

Data Validation Package

September 2013
Groundwater, Surface Water, and
Alternate Water Supply System
Sampling at the Riverton, Wyoming,
Processing Site

December 2013

WM-00060



U.S. DEPARTMENT OF
ENERGY

Legacy
Management

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Sampling Event Summary

Site: Riverton, Wyoming, Processing Site

Sampling Period: September 17–20, 2013

This quarterly event comprised sampling 18 monitoring wells, 9 surface water locations, and 8 domestic wells at the Riverton, Wyoming, Processing Site. Sampling and analyses were conducted as specified in the *Sampling and Analysis Plan for the U. S. Department of Energy Office of Legacy Management Sites (SAP) (LMS/PRO/S04351, continually updated)*. Water levels were measured at all sampled monitoring wells and 13 additional monitoring wells that were not sampled.

Sampling was also conducted in support of semiannual flushing of the alternate water supply system (AWSS) in accordance with the *Alternate Water Supply System Flushing Plan Riverton, Wyoming* (January 2013). Four domestic tap locations and eight hydrant locations on the AWSS were sampled. Domestic tap location 0814 was not sampled because the home was vacant. Two samples were collected at six of the eight hydrant locations – one sample 5 minutes into the flush and one sample at the end of the flush as specified in the plan. Only end-of-flush samples were collected at hydrant locations 0834 and 0843 because of the short flushing time.

Monitoring at hydrant and tap locations is performed to determine the effectiveness of the flushing program in reducing the naturally occurring radionuclide concentrations and maintaining them at acceptable levels. The flushing program is considered successful when (1) the combined radium-226 and radium-228 concentrations are below the Federal drinking water maximum contaminant level of 5 picocuries per liter (pCi/L) and (2) the uranium concentrations at all locations are below the maximum contaminant level of 0.03 milligram per liter (mg/L) in the post-flush samples. Although the radium-226 and radium-228 concentration (6.07 pCi/L) in the 5-minute sample collected from location 0818 exceeded the maximum contaminant level, the end-of-flush sample radium-226 and radium-228 concentration was 0.944 pCi/L, which indicates the effectiveness of the flushing at this location. The overall effectiveness of the flushing program was demonstrated, with the maximum post-flushing combined radium-226 and radium-228 concentration of 1.25 pCi/L, and maximum observed uranium concentration of 0.0001 mg/L.

Concentrations of molybdenum and uranium in samples collected from semi-confined aquifer monitoring wells were below their respective U.S. Environmental Protection Agency (EPA) (Title 40 *Code of Federal Regulations* [CFR] Part 192) groundwater standard.

The EPA groundwater standards for molybdenum and uranium were exceeded in samples collected from surficial aquifer monitoring wells listed in Table 1. Time-concentration graphs are included in the Data Presentation section.

Table 1. Riverton Wells with Samples that Equaled or Exceeded EPA Groundwater Standards in September 2013

| Analyte | Standard ^a | Location | Concentration in mg/L |
|------------|-----------------------|----------|-----------------------|
| Molybdenum | 0.1 | 0707 | 0.85 |
| | | 0789 | 0.56 |
| Uranium | 0.044 | 0707 | 0.73 |
| | | 0716 | 0.23 |
| | | 0718 | 0.11 |
| | | 0722R | 0.52 |
| | | 0789 | 1.5 |

^a Standards are listed in 40 CFR 192.02 Table 1 to Subpart A.
mg/L = milligrams per liter

Results from domestic wells (Table 2) did not indicate any impacts from the Riverton site. Concentrations of molybdenum in samples collected from domestic wells were two orders of magnitude below the EPA groundwater standard, and uranium concentrations in samples collected from domestic wells were one to three orders of magnitude below the drinking water standard.

Table 2. Concentrations of Molybdenum and Uranium in Samples from Domestic Wells

| Analyte | Standard ^a | Location | Concentration in mg/L |
|------------|-----------------------|----------|-----------------------|
| Molybdenum | 0.1 | 0405 | 0.002 |
| | | 0422 | 0.001 |
| | | 0430 | 0.002 |
| | | 0436 | 0.003 |
| | | 0460 | 0.002 |
| | | 0828 | 0.003 |
| | | 0841 | 0.004 |
| | | 0842 | 0.003 |
| Uranium | 0.03 | 0405 | 0.00008 |
| | | 0422 | 0.0014 |
| | | 0430 | 0.00004 |
| | | 0436 | 0.00007 |
| | | 0460 | 0.00007 |
| | | 0828 | 0.00008 |
| | | 0841 | 0.0018 |
| | | 0842 | 0.00034 |

^a Standards are listed in 40 CFR 192.02 Table 1 to Subpart A (molybdenum) and EPA's National Primary Drinking Water Regulations (uranium).
mg/L = milligrams per liter
ND = not detected

Surface water uranium results were compared to statistical benchmark values derived using historical data from the Little Wind River location 0794, which is located upstream of the site

and represents background conditions. After first determining that the data were normally distributed and free of outliers, the benchmark value was calculated as the 95 percent upper tolerance limit from a data set containing 29 observations collected since 1997. As shown in Table 3, the benchmark value was exceeded only in the oxbow lake (0747), which was formed by a shift in the river path in 1994. Hydraulic and water quality data indicate that the oxbow lake is fed by the discharge of contaminated groundwater; therefore, elevated concentrations are expected. At the time of this sampling event, water was not flowing from the river into the lake. All other surface water locations had uranium concentrations below the benchmark value, which indicates minimal site-related impact on the water quality of the Little Wind River and of the other surface water features. Time-concentration graphs of molybdenum and uranium results at all surface water locations are included in the Data Presentation section.

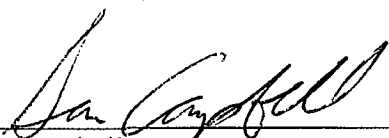
Table 3. Comparison of Surface Water Concentrations (September 2013) to Benchmark

| Location | | Uranium Concentration (mg/L) |
|-----------|---------------------------------------|------------------------------|
| Benchmark | | 0.010 |
| 0794 | Little Wind River, Benchmark Location | 0.0038 |
| 0796 | Little Wind River | 0.0034 |
| 0811 | Little Wind River | 0.0034 |
| 0812 | Little Wind River | 0.0030 |
| 0747 | Oxbow Lake | 0.280 |
| 0810 | Constructed Wetlands | 0.0051 |
| 0822 | West Side Irrigation Ditch | 0.0056 |
| 0823 | Gravel Pit Pond | 0.0064 |
| 0749 | Sulfuric acid plant ditch | 0.0003 |

mg/L = milligrams per liter

The sulfate concentration (390 mg/L) at the ditch that discharges from the Chemtrade sulfuric acid plant (location 0749) remains lower than that observed in previous years. This is a result of a process change made by Chemtrade prior to the June 2013 sampling event. Reduced sulfate is also evident downstream, in the west side irrigation ditch (220 mg/L at location 0822).

Water samples from location 0822 (west side irrigation ditch) were analyzed for radium-226 and radium-228 in response to potentially elevated concentrations of these constituents in the sediments within the ditch. The radium-226 concentration was slightly above the Decision Level Concentrations (DLC) with a combined radium 226+228 concentration of 0.5 pCi/L. Historically, the combined radium concentration at this location has been low, averaging 1.1 pCi/L, indicating no impact to water quality in the ditch.



 Sam Campbell
 Site Lead, S.M. Stoller Corporation

1/7/2014

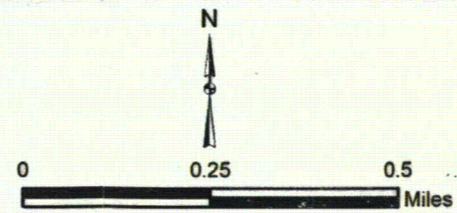
 Date

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LEGEND

- MONITORING WELL TO BE SAMPLED
- WELL TO BE SAMPLED - WATER LEVEL ONLY
- SURFACE LOCATION TO BE SAMPLED
- - - SITE BOUNDARY
- HYDRANT MONITORING LOCATION
- TAP MONITORING LOCATION
- ALTERNATE WATER SUPPLY LINE
- ALTERNATE WATER SUPPLY STORAGE TANK



| | |
|--|---|
| U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO | Work Performed by S.M. Stoller Corporation Under DOE Contract No. DE-AM01-07LM00060 |
| Planned Sampling Map Riverton, WY, Processing Site September 2013 | |
| DATE PREPARED: August 20, 2013 | FILENAME: S1053200 |

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Riverton, Wyoming, Sample Location Map

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Data Assessment Summary

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Water Sampling Field Activities Verification Checklist

| | | | |
|--------------------------------|-------------------|----------------------------------|-----------------------|
| Project | Riverton, Wyoming | Date(s) of Water Sampling | September 17–20, 2013 |
| Date(s) of Verification | December 3, 2013 | Name of Verifier | Stephen Donovan |

| | Response (Yes, No, NA) | Comments |
|--|---------------------------|---|
| 1. Is the SAP the primary document directing field procedures? List any Program Directives or other documents, SOPs, instructions. | Yes | Work Order letter dated August 22, 2013, and Alternate Water Supply System Flushing Plan Riverton, Wyoming. |
| 2. Were the sampling locations specified in the planning documents sampled? | Yes | Domestic tap location 0814 was not sampled because the home was vacant. |
| 3. Were calibrations conducted as specified in the above-named documents? | Yes | Instrument calibration was performed on September 13, 2013. |
| 4. Was an operational check of the field equipment conducted daily? Did the operational checks meet criteria? | Yes | Operational checks were performed as required. |
| 5. Were the number and types (alkalinity, temperature, specific conductance, pH, turbidity, DO, ORP) of field measurements taken as specified? | Yes | |
| 6. Were wells categorized correctly? | Yes | |
| 7. Were the following conditions met when purging a Category I well: Was one pump/tubing volume purged prior to sampling? | Yes | |
| Did the water level stabilize prior to sampling? | Yes | |
| Did pH, specific conductance, and turbidity measurements meet criteria prior to sampling? | Yes | |
| Was the flow rate less than 500 mL/min? | Yes | |

Water Sampling Field Activities Verification Checklist (continued)

| | Response (Yes, No, NA) | Comments |
|--|---------------------------|--|
| 8. Were the following conditions met when purging a Category II well: | | |
| Was the flow rate less than 500 mL/min? | Yes | |
| Was one pump/tubing volume removed prior to sampling? | Yes | |
| 9. Were duplicates taken at a frequency of one per 20 samples? | Yes | Duplicates were collected at locations 0788, 0837, and 0842. |
| 10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with non-dedicated equipment? | Yes | One equipment blank was collected. |
| 11. Were trip blanks prepared and included with each shipment of VOC samples? | NA | |
| 12. Were the true identities of the QC samples documented? | Yes | |
| 13. Were samples collected in the containers specified? | Yes | |
| 14. Were samples filtered and preserved as specified? | Yes | |
| 15. Were the number and types of samples collected as specified? | Yes | All groundwater and surface water samples were analyzed for iron per DOE request. |
| 16. Were chain of custody records completed and was sample custody maintained? | Yes | |
| 17. Was all pertinent information documented on the field data sheets? | Yes | |
| 18. Was the presence or absence of ice in the cooler documented at every sample location? | Yes | |
| 19. Were water levels measured at the locations specified in the planning documents? | Yes | Water levels were measured at all sampled monitoring wells and 13 additional monitoring wells. |

Laboratory Performance Assessment

General Information

Report Number (RIN): 13095603
Sample Event: September 17-20, 2013
Site(s): Riverton, Wyoming
Laboratory: ALS Laboratory Group, Fort Collins, Colorado
Work Order No.: 1309379
Analysis: Metals, Wet Chemistry, and Radiochemistry
Validator: Stephen Donivan
Review Date: November 19, 2013

This validation was performed according to the *Environmental Procedures Catalog*, (LMS/POL/S04325, continually updated) "Standard Practice for Validation of Environmental Data." The procedure was applied at Level 3, Data Validation. All analyses were successfully completed. The samples were prepared and analyzed using accepted procedures based on methods specified by line item code, which are listed in Table 4.

Table 4. Analytes and Methods

| Analyte | Line Item Code | Prep Method | Analytical Method |
|-------------------------------|----------------|--------------|-------------------|
| Chloride | MIS-A-045 | SW-846 9056 | SW-846 9056 |
| Metals: Ca, Fe, K, Mg, Mn, Na | LMM-01 | SW-846 3005A | SW-846 6010B |
| Metals: Mo, U | LMM-02 | SW-846 3005A | SW-846 6020A |
| Radium-226 | GPC-A-018 | PA SOP712 | PA SOP724 |
| Radium-228 | GPC-A-020 | PA SOP749 | PA SOP724 |
| Sulfate | MIS-A-045 | SW-846 9056 | SW-846 9056 |

Data Qualifier Summary

Analytical results were qualified as listed in Table 5. Refer to the sections below for an explanation of the data qualifiers applied.

Table 5. Data Qualifier Summary

| Sample Number | Location | Analyte(s) | Flag | Reason |
|---------------|----------|------------|------|---|
| 1309379-1 | 0405 | Iron | U | Less than 5 times the calibration blank |
| 1309379-1 | 0405 | Potassium | U | Less than 5 times the calibration blank |
| 1309379-3 | 0430 | Potassium | U | Less than 5 times the method blank |
| 1309379-4 | 0436 | Potassium | U | Less than 5 times the method blank |
| 1309379-5 | 0460 | Iron | U | Less than 5 times the calibration blank |
| 1309379-5 | 0460 | Potassium | U | Less than 5 times the method blank |
| 1309379-6 | 0705 | Potassium | U | Less than 5 times the calibration blank |
| 1309379-7 | 0707 | Iron | U | Less than 5 times the calibration blank |
| 1309379-8 | 0710 | Iron | U | Less than 5 times the calibration blank |
| 1309379-14 | 0721 | Potassium | U | Less than 5 times the method blank |
| 1309379-15 | 0722R | Iron | U | Less than 5 times the calibration blank |
| 1309379-17 | 0729 | Iron | U | Less than 5 times the calibration blank |
| 1309379-21 | 0784 | Iron | U | Less than 5 times the calibration blank |
| 1309379-22 | 0788 | Iron | U | Less than 5 times the calibration blank |
| 1309379-24 | 0794 | Calcium | J | Less than 10 times the equipment blank |
| 1309379-24 | 0794 | Iron | J | Less than 10 times the equipment blank |
| 1309379-24 | 0794 | Magnesium | J | Less than 10 times the equipment blank |
| 1309379-24 | 0794 | Uranium | J | Less than 10 times the equipment blank |
| 1309379-25 | 0796 | Calcium | J | Less than 10 times the equipment blank |
| 1309379-25 | 0796 | Iron | U | Less than 5 times the calibration blank |
| 1309379-25 | 0796 | Magnesium | J | Less than 10 times the equipment blank |
| 1309379-25 | 0796 | Uranium | J | Less than 10 times the equipment blank |
| 1309379-26 | 0810 | Calcium | J | Less than 10 times the equipment blank |
| 1309379-26 | 0810 | Iron | U | Less than 5 times the calibration blank |
| 1309379-26 | 0810 | Magnesium | J | Less than 10 times the equipment blank |
| 1309379-27 | 0811 | Calcium | J | Less than 10 times the equipment blank |
| 1309379-27 | 0811 | Magnesium | J | Less than 10 times the equipment blank |
| 1309379-27 | 0811 | Uranium | J | Less than 10 times the equipment blank |
| 1309379-28 | 0812 | Calcium | J | Less than 10 times the equipment blank |
| 1309379-28 | 0812 | Magnesium | J | Less than 10 times the equipment blank |
| 1309379-28 | 0812 | Uranium | J | Less than 10 times the equipment blank |
| 1309379-29 | 0813 | Radium-228 | J | Less than the determination limit |
| 1309379-30 | 0815 | Radium-226 | J | Less than the determination limit |
| 1309379-30 | 0815 | Radium-228 | J | Less than the determination limit |
| 1309379-31 | 0816 | Radium-228 | J | Less than the determination limit |
| 1309379-33 | 0818 | Radium-226 | J | Less than the determination limit |
| 1309379-33 | 0818 | Radium-228 | J | Less than the determination limit |
| 1309379-34 | 0819 | Radium-226 | J | Less than the determination limit |
| 1309379-34 | 0819 | Radium-228 | J | Less than the determination limit |
| 1309379-35 | 0819 | Radium-226 | J | Less than the determination limit |
| 1309379-35 | 0819 | Radium-228 | J | Less than the determination limit |

Table 5 (continued). Data Qualifier Summary

| Sample Number | Location | Analyte(s) | Flag | Reason |
|---------------|-----------------|------------|------|---|
| 1309379-36 | 0820 | Radium-226 | J | Less than the determination limit |
| 1309379-36 | 0820 | Radium-228 | J | Less than the determination limit |
| 1309379-37 | 0820 | Radium-226 | J | Less than the determination limit |
| 1309379-37 | 0820 | Radium-228 | J | Less than the determination limit |
| 1309379-38 | 0821 | Radium-228 | J | Less than the determination limit |
| 1309379-39 | 0821 | Radium-226 | J | Less than the determination limit |
| 1309379-39 | 0821 | Radium-228 | J | Less than the determination limit |
| 1309379-40 | 0822 | Potassium | J | Serial dilution result |
| 1309379-40 | 0822 | Iron | J | Less than 10 times the equipment blank |
| 1309379-40 | 0822 | Manganese | J | Serial dilution result |
| 1309379-40 | 0822 | Magnesium | J | Less than 10 times the equipment blank |
| 1309379-40 | 0822 | Radium-226 | J | Less than the determination limit |
| 1309379-40 | 0822 | Uranium | J | Serial dilution result |
| 1309379-41 | 0823 | Iron | J | Less than 10 times the equipment blank |
| 1309379-44 | 0828 | Iron | U | Less than 5 times the calibration blank |
| 1309379-44 | 0828 | Potassium | U | Less than 5 times the method blank |
| 1309379-46 | 0829 | Radium-228 | J | Less than the determination limit |
| 1309379-47 | 0830 | Radium-226 | J | Less than the determination limit |
| 1309379-47 | 0830 | Radium-228 | J | Less than the determination limit |
| 1309379-48 | 0830 | Radium-228 | J | Less than the determination limit |
| 1309379-49 | 0834 | Radium-226 | J | Less than the determination limit |
| 1309379-49 | 0834 | Radium-228 | J | Less than the determination limit |
| 1309379-50 | 0837 | Radium-228 | J | Less than the determination limit |
| 1309379-51 | 0841 | Iron | U | Less than 5 times the calibration blank |
| 1309379-52 | 0842 | Potassium | U | Less than 5 times the method blank |
| 1309379-54 | 0842 Duplicate | Potassium | U | Less than 5 times the method blank |
| 1309379-55 | 0788 Duplicate | Iron | U | Less than 5 times the calibration blank |
| 1309379-56 | Equipment blank | Potassium | U | Less than 5 times the method blank |
| 1309379-56 | Equipment blank | Sodium | U | Less than 5 times the method blank |
| 1309379-57 | 0837 Duplicate | Radium-226 | J | Less than the determination limit |
| 1309379-57 | 0837 Duplicate | Radium-228 | J | Less than the determination limit |

Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received 57 water samples on September 25, 2013, accompanied by a Chain of Custody (COC) form. The COC form was checked to confirm that all of the samples were listed with sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt. The sample submittal documents had no errors or omissions with the following exception. Sample 0813 was marked on the COC form as not present, but was included in the sample shipment.

Preservation and Holding Times

The sample shipment was received cool and intact with the temperature inside the iced cooler at 0.2 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses with one exception. The dissolved organic carbon aliquot from location 0729 was received with a pH value of 6. The aliquot was acidified by the laboratory to a pH less than 2 and allowed to equilibrate prior to analysis. All samples were analyzed within the applicable holding times.

Detection and Quantitation Limits

The method detection limit (MDL) was reported for all metal and wet chemical analytes as required. The MDL, as defined in 40 CFR 136, is the minimum concentration of an analyte that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero. The practical quantitation limit (PQL) for these analytes is the lowest concentration that can be reliably measured, and is defined as 5 times the MDL.

For radiochemical analytes (those measured by radiometric counting) the MDL and PQL are not applicable, and these results are evaluated using the minimum detectable concentration (MDC), DLC, and Determination Limit (DL). The MDC is a measure of radiochemical method performance and was calculated and reported as specified in *Quality Systems for Analytical Services*. The DLC is the minimum concentration of an analyte that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, and is estimated as 3 times the one-sigma total propagated uncertainty. Results that are greater than the MDC, but less than the DLC are qualified with a "U" flag (not detected). The DL for radiochemical results is the lowest concentration that can be reliably measured, and is defined as 3 times the MDC. Results not previously "U" qualified that are less than the DL are qualified with a "J" flag as estimated values.

The reported MDLs for all metal and wet chemical analytes, and MDCs for radiochemical analytes demonstrate compliance with contractual requirements.

Laboratory Instrument Calibration

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data for all analytes. Initial calibration demonstrates that the instrument is capable of acceptable performance in the beginning of the analytical run and of producing a linear curve. Compliance requirements for continuing calibration checks are established to ensure that the instrument continues to be capable of producing acceptable qualitative and quantitative data. All laboratory instrument calibrations were performed correctly in accordance with the cited methods. All calibration and laboratory spike standards were prepared from independent sources.

Method SW-846 6010, Metals

Calibrations for calcium, potassium, magnesium, and manganese were performed on October 17, 2013. Calibrations for iron were performed on October 17 and 21, 2013. The calibration curve generated using four calibration standards had correlation coefficient values greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL.

Initial and continuing calibration verification checks were made at the required frequency with all calibration checks meeting the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the PQL and all results were within the acceptance range.

Method SW-846 6020, Molybdenum, Uranium

Calibrations for molybdenum and uranium were performed on October 18, 2013, using four calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks meeting the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the PQL and all results were within the acceptance range. Mass calibration and resolution verifications were performed at the beginning of each analytical run in accordance with the analytical procedure. Internal standard recoveries associated with requested analytes were stable and within acceptable ranges.

Method SW-846 9056, Chloride, Sulfate

The calibrations for chloride and sulfate were performed using five calibration standards on September 9, 2013. The calibration curve correlation coefficient values were greater than 0.995 and the absolute value of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency. All calibration checks met the acceptance criteria.

Radium-226

Instrument calibration was performed August 2013. Daily instrument checks performed October 1, 2013, met the acceptance criteria. The chemical recoveries met the acceptance criteria of 40 to 110 percent for all samples.

Radium-228

Instrument calibration was performed May 2013. Daily instrument checks performed on October 17, 2013, met the acceptance criteria. The chemical recoveries met the acceptance criteria of 40 to 110 percent for all samples.

Method and Calibration Blanks

Method blanks are analyzed to assess any contamination that may have occurred during sample preparation. Calibration blanks are analyzed to assess instrument contamination prior to and during sample analysis.

Metals and Wet Chemistry

All method blank and calibration blank results associated with the samples were below the PQLs for all analytes. All method, initial calibration, and continuing calibration blank results associated with the samples were below the PQLs.

In cases where a blank concentration exceeds the MDL, the associated sample results are qualified with a "U" flag (not detected) when the sample result is greater than the MDL but less than 5 times the blank concentration.

Radiochemistry

The radium-226 and radium-228 method blank results were below the DLC.

Inductively Coupled Plasma Interference Check Sample Analysis

Interference check samples were analyzed at the required frequency to verify the instrumental interelement and background correction factors. All check sample results met the acceptance criteria.

Matrix Spike Analysis

Matrix spike and matrix spike duplicate samples are used to measure method performance in the sample matrix. The spike recoveries met the acceptance criteria for all analytes evaluated.

Laboratory Replicate Analysis

Laboratory replicate sample results demonstrate acceptable laboratory precision. The relative percent difference values for the non-radiochemical sample replicates and matrix spike replicates were less than 20 percent for results that are greater than 5 times the PQL, indicating acceptable precision. The radiochemical relative error ratio (calculated using the one-sigma total propagated uncertainty) for the laboratory control sample replicates was less than three, indicating acceptable precision.

Laboratory Control Sample

Laboratory control samples were analyzed at the correct frequency to provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. All control sample results were acceptable.

Metals Serial Dilution

Serial dilutions were prepared and analyzed for the metals analyses to monitor chemical or physical interferences in the sample matrix. Serial dilution data are evaluated when the concentration of the undiluted sample is greater than 50 times the MDL. The serial dilution results met the acceptance criteria with the following exceptions. The potassium, manganese, and uranium results for the serial dilution prepared from sample 0822 did not meet the acceptance criteria. The associated sample results are qualified with a "J" flag as estimated values.

Completeness

Results were reported in the correct units for all analytes requested using contract-required laboratory qualifiers. The analytical report included the MDL (MDC for radiochemistry) and PQL for all analytes and all required supporting documentation.

Chromatography Peak Integration

The integration of analyte peaks was reviewed for all ion chromatography data. All peak integrations were satisfactory.

Electronic Data Deliverable (EDD) File

The EDD file arrived on October 23, 2013. The Sample Management System EDD validation module was used to verify that the EDD files were complete and in compliance with requirements. The module compares the contents of the files to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

SAMPLE MANAGEMENT SYSTEM

General Data Validation Report

RIN: 13095603 Lab Code: PAR Validator: Stephen Dohivan Validation Date: 11/19/2013
Project: Riverton Analysis Type: Metals General Chem Rad Organics
of Samples: 57 Matrix: WATER Requested Analysis Completed: Yes

Chain of Custody

Present: OK Signed: OK Dated: OK

Sample

Integrity: OK Preservation: OK Temperature: OK

Select Quality Parameters

- Holding Times
- Detection Limits
- Field/Trip Blanks
- Field Duplicates

All analyses were completed within the applicable holding times.

The reported detection limits are equal to or below contract requirements.

There was 1 trip/equipment blank evaluated.

There were 3 duplicates evaluated.

SAMPLE MANAGEMENT SYSTEM

Metals Data Validation Worksheet

RIN: 13095603 Lab Code: PAR Date Due: 10/23/2013
 Matrix: Water Site Code: RVT01 Date Completed: 10/23/2013

| Analyte | Method Type | Date Analyzed | CALIBRATION | | | | Method Blank | LCS %R | MS %R | MSD %R | Dup. RPD | ICSAB %R | Serial Dil. %R | CRI %R |
|------------|-------------|---------------|-------------|----------------|-----|-----|--------------|--------|-------|--------|----------|----------|----------------|--------|
| | | | Int. | R ² | CCV | CCB | | | | | | | | |
| Calcium | ICP/ES | 10/17/2013 | | | OK | OK | OK | 97.0 | 90.0 | 89.0 | 0.0 | 101.0 | 2.0 | 105.0 |
| Calcium | ICP/ES | 10/18/2013 | | | OK | OK | OK | 99.0 | 95.0 | 98.0 | 2.0 | 102.0 | 3.0 | 104.0 |
| Calcium | ICP/ES | 10/18/2013 | | | | | OK | 99.0 | 86.0 | 82.0 | 1.0 | 102.0 | 1.0 | 104.0 |
| Iron | ICP/ES | 10/18/2013 | | | OK | OK | OK | 94.0 | 91.0 | 96.0 | 6.0 | 103.0 | | 98.0 |
| Iron | ICP/ES | 10/18/2013 | | | | | OK | 97.0 | 94.0 | 93.0 | 1.0 | 105.0 | | 102.0 |
| Iron | ICP/ES | 10/21/2013 | | | OK | OK | OK | 92.0 | 89.0 | 91.0 | 2.0 | 108.0 | | 96.0 |
| Magnesium | ICP/ES | 10/17/2013 | | | OK | OK | OK | 97.0 | 93.0 | 93.0 | 0.0 | 105.0 | 4.0 | 105.0 |
| Magnesium | ICP/ES | 10/18/2013 | | | OK | OK | OK | 101.0 | 97.0 | 98.0 | 1.0 | 99.0 | 1.0 | 103.0 |
| Magnesium | ICP/ES | 10/18/2013 | | | | | OK | 98.0 | 95.0 | 93.0 | 1.0 | 102.0 | 3.0 | 101.0 |
| Manganese | ICP/ES | 10/17/2013 | | | OK | OK | OK | 92.0 | 90.0 | 91.0 | 1.0 | 97.0 | 16.0 | 112.0 |
| Manganese | ICP/ES | 10/18/2013 | | | OK | OK | OK | 100.0 | 97.0 | 97.0 | 1.0 | 93.0 | 3.0 | 108.0 |
| Manganese | ICP/ES | 10/18/2013 | | | | | OK | 104.0 | 100.0 | 99.0 | 1.0 | 95.0 | | 111.0 |
| Molybdenum | ICP/MS | 10/18/2013 | | | OK | OK | OK | 91.0 | 87.0 | 95.0 | 2.0 | | | 102.0 |
| Molybdenum | ICP/MS | 10/18/2013 | | | | | OK | 91.0 | 100.0 | 99.0 | 1.0 | | | 94.0 |
| Molybdenum | ICP/MS | 10/18/2013 | | | | | OK | 94.0 | 96.0 | 94.0 | 2.0 | | | |
| Potassium | ICP/ES | 10/17/2013 | | | OK | OK | OK | 97.0 | 119.0 | 120.0 | 1.0 | | 15.0 | 85.0 |
| Potassium | ICP/ES | 10/18/2013 | | | OK | OK | OK | 102.0 | 105.0 | 105.0 | 1.0 | | | 84.0 |
| Potassium | ICP/ES | 10/18/2013 | | | | | OK | 99.0 | 113.0 | 113.0 | 0.0 | | | 83.0 |

SAMPLE MANAGEMENT SYSTEM

Metals Data Validation Worksheet

RIN: 13095603 Lab Code: PAR Date Due: 10/23/2013
 Matrix: Water Site Code: RVT01 Date Completed: 10/23/2013

| Analyte | Method Type | Date Analyzed | CALIBRATION | | | Method Blank | LCS %R | MS %R | MSD %R | Dup. RPD | ICSAB %R | Serial Dil. %R | CRI %R |
|---------|-------------|---------------|-------------|----------------|---------|--------------|--------|-------|--------|----------|----------|----------------|--------|
| | | | Int. | R ² | CCV/CCB | | | | | | | | |
| Sodium | ICP/ES | 10/17/2013 | | | OK OK | OK | 99.0 | 96.0 | 100.0 | 1.0 | | 7.0 | 84.0 |
| Sodium | ICP/ES | 10/18/2013 | | | OK OK | OK | 103.0 | 106.0 | 108.0 | 1.0 | | 8.0 | 85.0 |
| Sodium | ICP/ES | 10/18/2013 | | | | OK | 101.0 | 101.0 | 96.0 | 2.0 | | 3.0 | 85.0 |
| Uranium | ICP/MS | 10/18/2013 | | | OK OK | OK | 101.0 | 105.0 | 102.0 | 3.0 | | 14.0 | 100.0 |
| Uranium | ICP/MS | 10/18/2013 | | | | OK | 101.0 | 105.0 | 107.0 | 1.0 | | | 104.0 |
| Uranium | ICP/MS | 10/18/2013 | | | | OK | 101.0 | 99.0 | 102.0 | 3.0 | | | |

SAMPLE MANAGEMENT SYSTEM
Radiochemistry Data Validation Worksheet

RIN: 13095603

Lab Code: PAR

Date Due: 10/23/2013

Matrix: Water

Site Code: RVT01

Date Completed: 10/23/2013

| Sample | Analyte | Date Analyzed | Result | Flag | Tracer %R | LCS %R | MS %R | Duplicate |
|----------------|------------|---------------|--------|------|-----------|--------|-------|-----------|
| 0813 | Radium-226 | 10/21/2013 | | | 92.5 | | | |
| 0815 | Radium-226 | 10/21/2013 | | | 89.9 | | | |
| 0816 | Radium-226 | 10/21/2013 | | | 93.0 | | | |
| 0818 | Radium-226 | 10/21/2013 | | | 95.1 | | | |
| 0818 | Radium-226 | 10/21/2013 | | | 95.8 | | | |
| 0819 | Radium-226 | 10/21/2013 | | | 91.1 | | | |
| 0819 | Radium-226 | 10/21/2013 | | | 95.6 | | | |
| 0820 | Radium-226 | 10/21/2013 | | | 97.4 | | | |
| 0820 | Radium-226 | 10/21/2013 | | | 95.3 | | | |
| 0821 | Radium-226 | 10/21/2013 | | | 95.1 | | | |
| 0821 | Radium-226 | 10/21/2013 | | | 94.9 | | | |
| 0822 | Radium-226 | 10/21/2013 | | | 94.1 | | | |
| 0829 | Radium-226 | 10/21/2013 | | | 95.0 | | | |
| 0829 | Radium-226 | 10/21/2013 | | | 97.3 | | | |
| 0830 | Radium-226 | 10/21/2013 | | | 93.7 | | | |
| 0830 | Radium-226 | 10/21/2013 | | | 93.3 | | | |
| 0834 | Radium-226 | 10/21/2013 | | | 93.1 | | | |
| 0837 | Radium-226 | 10/21/2013 | | | 96.0 | | | |
| 0843 | Radium-226 | 10/21/2013 | | | 96.7 | | | |
| 2469 | Radium-226 | 10/21/2013 | | | 93.2 | | | |
| Blank Spike | Radium-226 | 10/21/2013 | | | 91.4 | 92.70 | | |
| Blank Spike Du | Radium-226 | 10/21/2013 | | | 97.1 | 92.00 | | 0.05 |
| Blank | Radium-226 | 10/21/2013 | 0.1370 | U | 94.2 | | | |
| 0813 | Radium-228 | 10/17/2013 | | | 94.1 | | | |
| 0815 | Radium-228 | 10/17/2013 | | | 95.9 | | | |
| 0816 | Radium-228 | 10/17/2013 | | | 95.3 | | | |
| 0818 | Radium-228 | 10/17/2013 | | | 94.7 | | | |
| 0818 | Radium-228 | 10/17/2013 | | | 96.4 | | | |
| 0819 | Radium-228 | 10/17/2013 | | | 96.9 | | | |
| 0819 | Radium-228 | 10/17/2013 | | | 93.6 | | | |
| 0820 | Radium-228 | 10/17/2013 | | | 93.7 | | | |
| 0820 | Radium-228 | 10/17/2013 | | | 96.2 | | | |

SAMPLE MANAGEMENT SYSTEM
Radiochemistry Data Validation Worksheet

RIN: 13095603 Lab Code: PAR Date Due: 10/23/2013
 Matrix: Water Site Code: RVT01 Date Completed: 10/23/2013

| Sample | Analyte | Date Analyzed | Result | Flag | Tracer %R | LCS %R | MS %R | Duplicate |
|----------------|------------|---------------|--------|------|-----------|--------|-------|-----------|
| 0821 | Radium-228 | 10/17/2013 | | | 94.9 | | | |
| 0821 | Radium-228 | 10/17/2013 | | | 95.0 | | | |
| 0822 | Radium-228 | 10/17/2013 | | | 78.6 | | | |
| 0829 | Radium-228 | 10/17/2013 | | | 97.0 | | | |
| 0829 | Radium-228 | 10/17/2013 | | | 97.3 | | | |
| 0830 | Radium-228 | 10/17/2013 | | | 94.8 | | | |
| 0830 | Radium-228 | 10/17/2013 | | | 96.9 | | | |
| 0834 | Radium-228 | 10/17/2013 | | | 96.8 | | | |
| 0837 | Radium-228 | 10/17/2013 | | | 96.3 | | | |
| 0843 | Radium-228 | 10/17/2013 | | | 97.2 | | | |
| 2469 | Radium-228 | 10/17/2013 | | | 98.3 | | | |
| Blank_Spike | Radium-228 | 10/17/2013 | | | 98.1 | 123.00 | | |
| Blank_Spike_Du | Radium-228 | 10/17/2013 | | | 98.6 | 118.00 | | 0.20 |
| Blank | Radium-228 | 10/17/2013 | 0.1520 | U | 95.5 | | | |

SAMPLE MANAGEMENT SYSTEM
Wet Chemistry Data Validation Worksheet

RIN: 13095603

Lab Code: PAR

Date Due: 10/23/2013

Matrix: Water

Site Code: RVT01

Date Completed: 10/23/2013

| Analyte | Date Analyzed | CALIBRATION | | | | | Method Blank | LCS %R | MS %R | MSD %R | DUP RPD | Serial Dil. %R |
|----------|---------------|-------------|----------------|-----|-----|----|-----------------|-----------|----------|-----------|------------|-------------------|
| | | Int. | R ² | CCV | CCB | OK | | | | | | |
| CHLORIDE | 10/05/2013 | 0.000 | 0.9999 | OK | OK | OK | 99.00 | 101.0 | 103.0 | 1.00 | | |
| CHLORIDE | 10/05/2013 | | | OK | OK | OK | 102.00 | | | | | |
| SULFATE | 10/05/2013 | 0.000 | 0.9999 | OK | OK | OK | 97.00 | 92.0 | 100.0 | 2.00 | | |
| SULFATE | 10/05/2013 | | | OK | OK | OK | 101.00 | 102.0 | 100.0 | 1.00 | | |

Sampling Quality Control Assessment

The following information summarizes and assesses quality control for this sampling event.

Sampling Protocol

Surface water locations were sampled using a peristaltic pump and tubing reel. Monitoring wells were sampled using a peristaltic pump and dedicated tubing. Domestic wells (0405, 0422, 0430, 0436, 0460, 0828, 0841, and 0842) were sampled by filling bottles at the discharge point.

Sample results for all monitoring wells met the Category I or II low-flow sampling criteria and were qualified with an "F" flag in the database, indicating the wells were purged and sampled using the low-flow sampling method. Criteria for Category I wells (wells with sufficient yield), which involves more rigor than Category II wells, specifies that water-level and field parameter (pH, specific conductance, and turbidity) measurements must stabilize during the purging process prior to sampling. Criteria for Category II well (low-producing wells) involves sampling immediately after a tubing volume is removed with no water-level or parameter stability required. Wells 0705, 0719, and 0730 were classified as Category II wells because the low-yield of the well (water-level draw-down at flow-rate 100 mL/minute). Because sampling of Category II well involves less rigor, results from these wells were qualified with a "Q" flag as specified in the SAP, indicating the data are qualitative because of the sampling technique.

Equipment Blank

An equipment blank was collected after decontamination of the non-dedicated sampling equipment used at some surface water locations. Calcium, magnesium, manganese, iron, and uranium were detected in the equipment blank. Reanalysis of the equipment blank confirmed the reported results. Associated sample results for these analytes that are less than 5 times (10 times for calcium and magnesium) the blank concentration are qualified with a "J" flag as estimated values.

Field Duplicate Assessment

Field duplicate samples are collected and analyzed as an indication of overall precision of the measurement process. The precision observed includes both field and laboratory precision and has more variability than laboratory duplicates, which measure only laboratory performance. Duplicate samples were collected from locations 0788, 0837, and 0842. For non-radiochemical measurements, the relative percent difference for duplicate results that are greater than 5 times the PQL should be less than 20 percent. The RPD is not used to evaluate results that are less than 5 times the PQL. For these results (RPD is NA on the Field Duplicates report), the range should be no greater than the PQL. For radiochemical measurements, the relative error ratio (the ratio of the absolute difference between the sample and duplicate results and the sum of the 1-sigma uncertainties) is used to evaluate duplicate results and should be less than 3. All duplicate results met these criteria demonstrating acceptable overall precision.

SAMPLE MANAGEMENT SYSTEM
Validation Report: Equipment/Trip Blanks

RIN: 13095603 Lab Code: PAR Project: Riverton Validation Date: 12/03/2013

Blank Data

| Blank Type | Lab Sample ID | Lab Method | Analyte Name | Result | Qualifier | MDL | Units |
|-----------------|---------------|------------|--------------|--------|-----------|-----|-------|
| Equipment Blank | 1309379-56 | SW6010 | Calcium | 6700 | | 12 | UG/L |

| Sample ID | Sample Ticket | Location | Result | Dilution Factor | Lab Qualifier | Validation Qualifier |
|------------|---------------|----------|--------|-----------------|---------------|----------------------|
| 1309379-19 | LKW 027 | 0747 | 150000 | 1 | | |
| 1309379-24 | LKW 029 | 0794 | 55000 | 1 | | J |
| 1309379-25 | LKW 030 | 0796 | 59000 | 1 | | J |
| 1309379-26 | LKW 031 | 0810 | 15000 | 1 | | J |
| 1309379-27 | LKW 032 | 0811 | 58000 | 1 | | J |
| 1309379-28 | LKW 033 | 0812 | 53000 | 1 | | J |
| 1309379-40 | LKW 034 | 0822 | 87000 | 1 | | |
| 1309379-41 | LKW 035 | 0823 | 180000 | 1 | | |

Blank Data

| Blank Type | Lab Sample ID | Lab Method | Analyte Name | Result | Qualifier | MDL | Units |
|-----------------|---------------|------------|--------------|--------|-----------|-----|-------|
| Equipment Blank | 1309379-56 | SW6010 | Magnesium | 1600 | | 13 | UG/L |

| Sample ID | Sample Ticket | Location | Result | Dilution Factor | Lab Qualifier | Validation Qualifier |
|------------|---------------|----------|--------|-----------------|---------------|----------------------|
| 1309379-19 | LKW 027 | 0747 | 55000 | 1 | | |
| 1309379-24 | LKW 029 | 0794 | 19000 | 1 | | |
| 1309379-25 | LKW 030 | 0796 | 21000 | 1 | | |
| 1309379-26 | LKW 031 | 0810 | 94000 | 1 | | |
| 1309379-27 | LKW 032 | 0811 | 21000 | 1 | | |
| 1309379-28 | LKW 033 | 0812 | 19000 | 1 | | |
| 1309379-40 | LKW 034 | 0822 | 23000 | 1 | | |
| 1309379-41 | LKW 035 | 0823 | 92000 | 1 | | |

Blank Data

| Blank Type | Lab Sample ID | Lab Method | Analyte Name | Result | Qualifier | MDL | Units |
|-----------------|---------------|------------|--------------|--------|-----------|------|-------|
| Equipment Blank | 1309379-56 | SW6010 | Manganese | 73 | | 0.11 | UG/L |

| Sample ID | Sample Ticket | Location | Result | Dilution Factor | Lab Qualifier | Validation Qualifier |
|------------|---------------|----------|--------|-----------------|---------------|----------------------|
| 1309379-19 | LKW 027 | 0747 | 400 | 1 | | |
| 1309379-24 | LKW 029 | 0794 | 10 | 1 | | J |
| 1309379-25 | LKW 030 | 0796 | 4.6 | 1 | B | J |
| 1309379-26 | LKW 031 | 0810 | 5.3 | 1 | | J |

SAMPLE MANAGEMENT SYSTEM
Validation Report: Equipment/Trip Blanks

RIN: 13095603 Lab Code: PAR Project: Riverton Validation Date: 12/03/2013

Blank Data

| Blank Type | Lab Sample ID | Lab Method | Analyte Name | Result | Qualifier | MDL | Units |
|-----------------|---------------|------------|--------------|--------|-----------|-----|-------|
| Equipment Blank | 1309379-56 | | Manganese | | | | |

| Sample ID | Sample Ticket | Location | Result | Dilution Factor | Lab Qualifier | Validation Qualifier |
|------------|---------------|----------|--------|-----------------|---------------|----------------------|
| 1309379-27 | LKW 032 | 0811 | 8.2 | 1 | | J |
| 1309379-28 | LKW 033 | 0812 | 9.5 | 1 | | J |
| 1309379-40 | LKW 034 | 0822 | 15 | 1 | E | J |
| 1309379-41 | LKW 035 | 0823 | 660 | 1 | | |

Blank Data

| Blank Type | Lab Sample ID | Lab Method | Analyte Name | Result | Qualifier | MDL | Units |
|-----------------|---------------|------------|--------------|--------|-----------|-----|-------|
| Equipment Blank | 1309379-56 | SW6010 | Iron | 3300 | | 4.9 | UG/L |

| Sample ID | Sample Ticket | Location | Result | Dilution Factor | Lab Qualifier | Validation Qualifier |
|------------|---------------|----------|--------|-----------------|---------------|----------------------|
| 1309379-19 | LKW 027 | 0747 | 4.9 | 1 | U | |
| 1309379-24 | LKW 029 | 0794 | 36 | 1 | B | J |
| 1309379-25 | LKW 030 | 0796 | 6.2 | 1 | B | J |
| 1309379-26 | LKW 031 | 0810 | 6.6 | 1 | B | J |
| 1309379-27 | LKW 032 | 0811 | 4.9 | 1 | U | |
| 1309379-28 | LKW 033 | 0812 | 4.9 | 1 | U | |
| 1309379-40 | LKW 034 | 0822 | 150 | 1 | | J |
| 1309379-41 | LKW 035 | 0823 | 160 | 1 | | J |

Blank Data

| Blank Type | Lab Sample ID | Lab Method | Analyte Name | Result | Qualifier | MDL | Units |
|-----------------|---------------|------------|--------------|--------|-----------|-------|-------|
| Equipment Blank | 1309379-56 | SW6020 | Uranium | 0.97 | | 0.029 | UG/L |

| Sample ID | Sample Ticket | Location | Result | Dilution Factor | Lab Qualifier | Validation Qualifier |
|------------|---------------|----------|--------|-----------------|---------------|----------------------|
| 1309379-19 | LKW 027 | 0747 | 280 | 50 | | |
| 1309379-24 | LKW 029 | 0794 | 3.8 | 10 | | J |
| 1309379-25 | LKW 030 | 0796 | 3.4 | 10 | | J |
| 1309379-26 | LKW 031 | 0810 | 5.1 | 10 | | |
| 1309379-27 | LKW 032 | 0811 | 3.4 | 10 | | J |
| 1309379-28 | LKW 033 | 0812 | 3 | 10 | | J |
| 1309379-40 | LKW 034 | 0822 | 5.6 | 10 | E | |

SAMPLE MANAGEMENT SYSTEM

Validation Report: Equipment/Trip Blanks

RIN: 13095603 Lab Code: PAR Project: Riverton Validation Date: 12/03/2013

Blank Data

| Blank Type | Lab Sample ID | Lab Method | Analyte Name | Result | Qualifier | MDL | Units |
|-----------------|---------------|------------|--------------|--------|-----------|-----|-------|
| Equipment Blank | 1309379-56 | | Uranium | | | | |

| Sample ID | Sample Ticket | Location | Result | Dilution Factor | Lab Qualifier | Validation Qualifier |
|------------|---------------|----------|--------|-----------------|---------------|----------------------|
| 1309379-41 | LKW 035 | 0823 | 6.4 | 10 | | |

SAMPLE MANAGEMENT SYSTEM
Validation Report: Field Duplicates

Page 1 of 1

RIN: 13095603 Lab Code: PAR Project: Riverton Validation Date: 11/19/2013

Duplicate: 2175

Sample: 0842

| Analyte | Sample | | | | Duplicate | | | | RPD | RER | Units |
|------------|--------|------|-------|----------|-----------|------|-------|----------|-------|-----|-------|
| | Result | Flag | Error | Dilution | Result | Flag | Error | Dilution | | | |
| Calcium | 50000 | | | 1 | 47000 | | | 1 | 6.19 | | UG/L |
| CHLORIDE | 15 | | | 1 | 15 | | | 1 | 0 | | MG/L |
| Iron | 60 | B | | 1 | 70 | B | | 1 | 15.38 | | UG/L |
| Magnesium | 5500 | | | 1 | 5100 | | | 1 | 7.55 | | UG/L |
| Manganese | 50 | | | 1 | 47 | | | 1 | 6.19 | | UG/L |
| Molybdenum | 2.9 | | | 10 | 2.2 | | | 10 | NA | | UG/L |
| Potassium | 910 | B | | 1 | 770 | B | | 1 | 16.67 | | UG/L |
| Sodium | 79000 | | | 1 | 76000 | | | 1 | 3.87 | | UG/L |
| SULFATE | 150 | | | 5 | 150 | | | 5 | 0 | | MG/L |
| Uranium | 0.34 | | | 10 | 0.27 | | | 10 | NA | | UG/L |

Duplicate: 2353

Sample: 0788

| Analyte | Sample | | | | Duplicate | | | | RPD | RER | Units |
|------------|--------|------|-------|----------|-----------|------|-------|----------|------|-----|-------|
| | Result | Flag | Error | Dilution | Result | Flag | Error | Dilution | | | |
| Calcium | 260000 | | | 1 | 260000 | | | 1 | 0 | | UG/L |
| CHLORIDE | 49 | | | 50 | 49 | | | 50 | | | MG/L |
| Iron | 32 | B | | 1 | 22 | B | | 1 | | | UG/L |
| Magnesium | 68000 | | | 1 | 68000 | | | 1 | 0 | | UG/L |
| Manganese | 200 | | | 1 | 200 | | | 1 | 0 | | UG/L |
| Molybdenum | 21 | | | 10 | 21 | | | 10 | 0 | | UG/L |
| Potassium | 11000 | | | 1 | 11000 | | | 1 | 0 | | UG/L |
| Sodium | 490000 | | | 50 | 500000 | | | 50 | 2.02 | | UG/L |
| SULFATE | 1500 | | | 50 | 1500 | | | 50 | 0 | | MG/L |
| Uranium | 43 | | | 10 | 41 | | | 10 | 4.76 | | UG/L |

Duplicate: 2469

Sample: 0837

| Analyte | Sample | | | | Duplicate | | | | RPD | RER | Units |
|------------|--------|------|-------|----------|-----------|------|-------|----------|-----|-----|-------|
| | Result | Flag | Error | Dilution | Result | Flag | Error | Dilution | | | |
| Radium-226 | 0.577 | | 0.266 | 1 | 0.415 | | 0.221 | 1 | | 0.9 | pCi/L |
| Radium-228 | 0.491 | | 0.306 | 1 | 0.565 | | 0.271 | 1 | | 0.4 | pCi/L |
| Uranium | 0.1 | | | 10 | 0.11 | | | 10 | | | UG/L |

Certification

All laboratory analytical quality control criteria were met except as qualified in this report. The data qualifiers listed on the SEEPro database reports are defined on the last page of each report. All data in this package are considered validated and available for use.

Laboratory Coordinator: Stephen Donovan 1-7-2014
Stephen Donovan Date

Data Validation Lead: Stephen Donovan 1-7-2014
Stephen Donovan Date

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Attachment 1
Assessment of Anomalous Data

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Potential Outliers Report

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Potential Outliers Report

Potential outliers are measurements that are extremely large or small relative to the rest of the data and, therefore, are suspected of misrepresenting the population from which they were collected. Potential outliers may result from transcription errors, data-coding errors, or measurement system problems. However, outliers may also represent true extreme values of a distribution and indicate more variability in the population than was expected.

Statistical outlier tests give probabilistic evidence that an extreme value does not "fit" with the distribution of the remainder of the data and is therefore a statistical outlier. These tests should only be used to identify data points that require further investigation. The tests alone cannot determine whether a statistical outlier should be discarded or corrected within a data set.

There are three steps involved in identifying extreme values or outliers:

1. Identify extreme values that may be potential outliers by generating the Outliers Report using the Sample Management System from data in the environmental database. The application compares the new data set (in standard environmental database units) with historical data and lists the new data that fall outside the historical data range. A determination is also made if the data are normally distributed using the Shapiro-Wilk Test.
2. Apply the appropriate statistical test. Dixon's Extreme Value test is used to test for statistical outliers when the sample size is less than or equal to 25. This test considers both extreme values that are much smaller than the rest of the data (case 1) and extreme values that are much larger than the rest of the data (case 2). This test is valid only if the data without the suspected outlier are normally distributed. Rosner's Test is a parametric test that is used to detect outliers for sample sizes of 25 or more. This test also assumes that the data without the suspected outliers are normally distributed.
3. Scientifically review statistical outliers and decide on their disposition. The review should include an evaluation of any notable trends in the data that may indicate the outliers represent true extreme values.

Six analytical results were identified as potentially anomalous. There were no errors noted during the review of the data associated with these results. The data for this RIN are acceptable as qualified.

Data Validation Outliers Report - No Field Parameters

Comparison: All historical Data Beginning 01/01/2004

Laboratory: ALS Laboratory Group

RIN: 13095603

Report Date: 12/03/2013

| Site Code | Location Code | Sample ID | Sample Date | Analyte | Current | Qualifiers | | Historical Maximum | | | Historical Minimum | | | Number of Data Points | | Statistical Outlier |
|-----------|---------------|-----------|-------------|------------|---------|------------|------|--------------------|-----|------|--------------------|-----|------|-----------------------|----------------|---------------------|
| | | | | | Result | Lab | Data | Result | Lab | Data | Result | Lab | Data | N | N Below Detect | |
| RVT01 | 0405 | N001 | 09/19/2013 | Molybdenum | 0.0024 | | | 0.0051 | | | 0.0027 | J | | 19 | 0 | NA |
| RVT01 | 0422 | N001 | 09/18/2013 | Uranium | 0.0014 | | | 0.0038 | | | 0.0016 | | | 8 | 0 | No |
| RVT01 | 0710 | N001 | 09/18/2013 | Molybdenum | 0.0024 | F | | 0.0023 | E | F | 0.00032 | U | F | 20 | 4 | NA |
| RVT01 | 0716 | N001 | 09/18/2013 | Molybdenum | 0.094 | F | | 0.19 | | F | 0.12 | | F | 26 | 0 | No |
| RVT01 | 0720 | N001 | 09/19/2013 | Manganese | 0.00011 | U | F | 0.3 | | F | 0.00029 | B | F | 20 | 1 | No |
| RVT01 | 0720 | N001 | 09/19/2013 | Sulfate | 96 | | F | 760 | | F | 100 | | F | 20 | 0 | NA |
| RVT01 | 0722R | N001 | 09/20/2013 | Manganese | 0.00011 | U | F | 0.0208 | | F | 0.00013 | B | JF | 14 | 2 | No |
| RVT01 | 0730 | N001 | 09/19/2013 | Manganese | 0.037 | | FQ | 0.18 | | FQ | 0.039 | | FQ | 20 | 0 | No |
| RVT01 | 0730 | N001 | 09/19/2013 | Sulfate | 120 | | FQ | 310 | | FQ | 140 | | FQ | 20 | 0 | NA |
| RVT01 | 0749 | 0001 | 09/18/2013 | Sulfate | 390 | | | 2700 | | | 550 | | | 21 | 0 | Yes |
| RVT01 | 0784 | N001 | 09/18/2013 | Manganese | 0.19 | | F | 1 | | F | 0.26 | | F | 16 | 0 | No |
| RVT01 | 0784 | N001 | 09/18/2013 | Sulfate | 670 | | F | 3400 | | F | 1900 | | F | 17 | 0 | NA |
| RVT01 | 0784 | N001 | 09/18/2013 | Uranium | 0.0015 | | F | 0.035 | | F | 0.0018 | | F | 17 | 0 | No |
| RVT01 | 0810 | 0001 | 09/19/2013 | Manganese | 0.0053 | | | 0.49 | | | 0.023 | | | 19 | 0 | NA |
| RVT01 | 0818 | N002 | 09/17/2013 | Radium-226 | 2.51 | | | 1.58 | | J | 0.344 | U | | 16 | 6 | Yes |
| RVT01 | 0818 | N002 | 09/17/2013 | Radium-228 | 3.56 | | | 2.31 | | | 0.443 | | J | 16 | 4 | Yes |
| RVT01 | 0823 | 0001 | 09/18/2013 | Manganese | 0.66 | | | 0.28 | | | 0.0019 | B | | 17 | 1 | No |

Data Validation Outliers Report - No Field Parameters

Comparison: All historical Data Beginning 01/01/2004

Laboratory: ALS Laboratory Group

RIN: 13095603

Report Date: 12/03/2013

| Site Code | Location Code | Sample ID | Sample Date | Analyte | Current | Qualifiers | | Historical Maximum | | | Historical Minimum | | | Number of Data Points | | Statistical Outlier |
|-----------|---------------|-----------|-------------|------------|---------|------------|------|--------------------|-----|------|--------------------|-----|------|-----------------------|----------------|---------------------|
| | | | | | Result | Lab | Data | Result | Lab | Data | Result | Lab | Data | N | N Below Detect | |
| RVT01 | 0824 | N001 | 09/20/2013 | Manganese | 0.027 | | F | 0.0083 | | F | 0.00042 | B | UF | 14 | 3 | Yes |
| RVT01 | 0824 | N001 | 09/20/2013 | Molybdenum | 0.0026 | | F | 0.0064 | | F | 0.0027 | | F | 14 | 0 | No |
| RVT01 | 0824 | N001 | 09/20/2013 | Sulfate | 63 | | F | 330 | | F | 65 | | F | 14 | 0 | No |
| RVT01 | 0824 | N001 | 09/20/2013 | Uranium | 0.0083 | | F | 0.02 | | F | 0.0085 | | F | 14 | 0 | No |
| RVT01 | 0826 | N001 | 09/19/2013 | Molybdenum | 0.018 | | F | 0.0468 | | F | 0.019 | | F | 15 | 0 | NA |
| RVT01 | 0829 | N002 | 09/17/2013 | Radium-226 | 1.97 | | | 0.991 | | J | 0.323 | U | | 12 | 6 | Yes |
| RVT01 | 0829 | N001 | 09/17/2013 | Radium-228 | 0.378 | | J | 0.907 | | J | 0.47 | | J | 12 | 7 | No |
| RVT01 | 0829 | N002 | 09/17/2013 | Radium-228 | 1.88 | | | 0.907 | | J | 0.47 | | J | 12 | 7 | Yes |
| RVT01 | 0830 | N001 | 09/17/2013 | Radium-228 | 0.534 | | J | 1.25 | | J | 0.564 | U | | 12 | 5 | No |

STATISTICAL TESTS:

The distribution of the data is tested for normality or lognormality using the Shapiro-Wilk Test

Outliers are identified using Dixon's Test when there are 25 or fewer data points.

Outliers are identified using Rosner's Test when there are 26 or more data points.

See Data Quality Assessment: Statistical Methods for Practitioners, EPA QC/G-9S, February 2006.

NA: Data are not normally or lognormally distributed.

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Attachment 2
Data Presentation

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Groundwater Quality Data

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Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0405 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|----------------------------------|--------------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/19/2013 | N001 | - | 106 | | | # | | |
| Calcium | mg/L | 09/19/2013 | N001 | - | 6.2 | | | # | 0.012 | |
| Chloride | mg/L | 09/19/2013 | N001 | - | 17 | | | # | 1 | |
| Dissolved Oxygen | mg/L | 09/19/2013 | N001 | - | 4.32 | | | # | | |
| Iron | mg/L | 09/19/2013 | N001 | - | 0.13 | | U | # | 0.0049 | |
| Magnesium | mg/L | 09/19/2013 | N001 | - | 0.013 | U | | # | 0.013 | |
| Manganese | mg/L | 09/19/2013 | N001 | - | 0.0041 | B | | # | 0.00011 | |
| Molybdenum | mg/L | 09/19/2013 | N001 | - | 0.0024 | | | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/19/2013 | N001 | - | 156.9 | | | # | | |
| pH | s.u. | 09/19/2013 | N001 | - | 8.7 | | | # | | |
| Potassium | mg/L | 09/19/2013 | N001 | - | 0.63 | B | U | # | 0.11 | |
| Sodium | mg/L | 09/19/2013 | N001 | - | 200 | | | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/19/2013 | N001 | - | 908 | | | # | | |
| Sulfate | mg/L | 09/19/2013 | N001 | - | 280 | | | # | 2.5 | |
| Temperature | C | 09/19/2013 | N001 | - | 12.7 | | | # | | |
| Turbidity | NTU | 09/19/2013 | N001 | - | 6.74 | | | # | | |
| Uranium | mg/L | 09/19/2013 | N001 | - | 0.00008 | B | | # | 0.000029 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0422 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|----------------------------------|--------------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/18/2013 | N001 | - | 135 | | | # | | |
| Calcium | mg/L | 09/18/2013 | N001 | - | 40 | | | # | 0.012 | |
| Chloride | mg/L | 09/18/2013 | N001 | - | 4.1 | | | # | 0.2 | |
| Dissolved Oxygen | mg/L | 09/18/2013 | N001 | - | 3.42 | | | # | | |
| Iron | mg/L | 09/18/2013 | N001 | - | 0.02 | B | | # | 0.0049 | |
| Magnesium | mg/L | 09/18/2013 | N001 | - | 9.2 | | | # | 0.013 | |
| Manganese | mg/L | 09/18/2013 | N001 | - | 0.00011 | U | | # | 0.00011 | |
| Molybdenum | mg/L | 09/18/2013 | N001 | - | 0.0014 | | | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/18/2013 | N001 | - | 158.8 | | | # | | |
| pH | s.u. | 09/18/2013 | N001 | - | 7.73 | | | # | | |
| Potassium | mg/L | 09/18/2013 | N001 | - | 2 | | | # | 0.11 | |
| Sodium | mg/L | 09/18/2013 | N001 | - | 23 | | | # | 0.0066 | |
| Specific Conductance | umhos /cm | 09/18/2013 | N001 | - | 371 | | | # | | |
| Sulfate | mg/L | 09/18/2013 | N001 | - | 52 | | | # | 0.5 | |
| Temperature | C | 09/18/2013 | N001 | - | 16.51 | | | # | | |
| Turbidity | NTU | 09/18/2013 | N001 | - | 1.15 | | | # | | |
| Uranium | mg/L | 09/18/2013 | N001 | - | 0.0014 | | | # | 0.000029 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0430 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|----------------------------------|--------------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/18/2013 | N001 | - | 171 | | | # | | |
| Calcium | mg/L | 09/18/2013 | N001 | - | 3.7 | | | # | 0.012 | |
| Chloride | mg/L | 09/18/2013 | N001 | - | 9.5 | | | # | 1 | |
| Dissolved Oxygen | mg/L | 09/18/2013 | N001 | - | 6.15 | | | # | | |
| Iron | mg/L | 09/18/2013 | N001 | - | 0.16 | | | # | 0.0049 | |
| Magnesium | mg/L | 09/18/2013 | N001 | - | 0.013 | U | | # | 0.013 | |
| Manganese | mg/L | 09/18/2013 | N001 | - | 0.0062 | | | # | 0.00011 | |
| Molybdenum | mg/L | 09/18/2013 | N001 | - | 0.0022 | | | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/18/2013 | N001 | - | 187.5 | | | # | | |
| pH | s.u. | 09/18/2013 | N001 | - | 8.5 | | | # | | |
| Potassium | mg/L | 09/18/2013 | N001 | - | 0.59 | B | U | # | 0.11 | |
| Sodium | mg/L | 09/18/2013 | N001 | - | 150 | | | # | 0.0066 | |
| Specific Conductance | umhos /cm | 09/18/2013 | N001 | - | 750 | | | # | | |
| Sulfate | mg/L | 09/18/2013 | N001 | - | 180 | | | # | 2.5 | |
| Temperature | C | 09/18/2013 | N001 | - | 14.76 | | | # | | |
| Turbidity | NTU | 09/18/2013 | N001 | - | 3.38 | | | # | | |
| Uranium | mg/L | 09/18/2013 | N001 | - | 0.00004 | B | | # | 0.000029 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0436 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|----------------------------------|--------------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/18/2013 | N001 | - | 159 | | | # | | |
| Calcium | mg/L | 09/18/2013 | N001 | - | 3.3 | | | # | 0.012 | |
| Chloride | mg/L | 09/18/2013 | N001 | - | 13 | | | # | 1 | |
| Dissolved Oxygen | mg/L | 09/18/2013 | N001 | - | 2.82 | | | # | | |
| Iron | mg/L | 09/18/2013 | N001 | - | 0.0049 | U | | # | 0.0049 | |
| Magnesium | mg/L | 09/18/2013 | N001 | - | 0.013 | U | | # | 0.013 | |
| Manganese | mg/L | 09/18/2013 | N001 | - | 0.0022 | B | | # | 0.00011 | |
| Molybdenum | mg/L | 09/18/2013 | N001 | - | 0.0028 | | | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/18/2013 | N001 | - | 138.6 | | | # | | |
| pH | s.u. | 09/18/2013 | N001 | - | 8.81 | | | # | | |
| Potassium | mg/L | 09/18/2013 | N001 | - | 0.59 | B | U | # | 0.11 | |
| Sodium | mg/L | 09/18/2013 | N001 | - | 170 | | | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/18/2013 | N001 | - | 822 | | | # | | |
| Sulfate | mg/L | 09/18/2013 | N001 | - | 200 | | | # | 2.5 | |
| Temperature | C | 09/18/2013 | N001 | - | 21.3 | | | # | | |
| Turbidity | NTU | 09/18/2013 | N001 | - | 1.15 | | | # | | |
| Uranium | mg/L | 09/18/2013 | N001 | - | 0.00007 | B | | # | 0.000029 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0460 WELL Sulfuric Acid Plant

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|-------------------------------|----------|-------------|-----------|----------------------|---------|------------|------|----|-----------------|-------------|
| | | | | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/18/2013 | N001 | - | 160 | | | # | | |
| Calcium | mg/L | 09/18/2013 | N001 | - | 3.1 | | | # | 0.012 | |
| Chloride | mg/L | 09/18/2013 | N001 | - | 10 | | | # | 1 | |
| Dissolved Oxygen | mg/L | 09/18/2013 | N001 | - | 4.36 | | | # | | |
| Iron | mg/L | 09/18/2013 | N001 | - | 0.018 | B | U | # | 0.0049 | |
| Magnesium | mg/L | 09/18/2013 | N001 | - | 0.013 | U | | # | 0.013 | |
| Manganese | mg/L | 09/18/2013 | N001 | - | 0.006 | | | # | 0.00011 | |
| Molybdenum | mg/L | 09/18/2013 | N001 | - | 0.0023 | | | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/18/2013 | N001 | - | 151.8 | | | # | | |
| pH | s.u. | 09/18/2013 | N001 | - | 8.77 | | | # | | |
| Potassium | mg/L | 09/18/2013 | N001 | - | 0.55 | B | U | # | 0.11 | |
| Sodium | mg/L | 09/18/2013 | N001 | - | 140 | | | # | 0.0066 | |
| Specific Conductance | umhos/cm | 09/18/2013 | N001 | - | 716 | | | # | | |
| Sulfate | mg/L | 09/18/2013 | N001 | - | 170 | | | # | 2.5 | |
| Temperature | C | 09/18/2013 | N001 | - | 18.96 | | | # | | |
| Turbidity | NTU | 09/18/2013 | N001 | - | 1.39 | | | # | | |
| Uranium | mg/L | 09/18/2013 | N001 | - | 0.00007 | B | | # | 0.000029 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0705 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|----------------------------------|--------------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/19/2013 | 0001 | 44.95 - 44.95 | 69 | | FQ | # | | |
| Calcium | mg/L | 09/19/2013 | 0001 | 44.95 - 44.95 | 28 | | FQ | # | 0.012 | |
| Chloride | mg/L | 09/19/2013 | 0001 | 44.95 - 44.95 | 54 | | FQ | # | 2 | |
| Dissolved Oxygen | mg/L | 09/19/2013 | N001 | 44.95 - 44.95 | 0.78 | | FQ | # | | |
| Iron | mg/L | 09/19/2013 | 0001 | 44.95 - 44.95 | 0.0049 | U | FQ | # | 0.0049 | |
| Magnesium | mg/L | 09/19/2013 | 0001 | 44.95 - 44.95 | 0.41 | B | FQ | # | 0.013 | |
| Manganese | mg/L | 09/19/2013 | 0001 | 44.95 - 44.95 | 0.00011 | U | FQ | # | 0.00011 | |
| Molybdenum | mg/L | 09/19/2013 | 0001 | 44.95 - 44.95 | 0.0026 | | FQ | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/19/2013 | N001 | 44.95 - 44.95 | 130.6 | | FQ | # | | |
| pH | s.u. | 09/19/2013 | N001 | 44.95 - 44.95 | 8.19 | | FQ | # | | |
| Potassium | mg/L | 09/19/2013 | 0001 | 44.95 - 44.95 | 0.86 | B | UFQ | # | 0.11 | |
| Sodium | mg/L | 09/19/2013 | 0001 | 44.95 - 44.95 | 230 | | FQ | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/19/2013 | N001 | 44.95 - 44.95 | 1224 | | FQ | # | | |
| Sulfate | mg/L | 09/19/2013 | 0001 | 44.95 - 44.95 | 440 | | FQ | # | 5 | |
| Temperature | C | 09/19/2013 | N001 | 44.95 - 44.95 | 11.73 | | FQ | # | | |
| Turbidity | NTU | 09/19/2013 | N001 | 44.95 - 44.95 | 240 | | FQ | # | | |
| Uranium | mg/L | 09/19/2013 | 0001 | 44.95 - 44.95 | 0.00029 | | FQ | # | 0.000029 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0707 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers | | Detection Limit | Uncertainty |
|-------------------------------|----------|-------------|-----------|----------------------|--------|------------|---------|-----------------|-------------|
| | | | | | | Lab | Data QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/19/2013 | N001 | 11.4 - 11.4 | 349 | | F # | | |
| Calcium | mg/L | 09/19/2013 | N001 | 11.4 - 11.4 | 420 | | F # | 0.012 | |
| Chloride | mg/L | 09/19/2013 | N001 | 11.4 - 11.4 | 73 | | F # | 10 | |
| Dissolved Oxygen | mg/L | 09/19/2013 | N001 | 11.4 - 11.4 | 0.26 | | F # | | |
| Iron | mg/L | 09/19/2013 | N001 | 11.4 - 11.4 | 0.0086 | B | UF # | 0.0049 | |
| Magnesium | mg/L | 09/19/2013 | N001 | 11.4 - 11.4 | 120 | | F # | 0.013 | |
| Manganese | mg/L | 09/19/2013 | N001 | 11.4 - 11.4 | 1 | | F # | 0.00011 | |
| Molybdenum | mg/L | 09/19/2013 | N001 | 11.4 - 11.4 | 0.85 | | F # | 0.0016 | |
| Oxidation Reduction Potential | mV | 09/19/2013 | N001 | 11.4 - 11.4 | 124.7 | | F # | | |
| pH | s.u. | 09/19/2013 | N001 | 11.4 - 11.4 | 6.93 | | F # | | |
| Potassium | mg/L | 09/19/2013 | N001 | 11.4 - 11.4 | 21 | | F # | 0.11 | |
| Sodium | mg/L | 09/19/2013 | N001 | 11.4 - 11.4 | 350 | | F # | 0.33 | |
| Specific Conductance | umhos/cm | 09/19/2013 | N001 | 11.4 - 11.4 | 4737 | | F # | | |
| Sulfate | mg/L | 09/19/2013 | N001 | 11.4 - 11.4 | 2600 | | F # | 25 | |
| Temperature | C | 09/19/2013 | N001 | 11.4 - 11.4 | 13.25 | | F # | | |
| Turbidity | NTU | 09/19/2013 | N001 | 11.4 - 11.4 | 7.22 | | F # | | |
| Uranium | mg/L | 09/19/2013 | N001 | 11.4 - 11.4 | 0.73 | | F # | 0.00015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0710 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|----------------------------------|--------------|------------|------|-------------------------|--------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/18/2013 | N001 | 12.75 - 12.75 | 164 | | F | # | | |
| Calcium | mg/L | 09/18/2013 | N001 | 12.75 - 12.75 | 52 | | F | # | 0.012 | |
| Chloride | mg/L | 09/18/2013 | N001 | 12.75 - 12.75 | 6.6 | | F | # | 0.2 | |
| Dissolved Oxygen | mg/L | 09/18/2013 | N001 | 12.75 - 12.75 | 0.82 | | F | # | | |
| Iron | mg/L | 09/18/2013 | N001 | 12.75 - 12.75 | 0.036 | B | UF | # | 0.0049 | |
| Magnesium | mg/L | 09/18/2013 | N001 | 12.75 - 12.75 | 12 | | F | # | 0.013 | |
| Manganese | mg/L | 09/18/2013 | N001 | 12.75 - 12.75 | 0.029 | | F | # | 0.00011 | |
| Molybdenum | mg/L | 09/18/2013 | N001 | 12.75 - 12.75 | 0.0024 | | F | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/18/2013 | N001 | 12.75 - 12.75 | 172.7 | | F | # | | |
| pH | s.u. | 09/18/2013 | N001 | 12.75 - 12.75 | 7.44 | | F | # | | |
| Potassium | mg/L | 09/18/2013 | N001 | 12.75 - 12.75 | 1.8 | | F | # | 0.11 | |
| Sodium | mg/L | 09/18/2013 | N001 | 12.75 - 12.75 | 33 | | F | # | 0.0066 | |
| Specific Conductance | umhos /cm | 09/18/2013 | N001 | 12.75 - 12.75 | 564 | | F | # | | |
| Sulfate | mg/L | 09/18/2013 | N001 | 12.75 - 12.75 | 83 | | F | # | 0.5 | |
| Temperature | C | 09/18/2013 | N001 | 12.75 - 12.75 | 14.26 | | F | # | | |
| Turbidity | NTU | 09/18/2013 | N001 | 12.75 - 12.75 | 5.13 | | F | # | | |
| Uranium | mg/L | 09/18/2013 | N001 | 12.75 - 12.75 | 0.0026 | | F | # | 0.000029 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0716 WELL

| Parameter | Units | Sample | | Depth Range | | Result | Qualifiers | | Detection Limit | Uncertainty |
|-------------------------------|----------|------------|------|-------------|---------|--------|------------|-----|-----------------|-------------|
| | | Date | ID | (Ft BLS) | Lab | | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/18/2013 | N001 | 10.03 | - 10.03 | 290 | | F # | | |
| Calcium | mg/L | 09/18/2013 | N001 | 10.03 | - 10.03 | 140 | | F # | 0.012 | |
| Chloride | mg/L | 09/18/2013 | N001 | 10.03 | - 10.03 | 37 | | F # | 4 | |
| Dissolved Oxygen | mg/L | 09/18/2013 | N001 | 10.03 | - 10.03 | 0.86 | | F # | | |
| Iron | mg/L | 09/18/2013 | N001 | 10.03 | - 10.03 | 0.15 | | F # | 0.0049 | |
| Magnesium | mg/L | 09/18/2013 | N001 | 10.03 | - 10.03 | 30 | | F # | 0.013 | |
| Manganese | mg/L | 09/18/2013 | N001 | 10.03 | - 10.03 | 0.31 | | F # | 0.00011 | |
| Molybdenum | mg/L | 09/18/2013 | N001 | 10.03 | - 10.03 | 0.094 | | F # | 0.0016 | |
| Oxidation Reduction Potential | mV | 09/18/2013 | N001 | 10.03 | - 10.03 | 24.1 | | F # | | |
| pH | s.u. | 09/18/2013 | N001 | 10.03 | - 10.03 | 7.07 | | F # | | |
| Potassium | mg/L | 09/18/2013 | N001 | 10.03 | - 10.03 | 6.3 | | F # | 0.11 | |
| Sodium | mg/L | 09/18/2013 | N001 | 10.03 | - 10.03 | 150 | | F # | 0.0066 | |
| Specific Conductance | umhos/cm | 09/18/2013 | N001 | 10.03 | - 10.03 | 1485 | | F # | | |
| Sulfate | mg/L | 09/18/2013 | N001 | 10.03 | - 10.03 | 470 | | F # | 10 | |
| Temperature | C | 09/18/2013 | N001 | 10.03 | - 10.03 | 16.07 | | F # | | |
| Turbidity | NTU | 09/18/2013 | N001 | 10.03 | - 10.03 | 1.77 | | F # | | |
| Uranium | mg/L | 09/18/2013 | N001 | 10.03 | - 10.03 | 0.23 | | F # | 0.00015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0717 WELL

| Parameter | Units | Sample | | Depth Range | | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|-------------------------------|----------|------------|------|-------------|-----|------|---------|------------|---|---------|-----------------|-------------|
| | | Date | ID | (Ft BLS) | Lab | Data | | QA | | | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/18/2013 | N001 | 45.1 | - | 45.1 | 209 | F | # | | | |
| Calcium | mg/L | 09/18/2013 | N001 | 45.1 | - | 45.1 | 90 | F | # | 0.012 | | |
| Chloride | mg/L | 09/18/2013 | N001 | 45.1 | - | 45.1 | 46 | F | # | 5 | | |
| Dissolved Oxygen | mg/L | 09/18/2013 | N001 | 45.1 | - | 45.1 | 0.38 | F | # | | | |
| Iron | mg/L | 09/18/2013 | N001 | 45.1 | - | 45.1 | 0.16 | F | # | 0.0049 | | |
| Magnesium | mg/L | 09/18/2013 | N001 | 45.1 | - | 45.1 | 5.8 | F | # | 0.013 | | |
| Manganese | mg/L | 09/18/2013 | N001 | 45.1 | - | 45.1 | 0.16 | F | # | 0.00011 | | |
| Molybdenum | mg/L | 09/18/2013 | N001 | 45.1 | - | 45.1 | 0.0068 | F | # | 0.00032 | | |
| Oxidation Reduction Potential | mV | 09/18/2013 | N001 | 45.1 | - | 45.1 | -40.1 | F | # | | | |
| pH | s.u. | 09/18/2013 | N001 | 45.1 | - | 45.1 | 7.68 | F | # | | | |
| Potassium | mg/L | 09/18/2013 | N001 | 45.1 | - | 45.1 | 1.5 | F | # | 0.11 | | |
| Sodium | mg/L | 09/18/2013 | N001 | 45.1 | - | 45.1 | 330 | F | # | 0.066 | | |
| Specific Conductance | umhos/cm | 09/18/2013 | N001 | 45.1 | - | 45.1 | 1911 | F | # | | | |
| Sulfate | mg/L | 09/18/2013 | N001 | 45.1 | - | 45.1 | 690 | F | # | 12 | | |
| Temperature | C | 09/18/2013 | N001 | 45.1 | - | 45.1 | 14.08 | F | # | | | |
| Turbidity | NTU | 09/18/2013 | N001 | 45.1 | - | 45.1 | 1.24 | F | # | | | |
| Uranium | mg/L | 09/18/2013 | N001 | 45.1 | - | 45.1 | 0.00005 | B | F | # | 0.000029 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0718 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|-------------------------------|----------|-------------|-----------|----------------------|---------|--------|------------|------|----|-----------------|-------------|
| | | | | | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/20/2013 | N001 | 13.02 | - 13.02 | 336 | | F | # | | |
| Calcium | mg/L | 09/20/2013 | N001 | 13.02 | - 13.02 | 320 | | F | # | 0.012 | |
| Chloride | mg/L | 09/20/2013 | N001 | 13.02 | - 13.02 | 120 | | F | # | 10 | |
| Dissolved Oxygen | mg/L | 09/20/2013 | N001 | 13.02 | - 13.02 | 0.33 | | F | # | | |
| Iron | mg/L | 09/20/2013 | N001 | 13.02 | - 13.02 | 0.045 | B | F | # | 0.0049 | |
| Magnesium | mg/L | 09/20/2013 | N001 | 13.02 | - 13.02 | 81 | | F | # | 0.013 | |
| Manganese | mg/L | 09/20/2013 | N001 | 13.02 | - 13.02 | 0.51 | | F | # | 0.00011 | |
| Molybdenum | mg/L | 09/20/2013 | N001 | 13.02 | - 13.02 | 0.091 | | F | # | 0.0016 | |
| Oxidation Reduction Potential | mV | 09/20/2013 | N001 | 13.02 | - 13.02 | 3.5 | | F | # | | |
| pH | s.u. | 09/20/2013 | N001 | 13.02 | - 13.02 | 7.07 | | F | # | | |
| Potassium | mg/L | 09/20/2013 | N001 | 13.02 | - 13.02 | 20 | | F | # | 0.11 | |
| Sodium | mg/L | 09/20/2013 | N001 | 13.02 | - 13.02 | 740 | | F | # | 0.33 | |
| Specific Conductance | umhos/cm | 09/20/2013 | N001 | 13.02 | - 13.02 | 4563 | | F | # | | |
| Sulfate | mg/L | 09/20/2013 | N001 | 13.02 | - 13.02 | 2300 | | F | # | 25 | |
| Temperature | C | 09/20/2013 | N001 | 13.02 | - 13.02 | 13.49 | | F | # | | |
| Turbidity | NTU | 09/20/2013 | N001 | 13.02 | - 13.02 | 4.33 | | F | # | | |
| Uranium | mg/L | 09/20/2013 | N001 | 13.02 | - 13.02 | 0.11 | | F | # | 0.00015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0719 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|----------------------------------|--------------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/20/2013 | N001 | 35.34 - 35.34 | 106 | | FQ | # | | |
| Calcium | mg/L | 09/20/2013 | N001 | 35.34 - 35.34 | 71 | | FQ | # | 0.012 | |
| Chloride | mg/L | 09/20/2013 | N001 | 35.34 - 35.34 | 38 | | FQ | # | 2 | |
| Dissolved Oxygen | mg/L | 09/20/2013 | N001 | 35.34 - 35.34 | 0.52 | | FQ | # | | |
| Iron | mg/L | 09/20/2013 | N001 | 35.34 - 35.34 | 0.18 | | FQ | # | 0.0049 | |
| Magnesium | mg/L | 09/20/2013 | N001 | 35.34 - 35.34 | 2.4 | | FQ | # | 0.013 | |
| Manganese | mg/L | 09/20/2013 | N001 | 35.34 - 35.34 | 0.095 | | FQ | # | 0.00011 | |
| Molybdenum | mg/L | 09/20/2013 | N001 | 35.34 - 35.34 | 0.0098 | | FQ | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/20/2013 | N001 | 35.34 - 35.34 | -64.5 | | FQ | # | | |
| pH | s.u. | 09/20/2013 | N001 | 35.34 - 35.34 | 7.72 | | FQ | # | | |
| Potassium | mg/L | 09/20/2013 | N001 | 35.34 - 35.34 | 1.3 | | FQ | # | 0.11 | |
| Sodium | mg/L | 09/20/2013 | N001 | 35.34 - 35.34 | 190 | | FQ | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/20/2013 | N001 | 35.34 - 35.34 | 1220 | | FQ | # | | |
| Sulfate | mg/L | 09/20/2013 | N001 | 35.34 - 35.34 | 470 | | FQ | # | 5 | |
| Temperature | C | 09/20/2013 | N001 | 35.34 - 35.34 | 11.37 | | FQ | # | | |
| Turbidity | NTU | 09/20/2013 | N001 | 35.34 - 35.34 | 5.87 | | FQ | # | | |
| Uranium | mg/L | 09/20/2013 | N001 | 35.34 - 35.34 | 0.00034 | | FQ | # | 0.000029 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0720 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|-------------------------------|----------|-------------|-----------|----------------------|---------|------------|------|----|-----------------|-------------|
| | | | | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/19/2013 | N001 | 7.94 - 7.94 | 217 | | F | # | | |
| Calcium | mg/L | 09/19/2013 | N001 | 7.94 - 7.94 | 69 | | F | # | 0.012 | |
| Chloride | mg/L | 09/19/2013 | N001 | 7.94 - 7.94 | 4 | | F | # | 0.2 | |
| Dissolved Oxygen | mg/L | 09/19/2013 | N001 | 7.94 - 7.94 | 2.6 | | F | # | | |
| Iron | mg/L | 09/19/2013 | N001 | 7.94 - 7.94 | 0.0049 | U | F | # | 0.0049 | |
| Magnesium | mg/L | 09/19/2013 | N001 | 7.94 - 7.94 | 17 | | F | # | 0.013 | |
| Manganese | mg/L | 09/19/2013 | N001 | 7.94 - 7.94 | 0.00011 | U | F | # | 0.00011 | |
| Molybdenum | mg/L | 09/19/2013 | N001 | 7.94 - 7.94 | 0.0015 | | F | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/19/2013 | N001 | 7.94 - 7.94 | 64.5 | | F | # | | |
| pH | s.u. | 09/19/2013 | N001 | 7.94 - 7.94 | 7.25 | | F | # | | |
| Potassium | mg/L | 09/19/2013 | N001 | 7.94 - 7.94 | 2.7 | | F | # | 0.11 | |
| Sodium | mg/L | 09/19/2013 | N001 | 7.94 - 7.94 | 29 | | F | # | 0.0066 | |
| Specific Conductance | umhos/cm | 09/19/2013 | N001 | 7.94 - 7.94 | 582 | | F | # | | |
| Sulfate | mg/L | 09/19/2013 | N001 | 7.94 - 7.94 | 96 | | F | # | 0.5 | |
| Temperature | C | 09/19/2013 | N001 | 7.94 - 7.94 | 14.29 | | F | # | | |
| Turbidity | NTU | 09/19/2013 | N001 | 7.94 - 7.94 | 0.39 | | F | # | | |
| Uranium | mg/L | 09/19/2013 | N001 | 7.94 - 7.94 | 0.0038 | | F | # | 0.000029 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0721 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|----------------------------------|--------------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/19/2013 | N001 | 45.13 - 45.13 | 97 | | F | # | | |
| Calcium | mg/L | 09/19/2013 | N001 | 45.13 - 45.13 | 7.8 | | F | # | 0.012 | |
| Chloride | mg/L | 09/19/2013 | N001 | 45.13 - 45.13 | 23 | | F | # | 1 | |
| Dissolved Oxygen | mg/L | 09/19/2013 | N001 | 45.13 - 45.13 | 0.15 | | F | # | | |
| Iron | mg/L | 09/19/2013 | N001 | 45.13 - 45.13 | 0.0049 | U | F | # | 0.0049 | |
| Magnesium | mg/L | 09/19/2013 | N001 | 45.13 - 45.13 | 0.013 | U | F | # | 0.013 | |
| Manganese | mg/L | 09/19/2013 | N001 | 45.13 - 45.13 | 0.0017 | B | F | # | 0.00011 | |
| Molybdenum | mg/L | 09/19/2013 | N001 | 45.13 - 45.13 | 0.0023 | | F | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/19/2013 | N001 | 45.13 - 45.13 | 38.3 | | F | # | | |
| pH | s.u. | 09/19/2013 | N001 | 45.13 - 45.13 | 8.65 | | F | # | | |
| Potassium | mg/L | 09/19/2013 | N001 | 45.13 - 45.13 | 0.49 | B | UF | # | 0.11 | |
| Sodium | mg/L | 09/19/2013 | N001 | 45.13 - 45.13 | 170 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/19/2013 | N001 | 45.13 - 45.13 | 890 | | F | # | | |
| Sulfate | mg/L | 09/19/2013 | N001 | 45.13 - 45.13 | 270 | | F | # | 2.5 | |
| Temperature | C | 09/19/2013 | N001 | 45.13 - 45.13 | 11.82 | | F | # | | |
| Turbidity | NTU | 09/19/2013 | N001 | 45.13 - 45.13 | 0.67 | | F | # | | |
| Uranium | mg/L | 09/19/2013 | N001 | 45.13 - 45.13 | 0.00009 | B | F | # | 0.000029 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0722R WELL Replacement well for destroyed well 0722.

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|-------------------------------|----------|-------------|-----------|----------------------|---------|------------|------|----|-----------------|-------------|
| | | | | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/20/2013 | N001 | 13.02 - 13.02 | 260 | | F | # | | |
| Calcium | mg/L | 09/20/2013 | N001 | 13.02 - 13.02 | 290 | | F | # | 0.012 | |
| Chloride | mg/L | 09/20/2013 | N001 | 13.02 - 13.02 | 17 | | F | # | 4 | |
| Dissolved Oxygen | mg/L | 09/20/2013 | N001 | 13.02 - 13.02 | 0.66 | | F | # | | |
| Iron | mg/L | 09/20/2013 | N001 | 13.02 - 13.02 | 0.0069 | B | UF | # | 0.0049 | |
| Magnesium | mg/L | 09/20/2013 | N001 | 13.02 - 13.02 | 28 | | F | # | 0.013 | |
| Manganese | mg/L | 09/20/2013 | N001 | 13.02 - 13.02 | 0.00011 | U | F | # | 0.00011 | |
| Molybdenum | mg/L | 09/20/2013 | N001 | 13.02 - 13.02 | 0.067 | | F | # | 0.0016 | |
| Oxidation Reduction Potential | mV | 09/20/2013 | N001 | 13.02 - 13.02 | 25.4 | | F | # | | |
| pH | s.u. | 09/20/2013 | N001 | 13.02 - 13.02 | 6.9 | | F | # | | |
| Potassium | mg/L | 09/20/2013 | N001 | 13.02 - 13.02 | 9.5 | | F | # | 0.11 | |
| Sodium | mg/L | 09/20/2013 | N001 | 13.02 - 13.02 | 100 | | F | # | 0.0066 | |
| Specific Conductance | umhos/cm | 09/20/2013 | N001 | 13.02 - 13.02 | 1781 | | F | # | | |
| Sulfate | mg/L | 09/20/2013 | N001 | 13.02 - 13.02 | 780 | | F | # | 10 | |
| Temperature | C | 09/20/2013 | N001 | 13.02 - 13.02 | 15.53 | | F | # | | |
| Turbidity | NTU | 09/20/2013 | N001 | 13.02 - 13.02 | 1.08 | | F | # | | |
| Uranium | mg/L | 09/20/2013 | N001 | 13.02 - 13.02 | 0.52 | | F | # | 0.00015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0723 WELL

| Parameter | Units | Sample | | Depth Range | | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|-------------------------------|----------|------------|------|-------------|---|-------|---------|------------|------|----|-----------------|-------------|
| | | Date | ID | (Ft BLS) | | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/20/2013 | N001 | 44.67 | - | 44.67 | 347 | | F | # | | |
| Calcium | mg/L | 09/20/2013 | N001 | 44.67 | - | 44.67 | 290 | | F | # | 0.012 | |
| Chloride | mg/L | 09/20/2013 | N001 | 44.67 | - | 44.67 | 54 | | F | # | 10 | |
| Dissolved Oxygen | mg/L | 09/20/2013 | N001 | 44.67 | - | 44.67 | 0.33 | | F | # | | |
| Iron | mg/L | 09/20/2013 | N001 | 44.67 | - | 44.67 | 0.45 | | F | # | 0.0049 | |
| Magnesium | mg/L | 09/20/2013 | N001 | 44.67 | - | 44.67 | 11 | | F | # | 0.013 | |
| Manganese | mg/L | 09/20/2013 | N001 | 44.67 | - | 44.67 | 0.34 | | F | # | 0.00011 | |
| Molybdenum | mg/L | 09/20/2013 | N001 | 44.67 | - | 44.67 | 0.00032 | U | F | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/20/2013 | N001 | 44.67 | - | 44.67 | -30.4 | | F | # | | |
| pH | s.u. | 09/20/2013 | N001 | 44.67 | - | 44.67 | 7.13 | | F | # | | |
| Potassium | mg/L | 09/20/2013 | N001 | 44.67 | - | 44.67 | 2.9 | | F | # | 0.11 | |
| Sodium | mg/L | 09/20/2013 | N001 | 44.67 | - | 44.67 | 630 | | F | # | 0.33 | |
| Specific Conductance | umhos/cm | 09/20/2013 | N001 | 44.67 | - | 44.67 | 3724 | | F | # | | |
| Sulfate | mg/L | 09/20/2013 | N001 | 44.67 | - | 44.67 | 1800 | | F | # | 25 | |
| Temperature | C | 09/20/2013 | N001 | 44.67 | - | 44.67 | 12.95 | | F | # | | |
| Turbidity | NTU | 09/20/2013 | N001 | 44.67 | - | 44.67 | 1.62 | | F | # | | |
| Uranium | mg/L | 09/20/2013 | N001 | 44.67 | - | 44.67 | 0.00008 | B | F | # | 0.000029 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0729 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|-------------|-----------|----------------------|--------|------------|------|----|-----------------|-------------|
| | | | | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 09/19/2013 | N001 | 11.75 - 11.75 | 275 | | F | # | | |
| Calcium | mg/L | 09/19/2013 | N001 | 11.75 - 11.75 | 85 | | F | # | 0.012 | |
| Chloride | mg/L | 09/19/2013 | N001 | 11.75 - 11.75 | 6.9 | | F | # | 0.2 | |
| Dissolved Oxygen | mg/L | 09/19/2013 | N001 | 11.75 - 11.75 | 0.37 | | F | # | | |
| Iron | mg/L | 09/19/2013 | N001 | 11.75 - 11.75 | 0.0065 | B | UF | # | 0.0049 | |
| Magnesium | mg/L | 09/19/2013 | N001 | 11.75 - 11.75 | 21 | | F | # | 0.013 | |
| Manganese | mg/L | 09/19/2013 | N001 | 11.75 - 11.75 | 0.003 | B | F | # | 0.00011 | |
| Molybdenum | mg/L | 09/19/2013 | N001 | 11.75 - 11.75 | 0.0026 | | F | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/19/2013 | N001 | 11.75 - 11.75 | 86.8 | | F | # | | |
| pH | s.u. | 09/19/2013 | N001 | 11.75 - 11.75 | 7.09 | | F | # | | |
| Potassium | mg/L | 09/19/2013 | N001 | 11.75 - 11.75 | 7.9 | | F | # | 0.11 | |
| Sodium | mg/L | 09/19/2013 | N001 | 11.75 - 11.75 | 23 | | F | # | 0.0066 | |
| Specific Conductance | umhos/cm | 09/19/2013 | N001 | 11.75 - 11.75 | 663 | | F | # | | |
| Sulfate | mg/L | 09/19/2013 | N001 | 11.75 - 11.75 | 73 | | F | # | 0.5 | |
| Temperature | C | 09/19/2013 | N001 | 11.75 - 11.75 | 17.05 | | F | # | | |
| Turbidity | NTU | 09/19/2013 | N001 | 11.75 - 11.75 | 1.43 | | F | # | | |
| Uranium | mg/L | 09/19/2013 | N001 | 11.75 - 11.75 | 0.0035 | | F | # | 0.000029 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0730 WELL

| Parameter | Units | Sample | | Depth Range | | | Result | Qualifiers | | Detection Limit | Uncertainty |
|-------------------------------|----------|------------|------|-------------|---|-------|--------|------------|------|-----------------|-------------|
| | | Date | ID | (Ft BLS) | | | | Lab | Data | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/19/2013 | N001 | 32.18 | - | 32.18 | 317 | | FQ | # | |
| Calcium | mg/L | 09/19/2013 | N001 | 32.18 | - | 32.18 | 76 | | FQ | # | 0.012 |
| Chloride | mg/L | 09/19/2013 | N001 | 32.18 | - | 32.18 | 6.4 | | FQ | # | 1 |
| Dissolved Oxygen | mg/L | 09/19/2013 | N001 | 32.18 | - | 32.18 | 0.42 | | FQ | # | |
| Iron | mg/L | 09/19/2013 | N001 | 32.18 | - | 32.18 | 0.099 | B | FQ | # | 0.0049 |
| Magnesium | mg/L | 09/19/2013 | N001 | 32.18 | - | 32.18 | 13 | | FQ | # | 0.013 |
| Manganese | mg/L | 09/19/2013 | N001 | 32.18 | - | 32.18 | 0.037 | | FQ | # | 0.00011 |
| Molybdenum | mg/L | 09/19/2013 | N001 | 32.18 | - | 32.18 | 0.0038 | | FQ | # | 0.00032 |
| Oxidation Reduction Potential | mV | 09/19/2013 | N001 | 32.18 | - | 32.18 | 35.6 | | FQ | # | |
| pH | s.u. | 09/19/2013 | N001 | 32.18 | - | 32.18 | 7.39 | | FQ | # | |
| Potassium | mg/L | 09/19/2013 | N001 | 32.18 | - | 32.18 | 2.5 | | FQ | # | 0.11 |
| Sodium | mg/L | 09/19/2013 | N001 | 32.18 | - | 32.18 | 94 | | FQ | # | 0.0066 |
| Specific Conductance | umhos/cm | 09/19/2013 | N001 | 32.18 | - | 32.18 | 861 | | FQ | # | |
| Sulfate | mg/L | 09/19/2013 | N001 | 32.18 | - | 32.18 | 120 | | FQ | # | 2.5 |
| Temperature | C | 09/19/2013 | N001 | 32.18 | - | 32.18 | 14.33 | | FQ | # | |
| Turbidity | NTU | 09/19/2013 | N001 | 32.18 | - | 32.18 | 3.93 | | FQ | # | |
| Uranium | mg/L | 09/19/2013 | N001 | 32.18 | - | 32.18 | 0.0045 | | FQ | # | 0.000029 |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0784 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers | | Detection Limit | Uncertainty |
|-------------------------------|----------|-------------|-----------|----------------------|--------|------------|---------|-----------------|-------------|
| | | | | | | Lab | Data QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/18/2013 | N001 | 7.04 - 7.04 | 136 | | F # | | |
| Calcium | mg/L | 09/18/2013 | N001 | 7.04 - 7.04 | 79 | | F # | 0.012 | |
| Chloride | mg/L | 09/18/2013 | N001 | 7.04 - 7.04 | 16 | | F # | 2 | |
| Dissolved Oxygen | mg/L | 09/18/2013 | N001 | 7.04 - 7.04 | 0.55 | | F # | | |
| Iron | mg/L | 09/18/2013 | N001 | 7.04 - 7.04 | 0.01 | B | UF # | 0.0049 | |
| Magnesium | mg/L | 09/18/2013 | N001 | 7.04 - 7.04 | 3.3 | | F # | 0.013 | |
| Manganese | mg/L | 09/18/2013 | N001 | 7.04 - 7.04 | 0.19 | | F # | 0.00011 | |
| Molybdenum | mg/L | 09/18/2013 | N001 | 7.04 - 7.04 | 0.01 | | F # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/18/2013 | N001 | 7.04 - 7.04 | 154.5 | | F # | | |
| pH | s.u. | 09/18/2013 | N001 | 7.04 - 7.04 | 7.71 | | F # | | |
| Potassium | mg/L | 09/18/2013 | N001 | 7.04 - 7.04 | 5.4 | | F # | 0.11 | |
| Sodium | mg/L | 09/18/2013 | N001 | 7.04 - 7.04 | 290 | | F # | 0.066 | |
| Specific Conductance | umhos/cm | 09/18/2013 | N001 | 7.04 - 7.04 | 1652 | | F # | | |
| Sulfate | mg/L | 09/18/2013 | N001 | 7.04 - 7.04 | 670 | | F # | 12 | |
| Temperature | C | 09/18/2013 | N001 | 7.04 - 7.04 | 19.05 | | F # | | |
| Turbidity | NTU | 09/18/2013 | N001 | 7.04 - 7.04 | 1.16 | | F # | | |
| Uranium | mg/L | 09/18/2013 | N001 | 7.04 - 7.04 | 0.0015 | | F # | 0.000029 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0788 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|-------------------------------|-------|------------|------|-------------------------|--------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/19/2013 | N001 | 13.51 - 13.51 | 445 | | F | # | | |
| Calcium | mg/L | 09/19/2013 | N001 | 13.51 - 13.51 | 260 | | F | # | 0.012 | |
| Calcium | mg/L | 09/19/2013 | N002 | 13.51 - 13.51 | 260 | | F | # | 0.012 | |
| Chloride | mg/L | 09/19/2013 | N001 | 13.51 - 13.51 | 49 | | F | # | 10 | |
| Chloride | mg/L | 09/19/2013 | N002 | 13.51 - 13.51 | 49 | | F | # | 10 | |
| Dissolved Oxygen | mg/L | 09/19/2013 | N001 | 13.51 - 13.51 | 0.27 | | F | # | | |
| Iron | mg/L | 09/19/2013 | N001 | 13.51 - 13.51 | 0.032 | B | UF | # | 0.0049 | |
| Iron | mg/L | 09/19/2013 | N002 | 13.51 - 13.51 | 0.022 | B | UF | # | 0.0049 | |
| Magnesium | mg/L | 09/19/2013 | N001 | 13.51 - 13.51 | 68 | | F | # | 0.013 | |
| Magnesium | mg/L | 09/19/2013 | N002 | 13.51 - 13.51 | 68 | | F | # | 0.013 | |
| Manganese | mg/L | 09/19/2013 | N001 | 13.51 - 13.51 | 0.2 | | F | # | 0.00011 | |
| Manganese | mg/L | 09/19/2013 | N002 | 13.51 - 13.51 | 0.2 | | F | # | 0.00011 | |
| Molybdenum | mg/L | 09/19/2013 | N001 | 13.51 - 13.51 | 0.021 | | F | # | 0.00032 | |
| Molybdenum | mg/L | 09/19/2013 | N002 | 13.51 - 13.51 | 0.021 | | F | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/19/2013 | N001 | 13.51 - 13.51 | 106.5 | | F | # | | |
| pH | s.u. | 09/19/2013 | N001 | 13.51 - 13.51 | 7.13 | | F | # | | |
| Potassium | mg/L | 09/19/2013 | N001 | 13.51 - 13.51 | 11 | | F | # | 0.11 | |
| Potassium | mg/L | 09/19/2013 | N002 | 13.51 - 13.51 | 11 | | F | # | 0.11 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0788 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers | | Detection Limit | Uncertainty |
|----------------------|----------|-------------|-----------|----------------------|--------|------------|---------|-----------------|-------------|
| | | | | | | Lab | Data QA | | |
| Sodium | mg/L | 09/19/2013 | N001 | 13.51 - 13.51 | 490 | | F # | 0.33 | |
| Sodium | mg/L | 09/19/2013 | N002 | 13.51 - 13.51 | 500 | | F # | 0.33 | |
| Specific Conductance | umhos/cm | 09/19/2013 | N001 | 13.51 - 13.51 | 3314 | | F # | | |
| Sulfate | mg/L | 09/19/2013 | N001 | 13.51 - 13.51 | 1500 | | F # | 25 | |
| Sulfate | mg/L | 09/19/2013 | N002 | 13.51 - 13.51 | 1500 | | F # | 25 | |
| Temperature | C | 09/19/2013 | N001 | 13.51 - 13.51 | 13.42 | | F # | | |
| Turbidity | NTU | 09/19/2013 | N001 | 13.51 - 13.51 | 0.89 | | F # | | |
| Uranium | mg/L | 09/19/2013 | N001 | 13.51 - 13.51 | 0.043 | | F # | 0.000029 | |
| Uranium | mg/L | 09/19/2013 | N002 | 13.51 - 13.51 | 0.041 | | F # | 0.000029 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0789 WELL

| Parameter | Units | Sample | | Depth Range | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|-------------------------------|----------|------------|------|-------------|---------|--------|------------|----|---|-----------------|-------------|
| | | Date | ID | (Ft BLS) | Lab | | Data | QA | | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/19/2013 | N001 | 14.62 | - 14.62 | 473 | | F | # | | |
| Calcium | mg/L | 09/19/2013 | N001 | 14.62 | - 14.62 | 360 | | F | # | 0.012 | |
| Chloride | mg/L | 09/19/2013 | N001 | 14.62 | - 14.62 | 210 | | F | # | 20 | |
| Dissolved Oxygen | mg/L | 09/19/2013 | N001 | 14.62 | - 14.62 | 0.46 | | F | # | | |
| Iron | mg/L | 09/19/2013 | N001 | 14.62 | - 14.62 | 0.098 | B | F | # | 0.0049 | |
| Magnesium | mg/L | 09/19/2013 | N001 | 14.62 | - 14.62 | 220 | | F | # | 0.013 | |
| Manganese | mg/L | 09/19/2013 | N001 | 14.62 | - 14.62 | 0.84 | | F | # | 0.00011 | |
| Molybdenum | mg/L | 09/19/2013 | N001 | 14.62 | - 14.62 | 0.56 | | F | # | 0.0032 | |
| Oxidation Reduction Potential | mV | 09/19/2013 | N001 | 14.62 | - 14.62 | 131.4 | | F | # | | |
| pH | s.u. | 09/19/2013 | N001 | 14.62 | - 14.62 | 7.06 | | F | # | | |
| Potassium | mg/L | 09/19/2013 | N001 | 14.62 | - 14.62 | 28 | | F | # | 0.11 | |
| Sodium | mg/L | 09/19/2013 | N001 | 14.62 | - 14.62 | 1500 | | F | # | 0.33 | |
| Specific Conductance | umhos/cm | 09/19/2013 | N001 | 14.62 | - 14.62 | 8304 | | F | # | | |
| Sulfate | mg/L | 09/19/2013 | N001 | 14.62 | - 14.62 | 4600 | | F | # | 50 | |
| Temperature | C | 09/19/2013 | N001 | 14.62 | - 14.62 | 12.6 | | F | # | | |
| Turbidity | NTU | 09/19/2013 | N001 | 14.62 | - 14.62 | 0.73 | | F | # | | |
| Uranium | mg/L | 09/19/2013 | N001 | 14.62 | - 14.62 | 1.5 | | F | # | 0.00029 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0824 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | Detection Limit | Uncertainty |
|----------------------------------|--------------|------------|------|-------------------------|--------|------------|---------|--------------------|-------------|
| | | Date | ID | | | Lab | Data QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/20/2013 | N001 | 12.46 - 12.46 | 422 | | F # | | |
| Calcium | mg/L | 09/20/2013 | N001 | 12.46 - 12.46 | 100 | | F # | 0.012 | |
| Chloride | mg/L | 09/20/2013 | N001 | 12.46 - 12.46 | 4.9 | | F # | 1 | |
| Dissolved Oxygen | mg/L | 09/20/2013 | N001 | 12.46 - 12.46 | 0.29 | | F # | | |
| Iron | mg/L | 09/20/2013 | N001 | 12.46 - 12.46 | 0.1 | | F # | 0.0049 | |
| Magnesium | mg/L | 09/20/2013 | N001 | 12.46 - 12.46 | 25 | | F # | 0.013 | |
| Manganese | mg/L | 09/20/2013 | N001 | 12.46 - 12.46 | 0.027 | | F # | 0.00011 | |
| Molybdenum | mg/L | 09/20/2013 | N001 | 12.46 - 12.46 | 0.0026 | | F # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/20/2013 | N001 | 12.46 - 12.46 | 78.8 | | F # | | |
| pH | s.u. | 09/20/2013 | N001 | 12.46 - 12.46 | 6.93 | | F # | | |
| Potassium | mg/L | 09/20/2013 | N001 | 12.46 - 12.46 | 7.3 | | F # | 0.11 | |
| Sodium | mg/L | 09/20/2013 | N001 | 12.46 - 12.46 | 38 | | F # | 0.0066 | |
| Specific Conductance | umhos /cm | 09/20/2013 | N001 | 12.46 - 12.46 | 797 | | F # | | |
| Sulfate | mg/L | 09/20/2013 | N001 | 12.46 - 12.46 | 63 | | F # | 2.5 | |
| Temperature | C | 09/20/2013 | N001 | 12.46 - 12.46 | 17.67 | | F # | | |
| Turbidity | NTU | 09/20/2013 | N001 | 12.46 - 12.46 | 7.31 | | F # | | |
| Uranium | mg/L | 09/20/2013 | N001 | 12.46 - 12.46 | 0.0083 | | F # | 0.000029 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0826 WELL

| Parameter | Units | Sample | | Depth Range | | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|-------------------------------|----------|------------|------|-------------|---|------|--------|------------|------|----|-----------------|-------------|
| | | Date | ID | (Ft BLS) | | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/19/2013 | N001 | 9.21 | - | 9.21 | 344 | | F | # | | |
| Calcium | mg/L | 09/19/2013 | N001 | 9.21 | - | 9.21 | 300 | | F | # | 0.012 | |
| Chloride | mg/L | 09/19/2013 | N001 | 9.21 | - | 9.21 | 45 | | F | # | 10 | |
| Dissolved Oxygen | mg/L | 09/19/2013 | N001 | 9.21 | - | 9.21 | 0.29 | | F | # | | |
| Iron | mg/L | 09/19/2013 | N001 | 9.21 | - | 9.21 | 0.07 | B | F | # | 0.0049 | |
| Magnesium | mg/L | 09/19/2013 | N001 | 9.21 | - | 9.21 | 81 | | F | # | 0.013 | |
| Manganese | mg/L | 09/19/2013 | N001 | 9.21 | - | 9.21 | 2.3 | | F | # | 0.00011 | |
| Molybdenum | mg/L | 09/19/2013 | N001 | 9.21 | - | 9.21 | 0.018 | | F | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/19/2013 | N001 | 9.21 | - | 9.21 | 101.3 | | F | # | | |
| pH | s.u. | 09/19/2013 | N001 | 9.21 | - | 9.21 | 7.06 | | F | # | | |
| Potassium | mg/L | 09/19/2013 | N001 | 9.21 | - | 9.21 | 12 | | F | # | 0.11 | |
| Sodium | mg/L | 09/19/2013 | N001 | 9.21 | - | 9.21 | 480 | | F | # | 0.33 | |
| Specific Conductance | umhos/cm | 09/19/2013 | N001 | 9.21 | - | 9.21 | 3416 | | F | # | | |
| Sulfate | mg/L | 09/19/2013 | N001 | 9.21 | - | 9.21 | 1700 | | F | # | 25 | |
| Temperature | C | 09/19/2013 | N001 | 9.21 | - | 9.21 | 12.52 | | F | # | | |
| Turbidity | NTU | 09/19/2013 | N001 | 9.21 | - | 9.21 | 0.5 | | F | # | | |
| Uranium | mg/L | 09/19/2013 | N001 | 9.21 | - | 9.21 | 0.04 | | F | # | 0.000029 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0828 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|--------------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 09/18/2013 | N001 | - | 162 | | | # | | |
| Calcium | mg/L | 09/18/2013 | N001 | - | 3.6 | | | # | 0.012 | |
| Chloride | mg/L | 09/18/2013 | N001 | - | 13 | | | # | 1 | |
| Dissolved Oxygen | mg/L | 09/18/2013 | N001 | - | 2.12 | | | # | | |
| Iron | mg/L | 09/18/2013 | N001 | - | 0.0069 | B | U | # | 0.0049 | |
| Magnesium | mg/L | 09/18/2013 | N001 | - | 0.079 | B | | # | 0.013 | |
| Manganese | mg/L | 09/18/2013 | N001 | - | 0.0047 | B | | # | 0.00011 | |
| Molybdenum | mg/L | 09/18/2013 | N001 | - | 0.0025 | | | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/18/2013 | N001 | - | 128.9 | | | # | | |
| pH | s.u. | 09/18/2013 | N001 | - | 8.74 | | | # | | |
| Potassium | mg/L | 09/18/2013 | N001 | - | 0.66 | B | U | # | 0.11 | |
| Sodium | mg/L | 09/18/2013 | N001 | - | 170 | | | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/18/2013 | N001 | - | 800 | | | # | | |
| Sulfate | mg/L | 09/18/2013 | N001 | - | 210 | | | # | 2.5 | |
| Temperature | C | 09/18/2013 | N001 | - | 19.26 | | | # | | |
| Turbidity | NTU | 09/18/2013 | N001 | - | 0.82 | | | # | | |
| Uranium | mg/L | 09/18/2013 | N001 | - | 0.00008 | B | | # | 0.000029 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0841 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|-------------------------------|-----------|-------------|-----------|----------------------|--------|------------|------|----|-----------------|-------------|
| | | | | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/18/2013 | N001 | - | 163 | | | # | | |
| Calcium | mg/L | 09/18/2013 | N001 | - | 63 | | | # | 0.012 | |
| Chloride | mg/L | 09/18/2013 | N001 | - | 13 | | | # | 1 | |
| Dissolved Oxygen | mg/L | 09/18/2013 | N001 | - | 3.51 | | | # | | |
| Iron | mg/L | 09/18/2013 | N001 | - | 0.0068 | B | U | # | 0.0049 | |
| Magnesium | mg/L | 09/18/2013 | N001 | - | 11 | | | # | 0.013 | |
| Manganese | mg/L | 09/18/2013 | N001 | - | 0.077 | | | # | 0.00011 | |
| Molybdenum | mg/L | 09/18/2013 | N001 | - | 0.004 | | | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/18/2013 | N001 | - | 168.3 | | | # | | |
| pH | s.u. | 09/18/2013 | N001 | - | 7.72 | | | # | | |
| Potassium | mg/L | 09/18/2013 | N001 | - | 2.7 | | | # | 0.11 | |
| Sodium | mg/L | 09/18/2013 | N001 | - | 63 | | | # | 0.0066 | |
| Specific Conductance | umhos /cm | 09/18/2013 | N001 | - | 686 | | | # | | |
| Sulfate | mg/L | 09/18/2013 | N001 | - | 150 | | | # | 2.5 | |
| Temperature | C | 09/18/2013 | N001 | - | 17.45 | | | # | | |
| Turbidity | NTU | 09/18/2013 | N001 | - | 5.36 | | | # | | |
| Uranium | mg/L | 09/18/2013 | N001 | - | 0.0018 | | | # | 0.000029 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0842 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers | | Detection Limit | Uncertainty |
|-------------------------------|----------|-------------|-----------|----------------------|--------|------------|---------|-----------------|-------------|
| | | | | | | Lab | Data QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/18/2013 | N001 | - | 134 | | # | | |
| Calcium | mg/L | 09/18/2013 | N001 | - | 50 | | # | 0.012 | |
| Calcium | mg/L | 09/18/2013 | N002 | - | 47 | | # | 0.012 | |
| Chloride | mg/L | 09/18/2013 | N001 | - | 15 | | # | 0.2 | |
| Chloride | mg/L | 09/18/2013 | N002 | - | 15 | | # | 0.2 | |
| Dissolved Oxygen | mg/L | 09/18/2013 | N001 | - | 4.07 | | # | | |
| Iron | mg/L | 09/18/2013 | N001 | - | 0.06 | B | # | 0.0049 | |
| Iron | mg/L | 09/18/2013 | N002 | - | 0.07 | B | # | 0.0049 | |
| Magnesium | mg/L | 09/18/2013 | N001 | - | 5.5 | | # | 0.013 | |
| Magnesium | mg/L | 09/18/2013 | N002 | - | 5.1 | | # | 0.013 | |
| Manganese | mg/L | 09/18/2013 | N001 | - | 0.05 | | # | 0.00011 | |
| Manganese | mg/L | 09/18/2013 | N002 | - | 0.047 | | # | 0.00011 | |
| Molybdenum | mg/L | 09/18/2013 | N001 | - | 0.0029 | | # | 0.00032 | |
| Molybdenum | mg/L | 09/18/2013 | N002 | - | 0.0022 | | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/18/2013 | N001 | - | 183 | | # | | |
| pH | s.u. | 09/18/2013 | N001 | - | 7.83 | | # | | |
| Potassium | mg/L | 09/18/2013 | N001 | - | 0.91 | B | U | # | 0.11 |
| Potassium | mg/L | 09/18/2013 | N002 | - | 0.77 | B | U | # | 0.11 |
| Sodium | mg/L | 09/18/2013 | N001 | - | 79 | | # | 0.0066 | |
| Sodium | mg/L | 09/18/2013 | N002 | - | 76 | | # | 0.0066 | |
| Specific Conductance | umhos/cm | 09/18/2013 | N001 | - | 637 | | # | | |

Groundwater Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/12/2013

Location: 0842 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|-------------|-------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Sulfate | mg/L | 09/18/2013 | N001 | - | 150 | | | # | 2.5 | |
| Sulfate | mg/L | 09/18/2013 | N002 | - | 150 | | | # | 2.5 | |
| Temperature | C | 09/18/2013 | N001 | - | 13.65 | | | # | | |
| Turbidity | NTU | 09/18/2013 | N001 | - | 3.24 | | | # | | |
| Uranium | mg/L | 09/18/2013 | N001 | - | 0.00034 | | | # | 0.000029 | |
| Uranium | mg/L | 09/18/2013 | N002 | - | 0.00027 | | | # | 0.000029 | |

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

- F Low flow sampling method used.
- L Less than 3 bore volumes purged prior to sampling.
- U Parameter analyzed for but was not detected.
- G Possible grout contamination, pH > 9.
- Q Qualitative result due to sampling technique.
- X Location is undefined.
- J Estimated value.
- R Unusable result.

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

Surface Water Quality Data

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Surface Water Quality Data by Location (USEE102) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/03/2013

Location: 0747 SURFACE LOCATION 8/26/97 State plane east changed from 594497.14 to an estimation close to river

| Parameter | Units | Sample | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|--------|------------|------|----|-----------------|-------------|
| | | Date | ID | | Lab | Data | QA | | |
| Alkalinity, Total (as CaCO ₃) | mg/L | 09/19/2013 | 0001 | 261 | | | # | | |
| Calcium | mg/L | 09/19/2013 | 0001 | 150 | | | # | 0.012 | |
| Chloride | mg/L | 09/19/2013 | 0001 | 23 | | | # | 5 | |
| Dissolved Oxygen | mg/L | 09/19/2013 | N001 | 11.53 | | | # | | |
| Iron | mg/L | 09/19/2013 | 0001 | 0.0049 | U | | # | 0.0049 | |
| Magnesium | mg/L | 09/19/2013 | 0001 | 55 | | | # | 0.013 | |
| Manganese | mg/L | 09/19/2013 | 0001 | 0.4 | | | # | 0.00011 | |
| Molybdenum | mg/L | 09/19/2013 | 0001 | 0.027 | | | # | 0.0016 | |
| Oxidation Reduction Potential | mV | 09/19/2013 | N001 | 109.9 | | | # | | |
| pH | s.u. | 09/19/2013 | N001 | 8.13 | | | # | | |
| Potassium | mg/L | 09/19/2013 | 0001 | 9.9 | | | # | 0.11 | |
| Sodium | mg/L | 09/19/2013 | 0001 | 190 | | | # | 0.066 | |
| Specific Conductance | umhos/cm | 09/19/2013 | N001 | 1822 | | | # | | |
| Sulfate | mg/L | 09/19/2013 | 0001 | 750 | | | # | 12 | |
| Temperature | C | 09/19/2013 | N001 | 25.17 | | | # | | |
| Turbidity | NTU | 09/19/2013 | N001 | 656 | | | # | | |
| Uranium | mg/L | 09/19/2013 | 0001 | 0.28 | | | # | 0.00015 | |

Surface Water Quality Data by Location (USEE102) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/03/2013

Location: 0749 SURFACE LOCATION 8/26/97 State plane east changed from 589532.71 to an estimation close to river

| Parameter | Units | Sample | | Result | Qualifiers | | Detection Limit | Uncertainty |
|---|----------|------------|------|---------|------------|---------|-----------------|-------------|
| | | Date | ID | | Lab | Data QA | | |
| Alkalinity, Total (as CaCO ₃) | mg/L | 09/18/2013 | 0001 | 118 | | # | | |
| Calcium | mg/L | 09/18/2013 | 0001 | 58 | | # | 0.012 | |
| Chloride | mg/L | 09/18/2013 | 0001 | 250 | | # | 5 | |
| Dissolved Oxygen | mg/L | 09/18/2013 | N001 | 8.3 | | # | | |
| Iron | mg/L | 09/18/2013 | 0001 | 0.17 | | # | 0.0049 | |
| Magnesium | mg/L | 09/18/2013 | 0001 | 0.43 | B | # | 0.013 | |
| Manganese | mg/L | 09/18/2013 | 0001 | 0.02 | | # | 0.00011 | |
| Molybdenum | mg/L | 09/18/2013 | 0001 | 0.0059 | | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/18/2013 | N001 | 166 | | # | | |
| pH | s.u. | 09/18/2013 | N001 | 8.18 | | # | | |
| Potassium | mg/L | 09/18/2013 | 0001 | 2.8 | | # | 0.11 | |
| Sodium | mg/L | 09/18/2013 | 0001 | 320 | | # | 0.066 | |
| Specific Conductance | umhos/cm | 09/18/2013 | N001 | 1783 | | # | | |
| Sulfate | mg/L | 09/18/2013 | 0001 | 390 | | # | 12 | |
| Temperature | C | 09/18/2013 | N001 | 23.06 | | # | | |
| Turbidity | NTU | 09/18/2013 | N001 | 11.3 | | # | | |
| Uranium | mg/L | 09/18/2013 | 0001 | 0.00027 | | # | 0.000029 | |

Surface Water Quality Data by Location (USEE102) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/03/2013

Location: 0794 SURFACE LOCATION 8/26/97 State plane north changed from 844178.27 to an estimation close to river

| Parameter | Units | Sample | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|--------|------------|------|----|-----------------|-------------|
| | | Date | ID | | Lab | Data | QA | | |
| Alkalinity, Total (as CaCO ₃) | mg/L | 09/18/2013 | 0001 | 137 | | | # | | |
| Calcium | mg/L | 09/18/2013 | 0001 | 55 | | J | # | 0.012 | |
| Chloride | mg/L | 09/18/2013 | 0001 | 5.5 | | | # | 0.2 | |
| Dissolved Oxygen | mg/L | 09/18/2013 | N001 | 10.69 | | | # | | |
| Iron | mg/L | 09/18/2013 | 0001 | 0.036 | B | J | # | 0.0049 | |
| Magnesium | mg/L | 09/18/2013 | 0001 | 19 | | J | # | 0.013 | |
| Manganese | mg/L | 09/18/2013 | 0001 | 0.01 | | | # | 0.00011 | |
| Molybdenum | mg/L | 09/18/2013 | 0001 | 0.001 | | | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/18/2013 | N001 | 116.8 | | | # | | |
| pH | s.u. | 09/18/2013 | N001 | 8.19 | | | # | | |
| Potassium | mg/L | 09/18/2013 | 0001 | 2.7 | | | # | 0.11 | |
| Sodium | mg/L | 09/18/2013 | 0001 | 31 | | | # | 0.0066 | |
| Specific Conductance | umhos/cm | 09/18/2013 | N001 | 564 | | | # | | |
| Sulfate | mg/L | 09/18/2013 | 0001 | 170 | | | # | 2.5 | |
| Temperature | C | 09/18/2013 | N001 | 19.97 | | | # | | |
| Turbidity | NTU | 09/18/2013 | N001 | 182 | | | # | | |
| Uranium | mg/L | 09/18/2013 | 0001 | 0.0038 | | | # | 0.000029 | |

Surface Water Quality Data by Location (USEE102) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/03/2013

Location: 0796 SURFACE LOCATION Was possibly historically sampled ~900 ft E from current location

| Parameter | Units | Sample | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|--------|------------|------|----|-----------------|-------------|
| | | Date | ID | | Lab | Data | QA | | |
| Alkalinity, Total (as CaCO ₃) | mg/L | 09/19/2013 | 0001 | 135 | | | # | | |
| Calcium | mg/L | 09/19/2013 | 0001 | 59 | | J | # | 0.012 | |
| Chloride | mg/L | 09/19/2013 | 0001 | 5.8 | | | # | 0.2 | |
| Dissolved Oxygen | mg/L | 09/19/2013 | N001 | 8.35 | | | # | | |
| Iron | mg/L | 09/19/2013 | 0001 | 0.0062 | B | U | # | 0.0049 | |
| Magnesium | mg/L | 09/19/2013 | 0001 | 21 | | J | # | 0.013 | |
| Manganese | mg/L | 09/19/2013 | 0001 | 0.0046 | B | | # | 0.00011 | |
| Molybdenum | mg/L | 09/19/2013 | 0001 | 0.001 | B | | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/19/2013 | N001 | 180.8 | | | # | | |
| pH | s.u. | 09/19/2013 | N001 | 7.62 | | | # | | |
| Potassium | mg/L | 09/19/2013 | 0001 | 2.8 | | | # | 0.11 | |
| Sodium | mg/L | 09/19/2013 | 0001 | 33 | | | # | 0.0066 | |
| Specific Conductance | umhos/cm | 09/19/2013 | N001 | 602 | | | # | | |
| Sulfate | mg/L | 09/19/2013 | 0001 | 180 | | | # | 2.5 | |
| Temperature | C | 09/19/2013 | N001 | 11.93 | | | # | | |
| Turbidity | NTU | 09/19/2013 | N001 | 81.5 | | | # | | |
| Uranium | mg/L | 09/19/2013 | 0001 | 0.0034 | | | # | 0.000029 | |

Surface Water Quality Data by Location (USEE102) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/03/2013

Location: 0810 SURFACE LOCATION Gravel Pit Pond

| Parameter | Units | Sample | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|--------|------------|------|----|-----------------|-------------|
| | | Date | ID | | Lab | Data | QA | | |
| Alkalinity, Total (as CaCO ₃) | mg/L | 09/19/2013 | 0001 | 385 | | | # | | |
| Calcium | mg/L | 09/19/2013 | 0001 | 15 | | J | # | 0.012 | |
| Chloride | mg/L | 09/19/2013 | 0001 | 42 | | | # | 5 | |
| Dissolved Oxygen | mg/L | 09/19/2013 | N001 | 8.19 | | | # | | |
| Iron | mg/L | 09/19/2013 | 0001 | 0.0066 | B | U | # | 0.0049 | |
| Magnesium | mg/L | 09/19/2013 | 0001 | 94 | | J | # | 0.013 | |
| Manganese | mg/L | 09/19/2013 | 0001 | 0.0053 | | | # | 0.00011 | |
| Molybdenum | mg/L | 09/19/2013 | 0001 | 0.0018 | | | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/19/2013 | N001 | 176.8 | | | # | | |
| pH | s.u. | 09/19/2013 | N001 | 9.08 | | | # | | |
| Potassium | mg/L | 09/19/2013 | 0001 | 18 | | | # | 0.11 | |
| Sodium | mg/L | 09/19/2013 | 0001 | 250 | | | # | 0.066 | |
| Specific Conductance | umhos/cm | 09/19/2013 | N001 | 1706 | | | # | | |
| Sulfate | mg/L | 09/19/2013 | 0001 | 540 | | | # | 12 | |
| Temperature | C | 09/19/2013 | N001 | 12.64 | | | # | | |
| Turbidity | NTU | 09/19/2013 | N001 | 15.7 | | | # | | |
| Uranium | mg/L | 09/19/2013 | 0001 | 0.0051 | | J | # | 0.000029 | |

Surface Water Quality Data by Location (USEE102) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/03/2013

Location: 0811 SURFACE LOCATION

| Parameter | Units | Sample | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|--------|------------|------|----|-----------------|-------------|
| | | Date | ID | | Lab | Data | QA | | |
| Alkalinity, Total (as CaCO ₃) | mg/L | 09/19/2013 | 0001 | 164 | | | # | | |
| Calcium | mg/L | 09/19/2013 | 0001 | 58 | | J | # | 0.012 | |
| Chloride | mg/L | 09/19/2013 | 0001 | 5.5 | | | # | 0.2 | |
| Dissolved Oxygen | mg/L | 09/19/2013 | N001 | 9 | | | # | | |
| Iron | mg/L | 09/19/2013 | 0001 | 0.0049 | U | | # | 0.0049 | |
| Magnesium | mg/L | 09/19/2013 | 0001 | 21 | | J | # | 0.013 | |
| Manganese | mg/L | 09/19/2013 | 0001 | 0.0082 | | | # | 0.00011 | |
| Molybdenum | mg/L | 09/19/2013 | 0001 | 0.0012 | | | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/19/2013 | N001 | 69.7 | | | # | | |
| pH | s.u. | 09/19/2013 | N001 | 8.36 | | | # | | |
| Potassium | mg/L | 09/19/2013 | 0001 | 2.7 | | | # | 0.11 | |
| Sodium | mg/L | 09/19/2013 | 0001 | 31 | | | # | 0.0066 | |
| Specific Conductance | umhos/cm | 09/19/2013 | N001 | 609 | | | # | | |
| Sulfate | mg/L | 09/19/2013 | 0001 | 180 | | | # | 2.5 | |
| Temperature | C | 09/19/2013 | N001 | 19.65 | | | # | | |
| Turbidity | NTU | 09/19/2013 | N001 | 153 | | | # | | |
| Uranium | mg/L | 09/19/2013 | 0001 | 0.0034 | | J | # | 0.000029 | |

Surface Water Quality Data by Location (USEE102) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/03/2013

Location: 0812 SURFACE LOCATION

| Parameter | Units | Sample | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|--------|------------|------|----|-----------------|-------------|
| | | Date | ID | | Lab | Data | QA | | |
| Alkalinity, Total (as CaCO ₃) | mg/L | 09/20/2013 | 0001 | 146 | | | # | | |
| Calcium | mg/L | 09/20/2013 | 0001 | 53 | | J | # | 0.012 | |
| Chloride | mg/L | 09/20/2013 | 0001 | 5.1 | | | # | 0.2 | |
| Dissolved Oxygen | mg/L | 09/20/2013 | N001 | 8.81 | | | # | | |
| Iron | mg/L | 09/20/2013 | 0001 | 0.0049 | U | | # | 0.0049 | |
| Magnesium | mg/L | 09/20/2013 | 0001 | 19 | | J | # | 0.013 | |
| Manganese | mg/L | 09/20/2013 | 0001 | 0.0095 | | | # | 0.00011 | |
| Molybdenum | mg/L | 09/20/2013 | 0001 | 0.0011 | | | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/20/2013 | N001 | 78.1 | | | # | | |
| pH | s.u. | 09/20/2013 | N001 | 8.23 | | | # | | |
| Potassium | mg/L | 09/20/2013 | 0001 | 2.4 | | | # | 0.11 | |
| Sodium | mg/L | 09/20/2013 | 0001 | 28 | | | # | 0.0066 | |
| Specific Conductance | umhos/cm | 09/20/2013 | N001 | 547 | | | # | | |
| Sulfate | mg/L | 09/20/2013 | 0001 | 160 | | | # | 2.5 | |
| Temperature | C | 09/20/2013 | N001 | 13.4 | | | # | | |
| Turbidity | NTU | 09/20/2013 | N001 | 81.9 | | | # | | |
| Uranium | mg/L | 09/20/2013 | 0001 | 0.003 | | J | # | 0.000029 | |

Surface Water Quality Data by Location (USEE102) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/03/2013

Location: 0822 SURFACE LOCATION west-side irrigation ditch

| Parameter | Units | Sample | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|--------|------------|------|----|-----------------|-------------|
| | | Date | ID | | Lab | Data | QA | | |
| Alkalinity, Total (as CaCO ₃) | mg/L | 09/19/2013 | N001 | 258 | | | # | | |
| Calcium | mg/L | 09/19/2013 | N001 | 87 | | | # | 0.012 | |
| Chloride | mg/L | 09/19/2013 | N001 | 11 | | | # | 1 | |
| Dissolved Oxygen | mg/L | 09/19/2013 | N001 | 9.53 | | | # | | |
| Iron | mg/L | 09/19/2013 | N001 | 0.15 | | J | # | 0.0049 | |
| Magnesium | mg/L | 09/19/2013 | N001 | 23 | | J | # | 0.013 | |
| Manganese | mg/L | 09/19/2013 | N001 | 0.015 | E | J | # | 0.00011 | |
| Molybdenum | mg/L | 09/19/2013 | N001 | 0.0017 | | | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/19/2013 | N001 | 91.8 | | | # | | |
| pH | s.u. | 09/19/2013 | N001 | 8.06 | | | # | | |
| Potassium | mg/L | 09/19/2013 | N001 | 6.5 | E | J | # | 0.11 | |
| Radium-226 | pCi/L | 09/19/2013 | N001 | 0.3 | | J | # | 0.19 | 0.19 |
| Radium-228 | pCi/L | 09/19/2013 | N001 | 0.42 | U | | # | 0.42 | 0.262 |
| Sodium | mg/L | 09/19/2013 | N001 | 79 | | | # | 0.0066 | |
| Specific Conductance | umhos/cm | 09/19/2013 | N001 | 891 | | | # | | |
| Sulfate | mg/L | 09/19/2013 | N001 | 220 | | | # | 2.5 | |
| Temperature | C | 09/19/2013 | N001 | 15.08 | | | # | | |
| Turbidity | NTU | 09/19/2013 | N001 | 5.39 | | | # | | |
| Uranium | mg/L | 09/19/2013 | N001 | 0.0056 | E | J | # | 0.000029 | |

Surface Water Quality Data by Location (USEE102) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/03/2013

Location: 0823 SURFACE LOCATION

| Parameter | Units | Sample | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|--------|------------|------|----|-----------------|-------------|
| | | Date | ID | | Lab | Data | QA | | |
| Alkalinity, Total (as CaCO ₃) | mg/L | 09/18/2013 | 0001 | 136 | | | # | | |
| Calcium | mg/L | 09/18/2013 | 0001 | 180 | | | # | 0.012 | |
| Chloride | mg/L | 09/18/2013 | 0001 | 240 | | | # | 5 | |
| Dissolved Oxygen | mg/L | 09/18/2013 | N001 | 7.89 | | | # | | |
| Iron | mg/L | 09/18/2013 | 0001 | 0.16 | | J | # | 0.0049 | |
| Magnesium | mg/L | 09/18/2013 | 0001 | 92 | | | # | 0.013 | |
| Manganese | mg/L | 09/18/2013 | 0001 | 0.66 | | | # | 0.00011 | |
| Molybdenum | mg/L | 09/18/2013 | 0001 | 0.0023 | | | # | 0.00032 | |
| Oxidation Reduction Potential | mV | 09/18/2013 | N001 | 216.3 | | | # | | |
| pH | s.u. | 09/18/2013 | N001 | 7.66 | | | # | | |
| Potassium | mg/L | 09/18/2013 | 0001 | 18 | | | # | 0.11 | |
| Sodium | mg/L | 09/18/2013 | 0001 | 390 | | | # | 0.33 | |
| Specific Conductance | umhos/cm | 09/18/2013 | N001 | 2802 | | | # | | |
| Sulfate | mg/L | 09/18/2013 | 0001 | 1200 | | | # | 12 | |
| Temperature | C | 09/18/2013 | N001 | 16.54 | | | # | | |
| Turbidity | NTU | 09/18/2013 | N001 | 35.7 | | | # | | |
| Uranium | mg/L | 09/18/2013 | 0001 | 0.0064 | | | # | 0.000029 | |

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

- | | | |
|--|---|--------------------|
| F Low flow sampling method used. | G Possible grout contamination, pH > 9. | J Estimated value. |
| L Less than 3 bore volumes purged prior to sampling. | Q Qualitative result due to sampling technique. | R Unusable result. |
| U Parameter analyzed for but was not detected. | X Location is undefined. | |

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

**Alternate Water Supply System
Quality Data**

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General Water Quality Data by Location (USEE105) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/03/2013

Location: 0813 DOMESTIC SUPPLY

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|-------------|-----------|----------------------|---------|------------|------|----|-----------------|-------------|
| | | | | | | Lab | Data | QA | | |
| Alkalinity, Total (as CaCO ₃) | mg/L | 09/17/2013 | N001 | 0 - 0 | 154 | | | # | | |
| Chlorine, Total Residual | mg/L | 09/17/2013 | N001 | 0 - 0 | 0.33 | | | # | | |
| Dissolved Oxygen | mg/L | 09/17/2013 | N001 | 0 - 0 | 6.75 | | | # | | |
| Oxidation Reduction Potential | mV | 09/17/2013 | N001 | 0 - 0 | 438.3 | | | # | | |
| pH | s.u. | 09/17/2013 | N001 | 0 - 0 | 8.86 | | | # | | |
| Radium-226 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0.604 | | | # | 0.17 | 0.276 |
| Radium-228 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0.493 | | J | # | 0.32 | 0.245 |
| Specific Conductance | umhos/cm | 09/17/2013 | N001 | 0 - 0 | 648 | | | # | | |
| Temperature | C | 09/17/2013 | N001 | 0 - 0 | 17.05 | | | # | | |
| Turbidity | NTU | 09/17/2013 | N001 | 0 - 0 | 0.92 | | | # | | |
| Uranium | mg/L | 09/17/2013 | N001 | 0 - 0 | 0.00011 | | | # | 0.000029 | |

General Water Quality Data by Location (USEE105) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/03/2013

Location: 0815 DOMESTIC SUPPLY

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|--------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (as CaCO ₃) | mg/L | 09/17/2013 | N001 | 0 - 0 | 145 | | | # | | |
| Chlorine, Total Residual | mg/L | 09/17/2013 | N001 | 0 - 0 | 0.32 | | | # | | |
| Dissolved Oxygen | mg/L | 09/17/2013 | N001 | 0 - 0 | 6.23 | | | # | | |
| Oxidation Reduction Potential | mV | 09/17/2013 | N001 | 0 - 0 | 433.4 | | | # | | |
| pH | s.u. | 09/17/2013 | N001 | 0 - 0 | 8.86 | | | # | | |
| Radium-226 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0.47 | | J | # | 0.18 | 0.242 |
| Radium-228 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0.638 | | J | # | 0.33 | 0.272 |
| Specific Conductance | umhos/cm | 09/17/2013 | N001 | 0 - 0 | 650 | | | # | | |
| Temperature | C | 09/17/2013 | N001 | 0 - 0 | 16.75 | | | # | | |
| Turbidity | NTU | 09/17/2013 | N001 | 0 - 0 | 0.87 | | | # | | |
| Uranium | mg/L | 09/17/2013 | N001 | 0 - 0 | 0.0001 | | | # | 0.000029 | |

General Water Quality Data by Location (USEE105) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/03/2013

Location: 0816 DOMESTIC SUPPLY

| Parameter | Units | Sample | | Depth Range | | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------|---|---|--------|------------|------|----|-----------------|-------------|
| | | Date | ID | (Ft BLS) | | | | Lab | Data | QA | | |
| Alkalinity, Total (as CaCO ₃) | mg/L | 09/17/2013 | N001 | 0 | - | 0 | 148 | | | # | | |
| Chlorine, Total Residual | mg/L | 09/17/2013 | N001 | 0 | - | 0 | 0.34 | | | # | | |
| Dissolved Oxygen | mg/L | 09/17/2013 | N001 | 0 | - | 0 | 6.2 | | | # | | |
| Oxidation Reduction Potential | mV | 09/17/2013 | N001 | 0 | - | 0 | 419.9 | | | # | | |
| pH | s.u. | 09/17/2013 | N001 | 0 | - | 0 | 8.97 | | | # | | |
| Radium-226 | pCi/L | 09/17/2013 | N001 | 0 | - | 0 | 0.514 | | | # | 0.17 | 0.251 |
| Radium-228 | pCi/L | 09/17/2013 | N001 | 0 | - | 0 | 0.557 | | J | # | 0.35 | 0.266 |
| Specific Conductance | umhos/cm | 09/17/2013 | N001 | 0 | - | 0 | 650 | | | # | | |
| Temperature | C | 09/17/2013 | N001 | 0 | - | 0 | 15.99 | | | # | | |
| Turbidity | NTU | 09/17/2013 | N001 | 0 | - | 0 | 0.94 | | | # | | |
| Uranium | mg/L | 09/17/2013 | N001 | 0 | - | 0 | 0.0001 | | | # | 0.000029 | |

General Water Quality Data by Location (USEE105) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/16/2013

Location: 0818 DOMESTIC SUPPLY, five minute flush sample

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|----------------------------------|--------------|------------|------|-------------------------|--------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/17/2013 | N002 | 0 - 0 | 168 | | | # | | |
| Chlorine, Total Residual | mg/L | 09/17/2013 | N002 | 0 - 0 | 0.38 | | | # | | |
| Dissolved Oxygen | mg/L | 09/17/2013 | N002 | 0 - 0 | 4.84 | | | # | | |
| Oxidation Reduction Potential | mV | 09/17/2013 | N002 | 0 - 0 | 357.2 | | | # | | |
| pH | s.u. | 09/17/2013 | N002 | 0 - 0 | 8.86 | | | # | | |
| Radium-226 | pCi/L | 09/17/2013 | N002 | 0 - 0 | 2.51 | | | # | 0.17 | 0.775 |
| Radium-228 | pCi/L | 09/17/2013 | N002 | 0 - 0 | 3.56 | | | # | 0.33 | 0.892 |
| Specific Conductance | umhos /cm | 09/17/2013 | N002 | 0 - 0 | 645 | | | # | | |
| Temperature | C | 09/17/2013 | N002 | 0 - 0 | 18.85 | | | # | | |
| Turbidity | NTU | 09/17/2013 | N002 | 0 - 0 | 13.5 | | | # | | |
| Uranium | mg/L | 09/17/2013 | N002 | 0 - 0 | 0.0001 | | | # | 0.000029 | |

General Water Quality Data by Location (USEE105) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/16/2013

Location: 0818 DOMESTIC SUPPLY, end of flush sample

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|-------------------------------|-----------|-------------|-----------|----------------------|--------|------------|------|----|-----------------|-------------|
| | | | | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/17/2013 | N001 | 0 - 0 | 170 | | | # | | |
| Chlorine, Total Residual | mg/L | 09/17/2013 | N001 | 0 - 0 | 0.33 | | | # | | |
| Dissolved Oxygen | mg/L | 09/17/2013 | N001 | 0 - 0 | 3.04 | | | # | | |
| Oxidation Reduction Potential | mV | 09/17/2013 | N001 | 0 - 0 | 378.2 | | | # | | |
| pH | s.u. | 09/17/2013 | N001 | 0 - 0 | 8.81 | | | # | | |
| Radium-226 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0.391 | | J | # | 0.19 | 0.216 |
| Radium-228 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0.553 | | J | # | 0.34 | 0.26 |
| Specific Conductance | umhos /cm | 09/17/2013 | N001 | 0 - 0 | 649 | | | # | | |
| Temperature | C | 09/17/2013 | N001 | 0 - 0 | 16.5 | | | # | | |
| Turbidity | NTU | 09/17/2013 | N001 | 0 - 0 | 3.88 | | | # | | |
| Uranium | mg/L | 09/17/2013 | N001 | 0 - 0 | 0.0001 | | | # | 0.000029 | |

General Water Quality Data by Location (USEE105) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/16/2013

Location: 0819 DOMESTIC SUPPLY, five minute flush sample

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|-------------------------------|-----------|-------------|-----------|----------------------|---------|------------|------|----|-----------------|-------------|
| | | | | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/17/2013 | N002 | 0 - 0 | 186 | | | # | | |
| Chlorine, Total Residual | mg/L | 09/17/2013 | N002 | 0 - 0 | 0.37 | | | # | | |
| Dissolved Oxygen | mg/L | 09/17/2013 | N002 | 0 - 0 | 2.43 | | | # | | |
| Oxidation Reduction Potential | mV | 09/17/2013 | N002 | 0 - 0 | 388.9 | | | # | | |
| pH | s.u. | 09/17/2013 | N002 | 0 - 0 | 8.88 | | | # | | |
| Radium-226 | pCi/L | 09/17/2013 | N002 | 0 - 0 | 0.382 | | J | # | 0.19 | 0.218 |
| Radium-228 | pCi/L | 09/17/2013 | N002 | 0 - 0 | 0.585 | | J | # | 0.35 | 0.274 |
| Specific Conductance | umhos /cm | 09/17/2013 | N002 | 0 - 0 | 642 | | | # | | |
| Temperature | C | 09/17/2013 | N002 | 0 - 0 | 17.27 | | | # | | |
| Turbidity | NTU | 09/17/2013 | N002 | 0 - 0 | 1.89 | | | # | | |
| Uranium | mg/L | 09/17/2013 | N002 | 0 - 0 | 0.00011 | | | # | 0.000029 | |

General Water Quality Data by Location (USEE105) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/16/2013

Location: 0819 DOMESTIC SUPPLY , end of flush sample

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|-------------------------------|----------|-------------|-----------|----------------------|---------|------------|------|----|-----------------|-------------|
| | | | | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/17/2013 | N001 | 0 - 0 | 162 | | | # | | |
| Chlorine, Total Residual | mg/L | 09/17/2013 | N001 | 0 - 0 | 0.34 | | | # | | |
| Dissolved Oxygen | mg/L | 09/17/2013 | N001 | 0 - 0 | 3.14 | | | # | | |
| Oxidation Reduction Potential | mV | 09/17/2013 | N001 | 0 - 0 | 387 | | | # | | |
| pH | s.u. | 09/17/2013 | N001 | 0 - 0 | 8.99 | | | # | | |
| Radium-226 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0.5 | | J | # | 0.18 | 0.248 |
| Radium-228 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0.569 | | J | # | 0.36 | 0.275 |
| Specific Conductance | umhos/cm | 09/17/2013 | N001 | 0 - 0 | 655 | | | # | | |
| Temperature | C | 09/17/2013 | N001 | 0 - 0 | 16.81 | | | # | | |
| Turbidity | NTU | 09/17/2013 | N001 | 0 - 0 | 1.37 | | | # | | |
| Uranium | mg/L | 09/17/2013 | N001 | 0 - 0 | 0.00013 | | | # | 0.000029 | |

General Water Quality Data by Location (USEE105) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/16/2013

Location: 0820 DOMESTIC SUPPLY, five minute flush sample

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|-------------------------------|----------|-------------|-----------|----------------------|--------|------------|------|----|-----------------|-------------|
| | | | | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/17/2013 | N002 | 0 - 0 | 168 | | | # | | |
| Chlorine, Total Residual | mg/L | 09/17/2013 | N002 | 0 - 0 | 0.32 | | | # | | |
| Dissolved Oxygen | mg/L | 09/17/2013 | N002 | 0 - 0 | 3.31 | | | # | | |
| Oxidation Reduction Potential | mV | 09/17/2013 | N002 | 0 - 0 | 410.6 | | | # | | |
| pH | s.u. | 09/17/2013 | N002 | 0 - 0 | 8.97 | | | # | | |
| Radium-226 | pCi/L | 09/17/2013 | N002 | 0 - 0 | 0.391 | | J | # | 0.18 | 0.216 |
| Radium-228 | pCi/L | 09/17/2013 | N002 | 0 - 0 | 0.438 | | J | # | 0.36 | 0.255 |
| Specific Conductance | umhos/cm | 09/17/2013 | N002 | 0 - 0 | 651 | | | # | | |
| Temperature | C | 09/17/2013 | N002 | 0 - 0 | 17.05 | | | # | | |
| Turbidity | NTU | 09/17/2013 | N002 | 0 - 0 | 1.69 | | | # | | |
| Uranium | mg/L | 09/17/2013 | N002 | 0 - 0 | 0.0001 | | | # | 0.000029 | |

General Water Quality Data by Location (USEE105) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/16/2013

Location: 0820 DOMESTIC SUPPLY , end of flush sample

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|-------------------------------|----------|-------------|-----------|----------------------|---------|------------|------|----|-----------------|-------------|
| | | | | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/17/2013 | N001 | 0 - 0 | 159 | | | # | | |
| Chlorine, Total Residual | mg/L | 09/17/2013 | N001 | 0 - 0 | 0.35 | | | # | | |
| Dissolved Oxygen | mg/L | 09/17/2013 | N001 | 0 - 0 | 5.36 | | | # | | |
| Oxidation Reduction Potential | mV | 09/17/2013 | N001 | 0 - 0 | 423.5 | | | # | | |
| pH | s.u. | 09/17/2013 | N001 | 0 - 0 | 8.81 | | | # | | |
| Radium-226 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0.409 | | J | # | 0.19 | 0.221 |
| Radium-228 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0.463 | | J | # | 0.35 | 0.251 |
| Specific Conductance | umhos/cm | 09/17/2013 | N001 | 0 - 0 | 649 | | | # | | |
| Temperature | C | 09/17/2013 | N001 | 0 - 0 | 16.68 | | | # | | |
| Turbidity | NTU | 09/17/2013 | N001 | 0 - 0 | 0.96 | | | # | | |
| Uranium | mg/L | 09/17/2013 | N001 | 0 - 0 | 0.00012 | | | # | 0.000029 | |

General Water Quality Data by Location (USEE105) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/16/2013

Location: 0821 DOMESTIC SUPPLY , five minute flush sample

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|----------------------------------|--------------|------------|------|-------------------------|--------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/17/2013 | N002 | 0 - 0 | 154 | | | # | | |
| Chlorine, Total Residual | mg/L | 09/17/2013 | N002 | 0 - 0 | 0.4 | | | # | | |
| Dissolved Oxygen | mg/L | 09/17/2013 | N002 | 0 - 0 | 2.58 | | | # | | |
| Oxidation Reduction Potential | mV | 09/17/2013 | N002 | 0 - 0 | 401.1 | | | # | | |
| pH | s.u. | 09/17/2013 | N002 | 0 - 0 | 8.95 | | | # | | |
| Radium-226 | pCi/L | 09/17/2013 | N002 | 0 - 0 | 0.769 | | | # | 0.2 | 0.332 |
| Radium-228 | pCi/L | 09/17/2013 | N002 | 0 - 0 | 0.697 | | J | # | 0.35 | 0.294 |
| Specific Conductance | umhos /cm | 09/17/2013 | N002 | 0 - 0 | 649 | | | # | | |
| Temperature | C | 09/17/2013 | N002 | 0 - 0 | 17.41 | | | # | | |
| Turbidity | NTU | 09/17/2013 | N002 | 0 - 0 | 8.38 | | | # | | |
| Uranium | mg/L | 09/17/2013 | N002 | 0 - 0 | 0.0001 | | | # | 0.000029 | |

General Water Quality Data by Location (USEE105) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/16/2013

Location: 0821 DOMESTIC SUPPLY , end of flush sample

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|----------------------------------|--------------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/17/2013 | N001 | 0 - 0 | 161 | | | # | | |
| Chlorine, Total Residual | mg/L | 09/17/2013 | N001 | 0 - 0 | 0.32 | | | # | | |
| Dissolved Oxygen | mg/L | 09/17/2013 | N001 | 0 - 0 | 3.82 | | | # | | |
| Oxidation Reduction Potential | mV | 09/17/2013 | N001 | 0 - 0 | 412.1 | | | # | | |
| pH | s.u. | 09/17/2013 | N001 | 0 - 0 | 8.88 | | | # | | |
| Radium-226 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0.338 | | J | # | 0.18 | 0.2 |
| Radium-228 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0.461 | | J | # | 0.36 | 0.257 |
| Specific Conductance | umhos /cm | 09/17/2013 | N001 | 0 - 0 | 651 | | | # | | |
| Temperature | C | 09/17/2013 | N001 | 0 - 0 | 17.02 | | | # | | |
| Turbidity | NTU | 09/17/2013 | N001 | 0 - 0 | 3.06 | | | # | | |
| Uranium | mg/L | 09/17/2013 | N001 | 0 - 0 | 0.00011 | | | # | 0.000029 | |

General Water Quality Data by Location (USEE105) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/16/2013

Location: 0829 DOMESTIC SUPPLY, five minute flush sample

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|----------------------------------|--------------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/17/2013 | N002 | 0 - 0 | 135 | | | # | | |
| Chlorine, Total Residual | mg/L | 09/17/2013 | N002 | 0 - 0 | 0.28 | | | # | | |
| Dissolved Oxygen | mg/L | 09/17/2013 | N002 | 0 - 0 | 3.85 | | | # | | |
| Oxidation Reduction Potential | mV | 09/17/2013 | N002 | 0 - 0 | 107.1 | | | # | | |
| pH | s.u. | 09/17/2013 | N002 | 0 - 0 | 8.64 | | | # | | |
| Radium-226 | pCi/L | 09/17/2013 | N002 | 0 - 0 | 1.97 | | | # | 0.19 | 0.642 |
| Radium-228 | pCi/L | 09/17/2013 | N002 | 0 - 0 | 1.88 | | | # | 0.34 | 0.524 |
| Specific Conductance | umhos /cm | 09/17/2013 | N002 | 0 - 0 | 649 | | | # | | |
| Temperature | C | 09/17/2013 | N002 | 0 - 0 | 18.05 | | | # | | |
| Turbidity | NTU | 09/17/2013 | N002 | 0 - 0 | 4.37 | | | # | | |
| Uranium | mg/L | 09/17/2013 | N002 | 0 - 0 | 0.00009 | B | | # | 0.000029 | |

General Water Quality Data by Location (USEE105) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/16/2013

Location: 0829 DOMESTIC SUPPLY , end of flush sample

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|----------------------------------|--------------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/17/2013 | N001 | 0 - 0 | 148 | | | # | | |
| Chlorine, Total Residual | mg/L | 09/17/2013 | N001 | 0 - 0 | 0.3 | | | # | | |
| Dissolved Oxygen | mg/L | 09/17/2013 | N001 | 0 - 0 | 2.4 | | | # | | |
| Oxidation Reduction Potential | mV | 09/17/2013 | N001 | 0 - 0 | 283 | | | # | | |
| pH | s.u. | 09/17/2013 | N001 | 0 - 0 | 8.82 | | | # | | |
| Radium-226 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0.556 | | | # | 0.17 | 0.261 |
| Radium-228 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0.378 | | J | # | 0.33 | 0.232 |
| Specific Conductance | umhos /cm | 09/17/2013 | N001 | 0 - 0 | 647 | | | # | | |
| Temperature | C | 09/17/2013 | N001 | 0 - 0 | 15.07 | | | # | | |
| Turbidity | NTU | 09/17/2013 | N001 | 0 - 0 | 2.61 | | | # | | |
| Uranium | mg/L | 09/17/2013 | N001 | 0 - 0 | 0.00011 | | | # | 0.000029 | |

General Water Quality Data by Location (USEE105) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/16/2013

Location: 0830 DOMESTIC SUPPLY , five minute flush sample

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|-------------------------------|-----------|-------------|-----------|----------------------|---------|------------|------|----|-----------------|-------------|
| | | | | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/17/2013 | N002 | 0 - 0 | 155 | | | # | | |
| Chlorine, Total Residual | mg/L | 09/17/2013 | N002 | 0 - 0 | 0.33 | | | # | | |
| Dissolved Oxygen | mg/L | 09/17/2013 | N002 | 0 - 0 | 3.1 | | | # | | |
| Oxidation Reduction Potential | mV | 09/17/2013 | N002 | 0 - 0 | 320.3 | | | # | | |
| pH | s.u. | 09/17/2013 | N002 | 0 - 0 | 8.96 | | | # | | |
| Radium-226 | pCi/L | 09/17/2013 | N002 | 0 - 0 | 0.376 | | J | # | 0.17 | 0.208 |
| Radium-228 | pCi/L | 09/17/2013 | N002 | 0 - 0 | 0.632 | | J | # | 0.34 | 0.278 |
| Specific Conductance | umhos /cm | 09/17/2013 | N002 | 0 - 0 | 655 | | | # | | |
| Temperature | C | 09/17/2013 | N002 | 0 - 0 | 17.71 | | | # | | |
| Turbidity | NTU | 09/17/2013 | N002 | 0 - 0 | 1.33 | | | # | | |
| Uranium | mg/L | 09/17/2013 | N002 | 0 - 0 | 0.00011 | | | # | 0.000029 | |

General Water Quality Data by Location (USEE105) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/16/2013

Location: 0830 DOMESTIC SUPPLY , end of flush sampling

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|-------------------------------|----------|-------------|-----------|----------------------|---------|------------|------|----|-----------------|-------------|
| | | | | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO3) | mg/L | 09/17/2013 | N001 | 0 - 0 | 148 | | | # | | |
| Chlorine, Total Residual | mg/L | 09/17/2013 | N001 | 0 - 0 | 0.29 | | | # | | |
| Dissolved Oxygen | mg/L | 09/17/2013 | N001 | 0 - 0 | 2.53 | | | # | | |
| Oxidation Reduction Potential | mV | 09/17/2013 | N001 | 0 - 0 | 351.3 | | | # | | |
| pH | s.u. | 09/17/2013 | N001 | 0 - 0 | 8.83 | | | # | | |
| Radium-226 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0.714 | | | # | 0.18 | 0.309 |
| Radium-228 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0.534 | | J | # | 0.41 | 0.296 |
| Specific Conductance | umhos/cm | 09/17/2013 | N001 | 0 - 0 | 658 | | | # | | |
| Temperature | C | 09/17/2013 | N001 | 0 - 0 | 18.07 | | | # | | |
| Turbidity | NTU | 09/17/2013 | N001 | 0 - 0 | 1.04 | | | # | | |
| Uranium | mg/L | 09/17/2013 | N001 | 0 - 0 | 0.00009 | B | | # | 0.000029 | |

General Water Quality Data by Location (USEE105) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 12/03/2013
 Location: 0834 DOMESTIC SUPPLY

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|-------------|-----------|----------------------|--------|------------|------|----|-----------------|-------------|
| | | | | | | Lab | Data | QA | | |
| Alkalinity, Total (as CaCO ₃) | mg/L | 09/17/2013 | N001 | 0 - 0 | 140 | | | # | | |
| Chlorine, Total Residual | mg/L | 09/17/2013 | N001 | 0 - 0 | 0.27 | | | # | | |
| Dissolved Oxygen | mg/L | 09/17/2013 | N001 | 0 - 0 | 4.15 | | | # | | |
| Oxidation Reduction Potential | mV | 09/17/2013 | N001 | 0 - 0 | 425 | | | # | | |
| pH | s.u. | 09/17/2013 | N001 | 0 - 0 | 8.9 | | | # | | |
| Radium-226 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0.361 | | J | # | 0.17 | 0.203 |
| Radium-228 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0.538 | | J | # | 0.38 | 0.28 |
| Specific Conductance | umhos/cm | 09/17/2013 | N001 | 0 - 0 | 649 | | | # | | |
| Temperature | C | 09/17/2013 | N001 | 0 - 0 | 16.61 | | | # | | |
| Turbidity | NTU | 09/17/2013 | N001 | 0 - 0 | 1.05 | | | # | | |
| Uranium | mg/L | 09/17/2013 | N001 | 0 - 0 | 0.0001 | | | # | 0.000029 | |

General Water Quality Data by Location (USEE105) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/03/2013

Location: 0837 DOMESTIC SUPPLY Domestic System, Tap Location

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|-------------|-----------|----------------------|---------|------------|------|----|-----------------|-------------|
| | | | | | | Lab | Data | QA | | |
| Alkalinity, Total (as CaCO ₃) | mg/L | 09/17/2013 | N001 | 0 - 0 | 158 | | | # | | |
| Chlorine, Total Residual | mg/L | 09/17/2013 | N001 | 0 - 0 | 0.34 | | | # | | |
| Dissolved Oxygen | mg/L | 09/17/2013 | N001 | 0 - 0 | 2.91 | | | # | | |
| Oxidation Reduction Potential | mV | 09/17/2013 | N001 | 0 - 0 | 432.1 | | | # | | |
| pH | s.u. | 09/17/2013 | N001 | 0 - 0 | 8.94 | | | # | | |
| Radium-226 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0.577 | | | # | 0.17 | 0.266 |
| Radium-226 | pCi/L | 09/17/2013 | N002 | 0 - 0 | 0.415 | | J | # | 0.17 | 0.221 |
| Radium-228 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0.491 | | J | # | 0.44 | 0.306 |
| Radium-228 | pCi/L | 09/17/2013 | N002 | 0 - 0 | 0.565 | | J | # | 0.35 | 0.271 |
| Specific Conductance | umhos/cm | 09/17/2013 | N001 | 0 - 0 | 648 | | | # | | |
| Temperature | C | 09/17/2013 | N001 | 0 - 0 | 16.73 | | | # | | |
| Turbidity | NTU | 09/17/2013 | N001 | 0 - 0 | 0.78 | | | # | | |
| Uranium | mg/L | 09/17/2013 | N001 | 0 - 0 | 0.0001 | | | # | 0.000029 | |
| Uranium | mg/L | 09/17/2013 | N002 | 0 - 0 | 0.00011 | | | # | 0.000029 | |

General Water Quality Data by Location (USEE105) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 12/03/2013

Location: 0843 DOMESTIC SUPPLY

| Parameter | Units | Sample | | Depth Range (BLS) | (Ft | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|----------------------|-----|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | | Lab | Data | QA | | |
| Alkalinity, Total (as CaCO ₃) | mg/L | 09/17/2013 | N001 | 0 - 0 | 0 | 182 | | | # | | |
| Chlorine, Total Residual | mg/L | 09/17/2013 | N001 | 0 - 0 | 0 | 0.34 | | | # | | |
| Dissolved Oxygen | mg/L | 09/17/2013 | N001 | 0 - 0 | 0 | 7.17 | | | # | | |
| Oxidation Reduction Potential | mV | 09/17/2013 | N001 | 0 - 0 | 0 | 398.6 | | | # | | |
| pH | s.u. | 09/17/2013 | N001 | 0 - 0 | 0 | 8.93 | | | # | | |
| Radium-226 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0 | 2.02 | | | # | 0.17 | 0.645 |
| Radium-228 | pCi/L | 09/17/2013 | N001 | 0 - 0 | 0 | 2.03 | | | # | 0.38 | 0.565 |
| Specific Conductance | umhos/cm | 09/17/2013 | N001 | 0 - 0 | 0 | 644 | | | # | | |
| Temperature | C | 09/17/2013 | N001 | 0 - 0 | 0 | 17.63 | | | # | | |
| Turbidity | NTU | 09/17/2013 | N001 | 0 - 0 | 0 | 4.98 | | | # | | |
| Uranium | mg/L | 09/17/2013 | N001 | 0 - 0 | 0 | 0.00012 | | | # | 0.000029 | |

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

- F Low flow sampling method used.
- L Less than 3 bore volumes purged prior to sampling.
- U Parameter analyzed for but was not detected.
- G Possible grout contamination, pH > 9.
- Q Qualitative result due to sampling technique.
- X Location is undefined.
- J Estimated value.
- R Unusable result.

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

Equipment Blank Data

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BLANKS REPORT

LAB: PARAGON/ALS LABORATORY GROUP (Fort Collins, CO)

RIN: 13095603

Report Date: 12/03/2013

| Parameter | Site Code | Location ID | Sample | | Units | Result | Qualifiers | | Detection Limit | Uncertainty | Sample Type |
|------------|-----------|-------------|------------|------|-------|---------|------------|------|-----------------|-------------|-------------|
| | | | Date | ID | | | Lab | Data | | | |
| Calcium | RVT01 | 0999 | 09/19/2013 | N001 | mg/L | 6.7 | | | 0.012 | | E |
| Chloride | RVT01 | 0999 | 09/19/2013 | N001 | mg/L | 0.2 | U | | 0.2 | | E |
| Iron | RVT01 | 0999 | 09/19/2013 | N001 | mg/L | 3.3 | | | 0.0049 | | E |
| Magnesium | RVT01 | 0999 | 09/19/2013 | N001 | mg/L | 1.6 | | | 0.013 | | E |
| Manganese | RVT01 | 0999 | 09/19/2013 | N001 | mg/L | 0.073 | | | 0.00011 | | E |
| Molybdenum | RVT01 | 0999 | 09/19/2013 | N001 | mg/L | 0.00032 | U | | 0.00032 | | E |
| Potassium | RVT01 | 0999 | 09/19/2013 | N001 | mg/L | 0.73 | B | U | 0.11 | | E |
| Sodium | RVT01 | 0999 | 09/19/2013 | N001 | mg/L | 0.37 | B | U | 0.0066 | | E |
| Sulfate | RVT01 | 0999 | 09/19/2013 | N001 | mg/L | 0.5 | U | | 0.5 | | E |
| Uranium | RVT01 | 0999 | 09/19/2013 | N001 | mg/L | 0.00097 | | | 0.000029 | | E |

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

F Low flow sampling method used.
L Less than 3 bore volumes purged prior to sampling.
U Parameter analyzed for but was not detected.

G Possible grout contamination, pH > 9. J Estimated value.
Q Qualitative result due to sampling technique. R Unusable result.
X Location is undefined.

SAMPLE TYPES:

E Equipment Blank.

Static Water Level Data

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STATIC WATER LEVELS (USEE700) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 12/03/2013

| Location Code | Flow Code | Top of Casing Elevation (Ft) | Measurement Date | Measurement Time | Depth From Top of Casing (Ft) | Water Elevation (Ft) |
|---------------|-----------|------------------------------|------------------|------------------|-------------------------------|----------------------|
| 0101 | O | 4946.58 | 09/18/2013 | 12:48:00 | 11.03 | 4935.55 |
| 0110 | O | 4950.19 | 09/18/2013 | 12:49:00 | 13.97 | 4936.22 |
| 0111 | O | 4946.87 | 09/18/2013 | 12:46:00 | 10.66 | 4936.21 |
| 0700 | U | 4951.38 | 09/18/2013 | 16:10:00 | 6.7 | 4944.68 |
| 0705 | D | 4930.8 | 09/19/2013 | 16:25:30 | 7.01 | 4923.79 |
| 0707 | D | 4931 | 09/19/2013 | 16:55:05 | 6.24 | 4924.76 |
| 0710 | U | 4947.9 | 09/18/2013 | 12:15:26 | 6.7 | 4941.2 |
| 0716 | O | 4939.12 | 09/18/2013 | 15:25:59 | 8.58 | 4930.54 |
| 0717 | O | 4938.8 | 09/18/2013 | 14:50:39 | 7.77 | 4931.03 |
| 0718 | D | 4937.6 | 09/20/2013 | 08:50:37 | 9.13 | 4928.47 |
| 0719 | D | 4937.55 | 09/20/2013 | 08:20:03 | 8.62 | 4928.93 |
| 0720 | C | 4940.46 | 09/19/2013 | 11:05:33 | 4.89 | 4935.57 |
| 0721 | C | 4940.47 | 09/19/2013 | 10:45:57 | 8.75 | 4931.72 |
| 0722R | | 4937.06 | 09/20/2013 | 09:50:13 | 8.75 | 4928.31 |
| 0723 | D | 4936.01 | 09/20/2013 | 09:25:27 | 7.5 | 4928.51 |
| 0724 | U | 4941.36 | 09/18/2013 | 14:17:00 | 6.73 | 4934.63 |
| 0725 | U | 4941.66 | 09/18/2013 | 14:16:00 | 6.96 | 4934.7 |
| 0726 | U | 4942 | 09/18/2013 | 14:15:00 | 8.47 | 4933.53 |
| 0727 | U | 4951.69 | 09/18/2013 | 13:56:00 | 10.88 | 4940.81 |
| 0728 | U | 4946.01 | 09/18/2013 | 13:59:00 | 9.24 | 4936.77 |
| 0729 | D | 4932.75 | 09/19/2013 | 09:50:59 | 5.15 | 4927.6 |
| 0730 | D | 4933.08 | 09/19/2013 | 09:30:54 | 5.78 | 4927.3 |
| 0732 | U | 4945.07 | 09/18/2013 | 13:16:00 | 8.89 | 4936.18 |
| 0733 | U | 4946.76 | 09/18/2013 | 16:41:00 | 3.35 | 4943.41 |
| 0734 | U | 4946.08 | 09/18/2013 | 16:42:00 | 5.74 | 4940.34 |
| 0736 | U | 4946 | 09/18/2013 | 09:45:00 | 8.2 | 4937.8 |
| 0784 | U | 4945.45 | 09/18/2013 | 13:25:31 | 7.39 | 4938.06 |
| 0788 | C | 4935.09 | 09/19/2013 | 13:50:16 | 9.98 | 4925.11 |

STATIC WATER LEVELS (USEE700) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 12/03/2013

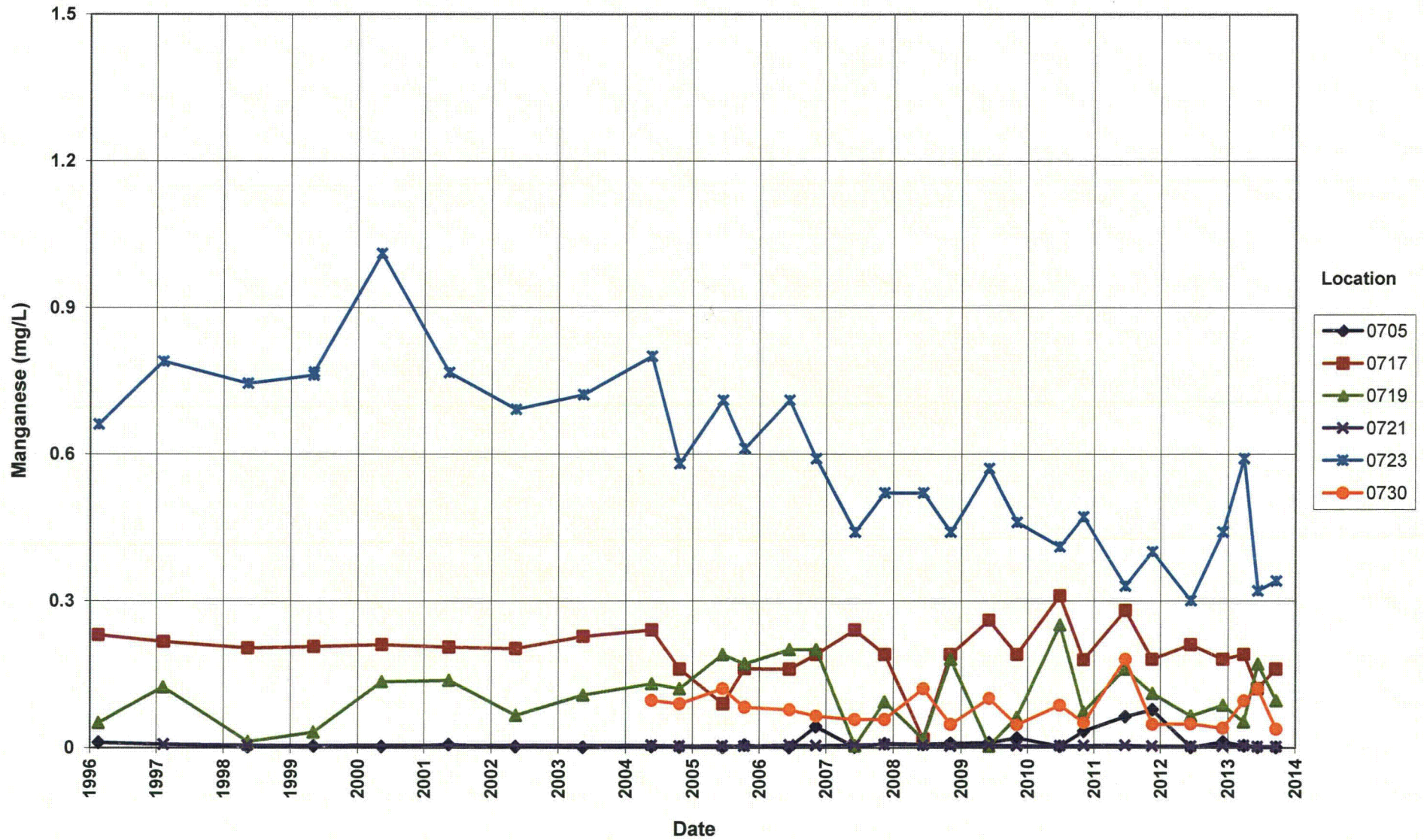
| Location Code | Flow Code | Top of Casing Elevation (Ft) | Measurement Date | Measurement Time | Depth From Top of Casing (Ft) | Water Elevation (Ft) |
|----------------------|------------------|-------------------------------------|-------------------------|-------------------------|--------------------------------------|-----------------------------|
| 0789 | D | 4933.66 | 09/19/2013 | 14:25:31 | 9.42 | 4924.24 |
| 0824 | | 4928.27 | 09/20/2013 | 11:20:18 | 4.7 | 4923.57 |
| 0826 | | 4936.98 | 09/19/2013 | 13:10:44 | 8.88 | 4928.1 |

FLOW CODES: C CROSS GRADIENT D DOWN GRADIENT
 O ON SITE U UPGRADIENT

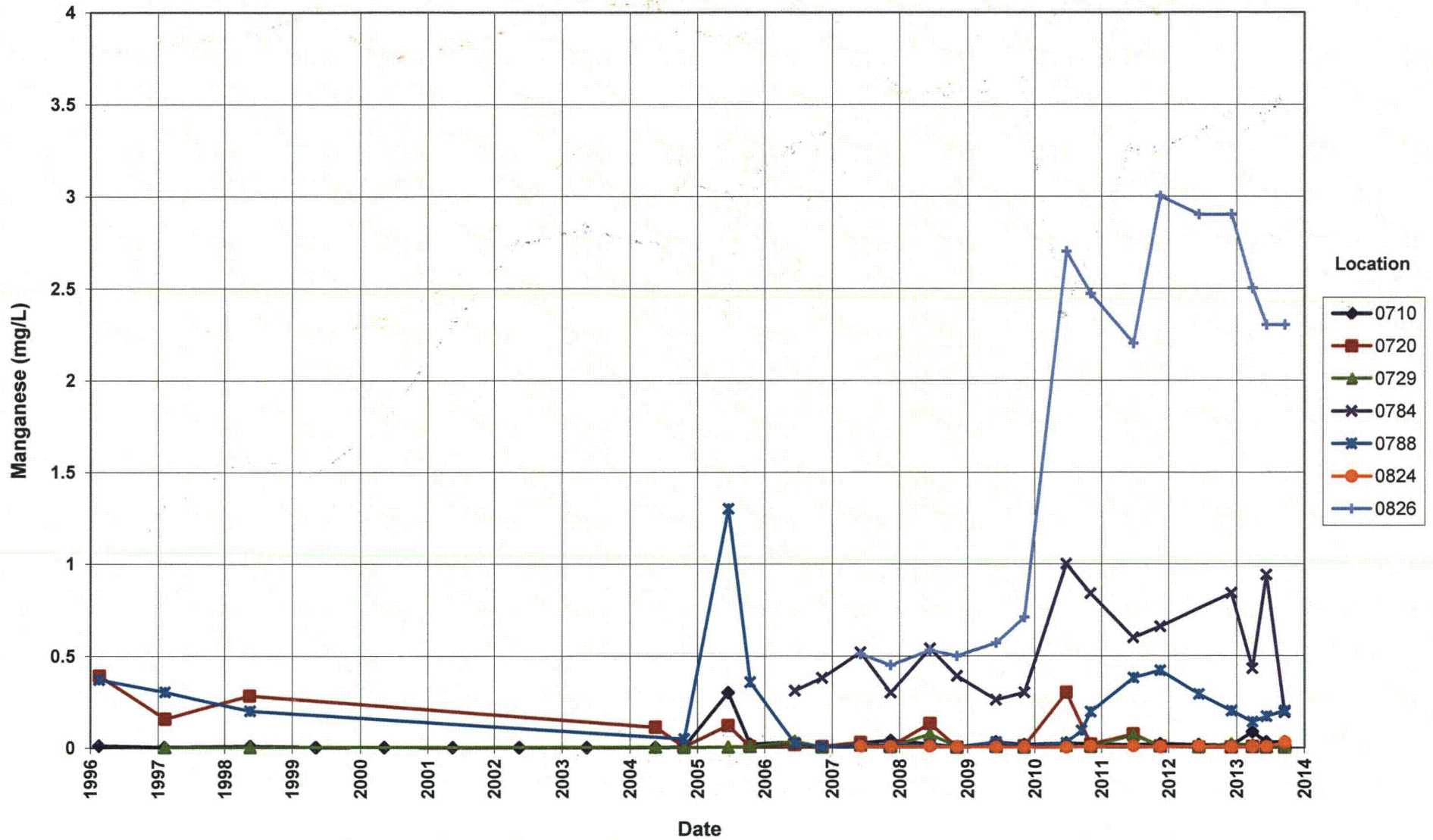
Time-Concentration Graphs

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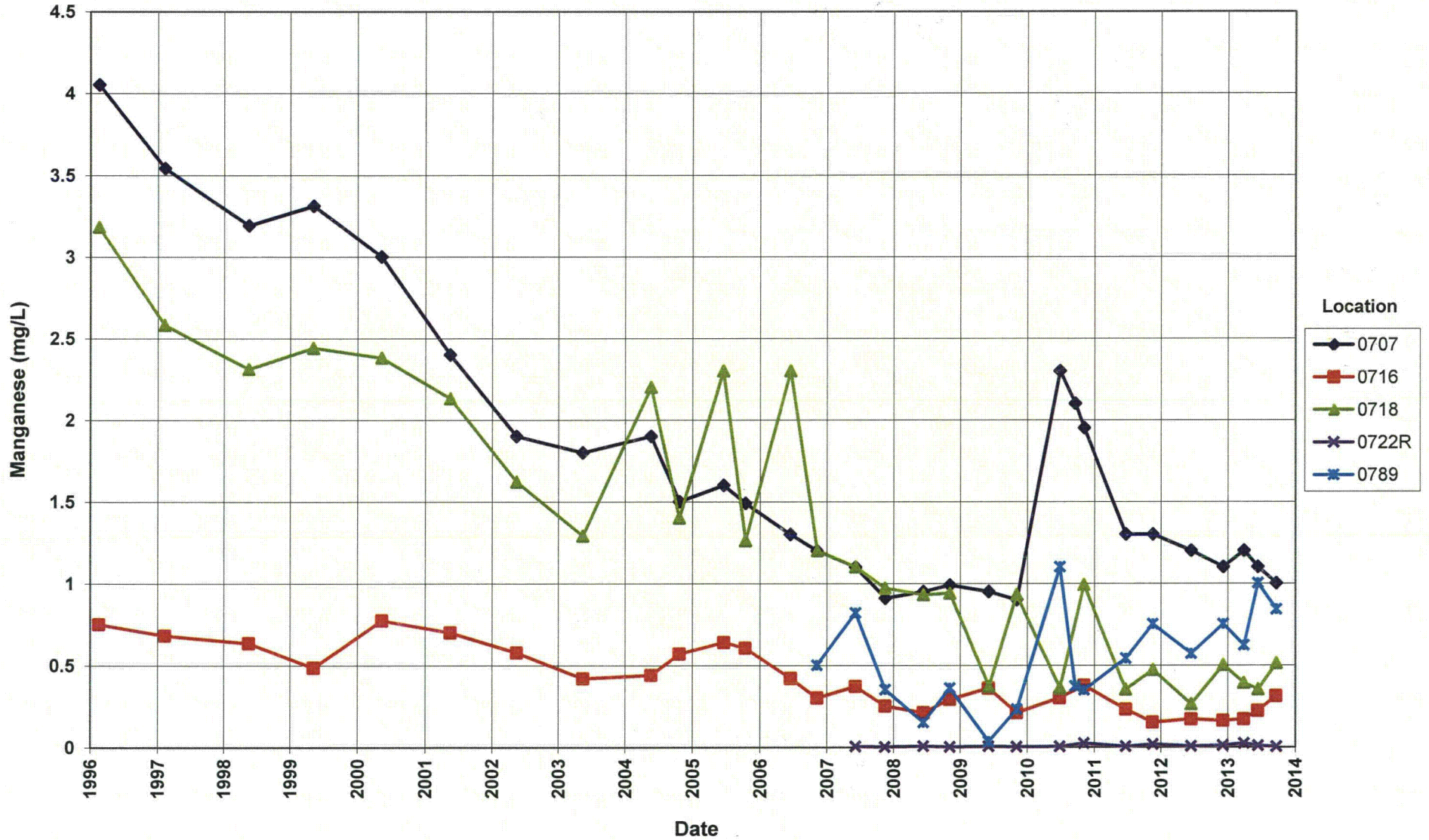
Riverton Processing Site
Manganese Concentration
Semi-Confined Aquifer Locations



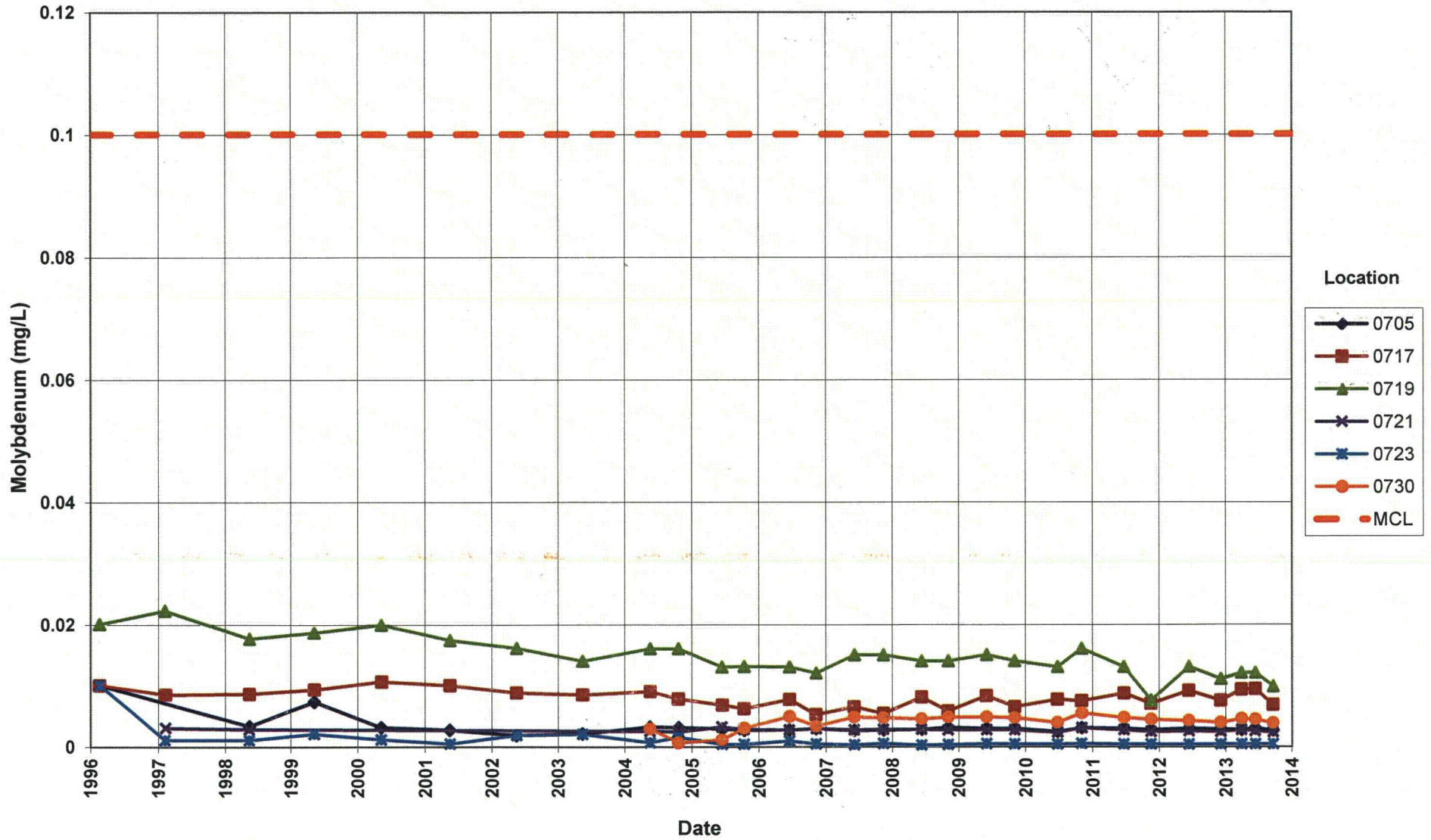
Riverton Processing Site
Manganese Concentration
Surficial Aquifer Locations



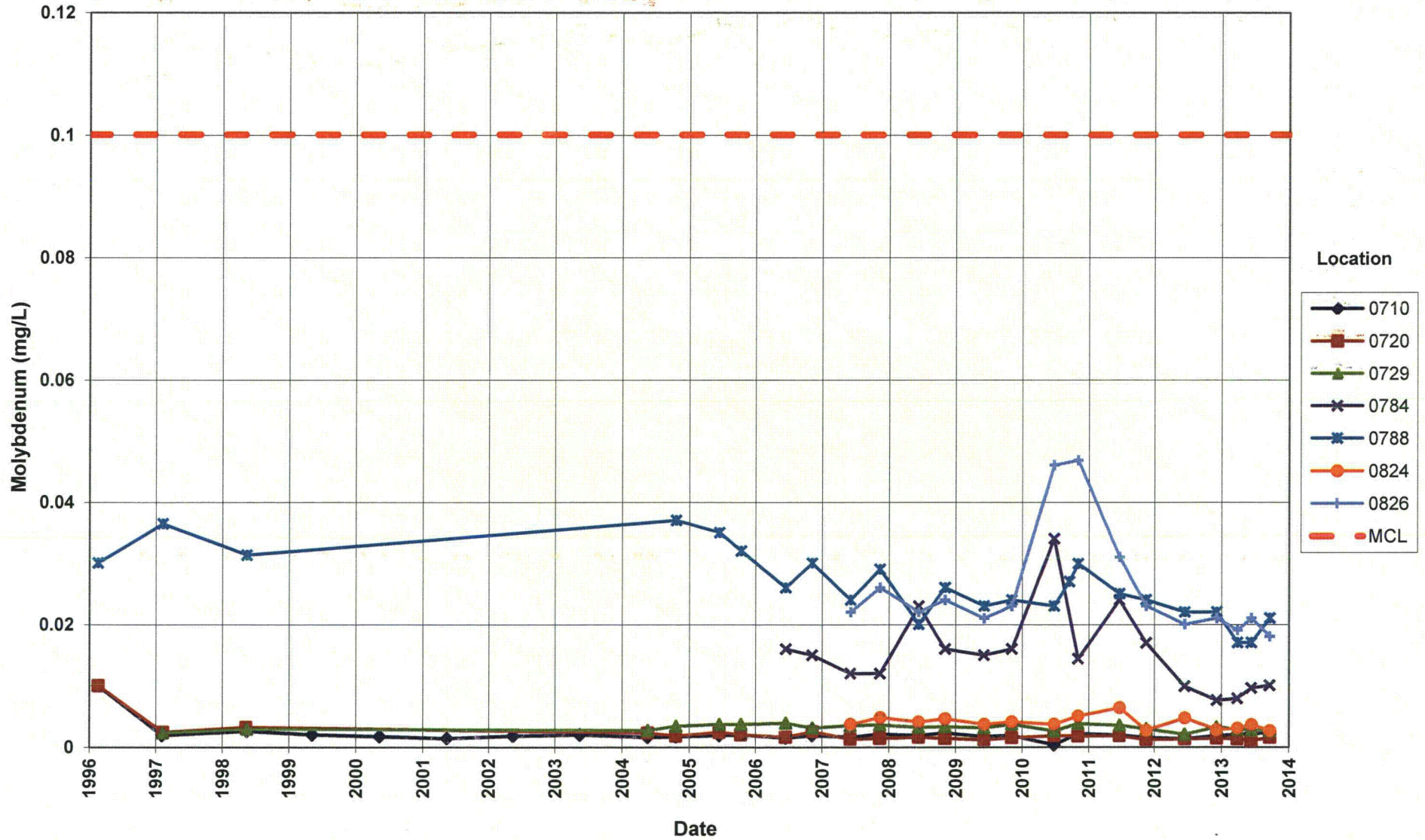
Riverton Processing Site
Manganese Concentration
Surficial Aquifer Locations



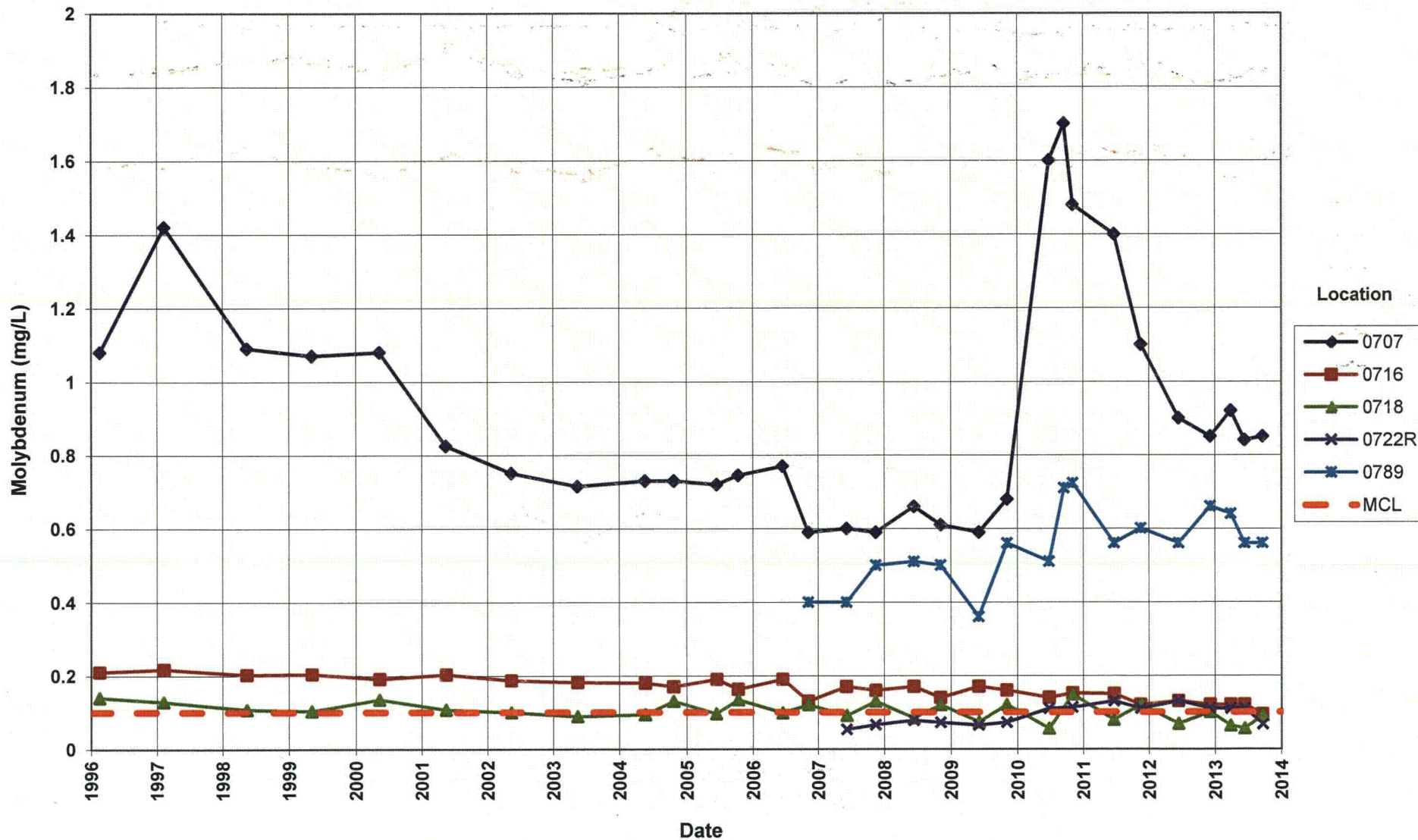
Riverton Processing Site
Molybdenum Concentration
Semi-confined Aquifer Locations
Maximum Concentration Limit (MCL) = 0.1 mg/L



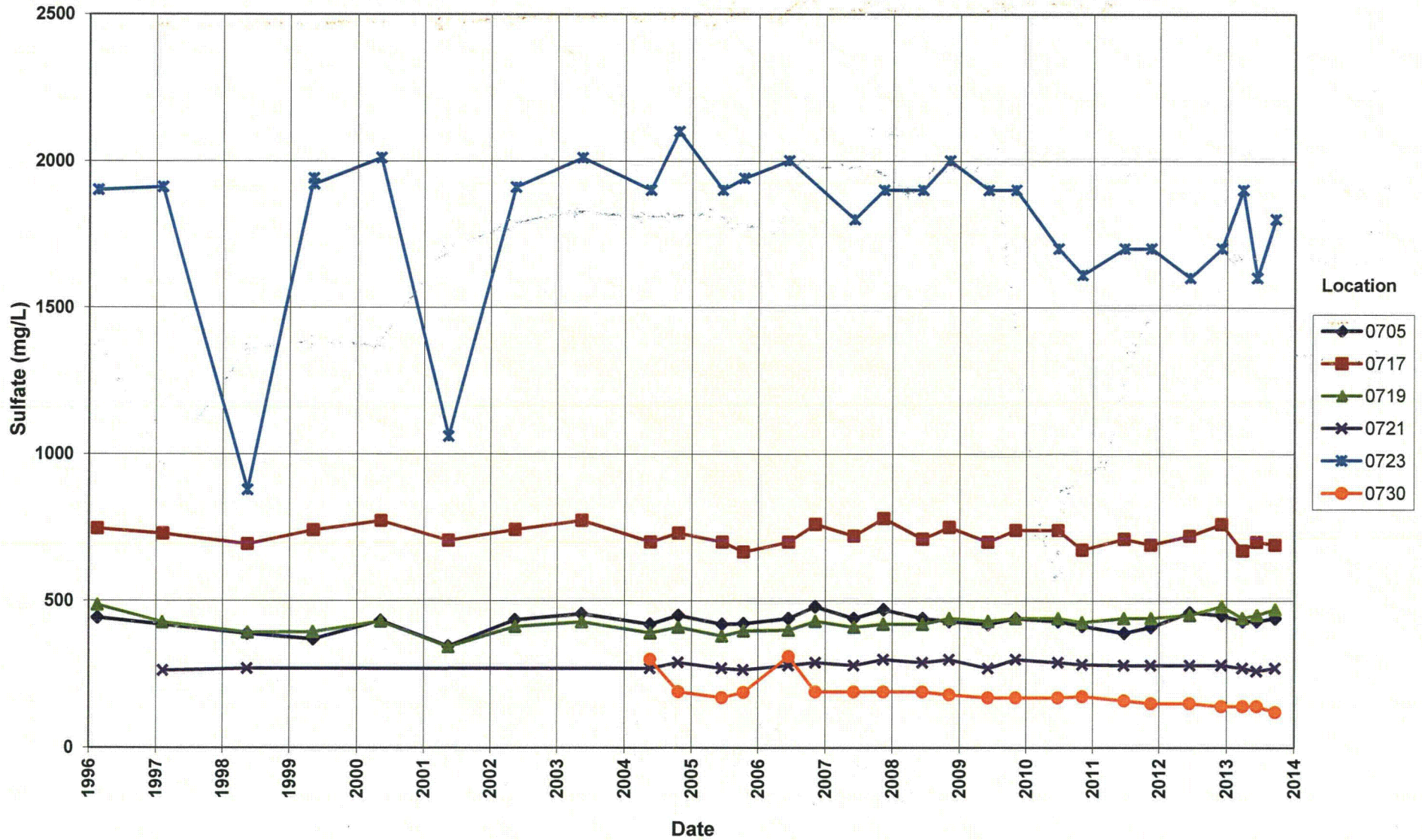
Riverton Processing Site
Molybdenum Concentration
Surficial Aquifer Locations
Maximum Concentration Limit (MCL) = 0.1 mg/L



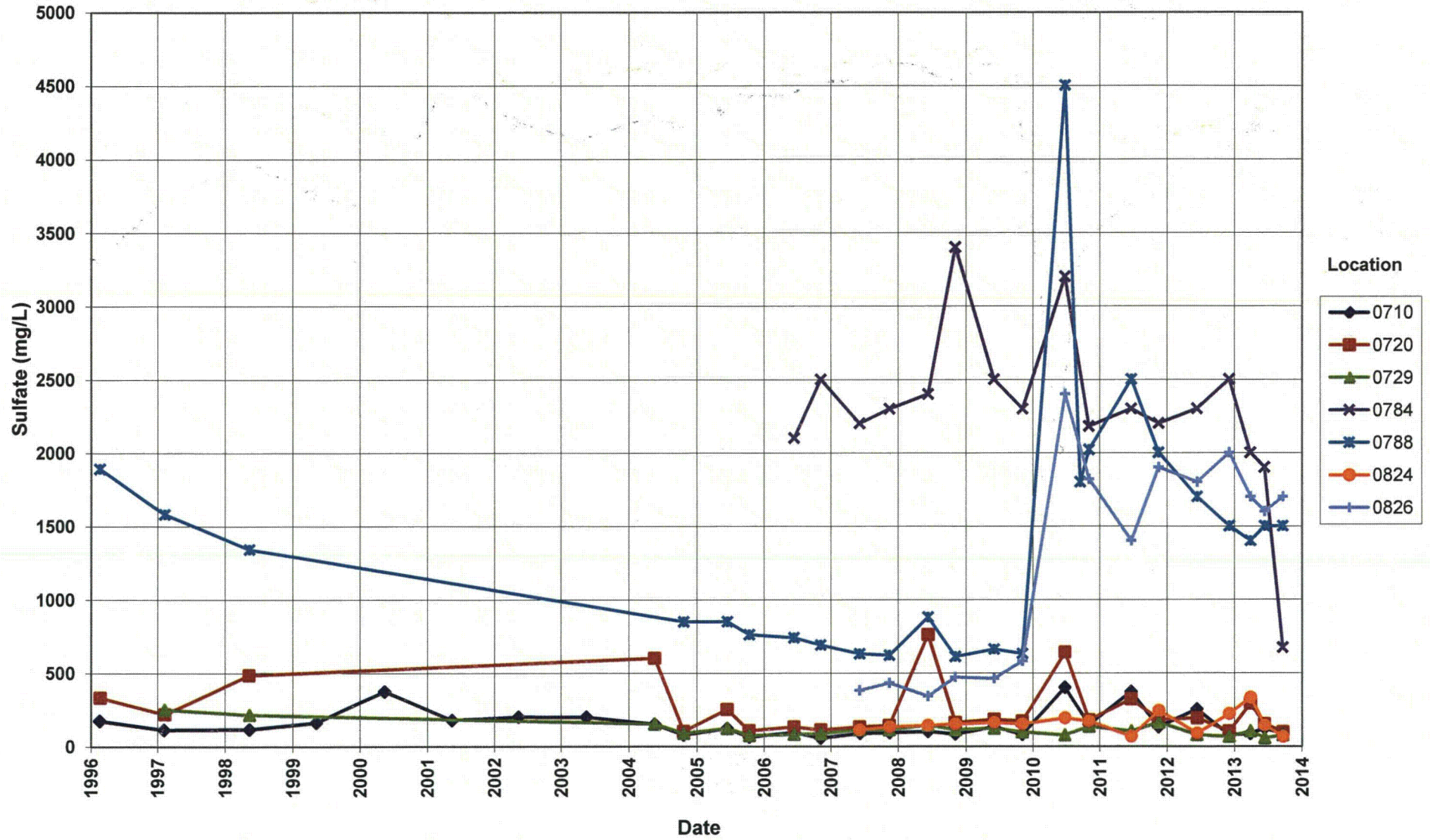
Riverton Processing Site
Molybdenum Concentration
 Surficial Aquifer Locations
 Maximum Concentration Limit (MCL) = 0.1 mg/L



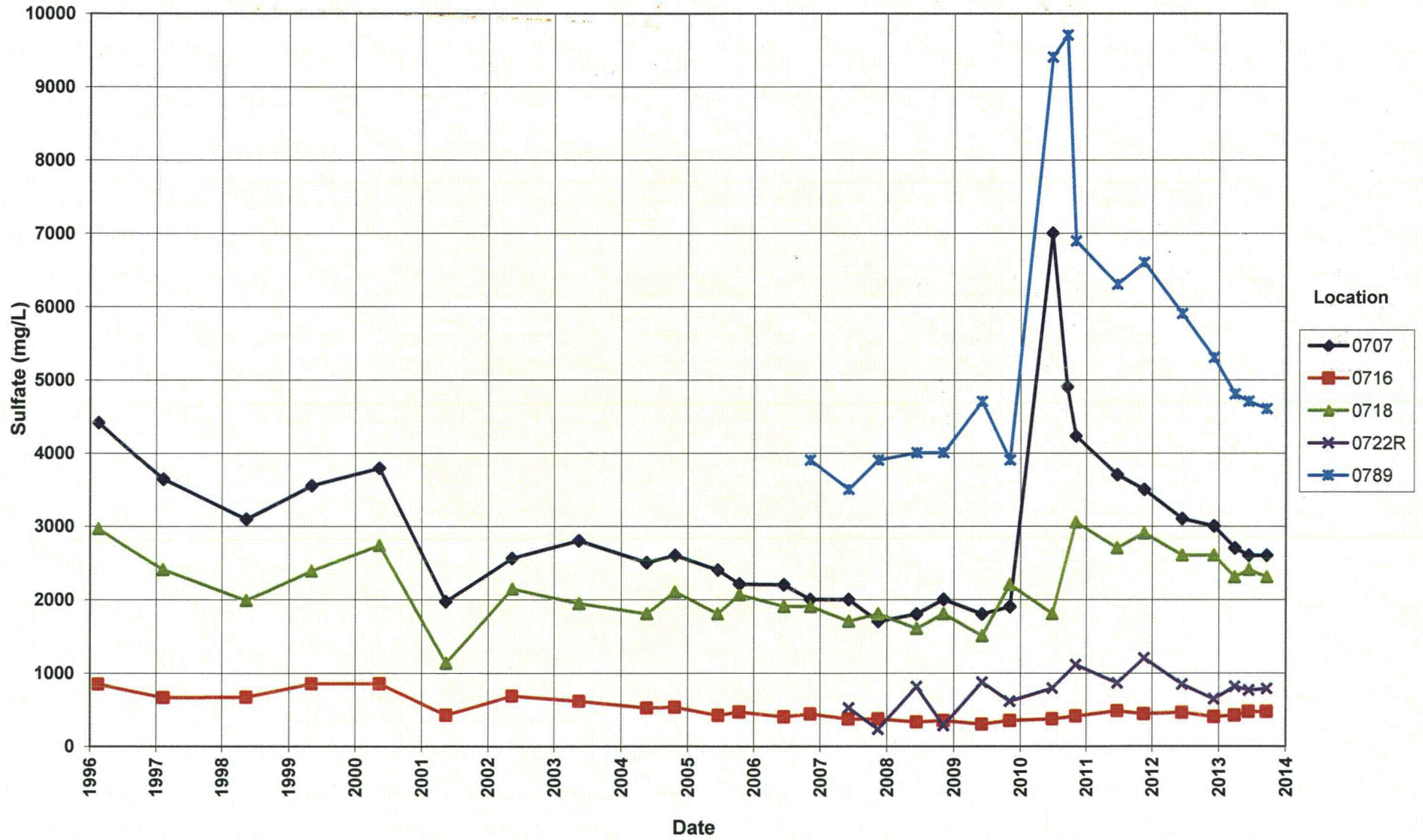
Riverton Processing Site
Sulfate Concentration
Semi-Confined Aquifer Locations



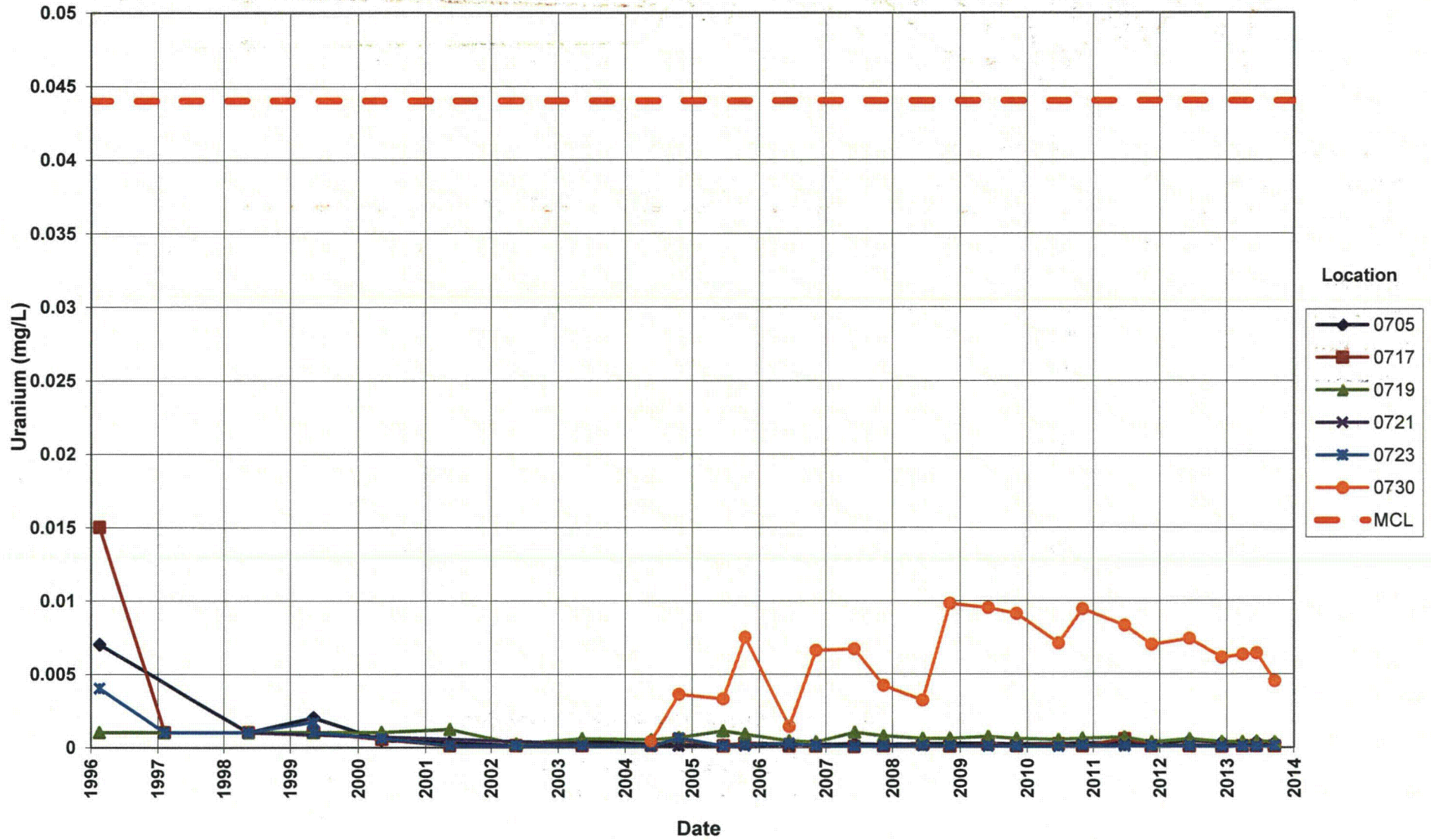
Riverton Processing Site
Sulfate Concentration
Surficial Aquifer Locations



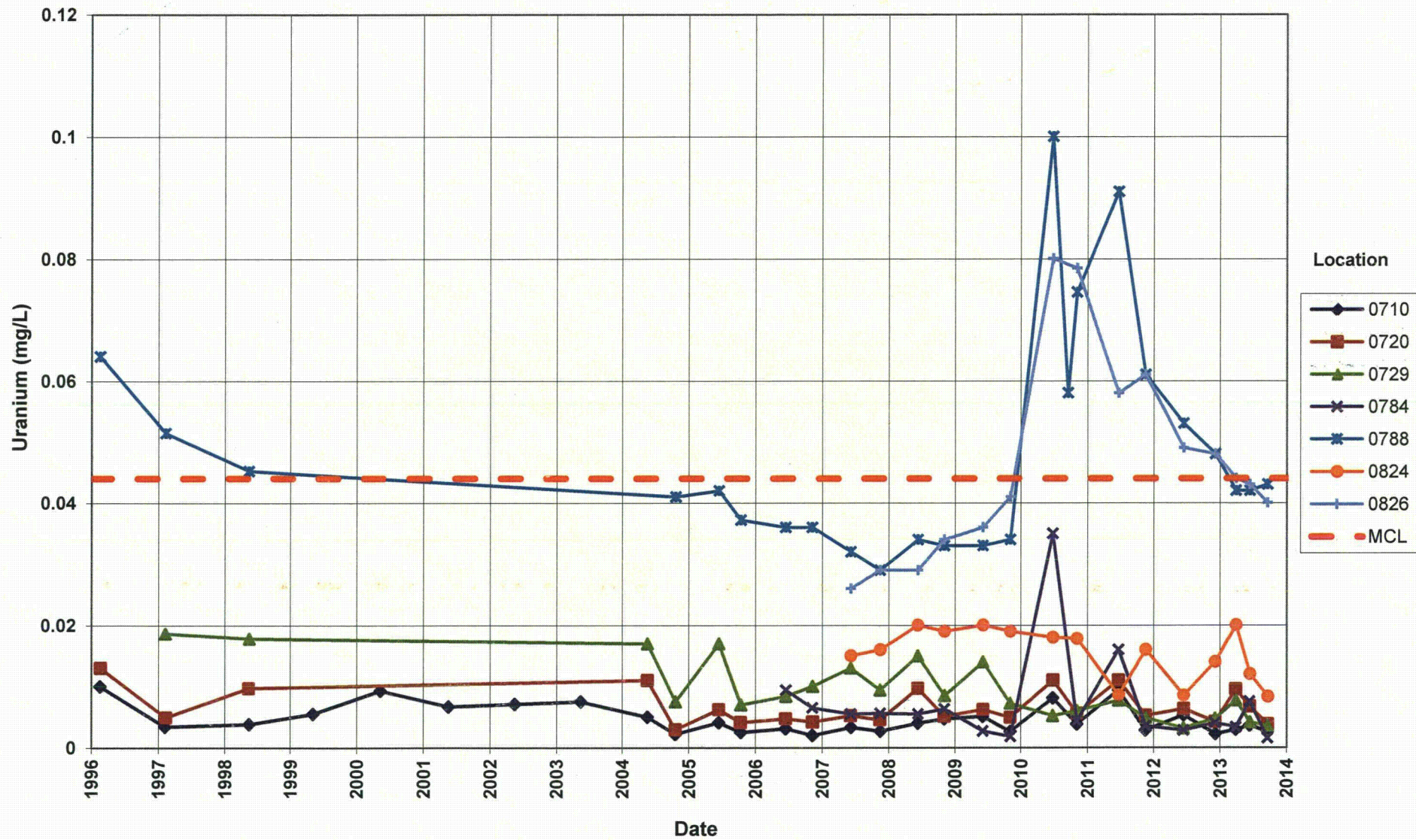
Riverton Processing Site
Sulfate Concentration
Surficial Aquifer Locations



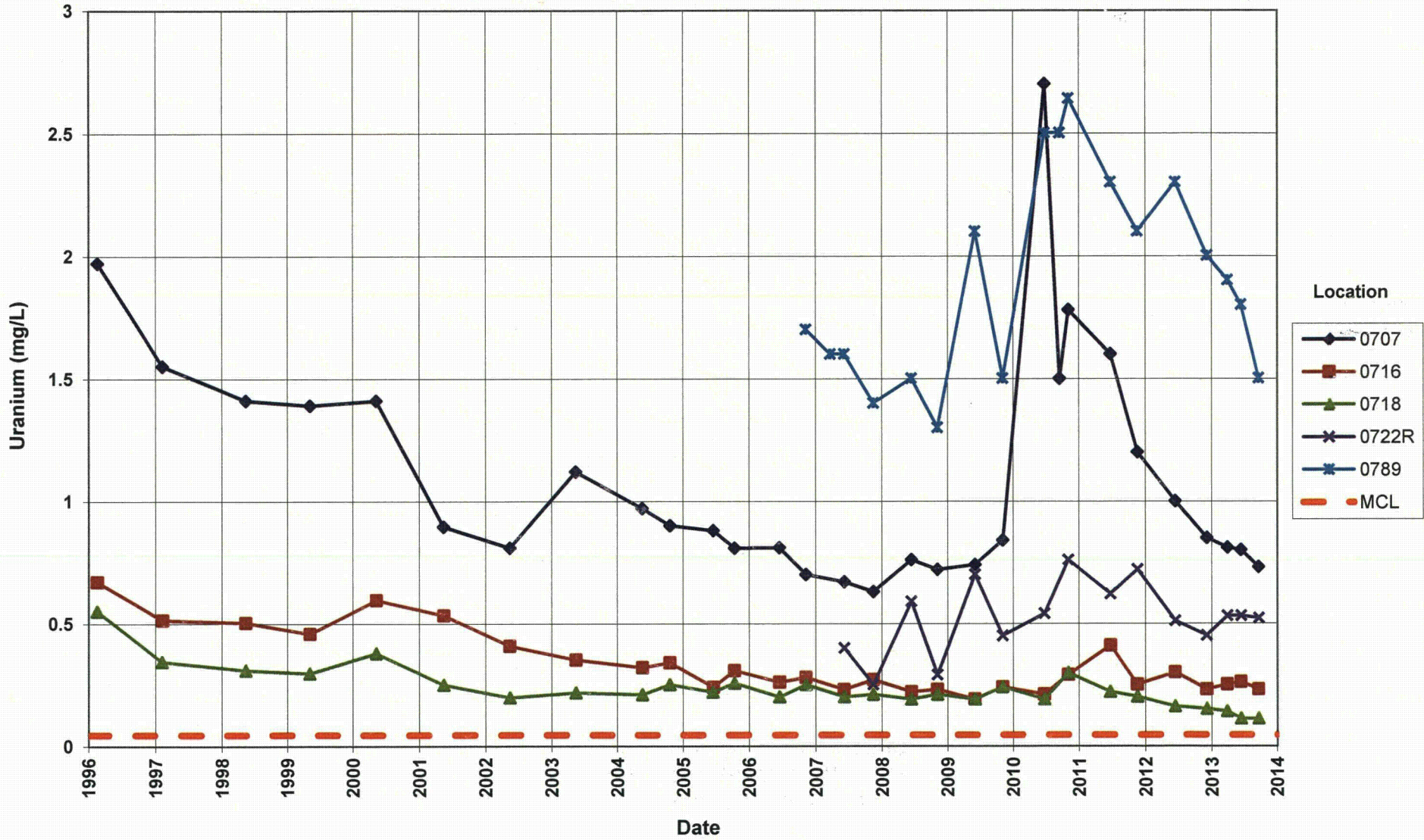
**Riverton Processing Site
Uranium Concentration**
Semi-Confined Aquifer Locations
Maximum Concentration Limit (MCL) = 0.044 mg/L



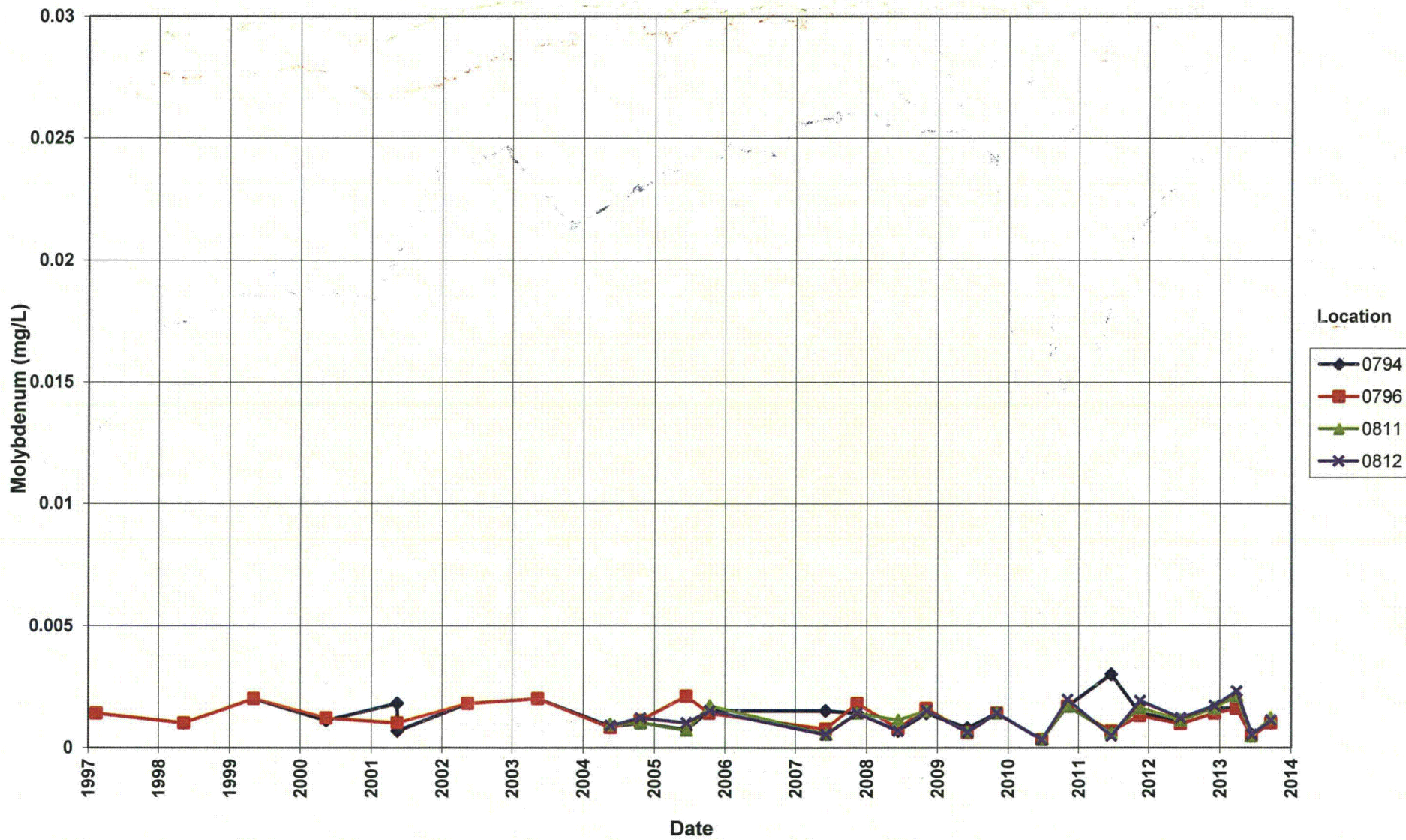
Riverton Processing Site
Uranium Concentration
 Surficial Aquifer Locations
 Maximum Concentration Limit (MCL) = 0.044 mg/L



Riverton Processing Site
Uranium Concentration
 Surficial Aquifer Locations
 Maximum Concentration Limit (MCL) = 0.044 mg/L

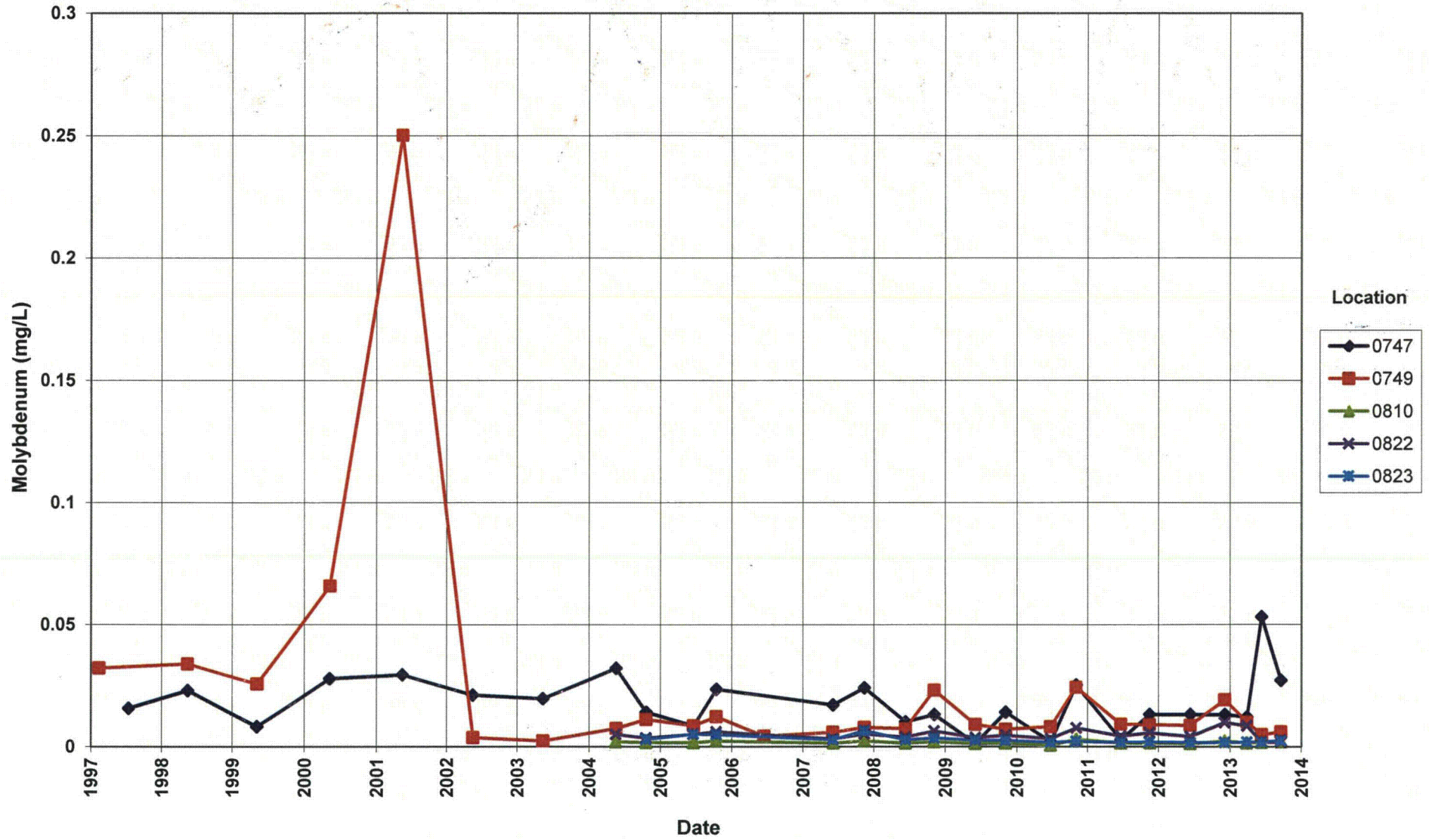


Riverton Processing Site
Molybdenum Concentration
Little Wind River Surface Water Locations

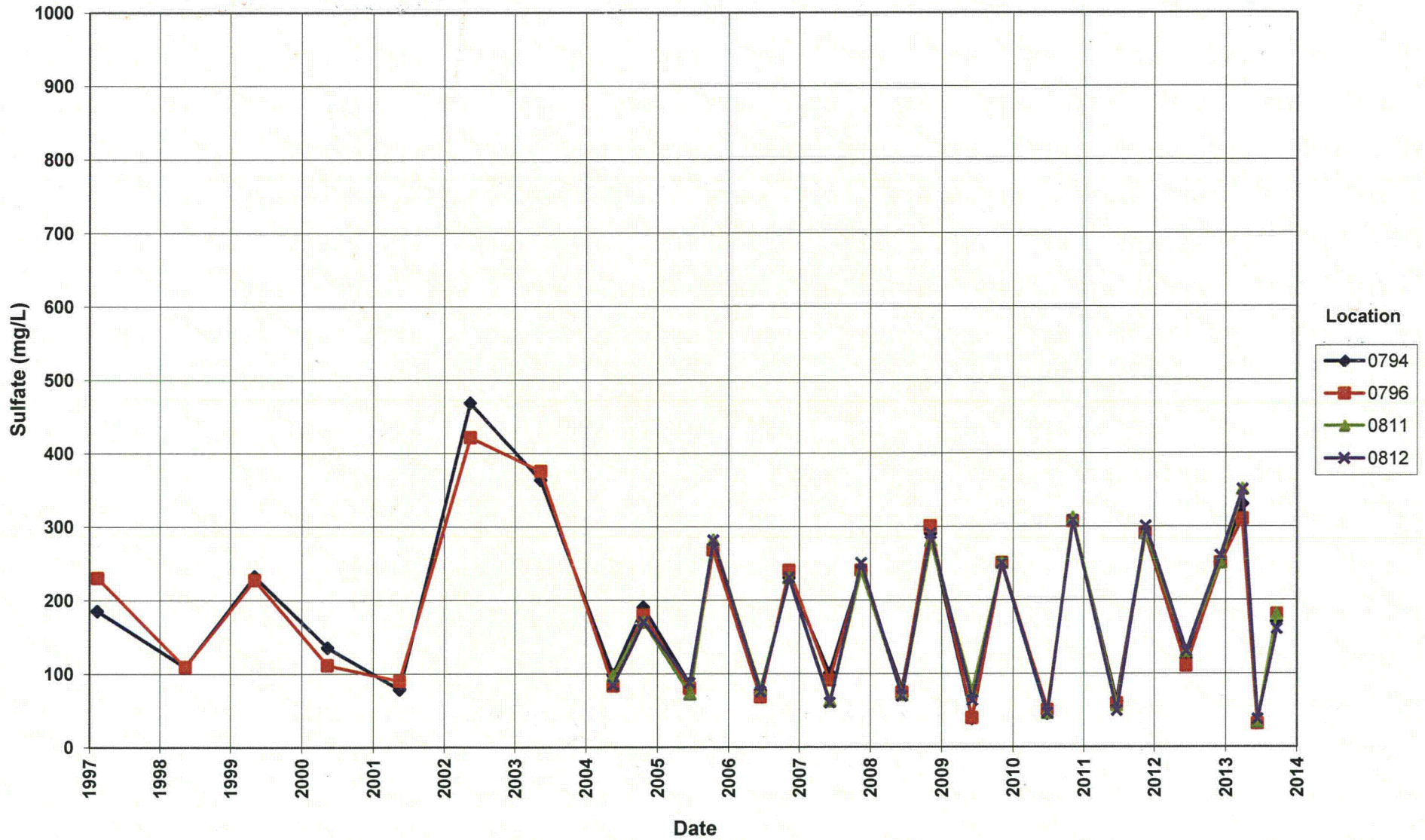


Riverton Processing Site Molybdenum Concentration

Oxbow Lake, Wetlands, Ditch & Pond Surface Water Locations

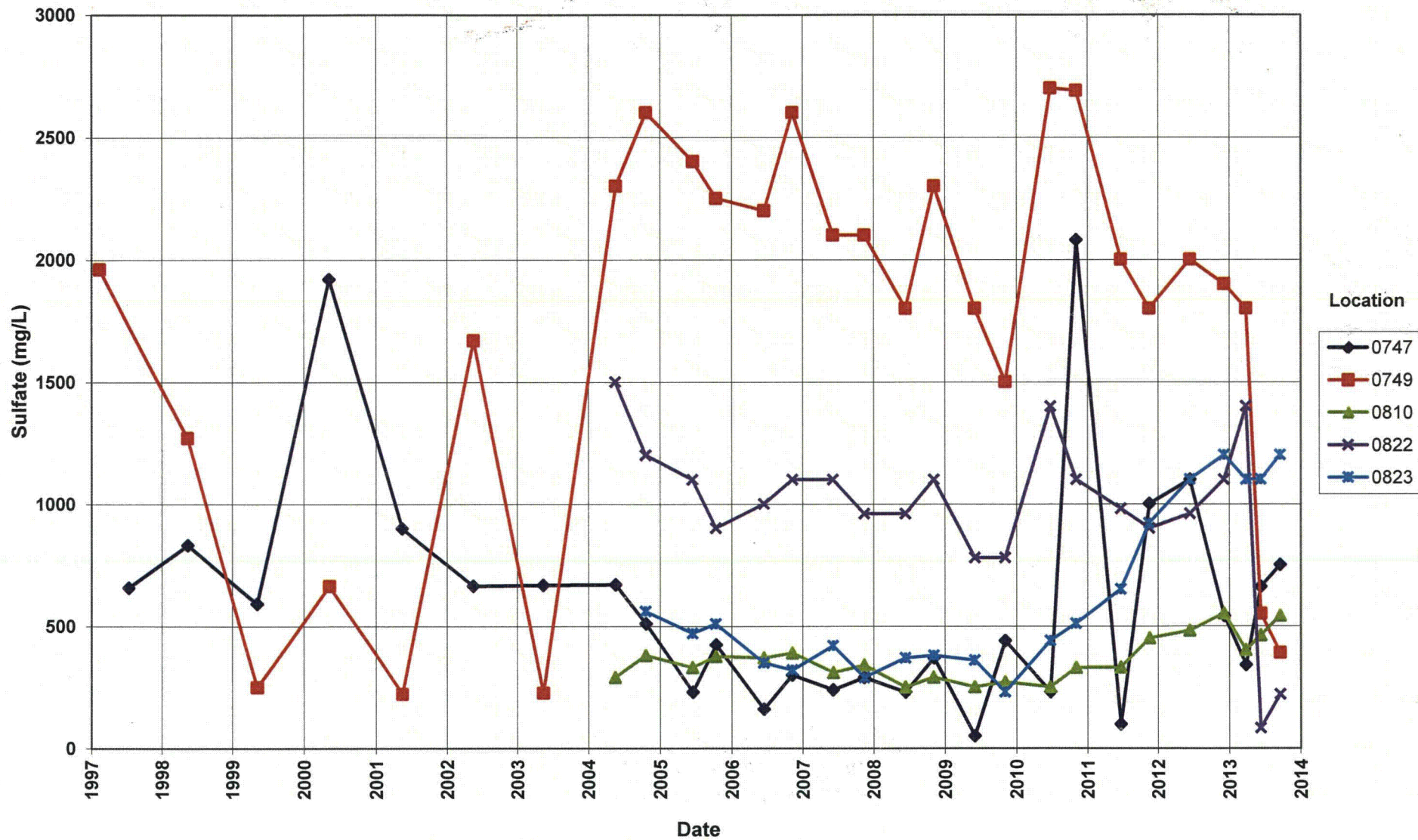


Riverton Processing Site
Sulfate Concentration
Little Wind River Surface Water Locations

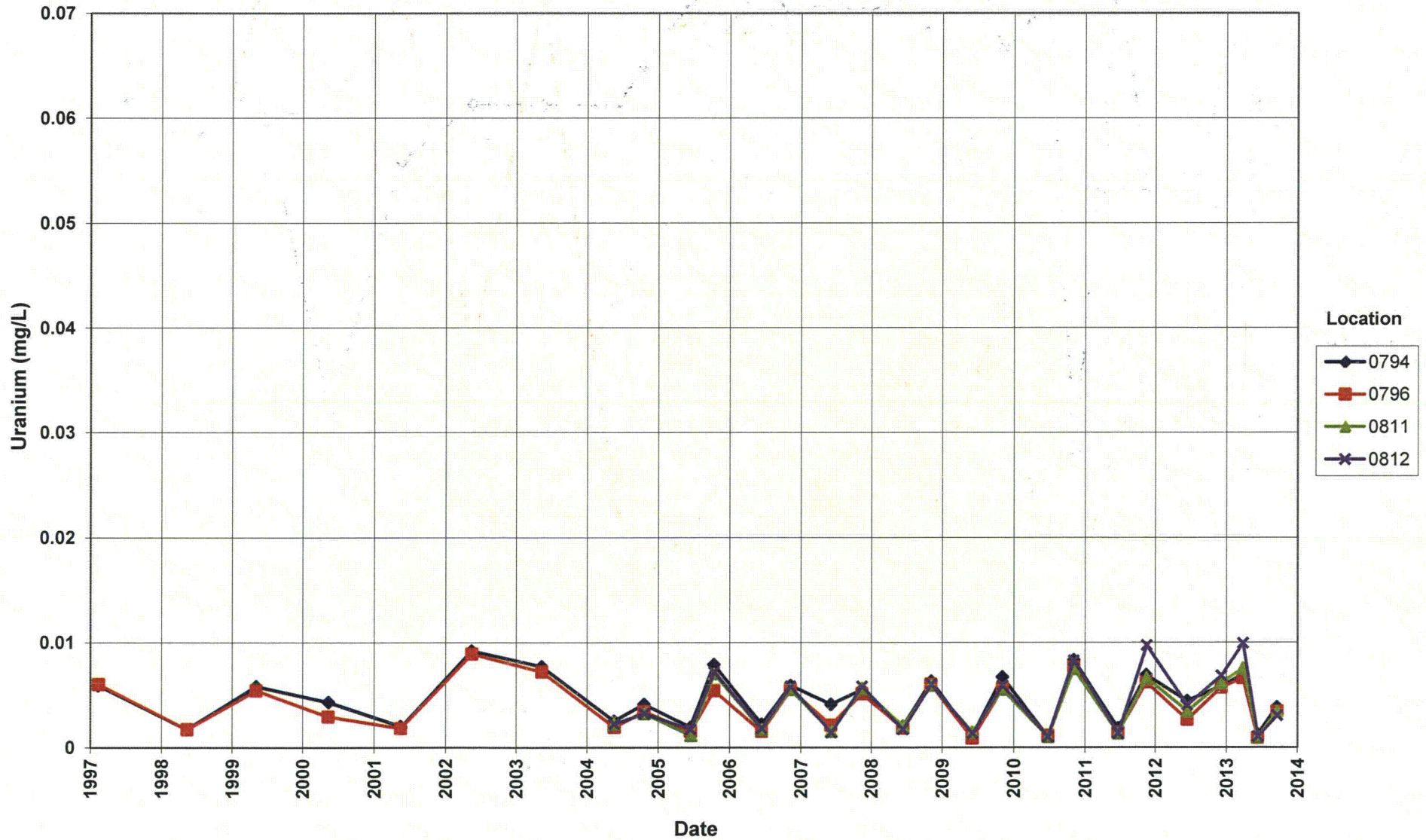


Riverton Processing Site Sulfate Concentration

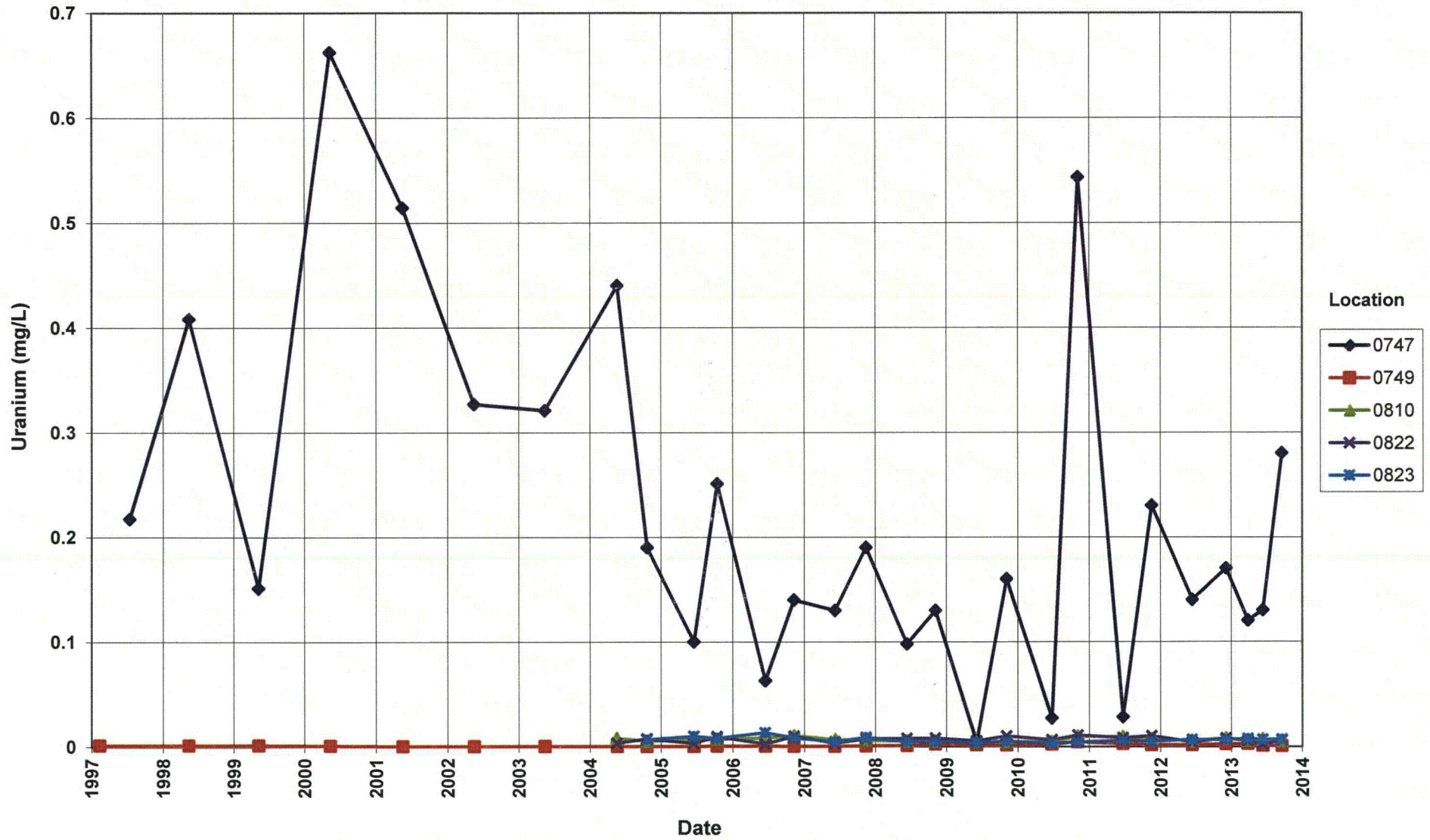
Oxbow Lake, Wetlands, Ditch & Pond Surface Water Locations



Riverton Processing Site
Uranium Concentration
Little Wind River Surface Water Locations



**Riverton Processing Site
Uranium Concentration**
Oxbow Lake, Wetlands, Ditch & Pond Surface Water Locations



Attachment 3
Sampling and Analysis Work Order

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Task Order LM-501
Control Number 13-0760

August 22, 2013

U.S. Department of Energy
Office of Legacy Management
ATTN: William Dam
Site Manager
2597 Legacy Way
Grand Junction, CO 81503

SUBJECT: Contract No. DE-AM01-07LM00060, S.M. Stoller Corporation (Stoller)
September 2013 Environmental Sampling at the Riverton, Wyoming,
Processing Site

Reference: Task Order LM-501-02-117-402, Riverton, Wyoming, Processing Site

Dear Mr. Dam:

The purpose of this letter is to inform you of the upcoming sampling event at Riverton, Wyoming. Enclosed are the map and tables specifying sample locations and analytes for monitoring at the Riverton processing site. Water quality data will be collected from monitoring wells, domestic wells, and surface locations; flushing of the Alternate Water Supply System also will occur as part of the routine environmental sampling currently scheduled to begin the week of September 16, 2013.

The following lists show the monitoring wells (with zone of completion), surface locations, domestic wells, and water supply system locations scheduled to be sampled during this event.

Monitoring Wells*

| | | | | | | |
|--------|--------|--------|---------|--------|--------|--------|
| 705 Se | 716 Sf | 719 Se | 722R Sf | 730 Se | 788 Sf | 824 Sf |
| 707 Sf | 717 Se | 720 Sf | 723 Se | 784 Sf | 789 Sf | 826 Sf |
| 710 Sf | 718 Sf | 721 Se | 729 Sf | | | |

*NOTE: Se = Semi-confined sandstone; Sf = surficial

Surface Locations

| | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|
| 747 | 794 | 810 | 811 | 812 | 822 | 823 |
| 749 | 796 | | | | | |

Domestic Wells

| | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|
| 405 | 430 | 436 | 460 | 828 | 841 | 842 |
| 422 | | | | | | |

William Dam
Control Number 13-0760
Page 2

Alternate Water Supply System

| | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|
| 813 | 815 | 818 | 820 | 829 | 834 | 843 |
| 814 | 816 | 819 | 821 | 830 | 837 | |

Alternate Water Supply System samples will be collected as directed in the *Alternate Water Supply System Flushing Plan Riverton, Wyoming*. Access agreements are being reviewed and are expected to be complete by the beginning of fieldwork.

Please contact me at (970) 248-6654 if you have any questions.

Sincerely,



Sam Campbell
Site Lead

SC/lcg/lb

Enclosures (3)

cc: (electronic)
Christina Pennal, DOE
Sam Campbell, Stoller
Steve Donovan, Stoller
Bev Gallagher, Stoller
Lauren Goodknight, Stoller
EDD Delivery
rc-grand junction
File: RVT410.02 (A)

Sampling Frequencies for Locations at Riverton, Wyoming

| Location ID | Quarterly | Semiannually | Annually | Biennially | Not Sampled | Notes |
|--------------------------|-----------|--------------|----------|------------|-------------|----------------------|
| Monitoring Wells | | | | | | |
| 101 | | | | | X | WL only |
| 110 | | | | | X | WL only |
| 111 | | | | | X | WL only |
| 700 | | | | | X | WL only |
| 702 | | | | | X | Data logger |
| 705 | X | | | | | |
| 707 | X | | | | | Data logger |
| 709 | | | | | X | WL only; Data logger |
| 710 | X | | | | | |
| 716 | X | | | | | |
| 717 | X | | | | | |
| 718 | X | | | | | |
| 719 | X | | | | | |
| 720 | X | | | | | |
| 721 | X | | | | | |
| 722R | X | | | | | |
| 723 | X | | | | | |
| 724 | | | | | X | WL only |
| 725 | | | | | X | WL only |
| 726 | | | | | X | WL only |
| 727 | | | | | X | WL only |
| 728 | | | | | X | WL only |
| 729 | X | | | | | |
| 730 | X | | | | | |
| 732 | | | | | X | WL only |
| 733 | | | | | X | WL only |
| 734 | | | | | X | WL only |
| 736 | | | | | X | WL only |
| 784 | X | | | | | |
| 788 | X | | | | | |
| 789 | X | | | | | Data logger |
| 824 | X | | | | | |
| 825 | | | | | X | Not drilled yet |
| 826 | X | | | | | |
| Surface Locations | | | | | | |
| 747 | X | | | | | |
| 749 | X | | | | | |
| 794 | X | | | | | |
| 796 | X | | | | | |
| 810 | X | | | | | Gravel pit |
| 811 | X | | | | | Little Wind River |
| 812 | X | | | | | Little Wind River |
| 822 | X | | | | | |
| 823 | X | | | | | |

Sampling Frequencies for Locations at Riverton, Wyoming

| Location ID | Quarterly | Semiannually | Annually | Biennially | Not Sampled | Notes |
|--------------------------------------|-----------|--------------|----------|------------|-------------|---|
| Domestic Wells | | | | | | |
| 405 | X | | | | | 921 Rendezvous Road |
| 422 | X | | | | | 10 Whitetail Drive |
| 430 | X | | | | | 204 Goes in Lodge Road |
| 436 | X | | | | | 33 St Stephens Road |
| 440 | | | | | X | 898 Rendezvous Road; on hold |
| 441 | | | | | X | 898 Rendezvous Road; pending owner's permission |
| 460 | X | | | | | 140 Goes in Lodge Road |
| 828 | X | | | | | 33 St Stephens Road |
| 841 | X | | | | | 22 Whitetail Dr |
| 842 | X | | | | | 14 Whitetail Dr |
| Alternate Water Supply System | | | | | | |
| 813 | | X | | | | |
| 814 | | X | | | | |
| 815 | | X | | | | |
| 816 | | X | | | | |
| 818 | | X | | | | |
| 819 | | X | | | | |
| 820 | | X | | | | |
| 821 | | X | | | | |
| 829 | | X | | | | |
| 830 | | X | | | | |
| 834 | | X | | | | |
| 837 | | X | | | | |
| 843 | | X | | | | |

Semiannual sampling conducted in September and March

Constituent Sampling Breakdown

| Site | Riverton | | | Required Detection Limit (mg/L) | Analytical Method | Line Item Code |
|---|-------------|------------------|------|--|--------------------------------|-------------------|
| Analyte | Groundwater | Surface Water | AWSS | | | |
| Approx. No. Samples/yr | 138 | 36 | 38 | | | |
| <i>Field Measurements</i> | | | | | | |
| Alkalinity | X | X | | | | |
| Dissolved Oxygen | X | X | X | | | |
| Redox Potential | X | X | X | | | |
| Residual Chlorine | | | X | | | |
| pH | X | X | X | | | |
| Specific Conductance | X | X | X | | | |
| Turbidity | X | X | X | | | |
| Temperature | X | X | X | | | |
| <i>Laboratory Measurements</i> | | | | | | |
| Aluminum | | | | | | |
| Ammonia as N (NH3-N) | | | | | | |
| Calcium | X | X | | 5 | SW-846 6010 | LMM-01 |
| Chloride | X | X | | 0.5 | SW-846 9056 | MIS-A-039 |
| Chromium | | | | | | |
| Gross Alpha | | | | | | |
| Gross Beta | | | | | | |
| Iron | | | | | | |
| Lead | | | | | | |
| Magnesium | X | X | | 5 | SW-846 6010 | LMM-01 |
| Manganese | X | X | | 0.005 | SW-846 6010 | LMM-01 |
| Molybdenum | X | X | | 0.003 | SW-846 6020 | LMM-02 |
| Nickel | | | | | | |
| Nickel-63 | | | | | | |
| Nitrate + Nitrite as N (NO ₃ +NO ₂)-N | | | | | | |
| Potassium | X | X | | 1 | SW-846 6010 | LMM-01 |
| Radium-226 | | 0822 only | X | 1 pCi/L | Gas Proportional Counter | GPC-A-018 |
| Radium-228 | | 0822 only | X | 1 pCi/L | Gas Proportional Counter | GPC-A-020 |
| Selenium | | | | | | |
| Silica | | | | | | |
| Sodium | X | X | | 1 | SW-846 6010 | LMM-01 |
| Strontium | | | | | | |
| Sulfate | X | X | | 0.5 | SW-846 9056 | MIS-A-044 |

Constituent Sampling Breakdown

| Site | Riverton | | | | | |
|------------------------------|-------------|---------------|------|---------------------------------|-------------------|----------------|
| Analyte | Groundwater | Surface Water | AWSS | Required Detection Limit (mg/L) | Analytical Method | Line Item Code |
| Sulfide | | | | | | |
| Total Dissolved Solids | | | | | | |
| Total Organic Carbon | | | | | | |
| Uranium | X | X | X | 0.0001 | SW-846 6020 | LMM-02 |
| Vanadium | | | | | | |
| Zinc | | | | | | |
| Total No. of Analytes | 9 | 11 | 3 | | | |

Note: All private well samples are to be unfiltered. The total number of analytes does not include field parameters.

Attachment 4
Trip Report

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Memorandum

Control Number N/A

DATE: October 7, 2013
TO: Distribution
FROM: Sam Campbell
SUBJECT: Trip Report

Site: Riverton, Wyoming, Processing Site.

Dates of Sampling Event: September 16 to September 20, 2013

Team Members: David Atkinson and Sam Campbell

Number of Locations Sampled: 18 monitoring wells, 9 surface water locations, 8 domestic wells, 8 alternate water supply system (AWSS) hydrants, and 4 AWSS taps.

Locations Not Sampled/Reason: AWSS tap location 0814 was not sampled because the house was vacant.

Location Specific Information: Monitoring wells 0705, 0719, and 0730 were purged and sampled using Category II criteria; all other monitoring wells were purged and sampled using Category I criteria.

The Little Wind River was not flowing into the Oxbow Lake at the time of sampling, although flow into the lake may have occurred prior to sampling because of regionally heavy rainfall.

New contact information was obtained for surface location 0823/well 0736.

New elevation data was obtained for monitoring well 0789.

All groundwater and surface water samples were submitted for iron analysis per DOE request.

Depth of sample tubing was adjusted upward in monitoring wells 0710, 0717, 0719, and 0730 to get farther into the screened interval. The current configuration of sample-tubing depths/pump intakes is shown in Table 1.

Table 1. Updated Riverton Pump Intakes¹

| Well ID | Tubing Depth ² | Measured Well Depth ² | Distance Above Bottom Of Well | Sump Length | Distance Above Bottom Of Screen | Screen Length |
|---------|---------------------------|----------------------------------|-------------------------------|-------------|---------------------------------|---------------|
| 0705 | 45.65 | 49.65 | 4 | 2 | 2 | 10 |
| 0707 | 12 | 15.45 | 3.45 | 2 | 1.45 | 5 |
| 0710 | 13.45 | 17.57 | 4.12 | 2 | 2.12 | 5 |
| 0716 | 12.75 | 14.89 | 2.14 | 0 | 2.14 | 5 |
| 0717 | 47.5 | 51.76 | 4.26 | 2 | 2.26 | 10 |
| 0718 | 13.2 | 16.95 | 3.75 | 0 | 3.75 | 5 |
| 0719 | 35.48 | 39.98 | 4.5 | 2 | 2.5 | 10 |
| 0720 | 10.5 | 12.99 | 2.49 | 0 | 2.49 | 5 |
| 0721 | 47.7 | 50.78 | 3.08 | 2 | 1.08 | 10 |
| 0722R | 13.22 | 16.22 | 3 | 0.5 | 2.5 | 5 |
| 0723 | 44.93 | 48.13 | 3.2 | 2 | 1.2 | 10 |
| 0729 | 11.78 | 14.58 | 2.8 | 0 | 2.8 | 5 |
| 0730 | 32.2 | 37 | 4.8 | 2 | 2.8 | 10 |
| 0732 | 40.8 | 43.1 | 2.3 | 0 | 2.3 | 15 |
| 0736 | 33.55 | 35.91 | 2.36 | 0.4 | 1.96 | 15 |
| 0784 | 9.39 | 11.51 | 2.12 | 0.45 | 1.67 | 4.45 |
| 0788 | 16.2 | 18.25 | 2.05 | 0.4 | 1.65 | 12 |
| 0789 | 16.42 | 18.56 | 2.14 | 0.4 | 1.74 | 12 |
| 0824 | 12.5 | 14.8 | 2.3 | 0.3 | 2 | 5 |
| 0826 | 11.82 | 14.69 | 2.87 | 0.3 | 2.57 | 5 |

¹All units are in feet.

²Measured from top of casing

Survey data was collected for monitoring well 0789 using a survey level and rod with monitoring well 0705 as a reference. Data are shown in Table 2.

Table 2. Survey Data for Monitoring Well 0789

| Location | Rod Height | Difference from 0705 elevation | Elevation of 0705 | New Elevation of 0789 |
|--------------|------------|--------------------------------|-------------------|-----------------------|
| 0705 initial | 4.37 | - | 4930.80 | - |
| 0789 ground | 4.62 | -0.25 | - | 4930.55 |
| 0789 casing | 2.31 | +2.06 | - | 4932.86 |
| 0705 return | 4.37 | 0 | 4930.80 | - |

Hydrant Flushing: A summary of the hydrant flushing data is shown in Table 3.

Table 3. Hydrant flushing Summary

| Hydrant Location | Flushing Time (min) | Total Volume (gal) | Average Flow Rate (gpm) | Average Velocity (ft/sec) |
|------------------|---------------------|--------------------|-------------------------|---------------------------|
| 0829 | 42.3 | 20,590 | 487 | 3.11 |
| 0830 | 64.2 | 33,750 | 526 | 3.36 |
| 0818 | 34.3 | 20,728 | 604 | 6.86 |
| 0819 | 69.4 | 45,851 | 661 | 4.22 |
| 0843 | 7.9 | 2,840 | 359 | 4.07 |
| 0821 | 33 | 19,015 | 576 | 6.54 |
| 0820 | 13.5 | 5,000 | 370 | 4.20 |
| 0834 | 2.5 | 1,118 | 447 | 5.07 |

Field Variance: None.

Quality Control Sample Cross Reference: Following are the false identifications assigned to the quality control samples:

| False ID | True ID | Sample Type | Ticket Number |
|----------|-----------------|-----------------|---------------|
| 2469 | 0837 | Duplicate | LKW 057 |
| 2175 | 0842 | Duplicate | LKW 041 |
| 2353 | 0788 | Duplicate | LKW 045 |
| 2433 | Equipment Blank | Equipment Blank | LKW 046 |

Requisition Numbers Assigned: All samples were assigned to requisition index number (RIN) 13095603 and were shipped to the ALS Laboratory Group on September 24, 2013.

Water Level Measurements: Water levels were measured at all sampled monitoring wells and 13 additional monitoring wells. PDAs with the Water Level Recorder program were not available, so additional water-level data were entered into an Excel spreadsheet using the Toughbook computer.

Water level data was downloaded from pressure transducers at monitoring wells 0101, 0707, 0710, 0716, 0789, and 0826, and pressure transducers were installed in monitoring wells 0722R and 0729.

Well Inspection Summary: All monitoring wells were in good condition.

Equipment: All equipment functioned properly.

Stakeholder/Regulatory: Hydrant flushing was conducted in conjunction with the Great Plains Utility Organization (GPUO). Mike Quiver (GPUO) conducted the flushing including installation of flow meters and opening/closing hydrant valves. Pat Moss (GPUO), Travis Brockie (Tribal Engineer's Office), and John Arneach (Tribal Engineer's Office) observed flushing activities at selected locations.

Co-sampling was conducted with Wind River Environmental Quality Commission (WREQC) representatives Ricki Troesper and Steve Babits. Co-sampling was conducted at selected AWSS hydrant, AWSS tap, monitoring well, and surface water locations.

Stoller personnel assisted with sample collection by WREQC representatives at a domestic well owned by Tribal Council Member Ron McElroy. Co-sampling was not conducted at this location because it is outside the Institutional Control boundary.

A meeting was held with Dawn Schmidt to discuss plans for a community garden at St. Stephens School as part community outreach project with DOE. Ground breaking and set-up for the garden is scheduled for March 2014.

Institutional Controls

Fences, Gates, Locks: No issues identified.

Signs: The three warning signs installed around the oxbow lake were in place and in acceptable condition.

Trespassing/Site Disturbances: There was no evidence of new gravel pits or well drilling within the institutional control boundary

Access Issues: None

Corrective Action Required/Taken: An email was sent to the Real Property group with new homeowner contact information for surface water location 0823/monitoring well 0736.

Water-level data will need to be entered into the environmental database.

New elevation data for monitoring well 0789 will need to be loaded into the environmental database.

(SEC/lcg)

cc: (electronic)
Bill Dam, DOE
Sam Campbell, Stoller
Steve Donovan, Stoller
Bev Gallagher, Stoller
Judy Miller, Stoller
EDD Delivery

Mr. Dominick Orlando, Senior Project Manager
U.S. Nuclear Regulatory Commission
Mail Stop T8 F5
Washington, DC 20555-0001

**Data Validation Packages for the
Riverton, Wyoming, Processing Site,
September 2013**

The U.S. Department of Energy (DOE) has prepared a Data Validation Package containing the groundwater, surface water, and alternate water supply system monitoring data generated from the September 2013 sampling event at the Riverton, Wyoming, Processing Site. This package includes worksheets and reports that document the sampling activities and validation procedures conducted. **At your request, you are receiving a hard copy of the report.**

The report is also available for your review on the Internet at the DOE Office of Legacy Management (LM) website – <http://energy.gov/lm>. From the LM website home page, select the LM SITES MAP. Then select the Riverton Site from the LM SITES list in the right column. The report will be available on the Riverton Site page of the LM website under Site Documents and Links.



U.S. DEPARTMENT OF

ENERGY

Legacy
Management