0.00198		0.0200	0.02176		mg/L		99	75 - 125	1	20
Lead	<0.000500		0.0200	0.02064		mg/L		103	75 - 125	1	20
Molybdenum	0.00269		0.0400	0.04516		mg/L		106	75 - 125	1	20
Selenium	<0.00500		0.0400	0.04103		mg/L		103	75 - 125	1	20
Thallium	<0.00100		0.0160	0.01633		mg/L		102	75 - 125	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-152560/1-A
Matrix: Water
Analysis Batch: 152695

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 152560

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/22/16 12:35	12/23/16 13:21	1

Lab Sample ID: LCS 310-152560/2-A
Matrix: Water
Analysis Batch: 152695

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 152560

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00167	0.001535		mg/L		92	80 - 120

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

Lab Sample ID: 310-96257-1 MS
Matrix: Ground Water
Analysis Batch: 152695

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 152560

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.000200		0.00167	0.001738		mg/L		104	80 - 120

Lab Sample ID: 310-96257-1 MSD
Matrix: Ground Water
Analysis Batch: 152695

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 152560

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.000200		0.00167	0.001787		mg/L		107	80 - 120	3	20

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

Lab Sample ID: MB 310-152328/1
Matrix: Water
Analysis Batch: 152328

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	<30.0		30.0		mg/L			12/21/16 08:56	1

Lab Sample ID: LCS 310-152328/2
Matrix: Water
Analysis Batch: 152328

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	1000	1062		mg/L		106	90 - 110

Lab Sample ID: 310-96257-1 DU
Matrix: Ground Water
Analysis Batch: 152328

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	768		772.0		mg/L		0.5	24

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-152291/1
Matrix: Water
Analysis Batch: 152291

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	98 - 102

Lab Sample ID: 310-96257-1 DU
Matrix: Ground Water
Analysis Batch: 152291

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.0	HF	7.0		SU		0.3	20

Method: SM 4500 H+ B - pH (Continued)

Lab Sample ID: 310-96257-9 DU
Matrix: Ground Water
Analysis Batch: 152291

Client Sample ID: MW-15
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.0	HF		6.9		SU				1	20

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-285563/1-A
Matrix: Water
Analysis Batch: 290147

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 285563

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.05323	U	0.178	0.178	1.00	0.398	pCi/L	12/28/16 08:18	01/31/17 20:17	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*77.5*		*40 - 110*	*12/28/16 08:18*	*01/31/17 20:17*	*1*

Lab Sample ID: LCS 160-285563/2-A
Matrix: Water
Analysis Batch: 290147

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 285563

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.1	14.72		1.83	1.00	0.359	pCi/L	133	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*83.2*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-285666/1-A
Matrix: Water
Analysis Batch: 290149

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 285666

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2721	U	0.361	0.362	1.00	0.600	pCi/L	12/28/16 08:57	01/31/17 13:17	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*77.5*		*40 - 110*	*12/28/16 08:57*	*01/31/17 13:17*	*1*
Y Carrier	*71.4*		*40 - 110*	*12/28/16 08:57*	*01/31/17 13:17*	*1*

Lab Sample ID: LCS 160-285666/2-A
Matrix: Water
Analysis Batch: 290149

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 285666

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			13.9	19.86	*	2.13	1.00	0.496	pCi/L	143	56 - 140		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	83.2		40 - 110
Y Carrier	72.1		40 - 110

Lab Sample ID: MB 160-290589/1-A
Matrix: Water
Analysis Batch: 290976

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 290589

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.02103	U	0.277	0.277	1.00	0.492	pCi/L	02/01/17 11:53	02/04/17 15:56	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	84.0		40 - 110	02/01/17 11:53	02/04/17 15:56	1
Y Carrier	79.3		40 - 110	02/01/17 11:53	02/04/17 15:56	1

Lab Sample ID: LCS 160-290589/2-A
Matrix: Water
Analysis Batch: 290976

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 290589

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			13.9	15.77		1.73	1.00	0.450	pCi/L	114	56 - 140		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	84.3		40 - 110
Y Carrier	82.6		40 - 110

Lab Sample ID: LCSD 160-290589/3-A
Matrix: Water
Analysis Batch: 290976

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 290589

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			13.9	13.18		1.47	1.00	0.405	pCi/L	95	56 - 140	0.81	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	90.3		40 - 110
Y Carrier	81.1		40 - 110

HPLC/IC

Analysis Batch: 152683

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-96257-1	MW-2	Total/NA	Ground Water	9056A	
310-96257-2	MW-4	Total/NA	Ground Water	9056A	
310-96257-2	MW-4	Total/NA	Ground Water	9056A	
310-96257-3	MW-8	Total/NA	Ground Water	9056A	
310-96257-3	MW-8	Total/NA	Ground Water	9056A	
310-96257-4	MW-10	Total/NA	Ground Water	9056A	
310-96257-5	MW-11	Total/NA	Ground Water	9056A	
310-96257-6	MW-12	Total/NA	Ground Water	9056A	
310-96257-6	MW-12	Total/NA	Ground Water	9056A	
310-96257-7	MW-13	Total/NA	Ground Water	9056A	
310-96257-7	MW-13	Total/NA	Ground Water	9056A	
310-96257-8	MW-14	Total/NA	Ground Water	9056A	
310-96257-8	MW-14	Total/NA	Ground Water	9056A	
310-96257-9	MW-15	Total/NA	Ground Water	9056A	
310-96257-9	MW-15	Total/NA	Ground Water	9056A	
310-96257-10	DP-01	Total/NA	Ground Water	9056A	
310-96257-10	DP-01	Total/NA	Ground Water	9056A	
MB 310-152683/3	Method Blank	Total/NA	Water	9056A	
LCS 310-152683/4	Lab Control Sample	Total/NA	Water	9056A	
310-96257-1 MS	MW-2	Total/NA	Ground Water	9056A	
310-96257-1 MSD	MW-2	Total/NA	Ground Water	9056A	

Metals

Prep Batch: 152421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-96257-1	MW-2	Total/NA	Ground Water	3010A	
310-96257-2	MW-4	Total/NA	Ground Water	3010A	
310-96257-3	MW-8	Total/NA	Ground Water	3010A	
310-96257-4	MW-10	Total/NA	Ground Water	3010A	
310-96257-5	MW-11	Total/NA	Ground Water	3010A	
310-96257-6	MW-12	Total/NA	Ground Water	3010A	
310-96257-7	MW-13	Total/NA	Ground Water	3010A	
310-96257-8	MW-14	Total/NA	Ground Water	3010A	
310-96257-9	MW-15	Total/NA	Ground Water	3010A	
310-96257-10	DP-01	Total/NA	Ground Water	3010A	
MB 310-152421/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-152421/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-96257-1 MS	MW-2	Total/NA	Ground Water	3010A	
310-96257-1 MSD	MW-2	Total/NA	Ground Water	3010A	

Prep Batch: 152422

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-96257-1	MW-2	Total/NA	Ground Water	3010A	
310-96257-2	MW-4	Total/NA	Ground Water	3010A	
310-96257-3	MW-8	Total/NA	Ground Water	3010A	
310-96257-4	MW-10	Total/NA	Ground Water	3010A	
310-96257-5	MW-11	Total/NA	Ground Water	3010A	
310-96257-6	MW-12	Total/NA	Ground Water	3010A	
310-96257-7	MW-13	Total/NA	Ground Water	3010A	

Metals (Continued)

Prep Batch: 152422 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-96257-8	MW-14	Total/NA	Ground Water	3010A	
310-96257-9	MW-15	Total/NA	Ground Water	3010A	
310-96257-10	DP-01	Total/NA	Ground Water	3010A	
MB 310-152422/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-152422/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-96257-1 MS	MW-2	Total/NA	Ground Water	3010A	
310-96257-1 MSD	MW-2	Total/NA	Ground Water	3010A	

Prep Batch: 152560

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-96257-1	MW-2	Total/NA	Ground Water	7470A	
310-96257-2	MW-4	Total/NA	Ground Water	7470A	
310-96257-3	MW-8	Total/NA	Ground Water	7470A	
310-96257-4	MW-10	Total/NA	Ground Water	7470A	
310-96257-5	MW-11	Total/NA	Ground Water	7470A	
310-96257-6	MW-12	Total/NA	Ground Water	7470A	
310-96257-7	MW-13	Total/NA	Ground Water	7470A	
310-96257-8	MW-14	Total/NA	Ground Water	7470A	
310-96257-9	MW-15	Total/NA	Ground Water	7470A	
310-96257-10	DP-01	Total/NA	Ground Water	7470A	
MB 310-152560/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-152560/2-A	Lab Control Sample	Total/NA	Water	7470A	
310-96257-1 MS	MW-2	Total/NA	Ground Water	7470A	
310-96257-1 MSD	MW-2	Total/NA	Ground Water	7470A	

Analysis Batch: 152627

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-96257-1	MW-2	Total/NA	Ground Water	6010C	152422
310-96257-2	MW-4	Total/NA	Ground Water	6010C	152422
310-96257-3	MW-8	Total/NA	Ground Water	6010C	152422
310-96257-4	MW-10	Total/NA	Ground Water	6010C	152422
310-96257-5	MW-11	Total/NA	Ground Water	6010C	152422
310-96257-6	MW-12	Total/NA	Ground Water	6010C	152422
310-96257-7	MW-13	Total/NA	Ground Water	6010C	152422
310-96257-8	MW-14	Total/NA	Ground Water	6010C	152422
310-96257-9	MW-15	Total/NA	Ground Water	6010C	152422
310-96257-10	DP-01	Total/NA	Ground Water	6010C	152422
MB 310-152422/1-A	Method Blank	Total/NA	Water	6010C	152422
LCS 310-152422/2-A	Lab Control Sample	Total/NA	Water	6010C	152422
310-96257-1 MS	MW-2	Total/NA	Ground Water	6010C	152422
310-96257-1 MSD	MW-2	Total/NA	Ground Water	6010C	152422

Analysis Batch: 152695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-96257-1	MW-2	Total/NA	Ground Water	7470A	152560
310-96257-2	MW-4	Total/NA	Ground Water	7470A	152560
310-96257-3	MW-8	Total/NA	Ground Water	7470A	152560
310-96257-4	MW-10	Total/NA	Ground Water	7470A	152560
310-96257-5	MW-11	Total/NA	Ground Water	7470A	152560
310-96257-6	MW-12	Total/NA	Ground Water	7470A	152560
310-96257-7	MW-13	Total/NA	Ground Water	7470A	152560

Metals (Continued)

Analysis Batch: 152695 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-96257-8	MW-14	Total/NA	Ground Water	7470A	152560
310-96257-9	MW-15	Total/NA	Ground Water	7470A	152560
310-96257-10	DP-01	Total/NA	Ground Water	7470A	152560
MB 310-152560/1-A	Method Blank	Total/NA	Water	7470A	152560
LCS 310-152560/2-A	Lab Control Sample	Total/NA	Water	7470A	152560
310-96257-1 MS	MW-2	Total/NA	Ground Water	7470A	152560
310-96257-1 MSD	MW-2	Total/NA	Ground Water	7470A	152560

Analysis Batch: 152982

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-96257-1	MW-2	Total/NA	Ground Water	6020A	152421
310-96257-2	MW-4	Total/NA	Ground Water	6020A	152421
310-96257-3	MW-8	Total/NA	Ground Water	6020A	152421
310-96257-4	MW-10	Total/NA	Ground Water	6020A	152421
310-96257-5	MW-11	Total/NA	Ground Water	6020A	152421
310-96257-6	MW-12	Total/NA	Ground Water	6020A	152421
310-96257-7	MW-13	Total/NA	Ground Water	6020A	152421
310-96257-8	MW-14	Total/NA	Ground Water	6020A	152421
310-96257-9	MW-15	Total/NA	Ground Water	6020A	152421
310-96257-10	DP-01	Total/NA	Ground Water	6020A	152421
MB 310-152421/1-A	Method Blank	Total/NA	Water	6020A	152421
LCS 310-152421/2-A	Lab Control Sample	Total/NA	Water	6020A	152421
310-96257-1 MS	MW-2	Total/NA	Ground Water	6020A	152421
310-96257-1 MSD	MW-2	Total/NA	Ground Water	6020A	152421

Analysis Batch: 153202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-96257-3	MW-8	Total/NA	Ground Water	6020A	152421
310-96257-6	MW-12	Total/NA	Ground Water	6020A	152421

General Chemistry

Analysis Batch: 152291

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-96257-1	MW-2	Total/NA	Ground Water	SM 4500 H+ B	
310-96257-2	MW-4	Total/NA	Ground Water	SM 4500 H+ B	
310-96257-3	MW-8	Total/NA	Ground Water	SM 4500 H+ B	
310-96257-4	MW-10	Total/NA	Ground Water	SM 4500 H+ B	
310-96257-5	MW-11	Total/NA	Ground Water	SM 4500 H+ B	
310-96257-6	MW-12	Total/NA	Ground Water	SM 4500 H+ B	
310-96257-7	MW-13	Total/NA	Ground Water	SM 4500 H+ B	
310-96257-8	MW-14	Total/NA	Ground Water	SM 4500 H+ B	
310-96257-9	MW-15	Total/NA	Ground Water	SM 4500 H+ B	
310-96257-10	DP-01	Total/NA	Ground Water	SM 4500 H+ B	
LCS 310-152291/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-96257-1 DU	MW-2	Total/NA	Ground Water	SM 4500 H+ B	
310-96257-9 DU	MW-15	Total/NA	Ground Water	SM 4500 H+ B	

General Chemistry (Continued)

Analysis Batch: 152328

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-96257-1	MW-2	Total/NA	Ground Water	SM 2540C	
310-96257-2	MW-4	Total/NA	Ground Water	SM 2540C	
310-96257-3	MW-8	Total/NA	Ground Water	SM 2540C	
310-96257-4	MW-10	Total/NA	Ground Water	SM 2540C	
310-96257-5	MW-11	Total/NA	Ground Water	SM 2540C	
310-96257-6	MW-12	Total/NA	Ground Water	SM 2540C	
310-96257-7	MW-13	Total/NA	Ground Water	SM 2540C	
310-96257-8	MW-14	Total/NA	Ground Water	SM 2540C	
310-96257-9	MW-15	Total/NA	Ground Water	SM 2540C	
310-96257-10	DP-01	Total/NA	Ground Water	SM 2540C	
MB 310-152328/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-152328/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-96257-1 DU	MW-2	Total/NA	Ground Water	SM 2540C	

Rad

Prep Batch: 285563

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-96257-1	MW-2	Total/NA	Ground Water	PrecSep-21	
310-96257-2	MW-4	Total/NA	Ground Water	PrecSep-21	
310-96257-3	MW-8	Total/NA	Ground Water	PrecSep-21	
310-96257-4	MW-10	Total/NA	Ground Water	PrecSep-21	
310-96257-5	MW-11	Total/NA	Ground Water	PrecSep-21	
310-96257-6	MW-12	Total/NA	Ground Water	PrecSep-21	
310-96257-7	MW-13	Total/NA	Ground Water	PrecSep-21	
310-96257-8	MW-14	Total/NA	Ground Water	PrecSep-21	
310-96257-9	MW-15	Total/NA	Ground Water	PrecSep-21	
310-96257-10	DP-01	Total/NA	Ground Water	PrecSep-21	
MB 160-285563/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-285563/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 285666

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-96257-1	MW-2	Total/NA	Ground Water	PrecSep_0	
310-96257-2	MW-4	Total/NA	Ground Water	PrecSep_0	
310-96257-3	MW-8	Total/NA	Ground Water	PrecSep_0	
310-96257-4	MW-10	Total/NA	Ground Water	PrecSep_0	
310-96257-5	MW-11	Total/NA	Ground Water	PrecSep_0	
310-96257-10	DP-01	Total/NA	Ground Water	PrecSep_0	
MB 160-285666/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-285666/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Prep Batch: 290589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-96257-6	MW-12	Total/NA	Ground Water	PrecSep_0	
310-96257-7	MW-13	Total/NA	Ground Water	PrecSep_0	
310-96257-8	MW-14	Total/NA	Ground Water	PrecSep_0	
310-96257-9	MW-15	Total/NA	Ground Water	PrecSep_0	
MB 160-290589/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-290589/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Rad (Continued)

Prep Batch: 290589 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 160-290589/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Client Sample ID: MW-2

Date Collected: 12/19/16 18:08
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-1

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	152683	12/22/16 15:42	SAD	TAL CF
Total/NA	Prep	3010A			152422	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6010C		1	152627	12/22/16 20:27	OAD	TAL CF
Total/NA	Prep	3010A			152421	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	152982	12/28/16 18:17	OAD	TAL CF
Total/NA	Prep	7470A			152560	12/22/16 12:35	SAD	TAL CF
Total/NA	Analysis	7470A		1	152695	12/23/16 13:25	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	152328	12/21/16 08:56	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	152291	12/20/16 20:10	BER	TAL CF
Total/NA	Prep	PrecSep-21			285563	12/28/16 08:18	AS	TAL SL
Total/NA	Analysis	9315		1	290149	01/31/17 20:31	MLK	TAL SL
Total/NA	Prep	PrecSep_0			285666	12/28/16 08:57	AS	TAL SL
Total/NA	Analysis	9320		1	290149	01/31/17 13:18	MLK	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	291050	02/06/17 11:47	EAW	TAL SL

Client Sample ID: MW-4

Date Collected: 12/19/16 11:26
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-2

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	152683	12/22/16 16:27	SAD	TAL CF
Total/NA	Analysis	9056A		50	152683	12/22/16 21:02	SAD	TAL CF
Total/NA	Prep	3010A			152422	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6010C		1	152627	12/22/16 20:35	OAD	TAL CF
Total/NA	Prep	3010A			152421	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	152982	12/28/16 18:38	OAD	TAL CF
Total/NA	Prep	7470A			152560	12/22/16 12:35	SAD	TAL CF
Total/NA	Analysis	7470A		1	152695	12/23/16 13:29	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	152328	12/21/16 08:56	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	152291	12/20/16 20:13	BER	TAL CF
Total/NA	Prep	PrecSep-21			285563	12/28/16 08:18	AS	TAL SL
Total/NA	Analysis	9315		1	290149	01/31/17 20:31	MLK	TAL SL
Total/NA	Prep	PrecSep_0			285666	12/28/16 08:57	AS	TAL SL
Total/NA	Analysis	9320		1	290149	01/31/17 13:18	MLK	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	291050	02/06/17 11:47	EAW	TAL SL

Client Sample ID: MW-8

Date Collected: 12/19/16 16:03
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-3

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	152683	12/22/16 16:43	SAD	TAL CF

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-96257-1
SDG: 11114654

Client Sample ID: MW-8

Date Collected: 12/19/16 16:03
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-3

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		50	152683	12/22/16 21:18	SAD	TAL CF
Total/NA	Prep	3010A			152422	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6010C		1	152627	12/22/16 20:41	OAD	TAL CF
Total/NA	Prep	3010A			152421	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	152982	12/28/16 18:42	OAD	TAL CF
Total/NA	Prep	3010A			152421	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6020A		10	153202	12/30/16 11:13	OAD	TAL CF
Total/NA	Prep	7470A			152560	12/22/16 12:35	SAD	TAL CF
Total/NA	Analysis	7470A		1	152695	12/23/16 13:34	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	152328	12/21/16 08:56	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	152291	12/20/16 20:14	BER	TAL CF
Total/NA	Prep	PrecSep-21			285563	12/28/16 08:18	AS	TAL SL
Total/NA	Analysis	9315		1	290149	01/31/17 20:31	MLK	TAL SL
Total/NA	Prep	PrecSep_0			285666	12/28/16 08:57	AS	TAL SL
Total/NA	Analysis	9320		1	290149	01/31/17 13:19	MLK	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	291050	02/06/17 11:47	EAW	TAL SL

Client Sample ID: MW-10

Date Collected: 12/19/16 15:18
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-4

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	152683	12/22/16 17:29	SAD	TAL CF
Total/NA	Prep	3010A			152422	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6010C		1	152627	12/22/16 20:43	OAD	TAL CF
Total/NA	Prep	3010A			152421	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	152982	12/28/16 18:45	OAD	TAL CF
Total/NA	Prep	7470A			152560	12/22/16 12:35	SAD	TAL CF
Total/NA	Analysis	7470A		1	152695	12/23/16 13:36	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	152328	12/21/16 08:56	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	152291	12/20/16 20:15	BER	TAL CF
Total/NA	Prep	PrecSep-21			285563	12/28/16 08:18	AS	TAL SL
Total/NA	Analysis	9315		1	290149	01/31/17 20:31	MLK	TAL SL
Total/NA	Prep	PrecSep_0			285666	12/28/16 08:57	AS	TAL SL
Total/NA	Analysis	9320		1	290149	01/31/17 13:19	MLK	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	291050	02/06/17 11:47	EAW	TAL SL

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-96257-1
SDG: 11114654

Client Sample ID: MW-11

Date Collected: 12/19/16 16:40
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		20	152683	12/22/16 21:33	SAD	TAL CF
Total/NA	Prep	3010A			152422	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6010C		1	152627	12/22/16 20:45	OAD	TAL CF
Total/NA	Prep	3010A			152421	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	152982	12/28/16 18:48	OAD	TAL CF
Total/NA	Prep	7470A			152560	12/22/16 12:35	SAD	TAL CF
Total/NA	Analysis	7470A		1	152695	12/23/16 13:37	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	152328	12/21/16 08:56	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	152291	12/20/16 20:16	BER	TAL CF
Total/NA	Prep	PrecSep-21			285563	12/28/16 08:18	AS	TAL SL
Total/NA	Analysis	9315		1	290149	01/31/17 20:31	MLK	TAL SL
Total/NA	Prep	PrecSep_0			285666	12/28/16 08:57	AS	TAL SL
Total/NA	Analysis	9320		1	290147	01/31/17 13:14	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	291050	02/06/17 11:47	EAW	TAL SL

Client Sample ID: MW-12

Date Collected: 12/19/16 09:15
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-6

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	152683	12/22/16 17:59	SAD	TAL CF
Total/NA	Analysis	9056A		20	152683	12/22/16 21:48	SAD	TAL CF
Total/NA	Prep	3010A			152422	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6010C		1	152627	12/22/16 20:48	OAD	TAL CF
Total/NA	Prep	3010A			152421	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	152982	12/28/16 18:51	OAD	TAL CF
Total/NA	Prep	3010A			152421	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6020A		10	153202	12/30/16 11:17	OAD	TAL CF
Total/NA	Prep	7470A			152560	12/22/16 12:35	SAD	TAL CF
Total/NA	Analysis	7470A		1	152695	12/23/16 13:39	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	152328	12/21/16 08:56	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	152291	12/20/16 20:17	BER	TAL CF
Total/NA	Prep	PrecSep-21			285563	12/28/16 08:18	AS	TAL SL
Total/NA	Analysis	9315		1	290149	01/31/17 21:47	MLK	TAL SL
Total/NA	Prep	PrecSep_0			290589	02/01/17 14:12	MBC	TAL SL
Total/NA	Analysis	9320		1	290976	02/04/17 15:56	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	291050	02/06/17 11:47	EAW	TAL SL

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-96257-1
SDG: 11114654

Client Sample ID: MW-13

Date Collected: 12/19/16 08:33
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-7

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	152683	12/22/16 18:14	SAD	TAL CF
Total/NA	Analysis	9056A		20	152683	12/22/16 22:03	SAD	TAL CF
Total/NA	Prep	3010A			152422	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6010C		1	152627	12/22/16 20:50	OAD	TAL CF
Total/NA	Prep	3010A			152421	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	152982	12/28/16 18:54	OAD	TAL CF
Total/NA	Prep	7470A			152560	12/22/16 12:35	SAD	TAL CF
Total/NA	Analysis	7470A		1	152695	12/23/16 13:40	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	152328	12/21/16 08:56	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	152291	12/20/16 20:18	BER	TAL CF
Total/NA	Prep	PrecSep-21			285563	12/28/16 08:18	AS	TAL SL
Total/NA	Analysis	9315		1	290147	01/31/17 21:57	KLS	TAL SL
Total/NA	Prep	PrecSep_0			290589	02/01/17 14:12	MBC	TAL SL
Total/NA	Analysis	9320		1	290976	02/04/17 15:56	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	291050	02/06/17 11:47	EAW	TAL SL

Client Sample ID: MW-14

Date Collected: 12/19/16 10:17
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-8

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	152683	12/22/16 18:30	SAD	TAL CF
Total/NA	Analysis	9056A		20	152683	12/22/16 22:19	SAD	TAL CF
Total/NA	Prep	3010A			152422	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6010C		1	152627	12/22/16 20:52	OAD	TAL CF
Total/NA	Prep	3010A			152421	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	152982	12/28/16 18:57	OAD	TAL CF
Total/NA	Prep	7470A			152560	12/22/16 12:35	SAD	TAL CF
Total/NA	Analysis	7470A		1	152695	12/23/16 13:42	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	152328	12/21/16 08:56	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	152291	12/20/16 20:19	BER	TAL CF
Total/NA	Prep	PrecSep-21			285563	12/28/16 08:18	AS	TAL SL
Total/NA	Analysis	9315		1	290147	01/31/17 21:57	KLS	TAL SL
Total/NA	Prep	PrecSep_0			290589	02/01/17 14:12	MBC	TAL SL
Total/NA	Analysis	9320		1	290976	02/04/17 15:57	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	291050	02/06/17 11:47	EAW	TAL SL

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-96257-1
SDG: 11114654

Client Sample ID: MW-15

Date Collected: 12/19/16 13:57
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-9
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	152683	12/22/16 18:45	SAD	TAL CF
Total/NA	Analysis	9056A		20	152683	12/22/16 22:34	SAD	TAL CF
Total/NA	Prep	3010A			152422	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6010C		1	152627	12/22/16 20:54	OAD	TAL CF
Total/NA	Prep	3010A			152421	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	152982	12/28/16 19:00	OAD	TAL CF
Total/NA	Prep	7470A			152560	12/22/16 12:35	SAD	TAL CF
Total/NA	Analysis	7470A		1	152695	12/23/16 13:43	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	152328	12/21/16 08:56	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	152291	12/20/16 20:25	BER	TAL CF
Total/NA	Prep	PrecSep-21			285563	12/28/16 08:18	AS	TAL SL
Total/NA	Analysis	9315		1	290147	01/31/17 21:57	KLS	TAL SL
Total/NA	Prep	PrecSep_0			290589	02/01/17 14:12	MBC	TAL SL
Total/NA	Analysis	9320		1	290976	02/04/17 15:57	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	291050	02/06/17 11:47	EAW	TAL SL

Client Sample ID: DP-01

Date Collected: 12/19/16 00:00
Date Received: 12/20/16 17:15

Lab Sample ID: 310-96257-10
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	152683	12/22/16 19:00	SAD	TAL CF
Total/NA	Analysis	9056A		20	152683	12/22/16 22:49	SAD	TAL CF
Total/NA	Prep	3010A			152422	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6010C		1	152627	12/22/16 20:56	OAD	TAL CF
Total/NA	Prep	3010A			152421	12/22/16 08:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	152982	12/28/16 19:03	OAD	TAL CF
Total/NA	Prep	7470A			152560	12/22/16 12:35	SAD	TAL CF
Total/NA	Analysis	7470A		1	152695	12/23/16 13:45	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	152328	12/21/16 08:56	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	152291	12/20/16 20:27	BER	TAL CF
Total/NA	Prep	PrecSep-21			285563	12/28/16 08:18	AS	TAL SL
Total/NA	Analysis	9315		1	290147	01/31/17 21:57	KLS	TAL SL
Total/NA	Prep	PrecSep_0			285666	12/28/16 08:57	AS	TAL SL
Total/NA	Analysis	9320		1	290147	01/31/17 13:15	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	291050	02/06/17 11:47	EAW	TAL SL

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Certification Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-96257-1
SDG: 11114654

Laboratory: TestAmerica Cedar Falls

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA-LAP, LLC	IHLAP		101044	11-01-18
Georgia	State Program	4	N/A	09-29-17
Illinois	NELAP	5	200024	11-29-17
Iowa	State Program	7	007	12-01-17
Kansas	NELAP	7	E-10341	01-31-18
Minnesota	NELAP	5	019-999-319	12-31-17
Minnesota (Petrofund)	State Program	1	3349	08-22-17
North Dakota	State Program	8	R-186	09-29-17
Oregon	NELAP	10	IA100001	09-29-17

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	12-01-16 *
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	02-28-17 *
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.

Method Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-96257-1
SDG: 11114654

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL CF
6010C	Metals (ICP)	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CF
SM 4500 H+ B	pH	SM	TAL CF
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL

Protocol References:

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.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-96257 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: Des Moines, IA | Project: MidAmerican Neal South

Receipt Information

Date/Time Received: 12/20/16 1715 | Received By:

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☒ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID: 9

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 3 of 4

Cooler Custody Seals Present? ☒ Yes ☐ No *If yes:* Cooler custody seals intact? ☒ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Temperature Blank? ☒ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: H | Correction Factor (°C): 0

Uncorrected Temp (°C): 6.4 | Corrected Temp (°C): 6.4

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☒ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Temp Blank away from Ice

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: Des Moines, IA | Project:

Receipt Information

Date/Time Received: 12/20/16 1715 | Received By: Brad Hunter

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☒ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID: VI

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 4 of 4

Cooler Custody Seals Present? ☒ Yes ☐ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☒ Yes ☐ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Temperature Blank? ☒ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: H | Correction Factor (°C): 0

Uncorrected Temp (°C): 6.9 | Corrected Temp (°C): 6.9

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☒ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Temp Blank away from Ice

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310503

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: Des Moines, IA | Project: MidAmerican Neal South

Receipt Information

Date/Time Received: 12/20/16 1715 | Received By: [signature]

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☒ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other: _____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No — *If yes:* Cooler ID: T-2

Multiple Coolers? ☒ Yes ☐ No — *If yes:* Cooler # 2 of 4

Cooler Custody Seals Present? ☒ Yes ☐ No — *If yes:* Cooler custody seals intact? ☒ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No — *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No — *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE

Temperature Blank? ☒ Yes ☐ No — ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: H | Correction Factor (°C): 0

Uncorrected Temp (°C): 2.4 | Corrected Temp (°C): 2.4

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

S.O.# 20218

TestAmerica Cedar Falls
Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Sean Determan	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No:
Client Contact: Kevin Armstrong	Phone:	E-Mail: shawn.hayes@testamericainc.com		Page: 1 of 1
Company: GHD Services Inc.				Job #: 11114654

Address: 11228 Aurora Avenue	Due Date Requested:	
City: Des Moines	TAT Requested (days): Standard	
State, Zip: IA, 50322-7905		
Phone: 515-414-3935	PO #: 34003921	
Email: Kevin.Armstrong@ghd.com	WO #:	
Project Name: MidAmerican Neal South CCR Monofill	TestAMerica Project #: 31007315	
Proj ct Number: 11114654	SSOW#: 11114654-002	

Analysis Requested

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, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228	6010C, 6020A, 7470A Select List	2540C TDS	9056A Chloride, Sulfate, and Fluoride	SM4500 H+ pH	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N	N	N		
MW-2	12-19-16	1808	G	GW	N	Y	X	X	X	X	X		3x vol for MS/MSD
MW-4	12-19-16	1126	G	GW	N	N	X	X	X	X	X		
MW-8	12-19-16	1603	G	GW	N	N	X	X	X	X	X		
MW-10	12-19-16	1518	G	GW	N	N	X	X	X	X	X		
MW-11	12-19-16	1640	G	GW	N	N	X	X	X	X	X		
MW-12	12-19-16	0915	G	GW	N	N	X	X	X	X	X		
MW-13	12-19-16	0833	G	GW	N	N	X	X	X	X	X		
MW-14	12-19-16	1017	G	GW	N	N	X	X	X	X	X		
MW-15	12-19-16	1357	G	GW	N	N	X	X	X	X	X		
DP-01	12-19-16	—	G	GW	N	N	X	X	X	X	X		

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

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

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Report all parameters together with Radiologicals

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by: Sean Determan	12/20/16 14:45	GHD		12-20-16 - 14:50	DSM
Relinquished by:	12/20/16 14:50	DSM		12/20/16 1715	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW-2	310-96257-A-1	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-96257-A-1 MS	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-96257-A-1 MSD	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-96257-C-1	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-96257-C-1 MS	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-96257-C-1 MSD	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-96257-D-1	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-96257-D-1 MS	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-96257-D-1 MSD	Plastic 1 liter - Nitric Acid	<2		
MW-4	310-96257-A-2	Plastic 250ml - with Nitric Acid	<2		
MW-4	310-96257-C-2	Plastic 1 liter - Nitric Acid	<2		
MW-4	310-96257-D-2	Plastic 1 liter - Nitric Acid	<2		
MW-8	310-96257-A-3	Plastic 250ml - with Nitric Acid	<2		
MW-8	310-96257-C-3	Plastic 1 liter - Nitric Acid	<2		
MW-8	310-96257-D-3	Plastic 1 liter - Nitric Acid	<2		
MW-10	310-96257-A-4	Plastic 250ml - with Nitric Acid	<2		
MW-10	310-96257-C-4	Plastic 1 liter - Nitric Acid	<2		
MW-10	310-96257-D-4	Plastic 1 liter - Nitric Acid	<2		
MW-11	310-96257-A-5	Plastic 250ml - with Nitric Acid	<2		
MW-11	310-96257-C-5	Plastic 1 liter - Nitric Acid	<2		
MW-11	310-96257-D-5	Plastic 1 liter - Nitric Acid	<2		
MW-12	310-96257-A-6	Plastic 250ml - with Nitric Acid	<2		
MW-12	310-96257-C-6	Plastic 1 liter - Nitric Acid	<2		
MW-12	310-96257-D-6	Plastic 1 liter - Nitric Acid	<2		
MW-13	310-96257-A-7	Plastic 250ml - with Nitric Acid	<2		
MW-13	310-96257-C-7	Plastic 1 liter - Nitric Acid	<2		
MW-13	310-96257-D-7	Plastic 1 liter - Nitric Acid	<2		
MW-14	310-96257-A-8	Plastic 250ml - with Nitric Acid	<2		
MW-14	310-96257-C-8	Plastic 1 liter - Nitric Acid	<2		
MW-14	310-96257-D-8	Plastic 1 liter - Nitric Acid	<2		
MW-15	310-96257-A-9	Plastic 250ml - with Nitric Acid	<2		
MW-15	310-96257-C-9	Plastic 1 liter - Nitric Acid	<2		
MW-15	310-96257-D-9	Plastic 1 liter - Nitric Acid	<2		
DP-01	310-96257-A-10	Plastic 250ml - with Nitric Acid	<2		
DP-01	310-96257-C-10	Plastic 1 liter - Nitric Acid	<2		
DP-01	310-96257-D-10	Plastic 1 liter - Nitric Acid	<2		

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 310-96257-1
SDG Number: 11114654

Login Number: 96257
List Number: 1
Creator: Worthy, Ashley L

List Source: TestAmerica Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
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.	False	Cooler temperature outside required temperature criteria.
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 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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-96257-1
SDG: 11114654

Method: 9315 - Radium-226 (GFPC)

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba (40-110)
310-96257-1	MW-2	77.5
310-96257-2	MW-4	75.8
310-96257-3	MW-8	70.7
310-96257-4	MW-10	86.0
310-96257-5	MW-11	82.6
310-96257-6	MW-12	75.2
310-96257-7	MW-13	65.5
310-96257-8	MW-14	83.5
310-96257-9	MW-15	62.7
310-96257-10	DP-01	72.1

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9315 - Radium-226 (GFPC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba (40-110)
LCS 160-285563/2-A	Lab Control Sample	83.2
MB 160-285563/1-A	Method Blank	77.5

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
310-96257-1	MW-2	77.5	75.1
310-96257-2	MW-4	75.8	72.1
310-96257-3	MW-8	70.7	72.1
310-96257-4	MW-10	86.0	72.9
310-96257-5	MW-11	82.6	74.4
310-96257-6	MW-12	66.1	83.0
310-96257-7	MW-13	74.6	82.6
310-96257-8	MW-14	63.0	79.3
310-96257-9	MW-15	68.7	80.0
310-96257-10	DP-01	72.1	77.0

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

Tracer/Carrier Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Monofill Wells CCR

TestAmerica Job ID: 310-96257-1
SDG: 11114654

Method: 9320 - Radium-228 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)	
		Ba	Y
Lab Sample ID	Client Sample ID	(40-110)	(40-110)
LCS 160-285666/2-A	Lab Control Sample	83.2	72.1
LCS 160-290589/2-A	Lab Control Sample	84.3	82.6
LCSD 160-290589/3-A	Lab Control Sample Dup	90.3	81.1
MB 160-285666/1-A	Method Blank	77.5	71.4
MB 160-290589/1-A	Method Blank	84.0	79.3

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319)277-2401

TestAmerica Job ID: 310-100252-1
TestAmerica Sample Delivery Group: 11114654-CCR16
Client Project/Site: MEC Neal South Energy Center CCR Monofil
Sampling Event: Neal South CCR Qtrly
Revision: 1

For:
GHD Services Inc.
11228 Aurora Avenue
Des Moines, Iowa 50322-7905

Attn: Kevin Armstrong

Authorized for release by:
4/10/2017 1:52:59 PM

Shawn Hayes, Senior Project Manager
(319)277-2401
shawn.hayes@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

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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Job ID: 310-100040-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-100040-1

Comments
Revised report to correct the 9056 sulfate dilution factor for DP-01 (310-100040-10) from 1X origianlly reported to 20X. This was a data entry error.

Receipt
The samples were received on 2/23/2017 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.3º C.

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

Job ID: 310-100252-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-100252-1

Comments
No additional comments.

Receipt
The samples were received on 2/24/2017 5:55 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.3º C, 4.7º C and 5.6º C.

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

Job ID: 310-100252-2

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-100252-2

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

Sample Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR Monofil

TestAmerica Job ID: 310-100252-1
SDG: 11114654-CCR16

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-100040-1	MW-2	Ground Water	02/20/17 14:36	02/23/17 09:30
310-100040-2	MW-4	Ground Water	02/20/17 13:42	02/23/17 09:30
310-100040-3	MW-8	Ground Water	02/21/17 08:01	02/23/17 09:30
310-100040-4	MW-10	Ground Water	02/21/17 08:55	02/23/17 09:30
310-100040-5	MW-11	Ground Water	02/20/17 17:44	02/23/17 09:30
310-100040-6	MW-12	Ground Water	02/20/17 16:50	02/23/17 09:30
310-100040-7	MW-13	Ground Water	02/20/17 16:09	02/23/17 09:30
310-100040-8	MW-14	Ground Water	02/20/17 18:36	02/23/17 09:30
310-100040-9	MW-15	Ground Water	02/21/17 09:51	02/23/17 09:30
310-100040-10	DP-01	Ground Water	02/20/17 00:00	02/23/17 09:30
310-100252-1	MW-2	Ground Water	02/20/17 14:36	02/24/17 17:55
310-100252-2	MW-4	Ground Water	02/20/17 13:42	02/24/17 17:55
310-100252-3	MW-8	Ground Water	02/21/17 08:01	02/24/17 17:55
310-100252-4	MW-10	Ground Water	02/21/17 08:55	02/24/17 17:55
310-100252-5	MW-11	Ground Water	02/20/17 17:44	02/24/17 17:55
310-100252-6	MW-12	Ground Water	02/20/17 16:50	02/24/17 17:55
310-100252-7	MW-13	Ground Water	02/20/17 16:09	02/24/17 17:55
310-100252-8	MW-14	Ground Water	02/20/17 18:36	02/24/17 17:55
310-100252-9	MW-15	Ground Water	02/21/17 09:51	02/24/17 17:55
310-100252-10	DP-01	Ground Water	02/20/17 00:00	02/24/17 17:55

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR Monofil

TestAmerica Job ID: 310-100252-1
SDG: 11114654-CCR16

Client Sample ID: MW-2
Date Collected: 02/20/17 14:36
Date Received: 02/23/17 09:30

Lab Sample ID: 310-100040-1
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**7.08**		5.00		mg/L			03/10/17 10:49	5
Sulfate	**70.0**		5.00		mg/L			03/10/17 10:49	5
Fluoride	<0.500		0.500		mg/L			03/10/17 10:49	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**734**		30.0		mg/L			02/24/17 08:27	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.0**	**HF**	0.1		SU			02/23/17 16:28	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR Monofil

TestAmerica Job ID: 310-100252-1
SDG: 11114654-CCR16

Client Sample ID: MW-4
Date Collected: 02/20/17 13:42
Date Received: 02/23/17 09:30

Lab Sample ID: 310-100040-2
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16.2		5.00		mg/L			02/28/17 03:13	5
Sulfate	839		20.0		mg/L			02/28/17 11:41	20
Fluoride	<0.500		0.500		mg/L			02/28/17 03:13	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2220		150		mg/L			02/24/17 08:27	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.8	HF	0.1		SU			02/23/17 16:34	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR Monofil

TestAmerica Job ID: 310-100252-1
SDG: 11114654-CCR16

Client Sample ID: MW-8
Date Collected: 02/21/17 08:01
Date Received: 02/23/17 09:30

Lab Sample ID: 310-100040-3
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.69		5.00		mg/L			02/28/17 03:43	5
Sulfate	690		20.0		mg/L			02/28/17 12:10	20
Fluoride	2.31		0.500		mg/L			02/28/17 03:43	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1810		150		mg/L			02/24/17 08:27	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.2	HF	0.1		SU			02/23/17 16:36	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR Monofil

TestAmerica Job ID: 310-100252-1
SDG: 11114654-CCR16

Client Sample ID: MW-10
Date Collected: 02/21/17 08:55
Date Received: 02/23/17 09:30

Lab Sample ID: 310-100040-4
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11.3		5.00		mg/L			02/28/17 04:13	5
Sulfate	14.3		5.00		mg/L			02/28/17 04:13	5
Fluoride	2.95		0.500		mg/L			02/28/17 04:13	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	836		60.0		mg/L			02/24/17 08:27	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.2	HF	0.1		SU			02/23/17 16:37	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR Monofil

TestAmerica Job ID: 310-100252-1
SDG: 11114654-CCR16

Client Sample ID: MW-11
Date Collected: 02/20/17 17:44
Date Received: 02/23/17 09:30

Lab Sample ID: 310-100040-5
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.39		5.00		mg/L			02/28/17 04:43	5
Sulfate	340		10.0		mg/L			02/28/17 12:40	10
Fluoride	1.20		0.500		mg/L			02/28/17 04:43	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1210		60.0		mg/L			02/24/17 08:27	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.0	HF	0.1		SU			02/23/17 16:39	1

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR Monofil

TestAmerica Job ID: 310-100252-1
SDG: 11114654-CCR16

Client Sample ID: MW-12
Date Collected: 02/20/17 16:50
Date Received: 02/23/17 09:30

Lab Sample ID: 310-100040-6
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	42.1		5.00		mg/L			02/28/17 05:13	5
Sulfate	585		20.0		mg/L			03/01/17 15:04	20
Fluoride	1.78		0.500		mg/L			02/28/17 05:13	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1600		150		mg/L			02/24/17 08:27	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.1	HF	0.1		SU			02/23/17 16:41	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR Monofil

TestAmerica Job ID: 310-100252-1
SDG: 11114654-CCR16

Client Sample ID: MW-13
Date Collected: 02/20/17 16:09
Date Received: 02/23/17 09:30

Lab Sample ID: 310-100040-7
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	18.1		5.00		mg/L			02/28/17 06:42	5
Sulfate	451		20.0		mg/L			02/28/17 13:40	20
Fluoride	0.848		0.500		mg/L			02/28/17 06:42	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1330		60.0		mg/L			02/24/17 08:27	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.0	HF	0.1		SU			02/23/17 17:16	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR Monofil

TestAmerica Job ID: 310-100252-1
SDG: 11114654-CCR16

Client Sample ID: MW-14

Date Collected: 02/20/17 18:36
Date Received: 02/23/17 09:30

Lab Sample ID: 310-100040-8

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.67		5.00		mg/L			02/28/17 07:12	5
Sulfate	428		20.0		mg/L			02/28/17 14:10	20
Fluoride	2.17		0.500		mg/L			02/28/17 07:12	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1600		150		mg/L			02/24/17 08:27	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1		SU			02/23/17 17:18	1

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR Monofil

TestAmerica Job ID: 310-100252-1
SDG: 11114654-CCR16

Client Sample ID: MW-15
Date Collected: 02/21/17 09:51
Date Received: 02/23/17 09:30

Lab Sample ID: 310-100040-9
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.35		5.00		mg/L			02/28/17 07:42	5
Sulfate	538		20.0		mg/L			02/28/17 14:40	20
Fluoride	1.90		0.500		mg/L			02/28/17 07:42	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2000		150		mg/L			02/24/17 08:27	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1		SU			02/23/17 17:20	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR Monofil

TestAmerica Job ID: 310-100252-1
SDG: 11114654-CCR16

Client Sample ID: DP-01

Date Collected: 02/20/17 00:00
Date Received: 02/23/17 09:30

Lab Sample ID: 310-100040-10

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	21.0		5.00		mg/L			02/28/17 08:12	5
Sulfate	339		20.0		mg/L			03/01/17 15:19	20
Fluoride	8.89		0.500		mg/L			02/28/17 08:12	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1180		60.0		mg/L			02/24/17 08:27	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.0	HF	0.1		SU			02/23/17 17:21	1

Client Sample ID: MW-2

Date Collected: 02/20/17 14:36
Date Received: 02/24/17 17:55

Lab Sample ID: 310-100252-1

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0821**		0.0500		mg/L		03/01/17 10:00	03/01/17 22:40	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:02	1
Arsenic	**0.0386**		0.00200		mg/L		02/28/17 10:00	03/03/17 21:02	1
Barium	**0.137**		0.00200		mg/L		02/28/17 10:00	03/03/17 21:02	1
Beryllium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:02	1
Boron	**0.815**		0.200		mg/L		02/28/17 10:00	03/03/17 21:02	1
Cadmium	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 21:02	1
Calcium	**158**		0.200		mg/L		02/28/17 10:00	03/03/17 21:02	1
Chromium	<0.00500		0.00500		mg/L		02/28/17 10:00	03/03/17 21:02	1
Cobalt	**0.00164**		0.000500		mg/L		02/28/17 10:00	03/03/17 21:02	1
Lead	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 21:02	1
Molybdenum	**0.00258**		0.00200		mg/L		02/28/17 10:00	03/03/17 21:02	1
Selenium	<0.00500		0.00500		mg/L		02/28/17 10:00	03/03/17 21:02	1
Thallium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:02	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/28/17 11:05	03/01/17 10:42	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0886	U	0.0680	0.0685	1.00	0.0921	pCi/L	03/02/17 14:15	03/24/17 05:26	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.7*		*40 - 110*	*03/02/17 14:15*	*03/24/17 05:26*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0752	U	0.207	0.208	1.00	0.359	pCi/L	03/02/17 14:57	03/16/17 14:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.7*		*40 - 110*	*03/02/17 14:57*	*03/16/17 14:21*	*1*
Y Carrier	*92.0*		*40 - 110*	*03/02/17 14:57*	*03/16/17 14:21*	*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	0.164	U	0.218	0.219	5.00	0.359	pCi/L		03/27/17 14:56	1

Client Sample ID: MW-4

Date Collected: 02/20/17 13:42
Date Received: 02/24/17 17:55

Lab Sample ID: 310-100252-2

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.171**		0.0500		mg/L		03/01/17 10:00	03/01/17 22:52	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:24	1
Arsenic	<0.00200		0.00200		mg/L		02/28/17 10:00	03/03/17 21:24	1
Barium	**0.0334**		0.00200		mg/L		02/28/17 10:00	03/03/17 21:24	1
Beryllium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:24	1
Boron	**1.34**		0.200		mg/L		02/28/17 10:00	03/07/17 15:29	1
Cadmium	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 21:24	1
Calcium	**307**		0.200		mg/L		02/28/17 10:00	03/03/17 21:24	1
Chromium	<0.00500		0.00500		mg/L		02/28/17 10:00	03/03/17 21:24	1
Cobalt	**0.00855**		0.000500		mg/L		02/28/17 10:00	03/03/17 21:24	1
Lead	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 21:24	1
Molybdenum	<0.00200		0.00200		mg/L		02/28/17 10:00	03/03/17 21:24	1
Selenium	<0.00500		0.00500		mg/L		02/28/17 10:00	03/03/17 21:24	1
Thallium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:24	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/28/17 11:05	03/01/17 10:49	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.123	U	0.0898	0.0905	1.00	0.128	pCi/L	03/02/17 14:15	03/24/17 05:26	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.2*		*40 - 110*	*03/02/17 14:15*	*03/24/17 05:26*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.275	U	0.224	0.225	1.00	0.354	pCi/L	03/02/17 14:57	03/16/17 14:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.2*		*40 - 110*	*03/02/17 14:57*	*03/16/17 14:21*	*1*
Y Carrier	*91.2*		*40 - 110*	*03/02/17 14:57*	*03/16/17 14:21*	*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	**0.398**		0.241	0.243	5.00	0.354	pCi/L		03/27/17 14:56	1

Client Sample ID: MW-8

Date Collected: 02/21/17 08:01
Date Received: 02/24/17 17:55

Lab Sample ID: 310-100252-3

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0684**		0.0500		mg/L		03/01/17 10:00	03/01/17 22:54	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:27	1
Arsenic	<0.00200		0.00200		mg/L		02/28/17 10:00	03/03/17 21:27	1
Barium	**0.0596**		0.00200		mg/L		02/28/17 10:00	03/03/17 21:27	1
Beryllium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:27	1
Boron	**4.00**		0.200		mg/L		02/28/17 10:00	03/07/17 15:32	1
Cadmium	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 21:27	1
Calcium	**190**		0.200		mg/L		02/28/17 10:00	03/03/17 21:27	1
Chromium	<0.00500		0.00500		mg/L		02/28/17 10:00	03/03/17 21:27	1
Cobalt	**0.00211**		0.000500		mg/L		02/28/17 10:00	03/03/17 21:27	1
Lead	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 21:27	1
Molybdenum	**0.0398**		0.00200		mg/L		02/28/17 10:00	03/03/17 21:27	1
Selenium	<0.00500		0.00500		mg/L		02/28/17 10:00	03/03/17 21:27	1
Thallium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:27	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/28/17 11:05	03/01/17 10:51	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.139**		0.0803	0.0813	1.00	0.0928	pCi/L	03/02/17 14:15	03/24/17 05:27	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.8*		*40 - 110*	*03/02/17 14:15*	*03/24/17 05:27*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.239	U	0.247	0.248	1.00	0.402	pCi/L	03/02/17 14:57	03/16/17 14:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.8*		*40 - 110*	*03/02/17 14:57*	*03/16/17 14:21*	*1*
Y Carrier	*89.0*		*40 - 110*	*03/02/17 14:57*	*03/16/17 14:21*	*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	0.377	U	0.259	0.261	5.00	0.402	pCi/L		03/27/17 14:56	1

Client Sample ID: MW-10

Date Collected: 02/21/17 08:55
Date Received: 02/24/17 17:55

Lab Sample ID: 310-100252-4

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0619**		0.0500		mg/L		03/01/17 10:00	03/01/17 22:56	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:30	1
Arsenic	**0.0165**		0.00200		mg/L		02/28/17 10:00	03/03/17 21:30	1
Barium	**0.399**		0.00200		mg/L		02/28/17 10:00	03/03/17 21:30	1
Beryllium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:30	1
Boron	**0.585**		0.200		mg/L		02/28/17 10:00	03/07/17 15:35	1
Cadmium	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 21:30	1
Calcium	**146**		0.200		mg/L		02/28/17 10:00	03/03/17 21:30	1
Chromium	<0.00500		0.00500		mg/L		02/28/17 10:00	03/03/17 21:30	1
Cobalt	**0.00198**		0.000500		mg/L		02/28/17 10:00	03/03/17 21:30	1
Lead	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 21:30	1
Molybdenum	**0.00329**		0.00200		mg/L		02/28/17 10:00	03/03/17 21:30	1
Selenium	<0.00500		0.00500		mg/L		02/28/17 10:00	03/03/17 21:30	1
Thallium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:30	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/28/17 11:05	03/01/17 10:53	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.252**		0.0986	0.101	1.00	0.0880	pCi/L	03/02/17 14:15	03/24/17 05:27	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.5*		*40 - 110*	*03/02/17 14:15*	*03/24/17 05:27*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.479**		0.269	0.272	1.00	0.407	pCi/L	03/02/17 14:57	03/16/17 14:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.5*		*40 - 110*	*03/02/17 14:57*	*03/16/17 14:21*	*1*
Y Carrier	*93.8*		*40 - 110*	*03/02/17 14:57*	*03/16/17 14:21*	*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	**0.731**		0.286	0.291	5.00	0.407	pCi/L		03/27/17 14:56	1

Client Sample ID: MW-11

Date Collected: 02/20/17 17:44
Date Received: 02/24/17 17:55

Lab Sample ID: 310-100252-5

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.119**		0.0500		mg/L		03/01/17 10:00	03/01/17 22:59	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:33	1
Arsenic	<0.00200		0.00200		mg/L		02/28/17 10:00	03/03/17 21:33	1
Barium	**0.0703**		0.00200		mg/L		02/28/17 10:00	03/03/17 21:33	1
Beryllium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:33	1
Boron	**0.268**		0.200		mg/L		02/28/17 10:00	03/07/17 15:38	1
Cadmium	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 21:33	1
Calcium	**243**		0.200		mg/L		02/28/17 10:00	03/03/17 21:33	1
Chromium	<0.00500		0.00500		mg/L		02/28/17 10:00	03/03/17 21:33	1
Cobalt	**0.00282**		0.000500		mg/L		02/28/17 10:00	03/03/17 21:33	1
Lead	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 21:33	1
Molybdenum	<0.00200		0.00200		mg/L		02/28/17 10:00	03/03/17 21:33	1
Selenium	<0.00500		0.00500		mg/L		02/28/17 10:00	03/03/17 21:33	1
Thallium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:33	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/28/17 11:05	03/01/17 10:54	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0832	U	0.0729	0.0733	1.00	0.105	pCi/L	03/02/17 14:15	03/24/17 05:27	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.9*		*40 - 110*	*03/02/17 14:15*	*03/24/17 05:27*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0190	U	0.204	0.204	1.00	0.370	pCi/L	03/02/17 14:57	03/16/17 14:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.9*		*40 - 110*	*03/02/17 14:57*	*03/16/17 14:21*	*1*
Y Carrier	*91.2*		*40 - 110*	*03/02/17 14:57*	*03/16/17 14:21*	*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	0.0642	U	0.217	0.217	5.00	0.370	pCi/L		03/27/17 14:56	1

Client Sample ID: MW-12

Date Collected: 02/20/17 16:50
Date Received: 02/24/17 17:55

Lab Sample ID: 310-100252-6

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0727**		0.0500		mg/L		03/01/17 10:00	03/01/17 23:01	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:37	1
Arsenic	<0.00200		0.00200		mg/L		02/28/17 10:00	03/03/17 21:37	1
Barium	**0.0440**		0.00200		mg/L		02/28/17 10:00	03/03/17 21:37	1
Beryllium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:37	1
Boron	**5.39**		1.00		mg/L		02/28/17 10:00	03/07/17 15:41	5
Cadmium	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 21:37	1
Calcium	**199**		0.200		mg/L		02/28/17 10:00	03/03/17 21:37	1
Chromium	<0.00500		0.00500		mg/L		02/28/17 10:00	03/03/17 21:37	1
Cobalt	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 21:37	1
Lead	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 21:37	1
Molybdenum	<0.00200		0.00200		mg/L		02/28/17 10:00	03/03/17 21:37	1
Selenium	**0.0701**		0.00500		mg/L		02/28/17 10:00	03/03/17 21:37	1
Thallium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:37	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/28/17 11:05	03/01/17 10:56	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.0939**		0.0655	0.0660	1.00	0.0839	pCi/L	03/02/17 14:15	03/24/17 05:27	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.4*		*40 - 110*	*03/02/17 14:15*	*03/24/17 05:27*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.207	U	0.271	0.271	1.00	0.450	pCi/L	03/02/17 14:57	03/16/17 14:22	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.4*		*40 - 110*	*03/02/17 14:57*	*03/16/17 14:22*	*1*
Y Carrier	*85.6*		*40 - 110*	*03/02/17 14:57*	*03/16/17 14:22*	*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	0.301	U	0.278	0.279	5.00	0.450	pCi/L		03/27/17 14:56	1

Client Sample ID: MW-13

Date Collected: 02/20/17 16:09
Date Received: 02/24/17 17:55

Lab Sample ID: 310-100252-7

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.120**		0.0500		mg/L		03/01/17 10:00	03/01/17 23:03	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:40	1
Arsenic	**0.00223**		0.00200		mg/L		02/28/17 10:00	03/03/17 21:40	1
Barium	**0.0477**		0.00200		mg/L		02/28/17 10:00	03/03/17 21:40	1
Beryllium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:40	1
Boron	**1.21**		0.200		mg/L		02/28/17 10:00	03/07/17 15:44	1
Cadmium	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 21:40	1
Calcium	**264**		0.200		mg/L		02/28/17 10:00	03/03/17 21:40	1
Chromium	<0.00500		0.00500		mg/L		02/28/17 10:00	03/03/17 21:40	1
Cobalt	**0.00187**		0.000500		mg/L		02/28/17 10:00	03/03/17 21:40	1
Lead	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 21:40	1
Molybdenum	<0.00200		0.00200		mg/L		02/28/17 10:00	03/03/17 21:40	1
Selenium	**0.0196**		0.00500		mg/L		02/28/17 10:00	03/03/17 21:40	1
Thallium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:40	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/28/17 11:05	03/01/17 10:57	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.104**		0.0712	0.0718	1.00	0.0910	pCi/L	03/02/17 14:15	03/24/17 05:27	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.7*		*40 - 110*	*03/02/17 14:15*	*03/24/17 05:27*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0180	U	0.203	0.203	1.00	0.371	pCi/L	03/02/17 14:57	03/16/17 14:22	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.7*		*40 - 110*	*03/02/17 14:57*	*03/16/17 14:22*	*1*
Y Carrier	*89.0*		*40 - 110*	*03/02/17 14:57*	*03/16/17 14:22*	*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	0.0861	U	0.215	0.216	5.00	0.371	pCi/L		03/27/17 14:56	1

Client Sample ID: MW-14

Date Collected: 02/20/17 18:36
Date Received: 02/24/17 17:55

Lab Sample ID: 310-100252-8

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.142**		0.0500		mg/L		03/01/17 10:00	03/01/17 23:05	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:43	1
Arsenic	<0.00200		0.00200		mg/L		02/28/17 10:00	03/03/17 21:43	1
Barium	**0.0768**		0.00200		mg/L		02/28/17 10:00	03/03/17 21:43	1
Beryllium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:43	1
Boron	**0.883**		0.200		mg/L		02/28/17 10:00	03/07/17 15:47	1
Cadmium	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 21:43	1
Calcium	**270**		0.200		mg/L		02/28/17 10:00	03/03/17 21:43	1
Chromium	<0.00500		0.00500		mg/L		02/28/17 10:00	03/03/17 21:43	1
Cobalt	**0.00494**		0.000500		mg/L		02/28/17 10:00	03/03/17 21:43	1
Lead	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 21:43	1
Molybdenum	**0.00222**		0.00200		mg/L		02/28/17 10:00	03/03/17 21:43	1
Selenium	**0.00695**		0.00500		mg/L		02/28/17 10:00	03/03/17 21:43	1
Thallium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:43	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/28/17 11:05	03/01/17 10:59	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.160**		0.0945	0.0956	1.00	0.126	pCi/L	03/02/17 14:15	03/24/17 05:27	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.5*		*40 - 110*	*03/02/17 14:15*	*03/24/17 05:27*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.398	U	0.296	0.298	1.00	0.468	pCi/L	03/02/17 14:57	03/16/17 14:22	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.5*		*40 - 110*	*03/02/17 14:57*	*03/16/17 14:22*	*1*
Y Carrier	*90.1*		*40 - 110*	*03/02/17 14:57*	*03/16/17 14:22*	*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	**0.559**		0.310	0.313	5.00	0.468	pCi/L		03/27/17 14:56	1

Client Sample ID: MW-15

Date Collected: 02/21/17 09:51
Date Received: 02/24/17 17:55

Lab Sample ID: 310-100252-9

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0814**		0.0500		mg/L		03/01/17 10:00	03/01/17 23:07	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:46	1
Arsenic	**0.00286**		0.00200		mg/L		02/28/17 10:00	03/03/17 21:46	1
Barium	**0.0737**		0.00200		mg/L		02/28/17 10:00	03/03/17 21:46	1
Beryllium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:46	1
Boron	**2.88**		0.200		mg/L		02/28/17 10:00	03/07/17 15:50	1
Cadmium	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 21:46	1
Calcium	**244**		0.200		mg/L		02/28/17 10:00	03/03/17 21:46	1
Chromium	<0.00500		0.00500		mg/L		02/28/17 10:00	03/03/17 21:46	1
Cobalt	**0.00561**		0.000500		mg/L		02/28/17 10:00	03/03/17 21:46	1
Lead	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 21:46	1
Molybdenum	<0.00200		0.00200		mg/L		02/28/17 10:00	03/03/17 21:46	1
Selenium	<0.00500		0.00500		mg/L		02/28/17 10:00	03/03/17 21:46	1
Thallium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:46	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/28/17 11:05	03/01/17 11:01	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.355**		0.112	0.116	1.00	0.0814	pCi/L	03/02/17 14:15	03/24/17 05:27	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.2*		*40 - 110*	*03/02/17 14:15*	*03/24/17 05:27*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.577**		0.292	0.296	1.00	0.439	pCi/L	03/02/17 14:57	03/16/17 14:24	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.2*		*40 - 110*	*03/02/17 14:57*	*03/16/17 14:24*	*1*
Y Carrier	*92.7*		*40 - 110*	*03/02/17 14:57*	*03/16/17 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	**0.931**		0.312	0.318	5.00	0.439	pCi/L		03/27/17 14:56	1

Client Sample ID: DP-01

Date Collected: 02/20/17 00:00
Date Received: 02/24/17 17:55

Lab Sample ID: 310-100252-10

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.122**		0.0500		mg/L		03/01/17 10:00	03/01/17 23:09	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:58	1
Arsenic	<0.00200		0.00200		mg/L		02/28/17 10:00	03/03/17 21:58	1
Barium	**0.0695**		0.00200		mg/L		02/28/17 10:00	03/03/17 21:58	1
Beryllium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:58	1
Boron	**0.328**		0.200		mg/L		02/28/17 10:00	03/07/17 15:54	1
Cadmium	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 21:58	1
Calcium	**240**		0.200		mg/L		02/28/17 10:00	03/03/17 21:58	1
Chromium	<0.00500		0.00500		mg/L		02/28/17 10:00	03/03/17 21:58	1
Cobalt	**0.00271**		0.000500		mg/L		02/28/17 10:00	03/03/17 21:58	1
Lead	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 21:58	1
Molybdenum	<0.00200		0.00200		mg/L		02/28/17 10:00	03/03/17 21:58	1
Selenium	<0.00500		0.00500		mg/L		02/28/17 10:00	03/03/17 21:58	1
Thallium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 21:58	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/28/17 11:05	03/01/17 11:02	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.113	U	0.0834	0.0840	1.00	0.120	pCi/L	03/02/17 14:15	03/24/17 05:27	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.3*		*40 - 110*	*03/02/17 14:15*	*03/24/17 05:27*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0622	U	0.237	0.237	1.00	0.430	pCi/L	03/02/17 14:57	03/16/17 14:24	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.3*		*40 - 110*	*03/02/17 14:57*	*03/16/17 14:24*	*1*
Y Carrier	*89.7*		*40 - 110*	*03/02/17 14:57*	*03/16/17 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	0.0507	U	0.251	0.252	5.00	0.430	pCi/L		03/27/17 14:56	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.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.
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)

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-158578/3
Matrix: Water
Analysis Batch: 158578

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			02/27/17 19:16	1
Sulfate	<1.00		1.00		mg/L			02/27/17 19:16	1
Fluoride	<0.100		0.100		mg/L			02/27/17 19:16	1

Lab Sample ID: LCS 310-158578/4
Matrix: Water
Analysis Batch: 158578

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.50	7.520		mg/L		100	90 - 110
Sulfate	7.50	8.080		mg/L		108	90 - 110
Fluoride	1.50	1.445		mg/L		96	90 - 110

Lab Sample ID: 310-100040-1 MS
Matrix: Ground Water
Analysis Batch: 158578

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.08		25.0	31.43		mg/L		97	80 - 120
Sulfate	70.0		25.0	91.66		mg/L		87	80 - 120
Fluoride	<0.500		5.00	4.314		mg/L		86	80 - 120

Lab Sample ID: 310-100040-1 MSD
Matrix: Ground Water
Analysis Batch: 158578

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	7.08		25.0	31.52		mg/L		98	80 - 120	0	15
Sulfate	70.0		25.0	92.23		mg/L		89	80 - 120	1	15
Fluoride	<0.500		5.00	4.524		mg/L		90	80 - 120	5	15

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 310-158459/1-A
Matrix: Water
Analysis Batch: 158687

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 158459

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.0500		0.0500		mg/L		03/01/17 10:00	03/01/17 22:37	1

Lab Sample ID: LCS 310-158459/2-A
Matrix: Water
Analysis Batch: 158687

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 158459

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	2.00	1.835		mg/L		92	80 - 120

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

Lab Sample ID: 310-100252-1 MS
Matrix: Ground Water
Analysis Batch: 158687

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 158459

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.0821		2.00	1.982		mg/L		95	75 - 125

Lab Sample ID: 310-100252-1 MSD
Matrix: Ground Water
Analysis Batch: 158687

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 158459

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	0.0821		2.00	1.963		mg/L		94	75 - 125	1	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-158325/1-A
Matrix: Water
Analysis Batch: 159078

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 158325

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 20:56	1
Arsenic	<0.00200		0.00200		mg/L		02/28/17 10:00	03/03/17 20:56	1
Barium	<0.00200		0.00200		mg/L		02/28/17 10:00	03/03/17 20:56	1
Beryllium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 20:56	1
Boron	<0.200		0.200		mg/L		02/28/17 10:00	03/03/17 20:56	1
Cadmium	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 20:56	1
Calcium	<0.200		0.200		mg/L		02/28/17 10:00	03/03/17 20:56	1
Chromium	<0.00500		0.00500		mg/L		02/28/17 10:00	03/03/17 20:56	1
Cobalt	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 20:56	1
Lead	<0.000500		0.000500		mg/L		02/28/17 10:00	03/03/17 20:56	1
Molybdenum	<0.00200		0.00200		mg/L		02/28/17 10:00	03/03/17 20:56	1
Selenium	<0.00500		0.00500		mg/L		02/28/17 10:00	03/03/17 20:56	1
Thallium	<0.00100		0.00100		mg/L		02/28/17 10:00	03/03/17 20:56	1

Lab Sample ID: LCS 310-158325/2-A
Matrix: Water
Analysis Batch: 159078

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 158325

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0200	0.01994		mg/L		100	80 - 120
Arsenic	0.0400	0.04230		mg/L		106	80 - 120
Barium	0.0400	0.04150		mg/L		104	80 - 120
Beryllium	0.0200	0.02159		mg/L		108	80 - 120
Boron	0.880	0.7962		mg/L		90	80 - 120
Cadmium	0.0200	0.02128		mg/L		106	80 - 120
Calcium	2.00	2.091		mg/L		105	80 - 120
Chromium	0.0400	0.04151		mg/L		104	80 - 120
Cobalt	0.0200	0.01984		mg/L		99	80 - 120
Lead	0.0200	0.02114		mg/L		106	80 - 120
Molybdenum	0.0400	0.04184		mg/L		105	80 - 120
Selenium	0.0400	0.03977		mg/L		99	80 - 120
Thallium	0.0160	0.01681		mg/L		105	80 - 120

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

Lab Sample ID: 310-100252-1 MS
Matrix: Ground Water
Analysis Batch: 159078

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 158325

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.00100		0.0200	0.02092		mg/L		105	75 - 125
Arsenic	0.0386		0.0400	0.08205		mg/L		109	75 - 125
Barium	0.137		0.0400	0.1811		mg/L		109	75 - 125
Beryllium	<0.00100		0.0200	0.02180		mg/L		109	75 - 125
Cadmium	<0.000500		0.0200	0.02151		mg/L		108	75 - 125
Calcium	158		2.00	163.0	4	mg/L		253	75 - 125
Chromium	<0.00500		0.0400	0.04112		mg/L		103	75 - 125
Cobalt	0.00164		0.0200	0.02180		mg/L		101	75 - 125
Lead	<0.000500		0.0200	0.02047		mg/L		102	75 - 125
Molybdenum	0.00258		0.0400	0.04518		mg/L		107	75 - 125
Selenium	<0.00500		0.0400	0.04099		mg/L		102	75 - 125
Thallium	<0.00100		0.0160	0.01768		mg/L		111	75 - 125

Lab Sample ID: 310-100252-1 MS
Matrix: Ground Water
Analysis Batch: 159218

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 158325

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.815		0.880	1.596		mg/L		89	75 - 125

Lab Sample ID: 310-100252-1 MSD
Matrix: Ground Water
Analysis Batch: 159078

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 158325

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	<0.00100		0.0200	0.02029		mg/L		101	75 - 125	3	20
Arsenic	0.0386		0.0400	0.08006		mg/L		104	75 - 125	2	20
Barium	0.137		0.0400	0.1764		mg/L		97	75 - 125	3	20
Beryllium	<0.00100		0.0200	0.02047		mg/L		102	75 - 125	6	20
Cadmium	<0.000500		0.0200	0.02093		mg/L		105	75 - 125	3	20
Calcium	158		2.00	158.6	4	mg/L		30	75 - 125	3	20
Chromium	<0.00500		0.0400	0.04059		mg/L		101	75 - 125	1	20
Cobalt	0.00164		0.0200	0.02106		mg/L		97	75 - 125	3	20
Lead	<0.000500		0.0200	0.02000		mg/L		100	75 - 125	2	20
Molybdenum	0.00258		0.0400	0.04409		mg/L		104	75 - 125	2	20
Selenium	<0.00500		0.0400	0.04043		mg/L		101	75 - 125	1	20
Thallium	<0.00100		0.0160	0.01731		mg/L		108	75 - 125	2	20

Lab Sample ID: 310-100252-1 MSD
Matrix: Ground Water
Analysis Batch: 159218

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 158325

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	0.815		0.880	1.581		mg/L		87	75 - 125	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-158420/1-A
Matrix: Water
Analysis Batch: 158613

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 158420

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/28/17 11:05	03/01/17 10:29	1

Lab Sample ID: LCS 310-158420/2-A
Matrix: Water
Analysis Batch: 158613

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 158420

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			0.00167	0.001544		mg/L		93	80 - 120		

Lab Sample ID: 310-100252-1 MS
Matrix: Ground Water
Analysis Batch: 158613

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 158420

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	<0.000200		0.00167	0.001708		mg/L		102	80 - 120		

Lab Sample ID: 310-100252-1 MSD
Matrix: Ground Water
Analysis Batch: 158613

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 158420

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.000200		0.00167	0.001807		mg/L		108	80 - 120	6	20

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

Lab Sample ID: MB 310-158081/1
Matrix: Water
Analysis Batch: 158081

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	<30.0		30.0		mg/L			02/24/17 08:27	1

Lab Sample ID: LCS 310-158081/2
Matrix: Water
Analysis Batch: 158081

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			1000	1008		mg/L		101	90 - 110		

Lab Sample ID: 310-100040-1 DU
Matrix: Ground Water
Analysis Batch: 158081

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

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	734			712.0		mg/L				3	24

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-158040/1
Matrix: Water
Analysis Batch: 158040

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	98 - 102		

Lab Sample ID: LCS 310-158040/41
Matrix: Water
Analysis Batch: 158040

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	98 - 102		

Lab Sample ID: 310-100040-1 DU
Matrix: Ground Water
Analysis Batch: 158040

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

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.0	HF		7.0		SU				0.1	20

Lab Sample ID: 310-100040-7 DU
Matrix: Ground Water
Analysis Batch: 158040

Client Sample ID: MW-13
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.0	HF		7.0		SU				0.4	20

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-295694/1-A
Matrix: Water
Analysis Batch: 299441

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 295694

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.05292	U	0.0616	0.0617	1.00	0.0993	pCi/L	03/02/17 14:15	03/24/17 05:25	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.0*		*40 - 110*	*03/02/17 14:15*	*03/24/17 05:25*	*1*

Lab Sample ID: LCS 160-295694/2-A
Matrix: Water
Analysis Batch: 299441

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 295694

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	11.04		1.17	1.00	0.123	pCi/L	97	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*85.8*		*40 - 110*

Method: 9315 - Radium-226 (GFPC) (Continued)

Lab Sample ID: 310-100252-1 MS
Matrix: Ground Water
Analysis Batch: 299441

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 295694

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	0.0886	U	11.4	10.47		1.11	1.00	0.0805	pCi/L	92	75 - 138

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*90.6*		*40 - 110*

Lab Sample ID: 310-100252-1 MSD
Matrix: Ground Water
Analysis Batch: 299441

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 295694

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.0886	U	11.4	10.79		1.14	1.00	0.105	pCi/L	95	75 - 138	0.14	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*90.0*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-295707/1-A
Matrix: Water
Analysis Batch: 297965

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 295707

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.1929	U	0.226	0.227	1.00	0.434	pCi/L	03/02/17 14:57	03/16/17 14:21	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.0*		*40 - 110*	*03/02/17 14:57*	*03/16/17 14:21*	*1*
Y Carrier	*92.7*		*40 - 110*	*03/02/17 14:57*	*03/16/17 14:21*	*1*

Lab Sample ID: LCS 160-295707/2-A
Matrix: Water
Analysis Batch: 297965

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 295707

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	13.7	14.17		1.54	1.00	0.435	pCi/L	103	56 - 140

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*85.8*		*40 - 110*
Y Carrier	*91.6*		*40 - 110*

Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: 310-100252-1 MS
Matrix: Ground Water
Analysis Batch: 297965

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 295707

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	0.0752	U	13.7	13.79		1.49	1.00	0.358	pCi/L	101	45 - 150

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*90.6*		*40 - 110*
Y Carrier	*87.9*		*40 - 110*

Lab Sample ID: 310-100252-1 MSD
Matrix: Ground Water
Analysis Batch: 297965

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 295707

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	0.0752	U	13.7	13.01		1.41	1.00	0.361	pCi/L	95	45 - 150	0.27	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*90.0*		*40 - 110*
Y Carrier	*95.0*		*40 - 110*

HPLC/IC

Analysis Batch: 158578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-100040-1	MW-2	Total/NA	Ground Water	9056A	
310-100040-2	MW-4	Total/NA	Ground Water	9056A	
310-100040-2	MW-4	Total/NA	Ground Water	9056A	
310-100040-3	MW-8	Total/NA	Ground Water	9056A	
310-100040-3	MW-8	Total/NA	Ground Water	9056A	
310-100040-4	MW-10	Total/NA	Ground Water	9056A	
310-100040-5	MW-11	Total/NA	Ground Water	9056A	
310-100040-5	MW-11	Total/NA	Ground Water	9056A	
310-100040-6	MW-12	Total/NA	Ground Water	9056A	
310-100040-6	MW-12	Total/NA	Ground Water	9056A	
310-100040-7	MW-13	Total/NA	Ground Water	9056A	
310-100040-7	MW-13	Total/NA	Ground Water	9056A	
310-100040-8	MW-14	Total/NA	Ground Water	9056A	
310-100040-8	MW-14	Total/NA	Ground Water	9056A	
310-100040-9	MW-15	Total/NA	Ground Water	9056A	
310-100040-9	MW-15	Total/NA	Ground Water	9056A	
310-100040-10	DP-01	Total/NA	Ground Water	9056A	
310-100040-10	DP-01	Total/NA	Ground Water	9056A	
MB 310-158578/3	Method Blank	Total/NA	Water	9056A	
LCS 310-158578/4	Lab Control Sample	Total/NA	Water	9056A	
310-100040-1 MS	MW-2	Total/NA	Ground Water	9056A	
310-100040-1 MSD	MW-2	Total/NA	Ground Water	9056A	

Metals

Prep Batch: 158325

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-100252-1	MW-2	Total/NA	Ground Water	3010A	
310-100252-2	MW-4	Total/NA	Ground Water	3010A	
310-100252-3	MW-8	Total/NA	Ground Water	3010A	
310-100252-4	MW-10	Total/NA	Ground Water	3010A	
310-100252-5	MW-11	Total/NA	Ground Water	3010A	
310-100252-6	MW-12	Total/NA	Ground Water	3010A	
310-100252-7	MW-13	Total/NA	Ground Water	3010A	
310-100252-8	MW-14	Total/NA	Ground Water	3010A	
310-100252-9	MW-15	Total/NA	Ground Water	3010A	
310-100252-10	DP-01	Total/NA	Ground Water	3010A	
MB 310-158325/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-158325/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-100252-1 MS	MW-2	Total/NA	Ground Water	3010A	
310-100252-1 MSD	MW-2	Total/NA	Ground Water	3010A	

Prep Batch: 158420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-100252-1	MW-2	Total/NA	Ground Water	7470A	
310-100252-2	MW-4	Total/NA	Ground Water	7470A	
310-100252-3	MW-8	Total/NA	Ground Water	7470A	
310-100252-4	MW-10	Total/NA	Ground Water	7470A	
310-100252-5	MW-11	Total/NA	Ground Water	7470A	
310-100252-6	MW-12	Total/NA	Ground Water	7470A	

Metals (Continued)

Prep Batch: 158420 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-100252-7	MW-13	Total/NA	Ground Water	7470A	
310-100252-8	MW-14	Total/NA	Ground Water	7470A	
310-100252-9	MW-15	Total/NA	Ground Water	7470A	
310-100252-10	DP-01	Total/NA	Ground Water	7470A	
MB 310-158420/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-158420/2-A	Lab Control Sample	Total/NA	Water	7470A	
310-100252-1 MS	MW-2	Total/NA	Ground Water	7470A	
310-100252-1 MSD	MW-2	Total/NA	Ground Water	7470A	

Prep Batch: 158459

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-100252-1	MW-2	Total/NA	Ground Water	3010A	
310-100252-2	MW-4	Total/NA	Ground Water	3010A	
310-100252-3	MW-8	Total/NA	Ground Water	3010A	
310-100252-4	MW-10	Total/NA	Ground Water	3010A	
310-100252-5	MW-11	Total/NA	Ground Water	3010A	
310-100252-6	MW-12	Total/NA	Ground Water	3010A	
310-100252-7	MW-13	Total/NA	Ground Water	3010A	
310-100252-8	MW-14	Total/NA	Ground Water	3010A	
310-100252-9	MW-15	Total/NA	Ground Water	3010A	
310-100252-10	DP-01	Total/NA	Ground Water	3010A	
MB 310-158459/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-158459/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-100252-1 MS	MW-2	Total/NA	Ground Water	3010A	
310-100252-1 MSD	MW-2	Total/NA	Ground Water	3010A	

Analysis Batch: 158613

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-100252-1	MW-2	Total/NA	Ground Water	7470A	158420
310-100252-2	MW-4	Total/NA	Ground Water	7470A	158420
310-100252-3	MW-8	Total/NA	Ground Water	7470A	158420
310-100252-4	MW-10	Total/NA	Ground Water	7470A	158420
310-100252-5	MW-11	Total/NA	Ground Water	7470A	158420
310-100252-6	MW-12	Total/NA	Ground Water	7470A	158420
310-100252-7	MW-13	Total/NA	Ground Water	7470A	158420
310-100252-8	MW-14	Total/NA	Ground Water	7470A	158420
310-100252-9	MW-15	Total/NA	Ground Water	7470A	158420
310-100252-10	DP-01	Total/NA	Ground Water	7470A	158420
MB 310-158420/1-A	Method Blank	Total/NA	Water	7470A	158420
LCS 310-158420/2-A	Lab Control Sample	Total/NA	Water	7470A	158420
310-100252-1 MS	MW-2	Total/NA	Ground Water	7470A	158420
310-100252-1 MSD	MW-2	Total/NA	Ground Water	7470A	158420

Analysis Batch: 158687

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-100252-1	MW-2	Total/NA	Ground Water	6010C	158459
310-100252-2	MW-4	Total/NA	Ground Water	6010C	158459
310-100252-3	MW-8	Total/NA	Ground Water	6010C	158459
310-100252-4	MW-10	Total/NA	Ground Water	6010C	158459
310-100252-5	MW-11	Total/NA	Ground Water	6010C	158459
310-100252-6	MW-12	Total/NA	Ground Water	6010C	158459

Metals (Continued)

Analysis Batch: 158687 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-100252-7	MW-13	Total/NA	Ground Water	6010C	158459
310-100252-8	MW-14	Total/NA	Ground Water	6010C	158459
310-100252-9	MW-15	Total/NA	Ground Water	6010C	158459
310-100252-10	DP-01	Total/NA	Ground Water	6010C	158459
MB 310-158459/1-A	Method Blank	Total/NA	Water	6010C	158459
LCS 310-158459/2-A	Lab Control Sample	Total/NA	Water	6010C	158459
310-100252-1 MS	MW-2	Total/NA	Ground Water	6010C	158459
310-100252-1 MSD	MW-2	Total/NA	Ground Water	6010C	158459

Analysis Batch: 159078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-100252-1	MW-2	Total/NA	Ground Water	6020A	158325
310-100252-2	MW-4	Total/NA	Ground Water	6020A	158325
310-100252-3	MW-8	Total/NA	Ground Water	6020A	158325
310-100252-4	MW-10	Total/NA	Ground Water	6020A	158325
310-100252-5	MW-11	Total/NA	Ground Water	6020A	158325
310-100252-6	MW-12	Total/NA	Ground Water	6020A	158325
310-100252-7	MW-13	Total/NA	Ground Water	6020A	158325
310-100252-8	MW-14	Total/NA	Ground Water	6020A	158325
310-100252-9	MW-15	Total/NA	Ground Water	6020A	158325
310-100252-10	DP-01	Total/NA	Ground Water	6020A	158325
MB 310-158325/1-A	Method Blank	Total/NA	Water	6020A	158325
LCS 310-158325/2-A	Lab Control Sample	Total/NA	Water	6020A	158325
310-100252-1 MS	MW-2	Total/NA	Ground Water	6020A	158325
310-100252-1 MSD	MW-2	Total/NA	Ground Water	6020A	158325

Analysis Batch: 159218

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-100252-2	MW-4	Total/NA	Ground Water	6020A	158325
310-100252-3	MW-8	Total/NA	Ground Water	6020A	158325
310-100252-4	MW-10	Total/NA	Ground Water	6020A	158325
310-100252-5	MW-11	Total/NA	Ground Water	6020A	158325
310-100252-6	MW-12	Total/NA	Ground Water	6020A	158325
310-100252-7	MW-13	Total/NA	Ground Water	6020A	158325
310-100252-8	MW-14	Total/NA	Ground Water	6020A	158325
310-100252-9	MW-15	Total/NA	Ground Water	6020A	158325
310-100252-10	DP-01	Total/NA	Ground Water	6020A	158325
310-100252-1 MS	MW-2	Total/NA	Ground Water	6020A	158325
310-100252-1 MSD	MW-2	Total/NA	Ground Water	6020A	158325

General Chemistry

Analysis Batch: 158040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-100040-1	MW-2	Total/NA	Ground Water	SM 4500 H+ B	
310-100040-2	MW-4	Total/NA	Ground Water	SM 4500 H+ B	
310-100040-3	MW-8	Total/NA	Ground Water	SM 4500 H+ B	
310-100040-4	MW-10	Total/NA	Ground Water	SM 4500 H+ B	
310-100040-5	MW-11	Total/NA	Ground Water	SM 4500 H+ B	
310-100040-6	MW-12	Total/NA	Ground Water	SM 4500 H+ B	

General Chemistry (Continued)

Analysis Batch: 158040 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-100040-7	MW-13	Total/NA	Ground Water	SM 4500 H+ B	
310-100040-8	MW-14	Total/NA	Ground Water	SM 4500 H+ B	
310-100040-9	MW-15	Total/NA	Ground Water	SM 4500 H+ B	
310-100040-10	DP-01	Total/NA	Ground Water	SM 4500 H+ B	
LCS 310-158040/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 310-158040/41	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-100040-1 DU	MW-2	Total/NA	Ground Water	SM 4500 H+ B	
310-100040-7 DU	MW-13	Total/NA	Ground Water	SM 4500 H+ B	

Analysis Batch: 158081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-100040-1	MW-2	Total/NA	Ground Water	SM 2540C	
310-100040-2	MW-4	Total/NA	Ground Water	SM 2540C	
310-100040-3	MW-8	Total/NA	Ground Water	SM 2540C	
310-100040-4	MW-10	Total/NA	Ground Water	SM 2540C	
310-100040-5	MW-11	Total/NA	Ground Water	SM 2540C	
310-100040-6	MW-12	Total/NA	Ground Water	SM 2540C	
310-100040-7	MW-13	Total/NA	Ground Water	SM 2540C	
310-100040-8	MW-14	Total/NA	Ground Water	SM 2540C	
310-100040-9	MW-15	Total/NA	Ground Water	SM 2540C	
310-100040-10	DP-01	Total/NA	Ground Water	SM 2540C	
MB 310-158081/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-158081/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-100040-1 DU	MW-2	Total/NA	Ground Water	SM 2540C	

Rad

Prep Batch: 295694

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-100252-1	MW-2	Total/NA	Ground Water	PrecSep-21	
310-100252-2	MW-4	Total/NA	Ground Water	PrecSep-21	
310-100252-3	MW-8	Total/NA	Ground Water	PrecSep-21	
310-100252-4	MW-10	Total/NA	Ground Water	PrecSep-21	
310-100252-5	MW-11	Total/NA	Ground Water	PrecSep-21	
310-100252-6	MW-12	Total/NA	Ground Water	PrecSep-21	
310-100252-7	MW-13	Total/NA	Ground Water	PrecSep-21	
310-100252-8	MW-14	Total/NA	Ground Water	PrecSep-21	
310-100252-9	MW-15	Total/NA	Ground Water	PrecSep-21	
310-100252-10	DP-01	Total/NA	Ground Water	PrecSep-21	
MB 160-295694/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-295694/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
310-100252-1 MS	MW-2	Total/NA	Ground Water	PrecSep-21	
310-100252-1 MSD	MW-2	Total/NA	Ground Water	PrecSep-21	

Prep Batch: 295707

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-100252-1	MW-2	Total/NA	Ground Water	PrecSep_0	
310-100252-2	MW-4	Total/NA	Ground Water	PrecSep_0	
310-100252-3	MW-8	Total/NA	Ground Water	PrecSep_0	
310-100252-4	MW-10	Total/NA	Ground Water	PrecSep_0	

Rad (Continued)

Prep Batch: 295707 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-100252-5	MW-11	Total/NA	Ground Water	PrecSep_0	
310-100252-6	MW-12	Total/NA	Ground Water	PrecSep_0	
310-100252-7	MW-13	Total/NA	Ground Water	PrecSep_0	
310-100252-8	MW-14	Total/NA	Ground Water	PrecSep_0	
310-100252-9	MW-15	Total/NA	Ground Water	PrecSep_0	
310-100252-10	DP-01	Total/NA	Ground Water	PrecSep_0	
MB 160-295707/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-295707/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
310-100252-1 MS	MW-2	Total/NA	Ground Water	PrecSep_0	
310-100252-1 MSD	MW-2	Total/NA	Ground Water	PrecSep_0	

Client Sample ID: MW-2
Date Collected: 02/20/17 14:36
Date Received: 02/23/17 09:30

Lab Sample ID: 310-100040-1
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	158578	03/10/17 10:49	AJG	TAL CF
Total/NA	Analysis	SM 2540C		1	158081	02/24/17 08:27	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	158040	02/23/17 16:28	MEG	TAL CF

Client Sample ID: MW-4
Date Collected: 02/20/17 13:42
Date Received: 02/23/17 09:30

Lab Sample ID: 310-100040-2
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	158578	02/28/17 03:13	AJG	TAL CF
Total/NA	Analysis	9056A		20	158578	02/28/17 11:41	AJG	TAL CF
Total/NA	Analysis	SM 2540C		1	158081	02/24/17 08:27	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	158040	02/23/17 16:34	MEG	TAL CF

Client Sample ID: MW-8
Date Collected: 02/21/17 08:01
Date Received: 02/23/17 09:30

Lab Sample ID: 310-100040-3
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	158578	02/28/17 03:43	AJG	TAL CF
Total/NA	Analysis	9056A		20	158578	02/28/17 12:10	AJG	TAL CF
Total/NA	Analysis	SM 2540C		1	158081	02/24/17 08:27	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	158040	02/23/17 16:36	MEG	TAL CF

Client Sample ID: MW-10
Date Collected: 02/21/17 08:55
Date Received: 02/23/17 09:30

Lab Sample ID: 310-100040-4
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	158578	02/28/17 04:13	AJG	TAL CF
Total/NA	Analysis	SM 2540C		1	158081	02/24/17 08:27	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	158040	02/23/17 16:37	MEG	TAL CF

Client Sample ID: MW-11
Date Collected: 02/20/17 17:44
Date Received: 02/23/17 09:30

Lab Sample ID: 310-100040-5
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	158578	02/28/17 04:43	AJG	TAL CF
Total/NA	Analysis	9056A		10	158578	02/28/17 12:40	AJG	TAL CF
Total/NA	Analysis	SM 2540C		1	158081	02/24/17 08:27	SAS	TAL CF

Client Sample ID: MW-11

Date Collected: 02/20/17 17:44
Date Received: 02/23/17 09:30

Lab Sample ID: 310-100040-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 H+ B		1	158040	02/23/17 16:39	MEG	TAL CF

Client Sample ID: MW-12

Date Collected: 02/20/17 16:50
Date Received: 02/23/17 09:30

Lab Sample ID: 310-100040-6

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	158578	02/28/17 05:13	AJG	TAL CF
Total/NA	Analysis	9056A		20	158578	03/01/17 15:04	AJG	TAL CF
Total/NA	Analysis	SM 2540C		1	158081	02/24/17 08:27	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	158040	02/23/17 16:41	MEG	TAL CF

Client Sample ID: MW-13

Date Collected: 02/20/17 16:09
Date Received: 02/23/17 09:30

Lab Sample ID: 310-100040-7

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	158578	02/28/17 06:42	AJG	TAL CF
Total/NA	Analysis	9056A		20	158578	02/28/17 13:40	AJG	TAL CF
Total/NA	Analysis	SM 2540C		1	158081	02/24/17 08:27	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	158040	02/23/17 17:16	MEG	TAL CF

Client Sample ID: MW-14

Date Collected: 02/20/17 18:36
Date Received: 02/23/17 09:30

Lab Sample ID: 310-100040-8

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	158578	02/28/17 07:12	AJG	TAL CF
Total/NA	Analysis	9056A		20	158578	02/28/17 14:10	AJG	TAL CF
Total/NA	Analysis	SM 2540C		1	158081	02/24/17 08:27	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	158040	02/23/17 17:18	MEG	TAL CF

Client Sample ID: MW-15

Date Collected: 02/21/17 09:51
Date Received: 02/23/17 09:30

Lab Sample ID: 310-100040-9

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	158578	02/28/17 07:42	AJG	TAL CF
Total/NA	Analysis	9056A		20	158578	02/28/17 14:40	AJG	TAL CF
Total/NA	Analysis	SM 2540C		1	158081	02/24/17 08:27	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	158040	02/23/17 17:20	MEG	TAL CF

Client Sample ID: DP-01

Lab Sample ID: 310-100040-10

Date Collected: 02/20/17 00:00
Matrix: Ground Water
Date Received: 02/23/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	158578	02/28/17 08:12	AJG	TAL CF
Total/NA	Analysis	9056A		20	158578	03/01/17 15:19	AJG	TAL CF
Total/NA	Analysis	SM 2540C		1	158081	02/24/17 08:27	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	158040	02/23/17 17:21	MEG	TAL CF

Client Sample ID: MW-2

Lab Sample ID: 310-100252-1

Date Collected: 02/20/17 14:36
Matrix: Ground Water
Date Received: 02/24/17 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			158459	03/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	158687	03/01/17 22:40	OAD	TAL CF
Total/NA	Prep	3010A			158325	02/28/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	159078	03/03/17 21:02	JIS	TAL CF
Total/NA	Prep	7470A			158420	02/28/17 11:05	SAD	TAL CF
Total/NA	Analysis	7470A		1	158613	03/01/17 10:42	SAD	TAL CF
Total/NA	Prep	PrecSep-21			295694	03/02/17 14:15	MBC	TAL SL
Total/NA	Analysis	9315		1	299441	03/24/17 05:26	MLK	TAL SL
Total/NA	Prep	PrecSep_0			295707	03/02/17 14:57	MBC	TAL SL
Total/NA	Analysis	9320		1	297965	03/16/17 14:21	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	300138	03/27/17 14:56	EAW	TAL SL

Client Sample ID: MW-4

Lab Sample ID: 310-100252-2

Date Collected: 02/20/17 13:42
Matrix: Ground Water
Date Received: 02/24/17 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			158459	03/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	158687	03/01/17 22:52	OAD	TAL CF
Total/NA	Prep	3010A			158325	02/28/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	159078	03/03/17 21:24	JIS	TAL CF
Total/NA	Prep	3010A			158325	02/28/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	159218	03/07/17 15:29	OAD	TAL CF
Total/NA	Prep	7470A			158420	02/28/17 11:05	SAD	TAL CF
Total/NA	Analysis	7470A		1	158613	03/01/17 10:49	SAD	TAL CF
Total/NA	Prep	PrecSep-21			295694	03/02/17 14:15	MBC	TAL SL
Total/NA	Analysis	9315		1	299441	03/24/17 05:26	MLK	TAL SL
Total/NA	Prep	PrecSep_0			295707	03/02/17 14:57	MBC	TAL SL
Total/NA	Analysis	9320		1	297965	03/16/17 14:21	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	300138	03/27/17 14:56	EAW	TAL SL

Client Sample ID: MW-8

Lab Sample ID: 310-100252-3

Date Collected: 02/21/17 08:01
Matrix: Ground Water
Date Received: 02/24/17 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			158459	03/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	158687	03/01/17 22:54	OAD	TAL CF
Total/NA	Prep	3010A			158325	02/28/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	159078	03/03/17 21:27	JIS	TAL CF
Total/NA	Prep	3010A			158325	02/28/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	159218	03/07/17 15:32	OAD	TAL CF
Total/NA	Prep	7470A			158420	02/28/17 11:05	SAD	TAL CF
Total/NA	Analysis	7470A		1	158613	03/01/17 10:51	SAD	TAL CF
Total/NA	Prep	PrecSep-21			295694	03/02/17 14:15	MBC	TAL SL
Total/NA	Analysis	9315		1	299441	03/24/17 05:27	MLK	TAL SL
Total/NA	Prep	PrecSep_0			295707	03/02/17 14:57	MBC	TAL SL
Total/NA	Analysis	9320		1	297965	03/16/17 14:21	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	300138	03/27/17 14:56	EAW	TAL SL

Client Sample ID: MW-10

Lab Sample ID: 310-100252-4

Date Collected: 02/21/17 08:55
Matrix: Ground Water
Date Received: 02/24/17 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			158459	03/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	158687	03/01/17 22:56	OAD	TAL CF
Total/NA	Prep	3010A			158325	02/28/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	159078	03/03/17 21:30	JIS	TAL CF
Total/NA	Prep	3010A			158325	02/28/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	159218	03/07/17 15:35	OAD	TAL CF
Total/NA	Prep	7470A			158420	02/28/17 11:05	SAD	TAL CF
Total/NA	Analysis	7470A		1	158613	03/01/17 10:53	SAD	TAL CF
Total/NA	Prep	PrecSep-21			295694	03/02/17 14:15	MBC	TAL SL
Total/NA	Analysis	9315		1	299441	03/24/17 05:27	MLK	TAL SL
Total/NA	Prep	PrecSep_0			295707	03/02/17 14:57	MBC	TAL SL
Total/NA	Analysis	9320		1	297965	03/16/17 14:21	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	300138	03/27/17 14:56	EAW	TAL SL

Client Sample ID: MW-11

Lab Sample ID: 310-100252-5

Date Collected: 02/20/17 17:44
Matrix: Ground Water
Date Received: 02/24/17 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			158459	03/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	158687	03/01/17 22:59	OAD	TAL CF
Total/NA	Prep	3010A			158325	02/28/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	159078	03/03/17 21:33	JIS	TAL CF
Total/NA	Prep	3010A			158325	02/28/17 10:00	JNR	TAL CF

Client Sample ID: MW-11

Lab Sample ID: 310-100252-5

Date Collected: 02/20/17 17:44
Matrix: Ground Water
Date Received: 02/24/17 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6020A		1	159218	03/07/17 15:38	OAD	TAL CF
Total/NA	Prep	7470A			158420	02/28/17 11:05	SAD	TAL CF
Total/NA	Analysis	7470A		1	158613	03/01/17 10:54	SAD	TAL CF
Total/NA	Prep	PrecSep-21			295694	03/02/17 14:15	MBC	TAL SL
Total/NA	Analysis	9315		1	299441	03/24/17 05:27	MLK	TAL SL
Total/NA	Prep	PrecSep_0			295707	03/02/17 14:57	MBC	TAL SL
Total/NA	Analysis	9320		1	297965	03/16/17 14:21	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	300138	03/27/17 14:56	EAW	TAL SL

Client Sample ID: MW-12

Lab Sample ID: 310-100252-6

Date Collected: 02/20/17 16:50
Matrix: Ground Water
Date Received: 02/24/17 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			158459	03/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	158687	03/01/17 23:01	OAD	TAL CF
Total/NA	Prep	3010A			158325	02/28/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	159078	03/03/17 21:37	JIS	TAL CF
Total/NA	Prep	3010A			158325	02/28/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		5	159218	03/07/17 15:41	OAD	TAL CF
Total/NA	Prep	7470A			158420	02/28/17 11:05	SAD	TAL CF
Total/NA	Analysis	7470A		1	158613	03/01/17 10:56	SAD	TAL CF
Total/NA	Prep	PrecSep-21			295694	03/02/17 14:15	MBC	TAL SL
Total/NA	Analysis	9315		1	299441	03/24/17 05:27	MLK	TAL SL
Total/NA	Prep	PrecSep_0			295707	03/02/17 14:57	MBC	TAL SL
Total/NA	Analysis	9320		1	297965	03/16/17 14:22	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	300138	03/27/17 14:56	EAW	TAL SL

Client Sample ID: MW-13

Lab Sample ID: 310-100252-7

Date Collected: 02/20/17 16:09
Matrix: Ground Water
Date Received: 02/24/17 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			158459	03/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	158687	03/01/17 23:03	OAD	TAL CF
Total/NA	Prep	3010A			158325	02/28/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	159078	03/03/17 21:40	JIS	TAL CF
Total/NA	Prep	3010A			158325	02/28/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	159218	03/07/17 15:44	OAD	TAL CF
Total/NA	Prep	7470A			158420	02/28/17 11:05	SAD	TAL CF
Total/NA	Analysis	7470A		1	158613	03/01/17 10:57	SAD	TAL CF
Total/NA	Prep	PrecSep-21			295694	03/02/17 14:15	MBC	TAL SL
Total/NA	Analysis	9315		1	299441	03/24/17 05:27	MLK	TAL SL

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR Monofil

TestAmerica Job ID: 310-100252-1
SDG: 11114654-CCR16

Client Sample ID: MW-13

Date Collected: 02/20/17 16:09
Date Received: 02/24/17 17:55

Lab Sample ID: 310-100252-7

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			295707	03/02/17 14:57	MBC	TAL SL
Total/NA	Analysis	9320		1	297965	03/16/17 14:22	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	300138	03/27/17 14:56	EAW	TAL SL

Client Sample ID: MW-14

Date Collected: 02/20/17 18:36
Date Received: 02/24/17 17:55

Lab Sample ID: 310-100252-8

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			158459	03/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	158687	03/01/17 23:05	OAD	TAL CF
Total/NA	Prep	3010A			158325	02/28/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	159078	03/03/17 21:43	JIS	TAL CF
Total/NA	Prep	3010A			158325	02/28/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	159218	03/07/17 15:47	OAD	TAL CF
Total/NA	Prep	7470A			158420	02/28/17 11:05	SAD	TAL CF
Total/NA	Analysis	7470A		1	158613	03/01/17 10:59	SAD	TAL CF
Total/NA	Prep	PrecSep-21			295694	03/02/17 14:15	MBC	TAL SL
Total/NA	Analysis	9315		1	299441	03/24/17 05:27	MLK	TAL SL
Total/NA	Prep	PrecSep_0			295707	03/02/17 14:57	MBC	TAL SL
Total/NA	Analysis	9320		1	297965	03/16/17 14:22	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	300138	03/27/17 14:56	EAW	TAL SL

Client Sample ID: MW-15

Date Collected: 02/21/17 09:51
Date Received: 02/24/17 17:55

Lab Sample ID: 310-100252-9

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			158459	03/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	158687	03/01/17 23:07	OAD	TAL CF
Total/NA	Prep	3010A			158325	02/28/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	159078	03/03/17 21:46	JIS	TAL CF
Total/NA	Prep	3010A			158325	02/28/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	159218	03/07/17 15:50	OAD	TAL CF
Total/NA	Prep	7470A			158420	02/28/17 11:05	SAD	TAL CF
Total/NA	Analysis	7470A		1	158613	03/01/17 11:01	SAD	TAL CF
Total/NA	Prep	PrecSep-21			295694	03/02/17 14:15	MBC	TAL SL
Total/NA	Analysis	9315		1	299441	03/24/17 05:27	MLK	TAL SL
Total/NA	Prep	PrecSep_0			295707	03/02/17 14:57	MBC	TAL SL
Total/NA	Analysis	9320		1	297953	03/16/17 14:24	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	300138	03/27/17 14:56	EAW	TAL SL

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR Monofil

TestAmerica Job ID: 310-100252-1
SDG: 11114654-CCR16

Client Sample ID: DP-01

Date Collected: 02/20/17 00:00
Date Received: 02/24/17 17:55

Lab Sample ID: 310-100252-10

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			158459	03/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	158687	03/01/17 23:09	OAD	TAL CF
Total/NA	Prep	3010A			158325	02/28/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	159078	03/03/17 21:58	JIS	TAL CF
Total/NA	Prep	3010A			158325	02/28/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	159218	03/07/17 15:54	OAD	TAL CF
Total/NA	Prep	7470A			158420	02/28/17 11:05	SAD	TAL CF
Total/NA	Analysis	7470A		1	158613	03/01/17 11:02	SAD	TAL CF
Total/NA	Prep	PrecSep-21			295694	03/02/17 14:15	MBC	TAL SL
Total/NA	Analysis	9315		1	299441	03/24/17 05:27	MLK	TAL SL
Total/NA	Prep	PrecSep_0			295707	03/02/17 14:57	MBC	TAL SL
Total/NA	Analysis	9320		1	297953	03/16/17 14:24	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	300138	03/27/17 14:56	EAW	TAL SL

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR Monofil

TestAmerica Job ID: 310-100252-1
SDG: 11114654-CCR16

Laboratory: TestAmerica Cedar Falls

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
AIHA-LAP, LLC	IHLAP		101044	11-01-18
Georgia	State Program	4	N/A	09-29-17
Illinois	NELAP	5	200024	11-29-17
Iowa	State Program	7	007	12-01-17
Kansas	NELAP	7	E-10341	01-31-18
Minnesota	NELAP	5	019-999-319	12-31-17
Minnesota (Petrofund)	State Program	1	3349	08-22-17
North Dakota	State Program	8	R-186	09-29-17
Oregon	NELAP	10	IA100001	09-29-17

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: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR Monofil

TestAmerica Job ID: 310-100252-1
SDG: 11114654-CCR16

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL CF
6010C	Metals (ICP)	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CF
SM 4500 H+ B	pH	SM	TAL CF
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL

Protocol References:

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.
TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401
TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-100040 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: Des Moines IA | Project: MidAmerican Neal S. CCR Monofill

Receipt Information

Date/Time Received: 02.23.17 930 | Received By: GL

Delivery Type: ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other: _____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID: N-7
Multiple Coolers?	☐ Yes	☒ No	*If yes:* Cooler # ____ of ____
Cooler Custody Seals Present?	☒ Yes	☐ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE

Temperature Blank? ☑ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: G | Correction Factor (°C): 0

Uncorrected Temp (°C): 2.3 | Corrected Temp (°C): 2.3

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

SDD-21748

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Tim Wineland	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No:
Client Contact: Kevin Armstrong	Phone: 515 710 8336	E-Mail: shawn.hayes@testamericainc.com		Page: 1 of 1
Company: GHD Services Inc.				Job #: 11114654

Address: 11228 Aurora Avenue	Due Date Requested:	Analysis Requested
City: Des Moines	TAT Requested (days): Standard	
State, Zip: IA, 50322-7905	PO #: 34003921	
Phone: 515-414-3935	WO #:	
Email: Kevin.Armstrong@ghd.com	TestAMerica Project #: 31007315	
Project Name: MidAmerican Neal South CCR Monofill	SSOW#: 11114654-002	
Projct Number: 11114654		

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228	6010C, 6020A, 7470A Select List	2540C TDS	9056A Chloride, Sulfate, and Fluoride	SM4500 H+ pH	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N	N	N		
MW-2	2-20-17	1436	G	GW	N	Y			X	X	X		3x vol for MS/MSD
MW-4	2-20-17	1342	G	GW	N	N			X	X	X		
MW-8	2-21-17	801	G	GW	N	N			X	X	X		
MW-10	2-21-17	855	G	GW	N	N			X	X	X		
MW-11	2-20-17	1744	G	GW	N	N			X	X	X		
MW-12	2-20-17	1650	G	GW	N	N			X	X	X		
MW-13	2-20-17	1609	G	GW	N	N			X	X	X		
MW-14	2-20-17	1836	G	GW	N	N			X	X	X		
MW-15	2-21-17	951	G	GW	N	N			X	X	X		
DP-01	2-20-17	—	G	GW	N	N			X	X	X		

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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client X Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Report all parameters together with Radiologicals

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: Wineland	Date/Time: 2-22-17 1320	Company: GHD	Received by: Relinquished to FedEx under	Date/Time:	Company
Relinquished by: custody seal	Date/Time:	Company	Received by: DUTA Lang	Date/Time: 2.23.17 930	Company TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

4/10/2017

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-100252 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: Des Moines, IA | Project:

Receipt Information

Date/Time Received: 2/24/17 1755 | Received By: JMH

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☑ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other: _____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☑ Yes ☐ No *If yes:* Cooler ID: M-9 SI(2/25/17)

Multiple Coolers? ☑ Yes ☐ No *If yes:* Cooler # 41 of 43

Cooler Custody Seals Present? ☑ Yes ☐ No *If yes:* Cooler custody seals intact? ☑ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☑ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☑ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE

Temperature Blank? ☑ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: G | Correction Factor (°C): 0°C

Uncorrected Temp (°C): 4.7°C | Corrected Temp (°C): 4.7°C

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: DCS Moines, Ia | Project:

Receipt Information

Date/Time Received: 2/24/17 1755 | Received By: JMH

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☑ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:

Condition of Cooler/Containers

Sample(s) received in Cooler? ☑ Yes ☐ No *If yes:* Cooler ID: TI-1 ST(2/25/17)

Multiple Coolers? ☑ Yes ☐ No *If yes:* Cooler # 2 of 73

Cooler Custody Seals Present? ☑ Yes ☐ No *If yes:* Cooler custody seals intact? ☑ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☑ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☑ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Temperature Blank? ☑ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: G | Correction Factor (°C): 0°C

Uncorrected Temp (°C): 5.6°C | Corrected Temp (°C): 5.6°C

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: Des Moines, Ia | Project:

Receipt Information

Date/Time Received: 2/24/17 1755 | Received By: JMH

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☑ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other: _____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☑ Yes ☐ No *If yes:* Cooler ID: V III SI (2/25/17)

Multiple Coolers? ☑ Yes ☐ No *If yes:* Cooler # 3 of 3

Cooler Custody Seals Present? ☑ Yes ☐ No *If yes:* Cooler custody seals intact? ☑ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☑ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☑ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE

Temperature Blank? ☑ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: G | Correction Factor (°C): 0°C

Uncorrected Temp (°C): 2.3°C | Corrected Temp (°C): 2.3°C

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Tim Wineland	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No:
Client Contact: Kevin Armstrong	Phone: 515 710 8336	E-Mail: shawn.hayes@testamericainc.com		Page: 1 of 1
Company: GHD Services Inc.		Analysis Requested		Job #:

Address: 11228 Aurora Avenue	Due Date Requested:	
City: Des Moines	TAT Requested (days): Standard	
State, Zip: IA, 50322-7905		
Phone: 515-414-3935	PO #: 34003921	
Email: Kevin.Armstrong@ghd.com	WO #:	
Project Name: MEC Neal South Energy Center CCR Monofill	TestAMerica Project #: 31007315	
Projct Number: 11114654-CCR16	SSOW#: 11114654-002	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228	6010C, 6020A, 7470A Select List	2540C TDS	9056A Chloride, Sulfate, and Fluoride	SM4500 H+ pH	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N	N	N		
MW-2	2-20-17	1436	G	GW	N	Y	X	X					3x vol for MS/MSD
MW-4	2-20-17	1342	G	GW	N	N	X	X					
MW-8	2-21-17	801	G	GW	N	N	X	X					
MW-10	2-21-17	855	G	GW	N	N	X	X					
MW-11	2-20-17	1744	G	GW	N	N	X	X					
MW-12	2-20-17	1650	G	GW	N	N	X	X					
MW-13	2-20-17	1609	G	GW	N	N	X	X					
MW-14	2-20-17	1836	G	GW	N	N	X	X					
MW-15	2-21-17	951	G	GW	N	N	X	X					
DP-01	2-20-17	—	G	GW	N	N	X	X					

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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ■ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Report all parameters together with Radiologicals

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by: Wineland	2-24-17 1200	GHD	Relinquish to GHD front desk under		
Relinquished by: custody seal	Date/Time:	Company	Received by:	Date/Time: 2.24.17 - 14:35	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 2/24/17 1755	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

4/10/2017

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW-2	310-100252-A-1	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-100252-A-1 MS	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-100252-A-1 MSD	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-100252-B-1	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-100252-B-1 MS	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-100252-B-1 MSD	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-100252-C-1	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-100252-C-1 MS	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-100252-C-1 MSD	Plastic 1 liter - Nitric Acid	<2		
MW-4	310-100252-A-2	Plastic 250ml - with Nitric Acid	<2		
MW-4	310-100252-B-2	Plastic 1 liter - Nitric Acid	<2		
MW-4	310-100252-C-2	Plastic 1 liter - Nitric Acid	<2		
MW-8	310-100252-A-3	Plastic 250ml - with Nitric Acid	<2		
MW-8	310-100252-B-3	Plastic 1 liter - Nitric Acid	<2		
MW-8	310-100252-C-3	Plastic 1 liter - Nitric Acid	<2		
MW-10	310-100252-A-4	Plastic 250ml - with Nitric Acid	<2		
MW-10	310-100252-B-4	Plastic 1 liter - Nitric Acid	<2		
MW-10	310-100252-C-4	Plastic 1 liter - Nitric Acid	<2		
MW-11	310-100252-A-5	Plastic 250ml - with Nitric Acid	<2		
MW-11	310-100252-B-5	Plastic 1 liter - Nitric Acid	<2		
MW-11	310-100252-C-5	Plastic 1 liter - Nitric Acid	<2		
MW-12	310-100252-A-6	Plastic 250ml - with Nitric Acid	<2		
MW-12	310-100252-B-6	Plastic 1 liter - Nitric Acid	<2		
MW-12	310-100252-C-6	Plastic 1 liter - Nitric Acid	<2		
MW-13	310-100252-A-7	Plastic 250ml - with Nitric Acid	<2		
MW-13	310-100252-B-7	Plastic 1 liter - Nitric Acid	<2		
MW-13	310-100252-C-7	Plastic 1 liter - Nitric Acid	<2		
MW-14	310-100252-A-8	Plastic 250ml - with Nitric Acid	<2		
MW-14	310-100252-B-8	Plastic 1 liter - Nitric Acid	<2		
MW-14	310-100252-C-8	Plastic 1 liter - Nitric Acid	<2		
MW-15	310-100252-A-9	Plastic 250ml - with Nitric Acid	<2		
MW-15	310-100252-B-9	Plastic 1 liter - Nitric Acid	<2		
MW-15	310-100252-C-9	Plastic 1 liter - Nitric Acid	<2		
DP-01	310-100252-A-10	Plastic 250ml - with Nitric Acid	<2		
DP-01	310-100252-B-10	Plastic 1 liter - Nitric Acid	<2		
DP-01	310-100252-C-10	Plastic 1 liter - Nitric Acid	<2		

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 310-100252-1
SDG Number: 11114654-CCR16

Login Number: 100252
List Number: 1
Creator: Tuladhar, Sushil X

List Source: TestAmerica Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are 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 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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR Monofil

TestAmerica Job ID: 310-100252-1
SDG: 11114654-CCR16

Method: 9315 - Radium-226 (GFPC)

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)								
Lab Sample ID	Client Sample ID	Ba (40-110)								
310-100252-1	MW-2	89.7								
310-100252-1 MS	MW-2	90.6								
310-100252-1 MSD	MW-2	90.0								
310-100252-2	MW-4	83.2								
310-100252-3	MW-8	80.8								
310-100252-4	MW-10	85.5								
310-100252-5	MW-11	87.9								
310-100252-6	MW-12	89.4								
310-100252-7	MW-13	84.7								
310-100252-8	MW-14	88.5								
310-100252-9	MW-15	91.2								
310-100252-10	DP-01	92.3								

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9315 - Radium-226 (GFPC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)								
Lab Sample ID	Client Sample ID	Ba (40-110)								
LCS 160-295694/2-A	Lab Control Sample	85.8								
MB 160-295694/1-A	Method Blank	85.0								

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)								
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)							
310-100252-1	MW-2	89.7	92.0							
310-100252-1 MS	MW-2	90.6	87.9							
310-100252-1 MSD	MW-2	90.0	95.0							
310-100252-2	MW-4	83.2	91.2							
310-100252-3	MW-8	80.8	89.0							
310-100252-4	MW-10	85.5	93.8							
310-100252-5	MW-11	87.9	91.2							
310-100252-6	MW-12	89.4	85.6							
310-100252-7	MW-13	84.7	89.0							
310-100252-8	MW-14	88.5	90.1							
310-100252-9	MW-15	91.2	92.7							
310-100252-10	DP-01	92.3	89.7							

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

Tracer/Carrier Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South Energy Center CCR Monofil

TestAmerica Job ID: 310-100252-1
SDG: 11114654-CCR16

Method: 9320 - Radium-228 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)									
		Ba	Y								
Lab Sample ID	Client Sample ID	(40-110)	(40-110)								
LCS 160-295707/2-A	Lab Control Sample	85.8	91.6								
MB 160-295707/1-A	Method Blank	85.0	92.7								

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319)277-2401

TestAmerica Job ID: 310-104523-1
TestAmerica Sample Delivery Group: 11114654
Client Project/Site: MidAmerican Neal South CCR Monofill
Sampling Event: Neal South CCR Qtrly

For:
GHD Services Inc.
11228 Aurora Avenue
Des Moines, Iowa 50322-7905

Attn: Kevin Armstrong

Authorized for release by:
5/31/2017 12:35:48 PM

Shawn Hayes, Senior Project Manager
(319)277-2401
shawn.hayes@testamericainc.com

LINKS

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Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

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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Job ID: 310-104318-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-104318-1

Comments
No additional comments.

Receipt
The samples were received on 4/26/2017 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6º C.

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

Job ID: 310-104523-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-104523-1

Comments
No additional comments.

Receipt
The samples were received on 4/27/2017 5:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 3.1º C, 3.4º C and 3.5º C.

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

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

Job ID: 310-104523-2

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-104523-2

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

Sample Summary

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-104523-1
SDG: 11114654

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-104318-1	MW-4	Ground Water	04/24/17 08:30	04/26/17 09:10
310-104318-2	MW-8	Ground Water	04/24/17 10:28	04/26/17 09:10
310-104318-3	MW-10	Ground Water	04/24/17 11:22	04/26/17 09:10
310-104318-4	MW-15	Ground Water	04/24/17 09:52	04/26/17 09:10
310-104523-1	MW-2	Ground Water	04/25/17 14:52	04/27/17 17:45
310-104523-2	MW-4	Ground Water	04/24/17 08:30	04/27/17 17:45
310-104523-3	MW-8	Ground Water	04/24/17 10:28	04/27/17 17:45
310-104523-4	MW-10	Ground Water	04/24/17 11:22	04/27/17 17:45
310-104523-5	MW-11	Ground Water	04/25/17 17:20	04/27/17 17:45
310-104523-6	MW-12	Ground Water	04/25/17 16:34	04/27/17 17:45
310-104523-7	MW-13	Ground Water	04/25/17 15:50	04/27/17 17:45
310-104523-8	MW-14	Ground Water	04/25/17 18:20	04/27/17 17:45
310-104523-9	MW-15	Ground Water	04/24/17 09:52	04/27/17 17:45
310-104523-10	DP-01	Ground Water	04/25/17 00:00	04/27/17 17:45

Client Sample Results

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-104523-1
SDG: 11114654

Client Sample ID: MW-4
Date Collected: 04/24/17 08:30
Date Received: 04/26/17 09:10

Lab Sample ID: 310-104318-1
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	15.8		5.00		mg/L			05/02/17 00:35	5
Sulfate	681		20.0		mg/L			05/02/17 09:04	20
Fluoride	<0.500		0.500		mg/L			05/02/17 00:35	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1730		75.0		mg/L			04/27/17 12:08	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1		SU			04/26/17 14:22	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-104523-1
SDG: 11114654

Client Sample ID: MW-8
Date Collected: 04/24/17 10:28
Date Received: 04/26/17 09:10

Lab Sample ID: 310-104318-2
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.30**		5.00		mg/L			05/02/17 00:51	5
Sulfate	**224**		5.00		mg/L			05/02/17 00:51	5
Fluoride	<0.500		0.500		mg/L			05/02/17 00:51	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1160**		60.0		mg/L			04/27/17 12:08	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.2**	**HF**	0.1		SU			04/26/17 14:24	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-104523-1
SDG: 11114654

Client Sample ID: MW-10
Date Collected: 04/24/17 11:22
Date Received: 04/26/17 09:10

Lab Sample ID: 310-104318-3
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**7.81**		5.00		mg/L			05/02/17 01:21	5
Sulfate	**55.4**		5.00		mg/L			05/02/17 01:21	5
Fluoride	<0.500		0.500		mg/L			05/02/17 01:21	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1150**		75.0		mg/L			04/27/17 12:08	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.2**	**HF**	0.1		SU			04/26/17 14:25	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-104523-1
SDG: 11114654

Client Sample ID: MW-15
Date Collected: 04/24/17 09:52
Date Received: 04/26/17 09:10

Lab Sample ID: 310-104318-4
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	14.8		5.00		mg/L			05/02/17 01:37	5
Sulfate	316		20.0		mg/L			05/02/17 01:52	20
Fluoride	0.913		0.500		mg/L			05/02/17 01:37	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1310		60.0		mg/L			04/27/17 12:08	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1		SU			04/26/17 14:26	1

Client Sample ID: MW-2

Date Collected: 04/25/17 14:52
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-1

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**28.0**		5.00		mg/L			05/02/17 18:03	5
Sulfate	**49.9**		5.00		mg/L			05/02/17 18:03	5
Fluoride	**1.24**		0.500		mg/L			05/02/17 18:03	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0589**		0.0500		mg/L		05/01/17 10:00	05/02/17 00:55	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 20:28	1
Arsenic	**0.0214**		0.00200		mg/L		05/01/17 10:00	05/08/17 20:28	1
Barium	**0.137**		0.00200		mg/L		05/01/17 10:00	05/08/17 20:28	1
Beryllium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 20:28	1
Boron	<0.200		0.200		mg/L		05/01/17 10:00	05/08/17 20:28	1
Cadmium	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 20:28	1
Calcium	**125**		0.200		mg/L		05/01/17 10:00	05/08/17 20:28	1
Chromium	<0.00500		0.00500		mg/L		05/01/17 10:00	05/08/17 20:28	1
Cobalt	**0.00144**		0.000500		mg/L		05/01/17 10:00	05/08/17 20:28	1
Lead	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 20:28	1
Molybdenum	<0.00200		0.00200		mg/L		05/01/17 10:00	05/08/17 20:28	1
Selenium	<0.00500		0.00500		mg/L		05/01/17 10:00	05/08/17 20:28	1
Thallium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 20:28	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		05/02/17 12:31	05/03/17 13:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**588**		30.0		mg/L			04/28/17 12:43	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.2**	**HF**	0.1		SU			04/27/17 21:29	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.102**		0.0691	0.0698	1.00	0.0957	pCi/L	05/02/17 10:44	05/24/17 08:40	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*05/02/17 10:44*	*05/24/17 08:40*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.136	U	0.250	0.250	1.00	0.425	pCi/L	05/02/17 11:02	05/15/17 15:07	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*05/02/17 11:02*	*05/15/17 15:07*	*1*

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-104523-1
SDG: 11114654

Client Sample ID: MW-2
Date Collected: 04/25/17 14:52
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-1
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	71.4		40 - 110	05/02/17 11:02	05/15/17 15:07	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	0.239	U	0.259	0.260	5.00	0.425	pCi/L		05/26/17 12:36	1

Client Sample ID: MW-4

Date Collected: 04/24/17 08:30
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-2

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.146**		0.0500		mg/L		05/01/17 10:00	05/02/17 01:02	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 20:50	1
Arsenic	<0.00200		0.00200		mg/L		05/01/17 10:00	05/08/17 20:50	1
Barium	**0.0364**		0.00200		mg/L		05/01/17 10:00	05/08/17 20:50	1
Beryllium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 20:50	1
Boron	**0.972**		0.200		mg/L		05/01/17 10:00	05/09/17 11:44	1
Cadmium	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 20:50	1
Calcium	**279**		0.200		mg/L		05/01/17 10:00	05/08/17 20:50	1
Chromium	<0.00500		0.00500		mg/L		05/01/17 10:00	05/08/17 20:50	1
Cobalt	**0.00791**		0.000500		mg/L		05/01/17 10:00	05/08/17 20:50	1
Lead	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 20:50	1
Molybdenum	<0.00200		0.00200		mg/L		05/01/17 10:00	05/08/17 20:50	1
Selenium	<0.00500		0.00500		mg/L		05/01/17 10:00	05/08/17 20:50	1
Thallium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 20:50	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		05/02/17 12:31	05/03/17 13:17	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.139**		0.0755	0.0766	1.00	0.0936	pCi/L	05/02/17 10:44	05/24/17 08:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*102*		*40 - 110*	*05/02/17 10:44*	*05/24/17 08:41*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.236	U	0.203	0.204	1.00	0.323	pCi/L	05/02/17 11:02	05/15/17 15:07	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*102*		*40 - 110*	*05/02/17 11:02*	*05/15/17 15:07*	*1*
Y Carrier	*84.5*		*40 - 110*	*05/02/17 11:02*	*05/15/17 15:07*	*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	**0.375**		0.216	0.218	5.00	0.323	pCi/L		05/26/17 12:36	1

Client Sample ID: MW-8

Date Collected: 04/24/17 10:28
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-3

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.111**		0.0500		mg/L		05/01/17 10:00	05/02/17 01:08	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 20:54	1
Arsenic	<0.00200		0.00200		mg/L		05/01/17 10:00	05/08/17 20:54	1
Barium	**0.0751**		0.00200		mg/L		05/01/17 10:00	05/08/17 20:54	1
Beryllium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 20:54	1
Boron	**0.712**		0.200		mg/L		05/01/17 10:00	05/09/17 11:47	1
Cadmium	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 20:54	1
Calcium	**196**		0.200		mg/L		05/01/17 10:00	05/08/17 20:54	1
Chromium	<0.00500		0.00500		mg/L		05/01/17 10:00	05/08/17 20:54	1
Cobalt	**0.00287**		0.000500		mg/L		05/01/17 10:00	05/08/17 20:54	1
Lead	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 20:54	1
Molybdenum	**0.0241**		0.00200		mg/L		05/01/17 10:00	05/08/17 20:54	1
Selenium	<0.00500		0.00500		mg/L		05/01/17 10:00	05/08/17 20:54	1
Thallium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 20:54	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		05/02/17 12:31	05/03/17 13:19	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0459	U	0.0685	0.0686	1.00	0.117	pCi/L	05/03/17 08:57	05/25/17 05:59	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.7*		*40 - 110*	*05/03/17 08:57*	*05/25/17 05:59*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0356	U	0.212	0.212	1.00	0.381	pCi/L	05/03/17 09:21	05/18/17 17:29	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.7*		*40 - 110*	*05/03/17 09:21*	*05/18/17 17:29*	*1*
Y Carrier	*89.0*		*40 - 110*	*05/03/17 09:21*	*05/18/17 17:29*	*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	0.0102	U	0.223	0.223	5.00	0.381	pCi/L		05/26/17 12:36	1

Client Sample ID: MW-10

Date Collected: 04/24/17 11:22
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-4

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0653**		0.0500		mg/L		05/01/17 10:00	05/02/17 01:11	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 20:57	1
Arsenic	**0.0192**		0.00200		mg/L		05/01/17 10:00	05/08/17 20:57	1
Barium	**0.569**		0.00200		mg/L		05/01/17 10:00	05/08/17 20:57	1
Beryllium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 20:57	1
Boron	**0.515**		0.200		mg/L		05/01/17 10:00	05/09/17 11:50	1
Cadmium	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 20:57	1
Calcium	**152**		0.200		mg/L		05/01/17 10:00	05/08/17 20:57	1
Chromium	<0.00500		0.00500		mg/L		05/01/17 10:00	05/08/17 20:57	1
Cobalt	**0.00191**		0.000500		mg/L		05/01/17 10:00	05/08/17 20:57	1
Lead	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 20:57	1
Molybdenum	**0.00296**		0.00200		mg/L		05/01/17 10:00	05/08/17 20:57	1
Selenium	<0.00500		0.00500		mg/L		05/01/17 10:00	05/08/17 20:57	1
Thallium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 20:57	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		05/02/17 12:31	05/03/17 13:20	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.261**		0.0931	0.0960	1.00	0.0903	pCi/L	05/02/17 10:44	05/24/17 08:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*108*		*40 - 110*	*05/02/17 10:44*	*05/24/17 08:41*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.479**		0.227	0.231	1.00	0.329	pCi/L	05/02/17 11:02	05/15/17 15:07	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*108*		*40 - 110*	*05/02/17 11:02*	*05/15/17 15:07*	*1*
Y Carrier	*83.7*		*40 - 110*	*05/02/17 11:02*	*05/15/17 15:07*	*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	**0.740**		0.245	0.250	5.00	0.329	pCi/L		05/26/17 12:36	1

Client Sample ID: MW-11

Date Collected: 04/25/17 17:20
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-5

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**11.2**		5.00		mg/L			05/02/17 18:46	5
Sulfate	**321**		10.0		mg/L			05/02/17 19:00	10
Fluoride	**2.11**		0.500		mg/L			05/02/17 18:46	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.111**		0.0500		mg/L		05/01/17 10:00	05/02/17 01:13	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 21:00	1
Arsenic	<0.00200		0.00200		mg/L		05/01/17 10:00	05/08/17 21:00	1
Barium	**0.0808**		0.00200		mg/L		05/01/17 10:00	05/08/17 21:00	1
Beryllium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 21:00	1
Boron	**0.238**		0.200		mg/L		05/01/17 10:00	05/09/17 11:53	1
Cadmium	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 21:00	1
Calcium	**239**		0.200		mg/L		05/01/17 10:00	05/08/17 21:00	1
Chromium	<0.00500		0.00500		mg/L		05/01/17 10:00	05/08/17 21:00	1
Cobalt	**0.00279**		0.000500		mg/L		05/01/17 10:00	05/08/17 21:00	1
Lead	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 21:00	1
Molybdenum	<0.00200		0.00200		mg/L		05/01/17 10:00	05/08/17 21:00	1
Selenium	<0.00500		0.00500		mg/L		05/01/17 10:00	05/08/17 21:00	1
Thallium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 21:00	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		05/02/17 12:31	05/03/17 13:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1470**		60.0		mg/L			04/28/17 12:43	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.9**	**HF**	0.1		SU			04/27/17 21:31	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0795	U	0.0595	0.0599	1.00	0.0831	pCi/L	05/02/17 10:44	05/24/17 08:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*103*		*40 - 110*	*05/02/17 10:44*	*05/24/17 08:41*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0115	U	0.162	0.162	1.00	0.297	pCi/L	05/02/17 11:02	05/15/17 15:08	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*103*		*40 - 110*	*05/02/17 11:02*	*05/15/17 15:08*	*1*

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-104523-1
SDG: 11114654

Client Sample ID: MW-11
Date Collected: 04/25/17 17:20
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-5
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*90.5*		*40 - 110*	*05/02/17 11:02*	*05/15/17 15:08*	*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	0.0680	U	0.172	0.172	5.00	0.297	pCi/L		05/26/17 12:36	1

Client Sample ID: MW-12

Date Collected: 04/25/17 16:34
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-6

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**29.2**		5.00		mg/L			05/02/17 19:15	5
Sulfate	**626**		20.0		mg/L			05/02/17 19:29	20
Fluoride	**1.85**		0.500		mg/L			05/02/17 19:15	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0814**		0.0500		mg/L		05/01/17 10:00	05/02/17 01:15	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 21:03	1
Arsenic	<0.00200		0.00200		mg/L		05/01/17 10:00	05/08/17 21:03	1
Barium	**0.0472**		0.00200		mg/L		05/01/17 10:00	05/08/17 21:03	1
Beryllium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 21:03	1
Boron	**5.12**		2.00		mg/L		05/01/17 10:00	05/09/17 11:56	10
Cadmium	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 21:03	1
Calcium	**193**		0.200		mg/L		05/01/17 10:00	05/08/17 21:03	1
Chromium	<0.00500		0.00500		mg/L		05/01/17 10:00	05/08/17 21:03	1
Cobalt	**0.000567**		0.000500		mg/L		05/01/17 10:00	05/08/17 21:03	1
Lead	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 21:03	1
Molybdenum	<0.00200		0.00200		mg/L		05/01/17 10:00	05/08/17 21:03	1
Selenium	**0.0327**		0.00500		mg/L		05/01/17 10:00	05/08/17 21:03	1
Thallium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 21:03	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		05/02/17 12:31	05/03/17 13:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1960**		150		mg/L			04/28/17 12:43	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.0**	**HF**	0.1		SU			04/27/17 21:32	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0404	U	0.0563	0.0565	1.00	0.0953	pCi/L	05/02/17 10:44	05/24/17 08:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*05/02/17 10:44*	*05/24/17 08:42*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.247	U	0.200	0.202	1.00	0.317	pCi/L	05/02/17 11:02	05/15/17 15:08	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*05/02/17 11:02*	*05/15/17 15:08*	*1*

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-104523-1
SDG: 11114654

Client Sample ID: MW-12
Date Collected: 04/25/17 16:34
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-6
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*87.1*		*40 - 110*	*05/02/17 11:02*	*05/15/17 15:08*	*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	0.288	U	0.208	0.209	5.00	0.317	pCi/L		05/26/17 12:36	1

Client Sample ID: MW-13

Date Collected: 04/25/17 15:50
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-7

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**17.6**		5.00		mg/L			05/02/17 19:44	5
Sulfate	**461**		20.0		mg/L			05/02/17 20:27	20
Fluoride	**1.89**		0.500		mg/L			05/02/17 19:44	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0830**		0.0500		mg/L		05/01/17 10:00	05/02/17 01:17	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 21:06	1
Arsenic	**0.00339**		0.00200		mg/L		05/01/17 10:00	05/08/17 21:06	1
Barium	**0.0808**		0.00200		mg/L		05/01/17 10:00	05/08/17 21:06	1
Beryllium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 21:06	1
Boron	**0.747**		0.200		mg/L		05/01/17 10:00	05/09/17 11:59	1
Cadmium	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 21:06	1
Calcium	**230**		0.200		mg/L		05/01/17 10:00	05/08/17 21:06	1
Chromium	<0.00500		0.00500		mg/L		05/01/17 10:00	05/08/17 21:06	1
Cobalt	**0.00624**		0.000500		mg/L		05/01/17 10:00	05/08/17 21:06	1
Lead	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 21:06	1
Molybdenum	**0.00296**		0.00200		mg/L		05/01/17 10:00	05/08/17 21:06	1
Selenium	<0.00500		0.00500		mg/L		05/01/17 10:00	05/08/17 21:06	1
Thallium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 21:06	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		05/02/17 12:31	05/03/17 13:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1210**		60.0		mg/L			04/29/17 08:01	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.9**	**HF**	0.1		SU			04/27/17 21:33	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.138**		0.0742	0.0752	1.00	0.0908	pCi/L	05/02/17 10:44	05/24/17 08:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*05/02/17 10:44*	*05/24/17 08:42*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.251	U	0.223	0.224	1.00	0.358	pCi/L	05/02/17 11:02	05/15/17 15:08	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*05/02/17 11:02*	*05/15/17 15:08*	*1*

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-104523-1
SDG: 11114654

Client Sample ID: MW-13
Date Collected: 04/25/17 15:50
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-7
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	89.0		40 - 110	05/02/17 11:02	05/15/17 15:08	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	0.389		0.235	0.236	5.00	0.358	pCi/L		05/26/17 12:36	1

Client Sample ID: MW-14

Date Collected: 04/25/17 18:20
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-8

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**23.2**		5.00		mg/L			05/02/17 20:41	5
Sulfate	**277**		20.0		mg/L			05/02/17 20:56	20
Fluoride	**14.9**		0.500		mg/L			05/02/17 20:41	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0959**		0.0500		mg/L		05/01/17 10:00	05/02/17 01:21	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 21:12	1
Arsenic	<0.00200		0.00200		mg/L		05/01/17 10:00	05/08/17 21:12	1
Barium	**0.0695**		0.00200		mg/L		05/01/17 10:00	05/08/17 21:12	1
Beryllium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 21:12	1
Boron	**0.343**		0.200		mg/L		05/01/17 10:00	05/09/17 12:06	1
Cadmium	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 21:12	1
Calcium	**235**		0.200		mg/L		05/01/17 10:00	05/08/17 21:12	1
Chromium	<0.00500		0.00500		mg/L		05/01/17 10:00	05/08/17 21:12	1
Cobalt	**0.00329**		0.000500		mg/L		05/01/17 10:00	05/08/17 21:12	1
Lead	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 21:12	1
Molybdenum	**0.00209**		0.00200		mg/L		05/01/17 10:00	05/08/17 21:12	1
Selenium	<0.00500		0.00500		mg/L		05/01/17 10:00	05/08/17 21:12	1
Thallium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 21:12	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		05/02/17 12:31	05/03/17 13:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1220**		60.0		mg/L			04/29/17 08:01	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.9**	**HF**	0.1		SU			04/27/17 21:34	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.156**		0.0766	0.0779	1.00	0.0876	pCi/L	05/02/17 10:44	05/24/17 08:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*05/02/17 10:44*	*05/24/17 08:42*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.167	U	0.197	0.197	1.00	0.324	pCi/L	05/02/17 11:02	05/15/17 15:09	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*05/02/17 11:02*	*05/15/17 15:09*	*1*

Client Sample ID: MW-14
Date Collected: 04/25/17 18:20
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-8
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	88.6		40 - 110	05/02/17 11:02	05/15/17 15:09	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	0.324		0.211	0.212	5.00	0.324	pCi/L		05/26/17 12:36	1

Client Sample ID: MW-15

Date Collected: 04/24/17 09:52
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-9

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0847**		0.0500		mg/L		05/01/17 10:00	05/02/17 01:23	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 21:15	1
Arsenic	<0.00200		0.00200		mg/L		05/01/17 10:00	05/08/17 21:15	1
Barium	**0.0611**		0.00200		mg/L		05/01/17 10:00	05/08/17 21:15	1
Beryllium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 21:15	1
Boron	**1.72**		0.200		mg/L		05/01/17 10:00	05/09/17 12:09	1
Cadmium	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 21:15	1
Calcium	**212**		0.200		mg/L		05/01/17 10:00	05/08/17 21:15	1
Chromium	<0.00500		0.00500		mg/L		05/01/17 10:00	05/08/17 21:15	1
Cobalt	**0.00199**		0.000500		mg/L		05/01/17 10:00	05/08/17 21:15	1
Lead	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 21:15	1
Molybdenum	<0.00200		0.00200		mg/L		05/01/17 10:00	05/08/17 21:15	1
Selenium	<0.00500		0.00500		mg/L		05/01/17 10:00	05/08/17 21:15	1
Thallium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 21:15	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		05/02/17 12:31	05/03/17 13:31	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.224**		0.0859	0.0882	1.00	0.0847	pCi/L	05/02/17 10:44	05/24/17 08:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*05/02/17 10:44*	*05/24/17 08:42*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.162	U	0.190	0.191	1.00	0.314	pCi/L	05/02/17 11:02	05/15/17 15:09	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*05/02/17 11:02*	*05/15/17 15:09*	*1*
Y Carrier	*83.0*		*40 - 110*	*05/02/17 11:02*	*05/15/17 15:09*	*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	**0.385**		0.209	0.210	5.00	0.314	pCi/L		05/26/17 12:36	1

Client Sample ID: DP-01

Date Collected: 04/25/17 00:00
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-10

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**12.1**		5.00		mg/L			05/02/17 21:10	5
Sulfate	**330**		20.0		mg/L			05/02/17 21:25	20
Fluoride	**3.30**		0.500		mg/L			05/02/17 21:10	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.111**		0.0500		mg/L		05/01/17 10:00	05/02/17 01:25	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 21:18	1
Arsenic	<0.00200		0.00200		mg/L		05/01/17 10:00	05/08/17 21:18	1
Barium	**0.0824**		0.00200		mg/L		05/01/17 10:00	05/08/17 21:18	1
Beryllium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 21:18	1
Boron	**0.258**		0.200		mg/L		05/01/17 10:00	05/09/17 12:12	1
Cadmium	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 21:18	1
Calcium	**251**		0.200		mg/L		05/01/17 10:00	05/08/17 21:18	1
Chromium	<0.00500		0.00500		mg/L		05/01/17 10:00	05/08/17 21:18	1
Cobalt	**0.00293**		0.000500		mg/L		05/01/17 10:00	05/08/17 21:18	1
Lead	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 21:18	1
Molybdenum	<0.00200		0.00200		mg/L		05/01/17 10:00	05/08/17 21:18	1
Selenium	<0.00500		0.00500		mg/L		05/01/17 10:00	05/08/17 21:18	1
Thallium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 21:18	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		05/02/17 12:31	05/03/17 13:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1300**		60.0		mg/L			04/29/17 08:01	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.0**	**HF**	0.1		SU			04/27/17 21:35	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0816	U	0.0596	0.0600	1.00	0.0822	pCi/L	05/02/17 10:44	05/24/17 08:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*106*		*40 - 110*	*05/02/17 10:44*	*05/24/17 08:42*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0386	U	0.202	0.202	1.00	0.356	pCi/L	05/02/17 11:02	05/15/17 15:09	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*106*		*40 - 110*	*05/02/17 11:02*	*05/15/17 15:09*	*1*

Client Sample ID: DP-01
Date Collected: 04/25/17 00:00
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-10
Matrix: Ground Water

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	79.6		40 - 110	05/02/17 11:02	05/15/17 15:09	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	0.120	U	0.211	0.211	5.00	0.356	pCi/L		05/26/17 12:36	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.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.
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)

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-164933/3
Matrix: Water
Analysis Batch: 164933

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			05/02/17 00:04	1
Sulfate	<1.00		1.00		mg/L			05/02/17 00:04	1
Fluoride	<0.100		0.100		mg/L			05/02/17 00:04	1

Lab Sample ID: LCS 310-164933/4
Matrix: Water
Analysis Batch: 164933

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.50	7.645		mg/L		102	90 - 110
Sulfate	7.50	7.771		mg/L		104	90 - 110
Fluoride	1.50	1.437		mg/L		96	90 - 110

Lab Sample ID: MB 310-165066/3
Matrix: Water
Analysis Batch: 165066

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			05/02/17 14:40	1
Sulfate	<1.00		1.00		mg/L			05/02/17 14:40	1
Fluoride	<0.100		0.100		mg/L			05/02/17 14:40	1

Lab Sample ID: LCS 310-165066/4
Matrix: Water
Analysis Batch: 165066

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.50	7.598		mg/L		101	90 - 110
Sulfate	7.50	7.597		mg/L		101	90 - 110
Fluoride	1.50	1.431		mg/L		95	90 - 110

Lab Sample ID: 310-104523-1 MS
Matrix: Ground Water
Analysis Batch: 165066

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	28.0		25.0	54.21		mg/L		105	80 - 120
Sulfate	49.9		25.0	73.00		mg/L		92	80 - 120
Fluoride	1.24		5.00	6.435		mg/L		104	80 - 120

Lab Sample ID: 310-104523-1 MSD
Matrix: Ground Water
Analysis Batch: 165066

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	28.0		25.0	57.82		mg/L		119	80 - 120	6	15
Sulfate	49.9		25.0	74.03		mg/L		96	80 - 120	1	15
Fluoride	1.24		5.00	7.240		mg/L		120	80 - 120	12	15

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 310-164608/1-A
Matrix: Water
Analysis Batch: 164861

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 164608

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.0500		0.0500		mg/L		05/01/17 10:00	05/02/17 00:38	1

Lab Sample ID: LCS 310-164608/2-A
Matrix: Water
Analysis Batch: 164861

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 164608

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	2.00	1.594		mg/L		80	80 - 120

Lab Sample ID: 310-104523-1 MS
Matrix: Ground Water
Analysis Batch: 164861

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 164608

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.0589		2.00	1.869		mg/L		91	75 - 125

Lab Sample ID: 310-104523-1 MSD
Matrix: Ground Water
Analysis Batch: 164861

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 164608

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	0.0589		2.00	1.857		mg/L		90	75 - 125	1	20

Lab Sample ID: 310-104523-7 DU
Matrix: Ground Water
Analysis Batch: 164861

Client Sample ID: MW-13
Prep Type: Total/NA
Prep Batch: 164608

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Lithium	0.0830		0.08734		mg/L		5	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-164606/1-A
Matrix: Water
Analysis Batch: 165675

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 164606

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 20:10	1
Arsenic	<0.00200		0.00200		mg/L		05/01/17 10:00	05/08/17 20:10	1
Barium	<0.00200		0.00200		mg/L		05/01/17 10:00	05/08/17 20:10	1
Beryllium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 20:10	1
Boron	<0.200		0.200		mg/L		05/01/17 10:00	05/08/17 20:10	1
Cadmium	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 20:10	1
Calcium	<0.200		0.200		mg/L		05/01/17 10:00	05/08/17 20:10	1
Chromium	<0.00500		0.00500		mg/L		05/01/17 10:00	05/08/17 20:10	1
Cobalt	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 20:10	1
Lead	<0.000500		0.000500		mg/L		05/01/17 10:00	05/08/17 20:10	1
Molybdenum	<0.00200		0.00200		mg/L		05/01/17 10:00	05/08/17 20:10	1
Selenium	<0.00500		0.00500		mg/L		05/01/17 10:00	05/08/17 20:10	1

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

Lab Sample ID: MB 310-164606/1-A
Matrix: Water
Analysis Batch: 165675

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 164606

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	<0.00100		0.00100		mg/L		05/01/17 10:00	05/08/17 20:10	1

Lab Sample ID: LCS 310-164606/2-A
Matrix: Water
Analysis Batch: 165675

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 164606

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0200	0.02163		mg/L		108	80 - 120
Arsenic	0.0400	0.04527		mg/L		113	80 - 120
Barium	0.0400	0.04341		mg/L		109	80 - 120
Beryllium	0.0200	0.02172		mg/L		109	80 - 120
Boron	0.880	0.7923		mg/L		90	80 - 120
Cadmium	0.0200	0.02156		mg/L		108	80 - 120
Calcium	2.00	2.137		mg/L		107	80 - 120
Chromium	0.0400	0.04303		mg/L		108	80 - 120
Cobalt	0.0200	0.02117		mg/L		106	80 - 120
Lead	0.0200	0.02099		mg/L		105	80 - 120
Molybdenum	0.0400	0.04158		mg/L		104	80 - 120
Selenium	0.0400	0.04159		mg/L		104	80 - 120
Thallium	0.0160	0.01755		mg/L		110	80 - 120

Lab Sample ID: 310-104523-1 MS
Matrix: Ground Water
Analysis Batch: 165675

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 164606

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.00100		0.0200	0.02200		mg/L		110	75 - 125
Arsenic	0.0214		0.0400	0.06687		mg/L		114	75 - 125
Barium	0.137		0.0400	0.1780		mg/L		104	75 - 125
Beryllium	<0.00100		0.0200	0.02181		mg/L		109	75 - 125
Boron	<0.200		0.880	1.022		mg/L		97	75 - 125
Cadmium	<0.000500		0.0200	0.02249		mg/L		112	75 - 125
Calcium	125		2.00	123.6	4	mg/L		-63	75 - 125
Chromium	<0.00500		0.0400	0.04383		mg/L		110	75 - 125
Cobalt	0.00144		0.0200	0.02233		mg/L		104	75 - 125
Lead	<0.000500		0.0200	0.02160		mg/L		108	75 - 125
Molybdenum	<0.00200		0.0400	0.04640		mg/L		111	75 - 125
Selenium	<0.00500		0.0400	0.04186		mg/L		105	75 - 125
Thallium	<0.00100		0.0160	0.01830		mg/L		114	75 - 125

Lab Sample ID: 310-104523-1 MSD
Matrix: Ground Water
Analysis Batch: 165675

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 164606

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	<0.00100		0.0200	0.02129		mg/L		106	75 - 125	3	20
Arsenic	0.0214		0.0400	0.06556		mg/L		110	75 - 125	2	20
Barium	0.137		0.0400	0.1753		mg/L		97	75 - 125	2	20
Beryllium	<0.00100		0.0200	0.02046		mg/L		102	75 - 125	6	20

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

Lab Sample ID: 310-104523-1 MSD
Matrix: Ground Water
Analysis Batch: 165675

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 164606

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	<0.200		0.880	1.002		mg/L		95	75 - 125	2	20
Cadmium	<0.000500		0.0200	0.02145		mg/L		107	75 - 125	5	20
Calcium	125		2.00	121.5	4	mg/L		-169	75 - 125	2	20
Chromium	<0.00500		0.0400	0.04236		mg/L		106	75 - 125	3	20
Cobalt	0.00144		0.0200	0.02170		mg/L		101	75 - 125	3	20
Lead	<0.000500		0.0200	0.02100		mg/L		105	75 - 125	3	20
Molybdenum	<0.00200		0.0400	0.04412		mg/L		105	75 - 125	5	20
Selenium	<0.00500		0.0400	0.04057		mg/L		101	75 - 125	3	20
Thallium	<0.00100		0.0160	0.01752		mg/L		109	75 - 125	4	20

Lab Sample ID: 310-104523-7 DU
Matrix: Ground Water
Analysis Batch: 165675

Client Sample ID: MW-13
Prep Type: Total/NA
Prep Batch: 164606

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	<0.00100		<0.00100		mg/L		NC	20
Arsenic	0.00339		0.003534		mg/L		4	20
Barium	0.0808		0.08247		mg/L		2	20
Beryllium	<0.00100		<0.00100		mg/L		NC	20
Cadmium	<0.000500		<0.000500		mg/L		NC	20
Calcium	230		236.4		mg/L		3	20
Chromium	<0.00500		<0.00500		mg/L		NC	20
Cobalt	0.00624		0.006438		mg/L		3	20
Lead	<0.000500		<0.000500		mg/L		NC	20
Molybdenum	0.00296		0.003128		mg/L		5	20
Selenium	<0.00500		<0.00500		mg/L		NC	20
Thallium	<0.00100		<0.00100		mg/L		NC	20

Lab Sample ID: 310-104523-7 DU
Matrix: Ground Water
Analysis Batch: 165818

Client Sample ID: MW-13
Prep Type: Total/NA
Prep Batch: 164606

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Boron	0.747		0.7497		mg/L		0.3	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-164905/1-A
Matrix: Water
Analysis Batch: 165078

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 164905

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		05/02/17 12:31	05/03/17 12:48	1

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

Lab Sample ID: LCS 310-164905/2-A
Matrix: Water
Analysis Batch: 165078

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 164905

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			0.00167	0.001425		mg/L		86	80 - 120		

Lab Sample ID: 310-104523-1 MS
Matrix: Ground Water
Analysis Batch: 165078

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 164905

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	<0.000200		0.00167	0.001786		mg/L		107	80 - 120		

Lab Sample ID: 310-104523-1 MSD
Matrix: Ground Water
Analysis Batch: 165078

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 164905

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.000200		0.00167	0.001689		mg/L		101	80 - 120	6	20

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

Lab Sample ID: MB 310-164456/1
Matrix: Water
Analysis Batch: 164456

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	<30.0		30.0		mg/L			04/27/17 12:08	1

Lab Sample ID: LCS 310-164456/2
Matrix: Water
Analysis Batch: 164456

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			1000	1100		mg/L		110	90 - 110		

Lab Sample ID: MB 310-164625/1
Matrix: Water
Analysis Batch: 164625

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	<30.0		30.0		mg/L			04/28/17 12:43	1

Lab Sample ID: LCS 310-164625/2
Matrix: Water
Analysis Batch: 164625

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			1000	1090		mg/L		109	90 - 110		

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

Lab Sample ID: 310-104523-1 DU
Matrix: Ground Water
Analysis Batch: 164625

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

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	588			648.0		mg/L				10	24

Lab Sample ID: MB 310-164691/1
Matrix: Water
Analysis Batch: 164691

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	<30.0		30.0		mg/L			04/29/17 08:01	1

Lab Sample ID: LCS 310-164691/2
Matrix: Water
Analysis Batch: 164691

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			1000	1102		mg/L		110	90 - 110		

Lab Sample ID: 310-104523-10 DU
Matrix: Ground Water
Analysis Batch: 164691

Client Sample ID: DP-01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	1300			1348		mg/L				4	24

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-164319/1
Matrix: Water
Analysis Batch: 164319

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	98 - 102		

Lab Sample ID: LCS 310-164533/1
Matrix: Water
Analysis Batch: 164533

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	98 - 102		

Lab Sample ID: 310-104523-1 DU
Matrix: Ground Water
Analysis Batch: 164533

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

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.2	HF		7.1		SU				1	20

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-306654/1-A
Matrix: Water
Analysis Batch: 310272

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 306654

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.005032	U	0.0529	0.0529	1.00	0.108	pCi/L	05/02/17 10:44	05/24/17 06:52	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*108*		*40 - 110*	*05/02/17 10:44*	*05/24/17 06:52*	*1*

Lab Sample ID: LCS 160-306654/2-A
Matrix: Water
Analysis Batch: 310272

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 306654

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	10.41		1.08	1.00	0.0805	pCi/L	92	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*103*		*40 - 110*

Lab Sample ID: 310-104523-1 MS
Matrix: Ground Water
Analysis Batch: 310217

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 306654

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	0.102		11.4	10.06		1.04	1.00	0.0909	pCi/L	88	75 - 138		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*105*		*40 - 110*

Lab Sample ID: 310-104523-1 MSD
Matrix: Ground Water
Analysis Batch: 310217

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 306654

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.102		11.4	9.740		1.01	1.00	0.0922	pCi/L	85	75 - 138	0.16	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*108*		*40 - 110*

Lab Sample ID: MB 160-306907/1-A
Matrix: Water
Analysis Batch: 310444

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 306907

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.03689	U	0.0623	0.0624	1.00	0.109	pCi/L	05/03/17 08:57	05/25/17 05:59	1

Method: 9315 - Radium-226 (GFPC) (Continued)

Lab Sample ID: MB 160-306907/1-A
Matrix: Water
Analysis Batch: 310444

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 306907

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110	05/03/17 08:57	05/25/17 05:59	1

Lab Sample ID: LCS 160-306907/2-A
Matrix: Water
Analysis Batch: 310444

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 306907

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	10.54		1.11	1.00	0.0990	pCi/L	93	68 - 137		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	101		40 - 110

Lab Sample ID: LCSD 160-306907/3-A
Matrix: Water
Analysis Batch: 310444

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 306907

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.4	10.42		1.10	1.00	0.116	pCi/L	92	68 - 137	0.05	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	105		40 - 110

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-306657/1-A
Matrix: Water
Analysis Batch: 308490

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 306657

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.001947	U	0.203	0.203	1.00	0.364	pCi/L	05/02/17 11:02	05/15/17 15:03	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	108		40 - 110	05/02/17 11:02	05/15/17 15:03	1
Y Carrier	80.0		40 - 110	05/02/17 11:02	05/15/17 15:03	1

Lab Sample ID: LCS 160-306657/2-A
Matrix: Water
Analysis Batch: 308490

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 306657

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			13.4	13.86		1.48	1.00	0.321	pCi/L	103	56 - 140		

Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-306657/2-A
Matrix: Water
Analysis Batch: 308490

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 306657

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	103		40 - 110
Y Carrier	86.7		40 - 110

Lab Sample ID: 310-104523-1 MS
Matrix: Ground Water
Analysis Batch: 308495

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 306657

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228	0.136	U	13.4	13.09		1.40	1.00	0.318	pCi/L	96	45 - 150		

Carrier	MS %Yield	MS Qualifier	Limits
Ba Carrier	105		40 - 110
Y Carrier	85.6		40 - 110

Lab Sample ID: 310-104523-1 MSD
Matrix: Ground Water
Analysis Batch: 308495

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 306657

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	0.136	U	13.4	12.68		1.36	1.00	0.276	pCi/L	93	45 - 150	0.15	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Ba Carrier	108		40 - 110
Y Carrier	84.1		40 - 110

Lab Sample ID: MB 160-306912/1-A
Matrix: Water
Analysis Batch: 309197

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 306912

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1083	U	0.186	0.187	1.00	0.315	pCi/L	05/03/17 09:21	05/18/17 17:29	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110	05/03/17 09:21	05/18/17 17:29	1
Y Carrier	87.5		40 - 110	05/03/17 09:21	05/18/17 17:29	1

Lab Sample ID: LCS 160-306912/2-A
Matrix: Water
Analysis Batch: 309197

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 306912

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			13.4	13.59		1.44	1.00	0.301	pCi/L	101	56 - 140		

Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-306912/2-A
Matrix: Water
Analysis Batch: 309197

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 306912

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	101		40 - 110
Y Carrier	87.5		40 - 110

Lab Sample ID: LCSD 160-306912/3-A
Matrix: Water
Analysis Batch: 309197

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 306912

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			13.4	11.33		1.21	1.00	0.267	pCi/L	84	56 - 140	0.85	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	105		40 - 110
Y Carrier	95.7		40 - 110

HPLC/IC

Analysis Batch: 164933

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-104318-1	MW-4	Total/NA	Ground Water	9056A	
310-104318-1	MW-4	Total/NA	Ground Water	9056A	
310-104318-2	MW-8	Total/NA	Ground Water	9056A	
310-104318-3	MW-10	Total/NA	Ground Water	9056A	
310-104318-4	MW-15	Total/NA	Ground Water	9056A	
310-104318-4	MW-15	Total/NA	Ground Water	9056A	
MB 310-164933/3	Method Blank	Total/NA	Water	9056A	
LCS 310-164933/4	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 165066

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-104523-1	MW-2	Total/NA	Ground Water	9056A	
310-104523-5	MW-11	Total/NA	Ground Water	9056A	
310-104523-5	MW-11	Total/NA	Ground Water	9056A	
310-104523-6	MW-12	Total/NA	Ground Water	9056A	
310-104523-6	MW-12	Total/NA	Ground Water	9056A	
310-104523-7	MW-13	Total/NA	Ground Water	9056A	
310-104523-7	MW-13	Total/NA	Ground Water	9056A	
310-104523-8	MW-14	Total/NA	Ground Water	9056A	
310-104523-8	MW-14	Total/NA	Ground Water	9056A	
310-104523-10	DP-01	Total/NA	Ground Water	9056A	
310-104523-10	DP-01	Total/NA	Ground Water	9056A	
MB 310-165066/3	Method Blank	Total/NA	Water	9056A	
LCS 310-165066/4	Lab Control Sample	Total/NA	Water	9056A	
310-104523-1 MS	MW-2	Total/NA	Ground Water	9056A	
310-104523-1 MSD	MW-2	Total/NA	Ground Water	9056A	

Metals

Prep Batch: 164606

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-104523-1	MW-2	Total/NA	Ground Water	3010A	
310-104523-2	MW-4	Total/NA	Ground Water	3010A	
310-104523-3	MW-8	Total/NA	Ground Water	3010A	
310-104523-4	MW-10	Total/NA	Ground Water	3010A	
310-104523-5	MW-11	Total/NA	Ground Water	3010A	
310-104523-6	MW-12	Total/NA	Ground Water	3010A	
310-104523-7	MW-13	Total/NA	Ground Water	3010A	
310-104523-8	MW-14	Total/NA	Ground Water	3010A	
310-104523-9	MW-15	Total/NA	Ground Water	3010A	
310-104523-10	DP-01	Total/NA	Ground Water	3010A	
MB 310-164606/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-164606/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-104523-1 MS	MW-2	Total/NA	Ground Water	3010A	
310-104523-1 MSD	MW-2	Total/NA	Ground Water	3010A	
310-104523-7 DU	MW-13	Total/NA	Ground Water	3010A	

Prep Batch: 164608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-104523-1	MW-2	Total/NA	Ground Water	3010A	

Metals (Continued)

Prep Batch: 164608 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-104523-2	MW-4	Total/NA	Ground Water	3010A	
310-104523-3	MW-8	Total/NA	Ground Water	3010A	
310-104523-4	MW-10	Total/NA	Ground Water	3010A	
310-104523-5	MW-11	Total/NA	Ground Water	3010A	
310-104523-6	MW-12	Total/NA	Ground Water	3010A	
310-104523-7	MW-13	Total/NA	Ground Water	3010A	
310-104523-8	MW-14	Total/NA	Ground Water	3010A	
310-104523-9	MW-15	Total/NA	Ground Water	3010A	
310-104523-10	DP-01	Total/NA	Ground Water	3010A	
MB 310-164608/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-164608/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-104523-1 MS	MW-2	Total/NA	Ground Water	3010A	
310-104523-1 MSD	MW-2	Total/NA	Ground Water	3010A	
310-104523-7 DU	MW-13	Total/NA	Ground Water	3010A	

Analysis Batch: 164861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-104523-1	MW-2	Total/NA	Ground Water	6010C	164608
310-104523-2	MW-4	Total/NA	Ground Water	6010C	164608
310-104523-3	MW-8	Total/NA	Ground Water	6010C	164608
310-104523-4	MW-10	Total/NA	Ground Water	6010C	164608
310-104523-5	MW-11	Total/NA	Ground Water	6010C	164608
310-104523-6	MW-12	Total/NA	Ground Water	6010C	164608
310-104523-7	MW-13	Total/NA	Ground Water	6010C	164608
310-104523-8	MW-14	Total/NA	Ground Water	6010C	164608
310-104523-9	MW-15	Total/NA	Ground Water	6010C	164608
310-104523-10	DP-01	Total/NA	Ground Water	6010C	164608
MB 310-164608/1-A	Method Blank	Total/NA	Water	6010C	164608
LCS 310-164608/2-A	Lab Control Sample	Total/NA	Water	6010C	164608
310-104523-1 MS	MW-2	Total/NA	Ground Water	6010C	164608
310-104523-1 MSD	MW-2	Total/NA	Ground Water	6010C	164608
310-104523-7 DU	MW-13	Total/NA	Ground Water	6010C	164608

Prep Batch: 164905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-104523-1	MW-2	Total/NA	Ground Water	7470A	
310-104523-2	MW-4	Total/NA	Ground Water	7470A	
310-104523-3	MW-8	Total/NA	Ground Water	7470A	
310-104523-4	MW-10	Total/NA	Ground Water	7470A	
310-104523-5	MW-11	Total/NA	Ground Water	7470A	
310-104523-6	MW-12	Total/NA	Ground Water	7470A	
310-104523-7	MW-13	Total/NA	Ground Water	7470A	
310-104523-8	MW-14	Total/NA	Ground Water	7470A	
310-104523-9	MW-15	Total/NA	Ground Water	7470A	
310-104523-10	DP-01	Total/NA	Ground Water	7470A	
MB 310-164905/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-164905/2-A	Lab Control Sample	Total/NA	Water	7470A	
310-104523-1 MS	MW-2	Total/NA	Ground Water	7470A	
310-104523-1 MSD	MW-2	Total/NA	Ground Water	7470A	

Metals (Continued)

Analysis Batch: 165078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-104523-1	MW-2	Total/NA	Ground Water	7470A	164905
310-104523-2	MW-4	Total/NA	Ground Water	7470A	164905
310-104523-3	MW-8	Total/NA	Ground Water	7470A	164905
310-104523-4	MW-10	Total/NA	Ground Water	7470A	164905
310-104523-5	MW-11	Total/NA	Ground Water	7470A	164905
310-104523-6	MW-12	Total/NA	Ground Water	7470A	164905
310-104523-7	MW-13	Total/NA	Ground Water	7470A	164905
310-104523-8	MW-14	Total/NA	Ground Water	7470A	164905
310-104523-9	MW-15	Total/NA	Ground Water	7470A	164905
310-104523-10	DP-01	Total/NA	Ground Water	7470A	164905
MB 310-164905/1-A	Method Blank	Total/NA	Water	7470A	164905
LCS 310-164905/2-A	Lab Control Sample	Total/NA	Water	7470A	164905
310-104523-1 MS	MW-2	Total/NA	Ground Water	7470A	164905
310-104523-1 MSD	MW-2	Total/NA	Ground Water	7470A	164905

Analysis Batch: 165675

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-104523-1	MW-2	Total/NA	Ground Water	6020A	164606
310-104523-2	MW-4	Total/NA	Ground Water	6020A	164606
310-104523-3	MW-8	Total/NA	Ground Water	6020A	164606
310-104523-4	MW-10	Total/NA	Ground Water	6020A	164606
310-104523-5	MW-11	Total/NA	Ground Water	6020A	164606
310-104523-6	MW-12	Total/NA	Ground Water	6020A	164606
310-104523-7	MW-13	Total/NA	Ground Water	6020A	164606
310-104523-8	MW-14	Total/NA	Ground Water	6020A	164606
310-104523-9	MW-15	Total/NA	Ground Water	6020A	164606
310-104523-10	DP-01	Total/NA	Ground Water	6020A	164606
MB 310-164606/1-A	Method Blank	Total/NA	Water	6020A	164606
LCS 310-164606/2-A	Lab Control Sample	Total/NA	Water	6020A	164606
310-104523-1 MS	MW-2	Total/NA	Ground Water	6020A	164606
310-104523-1 MSD	MW-2	Total/NA	Ground Water	6020A	164606
310-104523-7 DU	MW-13	Total/NA	Ground Water	6020A	164606

Analysis Batch: 165818

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-104523-2	MW-4	Total/NA	Ground Water	6020A	164606
310-104523-3	MW-8	Total/NA	Ground Water	6020A	164606
310-104523-4	MW-10	Total/NA	Ground Water	6020A	164606
310-104523-5	MW-11	Total/NA	Ground Water	6020A	164606
310-104523-6	MW-12	Total/NA	Ground Water	6020A	164606
310-104523-7	MW-13	Total/NA	Ground Water	6020A	164606
310-104523-8	MW-14	Total/NA	Ground Water	6020A	164606
310-104523-9	MW-15	Total/NA	Ground Water	6020A	164606
310-104523-10	DP-01	Total/NA	Ground Water	6020A	164606
310-104523-7 DU	MW-13	Total/NA	Ground Water	6020A	164606

General Chemistry

Analysis Batch: 164319

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-104318-1	MW-4	Total/NA	Ground Water	SM 4500 H+ B	
310-104318-2	MW-8	Total/NA	Ground Water	SM 4500 H+ B	
310-104318-3	MW-10	Total/NA	Ground Water	SM 4500 H+ B	
310-104318-4	MW-15	Total/NA	Ground Water	SM 4500 H+ B	
LCS 310-164319/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 164456

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-104318-1	MW-4	Total/NA	Ground Water	SM 2540C	
310-104318-2	MW-8	Total/NA	Ground Water	SM 2540C	
310-104318-3	MW-10	Total/NA	Ground Water	SM 2540C	
310-104318-4	MW-15	Total/NA	Ground Water	SM 2540C	
MB 310-164456/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-164456/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 164533

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-104523-1	MW-2	Total/NA	Ground Water	SM 4500 H+ B	
310-104523-5	MW-11	Total/NA	Ground Water	SM 4500 H+ B	
310-104523-6	MW-12	Total/NA	Ground Water	SM 4500 H+ B	
310-104523-7	MW-13	Total/NA	Ground Water	SM 4500 H+ B	
310-104523-8	MW-14	Total/NA	Ground Water	SM 4500 H+ B	
310-104523-10	DP-01	Total/NA	Ground Water	SM 4500 H+ B	
LCS 310-164533/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-104523-1 DU	MW-2	Total/NA	Ground Water	SM 4500 H+ B	

Analysis Batch: 164625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-104523-1	MW-2	Total/NA	Ground Water	SM 2540C	
310-104523-5	MW-11	Total/NA	Ground Water	SM 2540C	
310-104523-6	MW-12	Total/NA	Ground Water	SM 2540C	
MB 310-164625/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-164625/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-104523-1 DU	MW-2	Total/NA	Ground Water	SM 2540C	

Analysis Batch: 164691

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-104523-7	MW-13	Total/NA	Ground Water	SM 2540C	
310-104523-8	MW-14	Total/NA	Ground Water	SM 2540C	
310-104523-10	DP-01	Total/NA	Ground Water	SM 2540C	
MB 310-164691/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-164691/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-104523-10 DU	DP-01	Total/NA	Ground Water	SM 2540C	

Rad

Prep Batch: 306654

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-104523-1	MW-2	Total/NA	Ground Water	PrecSep-21	
310-104523-2	MW-4	Total/NA	Ground Water	PrecSep-21	

Rad (Continued)

Prep Batch: 306654 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-104523-4	MW-10	Total/NA	Ground Water	PrecSep-21	
310-104523-5	MW-11	Total/NA	Ground Water	PrecSep-21	
310-104523-6	MW-12	Total/NA	Ground Water	PrecSep-21	
310-104523-7	MW-13	Total/NA	Ground Water	PrecSep-21	
310-104523-8	MW-14	Total/NA	Ground Water	PrecSep-21	
310-104523-9	MW-15	Total/NA	Ground Water	PrecSep-21	
310-104523-10	DP-01	Total/NA	Ground Water	PrecSep-21	
MB 160-306654/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-306654/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
310-104523-1 MS	MW-2	Total/NA	Ground Water	PrecSep-21	
310-104523-1 MSD	MW-2	Total/NA	Ground Water	PrecSep-21	

Prep Batch: 306657

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-104523-1	MW-2	Total/NA	Ground Water	PrecSep_0	
310-104523-2	MW-4	Total/NA	Ground Water	PrecSep_0	
310-104523-4	MW-10	Total/NA	Ground Water	PrecSep_0	
310-104523-5	MW-11	Total/NA	Ground Water	PrecSep_0	
310-104523-6	MW-12	Total/NA	Ground Water	PrecSep_0	
310-104523-7	MW-13	Total/NA	Ground Water	PrecSep_0	
310-104523-8	MW-14	Total/NA	Ground Water	PrecSep_0	
310-104523-9	MW-15	Total/NA	Ground Water	PrecSep_0	
310-104523-10	DP-01	Total/NA	Ground Water	PrecSep_0	
MB 160-306657/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-306657/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
310-104523-1 MS	MW-2	Total/NA	Ground Water	PrecSep_0	
310-104523-1 MSD	MW-2	Total/NA	Ground Water	PrecSep_0	

Prep Batch: 306907

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-104523-3	MW-8	Total/NA	Ground Water	PrecSep-21	
MB 160-306907/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-306907/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-306907/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 306912

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-104523-3	MW-8	Total/NA	Ground Water	PrecSep_0	
MB 160-306912/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-306912/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-306912/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Client Sample ID: MW-4

Date Collected: 04/24/17 08:30
Date Received: 04/26/17 09:10

Lab Sample ID: 310-104318-1

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	164933	05/02/17 00:35	SAD	TAL CF
Total/NA	Analysis	9056A		20	164933	05/02/17 09:04	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	164456	04/27/17 12:08	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	164319	04/26/17 14:22	PEL	TAL CF

Client Sample ID: MW-8

Date Collected: 04/24/17 10:28
Date Received: 04/26/17 09:10

Lab Sample ID: 310-104318-2

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	164933	05/02/17 00:51	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	164456	04/27/17 12:08	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	164319	04/26/17 14:24	PEL	TAL CF

Client Sample ID: MW-10

Date Collected: 04/24/17 11:22
Date Received: 04/26/17 09:10

Lab Sample ID: 310-104318-3

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	164933	05/02/17 01:21	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	164456	04/27/17 12:08	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	164319	04/26/17 14:25	PEL	TAL CF

Client Sample ID: MW-15

Date Collected: 04/24/17 09:52
Date Received: 04/26/17 09:10

Lab Sample ID: 310-104318-4

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	164933	05/02/17 01:37	SAD	TAL CF
Total/NA	Analysis	9056A		20	164933	05/02/17 01:52	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	164456	04/27/17 12:08	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	164319	04/26/17 14:26	PEL	TAL CF

Client Sample ID: MW-2

Date Collected: 04/25/17 14:52
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-1

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	165066	05/02/17 18:03	SAD	TAL CF
Total/NA	Prep	3010A			164608	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	164861	05/02/17 00:55	OAD	TAL CF

Client Sample ID: MW-2

Date Collected: 04/25/17 14:52
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-1

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			164606	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	165675	05/08/17 20:28	OAD	TAL CF
Total/NA	Prep	7470A			164905	05/02/17 12:31	SAD	TAL CF
Total/NA	Analysis	7470A		1	165078	05/03/17 13:12	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	164625	04/28/17 12:43	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	164533	04/27/17 21:29	JMH	TAL CF
Total/NA	Prep	PrecSep-21			306654	05/02/17 10:44	LDE	TAL SL
Total/NA	Analysis	9315		1	310217	05/24/17 08:40	RTM	TAL SL
Total/NA	Prep	PrecSep_0			306657	05/02/17 11:02	LDE	TAL SL
Total/NA	Analysis	9320		1	308495	05/15/17 15:07	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	310927	05/26/17 12:36	RTM	TAL SL

Client Sample ID: MW-4

Date Collected: 04/24/17 08:30
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-2

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			164608	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	164861	05/02/17 01:02	OAD	TAL CF
Total/NA	Prep	3010A			164606	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	165675	05/08/17 20:50	OAD	TAL CF
Total/NA	Prep	3010A			164606	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	165818	05/09/17 11:44	OAD	TAL CF
Total/NA	Prep	7470A			164905	05/02/17 12:31	SAD	TAL CF
Total/NA	Analysis	7470A		1	165078	05/03/17 13:17	SAD	TAL CF
Total/NA	Prep	PrecSep-21			306654	05/02/17 10:44	LDE	TAL SL
Total/NA	Analysis	9315		1	310217	05/24/17 08:41	RTM	TAL SL
Total/NA	Prep	PrecSep_0			306657	05/02/17 11:02	LDE	TAL SL
Total/NA	Analysis	9320		1	308495	05/15/17 15:07	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	310927	05/26/17 12:36	RTM	TAL SL

Client Sample ID: MW-8

Date Collected: 04/24/17 10:28
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-3

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			164608	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	164861	05/02/17 01:08	OAD	TAL CF
Total/NA	Prep	3010A			164606	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	165675	05/08/17 20:54	OAD	TAL CF
Total/NA	Prep	3010A			164606	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	165818	05/09/17 11:47	OAD	TAL CF
Total/NA	Prep	7470A			164905	05/02/17 12:31	SAD	TAL CF

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-104523-1
SDG: 11114654

Client Sample ID: MW-8

Date Collected: 04/24/17 10:28
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-3

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7470A		1	165078	05/03/17 13:19	SAD	TAL CF
Total/NA	Prep	PrecSep-21			306907	05/03/17 08:57	LDE	TAL SL
Total/NA	Analysis	9315		1	310444	05/25/17 05:59	RTM	TAL SL
Total/NA	Prep	PrecSep_0			306912	05/03/17 09:21	LDE	TAL SL
Total/NA	Analysis	9320		1	309197	05/18/17 17:29	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	310927	05/26/17 12:36	RTM	TAL SL

Client Sample ID: MW-10

Date Collected: 04/24/17 11:22
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-4

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			164608	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	164861	05/02/17 01:11	OAD	TAL CF
Total/NA	Prep	3010A			164606	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	165675	05/08/17 20:57	OAD	TAL CF
Total/NA	Prep	3010A			164606	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	165818	05/09/17 11:50	OAD	TAL CF
Total/NA	Prep	7470A			164905	05/02/17 12:31	SAD	TAL CF
Total/NA	Analysis	7470A		1	165078	05/03/17 13:20	SAD	TAL CF
Total/NA	Prep	PrecSep-21			306654	05/02/17 10:44	LDE	TAL SL
Total/NA	Analysis	9315		1	310217	05/24/17 08:41	RTM	TAL SL
Total/NA	Prep	PrecSep_0			306657	05/02/17 11:02	LDE	TAL SL
Total/NA	Analysis	9320		1	308495	05/15/17 15:07	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	310927	05/26/17 12:36	RTM	TAL SL

Client Sample ID: MW-11

Date Collected: 04/25/17 17:20
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	165066	05/02/17 18:46	SAD	TAL CF
Total/NA	Analysis	9056A		10	165066	05/02/17 19:00	SAD	TAL CF
Total/NA	Prep	3010A			164608	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	164861	05/02/17 01:13	OAD	TAL CF
Total/NA	Prep	3010A			164606	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	165675	05/08/17 21:00	OAD	TAL CF
Total/NA	Prep	3010A			164606	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	165818	05/09/17 11:53	OAD	TAL CF
Total/NA	Prep	7470A			164905	05/02/17 12:31	SAD	TAL CF
Total/NA	Analysis	7470A		1	165078	05/03/17 13:22	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	164625	04/28/17 12:43	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	164533	04/27/17 21:31	JMH	TAL CF

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			306654	05/02/17 10:44	LDE	TAL SL
Total/NA	Analysis	9315		1	310217	05/24/17 08:41	RTM	TAL SL
Total/NA	Prep	PrecSep_0			306657	05/02/17 11:02	LDE	TAL SL
Total/NA	Analysis	9320		1	308495	05/15/17 15:08	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	310927	05/26/17 12:36	RTM	TAL SL

Client Sample ID: MW-12
Date Collected: 04/25/17 16:34
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-6
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	165066	05/02/17 19:15	SAD	TAL CF
Total/NA	Analysis	9056A		20	165066	05/02/17 19:29	SAD	TAL CF
Total/NA	Prep	3010A			164608	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	164861	05/02/17 01:15	OAD	TAL CF
Total/NA	Prep	3010A			164606	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	165675	05/08/17 21:03	OAD	TAL CF
Total/NA	Prep	3010A			164606	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		10	165818	05/09/17 11:56	OAD	TAL CF
Total/NA	Prep	7470A			164905	05/02/17 12:31	SAD	TAL CF
Total/NA	Analysis	7470A		1	165078	05/03/17 13:23	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	164625	04/28/17 12:43	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	164533	04/27/17 21:32	JMH	TAL CF
Total/NA	Prep	PrecSep-21			306654	05/02/17 10:44	LDE	TAL SL
Total/NA	Analysis	9315		1	310217	05/24/17 08:42	RTM	TAL SL
Total/NA	Prep	PrecSep_0			306657	05/02/17 11:02	LDE	TAL SL
Total/NA	Analysis	9320		1	308495	05/15/17 15:08	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	310927	05/26/17 12:36	RTM	TAL SL

Client Sample ID: MW-13
Date Collected: 04/25/17 15:50
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-7
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	165066	05/02/17 19:44	SAD	TAL CF
Total/NA	Analysis	9056A		20	165066	05/02/17 20:27	SAD	TAL CF
Total/NA	Prep	3010A			164608	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	164861	05/02/17 01:17	OAD	TAL CF
Total/NA	Prep	3010A			164606	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	165675	05/08/17 21:06	OAD	TAL CF
Total/NA	Prep	3010A			164606	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	165818	05/09/17 11:59	OAD	TAL CF
Total/NA	Prep	7470A			164905	05/02/17 12:31	SAD	TAL CF
Total/NA	Analysis	7470A		1	165078	05/03/17 13:25	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	164691	04/29/17 08:01	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	164533	04/27/17 21:33	JMH	TAL CF

Client Sample ID: MW-13

Date Collected: 04/25/17 15:50
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-7

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			306654	05/02/17 10:44	LDE	TAL SL
Total/NA	Analysis	9315		1	310217	05/24/17 08:42	RTM	TAL SL
Total/NA	Prep	PrecSep_0			306657	05/02/17 11:02	LDE	TAL SL
Total/NA	Analysis	9320		1	308495	05/15/17 15:08	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	310927	05/26/17 12:36	RTM	TAL SL

Client Sample ID: MW-14

Date Collected: 04/25/17 18:20
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-8

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	165066	05/02/17 20:41	SAD	TAL CF
Total/NA	Analysis	9056A		20	165066	05/02/17 20:56	SAD	TAL CF
Total/NA	Prep	3010A			164608	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	164861	05/02/17 01:21	OAD	TAL CF
Total/NA	Prep	3010A			164606	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	165675	05/08/17 21:12	OAD	TAL CF
Total/NA	Prep	3010A			164606	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	165818	05/09/17 12:06	OAD	TAL CF
Total/NA	Prep	7470A			164905	05/02/17 12:31	SAD	TAL CF
Total/NA	Analysis	7470A		1	165078	05/03/17 13:26	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	164691	04/29/17 08:01	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	164533	04/27/17 21:34	JMH	TAL CF
Total/NA	Prep	PrecSep-21			306654	05/02/17 10:44	LDE	TAL SL
Total/NA	Analysis	9315		1	310217	05/24/17 08:42	RTM	TAL SL
Total/NA	Prep	PrecSep_0			306657	05/02/17 11:02	LDE	TAL SL
Total/NA	Analysis	9320		1	308498	05/15/17 15:09	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	310927	05/26/17 12:36	RTM	TAL SL

Client Sample ID: MW-15

Date Collected: 04/24/17 09:52
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-9

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			164608	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	164861	05/02/17 01:23	OAD	TAL CF
Total/NA	Prep	3010A			164606	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	165675	05/08/17 21:15	OAD	TAL CF
Total/NA	Prep	3010A			164606	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	165818	05/09/17 12:09	OAD	TAL CF
Total/NA	Prep	7470A			164905	05/02/17 12:31	SAD	TAL CF
Total/NA	Analysis	7470A		1	165078	05/03/17 13:31	SAD	TAL CF
Total/NA	Prep	PrecSep-21			306654	05/02/17 10:44	LDE	TAL SL

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-104523-1
SDG: 11114654

Client Sample ID: MW-15

Date Collected: 04/24/17 09:52
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-9

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9315		1	310217	05/24/17 08:42	RTM	TAL SL
Total/NA	Prep	PrecSep_0			306657	05/02/17 11:02	LDE	TAL SL
Total/NA	Analysis	9320		1	308498	05/15/17 15:09	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	310927	05/26/17 12:36	RTM	TAL SL

Client Sample ID: DP-01

Date Collected: 04/25/17 00:00
Date Received: 04/27/17 17:45

Lab Sample ID: 310-104523-10

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	165066	05/02/17 21:10	SAD	TAL CF
Total/NA	Analysis	9056A		20	165066	05/02/17 21:25	SAD	TAL CF
Total/NA	Prep	3010A			164608	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	164861	05/02/17 01:25	OAD	TAL CF
Total/NA	Prep	3010A			164606	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	165675	05/08/17 21:18	OAD	TAL CF
Total/NA	Prep	3010A			164606	05/01/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	165818	05/09/17 12:12	OAD	TAL CF
Total/NA	Prep	7470A			164905	05/02/17 12:31	SAD	TAL CF
Total/NA	Analysis	7470A		1	165078	05/03/17 13:33	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	164691	04/29/17 08:01	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	164533	04/27/17 21:35	JMH	TAL CF
Total/NA	Prep	PrecSep-21			306654	05/02/17 10:44	LDE	TAL SL
Total/NA	Analysis	9315		1	310217	05/24/17 08:42	RTM	TAL SL
Total/NA	Prep	PrecSep_0			306657	05/02/17 11:02	LDE	TAL SL
Total/NA	Analysis	9320		1	308498	05/15/17 15:09	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	310927	05/26/17 12:36	RTM	TAL SL

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401
TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-104523-1
SDG: 11114654

Laboratory: TestAmerica Cedar Falls

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
AIHA-LAP, LLC	IHLAP		101044	11-01-18
Georgia	State Program	4	N/A	09-29-17
Illinois	NELAP	5	200024	11-29-17
Iowa	State Program	7	007	12-01-17
Kansas	NELAP	7	E-10341	01-31-18
Minnesota	NELAP	5	019-999-319	12-31-17
Minnesota (Petrofund)	State Program	1	3349	08-22-17
North Dakota	State Program	8	R-186	09-29-17
Oregon	NELAP	10	IA100001	09-29-17

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: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-104523-1
SDG: 11114654

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL CF
6010C	Metals (ICP)	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CF
SM 4500 H+ B	pH	SM	TAL CF
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL

Protocol References:

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.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-104318 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: Desmoines IA | Project: Mid American Neal South CCR Impoundment

Receipt Information

Date/Time Received: 4-26-17 910 | Received By: KP

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:

Condition of Cooler/Containers

Sample(s) received in Cooler?	☑ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☐ Yes	☑ No	*If yes:* Cooler # ____ of ____
Cooler Custody Seals Present?	☑ Yes	☐ No	*If yes:* Cooler custody seals intact? ☑ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☑ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☑ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Temperature Blank? ☑ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: H | Correction Factor (°C): +0.0

Uncorrected Temp (°C): 2.6 | Corrected Temp (°C): 2.6

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information

Client Contact: Kevin Armstrong
Company: GHD Services Inc.
Address: 11228 Aurora Avenue
City: Des Moines
State, Zip: IA, 50322-7905
Phone: 515-414-3935
Email: Kevin.Armstrong@ghd.com
Project Name: MidAmerican Neal South CCR Monofill
Proj ct Number: 11114654

Sampler: Tim Wineland
Phone: 515 710 8336
Lab PM: Hayes, Shawn M
E-Mail: shawn.hayes@testamericainc.com
Carrier Tracking No(s):

COC No:
Page: 1 of 1
Job #:

Due Date Requested:
TAT Requested (days): Standard
PO #: 34003921
WO #:
TestAMerica Project #: 31007315
SSOW#: 11114654-002

Analysis Requested

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, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228	6010C, 6020A, 7470A Select List	2540C TDS	9056A Chloride, Sulfate, and Fluoride	SM4500 H+ pH	Total Number of containers	Special Instructions/Note:
Preservation Code:							D	D	N	N	N		
~~MW-2~~				GW									
MW-4	4-24-17	830	G	GW	N	N			X	X	X		
MW-8	4-24-17	1028	G	GW	N	N			X	X	X		
MW-10	4-24-17	1122	G	GW	N	N			X	X	X		
~~MW-11~~				GW									
~~MW-12~~				GW									
~~MW-13~~				GW									
~~MW-14~~				GW									
MW-15	4-24-17	952	G	GW	N	N			X	X	X		
~~DP-01~~				GW									

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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Report all parameters together with Radiologicals

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: Wineland	Date/Time: 4-25-17 13:30	Company: GHD	Received by: Relinquished to Fedex under	Date/Time:	Company
Relinquished by: custody seal	Date/Time:	Company	Received by: Breta Hm	Date/Time: 4.26.17 910	Company TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

5/31/2017

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-104523 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: Des Moines, IA | Project:

Receipt Information

Date/Time Received: 4/27/17 1745 | Received By: [signature]

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☒ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID: AA-21

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 2 of 6 1of3 BB 4.28.17

Cooler Custody Seals Present? ☒ Yes ☐ No *If yes:* Cooler custody seals intact? ☒ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Temperature Blank? ☒ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: H | Correction Factor (°C): 0

Uncorrected Temp (°C): 3.5 | Corrected Temp (°C): 3.5

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: Des Moines, IA

Project:

Receipt Information

Date/Time Received: 4/27/17 1745

Received By: [signature]

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☒ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID: AA-45

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 3 of 6 2of3 BB 4.28.17

Cooler Custody Seals Present? ☒ Yes ☐ No *If yes:* Cooler custody seals intact? ☒ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Temperature Blank? ☒ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: H

Correction Factor (°C): 0

Uncorrected Temp (°C): 3.4

Corrected Temp (°C): 3.4

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: Des Moines, IA | Project:

Receipt Information

Date/Time Received: 4/27/17 1745 | Received By: Brad Hoff

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☒ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other: _____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID: I-2

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 4 of 6 3 of 3 BIB 4.28.17

Cooler Custody Seals Present? ☒ Yes ☐ No *If yes:* Cooler custody seals intact? ☒ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE

Temperature Blank? ☒ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: H | Correction Factor (°C): 0

Uncorrected Temp (°C): 3.1 | Corrected Temp (°C): 3.1

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

#22995

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: T.m Wineland	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No:
Client Contact: Kevin Armstrong	Phone: 515 710 8336	E-Mail: shawn.hayes@testamericainc.com		Page:
Company: GHD Services Inc.				Job #:

Address: 11228 Aurora Avenue	Due Date Requested:	Analysis Requested	Preservation Codes:
City: Des Moines	TAT Requested (days): Standard		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 - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
State, Zip: IA, 50322-7905			
Phone: 515-414-3935	PO #: 34003921		
Email: Kevin.Armstrong@ghd.com	WO #:		Other:
Project Name: MidAmerican Neal South CCR Monofill	TestAMerica Project #: 31007315		
Projct Number: 11114654	SSOW#: 11114654-002		

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228	6010C, 6020A, 7470A Select List	2540C TDS	9056A Chloride, Sulfate, and Fluoride	SM4500 H+ pH	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N	N	N		
MW-2	4-25-17	1452	G	GW	N	Y	X	X	X	X	X		3x vol for MS/MSD
MW-4	4.24-17	830	G	GW	N	N	X	X					
MW-8	4-24-17	1028	G	GW	N	N	X	X					
MW-10	4-24-17	1122	G	GW	N	N	X	X					
MW-11	4-25-17	1720	G	GW	N	N	X	X	X	X	X		
MW-12	4-25-17	1634	G	GW	N	N	X	X	X	X	X		
MW-13	4-25-17	1550	G	GW	N	N	X	X	X	X	X		
MW-14	4-25-17	1820	G	GW	N	N	X	X	X	X	X		
MW-15	4-24-17	952	G	GW	N	N	X	X					
DP-01	4-25-17	—	G	GW	N	N	X	X	X	X	X		

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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Report all parameters together with Radiologicals

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: T.m Wineland	Date/Time: 4-27-17 1215	Company: GHD	Received by: Relinquished to	Date/Time: GHD front desk	Company
Relinquished by: under chain of custody seal	Date/Time:	Company	Received by:	Date/Time: 4/27/17 1433	Company: TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 4/27/17 1745	Company

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

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5/31/2017

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW-2	310-104523-A-1	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-104523-A-1 MS	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-104523-A-1 MSD	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-104523-C-1	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-104523-C-1 MS	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-104523-C-1 MSD	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-104523-D-1	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-104523-D-1 MS	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-104523-D-1 MSD	Plastic 1 liter - Nitric Acid	<2		
MW-4	310-104523-A-2	Plastic 250ml - with Nitric Acid	<2		
MW-4	310-104523-B-2	Plastic 1 liter - Nitric Acid	<2		
MW-4	310-104523-C-2	Plastic 1 liter - Nitric Acid	<2		
MW-8	310-104523-A-3	Plastic 250ml - with Nitric Acid	<2		
MW-8	310-104523-B-3	Plastic 1 liter - Nitric Acid	<2		
MW-8	310-104523-C-3	Plastic 1 liter - Nitric Acid	<2		
MW-10	310-104523-A-4	Plastic 250ml - with Nitric Acid	<2		
MW-10	310-104523-B-4	Plastic 1 liter - Nitric Acid	<2		
MW-10	310-104523-C-4	Plastic 1 liter - Nitric Acid	<2		
MW-11	310-104523-A-5	Plastic 250ml - with Nitric Acid	<2		
MW-11	310-104523-C-5	Plastic 1 liter - Nitric Acid	<2		
MW-11	310-104523-D-5	Plastic 1 liter - Nitric Acid	<2		
MW-12	310-104523-A-6	Plastic 250ml - with Nitric Acid	<2		
MW-12	310-104523-C-6	Plastic 1 liter - Nitric Acid	<2		
MW-12	310-104523-D-6	Plastic 1 liter - Nitric Acid	<2		
MW-13	310-104523-A-7	Plastic 250ml - with Nitric Acid	<2		
MW-13	310-104523-C-7	Plastic 1 liter - Nitric Acid	<2		
MW-13	310-104523-D-7	Plastic 1 liter - Nitric Acid	<2		
MW-14	310-104523-A-8	Plastic 250ml - with Nitric Acid	<2		
MW-14	310-104523-C-8	Plastic 1 liter - Nitric Acid	<2		
MW-14	310-104523-D-8	Plastic 1 liter - Nitric Acid	<2		
MW-15	310-104523-A-9	Plastic 250ml - with Nitric Acid	<2		
MW-15	310-104523-B-9	Plastic 1 liter - Nitric Acid	<2		
MW-15	310-104523-C-9	Plastic 1 liter - Nitric Acid	<2		
DP-01	310-104523-A-10	Plastic 250ml - with Nitric Acid	<2		
DP-01	310-104523-C-10	Plastic 1 liter - Nitric Acid	<2		
DP-01	310-104523-D-10	Plastic 1 liter - Nitric Acid	<2		

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 310-104523-1
SDG Number: 11114654

Login Number: 104523
List Number: 1
Creator: Tuladhar, Sushil X

List Source: TestAmerica Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
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	
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 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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-104523-1
SDG: 11114654

Method: 9315 - Radium-226 (GFPC)

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba (40-110)
310-104523-1	MW-2	100
310-104523-1 MS	MW-2	105
310-104523-1 MSD	MW-2	108
310-104523-2	MW-4	102
310-104523-3	MW-8	99.7
310-104523-4	MW-10	108
310-104523-5	MW-11	103
310-104523-6	MW-12	100
310-104523-7	MW-13	101
310-104523-8	MW-14	100
310-104523-9	MW-15	101
310-104523-10	DP-01	106

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9315 - Radium-226 (GFPC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba (40-110)
LCS 160-306654/2-A	Lab Control Sample	103
LCS 160-306907/2-A	Lab Control Sample	101
LCSD 160-306907/3-A	Lab Control Sample Dup	105
MB 160-306654/1-A	Method Blank	108
MB 160-306907/1-A	Method Blank	103

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
310-104523-1	MW-2	100	71.4
310-104523-1 MS	MW-2	105	85.6
310-104523-1 MSD	MW-2	108	84.1
310-104523-2	MW-4	102	84.5
310-104523-3	MW-8	99.7	89.0
310-104523-4	MW-10	108	83.7
310-104523-5	MW-11	103	90.5
310-104523-6	MW-12	100	87.1
310-104523-7	MW-13	101	89.0
310-104523-8	MW-14	100	88.6
310-104523-9	MW-15	101	83.0
310-104523-10	DP-01	106	79.6

Tracer/Carrier Summary

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-104523-1
SDG: 11114654

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

Method: 9320 - Radium-228 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)	
		Ba	Y
Lab Sample ID	Client Sample ID	(40-110)	(40-110)
LCS 160-306657/2-A	Lab Control Sample	103	86.7
LCS 160-306912/2-A	Lab Control Sample	101	87.5
LCSD 160-306912/3-A	Lab Control Sample Dup	105	95.7
MB 160-306657/1-A	Method Blank	108	80.0
MB 160-306912/1-A	Method Blank	103	87.5

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319)277-2401

TestAmerica Job ID: 310-109353-1
TestAmerica Sample Delivery Group: 11114654
Client Project/Site: MidAmerican Neal South CCR Monofill
Sampling Event: Neal South CCR Qtrly

For:
GHD Services Inc.
11228 Aurora Avenue
Des Moines, Iowa 50322-7905

Attn: Kevin Armstrong

Authorized for release by:
8/11/2017 3:52:56 PM

Shawn Hayes, Senior Project Manager
(319)277-2401
shawn.hayes@testamericainc.com

LINKS

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Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

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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Job ID: 310-109353-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-109353-1

Comments
No additional comments.

Receipt
The samples were received on 7/7/2017 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.8º C.

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

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

Job ID: 310-109469-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-109469-1

Comments
No additional comments.

Receipt
The samples were received on 7/10/2017 5:14 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 2.2º C, 2.5º C, 3.1º C, 5.4º C and 5.6º C.

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

Job ID: 310-109469-2

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-109469-2

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

Sample Summary

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-109353-1
SDG: 11114654

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-109353-1	MW-2	Ground Water	07/05/17 13:36	07/07/17 09:30
310-109353-2	MW-4	Ground Water	07/05/17 10:42	07/07/17 09:30
310-109353-3	MW-8	Ground Water	07/05/17 14:43	07/07/17 09:30
310-109353-4	MW-10	Ground Water	07/05/17 12:16	07/07/17 09:30
310-109353-5	MW-11	Ground Water	07/05/17 16:59	07/07/17 09:30
310-109353-6	MW-12	Ground Water	07/05/17 16:24	07/07/17 09:30
310-109353-7	MW-13	Ground Water	07/05/17 15:54	07/07/17 09:30
310-109353-8	MW-14	Ground Water	07/05/17 15:22	07/07/17 09:30
310-109353-9	MW-15	Ground Water	07/05/17 11:33	07/07/17 09:30
310-109353-10	DP-01	Ground Water	07/05/17 00:00	07/07/17 09:30
310-109469-1	MW-2	Ground Water	07/05/17 13:36	07/10/17 17:14
310-109469-2	MW-4	Ground Water	07/05/17 10:42	07/10/17 17:14
310-109469-3	MW-8	Ground Water	07/05/17 14:43	07/10/17 17:14
310-109469-4	MW-10	Ground Water	07/05/17 12:16	07/10/17 17:14
310-109469-5	MW-11	Ground Water	07/05/17 16:59	07/10/17 17:14
310-109469-6	MW-12	Ground Water	07/05/17 16:24	07/10/17 17:14
310-109469-7	MW-13	Ground Water	07/05/17 15:54	07/10/17 17:14
310-109469-8	MW-14	Ground Water	07/05/17 15:22	07/10/17 17:14
310-109469-9	MW-15	Ground Water	07/05/17 11:33	07/10/17 17:14
310-109469-10	DP-01	Ground Water	07/05/17 00:00	07/10/17 17:14

Client Sample Results

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-109353-1
SDG: 11114654

Client Sample ID: MW-2
Date Collected: 07/05/17 13:36
Date Received: 07/07/17 09:30

Lab Sample ID: 310-109353-1
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**20.4**		5.00		mg/L			07/13/17 11:08	5
Sulfate	**48.0**		5.00		mg/L			07/13/17 11:08	5
Fluoride	<0.500		0.500		mg/L			07/13/17 11:08	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1390**		60.0		mg/L			07/07/17 15:14	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.1**	**HF**	0.1		SU			07/07/17 15:24	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-109353-1
SDG: 11114654

Client Sample ID: MW-4
Date Collected: 07/05/17 10:42
Date Received: 07/07/17 09:30

Lab Sample ID: 310-109353-2
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	17.3		5.00		mg/L			07/13/17 11:54	5
Sulfate	721		20.0		mg/L			07/13/17 12:09	20
Fluoride	<0.500		0.500		mg/L			07/13/17 11:54	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1760		60.0		mg/L			07/07/17 15:14	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.0	HF	0.1		SU			07/07/17 15:33	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-109353-1
SDG: 11114654

Client Sample ID: MW-8
Date Collected: 07/05/17 14:43
Date Received: 07/07/17 09:30

Lab Sample ID: 310-109353-3
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			07/13/17 12:25	5
Sulfate	**169**		5.00		mg/L			07/13/17 12:25	5
Fluoride	<0.500		0.500		mg/L			07/13/17 12:25	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1000**		60.0		mg/L			07/07/17 15:14	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.1**	**HF**	0.1		SU			07/07/17 15:36	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-109353-1
SDG: 11114654

Client Sample ID: MW-10
Date Collected: 07/05/17 12:16
Date Received: 07/07/17 09:30

Lab Sample ID: 310-109353-4
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			07/13/17 12:40	5
Sulfate	**134**		5.00		mg/L			07/13/17 12:40	5
Fluoride	<0.500		0.500		mg/L			07/13/17 12:40	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1050**		60.0		mg/L			07/07/17 15:14	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.3**	**HF**	0.1		SU			07/07/17 15:40	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-109353-1
SDG: 11114654

Client Sample ID: MW-11

Date Collected: 07/05/17 16:59
Date Received: 07/07/17 09:30

Lab Sample ID: 310-109353-5

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**6.10**		5.00		mg/L			07/13/17 12:55	5
Sulfate	**339**		10.0		mg/L			07/13/17 19:04	10
Fluoride	<0.500		0.500		mg/L			07/13/17 12:55	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1210**		60.0		mg/L			07/07/17 15:14	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.0**	**HF**	0.1		SU			07/07/17 15:41	1

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-109353-1
SDG: 11114654

Client Sample ID: MW-12
Date Collected: 07/05/17 16:24
Date Received: 07/07/17 09:30

Lab Sample ID: 310-109353-6
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10.2		5.00		mg/L			07/13/17 13:42	5
Sulfate	446		20.0		mg/L			07/13/17 13:57	20
Fluoride	<0.500		0.500		mg/L			07/13/17 13:42	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1360		60.0		mg/L			07/07/17 15:14	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.1	HF	0.1		SU			07/07/17 15:43	1

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-109353-1
SDG: 11114654

Client Sample ID: MW-13
Date Collected: 07/05/17 15:54
Date Received: 07/07/17 09:30

Lab Sample ID: 310-109353-7
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	17.5		5.00		mg/L			07/13/17 14:12	5
Sulfate	524		20.0		mg/L			07/13/17 14:28	20
Fluoride	<0.500		0.500		mg/L			07/13/17 14:12	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1590		60.0		mg/L			07/07/17 15:14	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.0	HF	0.1		SU			07/07/17 15:46	1

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-109353-1
SDG: 11114654

Client Sample ID: MW-14
Date Collected: 07/05/17 15:22
Date Received: 07/07/17 09:30

Lab Sample ID: 310-109353-8
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.21		5.00		mg/L			07/13/17 14:43	5
Sulfate	220		5.00		mg/L			07/13/17 14:43	5
Fluoride	3.01		0.500		mg/L			07/13/17 14:43	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1030		60.0		mg/L			07/07/17 15:14	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1		SU			07/07/17 15:49	1

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-109353-1
SDG: 11114654

Client Sample ID: MW-15
Date Collected: 07/05/17 11:33
Date Received: 07/07/17 09:30

Lab Sample ID: 310-109353-9
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**16.7**		5.00		mg/L			07/13/17 15:14	5
Sulfate	**293**		20.0		mg/L			07/13/17 15:29	20
Fluoride	<0.500		0.500		mg/L			07/13/17 15:14	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1020**		60.0		mg/L			07/07/17 15:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.9**	**HF**	0.1		SU			07/07/17 15:52	1

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-109353-1
SDG: 11114654

Client Sample ID: DP-01
Date Collected: 07/05/17 00:00
Date Received: 07/07/17 09:30

Lab Sample ID: 310-109353-10
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.91**		5.00		mg/L			07/13/17 15:44	5
Sulfate	**354**		20.0		mg/L			07/13/17 16:00	20
Fluoride	<0.500		0.500		mg/L			07/13/17 15:44	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1280**		60.0		mg/L			07/07/17 15:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.1**	**HF**	0.1		SU			07/07/17 16:01	1

Client Sample ID: MW-2

Date Collected: 07/05/17 13:36
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-1

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0739**		0.0500		mg/L		07/14/17 10:00	07/14/17 21:23	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 16:24	1
Arsenic	**0.0156**		0.00200		mg/L		07/12/17 10:00	07/13/17 16:24	1
Barium	**0.159**		0.00200		mg/L		07/12/17 10:00	07/13/17 16:24	1
Beryllium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 16:24	1
Boron	<0.200		0.200		mg/L		07/12/17 10:00	07/13/17 16:24	1
Cadmium	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 16:24	1
Calcium	**134**		0.200		mg/L		07/12/17 10:00	07/13/17 16:24	1
Chromium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 16:24	1
Cobalt	**0.00192**		0.000500		mg/L		07/12/17 10:00	07/13/17 16:24	1
Lead	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 16:24	1
Molybdenum	<0.00200		0.00200		mg/L		07/12/17 10:00	07/13/17 16:24	1
Selenium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 16:24	1
Thallium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 16:24	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/13/17 18:29	07/17/17 12:04	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.168**		0.0878	0.0891	1.00	0.110	pCi/L	07/17/17 09:44	08/08/17 06:15	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.7*		*40 - 110*	*07/17/17 09:44*	*08/08/17 06:15*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.429**		0.212	0.215	1.00	0.309	pCi/L	07/17/17 10:25	07/27/17 11:11	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.7*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:11*	*1*
Y Carrier	*94.2*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:11*	*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	**0.597**		0.229	0.233	5.00	0.309	pCi/L		08/08/17 17:53	1

Client Sample ID: MW-4

Date Collected: 07/05/17 10:42
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-2

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.121**		0.0500		mg/L		07/14/17 10:00	07/14/17 21:31	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 16:46	1
Arsenic	<0.00200		0.00200		mg/L		07/12/17 10:00	07/13/17 16:46	1
Barium	**0.0353**		0.00200		mg/L		07/12/17 10:00	07/13/17 16:46	1
Beryllium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 16:46	1
Boron	**1.05**		0.200		mg/L		07/12/17 10:00	07/13/17 16:46	1
Cadmium	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 16:46	1
Calcium	**265**		0.200		mg/L		07/12/17 10:00	07/13/17 16:46	1
Chromium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 16:46	1
Cobalt	**0.00758**		0.000500		mg/L		07/12/17 10:00	07/13/17 16:46	1
Lead	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 16:46	1
Molybdenum	<0.00200		0.00200		mg/L		07/12/17 10:00	07/13/17 16:46	1
Selenium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 16:46	1
Thallium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 16:46	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/13/17 18:29	07/17/17 12:08	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0713	U	0.0599	0.0602	1.00	0.0890	pCi/L	07/17/17 09:44	08/08/17 06:55	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.1*		*40 - 110*	*07/17/17 09:44*	*08/08/17 06:55*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.353**		0.195	0.198	1.00	0.289	pCi/L	07/17/17 10:25	07/27/17 11:12	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.1*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:12*	*1*
Y Carrier	*96.5*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:12*	*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	**0.425**		0.204	0.207	5.00	0.289	pCi/L		08/08/17 17:53	1

Client Sample ID: MW-8

Date Collected: 07/05/17 14:43
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-3

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.103**		0.0500		mg/L		07/14/17 10:00	07/14/17 21:33	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 16:49	1
Arsenic	<0.00200		0.00200		mg/L		07/12/17 10:00	07/13/17 16:49	1
Barium	**0.0778**		0.00200		mg/L		07/12/17 10:00	07/13/17 16:49	1
Beryllium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 16:49	1
Boron	**0.703**		0.200		mg/L		07/12/17 10:00	07/13/17 16:49	1
Cadmium	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 16:49	1
Calcium	**167**		0.200		mg/L		07/12/17 10:00	07/13/17 16:49	1
Chromium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 16:49	1
Cobalt	**0.00313**		0.000500		mg/L		07/12/17 10:00	07/13/17 16:49	1
Lead	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 16:49	1
Molybdenum	**0.0165**		0.00200		mg/L		07/12/17 10:00	07/13/17 16:49	1
Selenium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 16:49	1
Thallium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 16:49	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/13/17 18:29	07/17/17 12:10	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.184**		0.0768	0.0786	1.00	0.0743	pCi/L	07/17/17 09:44	08/08/17 06:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.2*		*40 - 110*	*07/17/17 09:44*	*08/08/17 06:56*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.776**		0.250	0.260	1.00	0.327	pCi/L	07/17/17 10:25	07/27/17 11:12	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.2*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:12*	*1*
Y Carrier	*96.8*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:12*	*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	**0.959**		0.262	0.272	5.00	0.327	pCi/L		08/08/17 17:53	1

Client Sample ID: MW-10

Date Collected: 07/05/17 12:16
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-4

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0533**		0.0500		mg/L		07/14/17 10:00	07/14/17 21:35	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 16:52	1
Arsenic	**0.0136**		0.00200		mg/L		07/12/17 10:00	07/13/17 16:52	1
Barium	**0.618**		0.00200		mg/L		07/12/17 10:00	07/13/17 16:52	1
Beryllium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 16:52	1
Boron	**0.271**		0.200		mg/L		07/12/17 10:00	07/13/17 16:52	1
Cadmium	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 16:52	1
Calcium	**154**		0.200		mg/L		07/12/17 10:00	07/13/17 16:52	1
Chromium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 16:52	1
Cobalt	**0.00138**		0.000500		mg/L		07/12/17 10:00	07/13/17 16:52	1
Lead	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 16:52	1
Molybdenum	**0.00309**		0.00200		mg/L		07/12/17 10:00	07/13/17 16:52	1
Selenium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 16:52	1
Thallium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 16:52	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/13/17 18:29	07/17/17 12:12	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.285**		0.0974	0.101	1.00	0.0946	pCi/L	07/17/17 09:44	08/08/17 06:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.3*		*40 - 110*	*07/17/17 09:44*	*08/08/17 06:56*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.617**		0.221	0.229	1.00	0.292	pCi/L	07/17/17 10:25	07/27/17 11:12	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.3*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:12*	*1*
Y Carrier	*94.9*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:12*	*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	**0.902**		0.242	0.250	5.00	0.292	pCi/L		08/08/17 17:53	1

Client Sample ID: MW-11

Date Collected: 07/05/17 16:59
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-5

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.120**		0.0500		mg/L		07/14/17 10:00	07/14/17 21:37	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 16:55	1
Arsenic	<0.00200		0.00200		mg/L		07/12/17 10:00	07/13/17 16:55	1
Barium	**0.0717**		0.00200		mg/L		07/12/17 10:00	07/13/17 16:55	1
Beryllium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 16:55	1
Boron	**0.243**		0.200		mg/L		07/12/17 10:00	07/13/17 16:55	1
Cadmium	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 16:55	1
Calcium	**225**		0.200		mg/L		07/12/17 10:00	07/13/17 16:55	1
Chromium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 16:55	1
Cobalt	**0.00331**		0.000500		mg/L		07/12/17 10:00	07/13/17 16:55	1
Lead	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 16:55	1
Molybdenum	<0.00200		0.00200		mg/L		07/12/17 10:00	07/13/17 16:55	1
Selenium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 16:55	1
Thallium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 16:55	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/13/17 18:29	07/17/17 12:13	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0758	U	0.0607	0.0611	1.00	0.0872	pCi/L	07/17/17 09:44	08/08/17 06:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.0*		*40 - 110*	*07/17/17 09:44*	*08/08/17 06:56*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.255	U	0.184	0.186	1.00	0.285	pCi/L	07/17/17 10:25	07/27/17 11:12	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.0*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:12*	*1*
Y Carrier	*98.4*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:12*	*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	**0.330**		0.194	0.196	5.00	0.285	pCi/L		08/08/17 17:53	1

Client Sample ID: MW-12

Date Collected: 07/05/17 16:24
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-6

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.102**		0.0500		mg/L		07/14/17 10:00	07/14/17 21:39	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 16:58	1
Arsenic	<0.00200		0.00200		mg/L		07/12/17 10:00	07/13/17 16:58	1
Barium	**0.0454**		0.00200		mg/L		07/12/17 10:00	07/13/17 16:58	1
Beryllium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 16:58	1
Boron	**1.94**		0.200		mg/L		07/12/17 10:00	07/13/17 16:58	1
Cadmium	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 16:58	1
Calcium	**186**		0.200		mg/L		07/12/17 10:00	07/13/17 16:58	1
Chromium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 16:58	1
Cobalt	**0.00182**		0.000500		mg/L		07/12/17 10:00	07/13/17 16:58	1
Lead	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 16:58	1
Molybdenum	<0.00200		0.00200		mg/L		07/12/17 10:00	07/13/17 16:58	1
Selenium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 16:58	1
Thallium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 16:58	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/13/17 18:29	07/17/17 12:15	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0722	U	0.0629	0.0633	1.00	0.0937	pCi/L	07/17/17 09:44	08/08/17 06:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.0*		*40 - 110*	*07/17/17 09:44*	*08/08/17 06:56*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.228	U	0.223	0.224	1.00	0.362	pCi/L	07/17/17 10:25	07/27/17 11:12	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.0*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:12*	*1*
Y Carrier	*96.5*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:12*	*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	0.300	U	0.232	0.233	5.00	0.362	pCi/L		08/08/17 17:53	1

Client Sample ID: MW-13

Date Collected: 07/05/17 15:54
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-7

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.105**		0.0500		mg/L		07/14/17 10:00	07/14/17 21:45	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 17:01	1
Arsenic	**0.00360**		0.00200		mg/L		07/12/17 10:00	07/13/17 17:01	1
Barium	**0.0768**		0.00200		mg/L		07/12/17 10:00	07/13/17 17:01	1
Beryllium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 17:01	1
Boron	**1.26**		0.200		mg/L		07/12/17 10:00	07/13/17 17:01	1
Cadmium	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 17:01	1
Calcium	**245**		0.200		mg/L		07/12/17 10:00	07/13/17 17:01	1
Chromium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 17:01	1
Cobalt	**0.00116**		0.000500		mg/L		07/12/17 10:00	07/13/17 17:01	1
Lead	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 17:01	1
Molybdenum	**0.00235**		0.00200		mg/L		07/12/17 10:00	07/13/17 17:01	1
Selenium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 17:01	1
Thallium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 17:01	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/13/17 18:29	07/17/17 12:20	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.157**		0.0789	0.0801	1.00	0.0934	pCi/L	07/17/17 09:44	08/08/17 06:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.5*		*40 - 110*	*07/17/17 09:44*	*08/08/17 06:56*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.422**		0.225	0.229	1.00	0.337	pCi/L	07/17/17 10:25	07/27/17 11:12	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.5*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:12*	*1*
Y Carrier	*103*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:12*	*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	**0.579**		0.239	0.242	5.00	0.337	pCi/L		08/08/17 17:53	1

Client Sample ID: MW-14

Date Collected: 07/05/17 15:22
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-8

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.105**		0.0500		mg/L		07/14/17 10:00	07/14/17 21:47	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 17:05	1
Arsenic	<0.00200		0.00200		mg/L		07/12/17 10:00	07/13/17 17:05	1
Barium	**0.0604**		0.00200		mg/L		07/12/17 10:00	07/13/17 17:05	1
Beryllium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 17:05	1
Boron	**0.281**		0.200		mg/L		07/12/17 10:00	07/13/17 17:05	1
Cadmium	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 17:05	1
Calcium	**198**		0.200		mg/L		07/12/17 10:00	07/13/17 17:05	1
Chromium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 17:05	1
Cobalt	**0.00327**		0.000500		mg/L		07/12/17 10:00	07/13/17 17:05	1
Lead	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 17:05	1
Molybdenum	<0.00200		0.00200		mg/L		07/12/17 10:00	07/13/17 17:05	1
Selenium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 17:05	1
Thallium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 17:05	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/13/17 18:29	07/17/17 12:21	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.216**		0.0850	0.0872	1.00	0.0818	pCi/L	07/17/17 09:44	08/08/17 06:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.6*		*40 - 110*	*07/17/17 09:44*	*08/08/17 06:56*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.341**		0.210	0.213	1.00	0.317	pCi/L	07/17/17 10:25	07/27/17 11:12	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.6*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:12*	*1*
Y Carrier	*101*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:12*	*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	**0.557**		0.227	0.230	5.00	0.317	pCi/L		08/08/17 17:53	1

Client Sample ID: MW-15

Date Collected: 07/05/17 11:33
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-9

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0919**		0.0500		mg/L		07/14/17 10:00	07/14/17 21:49	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 17:08	1
Arsenic	<0.00200		0.00200		mg/L		07/12/17 10:00	07/13/17 17:08	1
Barium	**0.0528**		0.00200		mg/L		07/12/17 10:00	07/13/17 17:08	1
Beryllium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 17:08	1
Boron	**1.33**		0.200		mg/L		07/12/17 10:00	07/13/17 17:08	1
Cadmium	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 17:08	1
Calcium	**187**		0.200		mg/L		07/12/17 10:00	07/13/17 17:08	1
Chromium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 17:08	1
Cobalt	**0.00227**		0.000500		mg/L		07/12/17 10:00	07/13/17 17:08	1
Lead	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 17:08	1
Molybdenum	<0.00200		0.00200		mg/L		07/12/17 10:00	07/13/17 17:08	1
Selenium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 17:08	1
Thallium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 17:08	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/13/17 18:29	07/17/17 12:23	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.193**		0.0787	0.0806	1.00	0.0763	pCi/L	07/17/17 09:44	08/08/17 06:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.5*		*40 - 110*	*07/17/17 09:44*	*08/08/17 06:56*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.499**		0.256	0.260	1.00	0.387	pCi/L	07/17/17 10:25	07/27/17 11:12	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.5*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:12*	*1*
Y Carrier	*105*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:12*	*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	**0.691**		0.268	0.272	5.00	0.387	pCi/L		08/08/17 17:53	1

Client Sample ID: DP-01

Date Collected: 07/05/17 00:00
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-10

Matrix: Ground Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.121**		0.0500		mg/L		07/14/17 10:00	07/14/17 21:51	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 17:11	1
Arsenic	<0.00200		0.00200		mg/L		07/12/17 10:00	07/13/17 17:11	1
Barium	**0.0694**		0.00200		mg/L		07/12/17 10:00	07/13/17 17:11	1
Beryllium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 17:11	1
Boron	**0.241**		0.200		mg/L		07/12/17 10:00	07/13/17 17:11	1
Cadmium	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 17:11	1
Calcium	**218**		0.200		mg/L		07/12/17 10:00	07/13/17 17:11	1
Chromium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 17:11	1
Cobalt	**0.00321**		0.000500		mg/L		07/12/17 10:00	07/13/17 17:11	1
Lead	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 17:11	1
Molybdenum	<0.00200		0.00200		mg/L		07/12/17 10:00	07/13/17 17:11	1
Selenium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 17:11	1
Thallium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 17:11	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/13/17 18:29	07/17/17 12:24	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.0899**		0.0592	0.0597	1.00	0.0755	pCi/L	07/17/17 09:44	08/08/17 06:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.9*		*40 - 110*	*07/17/17 09:44*	*08/08/17 06:56*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.486**		0.244	0.248	1.00	0.360	pCi/L	07/17/17 10:25	07/27/17 11:12	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.9*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:12*	*1*
Y Carrier	*96.8*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:12*	*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	**0.576**		0.251	0.255	5.00	0.360	pCi/L		08/08/17 17:53	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.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.
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)

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-172431/3
Matrix: Water
Analysis Batch: 172431

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			07/13/17 10:37	1
Sulfate	<1.00		1.00		mg/L			07/13/17 10:37	1
Fluoride	<0.100		0.100		mg/L			07/13/17 10:37	1

Lab Sample ID: LCS 310-172431/4
Matrix: Water
Analysis Batch: 172431

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.50	7.115		mg/L		95	90 - 110
Sulfate	7.50	7.046		mg/L		94	90 - 110
Fluoride	1.50	1.428		mg/L		95	90 - 110

Lab Sample ID: 310-109353-1 MS
Matrix: Ground Water
Analysis Batch: 172431

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.4		25.0	43.14		mg/L		91	80 - 120
Sulfate	48.0		25.0	71.48		mg/L		94	80 - 120
Fluoride	<0.500		5.00	5.249		mg/L		105	80 - 120

Lab Sample ID: 310-109353-1 MSD
Matrix: Ground Water
Analysis Batch: 172431

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	20.4		25.0	42.79		mg/L		89	80 - 120	1	15
Sulfate	48.0		25.0	71.00		mg/L		92	80 - 120	1	15
Fluoride	<0.500		5.00	5.212		mg/L		104	80 - 120	1	15

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 310-172281/1-A
Matrix: Water
Analysis Batch: 172494

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 172281

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.0500		0.0500		mg/L		07/14/17 10:00	07/14/17 21:15	1

Lab Sample ID: LCS 310-172281/2-A
Matrix: Water
Analysis Batch: 172494

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 172281

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	2.00	1.842		mg/L		92	80 - 120

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

Lab Sample ID: 310-109469-1 MS
Matrix: Ground Water
Analysis Batch: 172494

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 172281

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.0739		2.00	1.972		mg/L		95	75 - 125

Lab Sample ID: 310-109469-1 MSD
Matrix: Ground Water
Analysis Batch: 172494

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 172281

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	0.0739		2.00	1.799		mg/L		86	75 - 125	9	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-171976/1-A
Matrix: Water
Analysis Batch: 172338

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 171976

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 16:17	1
Arsenic	<0.00200		0.00200		mg/L		07/12/17 10:00	07/13/17 16:17	1
Barium	<0.00200		0.00200		mg/L		07/12/17 10:00	07/13/17 16:17	1
Beryllium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 16:17	1
Boron	<0.200		0.200		mg/L		07/12/17 10:00	07/13/17 16:17	1
Cadmium	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 16:17	1
Calcium	<0.200		0.200		mg/L		07/12/17 10:00	07/13/17 16:17	1
Chromium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 16:17	1
Cobalt	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 16:17	1
Lead	<0.000500		0.000500		mg/L		07/12/17 10:00	07/13/17 16:17	1
Molybdenum	<0.00200		0.00200		mg/L		07/12/17 10:00	07/13/17 16:17	1
Selenium	<0.00500		0.00500		mg/L		07/12/17 10:00	07/13/17 16:17	1
Thallium	<0.00100		0.00100		mg/L		07/12/17 10:00	07/13/17 16:17	1

Lab Sample ID: LCS 310-171976/2-A
Matrix: Water
Analysis Batch: 172338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 171976

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0200	0.02001		mg/L		100	80 - 120
Arsenic	0.0400	0.03920		mg/L		98	80 - 120
Barium	0.0400	0.04213		mg/L		105	80 - 120
Beryllium	0.0200	0.02061		mg/L		103	80 - 120
Boron	0.880	0.9110		mg/L		104	80 - 120
Cadmium	0.0200	0.02091		mg/L		105	80 - 120
Calcium	2.00	2.063		mg/L		103	80 - 120
Chromium	0.0400	0.04234		mg/L		106	80 - 120
Cobalt	0.0200	0.02068		mg/L		103	80 - 120
Lead	0.0200	0.02063		mg/L		103	80 - 120
Molybdenum	0.0400	0.04018		mg/L		100	80 - 120
Selenium	0.0400	0.04116		mg/L		103	80 - 120
Thallium	0.0160	0.01649		mg/L		103	80 - 120

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

Lab Sample ID: 310-109469-1 MS
Matrix: Ground Water
Analysis Batch: 172338

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 171976

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.00100		0.0200	0.01990		mg/L		100	75 - 125
Arsenic	0.0156		0.0400	0.05454		mg/L		97	75 - 125
Barium	0.159		0.0400	0.1992		mg/L		100	75 - 125
Beryllium	<0.00100		0.0200	0.02039		mg/L		102	75 - 125
Boron	<0.200		0.880	1.127		mg/L		107	75 - 125
Cadmium	<0.000500		0.0200	0.02072		mg/L		104	75 - 125
Calcium	134		2.00	135.4	4	mg/L		51	75 - 125
Chromium	<0.00500		0.0400	0.04149		mg/L		104	75 - 125
Cobalt	0.00192		0.0200	0.02156		mg/L		98	75 - 125
Lead	<0.000500		0.0200	0.01975		mg/L		99	75 - 125
Molybdenum	<0.00200		0.0400	0.04313		mg/L		104	75 - 125
Selenium	<0.00500		0.0400	0.03931		mg/L		98	75 - 125
Thallium	<0.00100		0.0160	0.01619		mg/L		101	75 - 125

Lab Sample ID: 310-109469-1 MSD
Matrix: Ground Water
Analysis Batch: 172338

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 171976

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	<0.00100		0.0200	0.02012		mg/L		101	75 - 125	1	20
Arsenic	0.0156		0.0400	0.05388		mg/L		96	75 - 125	1	20
Barium	0.159		0.0400	0.1988		mg/L		99	75 - 125	0	20
Beryllium	<0.00100		0.0200	0.02040		mg/L		102	75 - 125	0	20
Boron	<0.200		0.880	1.135		mg/L		107	75 - 125	1	20
Cadmium	<0.000500		0.0200	0.02088		mg/L		104	75 - 125	1	20
Calcium	134		2.00	132.8	4	mg/L		-82	75 - 125	2	20
Chromium	<0.00500		0.0400	0.04165		mg/L		104	75 - 125	0	20
Cobalt	0.00192		0.0200	0.02158		mg/L		98	75 - 125	0	20
Lead	<0.000500		0.0200	0.01993		mg/L		100	75 - 125	1	20
Molybdenum	<0.00200		0.0400	0.04319		mg/L		104	75 - 125	0	20
Selenium	<0.00500		0.0400	0.04007		mg/L		100	75 - 125	2	20
Thallium	<0.00100		0.0160	0.01606		mg/L		100	75 - 125	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-172304/1-A
Matrix: Water
Analysis Batch: 172602

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 172304

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/13/17 18:29	07/17/17 11:56	1

Lab Sample ID: LCS 310-172304/2-A
Matrix: Water
Analysis Batch: 172602

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 172304

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00167	0.001608		mg/L		96	80 - 120

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

Lab Sample ID: 310-109469-1 MS
Matrix: Ground Water
Analysis Batch: 172602

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 172304

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.000200		0.00167	0.001682		mg/L		101	80 - 120

Lab Sample ID: 310-109469-1 MSD
Matrix: Ground Water
Analysis Batch: 172602

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 172304

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.000200		0.00167	0.001786		mg/L		107	80 - 120	6	20

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

Lab Sample ID: MB 310-171704/1
Matrix: Water
Analysis Batch: 171704

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	<30.0		30.0		mg/L			07/07/17 15:10	1

Lab Sample ID: LCS 310-171704/2
Matrix: Water
Analysis Batch: 171704

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	1000	1012		mg/L		101	90 - 110

Lab Sample ID: MB 310-171706/1
Matrix: Water
Analysis Batch: 171706

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	<30.0		30.0		mg/L			07/07/17 15:14	1

Lab Sample ID: LCS 310-171706/2
Matrix: Water
Analysis Batch: 171706

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	1000	1024		mg/L		102	90 - 110

Lab Sample ID: 310-109353-1 DU
Matrix: Ground Water
Analysis Batch: 171706

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1390		1308		mg/L		6	24

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-171703/1
Matrix: Water
Analysis Batch: 171703

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	98 - 102

Lab Sample ID: LCS 310-171703/20
Matrix: Water
Analysis Batch: 171703

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	98 - 102

Lab Sample ID: LCS 310-171703/23
Matrix: Water
Analysis Batch: 171703

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	98 - 102

Lab Sample ID: 310-109353-1 DU
Matrix: Ground Water
Analysis Batch: 171703

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.1	HF	7.1		SU		0	20

Lab Sample ID: 310-109353-10 DU
Matrix: Ground Water
Analysis Batch: 171703

Client Sample ID: DP-01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.1	HF	7.1		SU		0.3	20

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-317726/1-A
Matrix: Water
Analysis Batch: 321289

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 317726

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.08227	U	0.0759	0.0763	1.00	0.117	pCi/L	07/17/17 09:44	08/08/17 06:14	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.1*		*40 - 110*	*07/17/17 09:44*	*08/08/17 06:14*	*1*

Method: 9315 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCS 160-317726/2-A
Matrix: Water
Analysis Batch: 321289

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 317726

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	11.77		1.22	1.00	0.0894	pCi/L	104	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*97.6*		*40 - 110*

Lab Sample ID: 310-109469-1 MS
Matrix: Ground Water
Analysis Batch: 321312

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 317726

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	0.168		11.4	9.893		1.02	1.00	0.0967	pCi/L	86	75 - 138		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*95.9*		*40 - 110*

Lab Sample ID: 310-109469-1 MSD
Matrix: Ground Water
Analysis Batch: 321312

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 317726

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.168		11.4	9.734		1.00	1.00	0.0740	pCi/L	84	75 - 138	0.08	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*97.6*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-317739/1-A
Matrix: Water
Analysis Batch: 319475

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 317739

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.05847	U	0.160	0.160	1.00	0.300	pCi/L	07/17/17 10:25	07/27/17 11:10	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.1*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:10*	*1*
Y Carrier	*102*		*40 - 110*	*07/17/17 10:25*	*07/27/17 11:10*	*1*

Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-317739/2-A
Matrix: Water
Analysis Batch: 319475

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 317739

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			13.1	14.82		1.56	1.00	0.283	pCi/L	113	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*97.6*		*40 - 110*
Y Carrier	*93.9*		*40 - 110*

Lab Sample ID: 310-109469-1 MS
Matrix: Ground Water
Analysis Batch: 319475

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 317739

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228	0.429		13.1	16.00		1.69	1.00	0.317	pCi/L	119	45 - 150		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*95.9*		*40 - 110*
Y Carrier	*88.1*		*40 - 110*

Lab Sample ID: 310-109469-1 MSD
Matrix: Ground Water
Analysis Batch: 319475

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 317739

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	0.429		13.1	15.01		1.57	1.00	0.262	pCi/L	111	45 - 150	0.30	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*97.6*		*40 - 110*
Y Carrier	*98.4*		*40 - 110*

HPLC/IC

Analysis Batch: 172431

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-109353-1	MW-2	Total/NA	Ground Water	9056A	
310-109353-2	MW-4	Total/NA	Ground Water	9056A	
310-109353-2	MW-4	Total/NA	Ground Water	9056A	
310-109353-3	MW-8	Total/NA	Ground Water	9056A	
310-109353-4	MW-10	Total/NA	Ground Water	9056A	
310-109353-5	MW-11	Total/NA	Ground Water	9056A	
310-109353-5	MW-11	Total/NA	Ground Water	9056A	
310-109353-6	MW-12	Total/NA	Ground Water	9056A	
310-109353-6	MW-12	Total/NA	Ground Water	9056A	
310-109353-7	MW-13	Total/NA	Ground Water	9056A	
310-109353-7	MW-13	Total/NA	Ground Water	9056A	
310-109353-8	MW-14	Total/NA	Ground Water	9056A	
310-109353-9	MW-15	Total/NA	Ground Water	9056A	
310-109353-9	MW-15	Total/NA	Ground Water	9056A	
310-109353-10	DP-01	Total/NA	Ground Water	9056A	
310-109353-10	DP-01	Total/NA	Ground Water	9056A	
MB 310-172431/3	Method Blank	Total/NA	Water	9056A	
LCS 310-172431/4	Lab Control Sample	Total/NA	Water	9056A	
310-109353-1 MS	MW-2	Total/NA	Ground Water	9056A	
310-109353-1 MSD	MW-2	Total/NA	Ground Water	9056A	

Metals

Prep Batch: 171976

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-109469-1	MW-2	Total/NA	Ground Water	3010A	
310-109469-2	MW-4	Total/NA	Ground Water	3010A	
310-109469-3	MW-8	Total/NA	Ground Water	3010A	
310-109469-4	MW-10	Total/NA	Ground Water	3010A	
310-109469-5	MW-11	Total/NA	Ground Water	3010A	
310-109469-6	MW-12	Total/NA	Ground Water	3010A	
310-109469-7	MW-13	Total/NA	Ground Water	3010A	
310-109469-8	MW-14	Total/NA	Ground Water	3010A	
310-109469-9	MW-15	Total/NA	Ground Water	3010A	
310-109469-10	DP-01	Total/NA	Ground Water	3010A	
MB 310-171976/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-171976/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-109469-1 MS	MW-2	Total/NA	Ground Water	3010A	
310-109469-1 MSD	MW-2	Total/NA	Ground Water	3010A	

Prep Batch: 172281

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-109469-1	MW-2	Total/NA	Ground Water	3010A	
310-109469-2	MW-4	Total/NA	Ground Water	3010A	
310-109469-3	MW-8	Total/NA	Ground Water	3010A	
310-109469-4	MW-10	Total/NA	Ground Water	3010A	
310-109469-5	MW-11	Total/NA	Ground Water	3010A	
310-109469-6	MW-12	Total/NA	Ground Water	3010A	
310-109469-7	MW-13	Total/NA	Ground Water	3010A	
310-109469-8	MW-14	Total/NA	Ground Water	3010A	

Metals (Continued)

Prep Batch: 172281 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-109469-9	MW-15	Total/NA	Ground Water	3010A	
310-109469-10	DP-01	Total/NA	Ground Water	3010A	
MB 310-172281/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-172281/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-109469-1 MS	MW-2	Total/NA	Ground Water	3010A	
310-109469-1 MSD	MW-2	Total/NA	Ground Water	3010A	

Prep Batch: 172304

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-109469-1	MW-2	Total/NA	Ground Water	7470A	
310-109469-2	MW-4	Total/NA	Ground Water	7470A	
310-109469-3	MW-8	Total/NA	Ground Water	7470A	
310-109469-4	MW-10	Total/NA	Ground Water	7470A	
310-109469-5	MW-11	Total/NA	Ground Water	7470A	
310-109469-6	MW-12	Total/NA	Ground Water	7470A	
310-109469-7	MW-13	Total/NA	Ground Water	7470A	
310-109469-8	MW-14	Total/NA	Ground Water	7470A	
310-109469-9	MW-15	Total/NA	Ground Water	7470A	
310-109469-10	DP-01	Total/NA	Ground Water	7470A	
MB 310-172304/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-172304/2-A	Lab Control Sample	Total/NA	Water	7470A	
310-109469-1 MS	MW-2	Total/NA	Ground Water	7470A	
310-109469-1 MSD	MW-2	Total/NA	Ground Water	7470A	

Analysis Batch: 172338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-109469-1	MW-2	Total/NA	Ground Water	6020A	171976
310-109469-2	MW-4	Total/NA	Ground Water	6020A	171976
310-109469-3	MW-8	Total/NA	Ground Water	6020A	171976
310-109469-4	MW-10	Total/NA	Ground Water	6020A	171976
310-109469-5	MW-11	Total/NA	Ground Water	6020A	171976
310-109469-6	MW-12	Total/NA	Ground Water	6020A	171976
310-109469-7	MW-13	Total/NA	Ground Water	6020A	171976
310-109469-8	MW-14	Total/NA	Ground Water	6020A	171976
310-109469-9	MW-15	Total/NA	Ground Water	6020A	171976
310-109469-10	DP-01	Total/NA	Ground Water	6020A	171976
MB 310-171976/1-A	Method Blank	Total/NA	Water	6020A	171976
LCS 310-171976/2-A	Lab Control Sample	Total/NA	Water	6020A	171976
310-109469-1 MS	MW-2	Total/NA	Ground Water	6020A	171976
310-109469-1 MSD	MW-2	Total/NA	Ground Water	6020A	171976

Analysis Batch: 172342

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-109469-1	MW-2	Total/NA	Ground Water	6020A	171976
310-109469-2	MW-4	Total/NA	Ground Water	6020A	171976
310-109469-3	MW-8	Total/NA	Ground Water	6020A	171976
310-109469-4	MW-10	Total/NA	Ground Water	6020A	171976
310-109469-5	MW-11	Total/NA	Ground Water	6020A	171976
310-109469-6	MW-12	Total/NA	Ground Water	6020A	171976
310-109469-7	MW-13	Total/NA	Ground Water	6020A	171976
310-109469-8	MW-14	Total/NA	Ground Water	6020A	171976

Metals (Continued)

Analysis Batch: 172342 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-109469-9	MW-15	Total/NA	Ground Water	6020A	171976
310-109469-10	DP-01	Total/NA	Ground Water	6020A	171976
MB 310-171976/1-A	Method Blank	Total/NA	Water	6020A	171976
LCS 310-171976/2-A	Lab Control Sample	Total/NA	Water	6020A	171976
310-109469-1 MS	MW-2	Total/NA	Ground Water	6020A	171976
310-109469-1 MSD	MW-2	Total/NA	Ground Water	6020A	171976

Analysis Batch: 172494

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-109469-1	MW-2	Total/NA	Ground Water	6010C	172281
310-109469-2	MW-4	Total/NA	Ground Water	6010C	172281
310-109469-3	MW-8	Total/NA	Ground Water	6010C	172281
310-109469-4	MW-10	Total/NA	Ground Water	6010C	172281
310-109469-5	MW-11	Total/NA	Ground Water	6010C	172281
310-109469-6	MW-12	Total/NA	Ground Water	6010C	172281
310-109469-7	MW-13	Total/NA	Ground Water	6010C	172281
310-109469-8	MW-14	Total/NA	Ground Water	6010C	172281
310-109469-9	MW-15	Total/NA	Ground Water	6010C	172281
310-109469-10	DP-01	Total/NA	Ground Water	6010C	172281
MB 310-172281/1-A	Method Blank	Total/NA	Water	6010C	172281
LCS 310-172281/2-A	Lab Control Sample	Total/NA	Water	6010C	172281
310-109469-1 MS	MW-2	Total/NA	Ground Water	6010C	172281
310-109469-1 MSD	MW-2	Total/NA	Ground Water	6010C	172281

Analysis Batch: 172602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-109469-1	MW-2	Total/NA	Ground Water	7470A	172304
310-109469-2	MW-4	Total/NA	Ground Water	7470A	172304
310-109469-3	MW-8	Total/NA	Ground Water	7470A	172304
310-109469-4	MW-10	Total/NA	Ground Water	7470A	172304
310-109469-5	MW-11	Total/NA	Ground Water	7470A	172304
310-109469-6	MW-12	Total/NA	Ground Water	7470A	172304
310-109469-7	MW-13	Total/NA	Ground Water	7470A	172304
310-109469-8	MW-14	Total/NA	Ground Water	7470A	172304
310-109469-9	MW-15	Total/NA	Ground Water	7470A	172304
310-109469-10	DP-01	Total/NA	Ground Water	7470A	172304
MB 310-172304/1-A	Method Blank	Total/NA	Water	7470A	172304
LCS 310-172304/2-A	Lab Control Sample	Total/NA	Water	7470A	172304
310-109469-1 MS	MW-2	Total/NA	Ground Water	7470A	172304
310-109469-1 MSD	MW-2	Total/NA	Ground Water	7470A	172304

General Chemistry

Analysis Batch: 171703

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-109353-1	MW-2	Total/NA	Ground Water	SM 4500 H+ B	
310-109353-2	MW-4	Total/NA	Ground Water	SM 4500 H+ B	
310-109353-3	MW-8	Total/NA	Ground Water	SM 4500 H+ B	
310-109353-4	MW-10	Total/NA	Ground Water	SM 4500 H+ B	
310-109353-5	MW-11	Total/NA	Ground Water	SM 4500 H+ B	

General Chemistry (Continued)

Analysis Batch: 171703 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-109353-6	MW-12	Total/NA	Ground Water	SM 4500 H+ B	
310-109353-7	MW-13	Total/NA	Ground Water	SM 4500 H+ B	
310-109353-8	MW-14	Total/NA	Ground Water	SM 4500 H+ B	
310-109353-9	MW-15	Total/NA	Ground Water	SM 4500 H+ B	
310-109353-10	DP-01	Total/NA	Ground Water	SM 4500 H+ B	
LCS 310-171703/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 310-171703/20	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 310-171703/23	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-109353-1 DU	MW-2	Total/NA	Ground Water	SM 4500 H+ B	
310-109353-10 DU	DP-01	Total/NA	Ground Water	SM 4500 H+ B	

Analysis Batch: 171704

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-109353-9	MW-15	Total/NA	Ground Water	SM 2540C	
310-109353-10	DP-01	Total/NA	Ground Water	SM 2540C	
MB 310-171704/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-171704/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 171706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-109353-1	MW-2	Total/NA	Ground Water	SM 2540C	
310-109353-2	MW-4	Total/NA	Ground Water	SM 2540C	
310-109353-3	MW-8	Total/NA	Ground Water	SM 2540C	
310-109353-4	MW-10	Total/NA	Ground Water	SM 2540C	
310-109353-5	MW-11	Total/NA	Ground Water	SM 2540C	
310-109353-6	MW-12	Total/NA	Ground Water	SM 2540C	
310-109353-7	MW-13	Total/NA	Ground Water	SM 2540C	
310-109353-8	MW-14	Total/NA	Ground Water	SM 2540C	
MB 310-171706/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-171706/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-109353-1 DU	MW-2	Total/NA	Ground Water	SM 2540C	

Rad

Prep Batch: 317726

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-109469-1	MW-2	Total/NA	Ground Water	PrecSep-21	
310-109469-2	MW-4	Total/NA	Ground Water	PrecSep-21	
310-109469-3	MW-8	Total/NA	Ground Water	PrecSep-21	
310-109469-4	MW-10	Total/NA	Ground Water	PrecSep-21	
310-109469-5	MW-11	Total/NA	Ground Water	PrecSep-21	
310-109469-6	MW-12	Total/NA	Ground Water	PrecSep-21	
310-109469-7	MW-13	Total/NA	Ground Water	PrecSep-21	
310-109469-8	MW-14	Total/NA	Ground Water	PrecSep-21	
310-109469-9	MW-15	Total/NA	Ground Water	PrecSep-21	
310-109469-10	DP-01	Total/NA	Ground Water	PrecSep-21	
MB 160-317726/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-317726/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
310-109469-1 MS	MW-2	Total/NA	Ground Water	PrecSep-21	
310-109469-1 MSD	MW-2	Total/NA	Ground Water	PrecSep-21	

Rad (Continued)

Prep Batch: 317739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-109469-1	MW-2	Total/NA	Ground Water	PrecSep_0	
310-109469-2	MW-4	Total/NA	Ground Water	PrecSep_0	
310-109469-3	MW-8	Total/NA	Ground Water	PrecSep_0	
310-109469-4	MW-10	Total/NA	Ground Water	PrecSep_0	
310-109469-5	MW-11	Total/NA	Ground Water	PrecSep_0	
310-109469-6	MW-12	Total/NA	Ground Water	PrecSep_0	
310-109469-7	MW-13	Total/NA	Ground Water	PrecSep_0	
310-109469-8	MW-14	Total/NA	Ground Water	PrecSep_0	
310-109469-9	MW-15	Total/NA	Ground Water	PrecSep_0	
310-109469-10	DP-01	Total/NA	Ground Water	PrecSep_0	
MB 160-317739/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-317739/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
310-109469-1 MS	MW-2	Total/NA	Ground Water	PrecSep_0	
310-109469-1 MSD	MW-2	Total/NA	Ground Water	PrecSep_0	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-109353-1
SDG: 11114654

Client Sample ID: MW-2
Date Collected: 07/05/17 13:36
Date Received: 07/07/17 09:30

Lab Sample ID: 310-109353-1
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	172431	07/13/17 11:08	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	171706	07/07/17 15:14	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	171703	07/07/17 15:24	MDK	TAL CF

Client Sample ID: MW-4
Date Collected: 07/05/17 10:42
Date Received: 07/07/17 09:30

Lab Sample ID: 310-109353-2
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	172431	07/13/17 11:54	SAD	TAL CF
Total/NA	Analysis	9056A		20	172431	07/13/17 12:09	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	171706	07/07/17 15:14	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	171703	07/07/17 15:33	MDK	TAL CF

Client Sample ID: MW-8
Date Collected: 07/05/17 14:43
Date Received: 07/07/17 09:30

Lab Sample ID: 310-109353-3
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	172431	07/13/17 12:25	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	171706	07/07/17 15:14	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	171703	07/07/17 15:36	MDK	TAL CF

Client Sample ID: MW-10
Date Collected: 07/05/17 12:16
Date Received: 07/07/17 09:30

Lab Sample ID: 310-109353-4
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	172431	07/13/17 12:40	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	171706	07/07/17 15:14	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	171703	07/07/17 15:40	MDK	TAL CF

Client Sample ID: MW-11
Date Collected: 07/05/17 16:59
Date Received: 07/07/17 09:30

Lab Sample ID: 310-109353-5
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	172431	07/13/17 12:55	SAD	TAL CF
Total/NA	Analysis	9056A		10	172431	07/13/17 19:04	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	171706	07/07/17 15:14	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	171703	07/07/17 15:41	MDK	TAL CF

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-109353-1
SDG: 11114654

Client Sample ID: MW-12
Date Collected: 07/05/17 16:24
Date Received: 07/07/17 09:30

Lab Sample ID: 310-109353-6
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	172431	07/13/17 13:42	SAD	TAL CF
Total/NA	Analysis	9056A		20	172431	07/13/17 13:57	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	171706	07/07/17 15:14	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	171703	07/07/17 15:43	MDK	TAL CF

Client Sample ID: MW-13
Date Collected: 07/05/17 15:54
Date Received: 07/07/17 09:30

Lab Sample ID: 310-109353-7
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	172431	07/13/17 14:12	SAD	TAL CF
Total/NA	Analysis	9056A		20	172431	07/13/17 14:28	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	171706	07/07/17 15:14	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	171703	07/07/17 15:46	MDK	TAL CF

Client Sample ID: MW-14
Date Collected: 07/05/17 15:22
Date Received: 07/07/17 09:30

Lab Sample ID: 310-109353-8
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	172431	07/13/17 14:43	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	171706	07/07/17 15:14	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	171703	07/07/17 15:49	MDK	TAL CF

Client Sample ID: MW-15
Date Collected: 07/05/17 11:33
Date Received: 07/07/17 09:30

Lab Sample ID: 310-109353-9
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	172431	07/13/17 15:14	SAD	TAL CF
Total/NA	Analysis	9056A		20	172431	07/13/17 15:29	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	171704	07/07/17 15:10	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	171703	07/07/17 15:52	MDK	TAL CF

Client Sample ID: DP-01
Date Collected: 07/05/17 00:00
Date Received: 07/07/17 09:30

Lab Sample ID: 310-109353-10
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	172431	07/13/17 15:44	SAD	TAL CF
Total/NA	Analysis	9056A		20	172431	07/13/17 16:00	SAD	TAL CF

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-109353-1
SDG: 11114654

Client Sample ID: DP-01

Date Collected: 07/05/17 00:00
Date Received: 07/07/17 09:30

Lab Sample ID: 310-109353-10

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	171704	07/07/17 15:10	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	171703	07/07/17 16:01	MDK	TAL CF

Client Sample ID: MW-2

Date Collected: 07/05/17 13:36
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-1

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			172281	07/14/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	172494	07/14/17 21:23	OAD	TAL CF
Total/NA	Prep	3010A			171976	07/12/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	172338	07/13/17 16:24	OAD	TAL CF
Total/NA	Prep	3010A			171976	07/12/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	172342	07/13/17 16:24	OAD	TAL CF
Total/NA	Prep	7470A			172304	07/13/17 18:29	MEG	TAL CF
Total/NA	Analysis	7470A		1	172602	07/17/17 12:04	MEG	TAL CF
Total/NA	Prep	PrecSep-21			317726	07/17/17 09:44	LDE	TAL SL
Total/NA	Analysis	9315		1	321289	08/08/17 06:15	ALD	TAL SL
Total/NA	Prep	PrecSep_0			317739	07/17/17 10:25	LDE	TAL SL
Total/NA	Analysis	9320		1	319475	07/27/17 11:11	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	321365	08/08/17 17:53	RTM	TAL SL

Client Sample ID: MW-4

Date Collected: 07/05/17 10:42
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-2

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			172281	07/14/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	172494	07/14/17 21:31	OAD	TAL CF
Total/NA	Prep	3010A			171976	07/12/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	172338	07/13/17 16:46	OAD	TAL CF
Total/NA	Prep	3010A			171976	07/12/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	172342	07/13/17 16:46	OAD	TAL CF
Total/NA	Prep	7470A			172304	07/13/17 18:29	MEG	TAL CF
Total/NA	Analysis	7470A		1	172602	07/17/17 12:08	MEG	TAL CF
Total/NA	Prep	PrecSep-21			317726	07/17/17 09:44	LDE	TAL SL
Total/NA	Analysis	9315		1	321312	08/08/17 06:55	RTM	TAL SL
Total/NA	Prep	PrecSep_0			317739	07/17/17 10:25	LDE	TAL SL
Total/NA	Analysis	9320		1	319475	07/27/17 11:12	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	321365	08/08/17 17:53	RTM	TAL SL

Client Sample ID: MW-8

Date Collected: 07/05/17 14:43
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-3

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			172281	07/14/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	172494	07/14/17 21:33	OAD	TAL CF
Total/NA	Prep	3010A			171976	07/12/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	172338	07/13/17 16:49	OAD	TAL CF
Total/NA	Prep	3010A			171976	07/12/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	172342	07/13/17 16:49	OAD	TAL CF
Total/NA	Prep	7470A			172304	07/13/17 18:29	MEG	TAL CF
Total/NA	Analysis	7470A		1	172602	07/17/17 12:10	MEG	TAL CF
Total/NA	Prep	PrecSep-21			317726	07/17/17 09:44	LDE	TAL SL
Total/NA	Analysis	9315		1	321312	08/08/17 06:56	RTM	TAL SL
Total/NA	Prep	PrecSep_0			317739	07/17/17 10:25	LDE	TAL SL
Total/NA	Analysis	9320		1	319475	07/27/17 11:12	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	321365	08/08/17 17:53	RTM	TAL SL

Client Sample ID: MW-10

Date Collected: 07/05/17 12:16
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-4

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			172281	07/14/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	172494	07/14/17 21:35	OAD	TAL CF
Total/NA	Prep	3010A			171976	07/12/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	172338	07/13/17 16:52	OAD	TAL CF
Total/NA	Prep	3010A			171976	07/12/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	172342	07/13/17 16:52	OAD	TAL CF
Total/NA	Prep	7470A			172304	07/13/17 18:29	MEG	TAL CF
Total/NA	Analysis	7470A		1	172602	07/17/17 12:12	MEG	TAL CF
Total/NA	Prep	PrecSep-21			317726	07/17/17 09:44	LDE	TAL SL
Total/NA	Analysis	9315		1	321312	08/08/17 06:56	RTM	TAL SL
Total/NA	Prep	PrecSep_0			317739	07/17/17 10:25	LDE	TAL SL
Total/NA	Analysis	9320		1	319475	07/27/17 11:12	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	321365	08/08/17 17:53	RTM	TAL SL

Client Sample ID: MW-11

Date Collected: 07/05/17 16:59
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			172281	07/14/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	172494	07/14/17 21:37	OAD	TAL CF
Total/NA	Prep	3010A			171976	07/12/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	172338	07/13/17 16:55	OAD	TAL CF
Total/NA	Prep	3010A			171976	07/12/17 10:00	JNR	TAL CF

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-109353-1
SDG: 11114654

Client Sample ID: MW-11

Date Collected: 07/05/17 16:59
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6020A		1	172342	07/13/17 16:55	OAD	TAL CF
Total/NA	Prep	7470A			172304	07/13/17 18:29	MEG	TAL CF
Total/NA	Analysis	7470A		1	172602	07/17/17 12:13	MEG	TAL CF
Total/NA	Prep	PrecSep-21			317726	07/17/17 09:44	LDE	TAL SL
Total/NA	Analysis	9315		1	321312	08/08/17 06:56	RTM	TAL SL
Total/NA	Prep	PrecSep_0			317739	07/17/17 10:25	LDE	TAL SL
Total/NA	Analysis	9320		1	319475	07/27/17 11:12	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	321365	08/08/17 17:53	RTM	TAL SL

Client Sample ID: MW-12

Date Collected: 07/05/17 16:24
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-6

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			172281	07/14/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	172494	07/14/17 21:39	OAD	TAL CF
Total/NA	Prep	3010A			171976	07/12/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	172338	07/13/17 16:58	OAD	TAL CF
Total/NA	Prep	3010A			171976	07/12/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	172342	07/13/17 16:58	OAD	TAL CF
Total/NA	Prep	7470A			172304	07/13/17 18:29	MEG	TAL CF
Total/NA	Analysis	7470A		1	172602	07/17/17 12:15	MEG	TAL CF
Total/NA	Prep	PrecSep-21			317726	07/17/17 09:44	LDE	TAL SL
Total/NA	Analysis	9315		1	321312	08/08/17 06:56	RTM	TAL SL
Total/NA	Prep	PrecSep_0			317739	07/17/17 10:25	LDE	TAL SL
Total/NA	Analysis	9320		1	319475	07/27/17 11:12	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	321365	08/08/17 17:53	RTM	TAL SL

Client Sample ID: MW-13

Date Collected: 07/05/17 15:54
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-7

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			172281	07/14/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	172494	07/14/17 21:45	OAD	TAL CF
Total/NA	Prep	3010A			171976	07/12/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	172338	07/13/17 17:01	OAD	TAL CF
Total/NA	Prep	3010A			171976	07/12/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	172342	07/13/17 17:01	OAD	TAL CF
Total/NA	Prep	7470A			172304	07/13/17 18:29	MEG	TAL CF
Total/NA	Analysis	7470A		1	172602	07/17/17 12:20	MEG	TAL CF
Total/NA	Prep	PrecSep-21			317726	07/17/17 09:44	LDE	TAL SL
Total/NA	Analysis	9315		1	321312	08/08/17 06:56	RTM	TAL SL

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-109353-1
SDG: 11114654

Client Sample ID: MW-13

Date Collected: 07/05/17 15:54
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-7

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			317739	07/17/17 10:25	LDE	TAL SL
Total/NA	Analysis	9320		1	319475	07/27/17 11:12	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	321365	08/08/17 17:53	RTM	TAL SL

Client Sample ID: MW-14

Date Collected: 07/05/17 15:22
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-8

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			172281	07/14/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	172494	07/14/17 21:47	OAD	TAL CF
Total/NA	Prep	3010A			171976	07/12/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	172338	07/13/17 17:05	OAD	TAL CF
Total/NA	Prep	3010A			171976	07/12/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	172342	07/13/17 17:05	OAD	TAL CF
Total/NA	Prep	7470A			172304	07/13/17 18:29	MEG	TAL CF
Total/NA	Analysis	7470A		1	172602	07/17/17 12:21	MEG	TAL CF
Total/NA	Prep	PrecSep-21			317726	07/17/17 09:44	LDE	TAL SL
Total/NA	Analysis	9315		1	321312	08/08/17 06:56	RTM	TAL SL
Total/NA	Prep	PrecSep_0			317739	07/17/17 10:25	LDE	TAL SL
Total/NA	Analysis	9320		1	319475	07/27/17 11:12	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	321365	08/08/17 17:53	RTM	TAL SL

Client Sample ID: MW-15

Date Collected: 07/05/17 11:33
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-9

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			172281	07/14/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	172494	07/14/17 21:49	OAD	TAL CF
Total/NA	Prep	3010A			171976	07/12/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	172338	07/13/17 17:08	OAD	TAL CF
Total/NA	Prep	3010A			171976	07/12/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	172342	07/13/17 17:08	OAD	TAL CF
Total/NA	Prep	7470A			172304	07/13/17 18:29	MEG	TAL CF
Total/NA	Analysis	7470A		1	172602	07/17/17 12:23	MEG	TAL CF
Total/NA	Prep	PrecSep-21			317726	07/17/17 09:44	LDE	TAL SL
Total/NA	Analysis	9315		1	321312	08/08/17 06:56	RTM	TAL SL
Total/NA	Prep	PrecSep_0			317739	07/17/17 10:25	LDE	TAL SL
Total/NA	Analysis	9320		1	319475	07/27/17 11:12	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	321365	08/08/17 17:53	RTM	TAL SL

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-109353-1
SDG: 11114654

Client Sample ID: DP-01

Date Collected: 07/05/17 00:00
Date Received: 07/10/17 17:14

Lab Sample ID: 310-109469-10

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			172281	07/14/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	172494	07/14/17 21:51	OAD	TAL CF
Total/NA	Prep	3010A			171976	07/12/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	172338	07/13/17 17:11	OAD	TAL CF
Total/NA	Prep	3010A			171976	07/12/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	172342	07/13/17 17:11	OAD	TAL CF
Total/NA	Prep	7470A			172304	07/13/17 18:29	MEG	TAL CF
Total/NA	Analysis	7470A		1	172602	07/17/17 12:24	MEG	TAL CF
Total/NA	Prep	PrecSep-21			317726	07/17/17 09:44	LDE	TAL SL
Total/NA	Analysis	9315		1	321312	08/08/17 06:56	RTM	TAL SL
Total/NA	Prep	PrecSep_0			317739	07/17/17 10:25	LDE	TAL SL
Total/NA	Analysis	9320		1	319475	07/27/17 11:12	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	321365	08/08/17 17:53	RTM	TAL SL

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-109353-1
SDG: 11114654

Laboratory: TestAmerica Cedar Falls

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
AIHA-LAP, LLC	IHLAP		101044	11-01-18
Georgia	State Program	4	IA100001 (OR)	09-29-17
Illinois	NELAP	5	200024	11-29-17
Iowa	State Program	7	007	12-01-17
Kansas	NELAP	7	E-10341	01-31-18
Minnesota	NELAP	5	019-999-319	12-31-17
Minnesota (Petrofund)	State Program	1	3349	08-22-17
North Dakota	State Program	8	R-186	09-29-17
Oregon	NELAP	10	IA100001	09-29-17

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	07-31-18
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		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: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-109353-1
SDG: 11114654

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL CF
6010C	Metals (ICP)	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CF
SM 4500 H+ B	pH	SM	TAL CF
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL

Protocol References:

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.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-109353 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: Des Moines IA | Project: MAE-Neal S. CCR-Monofill

Receipt Information

Date/Time Received: 07.07.17 930 | Received By: GL

Delivery Type: ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other: _____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID: Black

Multiple Coolers? ☐ Yes ☒ No *If yes:* Cooler # _____ of _____

Cooler Custody Seals Present? ☒ Yes ☐ No *If yes:* Cooler custody seals intact? ☒ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE

Thermometer ID: G | Correction Factor (°C): 0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 0.8 | Corrected Temp (°C): 0.8

• **Sample Container Temperature**

Sample ID(s) & bottle type used: CONTAINER 1 | CONTAINER 2

Uncorrected Temp (°C): TEMP 1 TEMP 2 | Corrected Temp (°C): TEMP 1 TEMP 2

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

#21195

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Tim Wineland	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No:
Client Contact: Kevin Armstrong	Phone: 515 710 8336	E-Mail: shawn.hayes@testamericainc.com		Page:
Company: GHD Services Inc.				Job #: 11114654

Address: 11228 Aurora Avenue	Due Date Requested:	Analysis Requested
City: Des Moines	TAT Requested (days): Standard	
State, Zip: IA, 50322-7905	PO #: 34003921	
Phone: 515-414-3935	WO #:	
Email: Kevin.Armstrong@ghd.com	TestAMerica Project #: 31007315	
Project Name: MidAmerican Neal South CCR Monofill	SSOW#: 11114654-002	
Projct Number: 11114654		

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228	6010C, 6020A, 7470A Select List	2540C TDS	9056A Chloride, Sulfate, and Fluoride	SM4500 H+ pH											Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N	N	N												
MW-2	7-5-17	1336	G	GW	N	X	—	—	X	X	X												3x vol for MS/MSD
MW-4	7-5-17	1042		GW			—	—	X	X	X												
MW-8	7-5-17	1443		GW			—	—	X	X	X												
MW-10	7-5-17	1216		GW			—	—	X	X	X												
MW-11	7-5-17	1659		GW			—	—	X	X	X												
MW-12	7-5-17	1624		GW			—	—	X	X	X												
MW-13	7-5-17	1554		GW			—	—	X	X	X												
MW-14	7-5-17	1522		GW			—	—	X	X	X												
MW-15	7-5-17	1133		GW			—	—	X	X	X												
DP-01	7-5-17	—	↓	GW	↓	↓	—	—	X	X	X												

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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Report all parameters together with Radiologicals

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: Wineland	Date/Time: 7-6-17 1345	Company: GHD	Received by: Relinquished to Fedex	Date/Time: under	Company
Relinquished by: Chain of custody seal	Date/Time:	Company	Received by: Kathryn Dastern	Date/Time: 7-7-17 930	Company: TACF
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

8/11/2017

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-109469 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form 310503

Client Information

Client: GHD

City/State: Des Moines, IA | Project:

Receipt Information

Date/Time Received: 7/10/17 1714 | Received By: Brad Kent

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☒ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other: _____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID: AA-48

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 2 of 6 10PS BKK 7.11.17

Cooler Custody Seals Present? ☒ Yes ☐ No *If yes:* Cooler custody seals intact? ☒ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE

Thermometer ID: H | Correction Factor (°C): 0

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 2.2 | Corrected Temp (°C): 2.2

• Sample Container Temperature

Sample ID(s) & bottle type used: CONTAINER 1 | CONTAINER 2

Uncorrected Temp (°C): TEMP 1 TEMP 2 | Corrected Temp (°C): TEMP 1 TEMP 2

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Cooler/Sample Receipt and Temperature Log Form 310503

Client Information

Client: GHD

City/State: Des Moines, IA | Project:

Receipt Information

Date/Time Received: 7/10/17 1714 | Received By: Brad Klerk

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☒ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID: I-9

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 3 of 6 2 of 5 BKM 7.11.17

Cooler Custody Seals Present? ☒ Yes ☐ No *If yes:* Cooler custody seals intact? ☒ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Thermometer ID: H | Correction Factor (°C): 0

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 3.1 | Corrected Temp (°C): 3.1

• Sample Container Temperature

Sample ID(s) & bottle type used: CONTAINER 1 | CONTAINER 2

Uncorrected Temp (°C): TEMP 1 TEMP 2 | Corrected Temp (°C): TEMP 1 TEMP 2

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: Des Moines IA | Project:

Receipt Information

Date/Time Received: 7/10/17 1714 | Received By:

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☒ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes ☐ No	*If yes:* Cooler ID:	AA-2
Multiple Coolers?	☒ Yes ☐ No	*If yes:* Cooler #	4 of 6 3of5 Back 7.11.17
Cooler Custody Seals Present?	☒ Yes ☐ No	*If yes:* Cooler custody seals intact?	☒ Yes ☐ No
Sample Custody Seals Present?	☐ Yes ☒ No	*If yes:* Sample custody seals intact?	☐ Yes ☐ No
Trip Blank Present?	☐ Yes ☒ No	*If yes:* Which VOA samples are in cooler? ↓	

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Thermometer ID: H | Correction Factor (°C): 0

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 2.5 | Corrected Temp (°C): 2.5

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Sample ID(s) & bottle type used:		
Uncorrected Temp (°C):	TEMP 1 / TEMP 2	
Corrected Temp (°C):	TEMP 1 / TEMP 2	

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Cooler/Sample Receipt and Temperature Log Form 510503

Client Information

Client: GHD

City/State: Des Moines IA | Project:

Receipt Information

Date/Time Received: 7/10/17 1714 | Received By: B. Klink

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☒ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID: N-1
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 5 of 6 4 of 5 Blank 7.11.17
Cooler Custody Seals Present?	☒ Yes	☐ No	*If yes:* Cooler custody seals intact? ☒ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Thermometer ID: H | Correction Factor (°C): 0

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 5.6 | Corrected Temp (°C): 5.6

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Sample ID(s) & bottle type used:		
Uncorrected Temp (°C):	TEMP 1 / TEMP 2	
Corrected Temp (°C):	TEMP 1 / TEMP 2	

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Cooler/Sample Receipt and Temperature Log Form 310503

Client Information

Client: GHD

City/State: Des Moines IA | Project:

Receipt Information

Date/Time Received: 7/10/17 1714 | Received By:

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☒ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes ☐ No	*If yes:* Cooler ID:	AA-52
Multiple Coolers?	☒ Yes ☐ No	*If yes:* Cooler # 6 of 6	SOPS BKM 7.11.17
Cooler Custody Seals Present?	☒ Yes ☐ No	*If yes:* Cooler custody seals intact?	☒ Yes ☐ No
Sample Custody Seals Present?	☐ Yes ☒ No	*If yes:* Sample custody seals intact?	☐ Yes ☐ No
Trip Blank Present?	☐ Yes ☒ No	*If yes:* Which VOA samples are in cooler? ↓	

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Thermometer ID: H | Correction Factor (°C): 0

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 5.4 | Corrected Temp (°C): 5.4

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Sample ID(s) & bottle type used:		
Uncorrected Temp (°C):	TEMP 1 / TEMP 2	
Corrected Temp (°C):	TEMP 1 / TEMP 2	

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

#24195

TestAmerica Cedar Falls
704 Enterpri[illegible]e
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Tim Wineland	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No:
Client Contact: Kevin Armstrong	Phone: 515 710 8336	E-Mail: shawn.hayes@testamericainc.com		Page:
Company: GHD Services Inc.				Job #: 11114654
Address: 11228 Aurora Avenue	Due Date Requested:			
City: Des Moines	TAT Requested (days): Standard			
State, Zip: IA, 50322-7905				
Phone: 515-414-3935	PO #: 34003921			
Email: Kevin.Armstrong@ghd.com	WO #:			
Project Name: MidAmerican Neal South CCR Monofill	TestAMerica Project #: 31007315			
Projct Number: 11114654	SSOW#: 11114654-002			

Analysis Requested

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, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228	6010C, 6020A, 7470A Select List	2540C TDS	9056A Chloride, Sulfate, and Fluoride	SM4500 H+ pH	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N	N	N		
MW-2	7-5-17	1336	G	GW	N	X	X	X					3x vol for MS/MSD
MW-4	7-5-17	1042		GW		-	X	X					
MW-8	7-5-17	1443		GW		-	X	X					
MW-10	7-5-17	1216		GW		-	X	X					
MW-11	7-5-17	1659		GW		-	X	X					
MW-12	7-5-17	1624		GW		-	X	X					
MW-13	7-5-17	1554		GW		-	X	X					
MW-14	7-5-17	1522		GW		-	X	X					
MW-15	7-5-17	1133		GW		-	X	X					
DP-01	7-5-17	—	↓	GW	↓	-	X	X					

JW

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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Report all parameters together with Radiologicals

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: Wineland	Date/Time: 7-10-17 1400	Company: GHD	Received by: [signature] Date/Time: 7/10/17 Company: 1400
Relinquished by:	Date/Time:	Company	Received by: [signature] Date/Time: 7/10/17 1714 Company
Relinquished by:	Date/Time:	Company	Received by: Date/Time: Company

Custody Seals Intact: △ Yes △ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

8/11/2017

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW-2	310-109469-A-1	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-109469-A-1 MS	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-109469-A-1 MSD	Plastic 250ml - with Nitric Acid	<2		
MW-2	310-109469-B-1	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-109469-B-1 MS	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-109469-B-1 MSD	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-109469-C-1	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-109469-C-1 MS	Plastic 1 liter - Nitric Acid	<2		
MW-2	310-109469-C-1 MSD	Plastic 1 liter - Nitric Acid	<2		
MW-4	310-109469-A-2	Plastic 250ml - with Nitric Acid	<2		
MW-4	310-109469-B-2	Plastic 1 liter - Nitric Acid	<2		
MW-4	310-109469-C-2	Plastic 1 liter - Nitric Acid	<2		
MW-8	310-109469-A-3	Plastic 250ml - with Nitric Acid	<2		
MW-8	310-109469-B-3	Plastic 1 liter - Nitric Acid	<2		
MW-8	310-109469-C-3	Plastic 1 liter - Nitric Acid	<2		
MW-10	310-109469-A-4	Plastic 250ml - with Nitric Acid	<2		
MW-10	310-109469-B-4	Plastic 1 liter - Nitric Acid	<2		
MW-10	310-109469-C-4	Plastic 1 liter - Nitric Acid	<2		
MW-11	310-109469-A-5	Plastic 250ml - with Nitric Acid	<2		
MW-11	310-109469-B-5	Plastic 1 liter - Nitric Acid	<2		
MW-11	310-109469-C-5	Plastic 1 liter - Nitric Acid	<2		
MW-12	310-109469-A-6	Plastic 250ml - with Nitric Acid	<2		
MW-12	310-109469-B-6	Plastic 1 liter - Nitric Acid	<2		
MW-12	310-109469-C-6	Plastic 1 liter - Nitric Acid	<2		
MW-13	310-109469-A-7	Plastic 250ml - with Nitric Acid	<2		
MW-13	310-109469-B-7	Plastic 1 liter - Nitric Acid	<2		
MW-13	310-109469-C-7	Plastic 1 liter - Nitric Acid	<2		
MW-14	310-109469-A-8	Plastic 250ml - with Nitric Acid	<2		
MW-14	310-109469-B-8	Plastic 1 liter - Nitric Acid	<2		
MW-14	310-109469-C-8	Plastic 1 liter - Nitric Acid	<2		
MW-15	310-109469-A-9	Plastic 250ml - with Nitric Acid	<2		
MW-15	310-109469-B-9	Plastic 1 liter - Nitric Acid	<2		
MW-15	310-109469-C-9	Plastic 1 liter - Nitric Acid	<2		
DP-01	310-109469-A-10	Plastic 250ml - with Nitric Acid	<2		
DP-01	310-109469-B-10	Plastic 1 liter - Nitric Acid	<2		
DP-01	310-109469-C-10	Plastic 1 liter - Nitric Acid	<2		

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 310-109353-1
SDG Number: 11114654

Login Number: 109353
List Number: 1
Creator: Patrick, Kathryn E

List Source: TestAmerica Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
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	
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 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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-109353-1
SDG: 11114654

Method: 9315 - Radium-226 (GFPC)

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba (40-110)
310-109469-1	MW-2	99.7
310-109469-1 MS	MW-2	95.9
310-109469-1 MSD	MW-2	97.6
310-109469-2	MW-4	99.1
310-109469-3	MW-8	93.2
310-109469-4	MW-10	95.3
310-109469-5	MW-11	95.0
310-109469-6	MW-12	90.0
310-109469-7	MW-13	93.5
310-109469-8	MW-14	87.6
310-109469-9	MW-15	93.5
310-109469-10	DP-01	92.9

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9315 - Radium-226 (GFPC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba (40-110)
LCS 160-317726/2-A	Lab Control Sample	97.6
MB 160-317726/1-A	Method Blank	94.1

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
310-109469-1	MW-2	99.7	94.2
310-109469-1 MS	MW-2	95.9	88.1
310-109469-1 MSD	MW-2	97.6	98.4
310-109469-2	MW-4	99.1	96.5
310-109469-3	MW-8	93.2	96.8
310-109469-4	MW-10	95.3	94.9
310-109469-5	MW-11	95.0	98.4
310-109469-6	MW-12	90.0	96.5
310-109469-7	MW-13	93.5	103
310-109469-8	MW-14	87.6	101
310-109469-9	MW-15	93.5	105
310-109469-10	DP-01	92.9	96.8

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

Tracer/Carrier Summary

Client: GHD Services Inc.
Project/Site: MidAmerican Neal South CCR Monofill

TestAmerica Job ID: 310-109353-1
SDG: 11114654

Method: 9320 - 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)								
LCS 160-317739/2-A	Lab Control Sample	97.6	93.9								
MB 160-317739/1-A	Method Blank	94.1	102								

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319)277-2401

TestAmerica Job ID: 310-114283-1
TestAmerica Sample Delivery Group: 11114654
Client Project/Site: MEC Neal South CCR Monofill Detects
Sampling Event: Neal South CCR Qtrly

For:
GHD Services Inc.
11228 Aurora Avenue
Des Moines, Iowa 50322-7905

Attn: Kevin Armstrong

Authorized for release by:
9/27/2017 3:10:57 PM

Shawn Hayes, Senior Project Manager
(319)277-2401
shawn.hayes@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

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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Job ID: 310-114283-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-114283-1

Comments
No additional comments.

Receipt
The samples were received on 9/14/2017 5:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.9º C.

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

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

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

Sample Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South CCR Monofill Detects

TestAmerica Job ID: 310-114283-1
SDG: 11114654

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-114283-1	MW-2	Ground Water	09/11/17 14:35	09/14/17 17:30
310-114283-2	MW-4	Ground Water	09/11/17 12:05	09/14/17 17:30
310-114283-3	MW-8	Ground Water	09/11/17 13:15	09/14/17 17:30
310-114283-4	MW-10	Ground Water	09/11/17 13:50	09/14/17 17:30
310-114283-5	MW-11	Ground Water	09/11/17 16:26	09/14/17 17:30
310-114283-6	MW-12	Ground Water	09/11/17 15:55	09/14/17 17:30
310-114283-7	MW-13	Ground Water	09/11/17 15:13	09/14/17 17:30
310-114283-8	MW-14	Ground Water	09/11/17 17:01	09/14/17 17:30
310-114283-9	MW-15	Ground Water	09/11/17 12:48	09/14/17 17:30
310-114283-10	DP-01	Ground Water	09/11/17 00:00	09/14/17 17:30

Detection Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South CCR Monofill Detects

TestAmerica Job ID: 310-114283-1
SDG: 11114654

Client Sample ID: MW-2 — Lab Sample ID: 310-114283-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	12.1		5.00		mg/L	5		9056A	Total/NA
Sulfate	82.3		5.00		mg/L	5		9056A	Total/NA
Boron	0.583		0.200		mg/L	1		6020A	Total/NA
Calcium	151		0.200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	740		30.0		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-4 — Lab Sample ID: 310-114283-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	18.6		5.00		mg/L	5		9056A	Total/NA
Sulfate	608		20.0		mg/L	20		9056A	Total/NA
Boron	0.898		0.200		mg/L	1		6020A	Total/NA
Calcium	245		0.200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1860		150		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-8 — Lab Sample ID: 310-114283-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.60		5.00		mg/L	5		9056A	Total/NA
Sulfate	489		20.0		mg/L	20		9056A	Total/NA
Boron	2.80		0.200		mg/L	1		6020A	Total/NA
Calcium	208		0.200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1610		150		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: MW-10 — Lab Sample ID: 310-114283-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.77		5.00		mg/L	5		9056A	Total/NA
Sulfate	64.1		5.00		mg/L	5		9056A	Total/NA
Boron	0.336		0.200		mg/L	1		6020A	Total/NA
Calcium	152		0.200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1040		60.0		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

Client Sample ID: MW-11 — Lab Sample ID: 310-114283-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.91		5.00		mg/L	5		9056A	Total/NA
Sulfate	368		10.0		mg/L	10		9056A	Total/NA
Boron	0.431		0.200		mg/L	1		6020A	Total/NA
Calcium	252		0.200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1350		60.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-11 (Continued) — Lab Sample ID: 310-114283-5

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-12 — Lab Sample ID: 310-114283-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	180		5.00		mg/L	5		9056A	Total/NA
Sulfate	508		20.0		mg/L	20		9056A	Total/NA
Boron	4.34		0.200		mg/L	1		6020A	Total/NA
Calcium	233		0.200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1990		150		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-13 — Lab Sample ID: 310-114283-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	21.3		5.00		mg/L	5		9056A	Total/NA
Sulfate	485		20.0		mg/L	20		9056A	Total/NA
Boron	1.19		0.200		mg/L	1		6020A	Total/NA
Calcium	286		0.200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1770		150		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-14 — Lab Sample ID: 310-114283-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	357		20.0		mg/L	20		9056A	Total/NA
Boron	1.36		0.200		mg/L	1		6020A	Total/NA
Calcium	238		0.200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1420		60.0		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-15 — Lab Sample ID: 310-114283-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	10.5		5.00		mg/L	5		9056A	Total/NA
Sulfate	422		20.0		mg/L	20		9056A	Total/NA
Boron	2.58		0.200		mg/L	1		6020A	Total/NA
Calcium	195		0.200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1370		75.0		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: DP-01 — Lab Sample ID: 310-114283-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.54		5.00		mg/L	5		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: DP-01 (Continued)

Lab Sample ID: 310-114283-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	370		20.0		mg/L	20		9056A	Total/NA
Boron	0.477		0.200		mg/L	1		6020A	Total/NA
Calcium	246		0.200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1310		60.0		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

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal South CCR Monofill Detects

TestAmerica Job ID: 310-114283-1
SDG: 11114654

Client Sample ID: MW-2
Date Collected: 09/11/17 14:35
Date Received: 09/14/17 17:30

Lab Sample ID: 310-114283-1
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12.1		5.00		mg/L			09/19/17 13:18	5
Sulfate	82.3		5.00		mg/L			09/19/17 13:18	5
Fluoride	<0.500		0.500		mg/L			09/19/17 13:18	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.583		0.200		mg/L		09/18/17 10:00	09/27/17 02:51	1
Calcium	151		0.200		mg/L		09/18/17 10:00	09/27/17 02:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	740		30.0		mg/L			09/15/17 11:20	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.0	HF	0.1		SU			09/14/17 20:00	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal South CCR Monofill Detects

TestAmerica Job ID: 310-114283-1
SDG: 11114654

Client Sample ID: MW-4
Date Collected: 09/11/17 12:05
Date Received: 09/14/17 17:30

Lab Sample ID: 310-114283-2
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	18.6		5.00		mg/L			09/19/17 14:35	5
Sulfate	608		20.0		mg/L			09/19/17 14:51	20
Fluoride	<0.500		0.500		mg/L			09/19/17 14:35	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.898		0.200		mg/L		09/18/17 10:00	09/27/17 03:03	1
Calcium	245		0.200		mg/L		09/18/17 10:00	09/27/17 03:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1860		150		mg/L			09/15/17 11:20	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1		SU			09/14/17 20:02	1

Client: GHD Services Inc.
Project/Site: MEC Neal South CCR Monofill Detects

TestAmerica Job ID: 310-114283-1
SDG: 11114654

Client Sample ID: MW-8
Date Collected: 09/11/17 13:15
Date Received: 09/14/17 17:30

Lab Sample ID: 310-114283-3
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.60		5.00		mg/L			09/19/17 15:06	5
Sulfate	489		20.0		mg/L			09/19/17 15:22	20
Fluoride	<0.500		0.500		mg/L			09/19/17 15:06	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.80		0.200		mg/L		09/18/17 10:00	09/27/17 03:12	1
Calcium	208		0.200		mg/L		09/18/17 10:00	09/27/17 03:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1610		150		mg/L			09/15/17 11:20	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.2	HF	0.1		SU			09/14/17 20:03	1

Client Sample ID: MW-10
Date Collected: 09/11/17 13:50
Date Received: 09/14/17 17:30

Lab Sample ID: 310-114283-4
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.77		5.00		mg/L			09/19/17 15:37	5
Sulfate	64.1		5.00		mg/L			09/19/17 15:37	5
Fluoride	<0.500		0.500		mg/L			09/19/17 15:37	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.336		0.200		mg/L		09/18/17 10:00	09/27/17 03:15	1
Calcium	152		0.200		mg/L		09/18/17 10:00	09/27/17 03:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1040		60.0		mg/L			09/15/17 11:20	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.3	HF	0.1		SU			09/14/17 20:04	1

Client: GHD Services Inc.
Project/Site: MEC Neal South CCR Monofill Detects

TestAmerica Job ID: 310-114283-1
SDG: 11114654

Client Sample ID: MW-11
Date Collected: 09/11/17 16:26
Date Received: 09/14/17 17:30

Lab Sample ID: 310-114283-5
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.91		5.00		mg/L			09/19/17 15:52	5
Sulfate	368		10.0		mg/L			09/19/17 16:08	10
Fluoride	<0.500		0.500		mg/L			09/19/17 15:52	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.431		0.200		mg/L		09/18/17 10:00	09/27/17 03:19	1
Calcium	252		0.200		mg/L		09/18/17 10:00	09/27/17 03:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1350		60.0		mg/L			09/15/17 11:20	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.0	HF	0.1		SU			09/14/17 20:06	1

Client: GHD Services Inc.
Project/Site: MEC Neal South CCR Monofill Detects

TestAmerica Job ID: 310-114283-1
SDG: 11114654

Client Sample ID: MW-12
Date Collected: 09/11/17 15:55
Date Received: 09/14/17 17:30

Lab Sample ID: 310-114283-6
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	180		5.00		mg/L			09/19/17 16:23	5
Sulfate	508		20.0		mg/L			09/19/17 16:39	20
Fluoride	<0.500		0.500		mg/L			09/19/17 16:23	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	4.34		0.200		mg/L		09/18/17 10:00	09/27/17 03:22	1
Calcium	233		0.200		mg/L		09/18/17 10:00	09/27/17 03:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1990		150		mg/L			09/15/17 11:20	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.1	HF	0.1		SU			09/14/17 20:07	1

Client: GHD Services Inc.
Project/Site: MEC Neal South CCR Monofill Detects

TestAmerica Job ID: 310-114283-1
SDG: 11114654

Client Sample ID: MW-13
Date Collected: 09/11/17 15:13
Date Received: 09/14/17 17:30

Lab Sample ID: 310-114283-7
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	21.3		5.00		mg/L			09/19/17 16:54	5
Sulfate	485		20.0		mg/L			09/19/17 17:40	20
Fluoride	<0.500		0.500		mg/L			09/19/17 16:54	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.19		0.200		mg/L		09/18/17 10:00	09/27/17 03:25	1
Calcium	286		0.200		mg/L		09/18/17 10:00	09/27/17 03:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1770		150		mg/L			09/15/17 11:20	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1		SU			09/14/17 20:09	1

Client: GHD Services Inc.
Project/Site: MEC Neal South CCR Monofill Detects

TestAmerica Job ID: 310-114283-1
SDG: 11114654

Client Sample ID: MW-14
Date Collected: 09/11/17 17:01
Date Received: 09/14/17 17:30

Lab Sample ID: 310-114283-8
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			09/19/17 17:56	5
Sulfate	**357**		20.0		mg/L			09/19/17 18:11	20
Fluoride	<0.500		0.500		mg/L			09/19/17 17:56	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**1.36**		0.200		mg/L		09/18/17 10:00	09/27/17 03:28	1
Calcium	**238**		0.200		mg/L		09/18/17 10:00	09/27/17 03:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1420**		60.0		mg/L			09/15/17 11:20	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.0**	**HF**	0.1		SU			09/14/17 20:20	1

Client: GHD Services Inc.
Project/Site: MEC Neal South CCR Monofill Detects

TestAmerica Job ID: 310-114283-1
SDG: 11114654

Client Sample ID: MW-15
Date Collected: 09/11/17 12:48
Date Received: 09/14/17 17:30

Lab Sample ID: 310-114283-9
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10.5		5.00		mg/L			09/19/17 18:26	5
Sulfate	422		20.0		mg/L			09/19/17 18:42	20
Fluoride	<0.500		0.500		mg/L			09/19/17 18:26	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.58		0.200		mg/L		09/18/17 10:00	09/27/17 03:31	1
Calcium	195		0.200		mg/L		09/18/17 10:00	09/27/17 03:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1370		75.0		mg/L			09/15/17 11:20	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1		SU			09/14/17 20:23	1

Client Sample ID: DP-01
Date Collected: 09/11/17 00:00
Date Received: 09/14/17 17:30

Lab Sample ID: 310-114283-10
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.54		5.00		mg/L			09/19/17 18:57	5
Sulfate	370		20.0		mg/L			09/19/17 19:13	20
Fluoride	<0.500		0.500		mg/L			09/19/17 18:57	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.477		0.200		mg/L		09/18/17 10:00	09/27/17 03:34	1
Calcium	246		0.200		mg/L		09/18/17 10:00	09/27/17 03:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1310		60.0		mg/L			09/15/17 11:20	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1		SU			09/14/17 20:25	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.
¤	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)

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-179451/3
Matrix: Water
Analysis Batch: 179451

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			09/19/17 12:09	1
Sulfate	<1.00		1.00		mg/L			09/19/17 12:09	1
Fluoride	<0.100		0.100		mg/L			09/19/17 12:09	1

Lab Sample ID: LCS 310-179451/4
Matrix: Water
Analysis Batch: 179451

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.50	7.464		mg/L		100	90 - 110
Sulfate	7.50	7.447		mg/L		99	90 - 110
Fluoride	1.50	1.498		mg/L		100	90 - 110

Lab Sample ID: 310-114283-1 MS
Matrix: Ground Water
Analysis Batch: 179451

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	12.1		25.0	36.99		mg/L		100	80 - 120
Sulfate	82.3		25.0	105.4		mg/L		92	80 - 120
Fluoride	<0.500		5.00	5.603		mg/L		112	80 - 120

Lab Sample ID: 310-114283-1 MSD
Matrix: Ground Water
Analysis Batch: 179451

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	12.1		25.0	37.02		mg/L		100	80 - 120	0	15
Sulfate	82.3		25.0	105.2		mg/L		91	80 - 120	0	15
Fluoride	<0.500		5.00	5.576		mg/L		112	80 - 120	0	15

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-178955/1-A
Matrix: Water
Analysis Batch: 180280

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 178955

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.200		0.200		mg/L		09/18/17 10:00	09/27/17 02:45	1
Calcium	<0.200		0.200		mg/L		09/18/17 10:00	09/27/17 02:45	1

Lab Sample ID: LCS 310-178955/2-A
Matrix: Water
Analysis Batch: 180280

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 178955

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.880	0.9425		mg/L		107	80 - 120
Calcium	2.00	2.108		mg/L		105	80 - 120

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

Lab Sample ID: 310-114283-1 MS
Matrix: Ground Water
Analysis Batch: 180280

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 178955

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.583		0.880	1.537		mg/L		108	75 - 125
Calcium	151		2.00	153.5	4	mg/L		120	75 - 125

Lab Sample ID: 310-114283-1 MSD
Matrix: Ground Water
Analysis Batch: 180280

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 178955

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	0.583		0.880	1.610		mg/L		117	75 - 125	5	20
Calcium	151		2.00	157.0	4	mg/L		293	75 - 125	2	20

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

Lab Sample ID: MB 310-178953/1
Matrix: Water
Analysis Batch: 178953

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	<30.0		30.0		mg/L			09/15/17 11:20	1

Lab Sample ID: LCS 310-178953/2
Matrix: Water
Analysis Batch: 178953

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	1000	1048		mg/L		105	90 - 110

Lab Sample ID: 310-114283-1 DU
Matrix: Ground Water
Analysis Batch: 178953

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	740		672.0		mg/L		10	24

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-178870/27
Matrix: Water
Analysis Batch: 178870

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	98 - 102

Lab Sample ID: 310-114283-1 DU
Matrix: Ground Water
Analysis Batch: 178870

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.0	HF	7.0		SU		0.1	20

QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Neal South CCR Monofill Detects

TestAmerica Job ID: 310-114283-1
SDG: 11114654

Lab Sample ID: 310-114283-8 DU
Matrix: Ground Water
Analysis Batch: 178870

Client Sample ID: MW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.0	HF		6.9		SU				0.6	20

HPLC/IC

Analysis Batch: 179451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-114283-1	MW-2	Total/NA	Ground Water	9056A	
310-114283-2	MW-4	Total/NA	Ground Water	9056A	
310-114283-2	MW-4	Total/NA	Ground Water	9056A	
310-114283-3	MW-8	Total/NA	Ground Water	9056A	
310-114283-3	MW-8	Total/NA	Ground Water	9056A	
310-114283-4	MW-10	Total/NA	Ground Water	9056A	
310-114283-5	MW-11	Total/NA	Ground Water	9056A	
310-114283-5	MW-11	Total/NA	Ground Water	9056A	
310-114283-6	MW-12	Total/NA	Ground Water	9056A	
310-114283-6	MW-12	Total/NA	Ground Water	9056A	
310-114283-7	MW-13	Total/NA	Ground Water	9056A	
310-114283-7	MW-13	Total/NA	Ground Water	9056A	
310-114283-8	MW-14	Total/NA	Ground Water	9056A	
310-114283-8	MW-14	Total/NA	Ground Water	9056A	
310-114283-9	MW-15	Total/NA	Ground Water	9056A	
310-114283-9	MW-15	Total/NA	Ground Water	9056A	
310-114283-10	DP-01	Total/NA	Ground Water	9056A	
310-114283-10	DP-01	Total/NA	Ground Water	9056A	
MB 310-179451/3	Method Blank	Total/NA	Water	9056A	
LCS 310-179451/4	Lab Control Sample	Total/NA	Water	9056A	
310-114283-1 MS	MW-2	Total/NA	Ground Water	9056A	
310-114283-1 MSD	MW-2	Total/NA	Ground Water	9056A	

Metals

Prep Batch: 178955

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-114283-1	MW-2	Total/NA	Ground Water	3010A	
310-114283-2	MW-4	Total/NA	Ground Water	3010A	
310-114283-3	MW-8	Total/NA	Ground Water	3010A	
310-114283-4	MW-10	Total/NA	Ground Water	3010A	
310-114283-5	MW-11	Total/NA	Ground Water	3010A	
310-114283-6	MW-12	Total/NA	Ground Water	3010A	
310-114283-7	MW-13	Total/NA	Ground Water	3010A	
310-114283-8	MW-14	Total/NA	Ground Water	3010A	
310-114283-9	MW-15	Total/NA	Ground Water	3010A	
310-114283-10	DP-01	Total/NA	Ground Water	3010A	
MB 310-178955/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-178955/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-114283-1 MS	MW-2	Total/NA	Ground Water	3010A	
310-114283-1 MSD	MW-2	Total/NA	Ground Water	3010A	

Analysis Batch: 180267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-114283-1	MW-2	Total/NA	Ground Water	6020A	178955
310-114283-2	MW-4	Total/NA	Ground Water	6020A	178955
310-114283-3	MW-8	Total/NA	Ground Water	6020A	178955
310-114283-4	MW-10	Total/NA	Ground Water	6020A	178955
310-114283-5	MW-11	Total/NA	Ground Water	6020A	178955
310-114283-6	MW-12	Total/NA	Ground Water	6020A	178955

Metals (Continued)

Analysis Batch: 180267 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-114283-7	MW-13	Total/NA	Ground Water	6020A	178955
310-114283-8	MW-14	Total/NA	Ground Water	6020A	178955
310-114283-9	MW-15	Total/NA	Ground Water	6020A	178955
310-114283-10	DP-01	Total/NA	Ground Water	6020A	178955
MB 310-178955/1-A	Method Blank	Total/NA	Water	6020A	178955
LCS 310-178955/2-A	Lab Control Sample	Total/NA	Water	6020A	178955
310-114283-1 MS	MW-2	Total/NA	Ground Water	6020A	178955
310-114283-1 MSD	MW-2	Total/NA	Ground Water	6020A	178955

Analysis Batch: 180280

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-114283-1	MW-2	Total/NA	Ground Water	6020A	178955
310-114283-2	MW-4	Total/NA	Ground Water	6020A	178955
310-114283-3	MW-8	Total/NA	Ground Water	6020A	178955
310-114283-4	MW-10	Total/NA	Ground Water	6020A	178955
310-114283-5	MW-11	Total/NA	Ground Water	6020A	178955
310-114283-6	MW-12	Total/NA	Ground Water	6020A	178955
310-114283-7	MW-13	Total/NA	Ground Water	6020A	178955
310-114283-8	MW-14	Total/NA	Ground Water	6020A	178955
310-114283-9	MW-15	Total/NA	Ground Water	6020A	178955
310-114283-10	DP-01	Total/NA	Ground Water	6020A	178955
MB 310-178955/1-A	Method Blank	Total/NA	Water	6020A	178955
LCS 310-178955/2-A	Lab Control Sample	Total/NA	Water	6020A	178955
310-114283-1 MS	MW-2	Total/NA	Ground Water	6020A	178955
310-114283-1 MSD	MW-2	Total/NA	Ground Water	6020A	178955

General Chemistry

Analysis Batch: 178870

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-114283-1	MW-2	Total/NA	Ground Water	SM 4500 H+ B	
310-114283-2	MW-4	Total/NA	Ground Water	SM 4500 H+ B	
310-114283-3	MW-8	Total/NA	Ground Water	SM 4500 H+ B	
310-114283-4	MW-10	Total/NA	Ground Water	SM 4500 H+ B	
310-114283-5	MW-11	Total/NA	Ground Water	SM 4500 H+ B	
310-114283-6	MW-12	Total/NA	Ground Water	SM 4500 H+ B	
310-114283-7	MW-13	Total/NA	Ground Water	SM 4500 H+ B	
310-114283-8	MW-14	Total/NA	Ground Water	SM 4500 H+ B	
310-114283-9	MW-15	Total/NA	Ground Water	SM 4500 H+ B	
310-114283-10	DP-01	Total/NA	Ground Water	SM 4500 H+ B	
LCS 310-178870/27	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-114283-1 DU	MW-2	Total/NA	Ground Water	SM 4500 H+ B	
310-114283-8 DU	MW-14	Total/NA	Ground Water	SM 4500 H+ B	

Analysis Batch: 178953

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-114283-1	MW-2	Total/NA	Ground Water	SM 2540C	
310-114283-2	MW-4	Total/NA	Ground Water	SM 2540C	
310-114283-3	MW-8	Total/NA	Ground Water	SM 2540C	
310-114283-4	MW-10	Total/NA	Ground Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 178953 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-114283-5	MW-11	Total/NA	Ground Water	SM 2540C	
310-114283-6	MW-12	Total/NA	Ground Water	SM 2540C	
310-114283-7	MW-13	Total/NA	Ground Water	SM 2540C	
310-114283-8	MW-14	Total/NA	Ground Water	SM 2540C	
310-114283-9	MW-15	Total/NA	Ground Water	SM 2540C	
310-114283-10	DP-01	Total/NA	Ground Water	SM 2540C	
MB 310-178953/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-178953/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-114283-1 DU	MW-2	Total/NA	Ground Water	SM 2540C	

Client Sample ID: MW-2

Lab Sample ID: 310-114283-1

Date Collected: 09/11/17 14:35

Matrix: Ground Water

Date Received: 09/14/17 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	179451	09/19/17 13:18	SAD	TAL CF
Total/NA	Prep	3010A			178955	09/18/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	180267	09/27/17 02:51	OAD	TAL CF
Total/NA	Prep	3010A			178955	09/18/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	180280	09/27/17 02:51	OAD	TAL CF
Total/NA	Analysis	SM 2540C		1	178953	09/15/17 11:20	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	178870	09/14/17 20:00	BER	TAL CF

Client Sample ID: MW-4

Lab Sample ID: 310-114283-2

Date Collected: 09/11/17 12:05

Matrix: Ground Water

Date Received: 09/14/17 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	179451	09/19/17 14:35	SAD	TAL CF
Total/NA	Analysis	9056A		20	179451	09/19/17 14:51	SAD	TAL CF
Total/NA	Prep	3010A			178955	09/18/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	180267	09/27/17 03:03	OAD	TAL CF
Total/NA	Prep	3010A			178955	09/18/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	180280	09/27/17 03:03	OAD	TAL CF
Total/NA	Analysis	SM 2540C		1	178953	09/15/17 11:20	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	178870	09/14/17 20:02	BER	TAL CF

Client Sample ID: MW-8

Lab Sample ID: 310-114283-3

Date Collected: 09/11/17 13:15

Matrix: Ground Water

Date Received: 09/14/17 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	179451	09/19/17 15:06	SAD	TAL CF
Total/NA	Analysis	9056A		20	179451	09/19/17 15:22	SAD	TAL CF
Total/NA	Prep	3010A			178955	09/18/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	180267	09/27/17 03:12	OAD	TAL CF
Total/NA	Prep	3010A			178955	09/18/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	180280	09/27/17 03:12	OAD	TAL CF
Total/NA	Analysis	SM 2540C		1	178953	09/15/17 11:20	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	178870	09/14/17 20:03	BER	TAL CF

Client Sample ID: MW-10

Lab Sample ID: 310-114283-4

Date Collected: 09/11/17 13:50

Matrix: Ground Water

Date Received: 09/14/17 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	179451	09/19/17 15:37	SAD	TAL CF

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			178955	09/18/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	180267	09/27/17 03:15	OAD	TAL CF
Total/NA	Prep	3010A			178955	09/18/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	180280	09/27/17 03:15	OAD	TAL CF
Total/NA	Analysis	SM 2540C		1	178953	09/15/17 11:20	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	178870	09/14/17 20:04	BER	TAL CF

Client Sample ID: MW-11

Lab Sample ID: 310-114283-5

Date Collected: 09/11/17 16:26

Matrix: Ground Water

Date Received: 09/14/17 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	179451	09/19/17 15:52	SAD	TAL CF
Total/NA	Analysis	9056A		10	179451	09/19/17 16:08	SAD	TAL CF
Total/NA	Prep	3010A			178955	09/18/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	180267	09/27/17 03:19	OAD	TAL CF
Total/NA	Prep	3010A			178955	09/18/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	180280	09/27/17 03:19	OAD	TAL CF
Total/NA	Analysis	SM 2540C		1	178953	09/15/17 11:20	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	178870	09/14/17 20:06	BER	TAL CF

Client Sample ID: MW-12

Lab Sample ID: 310-114283-6

Date Collected: 09/11/17 15:55

Matrix: Ground Water

Date Received: 09/14/17 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	179451	09/19/17 16:23	SAD	TAL CF
Total/NA	Analysis	9056A		20	179451	09/19/17 16:39	SAD	TAL CF
Total/NA	Prep	3010A			178955	09/18/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	180267	09/27/17 03:22	OAD	TAL CF
Total/NA	Prep	3010A			178955	09/18/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	180280	09/27/17 03:22	OAD	TAL CF
Total/NA	Analysis	SM 2540C		1	178953	09/15/17 11:20	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	178870	09/14/17 20:07	BER	TAL CF

Client Sample ID: MW-13

Lab Sample ID: 310-114283-7

Date Collected: 09/11/17 15:13

Matrix: Ground Water

Date Received: 09/14/17 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	179451	09/19/17 16:54	SAD	TAL CF
Total/NA	Analysis	9056A		20	179451	09/19/17 17:40	SAD	TAL CF
Total/NA	Prep	3010A			178955	09/18/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	180267	09/27/17 03:25	OAD	TAL CF
Total/NA	Prep	3010A			178955	09/18/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	180280	09/27/17 03:25	OAD	TAL CF

Client Sample ID: MW-13

Date Collected: 09/11/17 15:13
Date Received: 09/14/17 17:30

Lab Sample ID: 310-114283-7
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	178953	09/15/17 11:20	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	178870	09/14/17 20:09	BER	TAL CF

Client Sample ID: MW-14

Date Collected: 09/11/17 17:01
Date Received: 09/14/17 17:30

Lab Sample ID: 310-114283-8
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	179451	09/19/17 17:56	SAD	TAL CF
Total/NA	Analysis	9056A		20	179451	09/19/17 18:11	SAD	TAL CF
Total/NA	Prep	3010A			178955	09/18/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	180267	09/27/17 03:28	OAD	TAL CF
Total/NA	Prep	3010A			178955	09/18/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	180280	09/27/17 03:28	OAD	TAL CF
Total/NA	Analysis	SM 2540C		1	178953	09/15/17 11:20	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	178870	09/14/17 20:20	BER	TAL CF

Client Sample ID: MW-15

Date Collected: 09/11/17 12:48
Date Received: 09/14/17 17:30

Lab Sample ID: 310-114283-9
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	179451	09/19/17 18:26	SAD	TAL CF
Total/NA	Analysis	9056A		20	179451	09/19/17 18:42	SAD	TAL CF
Total/NA	Prep	3010A			178955	09/18/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	180267	09/27/17 03:31	OAD	TAL CF
Total/NA	Prep	3010A			178955	09/18/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	180280	09/27/17 03:31	OAD	TAL CF
Total/NA	Analysis	SM 2540C		1	178953	09/15/17 11:20	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	178870	09/14/17 20:23	BER	TAL CF

Client Sample ID: DP-01

Date Collected: 09/11/17 00:00
Date Received: 09/14/17 17:30

Lab Sample ID: 310-114283-10
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	179451	09/19/17 18:57	SAD	TAL CF
Total/NA	Analysis	9056A		20	179451	09/19/17 19:13	SAD	TAL CF
Total/NA	Prep	3010A			178955	09/18/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	180267	09/27/17 03:34	OAD	TAL CF
Total/NA	Prep	3010A			178955	09/18/17 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	180280	09/27/17 03:34	OAD	TAL CF

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Neal South CCR Monofill Detects

TestAmerica Job ID: 310-114283-1
SDG: 11114654

Client Sample ID: DP-01
Date Collected: 09/11/17 00:00
Date Received: 09/14/17 17:30

Lab Sample ID: 310-114283-10
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	178953	09/15/17 11:20	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	178870	09/14/17 20:25	BER	TAL CF

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South CCR Monofill Detects

TestAmerica Job ID: 310-114283-1
SDG: 11114654

Laboratory: TestAmerica Cedar Falls

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
AIHA-LAP, LLC	IHLAP		101044	11-01-18
Georgia	State Program	4	IA100001 (OR)	09-29-17 *
Illinois	NELAP	5	200024	11-29-17
Iowa	State Program	7	007	12-01-17 *
Kansas	NELAP	7	E-10341	01-31-18
Minnesota	NELAP	5	019-999-319	12-31-17
Minnesota (Petrofund)	State Program	1	3349	08-22-17 *
North Dakota	State Program	8	R-186	09-29-17 *
Oregon	NELAP	10	IA100001	09-29-17 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: GHD Services Inc.
Project/Site: MEC Neal South CCR Monofill Detects

TestAmerica Job ID: 310-114283-1
SDG: 11114654

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CF
SM 4500 H+ B	pH	SM	TAL CF

Protocol References:

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 CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-114283 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: Des Moines, IA | Project:

Receipt Information

Date/Time Received: 9/14/17 1730 | Received By: JS

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☒ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID: IR

Multiple Coolers? ☐ Yes ☒ No *If yes:* Cooler # ____ of ____

Cooler Custody Seals Present? ☒ Yes ☐ No *If yes:* Cooler custody seals intact? ☒ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: 4 | Correction Factor (°C): 0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 3.9 | Corrected Temp (°C): 3.9

• **Sample Container Temperature**

Sample ID(s) & bottle type used:

Uncorrected Temp (°C): | Corrected Temp (°C):

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

#25435

TestAmerica Cedar Falls
764 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Tim Wineland	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No:
Client Contact: Kevin Armstrong	Phone: 515 710 8336	E-Mail: shawn.hayes@testamericainc.com		Page: 1 of 1
Company: GHD Services Inc.				Job #: 11114654
Address: 11228 Aurora Avenue	Due Date Requested:			
City: Des Moines	TAT Requested (days): Standard			
State, Zip: IA, 50322-7905				
Phone: 515-414-3935	PO #: 34003921			
Email: Kevin.Armstrong@ghd.com	WO #:			
Project Name: MEC Neal South CCR Monofill Detects	TestAMerica Project #: 31007315			
Projct Number: 11114654	SSOW#: 11114654-002			

Analysis Requested

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, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020 Boron and Calcium	2540C TDS	9056A Chloride, Sulfate, and Fluoride	SM4500 H+ pH	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	N		
MW-2	9-11-17	1435	G	GW	N	Y	X	X	X	X		3x vol for MS/MSD
MW-4	9-11-17	1205	G	GW	N	N	X	X	X	X		
MW-8	9-11-17	1315	G	GW	N	N	X	X	X	X		
MW-10	9-11-17	1350	G	GW	N	N	X	X	X	X		
MW-11	9-11-17	1626	G	GW	N	N	X	X	X	X		
MW-12	9-11-17	1555	G	GW	N	N	X	X	X	X		
MW-13	9-11-17	1513	G	GW	N	N	X	X	X	X		
MW-14	9-11-17	1711	G	GW	N	N	X	X	X	X		
MW-15	9-11-17	1248	G	GW	N	N	X	X	X	X		
DP-01	9-11-17	—	G	GW	N	N	X	X	X	X		

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

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

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Report all parameters together with Radiologicals

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: Tim Wineland	Date/Time: 9-14-17 1400	Company: GHD	Received by:	Date/Time: 9/14/17 1400	Company: TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by: JS	Date/Time: 9/19/17 1730	Company: TA

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

9/27/2017

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW-2	310-114283-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-2	310-114283-A-1 MS	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-2	310-114283-A-1 MSD	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-4	310-114283-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-8	310-114283-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-10	310-114283-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-11	310-114283-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-12	310-114283-A-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-13	310-114283-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-14	310-114283-A-8	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-15	310-114283-A-9	Plastic 250ml - with Nitric Acid	<2	_____	_____
DP-01	310-114283-A-10	Plastic 250ml - with Nitric Acid	<2	_____	_____

Login Sample Receipt Checklist

Client: GHD Services Inc.

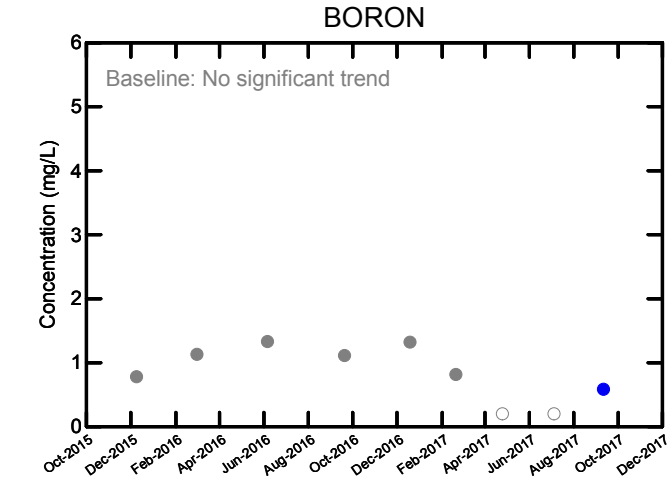
Job Number: 310-114283-1
SDG Number: 11114654

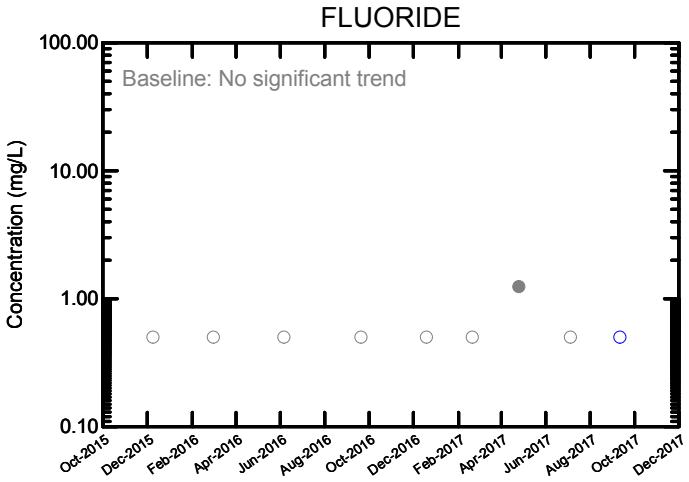
Login Number: 114283
List Number: 1
Creator: Patrick, Kathryn E

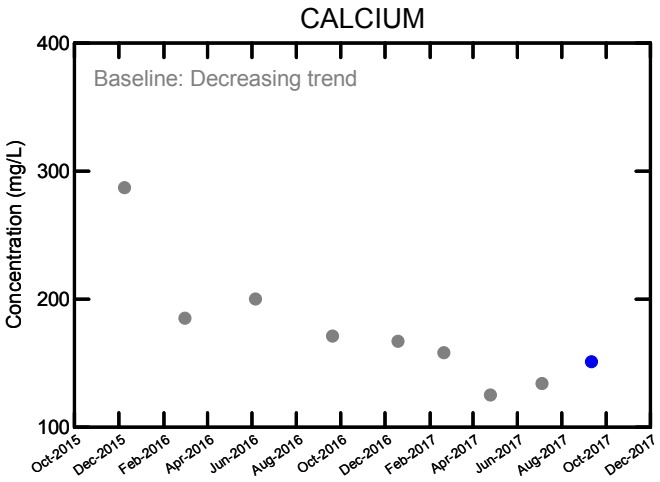
List Source: TestAmerica Cedar Falls

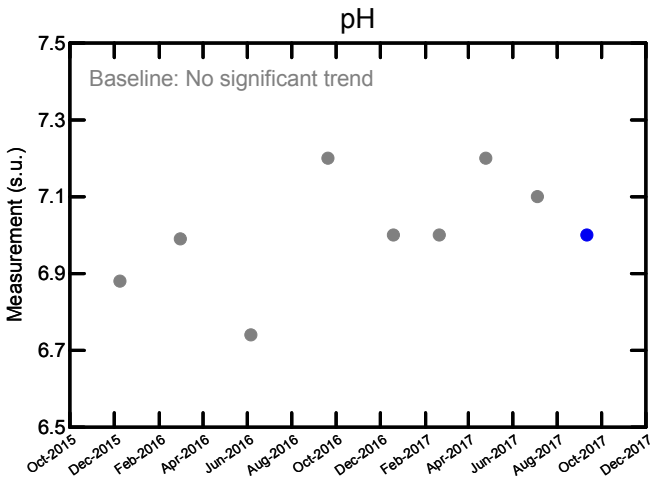
Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
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 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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

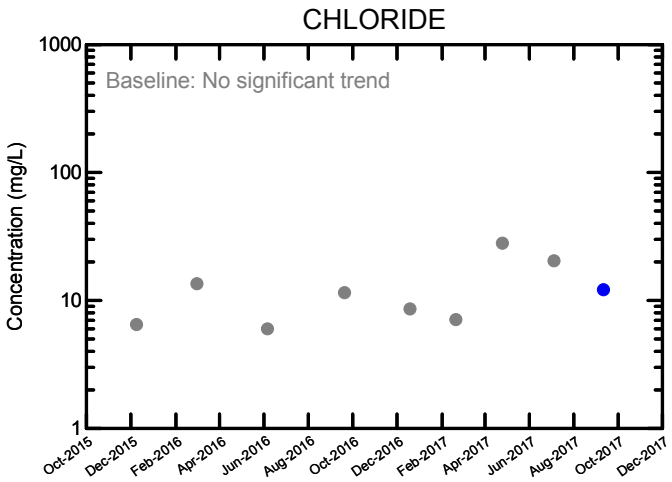
Appendix C
Time Series Graphs











Legend:

- ● Detected result
- ○ Non-detect (plotted at detection limit)

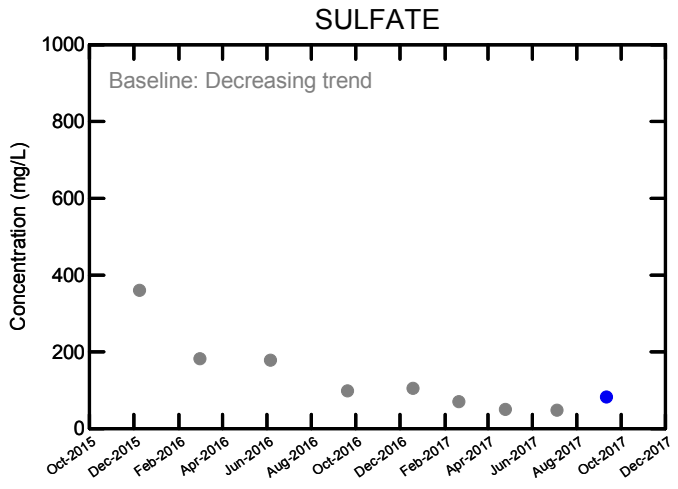
Baseline data are indicated by gray coloring

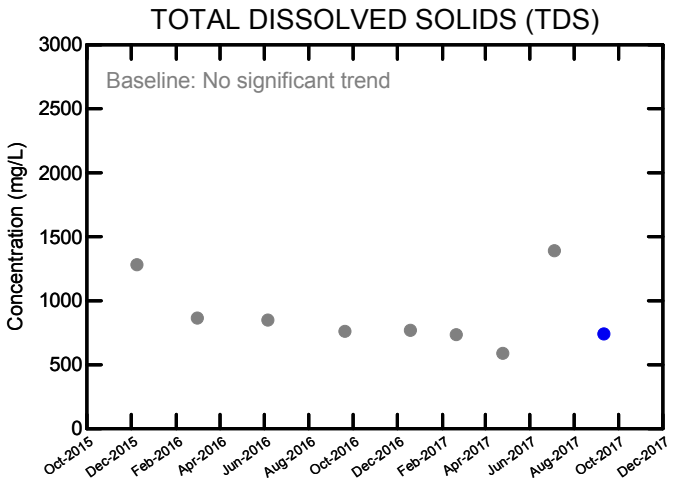
Notes:

1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

figure 1.a

MW-2 -- Appendix III Parameters
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa





Legend:

● Detected result

○ Non-detect (plotted at detection limit)

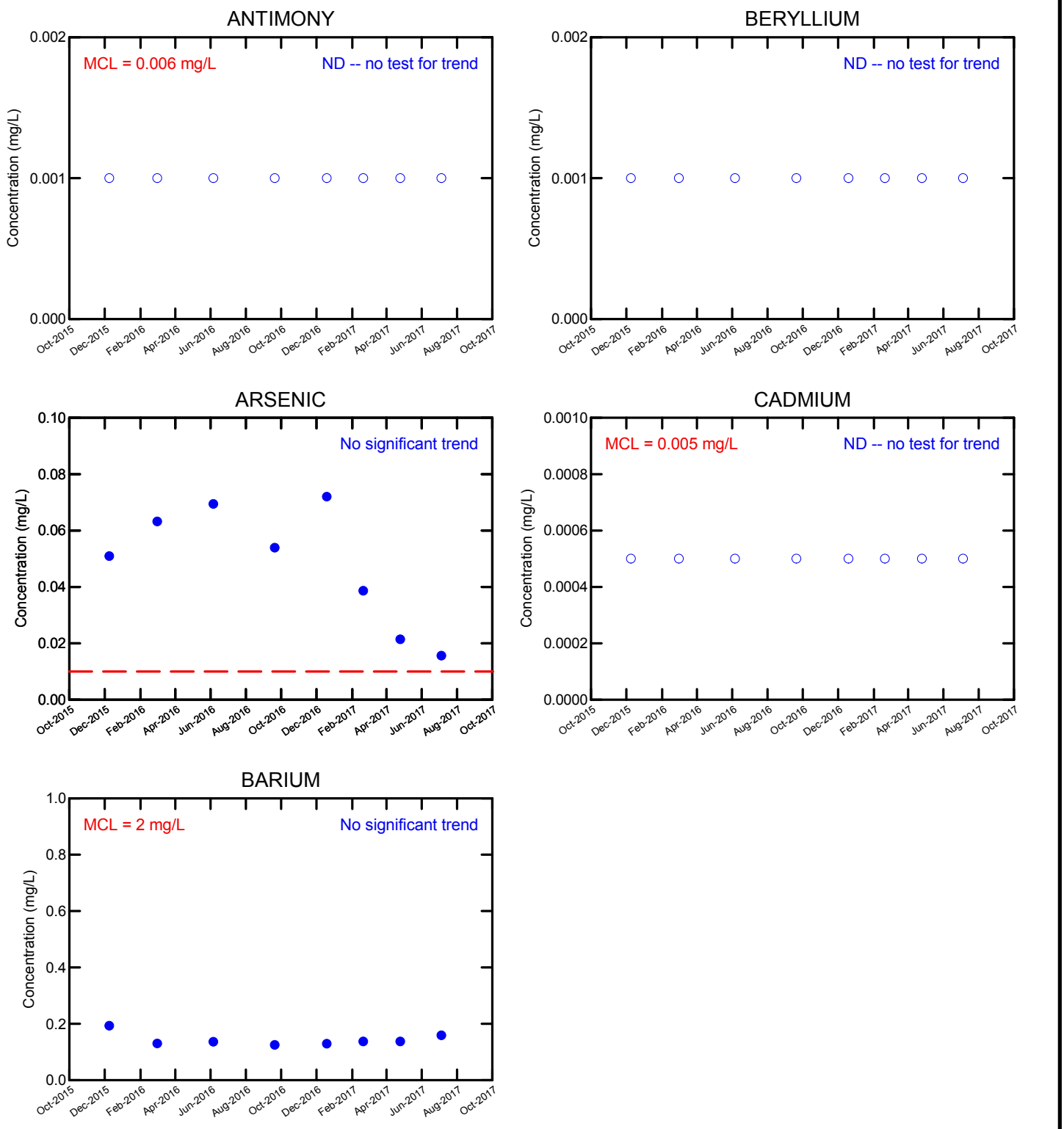
Baseline data are indicated by gray coloring

Notes:

1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

figure 1.b

MW-2 -- Appendix III Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa



Legend:

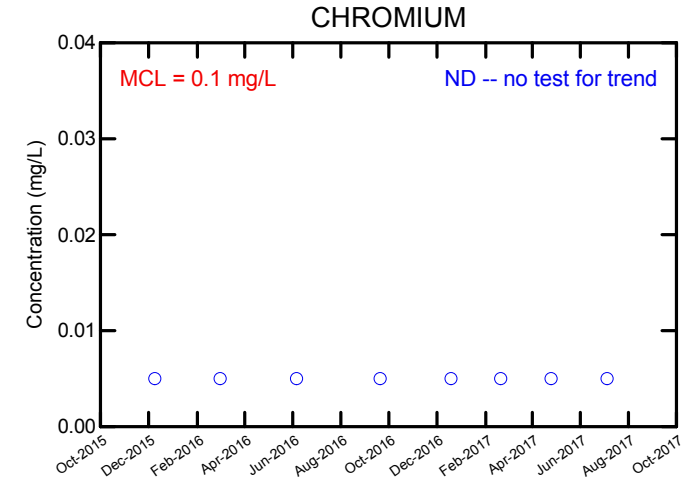
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

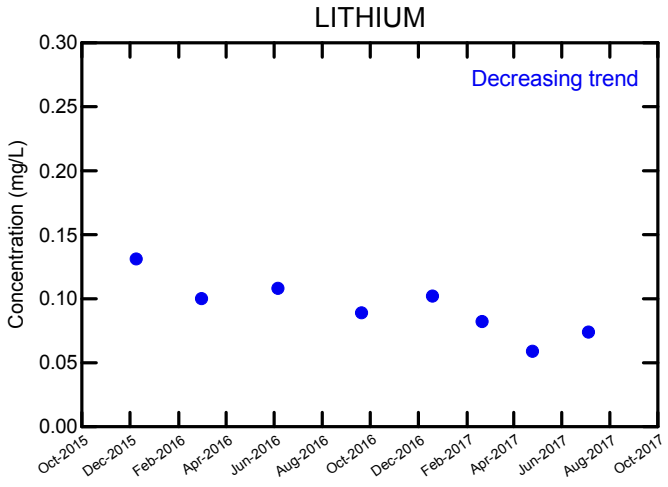
Notes:

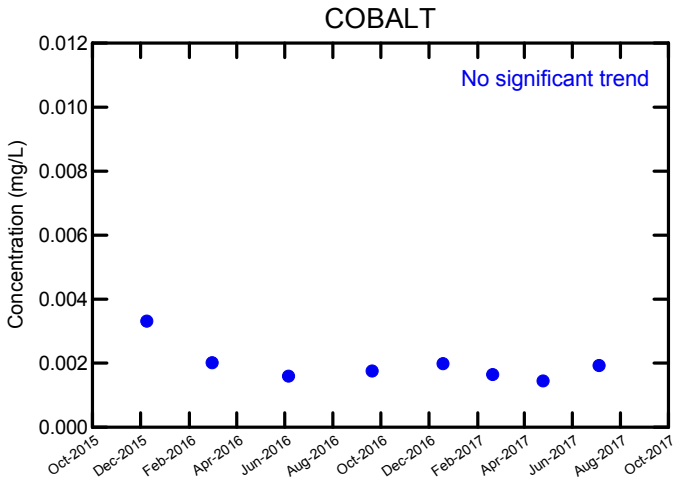
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

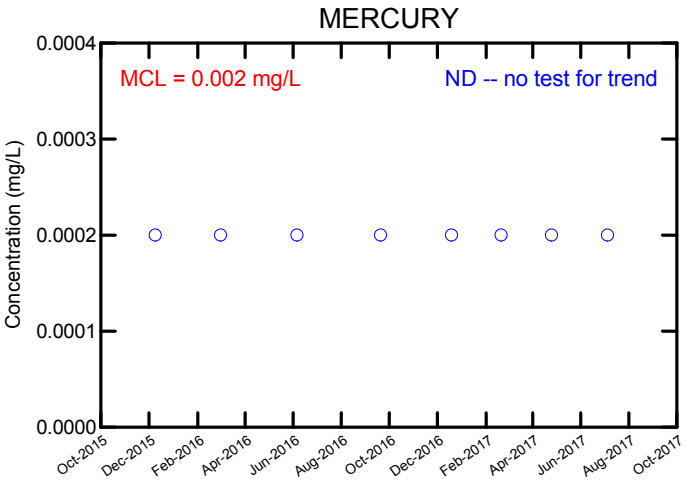
figure 1.c

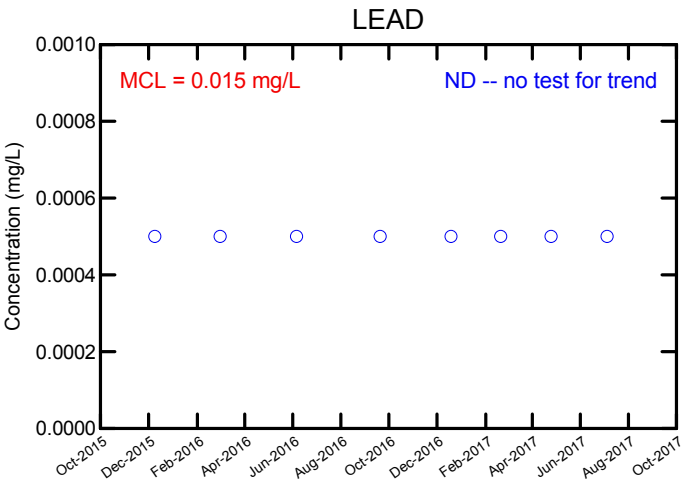
MW-2 -- Appendix IV Parameters
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa











Legend:

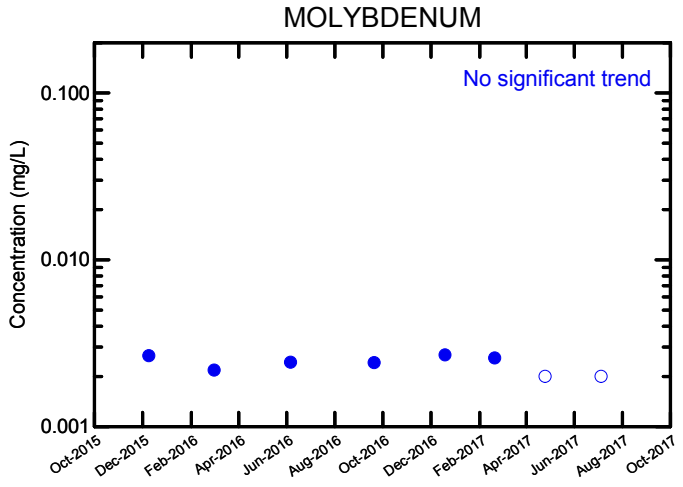
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

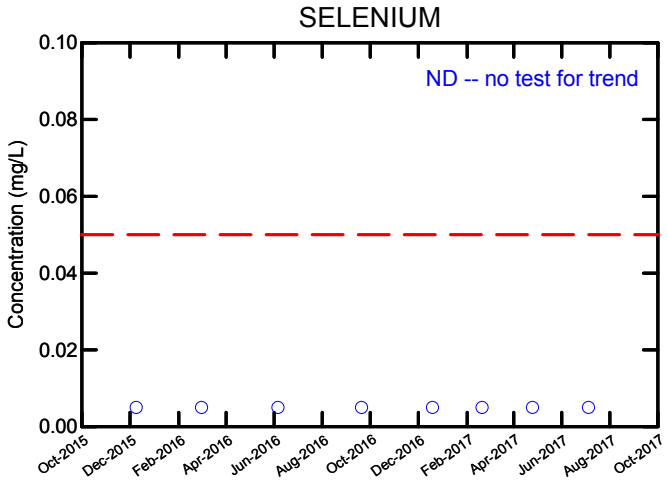
Notes:

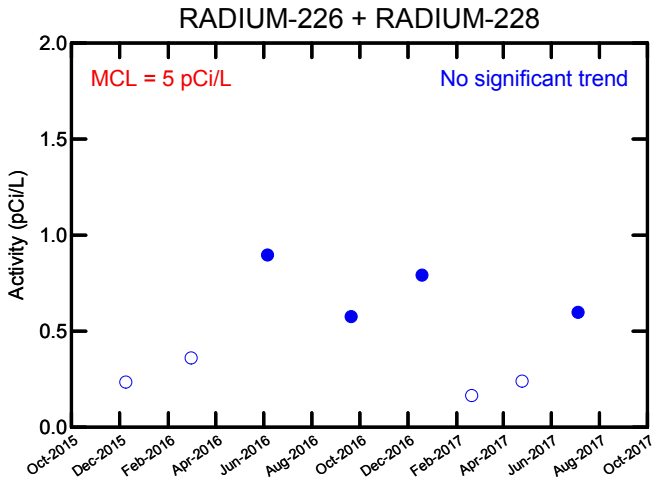
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

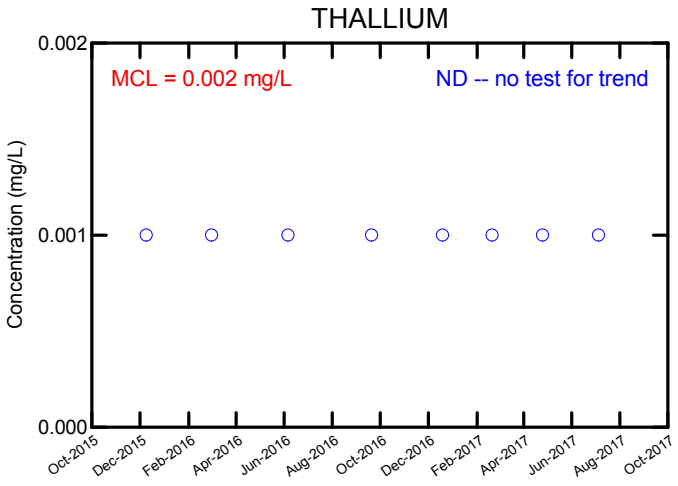
figure 1.d

MW-2 -- Appendix IV Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa









Legend:

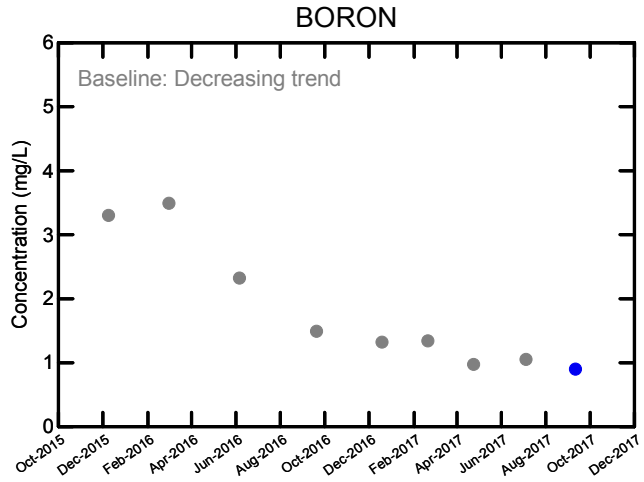
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

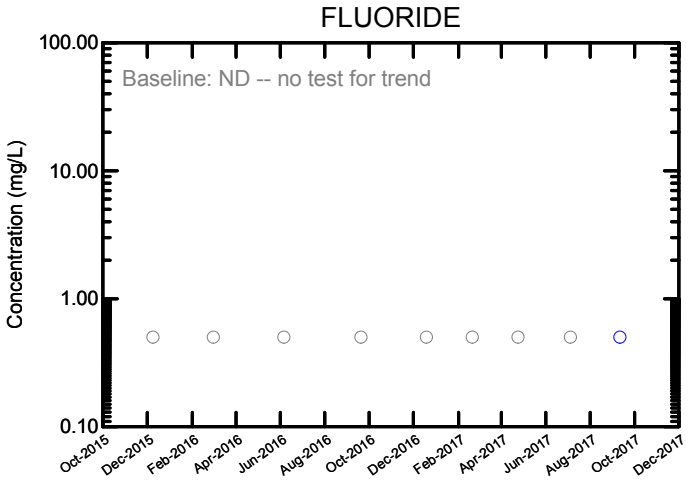
Notes:

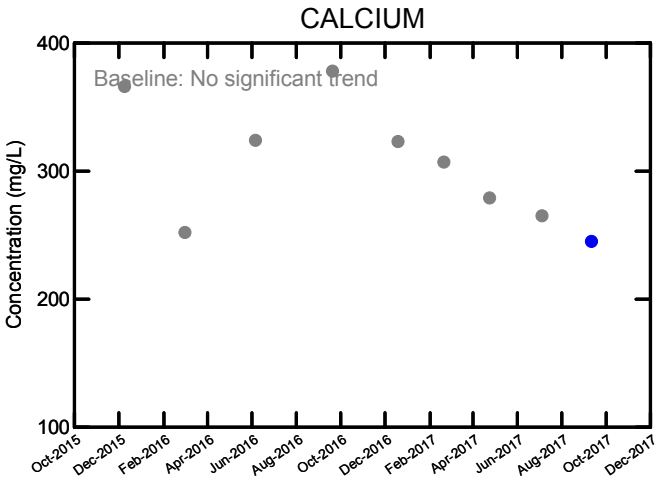
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

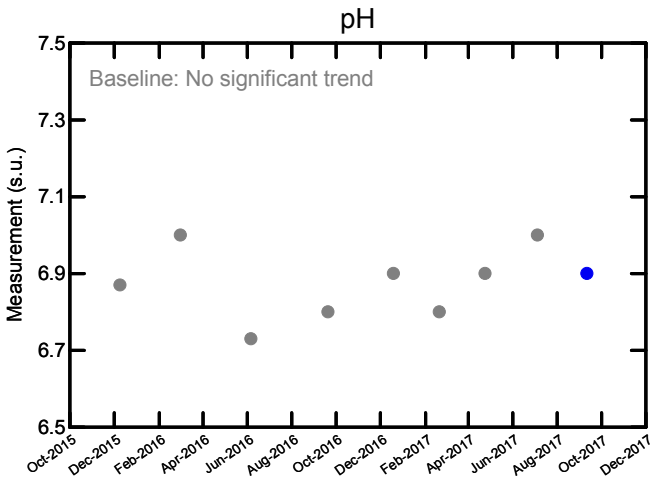
figure 1.e

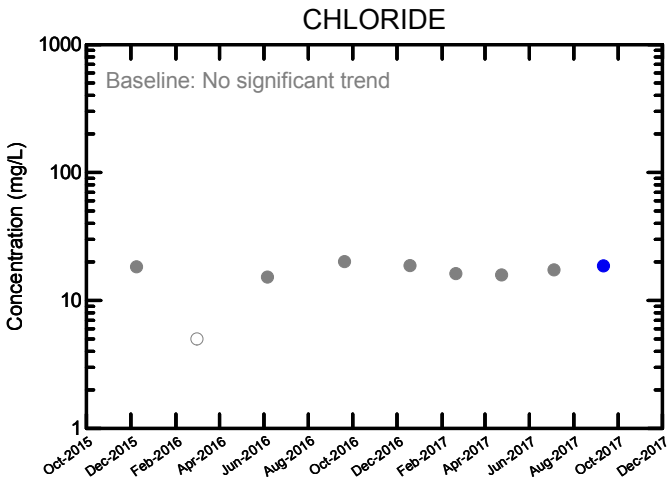
MW-2 -- Appendix IV Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa











Legend:

● Detected result

○ Non-detect (plotted at detection limit)

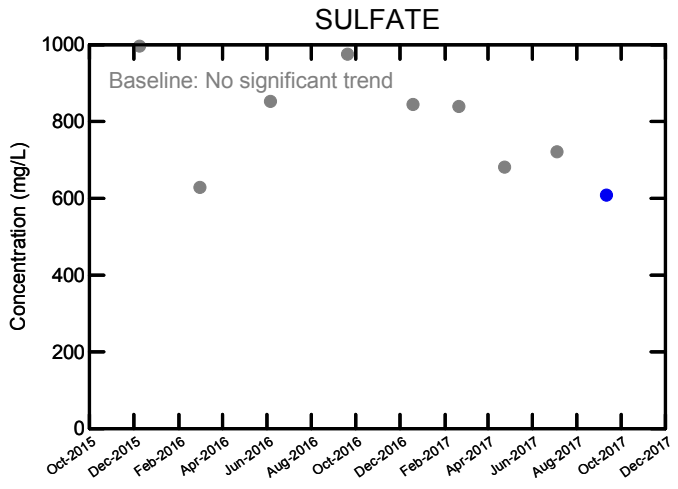
Baseline data are indicated by gray coloring

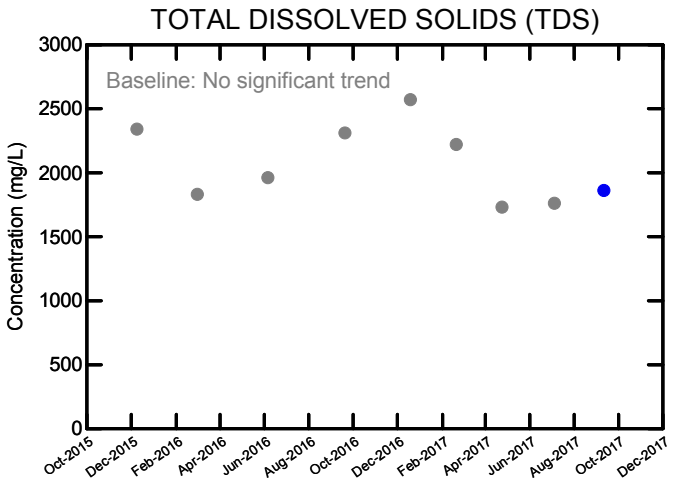
Notes:

1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

figure 2.a

MW-4 -- Appendix III Parameters
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa





Legend:

● Detected result

○ Non-detect (plotted at detection limit)

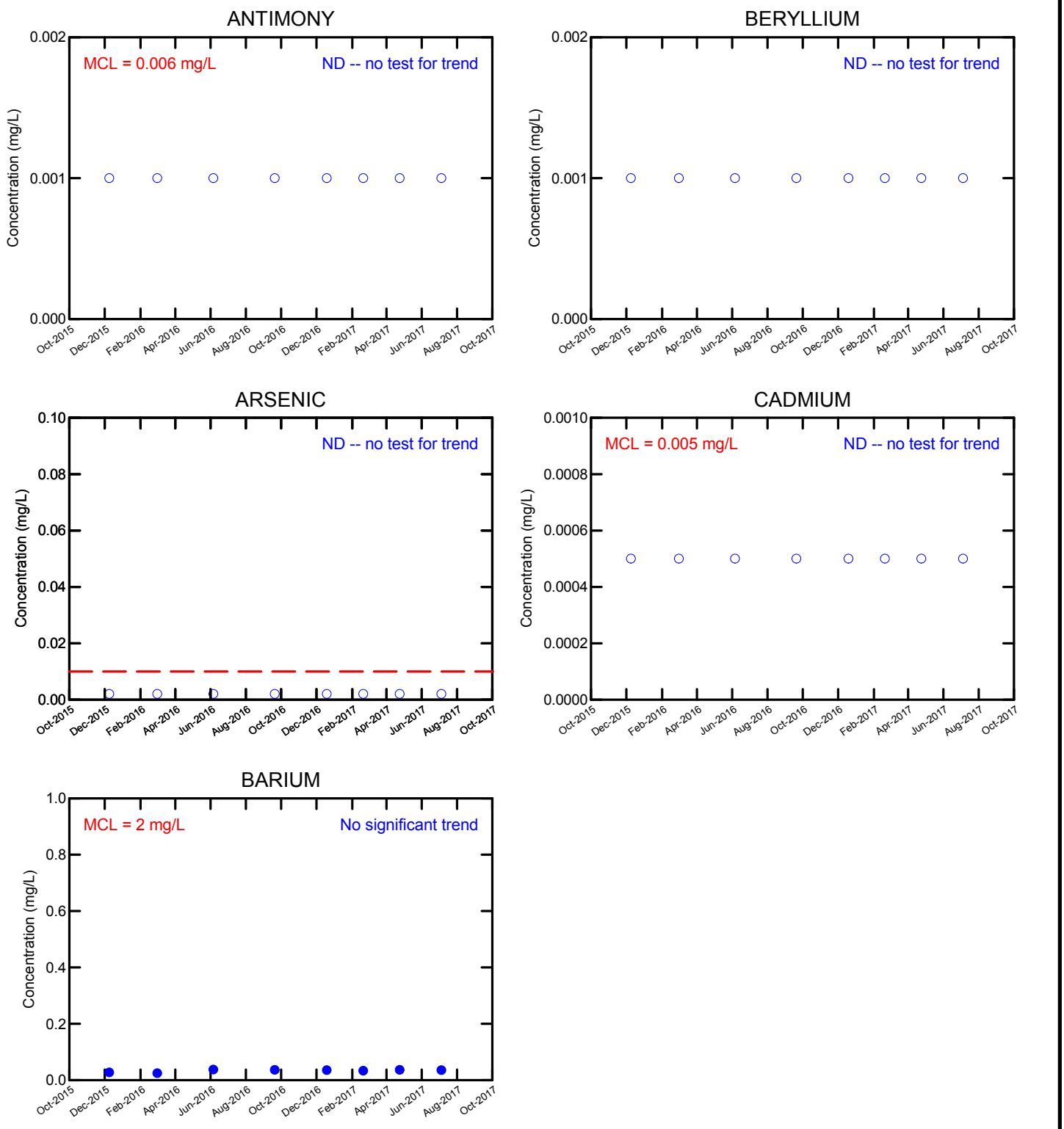
Baseline data are indicated by gray coloring

Notes:

1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

figure 2.b

MW-4 -- Appendix III Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa



Legend:

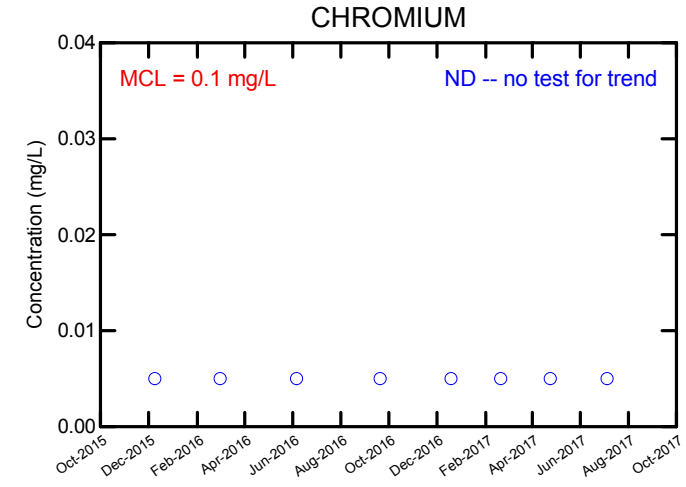
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

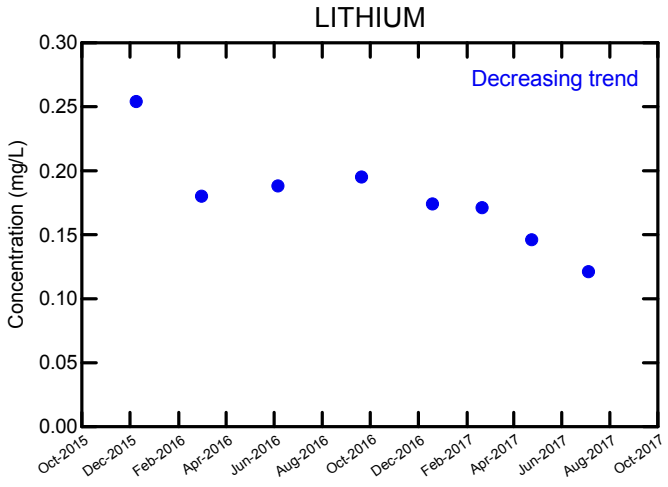
Notes:

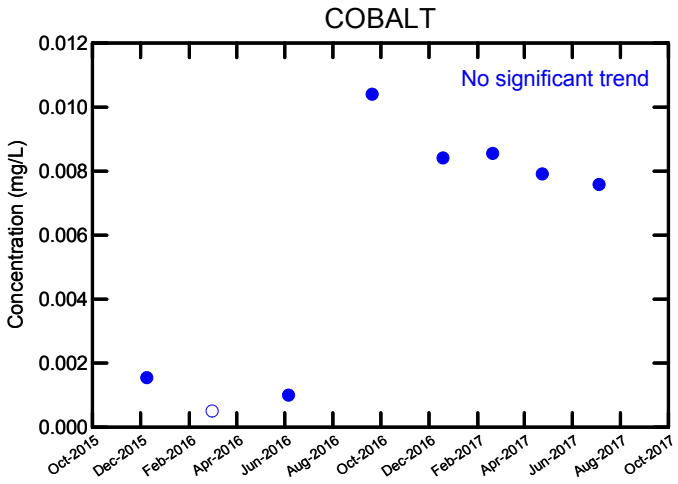
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

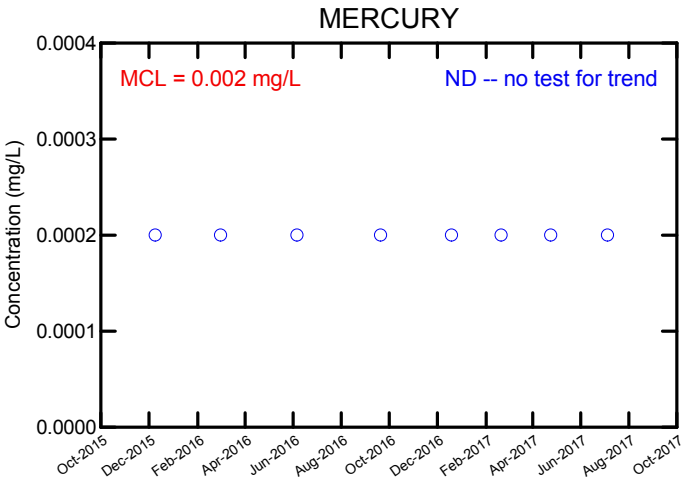
figure 2.c

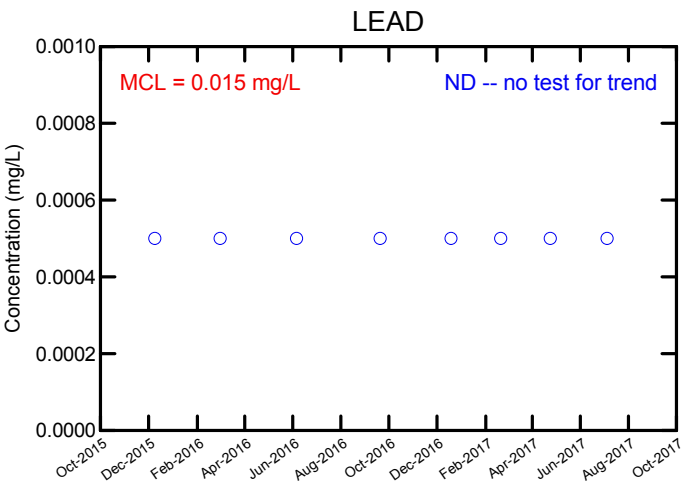
MW-4 -- Appendix IV Parameters
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa











Legend:

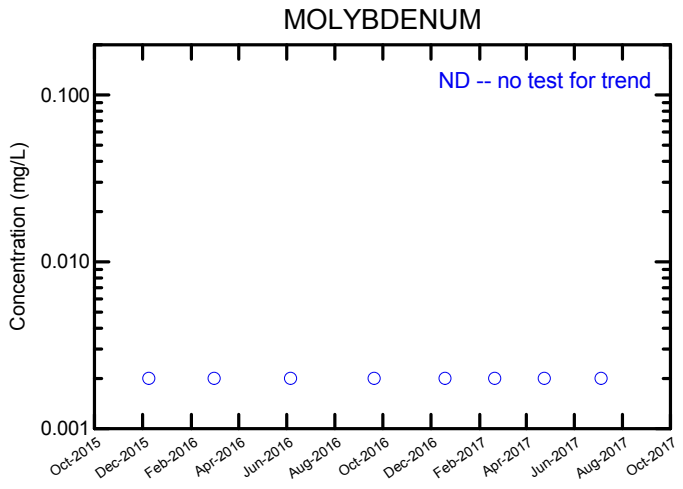
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

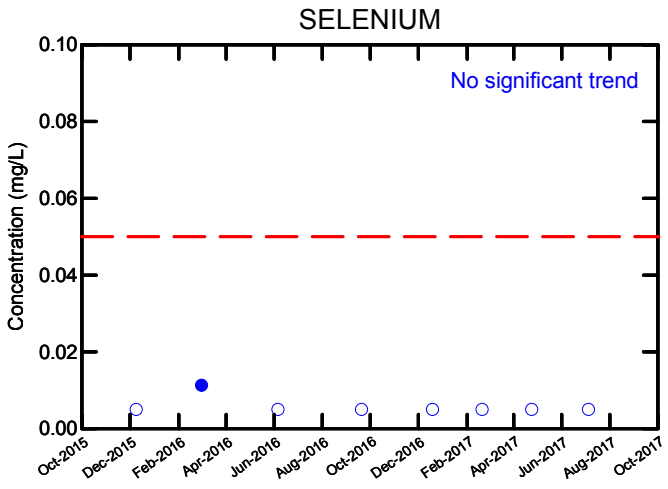
Notes:

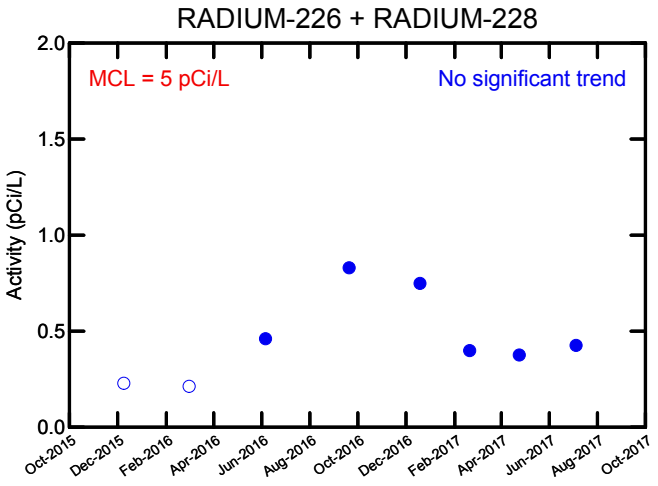
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

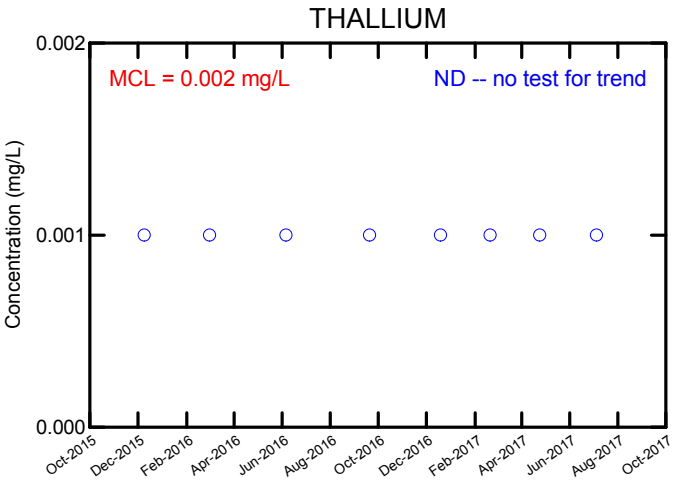
figure 2.d

MW-4 -- Appendix IV Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa









Legend:

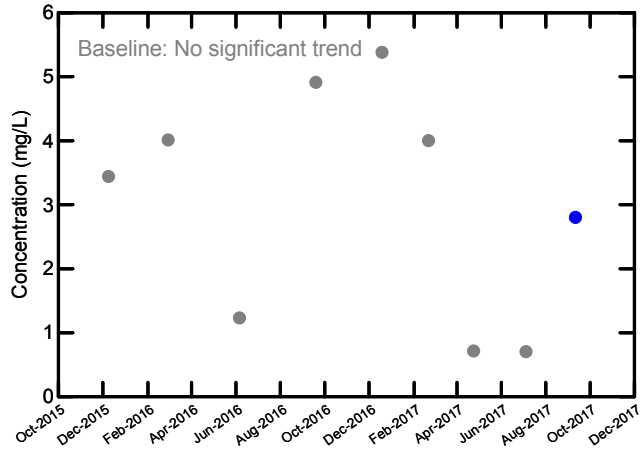
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

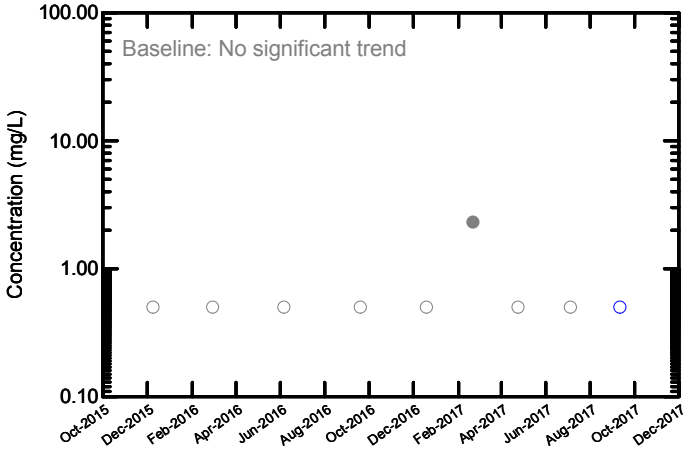
Notes:

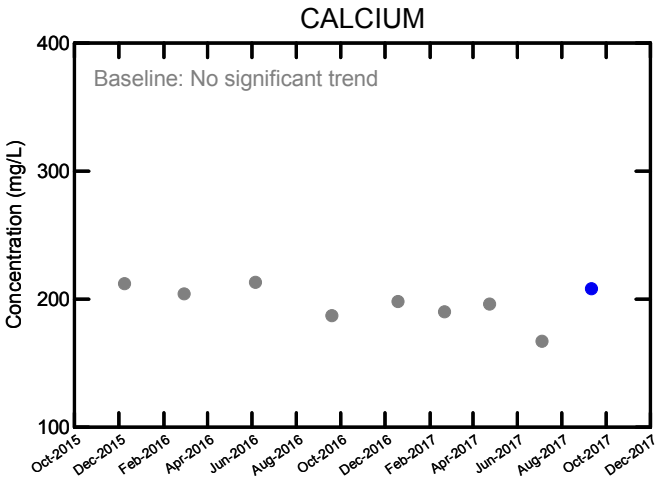
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

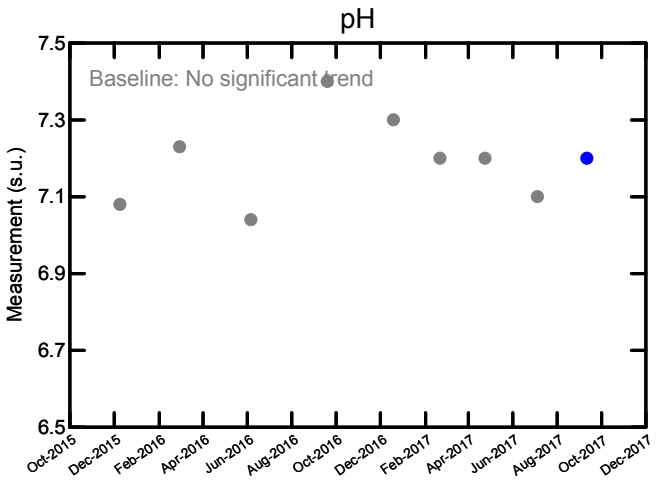
figure 2.e

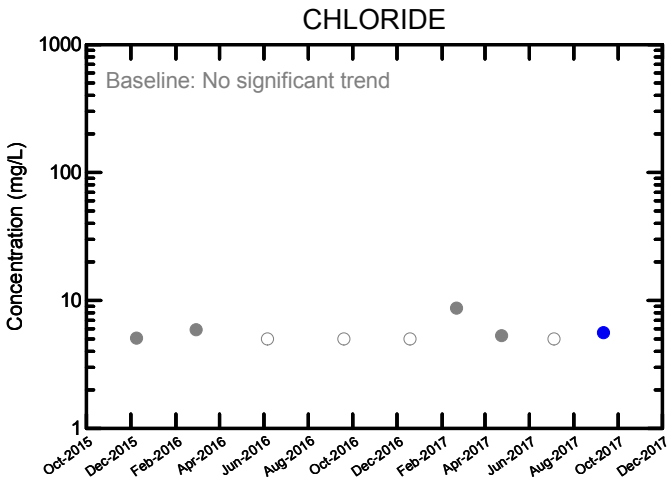
MW-4 -- Appendix IV Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa











Legend:

● Detected result

○ Non-detect (plotted at detection limit)

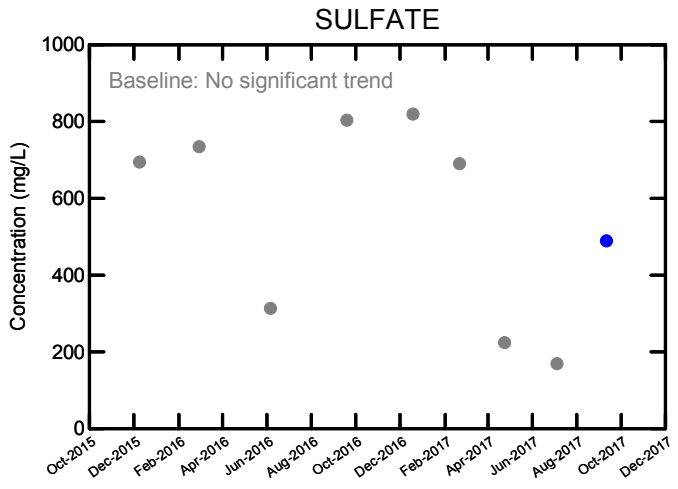
Baseline data are indicated by gray coloring

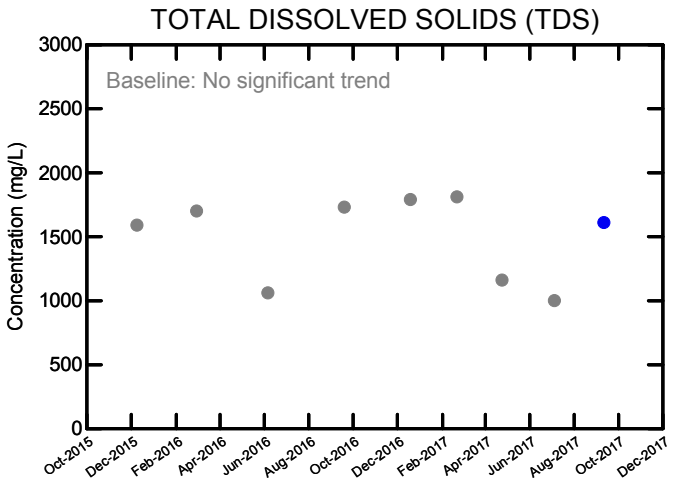
Notes:

1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

figure 3.a

MW-8 -- Appendix III Parameters
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa





Legend:

● Detected result

○ Non-detect (plotted at detection limit)

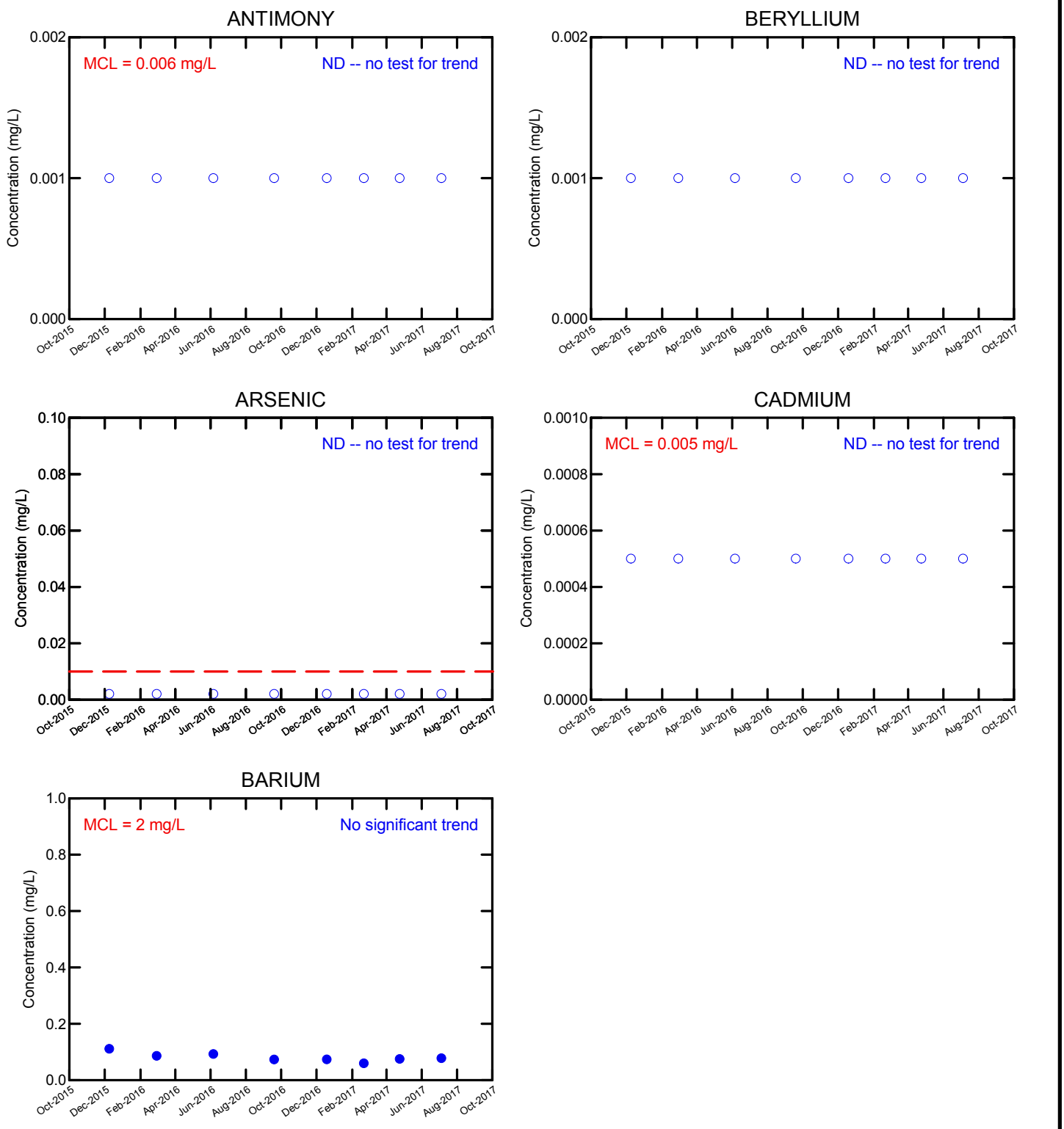
Baseline data are indicated by gray coloring

Notes:

1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

figure 3.b

MW-8 -- Appendix III Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa



Legend:

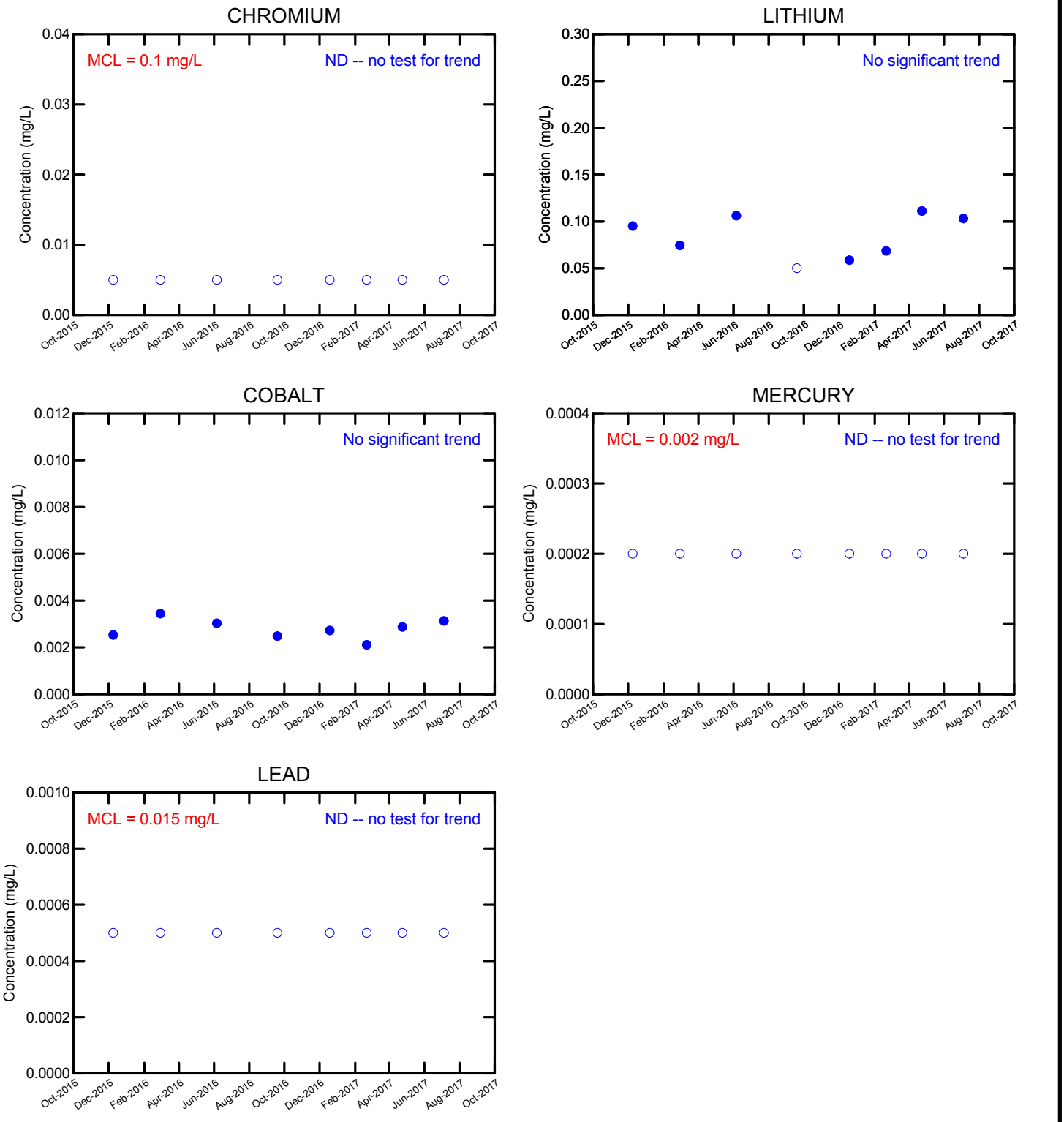
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

Notes:

1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

figure 3.c

MW-8 -- Appendix IV Parameters
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa



Legend:

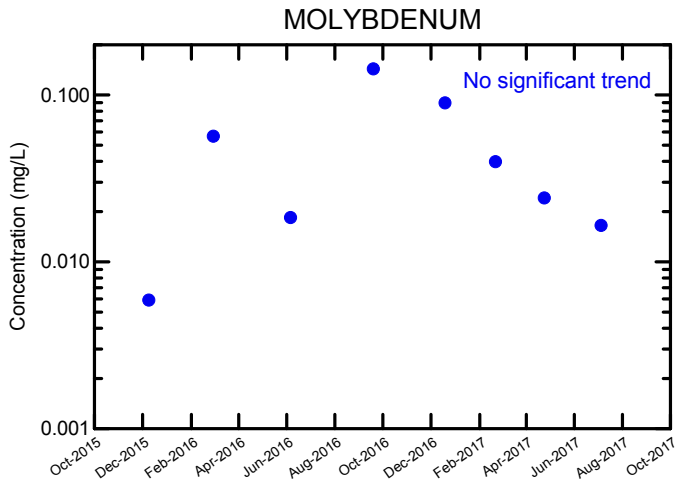
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

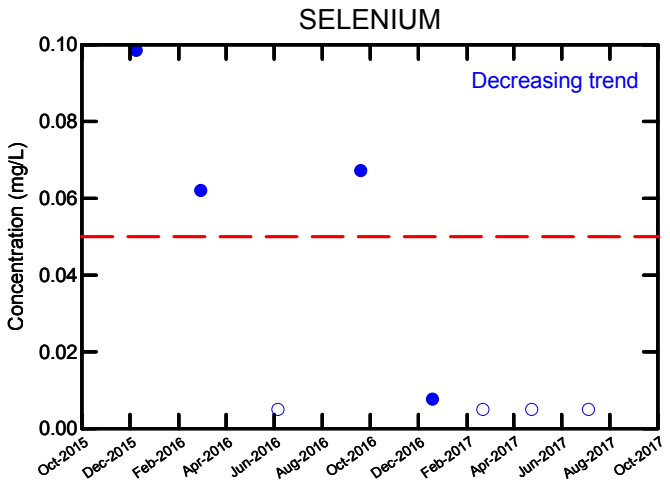
Notes:

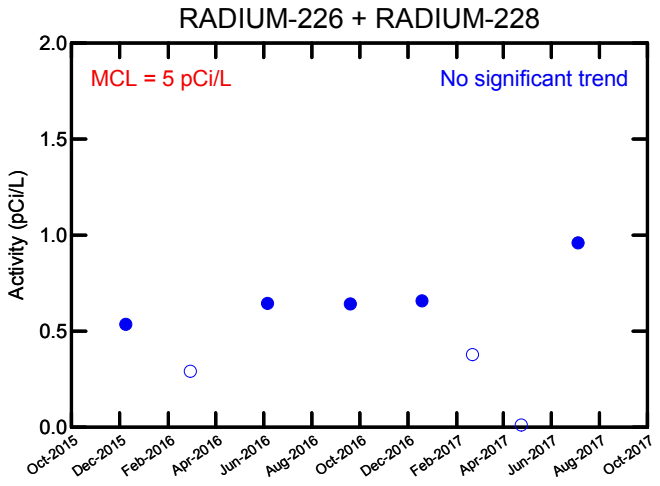
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

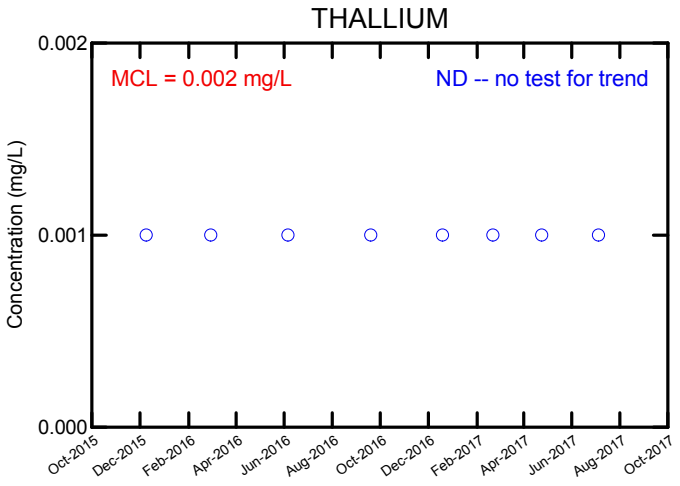
figure 3.d

MW-8 -- Appendix IV Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa









Legend:

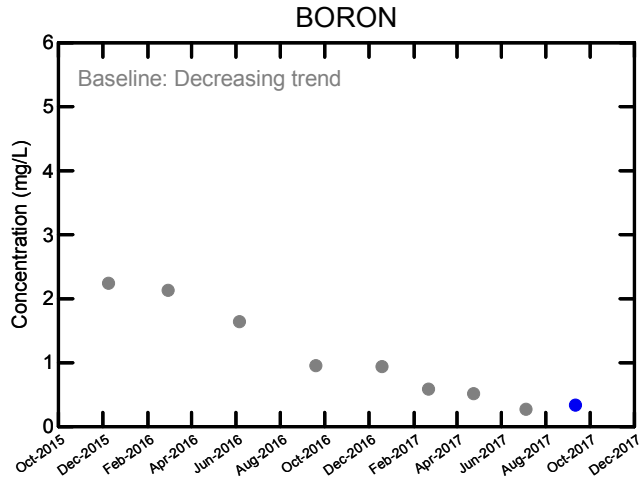
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

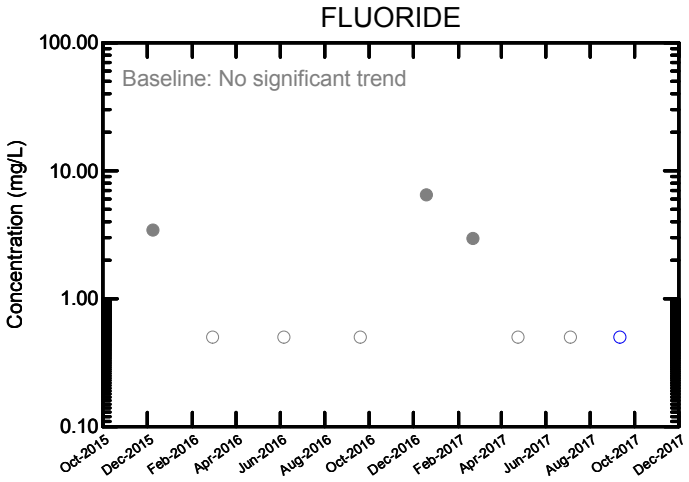
Notes:

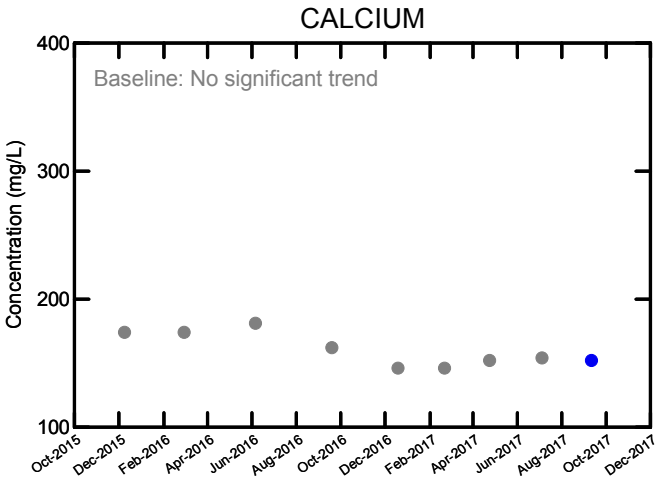
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

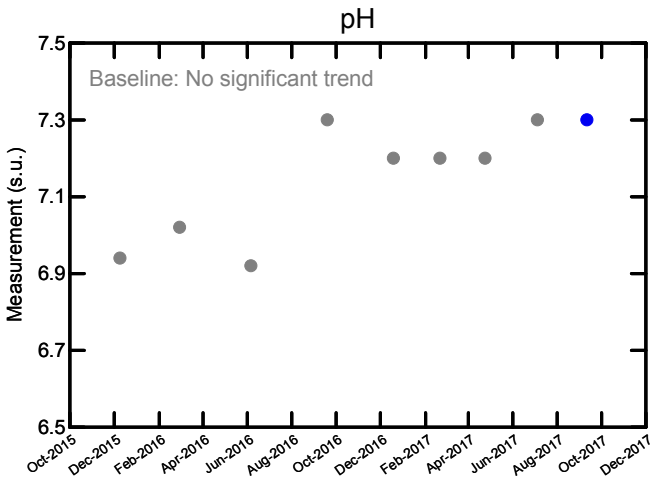
figure 3.e

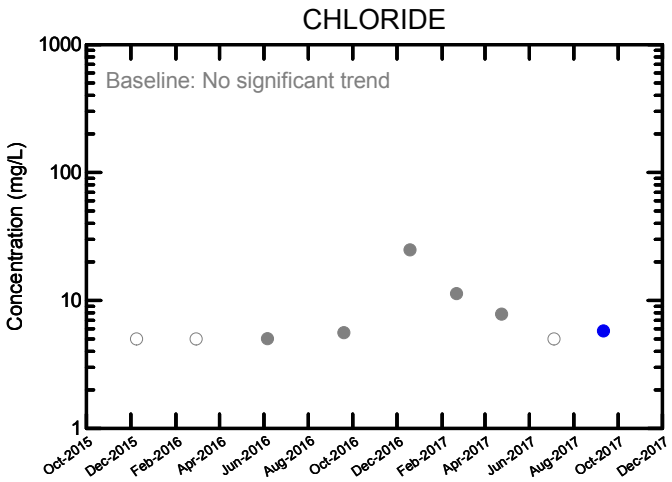
MW-8 -- Appendix IV Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa











Legend:

● Detected result

○ Non-detect (plotted at detection limit)

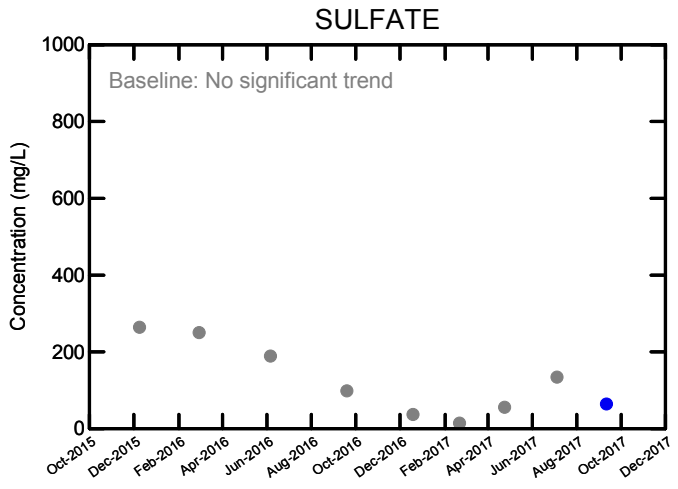
Baseline data are indicated by gray coloring

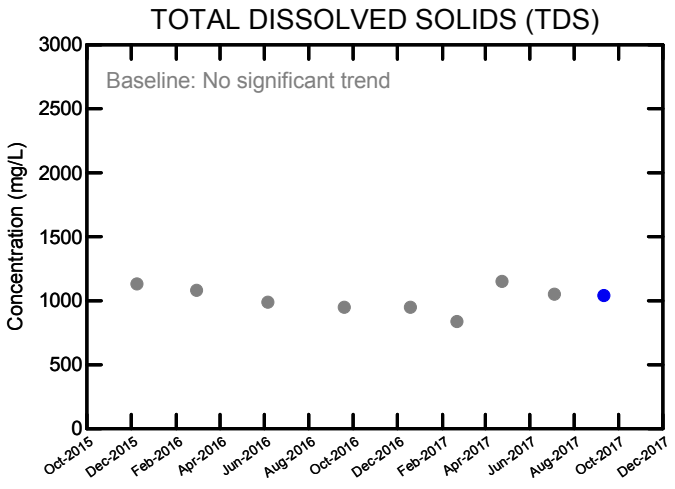
Notes:

1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

figure 4.a

MW-10 -- Appendix III Parameters
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa





Legend:

● Detected result

○ Non-detect (plotted at detection limit)

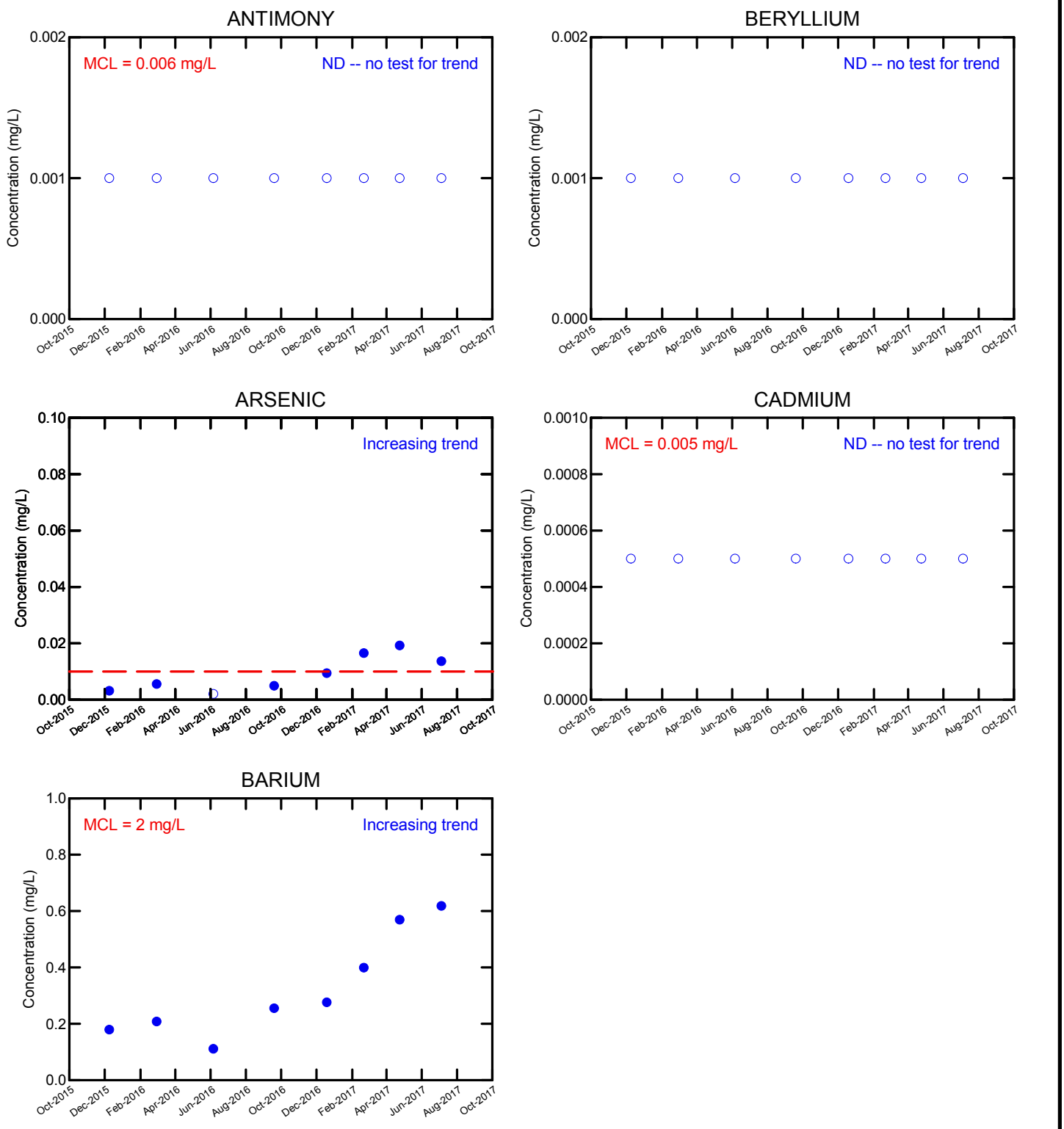
Baseline data are indicated by gray coloring

Notes:

1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

figure 4.b

MW-10 -- Appendix III Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa



Legend:

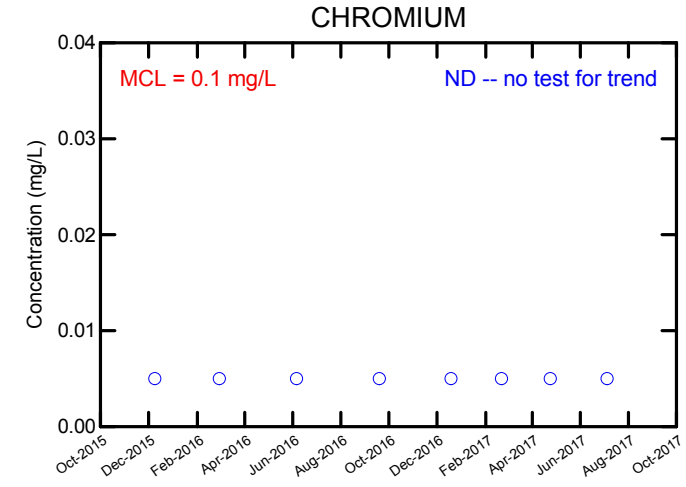
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

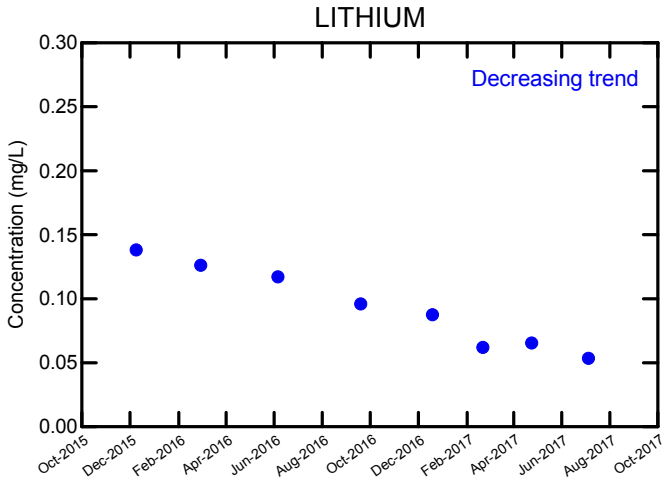
Notes:

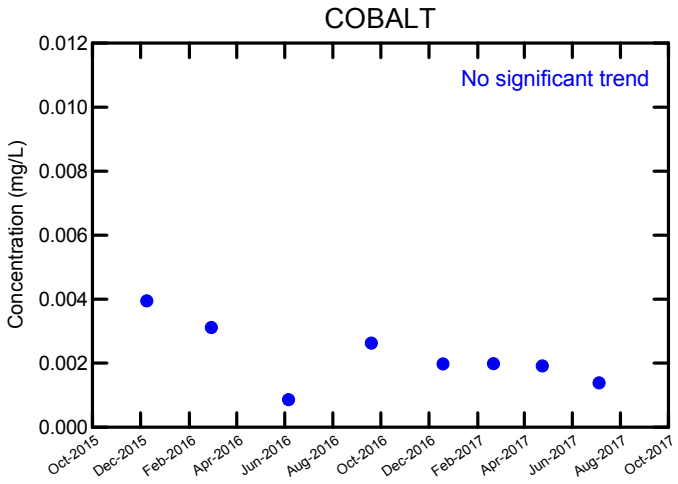
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

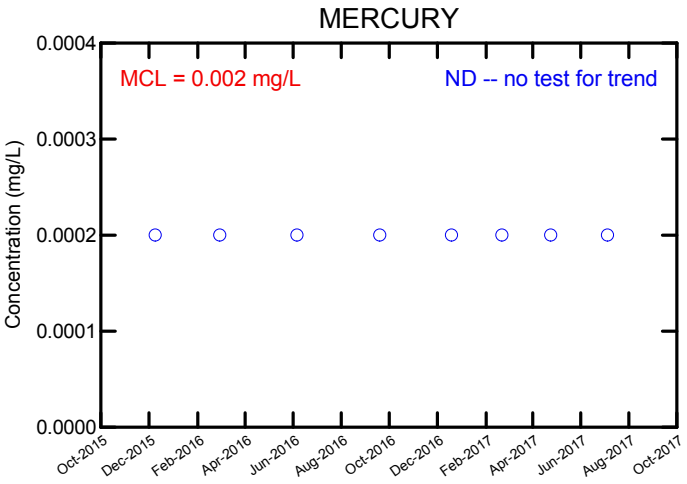
figure 4.c

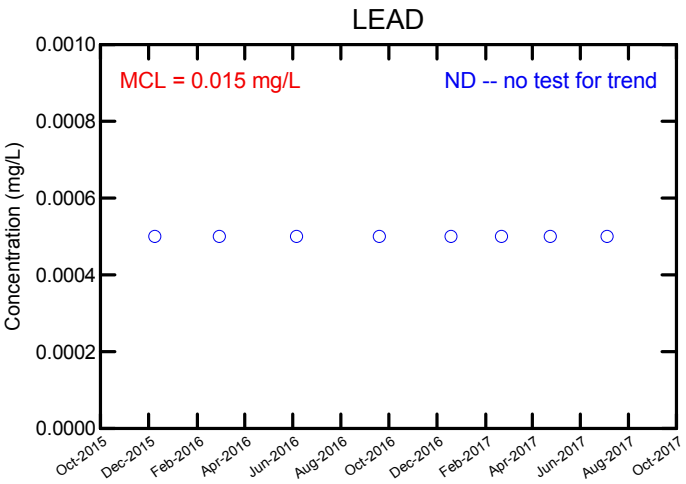
MW-10 -- Appendix IV Parameters
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa











Legend:

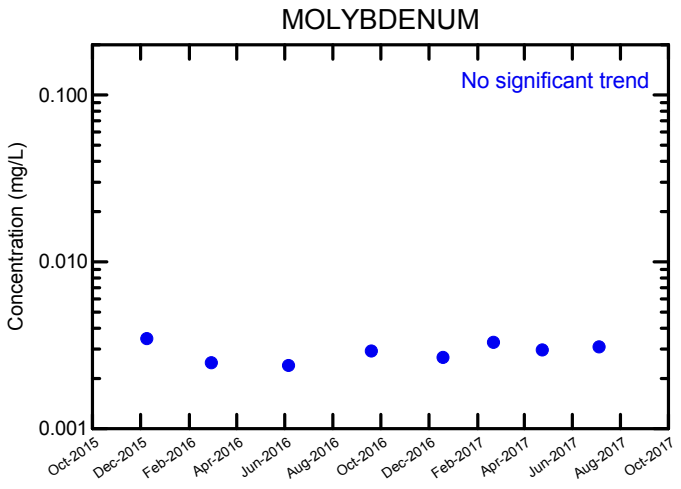
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

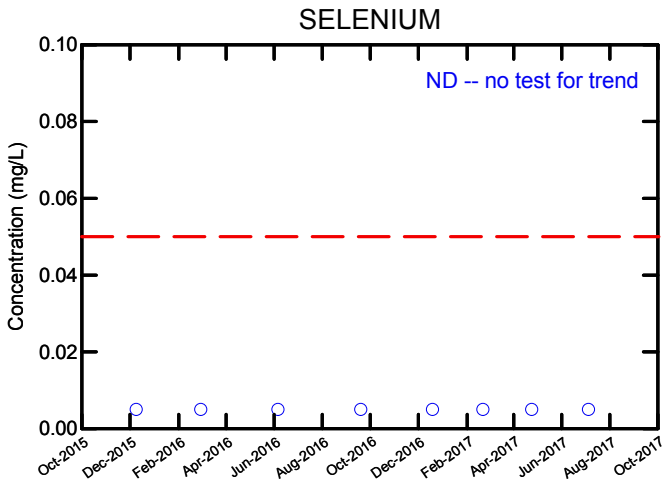
Notes:

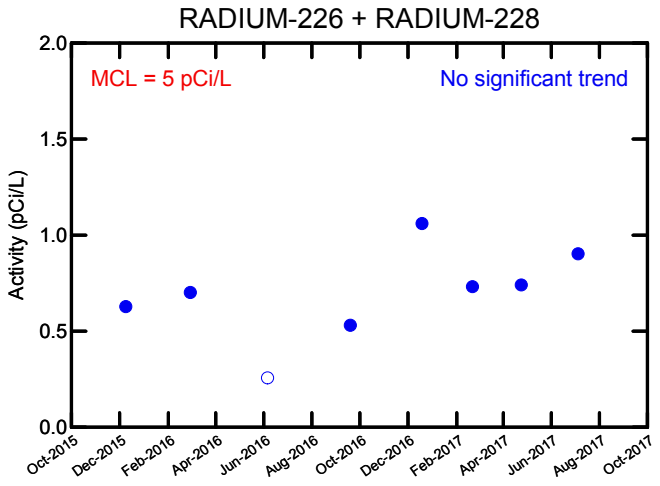
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

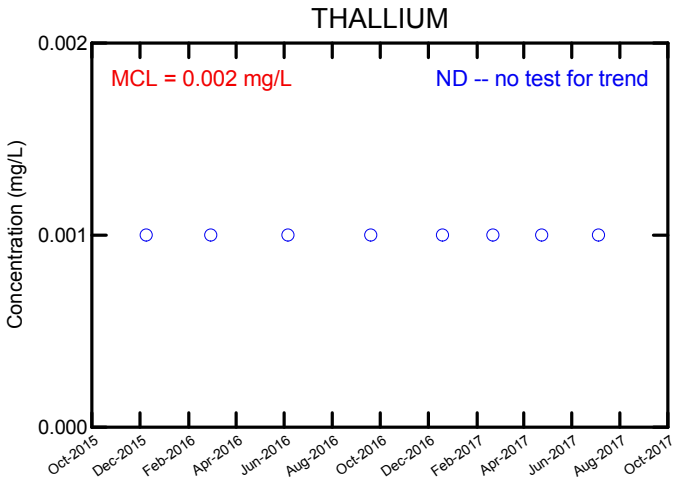
figure 4.d

MW-10 -- Appendix IV Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa









Legend:

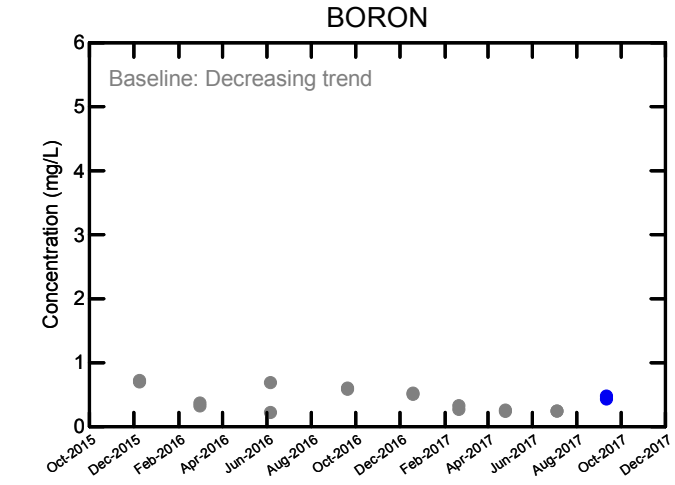
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

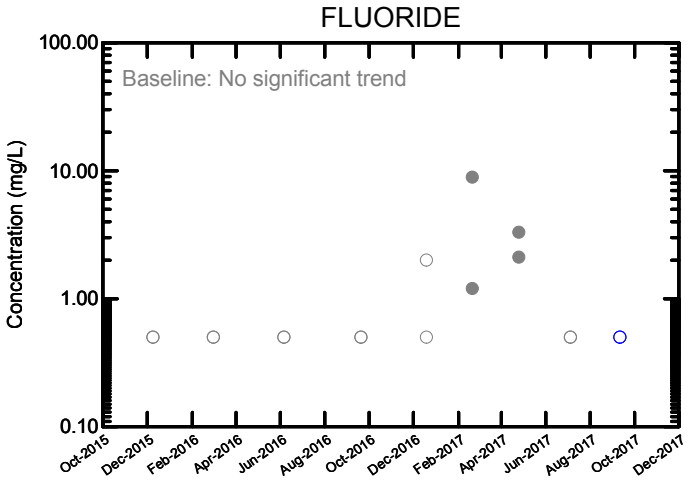
Notes:

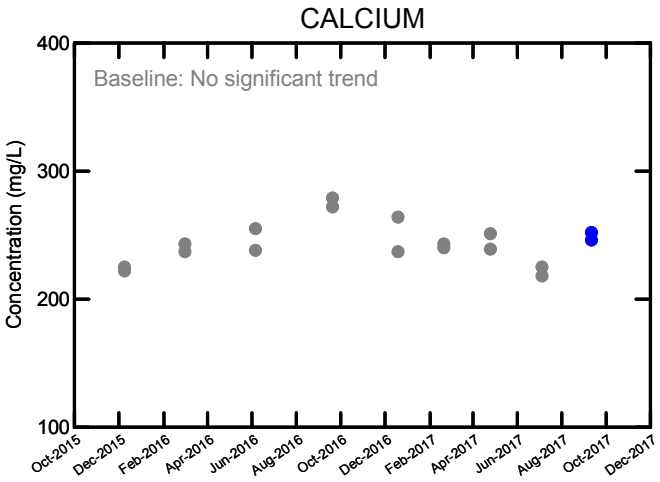
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

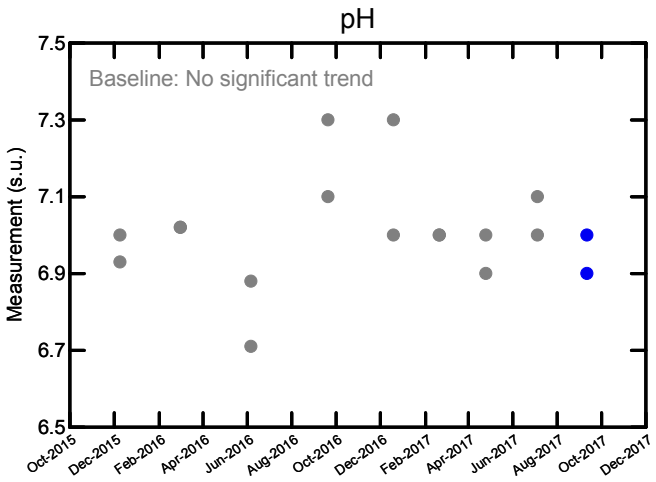
figure 4.e

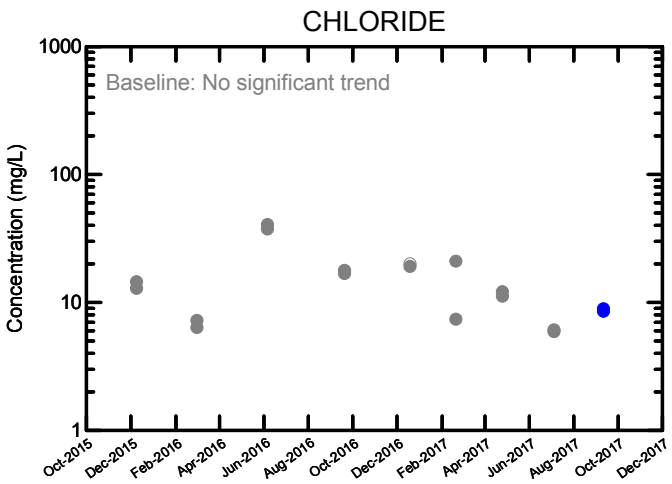
MW-10 -- Appendix IV Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa











Legend:

- ● Detected result
- ○ Non-detect (plotted at detection limit)

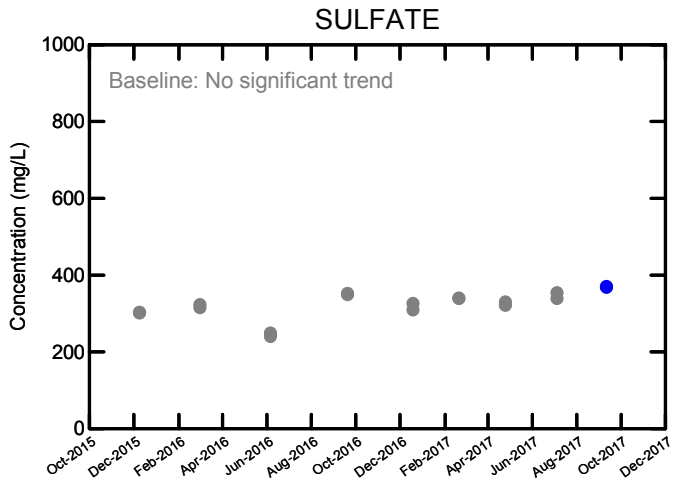
Baseline data are indicated by gray coloring

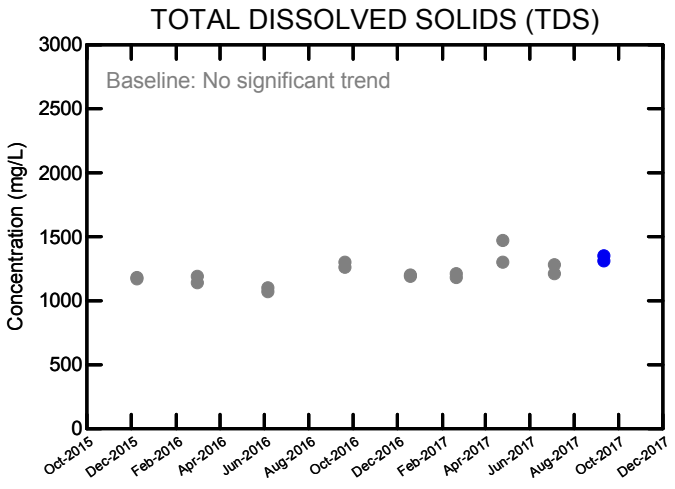
Notes:

1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

figure 5.a

MW-11 -- Appendix III Parameters
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa





Legend:

● Detected result

○ Non-detect (plotted at detection limit)

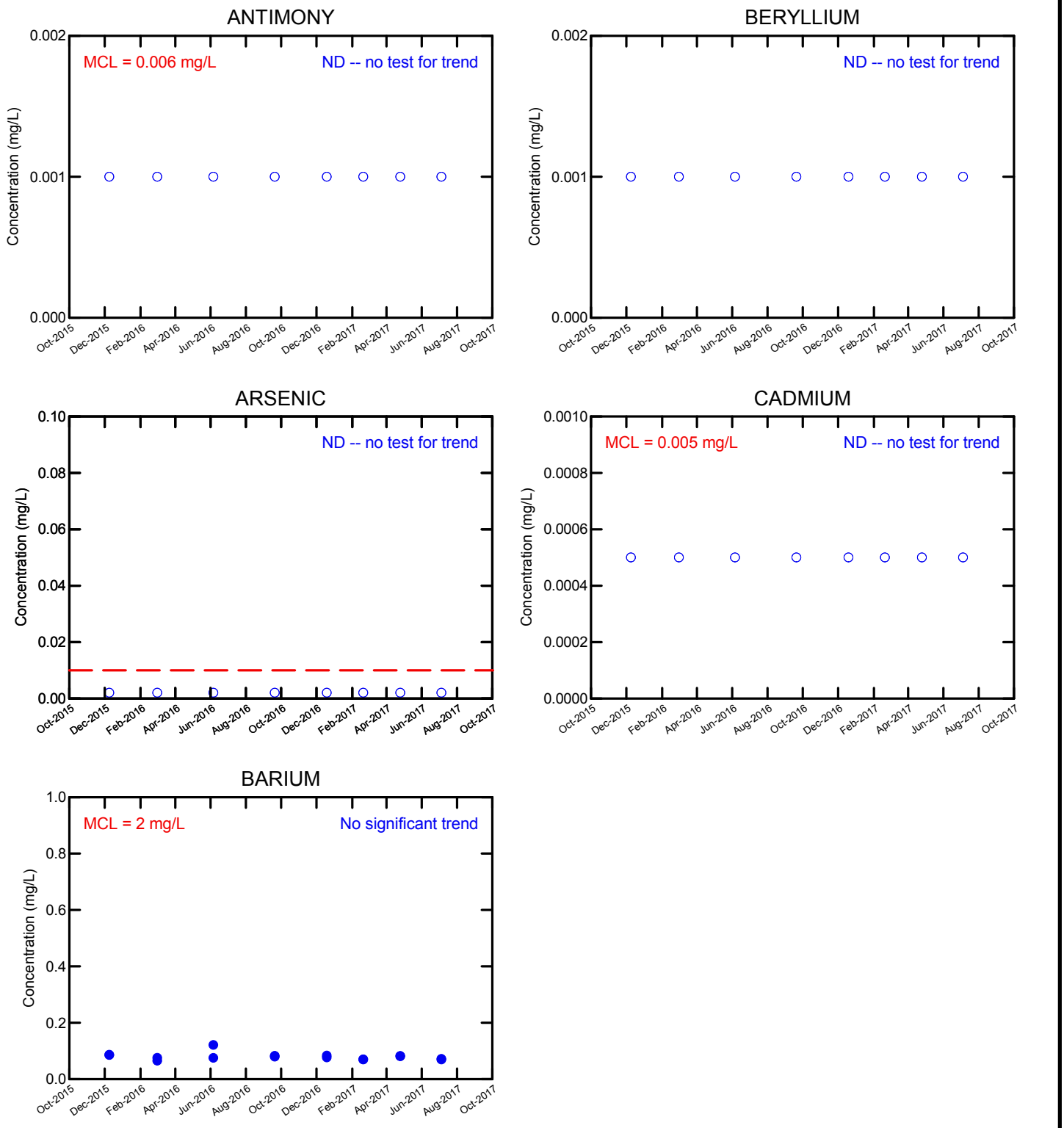
Baseline data are indicated by gray coloring

Notes:

1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

figure 5.b

MW-11 -- Appendix III Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa



Legend:

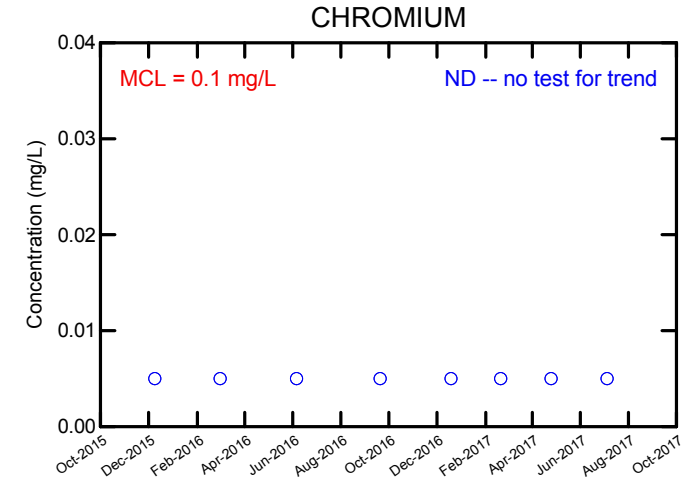
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

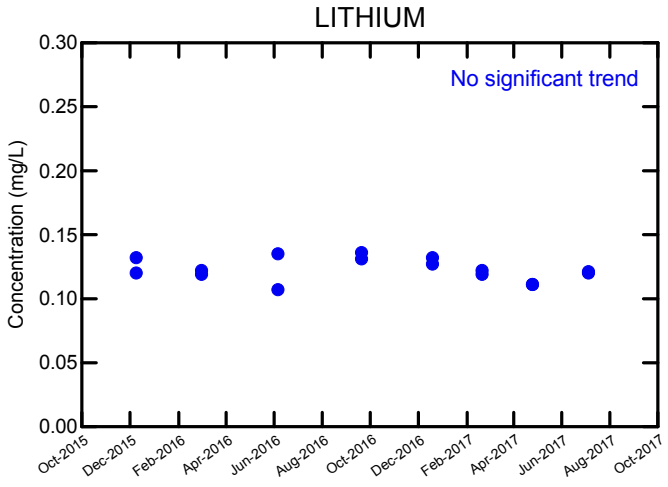
Notes:

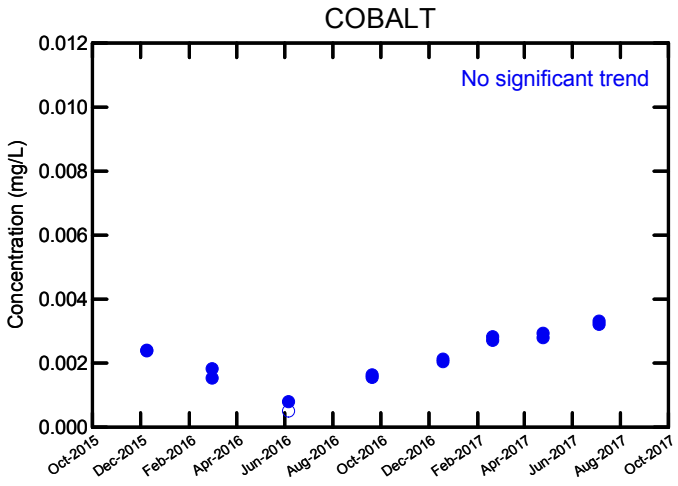
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

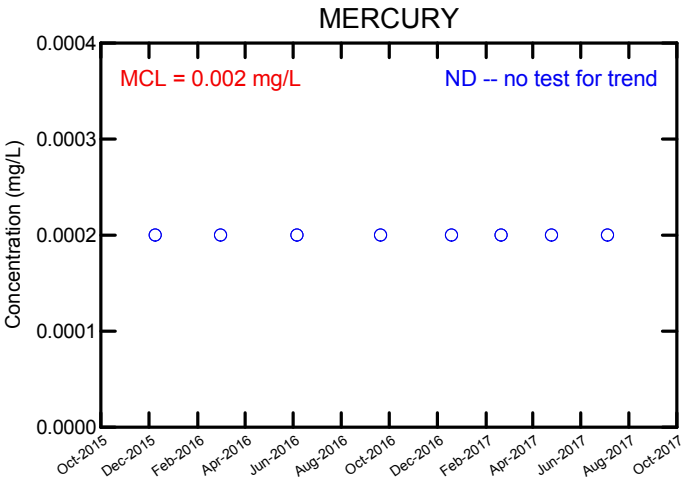
figure 5.c

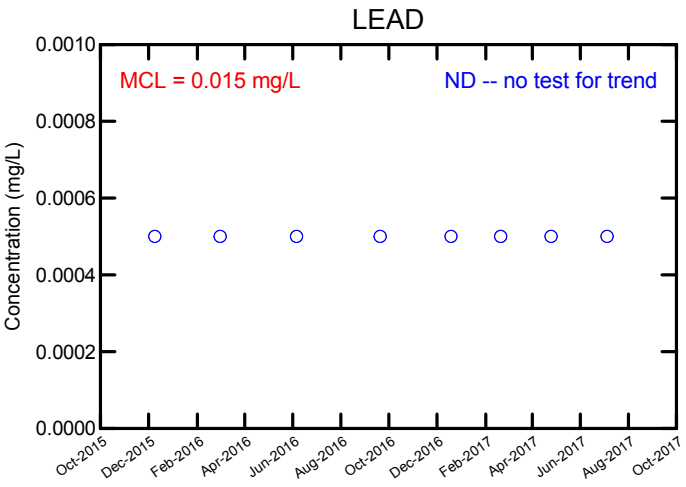
MW-11 -- Appendix IV Parameters
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa











Legend:

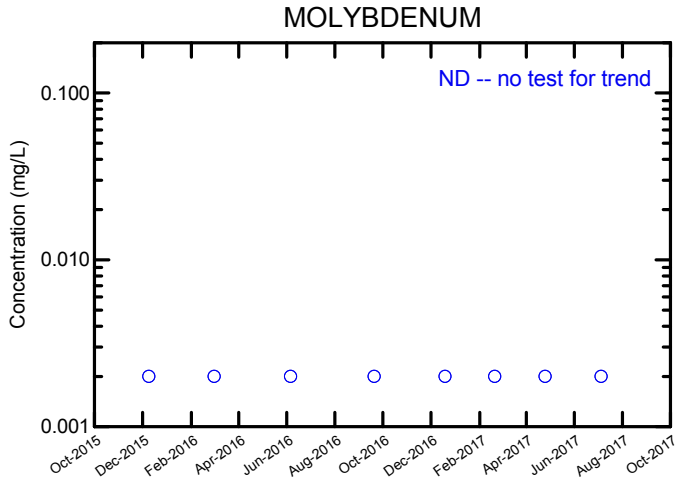
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

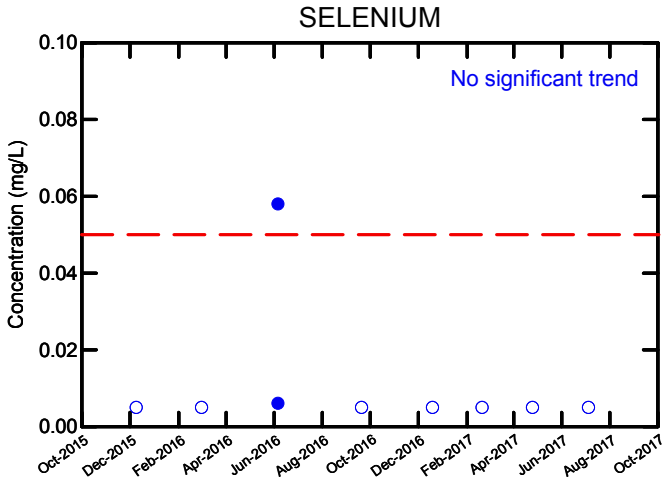
Notes:

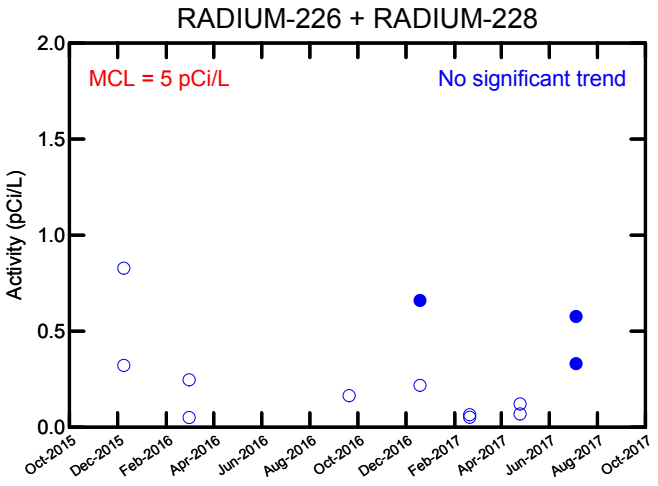
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

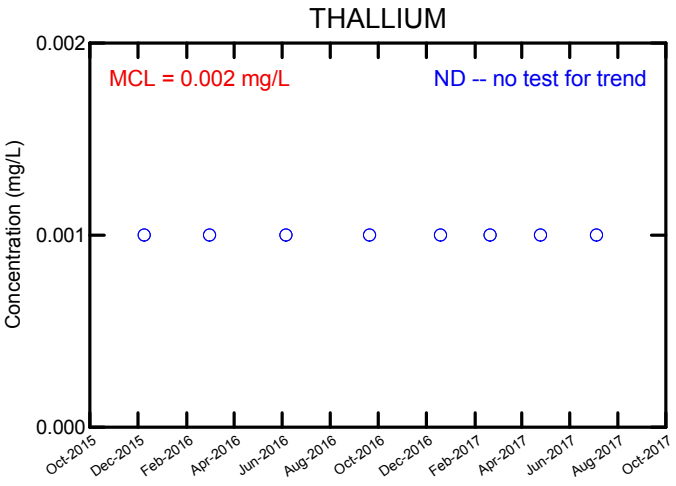
figure 5.d

MW-11 -- Appendix IV Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa









Legend:

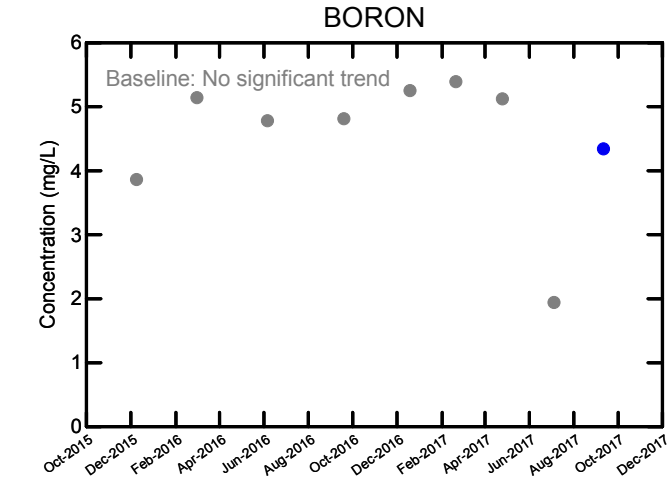
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

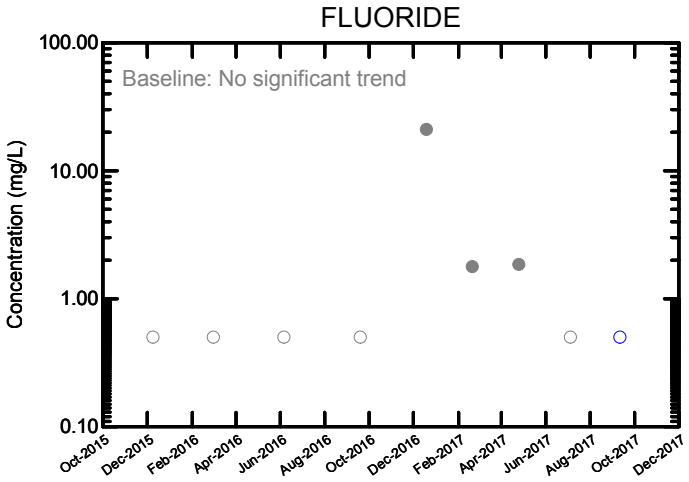
Notes:

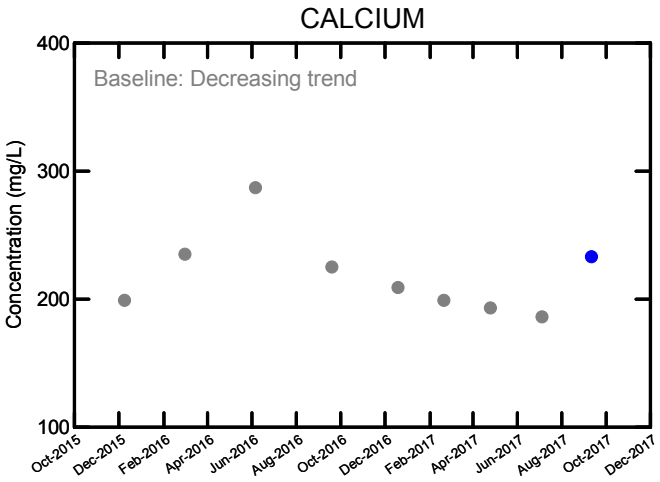
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

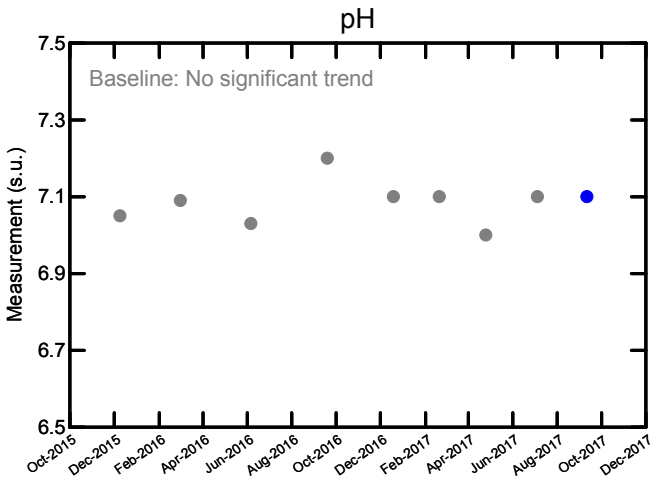
figure 5.e

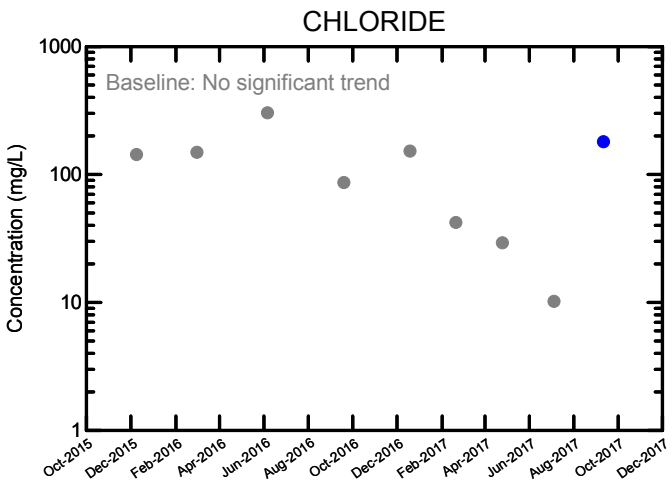
MW-11 -- Appendix IV Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa











Legend:

● Detected result

○ Non-detect (plotted at detection limit)

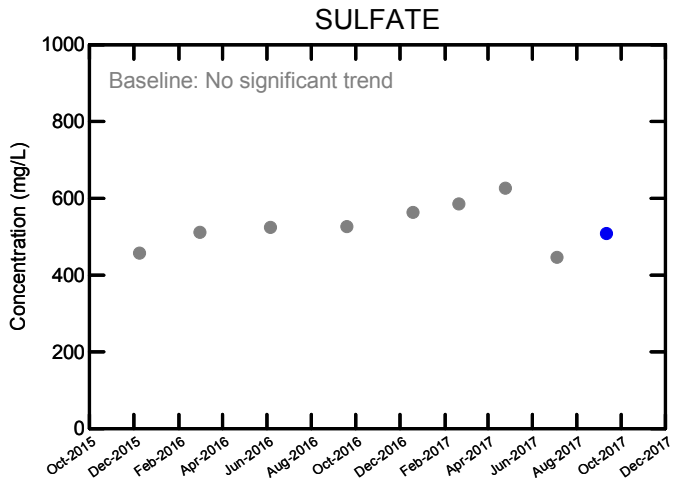
Baseline data are indicated by gray coloring

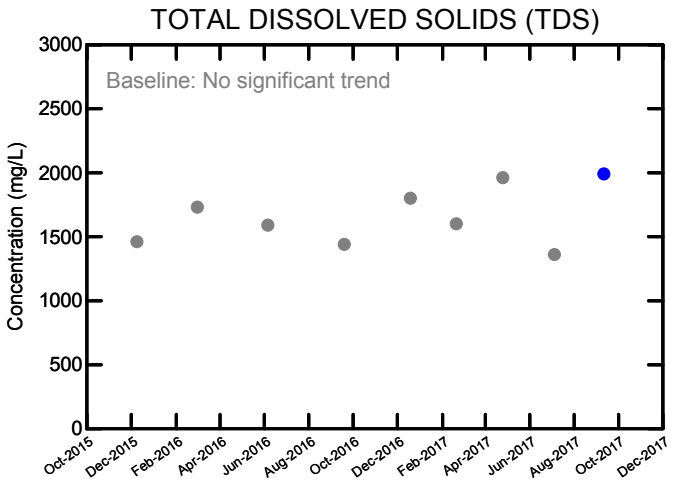
Notes:

1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

figure 6.a

MW-12 -- Appendix III Parameters
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa





Legend:

● Detected result

○ Non-detect (plotted at detection limit)

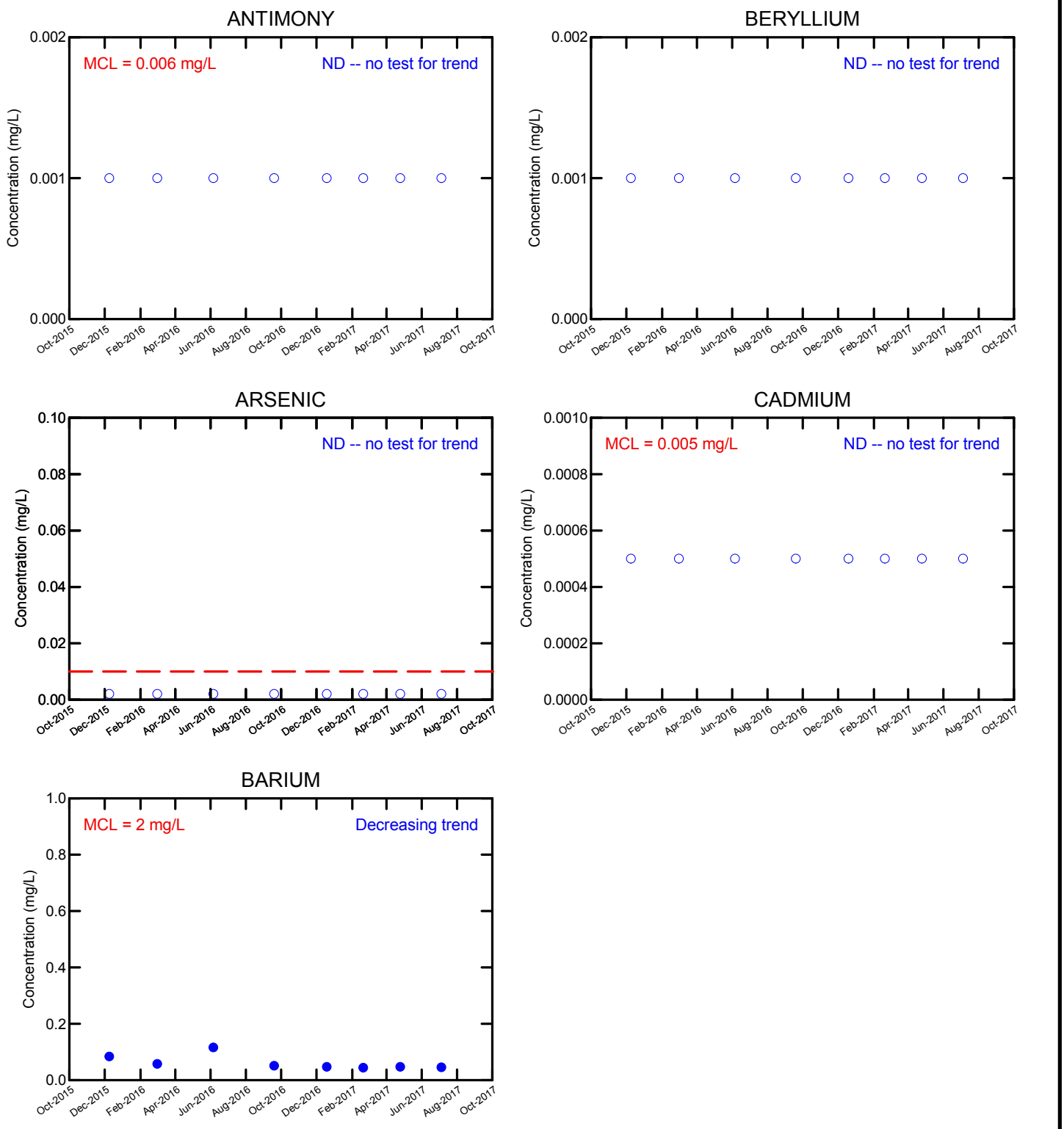
Baseline data are indicated by gray coloring

Notes:

1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

figure 6.b

MW-12 -- Appendix III Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa



Legend:

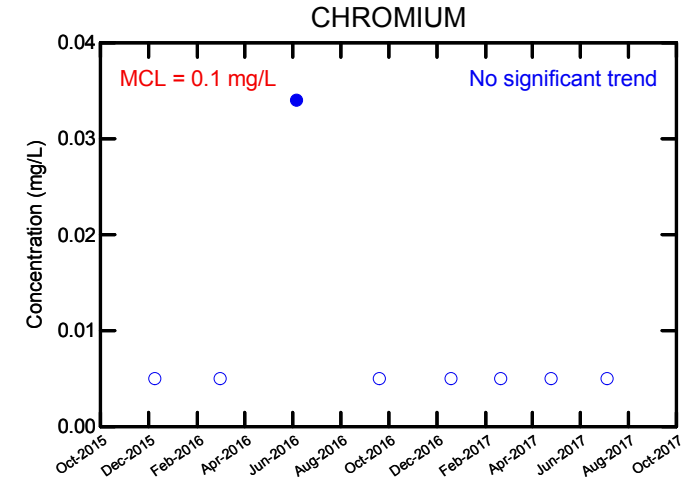
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

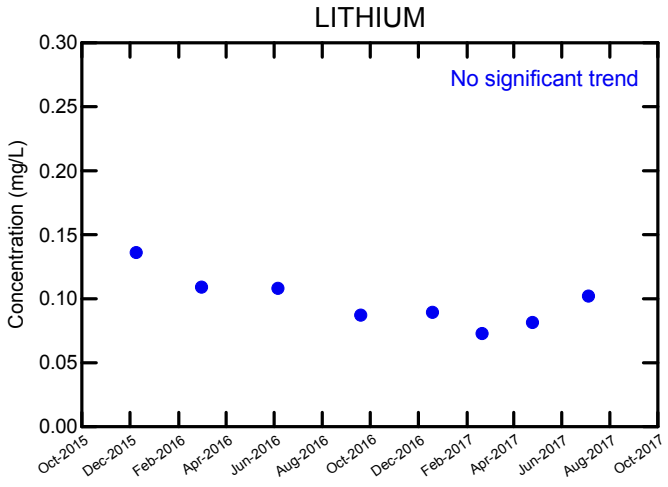
Notes:

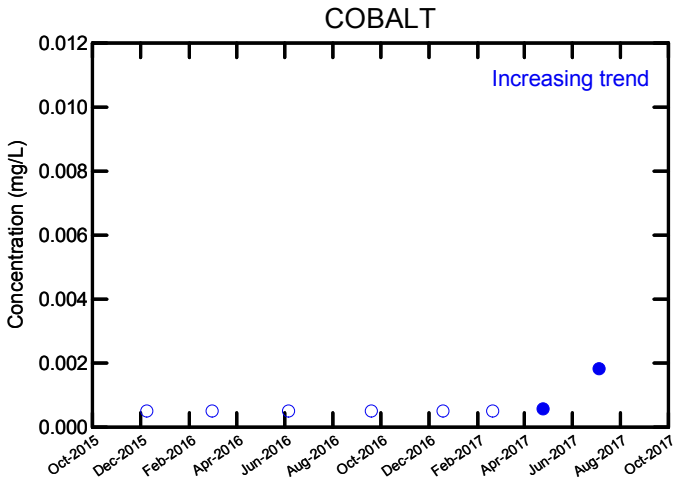
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

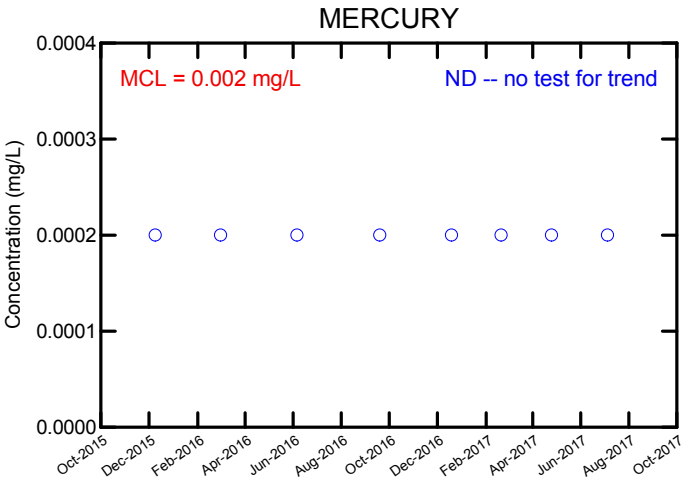
figure 6.c

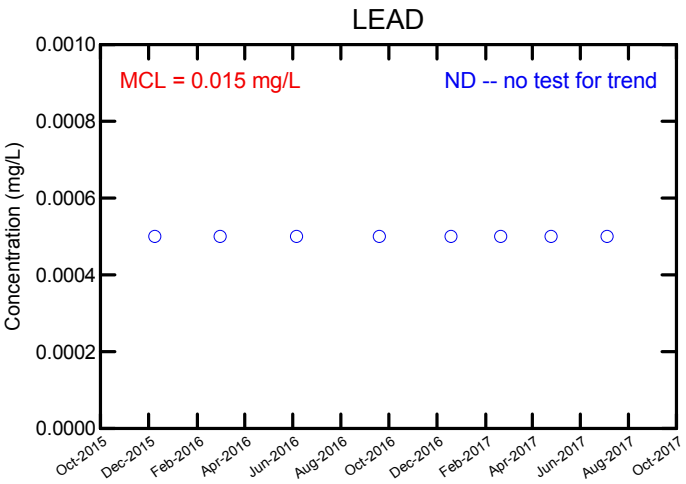
MW-12 -- Appendix IV Parameters
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa











Legend:

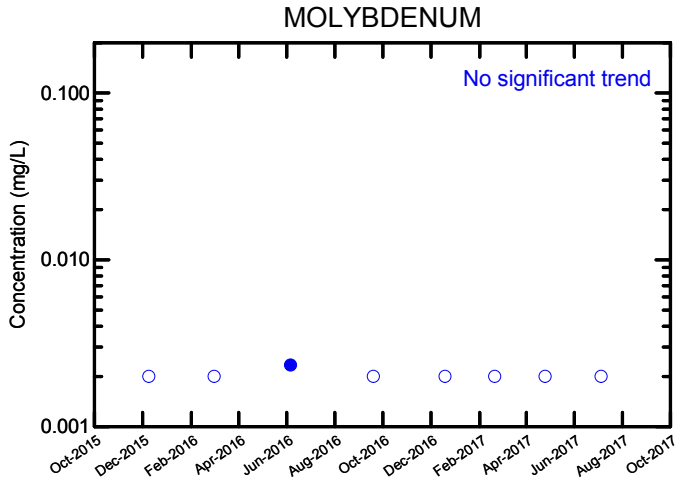
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

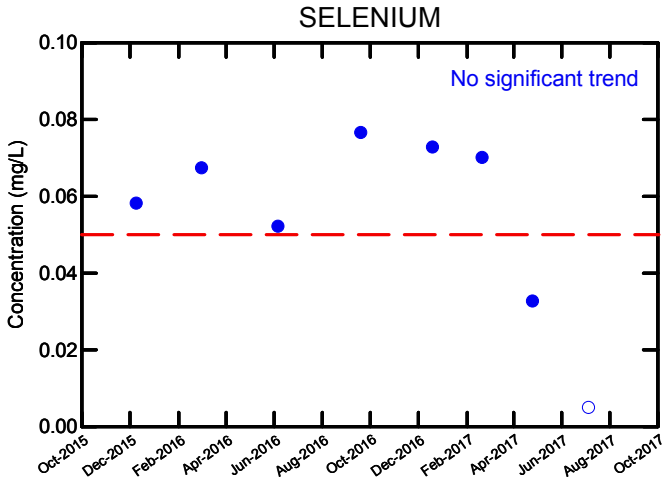
Notes:

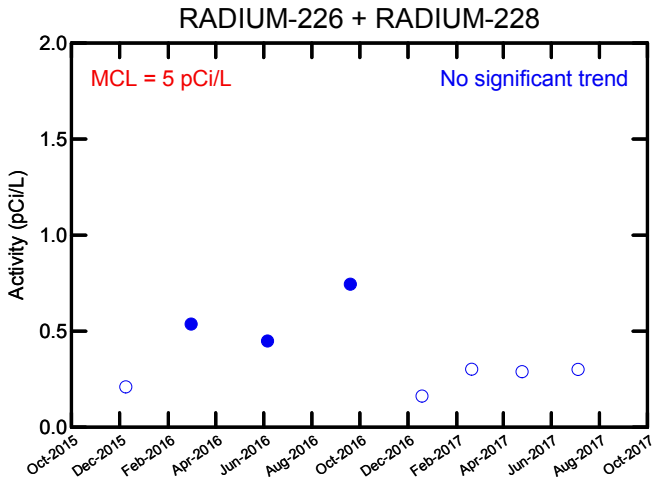
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

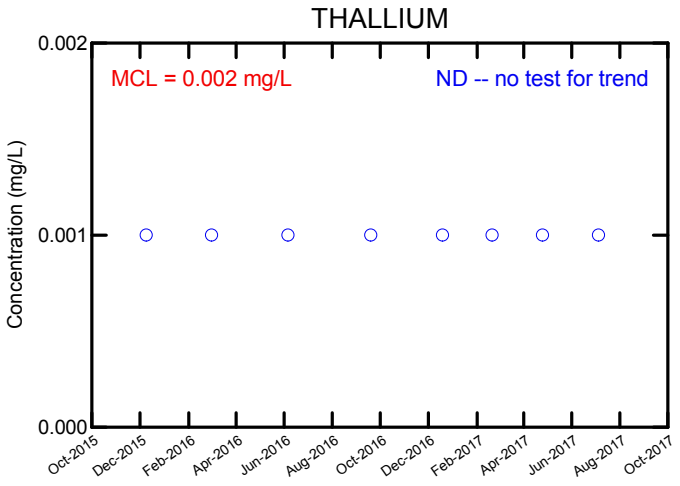
figure 6.d

MW-12 -- Appendix IV Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa









Legend:

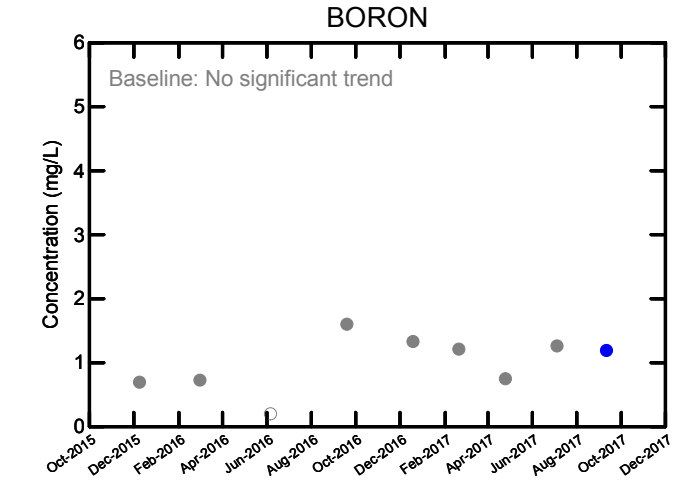
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

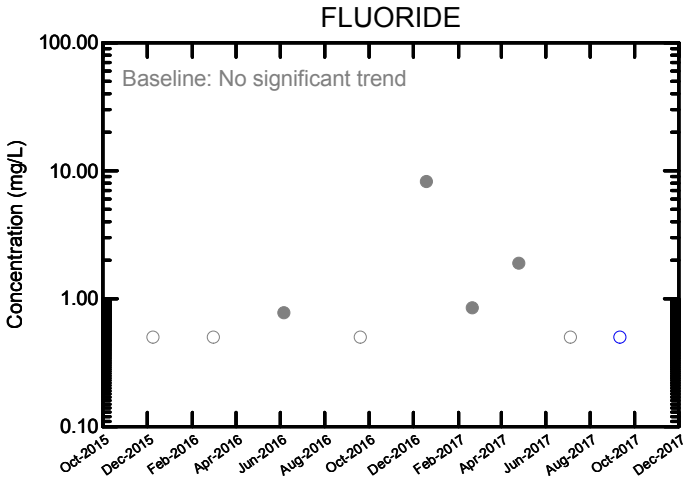
Notes:

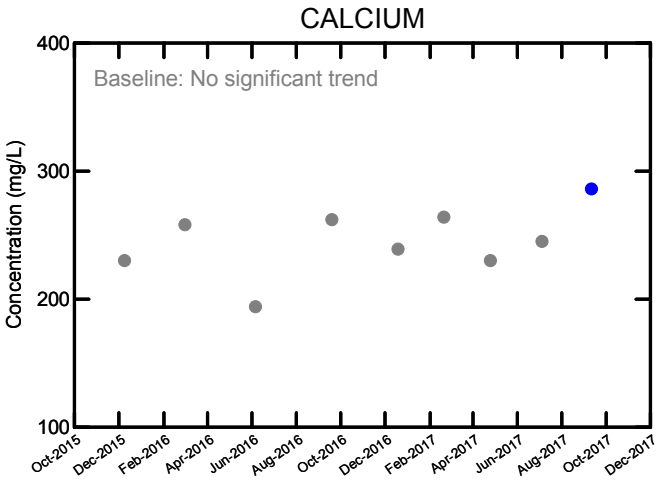
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

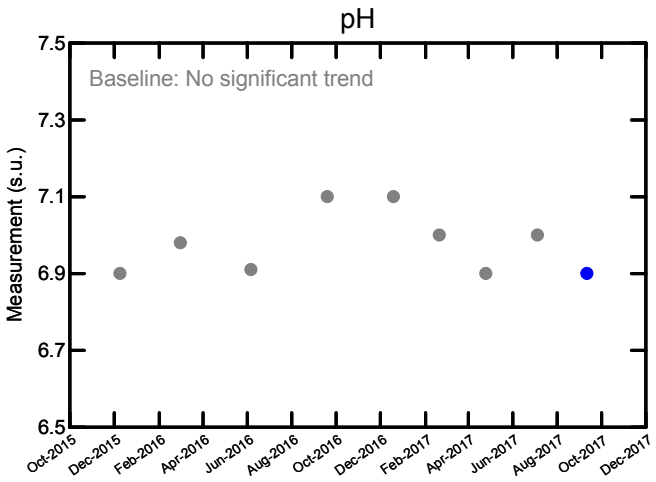
figure 6.e

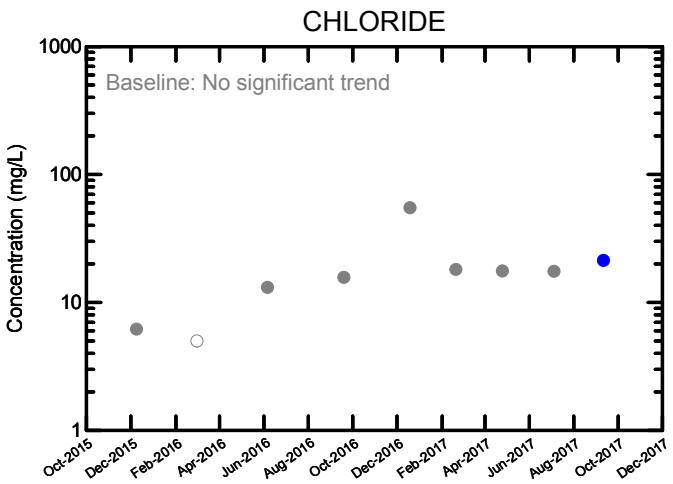
MW-12 -- Appendix IV Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa











Legend:

● Detected result

○ Non-detect (plotted at detection limit)

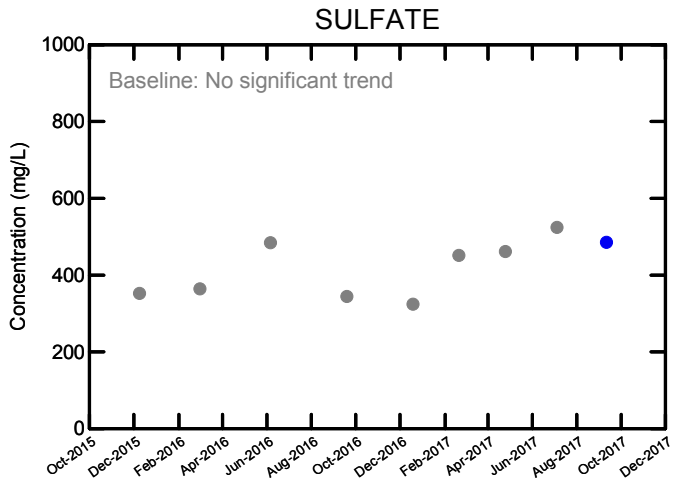
Baseline data are indicated by gray coloring

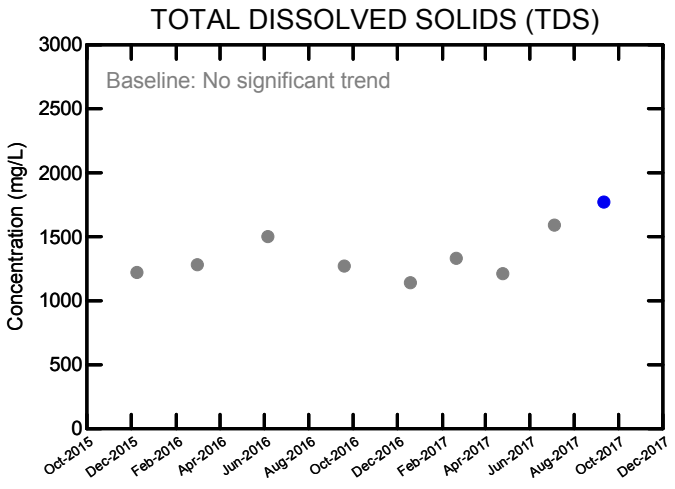
Notes:

1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

figure 7.a

MW-13 -- Appendix III Parameters
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa





Legend:

● Detected result

○ Non-detect (plotted at detection limit)

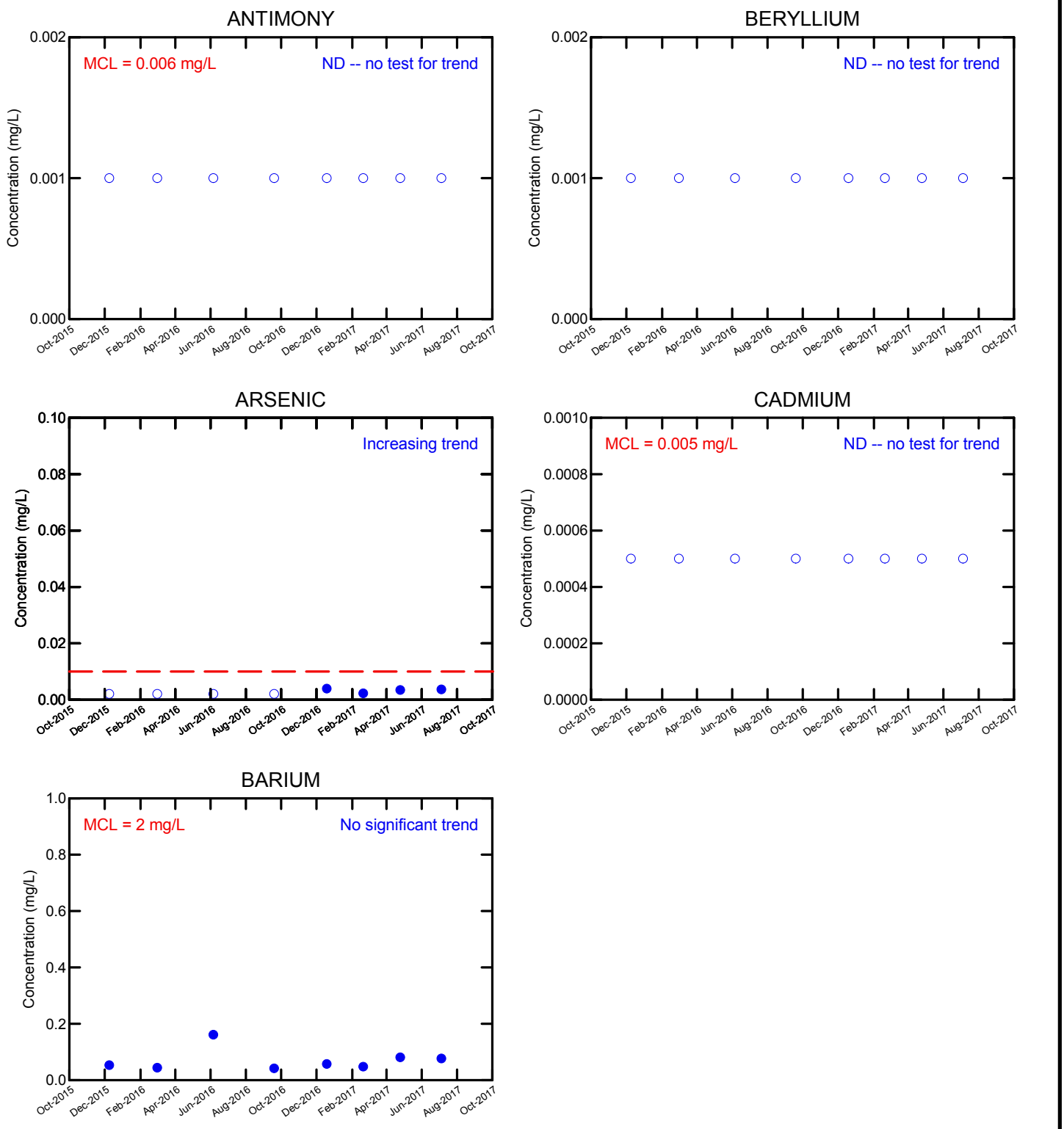
Baseline data are indicated by gray coloring

Notes:

1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

figure 7.b

MW-13 -- Appendix III Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa



Legend:

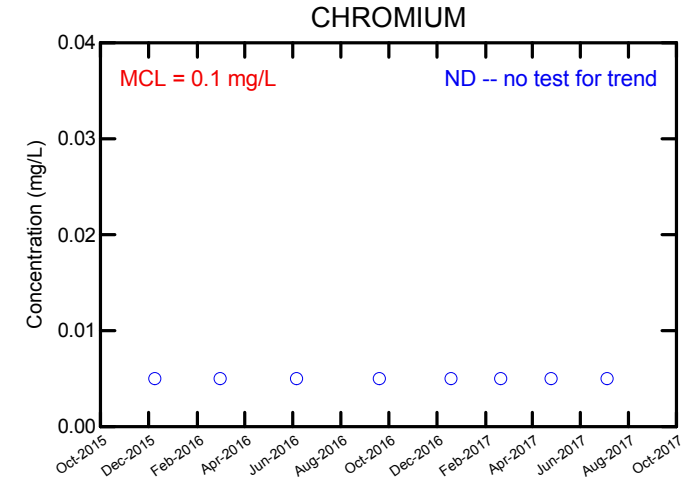
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

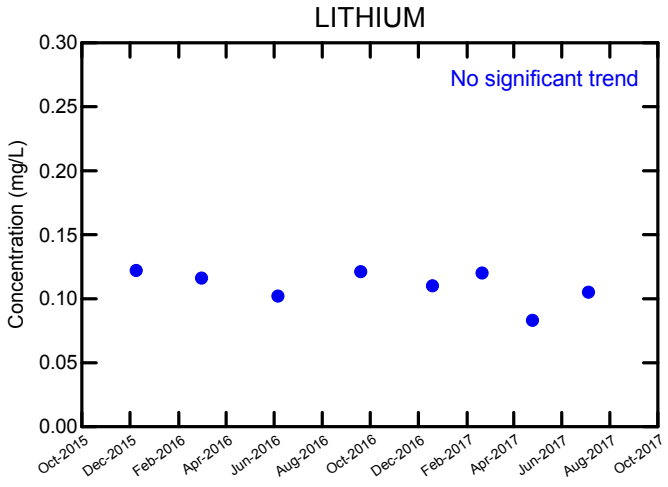
Notes:

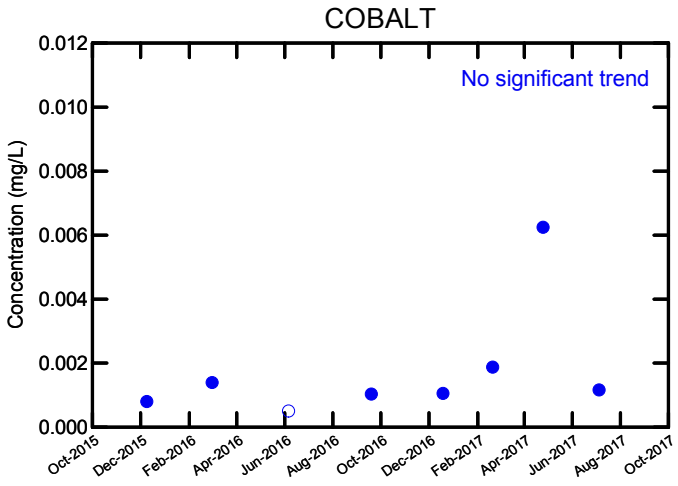
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

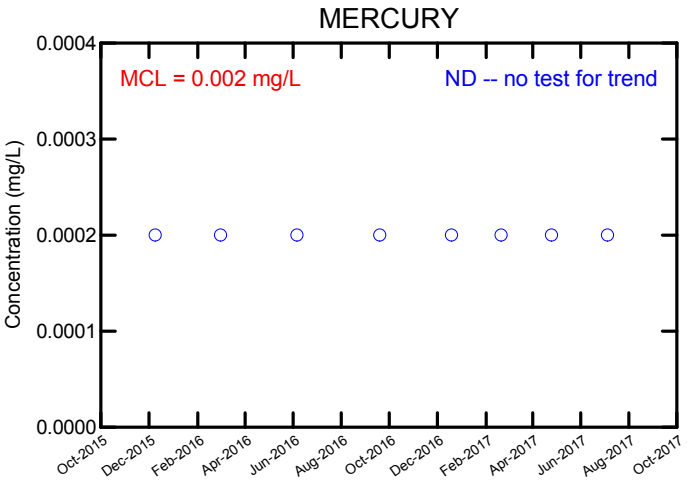
figure 7.c

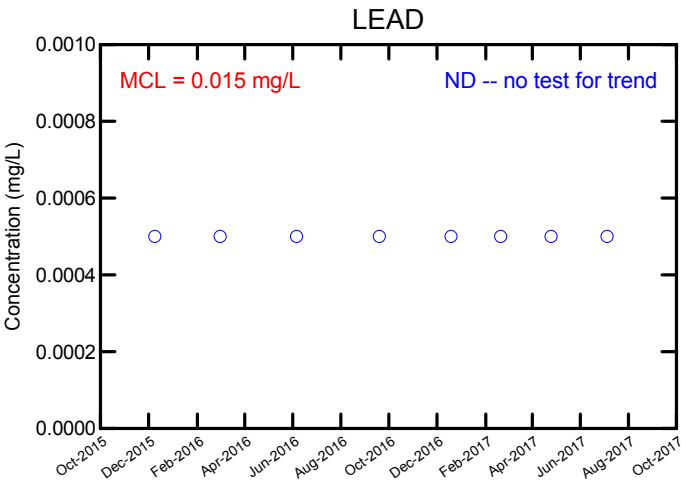
MW-13 -- Appendix IV Parameters
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa











Legend:

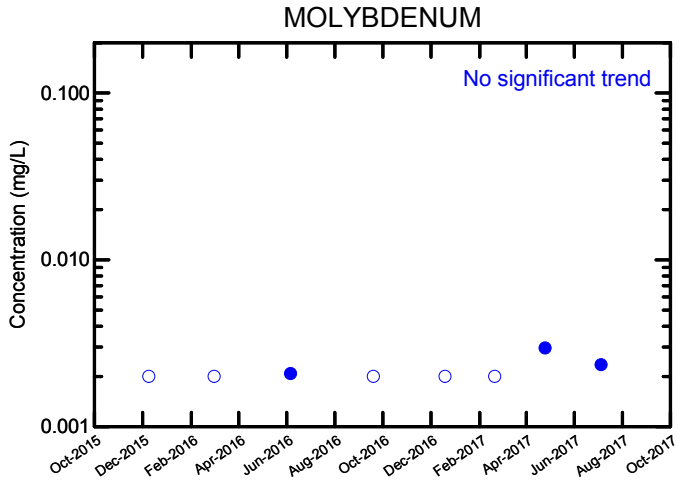
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

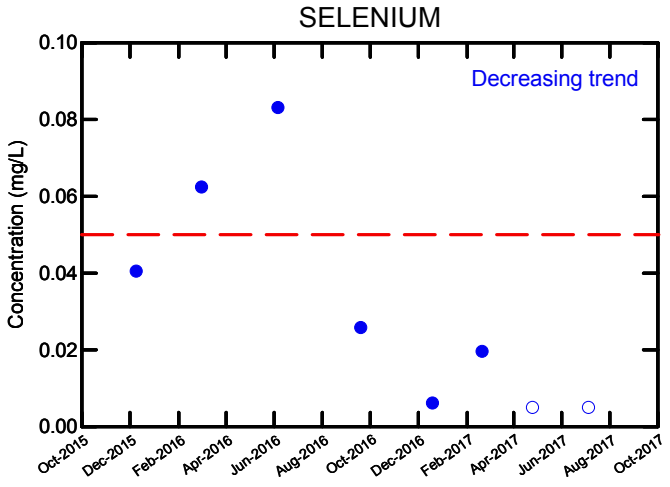
Notes:

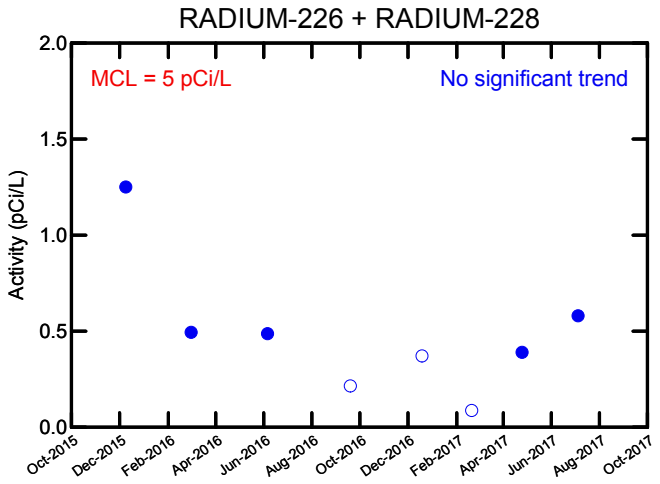
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

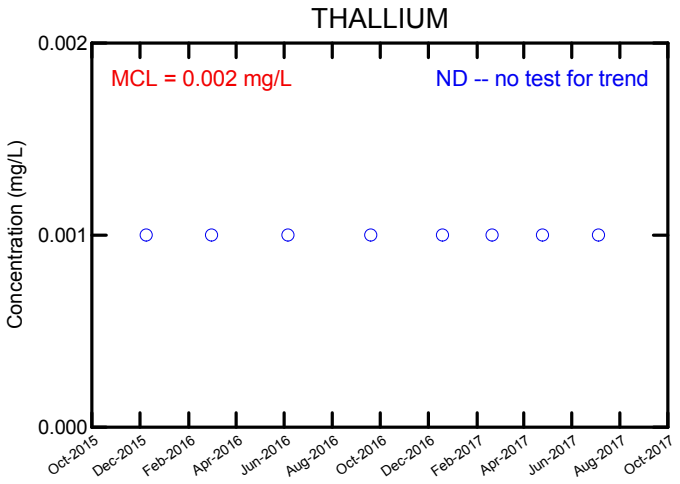
figure 7.d

MW-13 -- Appendix IV Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa









Legend:

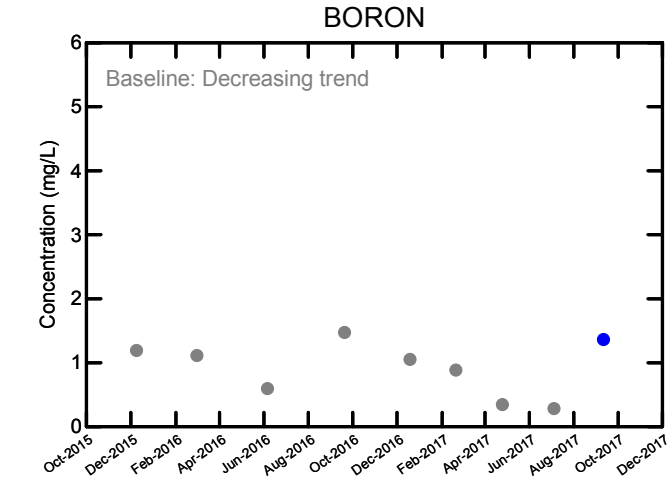
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

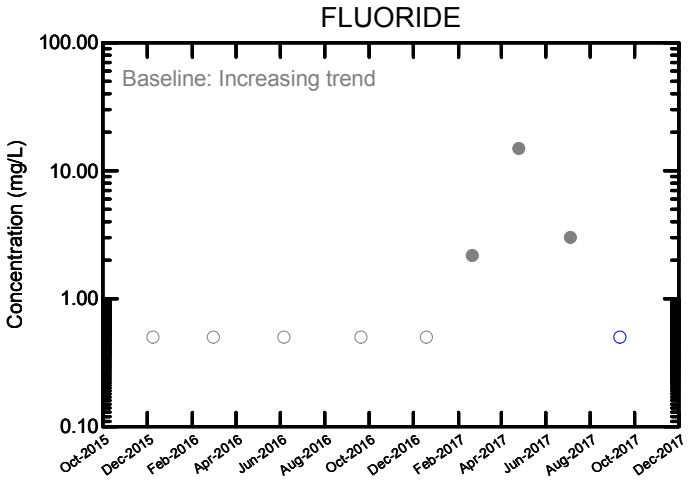
Notes:

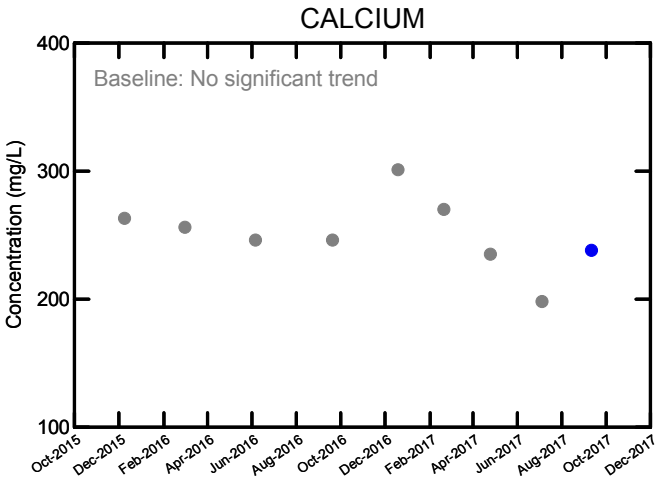
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

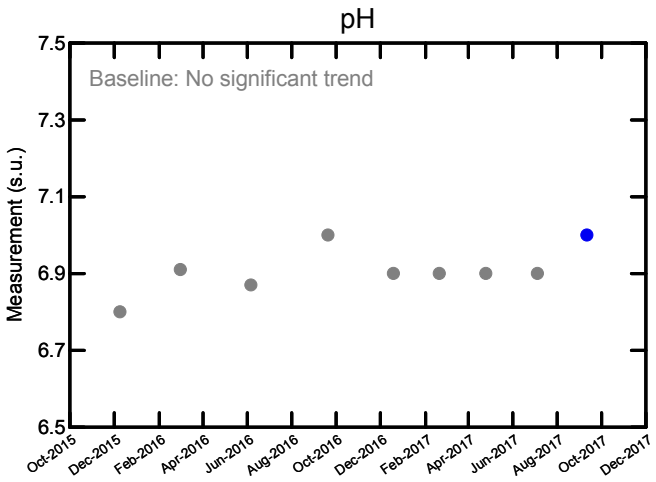
figure 7.e

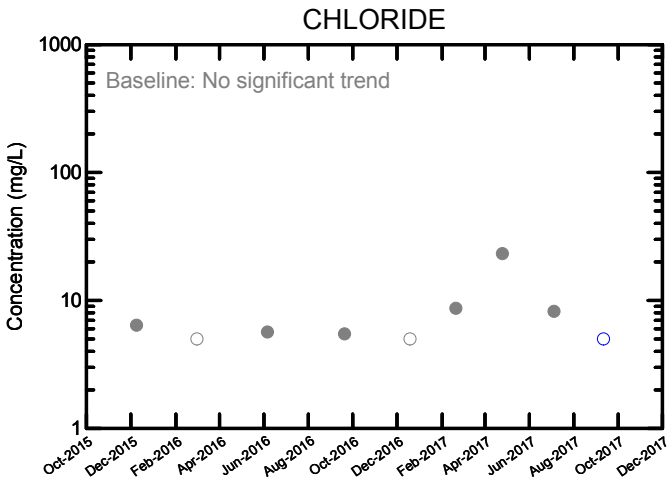
MW-13 -- Appendix IV Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa











Legend:

- ● Detected result
- ○ Non-detect (plotted at detection limit)

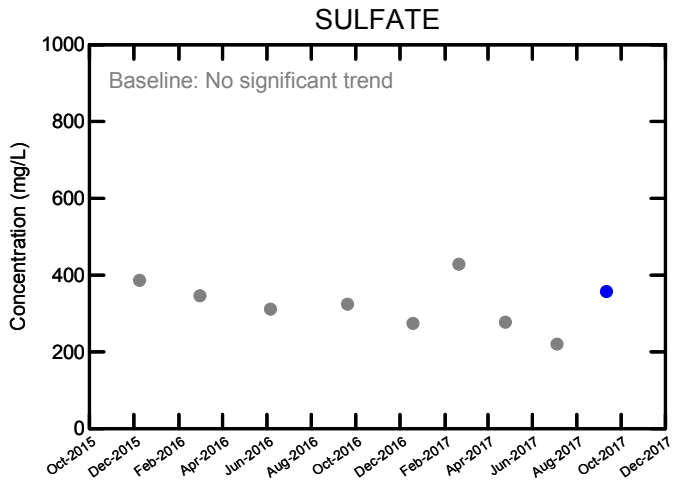
Baseline data are indicated by gray coloring

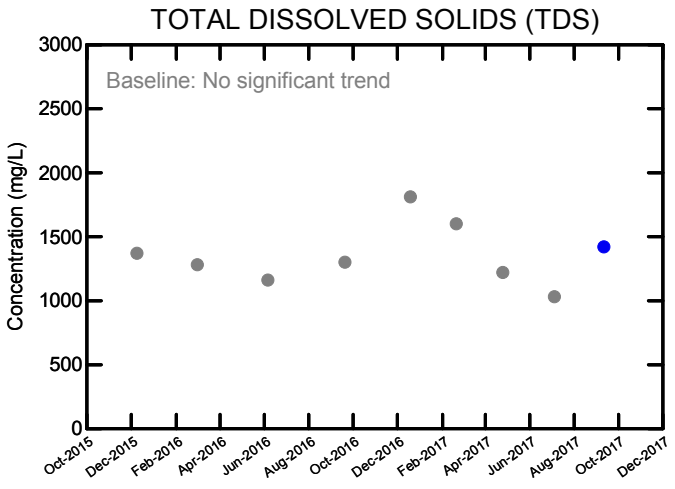
Notes:

1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

figure 8.a

MW-14 -- Appendix III Parameters
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa





Legend:

● Detected result

○ Non-detect (plotted at detection limit)

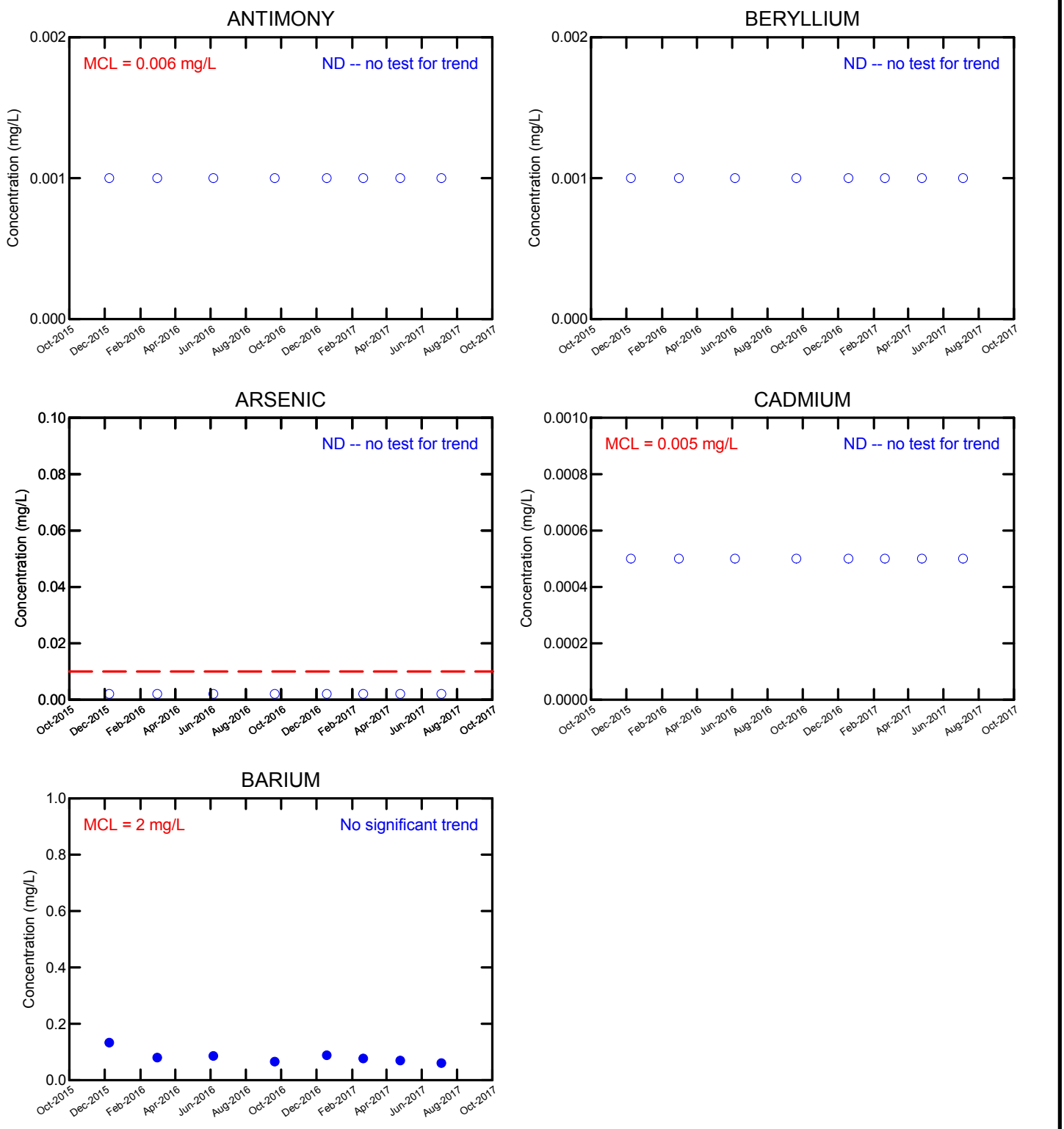
Baseline data are indicated by gray coloring

Notes:

1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

figure 8.b

MW-14 -- Appendix III Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa



Legend:

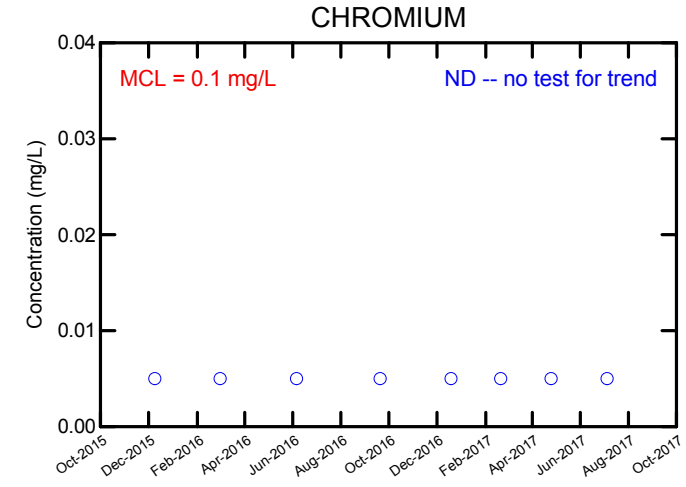
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

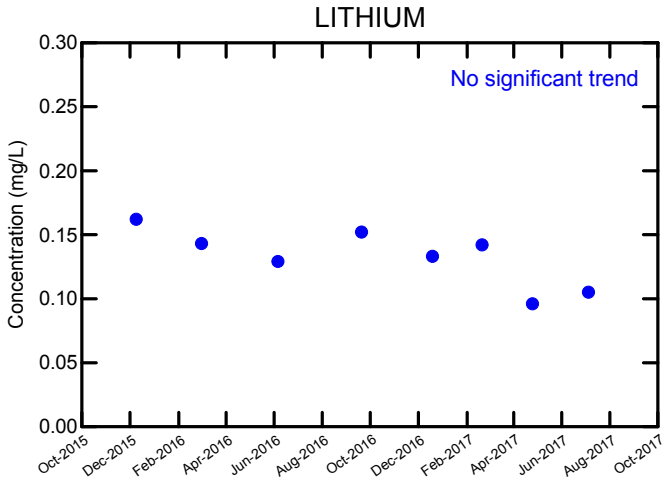
Notes:

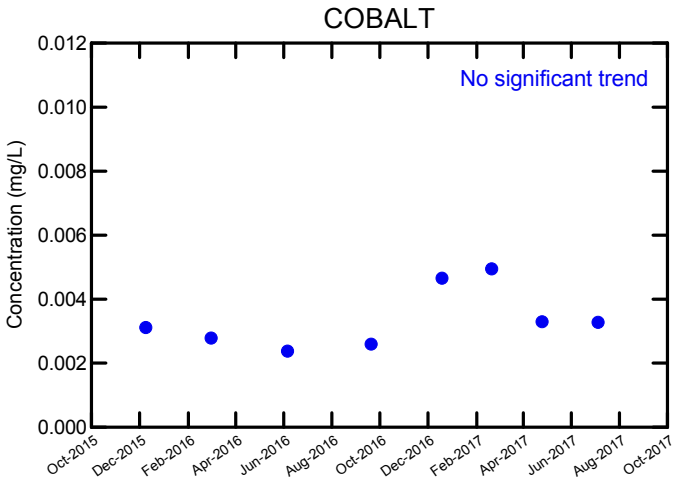
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

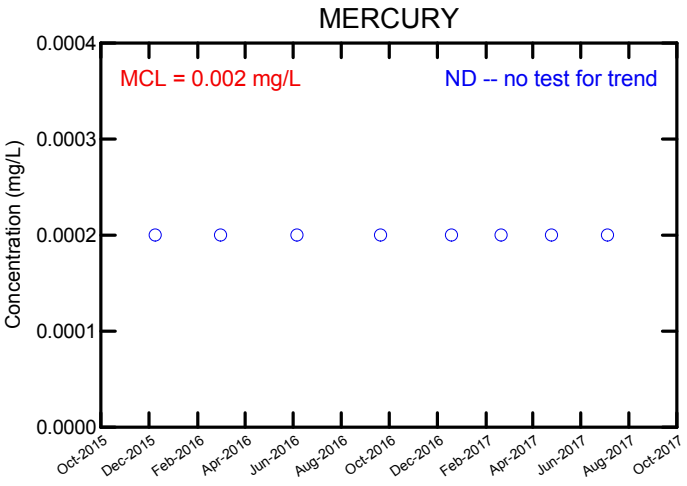
figure 8.c

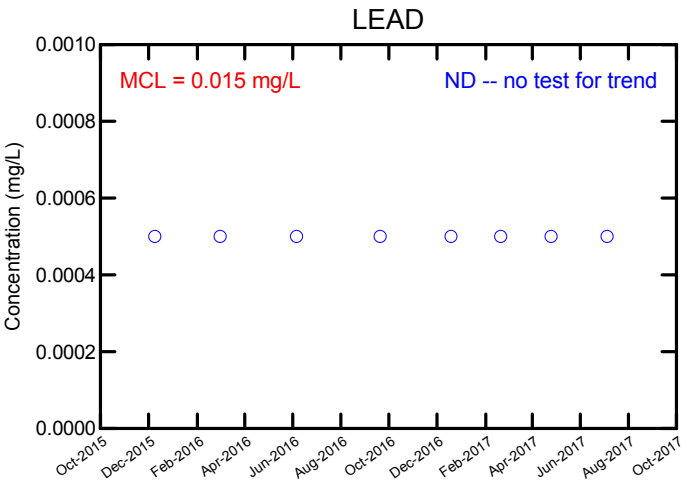
MW-14 -- Appendix IV Parameters
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa











Legend:

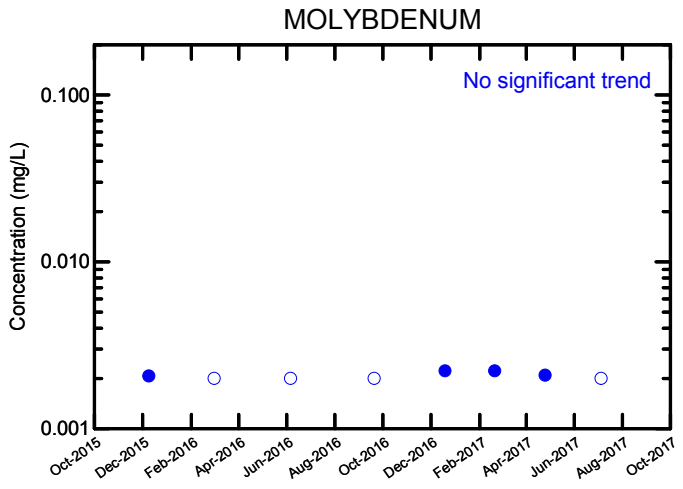
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

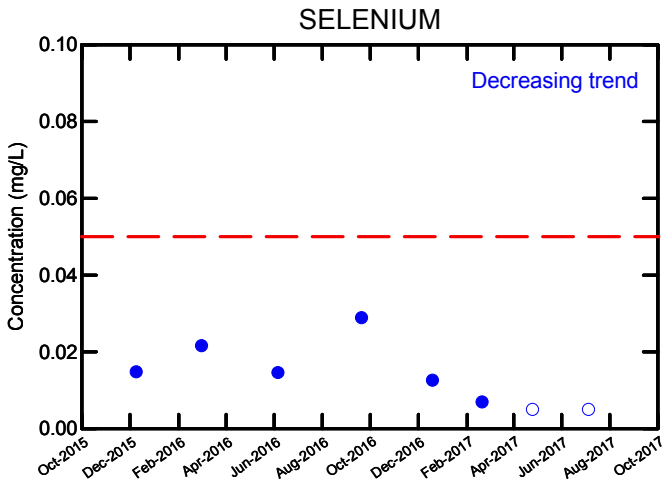
Notes:

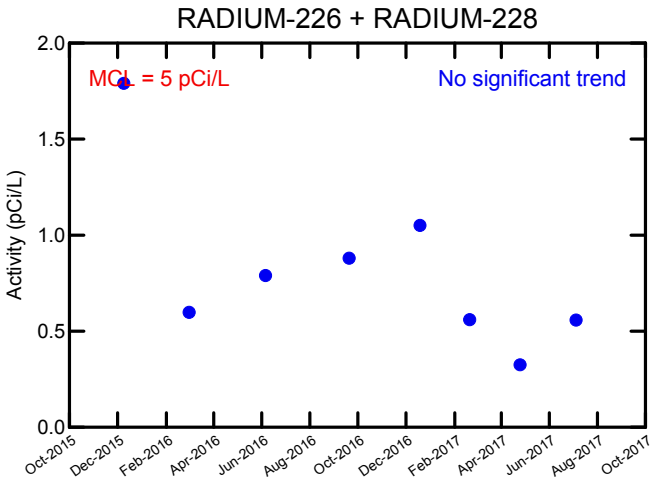
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

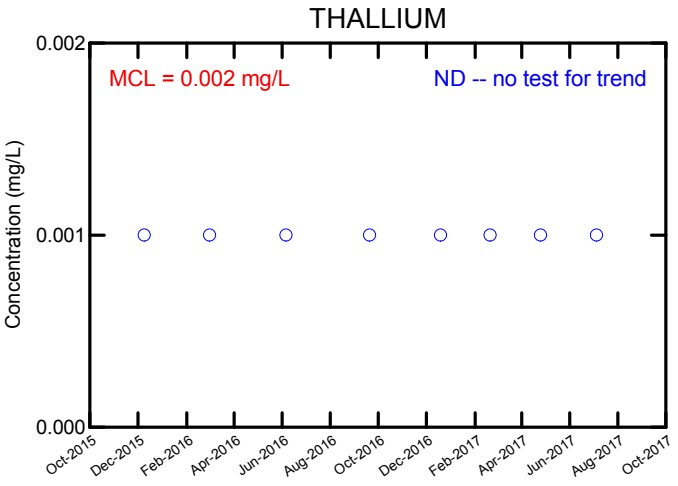
figure 8.d

MW-14 -- Appendix IV Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa









Legend:

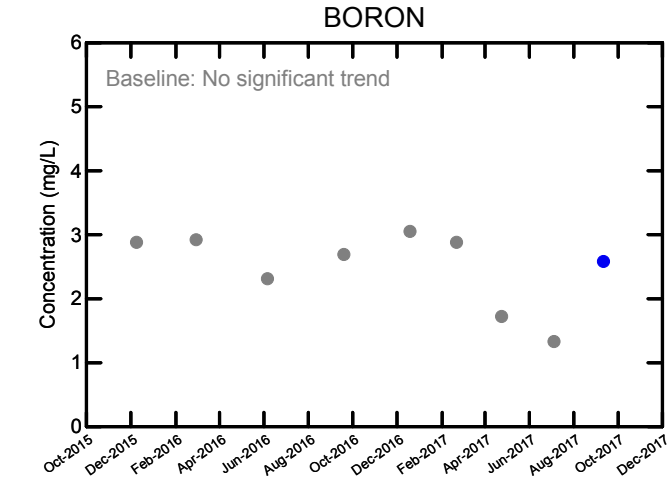
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

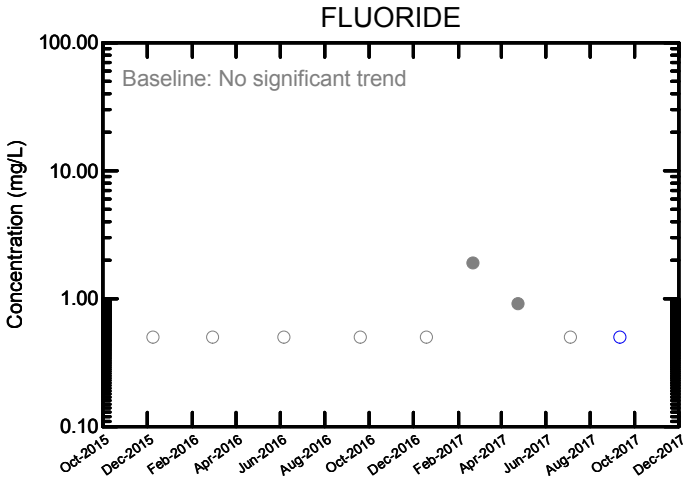
Notes:

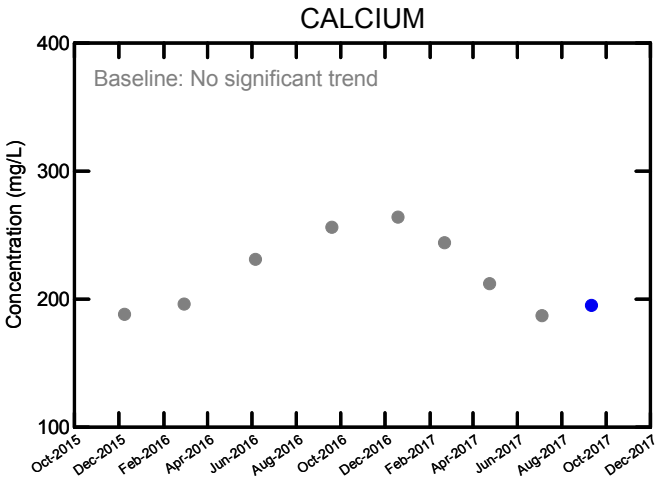
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

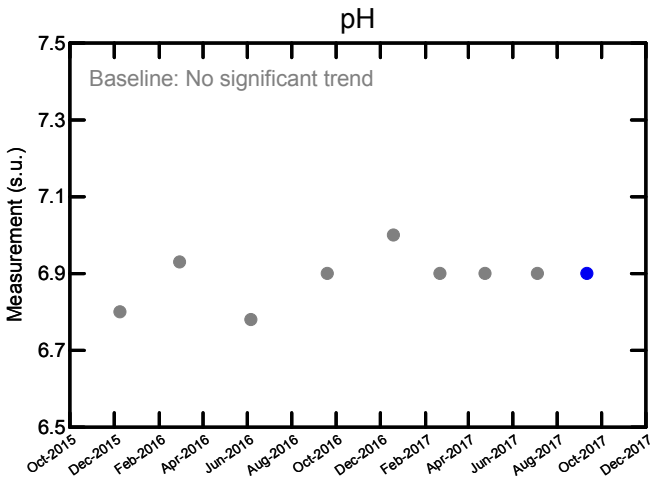
figure 8.e

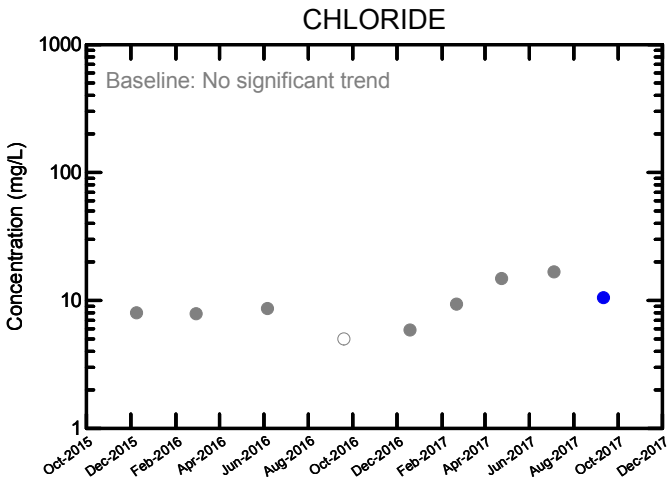
MW-14 -- Appendix IV Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa











Legend:

● Detected result

○ Non-detect (plotted at detection limit)

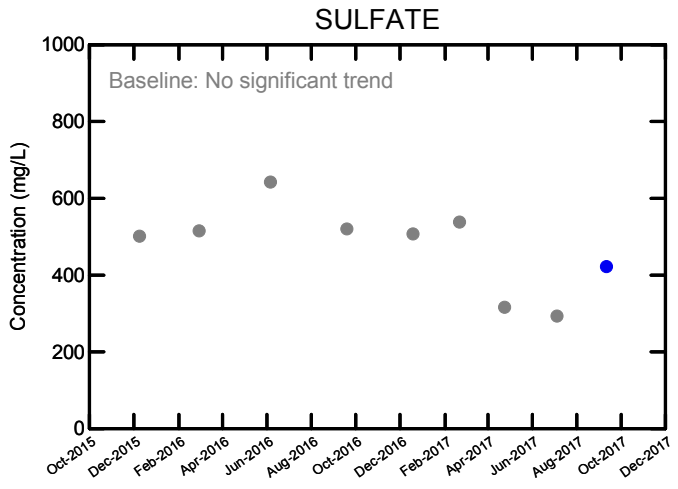
Baseline data are indicated by gray coloring

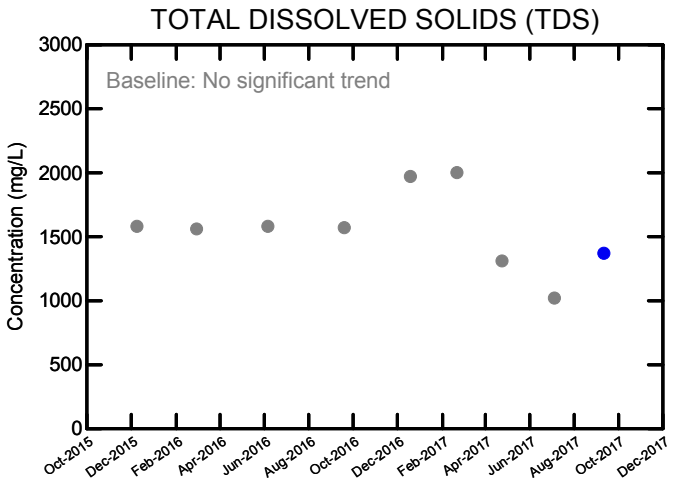
Notes:

1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

figure 9.a

MW-15 -- Appendix III Parameters
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa





Legend:

● Detected result

○ Non-detect (plotted at detection limit)

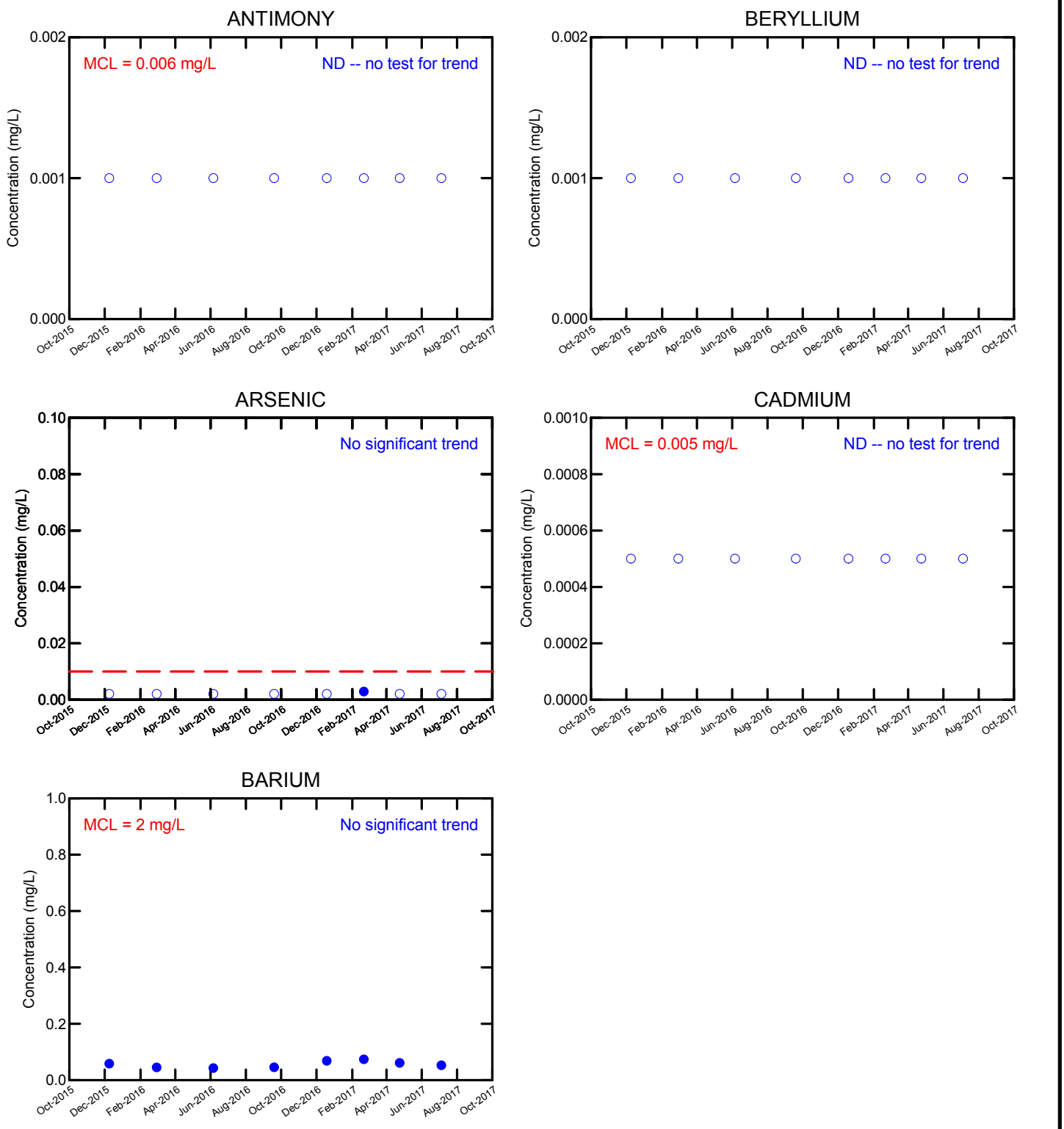
Baseline data are indicated by gray coloring

Notes:

1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

figure 9.b

MW-15 -- Appendix III Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa



Legend:

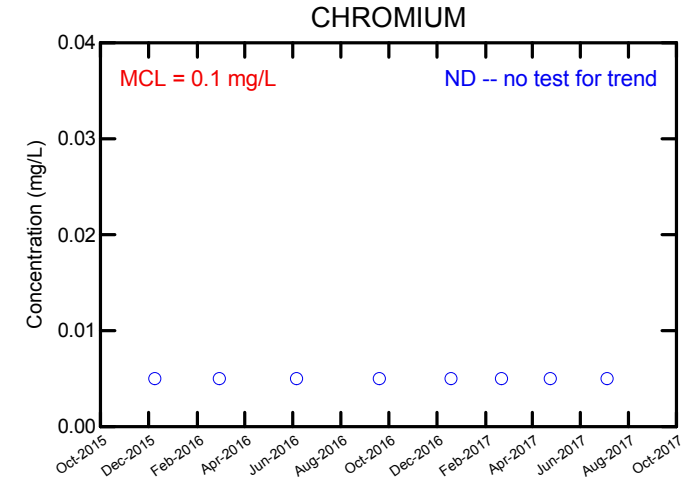
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

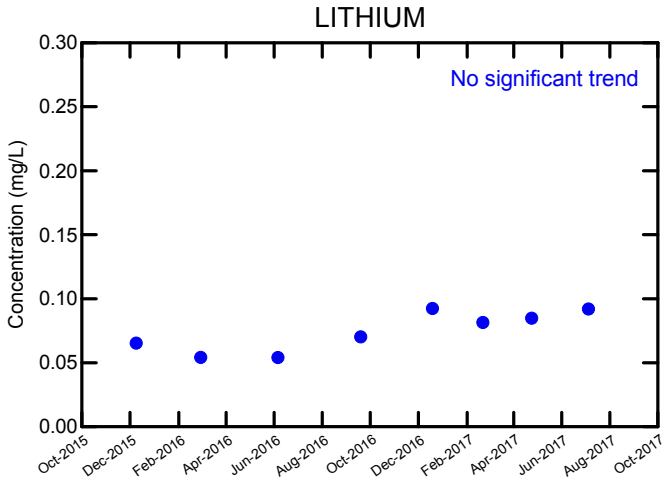
Notes:

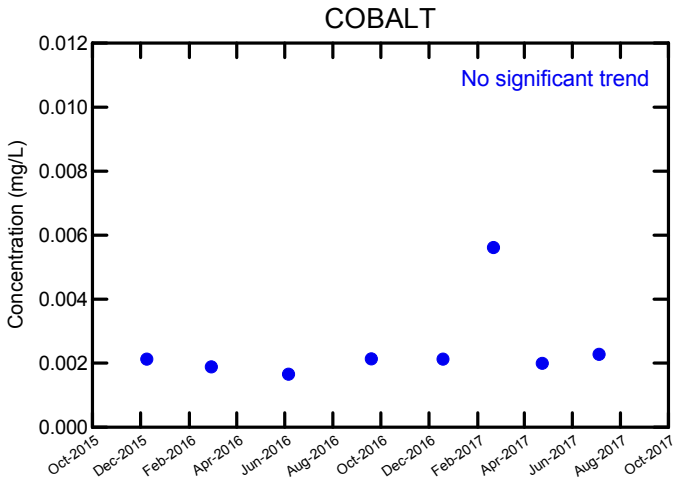
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

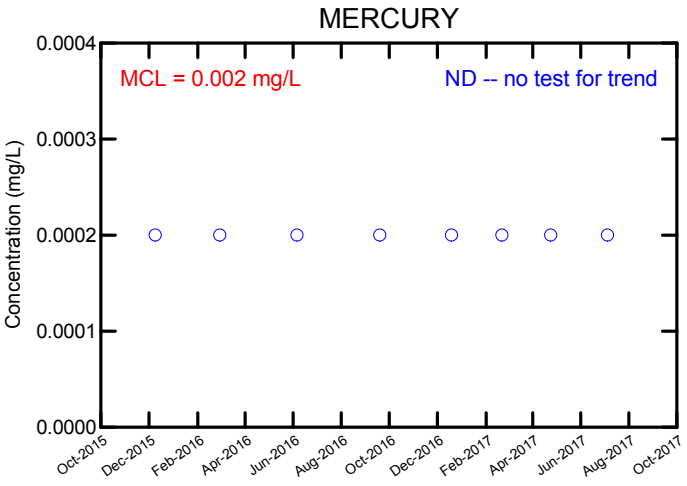
figure 9.c

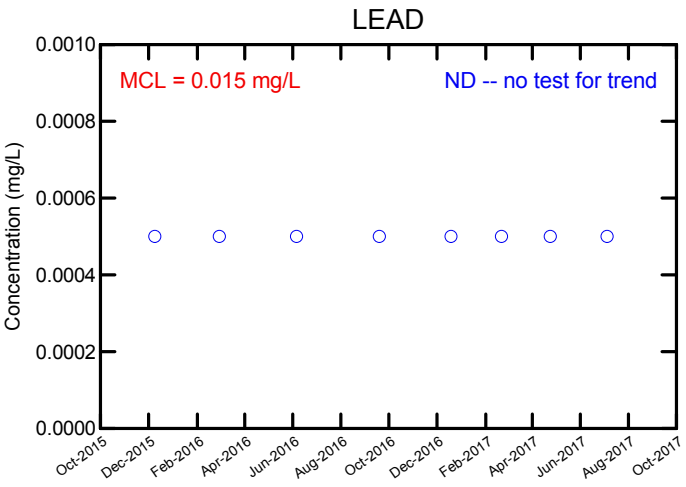
MW-15 -- Appendix IV Parameters
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa











Legend:

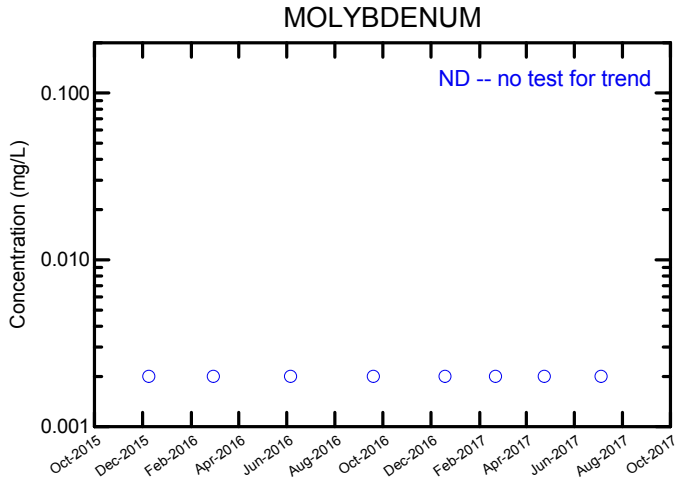
- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

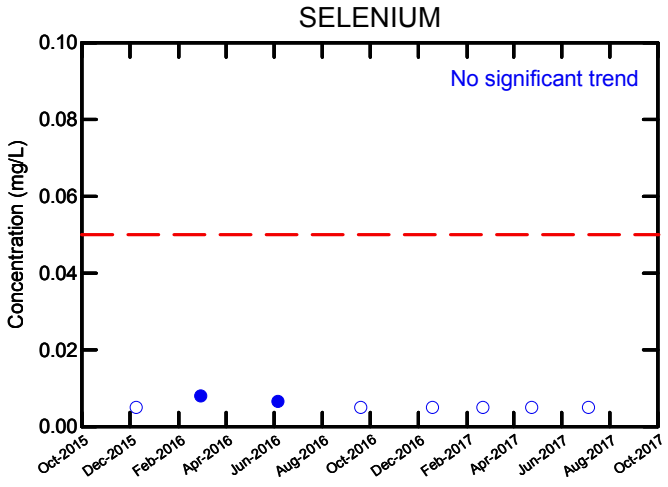
Notes:

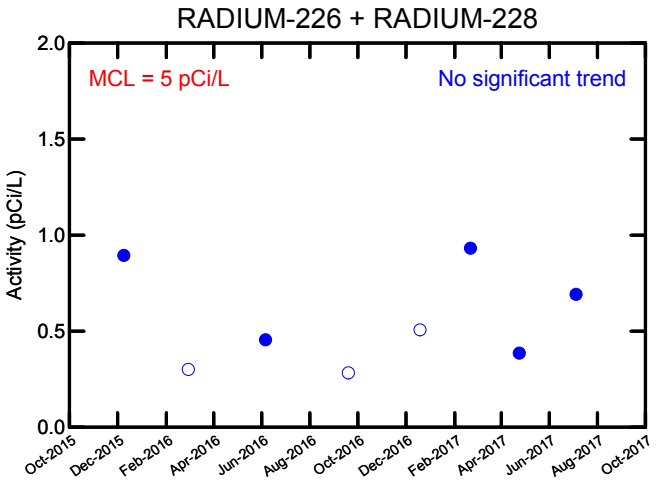
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

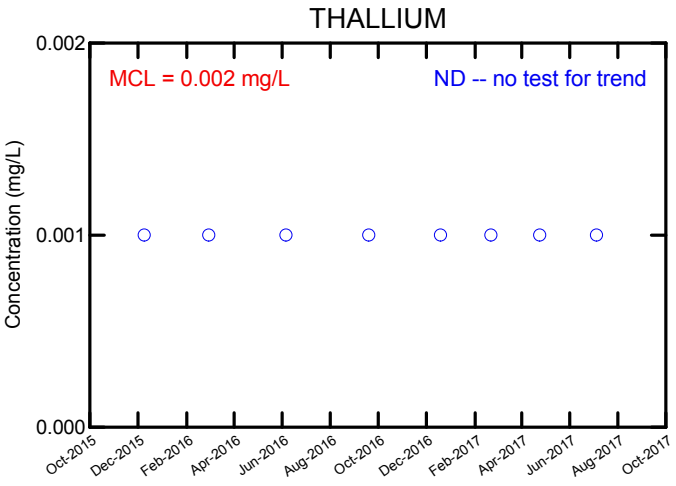
figure 9.d

MW-15 -- Appendix IV Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa









Legend:

- ● Detected result
- ○ Non-detect (plotted at detection limit)
- – MCL (Maximum Contaminant Level)

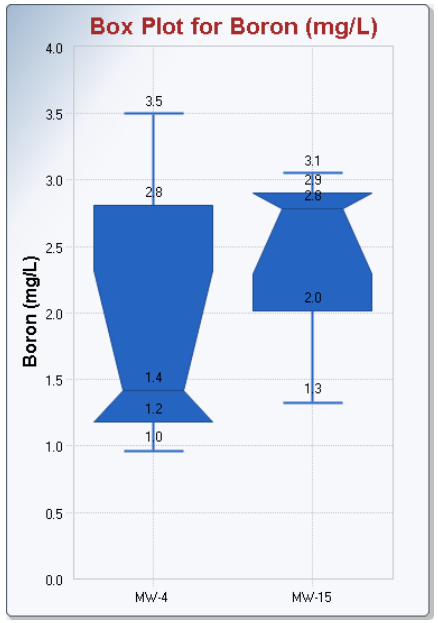
Notes:

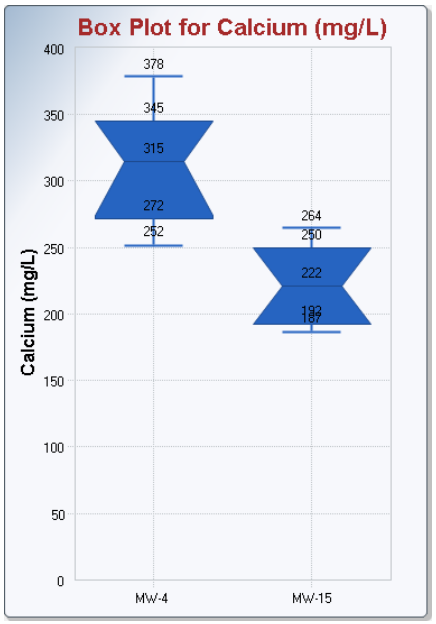
1) Non-detects with detection limits above target and/or detected values were excluded from trends
2) Trend analysis results are reported at a 95 percent confidence level

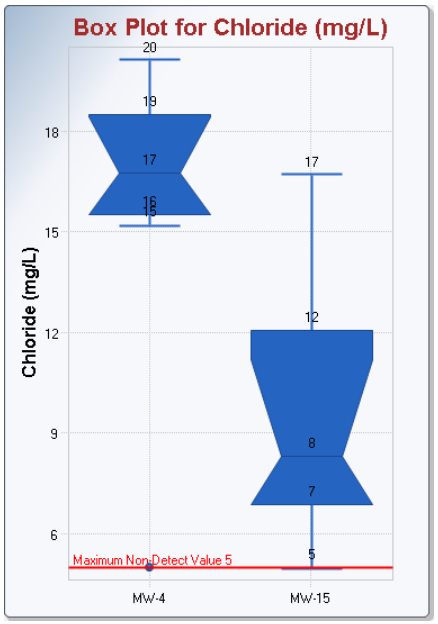
figure 9.e

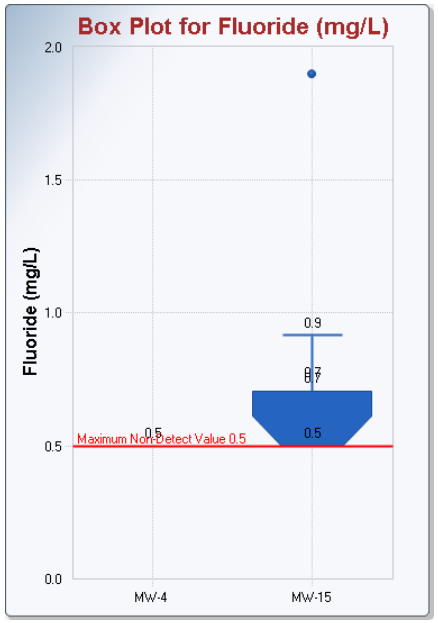
MW-15 -- Appendix IV Parameters (continued)
Analyte Concentration vs. Time in Groundwater
Neal South CCR Monofill
Salix, Iowa

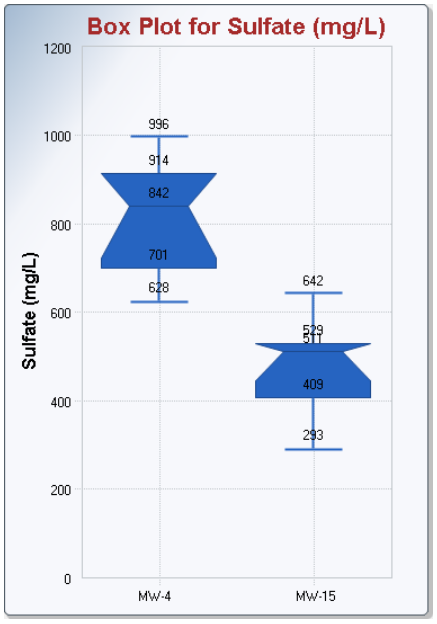
Appendix D
Box Plots for Upgradient Monitoring Wells

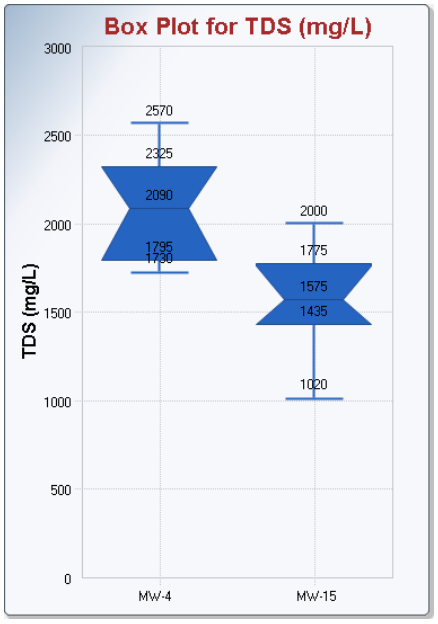












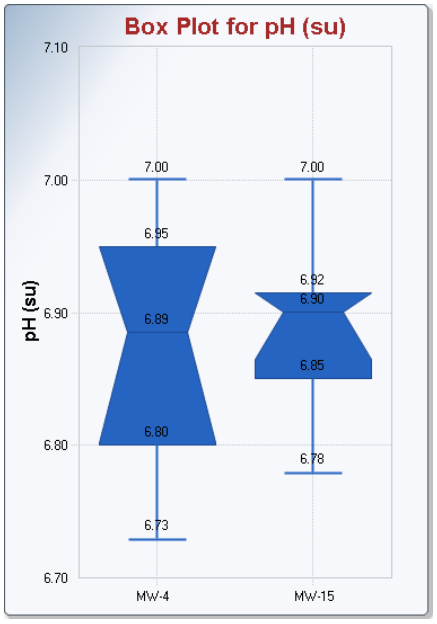
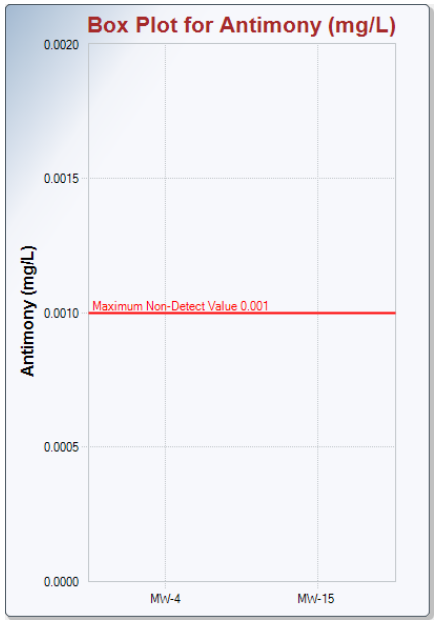
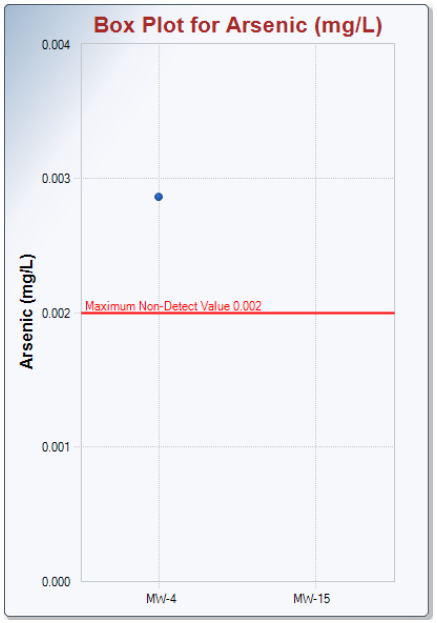


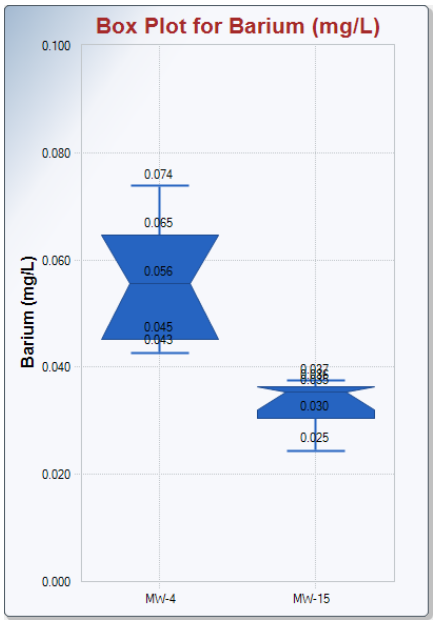
Figure 1

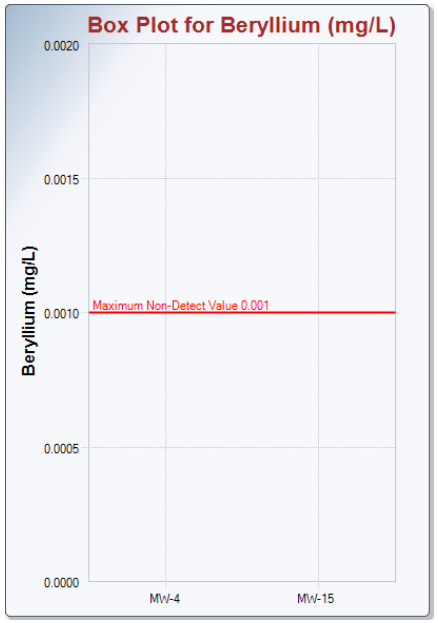
Box Plots
Appendix III Constituents
in Upgradient Groundwater
Neal South Monofill
MidAmerican Energy Company
Salix, Iowa

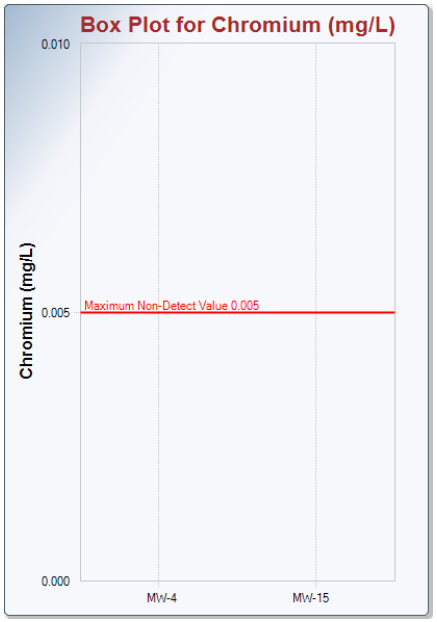
Note:
Data are from analysis of groundwater samples collected from upgradient wells MW-4 and MW-15 during the baseline period (Dec. 2015 through July 2017) – each well has 8 baseline samples.











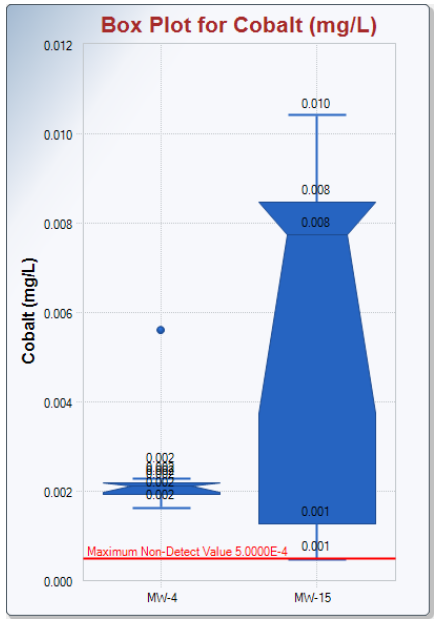
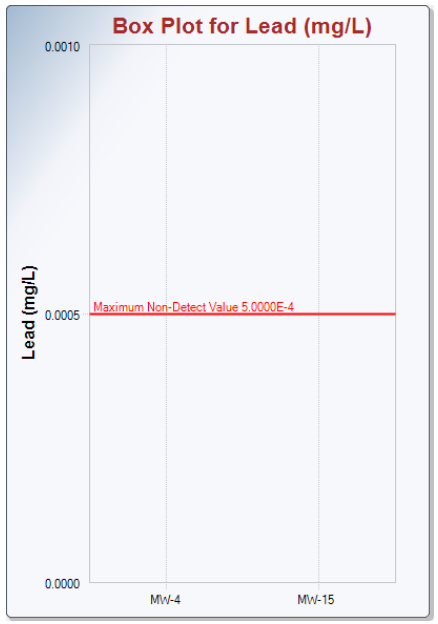
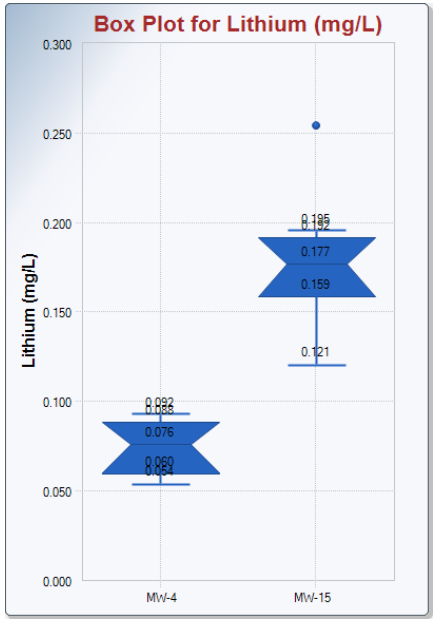


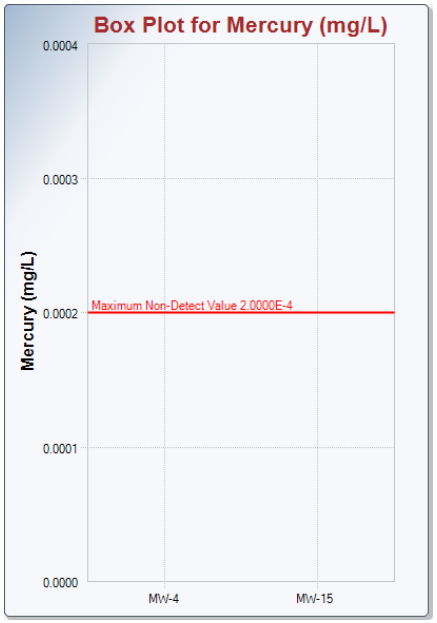
Figure 2

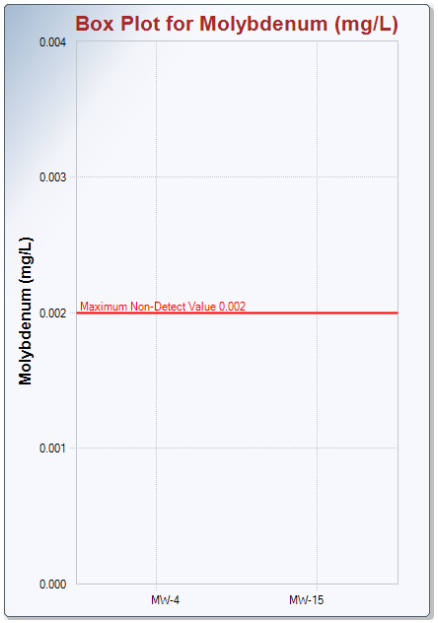
Box Plots
Appendix IV Constituents
in Upgradient Groundwater
Neal South Monofill
MidAmerican Energy Company
Salix, Iowa

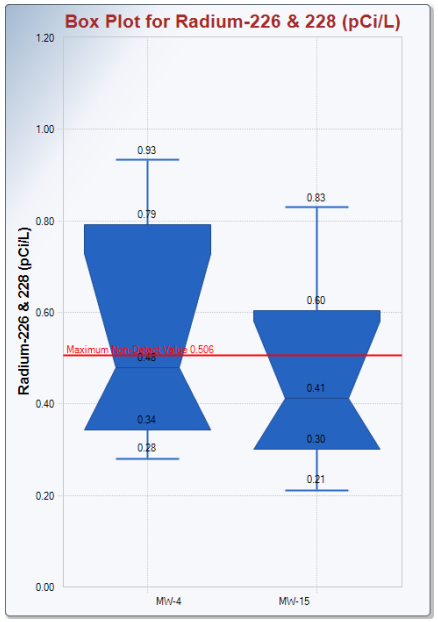
Note:
Data are from analysis of groundwater samples collected from upgradient wells MW-4 and MW-15 during the baseline period (Dec. 2015 through July 2017) – each well has 8 baseline samples.

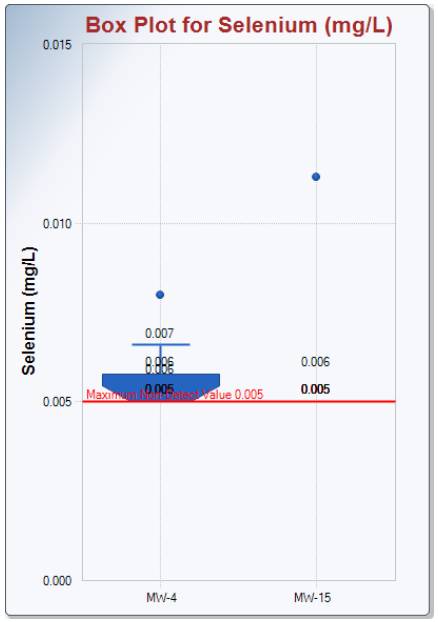












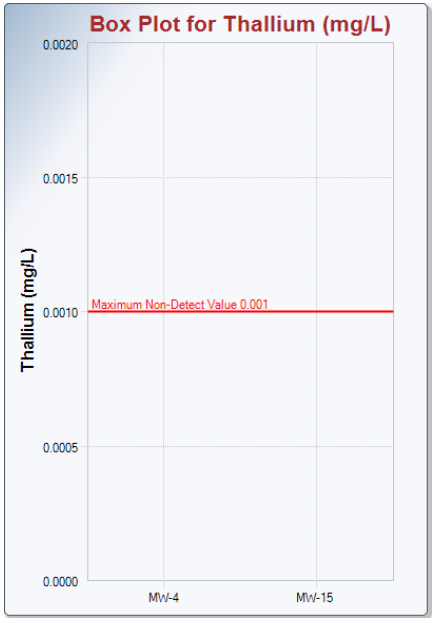


Figure 3

Box Plots (continued)
Appendix IV Constituents
in Upgradient Groundwater
Neal South Monofill
MidAmerican Energy Company
Salix, Iowa

Note:
Data are from analysis of groundwater samples collected from upgradient wells MW-4 and MW-15 during the baseline period (Dec. 2015 through July 2017) – each well has 8 baseline samples.

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