# ANACONDA SMELTER NPL SITE
# ANACONDA REGIONAL WATER, WASTE, AND SOILS OPERABLE UNIT

# 2013 GROUNDWATER MONITORING PROGRAM

Prepared for:
Atlantic Richfield Company
U.S. Environmental Protection Agency
Montana Department of Environmental Quality

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Prepared by:
Terence E. Duaime
and
Gary A. Icopini

Montana Bureau of Mines and Geology
1300 W. Park St.
Butte, Montana 59701-8997

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| | |
|---|---|
| ACM | Anaconda Copper Mining Company |
| AOC | Area of Concern |
| AR | Atlantic Richfield Company |
| ARWWS | Anaconda Regional Water, Waste, and Soils |
| COCs | Contaminants of Concern |
| DEQ | Montana Department of Environmental Quality |
| DSR | Data Summary Report |
| EPA | U.S. Environmental Protection Agency |
| GWIC | Groundwater Information Center |
| LTGWMP | Long-Term Groundwater Monitoring Program |
| MAROS | Monitoring and Remediation Optimization System |
| MBMG | Montana Bureau of Mines and Geology |
| MCL | Maximum Contaminant Level |
| mg/L | Milligrams per Liter |
| ND | No Detectable Concentration |
| NPL | National Priorities List |
| ORP | Oxidation-Reduction Potential |
| OU | Operable Unit |
| PI | Probably Increasing |
| POC | Points of Compliance |
| PPOC | Potential Points of Compliance |
| %RSD | Percent Relative Standard Deviation |
| RDU | Remedial Design Unit |
| RI | Remedial Investigation |
| RO | Reverse Osmosis |
| ROD | Record of Decision |
| RPD | Relative Percent Difference |
| SAP | Sampling and Analysis Plan |
| SC | Specific Conductance |
| SEP | Statistical Evaluation Plan |
| STGWMP | Short-Term Groundwater Monitoring Program |
| TI | Technical Impracticability |
| µg/L | Micrograms per Liter |
| WMA | Waste Management Area |

## ABSTRACT

The 2013 Anaconda Regional Water, Waste, and Soils (ARWWS) Groundwater Monitoring Program continued the transition from the Record of Decision-implemented Short-Term Groundwater Monitoring and Sampling Program (STGWMP) toward the Long-Term Groundwater Monitoring and Sampling Program that began in 2009. The number of geographic areas where monitoring and sampling occurred was reduced from seven to three based upon the 2009 STGWMP. Springs and surface-water locations were not part of the 2013 monitoring program. The reduction in number of sites monitored and sampled is the result of the 2009 sampling events being part of the 5-year annual review period when additional sites (wells and springs) are sampled. There are fewer non-5-year review monitoring sites.

The U.S. Environmental Protection Agency (EPA), in consultation and concurrence with Montana Department of Environmental Quality (DEQ), released a Record of Decision Amendment in September 2011. Contained in the amendment were changes to the water-quality standards contained in the 1998 ROD, bringing ARWWS site contaminant of concern (COC) standards into compliance with current Montana DEQ-7 standards.

The defined domestic well sampling program was continued based upon U.S. Environmental Protection Agency and Montana Department of Environmental Quality boundaries. Boundary adjustments resulted in a number of wells being sampled outside the boundary; information from those wells was used as reference sites.

Arsenic is the primary contaminant of concern (COC) throughout this operable unit (OU), while cadmium, copper, lead, and zinc are also of concern in two of the three areas that constitute the 2013 program. Listed below are the seven geographical areas within the OU and the number of wells sampled and COC exceedances during the 2013 sampling:

| ARWWS Geographical Areas | No. Wells | No. Arsenic Exceedances | No. Other COC Exceedances |
|---|---|---|---|
| Stucky Ridge/Lost Creek | No 2013 samples | — | — |
| Mount Haggin/Smelter Hill | No 2013 samples | — | — |
| Smelter Hill/Opportunity Ponds | 24 | 2 | 0 |
| Old Works | 4 | 0 | 0 |
| South Opportunity/Yellow Ditch | 7 | 0 | 0 |
| Blue Lagoon | No 2013 samples | — | — |
| Dutchman Creek | No 2013 samples | — | — |
| Totals | 35 | 2 | 0 |

The two arsenic exceedances occurred within the Opportunity Ponds; there were no other COC exceedances in the 2013 samples. The highest arsenic and cadmium concentrations in the monitoring wells were 181 and 3.2 µg/L, respectively.

No event driven samples were collected in 2013 as the water-level at well MW-213 did not exceed the trigger elevation specified in the 2009 SAP.

Twenty-six points of compliance (POC) or potential points of compliance (PPOC) monitoring wells are distributed throughout the ARWWS monitoring area to ensure that no groundwater contamination migrates offsite from any of the primary source areas: 25 of the POC/PPOC wells were sampled twice during 2013; one PPOC well was dry during low water sampling. No COC exceedances were observed in the POC wells or PPOC wells. Based upon the 2013 water-quality results, there are

no indications that the area of historic contamination is spreading, or that contaminants are leaving the site.

Approximately 272 properties were identified as potentially having a well that had not been previously sampled by the MBMG. Attempts to contact the owners of all unsampled properties in 2013 included a variety of methods including postcards (206 sent), site visits (269), and phone calls (49). During the site visits postcards in plastic bags were left in conspicuous places. Twenty seven property owners declined (directly or indirectly) to have their wells sampled for this project in 2013. An additional 34 properties either didn't have a well or were abandoned (not in use). We attempted to sample all of the remaining 211 properties in 2013.

In 2013 a total of 146 new (not previously sampled by MBMG) domestic water supplies (144 wells, 1 spring, and 1 stream) were sampled. Arsenic concentrations were less than 5 µg/L in 137 of these samples. Arsenic concentrations were greater than 5 µg/L and less than 10 µg/L in 4 of the new wells sampled. Arsenic concentrations were greater than 10 µg/L in 1 new domestic well, as well as, in the spring and stream samples. The stream and spring samples came from the same property and were sampled because the owners were in the process of developing these water sources for domestic water supply. The MBMG viewed sampling this spring as analogous to a new domestic well that hasn't been hooked up yet. However, sampling of springs exceeds the scope of the ARWWS Short-Term Groundwater Monitoring SAP that monitoring is being conducted under. Also, the stream sample was collected in error, because streams are not identified as domestic water sources in the ARWWS Record of Decision (U.S. EPA, 1998).

In addition to the new well samples, 20 wells were resampled based on previous samples greater than 5 µg/L and less than 10 µg/L arsenic. Four of these wells had 2013 resample arsenic concentrations that were less than 5 µg/L. The other 16 wells continued to have arsenic concentrations between 5 and 10 µg/L. Also, 20 wells with previous arsenic concentrations greater than 10 µg/L were resampled in 2013. Two of these samples had arsenic concentrations less than 10 µg/L in 2013. The other 18 wells continued to have arsenic concentrations greater than 10 µg/L.

No replacement domestic wells were drilled during 2013. The wells (> 10 µg/L) that have not had remedial actions taken to date are in the English Gulch, Powell Vista, and Crackerville/Fairmont areas. We have attempted drilling replacement wells in each of these areas without success. Reverse osmosis (RO) units have been installed in homes in the Crackerville/Fairmont (four residences, one by owner) and Powell Vista (one residence, by owner) areas, and RO units appear to be effective at removing arsenic from drinking water. The RO units were installed as an experimental approach. Currently the only approved remedial action for domestic wells is to drill a deeper well. Data from the 2013 Arsenic Source Investigation (Icopini, Smith and Duaime, 2013) indicated that natural sources of arsenic exist at depth in the English Gulch and Crackerville/Fairmont areas. Further remedial action in the English Gulch, Crackerville, and Powell Vista areas are dependent on a determination of the source of arsenic in those areas, which is the subject of ongoing discussions between the Agencies and Atlantic Richfield. Bottled water has been offered and is being provided upon request to all residences with arsenic concentrations above 10 µg/L.

# ANACONDA SMELTER NPL SITE

## Introduction

The Groundwater Monitoring and Sampling Program that was implemented in 2009 was a transition from the Short-Term Groundwater Monitoring and Sampling Program (STGWMP) toward the Long-Term Monitoring and Sampling Program (LTGWMP). The 1998 Record of Decision (ROD) specified the establishment of an interim groundwater program, which has been conducted by Atlantic Richfield Company (AR) seasonally since 2000. Results were presented in semi-annual Data Summary Reports (DSR), followed by an annual Data Analysis Report. A complete listing of the reports can be found in the Draft Final—2008 Short-Term Groundwater Monitoring, Low-Water Table Event, DSR (Atlantic Richfield Company, 2009a).

The monitoring conducted from 2000 through 2008 followed the objectives contained in the 2000 Anaconda Regional Water, Waste, and Soils (ARWWS) Operable Unit (OU) Short-Term Groundwater Monitoring Sampling and Analysis Plan (SAP). The objectives stated in this SAP were:

- Assess current groundwater quality in areas where water quality must comply with the appropriate standards as specified in the ROD;
- Assess current groundwater quality in plumes in areas of concern (AOC) identified in the ROD;
- Monitor effectiveness of Remedial Actions, including reclamation and natural attenuation;
- Evaluate changes in hydrologic conditions since the remedial investigation (RI) that may affect design of a long-term groundwater monitoring plan; and
- For wells drilled in the past several years, provide data that will supplement the RI for developing a long-term groundwater monitoring plan.

To make the transition from the Short-Term Program to the Long-Term Program, Addendum No. 1 was prepared for the Short-Term SAP. The objectives of SAP Addendum No. 1 (Atlantic Richfield Company, 2009b) were:

- Modify the current monitoring well network (AERL, Short-Term Program, 2000) to be more consistent with the anticipated LTGWMP well network;
- Add monitoring of domestic wells to the network;
- Add installation of new monitoring wells anticipated in the LTGWMP, so that monitoring can begin in 2009; and
- Add replacement of domestic wells that exceed action levels contained in the 2000 SAP to the established monitoring program.

The 2009 monitoring program included all monitoring sites and coincided with the U.S. Environmental Protection agency (EPA) 5-year site review (table 1.0-1). [EPA issued an ROD amendment in 2011 changing two wells in the South Opportunity/Yellow Ditch Area to point of compliance (POC) wells; these changes have been made in table 1.01. Changes in newly installed well names occurred also; the old and new well names are both shown on table 1.0.1.] Since 2009, the monitoring program has been conducted by the Montana Bureau of Mines and Geology (MBMG). Sample site information is contained in the MBMG online database, the Groundwater Information Center (GWIC). Information for a particular site can be accessed using the site's unique identifier, referred to as the GWIC ID. The web address for GWIC is: http://www.mbmggwic.mtech.edu. The 2013 monitoring program contained a subset of wells (non-5-year review), shown in red in table 1.0-1. Table 1.0-1 also contains a listing of sites that constitute the current approved sampling program, the GWIC identifier, and the sampling frequency. The sites are broken out into categories based upon Remedial Design Units (RDU) established for the ARWWS-OU.

Table 1.0-1. Summary of monitoring sites, sample frequency, and location. (Wells shown in red are those sampled in 2013.)

| Well ID | New ID | GWIC ID | Type | Purpose | New Well | Frequency[1] | Location |
|---|---|---|---|---|---|---|---|
| **STUCKY RIDGE/LOST CREEK EXPANSION AREA TI ZONE** | | | | | | | |
| FH-2 | | 121004 | Well | 5-year Review | | 2 seasons each 5 years | Stucky Ridge |
| MW-248d | | 250004 | Well | 5-year Review | | 2 seasons each 5 years | Stucky Ridge |
| MW-248e | | 250031 | Well | 5-year Review | | 2 seasons each 5 years | Stucky Ridge |
| MW-248s | | 250007 | Well | 5-year Review | | 2 seasons each 5 years | Stucky Ridge |
| SP97-20 | | 249915 | Spring | 5-year Review | | 1 season each 5 years | Stucky Ridge |
| SP98-26 | | 249920 | Spring | 5-year Review | | 1 season each 5 years | Lost Creek Expansion Area |
| SP98-27 | | 249921 | Spring | 5-year Review | | 1 season each 5 years | Lost Creek Expansion Area |
| SP98-28 | | 249922 | Spring | 5-year Review | | 1 season each 5 years | Stucky Ridge |
| SP98-30 | | 249923 | Spring | 5-year Review | | 1 season each 5 years | Lost Creek Expansion Area |
| SP98-31 | | 249924 | Spring | 5-year Review | | 1 season each 5 years | Lost Creek Expansion Area |
| SP98-32 | | 249925 | Spring | 5-year Review | | 1 season each 5 years | Stucky Ridge |
| SP98-34 | | 249926 | Spring | 5-year Review | | 1 season each 5 years | Stucky Ridge |
| SP99-01 | | 249930 | Spring | 5-year Review | | 1 season each 5 years | Stucky Ridge |
| **MOUNT HAGGIN/SMELTER HILL HAA TI ZONE** | | | | | | | |
| F2-BR | | 51388 | Well | 5-year Review | | 2 seasons each 5 years | Smelter Hill Loop Track |
| MW-233 | | 138016 | Well | 5-year Review | | 2 seasons each 5 years | Smelter Hill – Mill Creek |
| MW-245d | | 249966 | Well | 5-year Review | | 2 seasons each 5 years | Weather Hill - Lost Horse Cr |
| MW-245e | | 250050 | Well | 5-year Review | | 2 seasons each 5 years | Weather Hill - Lost Horse Cr |
| MW-245s | | 250003 | Well | 5-year Review | | 2 seasons each 5 years | Weather Hill - Lost Horse Cr |
| MW-249d | | 250008 | Well | 5-year Review | | 2 seasons each 5 years | Mill Creek - Cabbage Gulch |
| MW-249s | | 250009 | Well | 5-year Review | | 2 seasons each 5 years | Mill Creek - Cabbage Gulch |
| MW-250d | | 249958 | Well | 5-year Review | | 2 seasons each 5 years | Mill Creek - Joyner Gulch |
| MW-250s | | 249957 | Well | 5-year Review | | 2 seasons each 5 years | Mill Creek - Joyner Gulch |
| NGP-1 | | 250017 | Well | 5-year Review | | 2 seasons each 5 years | Mt. Haggin/Smelter Hill TI Zone |
| WGP-1 | | 250053 | Well | 5-year Review | | 2 seasons each 5 years | Mt. Haggin/Smelter Hill TI Zone |
| SH-3 | | 250052 | Spring | 5-year Review | | 1 season each 5 years | Mt. Haggin/Smelter Hill TI Zone |
| SP97-12 | | 249913 | Spring | 5-year Review | | 1 season each 5 years | Mt. Haggin/Smelter Hill TI Zone |
| SP97-19 | | 249914 | Spring | 5-year Review | | 1 season each 5 years | Mt. Haggin/Smelter Hill TI Zone |
| SP97-31 | | 249916 | Spring | 5-year Review | | 1 season each 5 years | Mt. Haggin/Smelter Hill TI Zone |
| SP98-16 | | 249917 | Spring | 5-year Review | | 1 season each 5 years | Mt. Haggin/Smelter Hill TI Zone |
| SP98-20 | | 249918 | Spring | 5-year Review | | 1 season each 5 years | Mt. Haggin/Smelter Hill TI Zone |
| SP98-23 | | 249919 | Spring | 5-year Review | | 1 season each 5 years | Mt. Haggin/Smelter Hill TI Zone |
| SP98-36 | | 249927 | Spring | 5-year Review | | 1 season each 5 years | Mt. Haggin/Smelter Hill TI Zone |
| SP98-37 | | 249928 | Spring | 5-year Review | | 1 season each 5 years | Mt. Haggin/Smelter Hill TI Zone |
| SP98-8 | | 249929 | Spring | 5-year Review | | 1 season each 5 years | Mt. Haggin/Smelter Hill TI Zone |
| SST-1 | | 249931 | Spring | 5-year Review | | 1 season each 5 years | Mt. Haggin/Smelter Hill TI Zone |
| SST-26 | | 249932 | Spring | 5-year Review | | 1 season each 5 years | Mt. Haggin/Smelter Hill TI Zone |
| SST-29 | | 249933 | Spring | 5-year Review | | 1 season each 5 years | Mt. Haggin/Smelter Hill TI Zone |
| SST-30 | | 249934 | Spring | 5-year Review | | 1 season each 5 years | Mt. Haggin/Smelter Hill TI Zone |

Table 1.0-1. Summary of monitoring sites, sample frequency, and location *(continued).*

| Well ID | New ID | GWIC ID | Type | Purpose | New Well | Frequency[1] | Location |
|---|---|---|---|---|---|---|---|
| OPPORTUNITY PONDS/SMELTER HILL WMA | | | | | | | |
| A1-BR2 | | 51384 | Well | 5-year Review | | 2 seasons each 5 years | Smelter Hill |
| A2-BR | | 51383 | Well | 5-year Review | | 2 seasons each 5 years | Smelter Hill |
| B4-BR | | 51382 | Well | 5-year Review | | 2 seasons each 5 years | Smelter Hill |
| C2-AL1 | | 249864 | Well | 5-year Review | | 2 seasons each 5 years | Smelter Hill |
| D3-AL1 | | 249866 | Well | 5-year Review | | 2 seasons each 5 years | Smelter Hill |
| E2-AL1 | | 249961 | Well | 5-year Review | | 2 seasons each 5 years | Smelter Hill (northeast) |
| MW-210 | | 138024 | Well | 5-year Review | | 2 seasons each 5 years | Anaconda Ponds Northwest Toe |
| MW-211 | | 138028 | Well | 5-year Review | | 2 seasons each 5 years | Anaconda Ponds Northwest Toe |
| MW-212 | | 138007 | Well | POC | | Semi-Annually | North of Triangle Waste |
| MW-214 | | 138065 | Well | POC | | Semi-Annually | North toe of Opportunity Ponds |
| MW-216 | | 137957 | Well | POC | | Semi-Annually | East toe of Opportunity Ponds |
| MW-218d | | 138013 | Well | 5-year Review | | 2 seasons each 5 years | Anaconda Ponds Middle Toe |
| MW-218s | | 138011 | Well | 5-year Review | | 2 seasons each 5 years | Anaconda Ponds Middle Toe |
| MW-219 | | 138015 | Well | 5-year Review | | 2 seasons each 5 years | Anaconda Ponds Northeast Toe |
| MW-220 | | 249963 | Well | 5-year Review | | 2 seasons each 5 years | Anaconda Ponds - Toe East |
| NW-6s | MW-258 | 249909 | Well | POC | 2009 | Semi-Annually | Anaconda Ponds - Toe East |
| MW-227 | | 138026 | Well | 5-year Review | | 2 seasons each 5 years | East corner of Smelter Hill WMA |
| MW-244 | | 249795 | Well | 5-year Review | | 2 seasons each 5 years | Smelter Hill (northwest) |
| MW-247 | | 249806 | Well | 5-year Review | | 2 seasons each 5 years | Smelter Hill (northwest) |
| MW-243 | | 249965 | Well | 5-year Review | | 2 seasons each 5 years | Triangle Waste Area |
| MW-253 | | 249847 | Well | 5-year Review | | 2 seasons each 5 years | Triangle Waste Area |
| MW-254 | | 249798 | Well | 5-year Review | | 2 seasons each 5 years | Triangle Waste Area |
| MW-256 | | 249851 | Well | 5-year Review | | Semi-Annually | Triangle Waste Area |
| MW-26 | | 249793 | Well | POC | | Semi-Annually | Northeast toe of Opportunity Ponds |
| MW-26M | | 249790 | Well | POC | | Semi-Annually | Northeast toe of Opportunity Ponds |
| MW-31 | | 249794 | Well | 5-year Review | | semi-annual first 5 years after cover installed | East toe of Opportunity Ponds |
| MW-31M | | 249785 | Well | 5-year Review | | semi-annual first 5 years after cover installed | East toe of Opportunity Ponds |
| MW-82 | | 249840 | Well | 5-year Review | | semi-annual first 5 years after cover installed | Inside East toe of Opportunity Ponds |
| MW-82M | | 249896 | Well | 5-year Review | 2011 | semi-annual first 5 years after cover installed | Inside East toe of Opportunity Ponds |
| MW-85 | | 249843 | Well | 5-year Review | | semi-annual first 5 years after cover installed | Interior of Opportunity Ponds |
| MW-85M | | 249897 | Well | 5-year Review | 2011 | semi-annual first 5 years after cover installed | Interior of Opportunity Ponds |
| MW-90 | | 249844 | Well | 5-year Review | | semi-annual first 5 years after cover installed | Interior of Opportunity Ponds |
| MW-90M | | 249899 | Well | 5-year Review | 2011 | semi-annual first 5 years after cover installed | Interior of Opportunity Ponds |
| MW-10R/NW-5s | MW-273 | 249942 | Well | POC | 2011 | Semi-Annually | Opportunity Ponds South Flank |
| NW-1-OPd | MW-266 | 249901 | Well | POC | 2011 | Semi-Annually | East toe of Opportunity Ponds |
| NW-1-OPs | MW-265 | 249900 | Well | POC | 2011 | Semi-Annually | East toe of Opportunity Ponds |
| NW-2-OPd | MW-267 | 249903 | Well | POC | 2011 | Semi-Annually | East toe of Opportunity Ponds |
| NW-2-OPs | MW-268 | 249904 | Well | POC | 2011 | Semi-Annually | East toe of Opportunity Ponds |
| NW-3-OPd | MW-269 | 249905 | Well | POC | 2011 | Semi-Annually | East toe of Opportunity Ponds |
| NW-3-OPs | MW-270 | 249906 | Well | POC | 2011 | Semi-Annually | East toe of Opportunity Ponds |
| NW-4-OPd | MW-271 | 249907 | Well | POC | 2011 | Semi-Annually | East toe of Opportunity Ponds |
| NW-4-OPs | MW-272 | 249908 | Well | POC | 2011 | Semi-Annually | East toe of Opportunity Ponds |
| MW-24 | | 249791 | Well | 5-year Review | | 2 seasons each 5 years | North toe of Opportunity Ponds |
| MW-25 | | 249792 | Well | 5-year Review | | 2 seasons each 5 years | North toe of Opportunity Ponds |

Table 1.0-1. Summary of monitoring sites, sample frequency, and location *(continued).*

| Well ID | New ID | GWIC ID | Type | Purpose | New Well | Frequency[1] | Location |
|---|---|---|---|---|---|---|---|
| **OLD WORKS WMA** | | | | | | | |
| **IW-01** | | **250038** | **Well** | **Event Driven** | | **Event Driven** | **NE Quarter Section 2** |
| IW-05 | | 250039 | Well | 5-year Review | | 2 seasons each 5 years | NE Quarter Section 2 |
| LF-4 | | 249800 | Well | 5-year Review | | 2 seasons each 5 years | NW Quarter Section 1 |
| MW-201 | | 249804 | Well | 5-year Review | | 2 seasons each 5 years | NE Quarter Section 2 |
| **MW-204** | | **250041** | **Well** | **Event Driven** | | **Event Driven** | **Old Works Red Sands** |
| MW-205 | | 249803 | Well | 5-year Review | | 2 seasons each 5 years | NE Quarter Section 1 |
| **MW-206** | | **250042** | **Well** | **Event Driven** | | **Event Driven** | **Section 1 west of sewer lagoons** |
| **MW-206d** | | **250054** | **Well** | **Event Driven** | | **Event Driven** | **Section 1 west of sewer lagoons** |
| **MW-207** | | **250043** | **Well** | **POC/Event Driven** | | **Semi-Annually/Event Driven** | **SE corner of Old Works WMA** |
| **MW-208** | | **250044** | **Well** | **Event Driven** | | **Event Driven** | **SE Quarter Section 31** |
| **MW-209** | | **250045** | **Well** | **Event Driven** | | **Event Driven** | **SE Quarter Section 31** |
| **MW-213** | | **138022** | **Well** | **Event Driven** | | **Event Driven** | **Old Works Red Sands** |
| **MW-240** | | **250047** | **Well** | **Event Driven** | | **Event Driven** | **SE Quarter Section 32** |
| **MW-241** | | **250048** | **Well** | **Event Driven** | | **Event Driven** | **SE Quarter Section 31** |
| **MW-242** | | **250049** | **Well** | **Event Driven** | | **Event Driven** | **West of Old Works WMA** |
| **MW-251** | | **250014** | **Well** | **POC/Event Driven** | | **Semi-Annually/Event Driven** | **NE corner of Old Works WMA** |
| **MW-252** | | **249797** | **Well** | **POC/Event Driven** | | **Semi-Annually/Event Driven** | **West of Old Works WMA** |
| **MW-255** | | **250055** | **Well** | **POC/Event Driven** | | **Semi-Annually/Event Driven** | **West of Old Works WMA** |
| MW-72 | | 250051 | Well | 5-year Review | | 2 seasons each 5 years | SW Quarter Section 31 |
| TI-A | | 249801 | Well | 5-year Review | | 2 seasons each 5 years | NW Quarter Section 2 |
| **SOUTH OPPORTUNITY/YELLOW DITCH AREA OF CONCERN** | | | | | | | |
| **LTW-1-SOd** | **MW-263** | **249936** | **Well** | **POC** | **2009** | **Semi-Annually** | **North of Hwy. 1, NE Section 16** |
| **LTW-1-SOs** | **MW-264** | **249937** | **Well** | **POC** | **2009** | **Semi-Annually** | **North of Hwy. 1, NE Section 16** |
| **LTW-3-SOd** | **MW-261** | **249938** | **Well** | **POC** | **2009** | **Semi-Annually** | **North of Hwy. 1, Section 15** |
| **LTW-3-SOs** | **MW-262** | **249939** | **Well** | **POC** | **2009** | **Semi-Annually** | **North of Hwy. 1, Section 15** |
| MW-225 | | 249940 | Well | 5-year Review | | 2 seasons each 5 years | SW Quarter Section 14 |
| MW-232 | | 249941 | Well | 5-year Review | | 2 seasons each 5 years | Mount Haggin Ranch |
| MW-231 | | 138061 | Well | 5-year Review | | 2 seasons each 5 years | Willow Creek |
| **MW-9 (Lab)** | | **138020** | **Well** | **Town of Opportunity** | | **Semi-Annually** | **West of Highway 1 and Fairmont Rd.** |
| **LTW-4-SOd** | **MW-260** | **138017** | **Well** | **POC** | **2009** | **Semi-Annually** | **Section 16 - Hwy 1** |
| **LTW-4-SOs** | **MW-259** | **249898** | **Well** | **Replaced by MW-274** | **2009** | **Semi-Annually** | **Section 16 - Hwy 1** |
| **LTW-4-SOsR** | **MW-274** | **264393** | **Well** | **POC, Replaces MW-259** | **2011** | **Semi-Annually** | **Section 16 - Hwy 1** |
| OD-2D | | 249778 | Well | Town of Opportunity | | 2 seasons each 5 years | Northeast of Opportunity |
| OD-2S | | 249799 | Well | Town of Opportunity | | 2 seasons each 5 years | Northeast of Opportunity |
| OD-3D | | 249781 | Well | Town of Opportunity | | 2 seasons each 5 years | East Opportunity near Willow Creek |
| OD-3S | | 249782 | Well | Town of Opportunity | | 2 seasons each 5 years | East Opportunity near Willow Creek |
| WCT-27 | | 249935 | Surface expression of groundwater | Town of Opportunity | | 2 seasons each 5 years | South of Highway 1 at Opportunity |
| **BLUE LAGOON AOC** | | | | | | | |
| MW-235 | | 250046 | Well | 5-year Review | | 2 seasons each 5 years | Blue Lagoon |
| MW-257 | | 250015 | Well | 5-year Review | | 2 seasons each 5 years | Blue Lagoon |
| **DUTCHMAN CREEK HIGH ARSENIC AREA** | | | | | | | |
| SP-07-01 | | 249910 | Spring | 5-year Review | | 1 season each 5 years | North Opportunity |
| SP-07-02 | | 249911 | Spring | 5-year Review | | 1 season each 5 years | North Opportunity |
| SP-07-03 | | 249912 | Spring | 5-year Review | | 1 season each 5 years | North Opportunity |
| MW-224 | | 138068 | Well | 5-year Review | | 2 seasons each 5 years | North Opportunity |
| MW-230 | | 128740 | Well | 5-year Review | | 2 seasons each 5 years | North Opportunity |

1. New wells in new cover areas will be sampled semi-annually for 5 years, then semi-annually once each 5 years. New Town of Opportunity wells will be sampled semi-annually perpetually.

## 2.0 Historical Background

The town of Anaconda, Montana was founded by Marcus Daly on June 25, 1883 for the purpose of constructing a smelter to process ore being mined by Daly and his partners in Butte, 26 miles to the east (Morris, 1997). Daly chose this location due to the abundant supply of water from Warm Springs Creek. The mining company [Anaconda Copper Mining Company (ACM)] operated by Daly and his partners began construction of the first concentrator and smelter on the north side of Warm Springs Creek in 1883, with the facility put into operation in 1884. This facility was known as the Upper Works and consisted of the following facilities: concentrator, smelter buildings including roasters, reverberatory furnaces, long masonry flues, and two smokestacks measuring 115 and 175 ft in height (Shovers and others, 1991).

As ore production from the ACM mines in Butte increased, Daly built an additional smelter in 1897, which became known as the Lower Works. The Lower Works was located 1 mile east of the Upper Works facilities, again adjacent to Warm Springs Creek (fig. 2.0-1). ACM continued to add facilities at both the Upper and Lower Works to handle increased ore production from its Butte mines. In 1902, ACM moved their processing facilities to the south side of Warm Springs Creek with the construction of the Washoe Reduction Works. The Washoe facility was designed so that processing facilities could expand as needed. In 1902, when it was put into operation, it had a capacity of 4,800 tons per day, producing 600,000 pounds of copper in 1908; increases in capacity led to the production of 1,000,000 pounds of copper per day in 1933 (Shovers and others, 1991). Figure 2.0-2 shows the general layout of the Washoe Reduction Works, while figure 2.0-3 is a picture of the facility from the 1950s. Figure 2.0-4 shows the locations of the three smelter facilities and their proximity to the town of Anaconda. Byproducts of the smelting process were slimes, slag, tailings, and airborne emissions of gases from the smelter stack. Tailings were sluiced to a series of ponds north of the town of Opportunity (which became known as the Opportunity Ponds), and beginning in 1947, to two ponds just below the concentrator, known as the Anaconda Ponds (Shovers and others, 1991).

Residual arsenic was one of the primary waste byproducts, with large concentrations emitted from the stack. Originally, the Washoe Reduction Works had four small stacks, which were replaced by one larger 300-ft stack in 1904. This stack was replaced by a 585-ft stack in 1918. In addition to the new stack, which measured 75 ft at the base and 65 ft at the top, ACM constructed an electrostatic plant at the base of the stack to more efficiently remove flue dust and the associated arsenic from leaving the stack. According to Shovers and others (1991), this plant removed 90 percent of the dust leaving the plant. ACM continued to make modifications to the smelter operations through the 1970s until the plant closed in 1980.

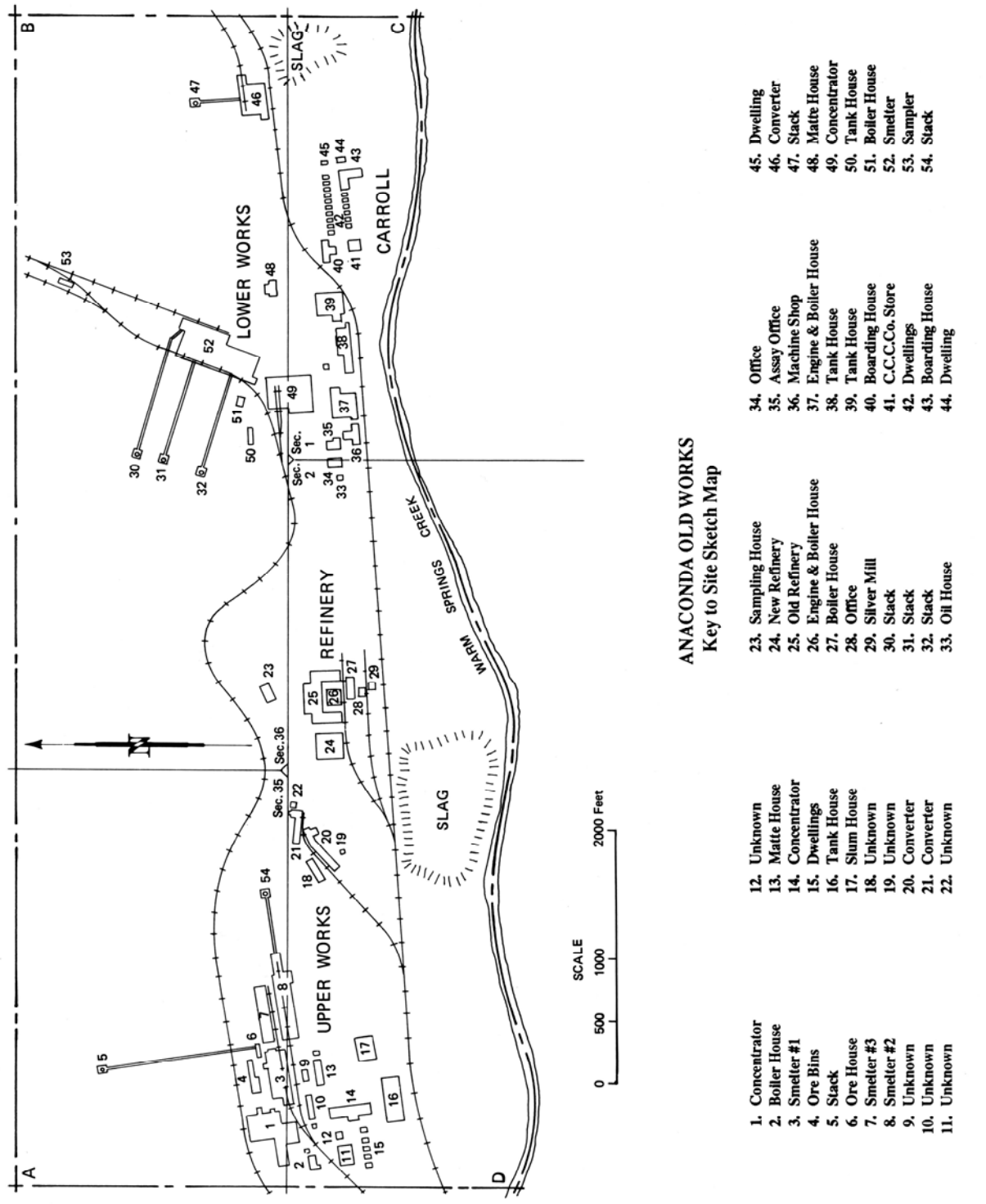


Figure 2.0-1. Location of Upper Works and Lower Works facilities that make up the Old Works Smelter Complex. Modified with permission from Shovers and others, 1991.

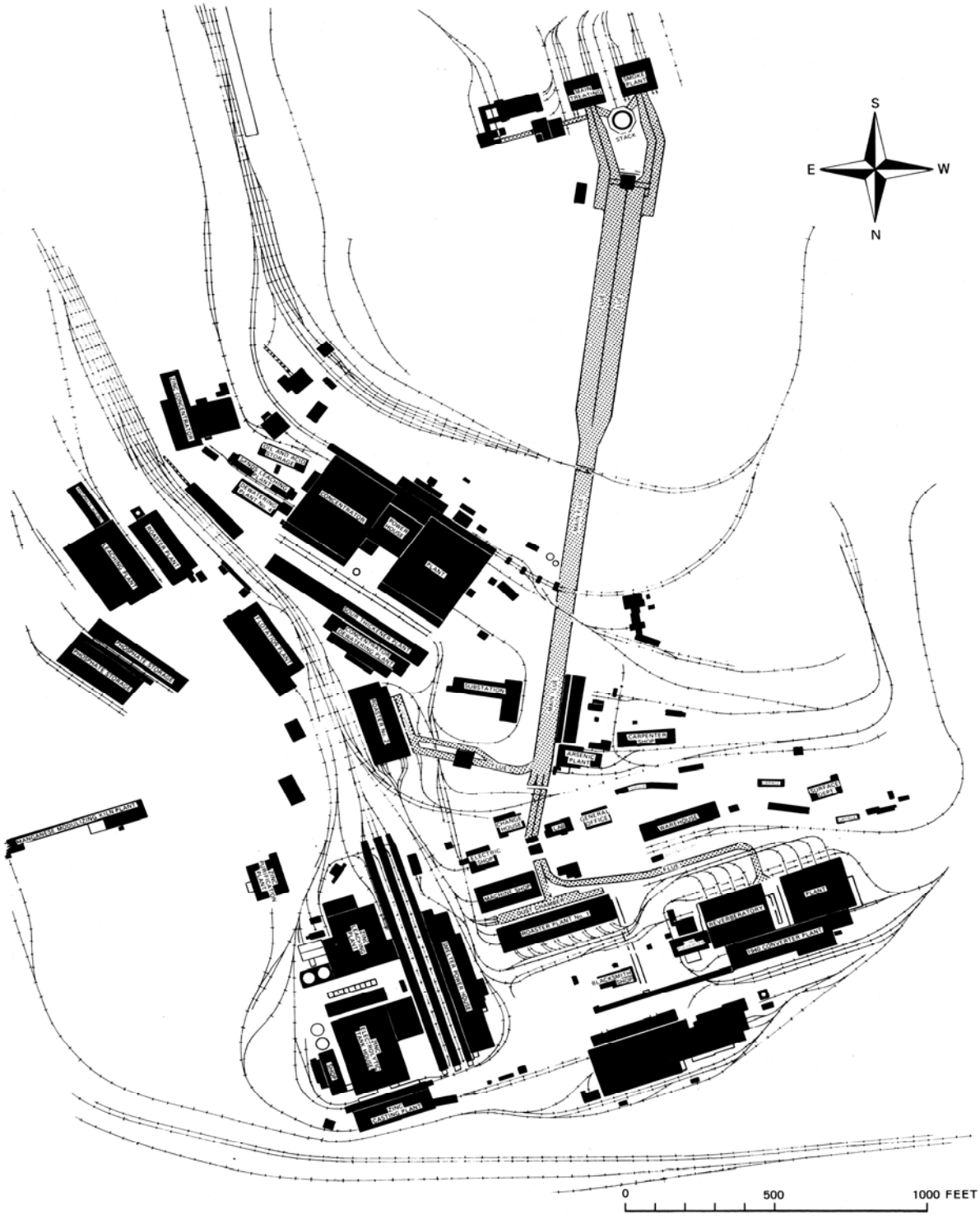


Figure 2.0-2. General layout of the Washoe Smelter facilities. Modified with permission from Shovers and others, 1991.

Figure 2.0-3. View looking south toward the Washoe Smelter and associated facilities, circa 1950s. Photo courtesy of the World Museum of Mining.

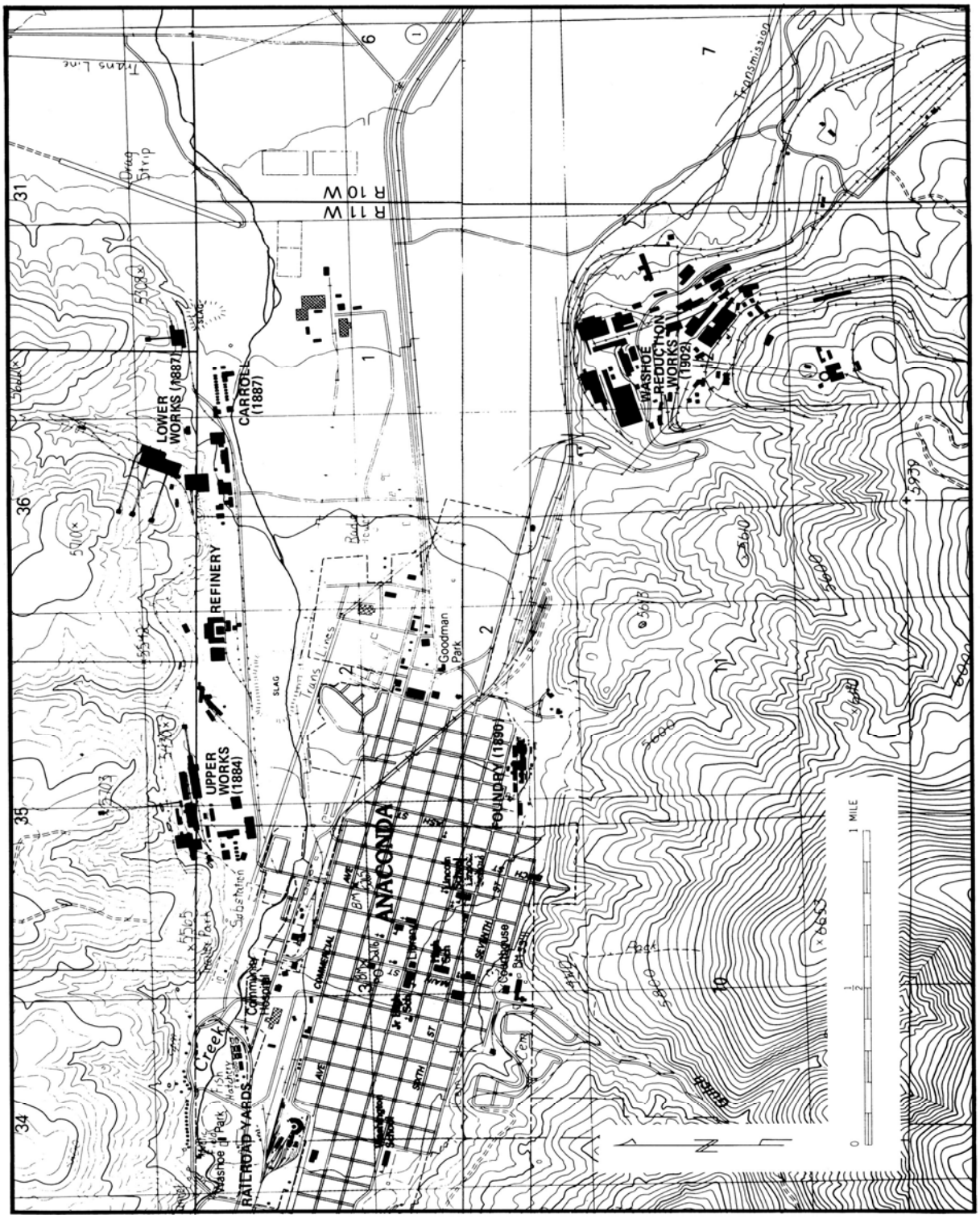


Figure 2.0-4. Locations of Upper Works, Lower Works, and Washoe Smelter in relation to the town of Anaconda. Modified with permission from Shovers and others, 1991.

Areas around the Washoe Reduction Works and other historic smelting facilities were placed on the EPA's National Priorities List (NPL) in September 1983. Since that time, AR has been actively involved with EPA and the Montana Department of Environmental Quality (DEQ) in conducting investigations to determine the extent of contamination from historic smelting and associated processes. Numerous response actions have taken place to limit exposure, i.e., the 1984 and 1986 Administrative Orders on Consent relating to the demolition of the Washoe Reduction Works and Mill Creek resident relocation activities (U.S. EPA 1984, 1986). Upon completion of numerous investigations and several RI and Feasibility Study Reports, EPA issued the ROD for the Anaconda Regional Water, Waste, and Soils Operable Unit, Anaconda Smelter NPL site, in 1998 (U.S. EPA, 1998). The ROD contained water-quality standards for groundwater and surface-water sites. Groundwater standards are based upon the dissolved portion of the sample, while surface-water standards are based upon the total recoverable concentration. EPA, in consultation and concurrence with DEQ, released a Record of Decision Amendment in September 2011. Contained in the amendment were changes to the water-quality standards contained in the 1998 ROD, bringing ARWWS site contaminant of concern (COC) standards into compliance with current Montana DEQ-7 standards (Montana DEQ, 2012).

Groundwater COC standards listed in the 1998 ROD and 2011 ROD Amendment, based upon Circular DEQ-7 limits, are shown below:

| COC | DEQ-7 Standard Drinking Water (1998 ROD) | DEQ-7 Standard Drinking Water (2011 ROD Amendment) |
|---|---|---|
| Arsenic | 18 µg/L | 10 µg/L |
| Beryllium | 4 µg/L | 4 µg/L |
| Cadmium | 5 µg/L | 5 µg/L |
| Copper | 1,000 µg/L | 1,000 µg/L |
| Iron | 300 µg/L | NA |
| Lead | 15 µg/L | 15 µg/L |
| Zinc | 5,000 µg/L | 2,000 µg/L |

The 2011 ROD Amendment arsenic and zinc standards are more stringent than those contained in the 1998 ROD; the arsenic human health standard was waived for groundwater within Technical Impracticability (TI) zones. The iron standard is no longer applicable.

The 1998 ROD-listed surface water COCs and their respective water-quality standards were also modified in the 2011 ROD Amendment. The arsenic human health standard was waived for surface water within TI zones identified in the ROD amendment. The Aquatic Life-Acute and Aquatic Life-Chronic standards remain performance standards for surface-water TI reaches (U.S. EPA, September 2011). The 1998 and 2011 COC surface-water human health standards are shown below:

| COC | DEQ-7 Standard Surface-Water (1998 ROD) Human Health Standard | DEQ-7 Standard Surface-Water (2011 ROD Amendment) Human Health Standard |
|---|---|---|
| Arsenic | 18 µg/L | 10 µg/L |
| Beryllium | 4 µg/L | 4 µg/L |
| Cadmium | 1.1 µg/L | 5 µg/L |
| Copper | 12.0 µg/L | 1,000 µg/L |
| Iron | 300 µg /L | 300 µg/L |
| Lead | 3.2 µg/L | 15 µg/L |
| Zinc | 100 µg/L | 2,000 µg/L |

The DEQ-7 Aquatic Life standards contained in the 2011 ROD Amendment are listed below:

| COC | DEQ-7 Standard Surface-Water Aquatic Life-Acute Standard | DEQ-7 Standard Surface-Water Aquatic Life-Chronic Standard |
|---|---|---|
| Arsenic | 340 µg/L | 150 µg/L |
| Beryllium | None | None |
| Cadmium[1] | 2.13 µg/L | 0.27 µg/L |
| Copper[1] | 14.0 µg/L | 9.33 µg/L |
| Iron | none | 1,000 µg/L |
| Lead[1] | 81.65 µg/L | 3.18 µg/L |
| Zinc[1] | 120 µg/L | 110 µg/L |

[1]Cadmium, copper, lead, and zinc concentrations are calculated at a hardness of 100 mg/L $CaCO_3$ equivalent.

## Description of Long-Term Groundwater Monitoring Program

The Monitoring Program described in the STGWM SAP Addendum No. 1 (Atlantic Richfield Company, 2009b) consisted of the following components:

- Groundwater-well monitoring, including the installation of new monitoring wells;
- Groundwater expression (springs) sampling; and
- Domestic well program, including the installation of new replacement wells.

Table 1.0-1 contains the 2013 groundwater monitoring wells and their sampling frequency. Plate 1 shows the locations of the 2013 monitoring sites. Prior to water-quality sampling, a synoptic series of water levels from each well location was measured. Too few wells were monitored during the 2013 program to adequately produce new groundwater flow maps; therefore, plates 2 and 3 show 2009 groundwater contours and flow direction based upon water-level monitoring during each sampling event; plate 2 is based on information from the 2009 low-flow event, while plate 3 is based on the 2009 high-flow event monitoring.

The following field parameters were measured during monitoring well sampling:

- water level;
- pH;
- specific conductance (SC);
- temperature;
- oxidation-reduction potential (ORP); and
- dissolved oxygen.

Water-quality samples were collected from monitoring wells during both low-water and high-water conditions, with the exception of 10 wells that were sampled when groundwater levels exceeded a predetermined elevation. Water-quality samples were submitted to the MBMG analytical lab for analysis. Sample results from 2013 activities and previous sampling events are available through GWIC.

Low-water samples were timed to be collected during the period of lowest water levels, while high-water samples were collected during periods of peak, or maximum, water levels. Based upon historic water-level data, it was determined that low-water conditions occur from February through April, while high-water conditions occur from June through August (Atlantic Richfield Company, 2009b). The seven additional wells installed during 2009 and 12 wells installed in 2011 were sampled during both 2013 events.

The 2013 sampling program consisted of a reduced subset of the sites listed in table 1.0-1 and shown in red. No springs or surface-water sites were sampled.

## Monitoring Program—2013 Non-5-Year Review

The current groundwater and surface-water monitoring program contains sites divided among seven different geographical areas and describes the sampling frequency and location for each site. Sampling frequency is broken down into five categories: (1) semi-annual; (2) event-driven; (3) semi-annual 5 years after ground cover installed, then semi-annual every fifth year; (4) semi-annual every fifth year; and (5) annual every fifth year. The monitoring program was designed so that all monitoring sites are sampled every fifth year to coincide with the EPA Superfund 5-Year Site Review. The 2009 sampling program included the 5-year sample cycle; therefore, the 2013 monitoring program consisted of the semi-annual, semi-annual for 5 years after cover established, and event-driven sites. The 2013 sites are contained within only three of the seven geographical areas; the number of wells and springs in each area sampled during 2013 is shown in table 4.0-1. The geographic areas correspond to RDUs, Waste Management Areas (WMAs), or TI zones. Monitoring results are discussed based upon their geographical area.

Table 4.0-1. Breakdown of monitoring wells and springs by geographic area sampled in 2013.

| Geographic Area | No. of Wells | No. of Springs |
|---|---|---|
| Opportunity Ponds/Smelter Hill WMA | 24 | 0 |
| Old Works WMA | 4 | 0 |
| South Opportunity/ Yellow Ditch AOC | 7 | 0 |
| Total number | 35 | 0 |

## 4.1 Smelter Hill/Opportunity Ponds Waste Management Area

The Smelter Hill/Opportunity Ponds WMA contains 44 wells, 24 of which were part of the 2013 monitoring program (fig. 4.1-1). All but one of the 2013 monitoring wells are located within the Opportunity Ponds portion of the WMA. There are nine nested well pairs within this WMA. Table 4.1-1 lists well information and COCs for this group of wells. Wells within this WMA have a broader list of primary COCs, including cadmium (Cd), copper (Cu), lead (Pb), and zinc (Zn). Table 4.1-2 contains a summary of water type, 2013 arsenic concentrations, and general water-quality conditions for wells in this WMA; appendix A contains water-quality results from 2013 sampling activities.

### 4.1.1 Smelter Hill/Opportunity Ponds Well Water-Quality Results

The Smelter Hill/Opportunity Ponds portion of this WMA contains 24 monitoring wells, including 12 wells that were installed in 2011 following completion of reclamation activities. All of the current wells are installed in valley-fill material. During the 2013 sampling program, samples were collected from all 24 wells. Arsenic exceeded DEQ-7 standards in 2 wells.

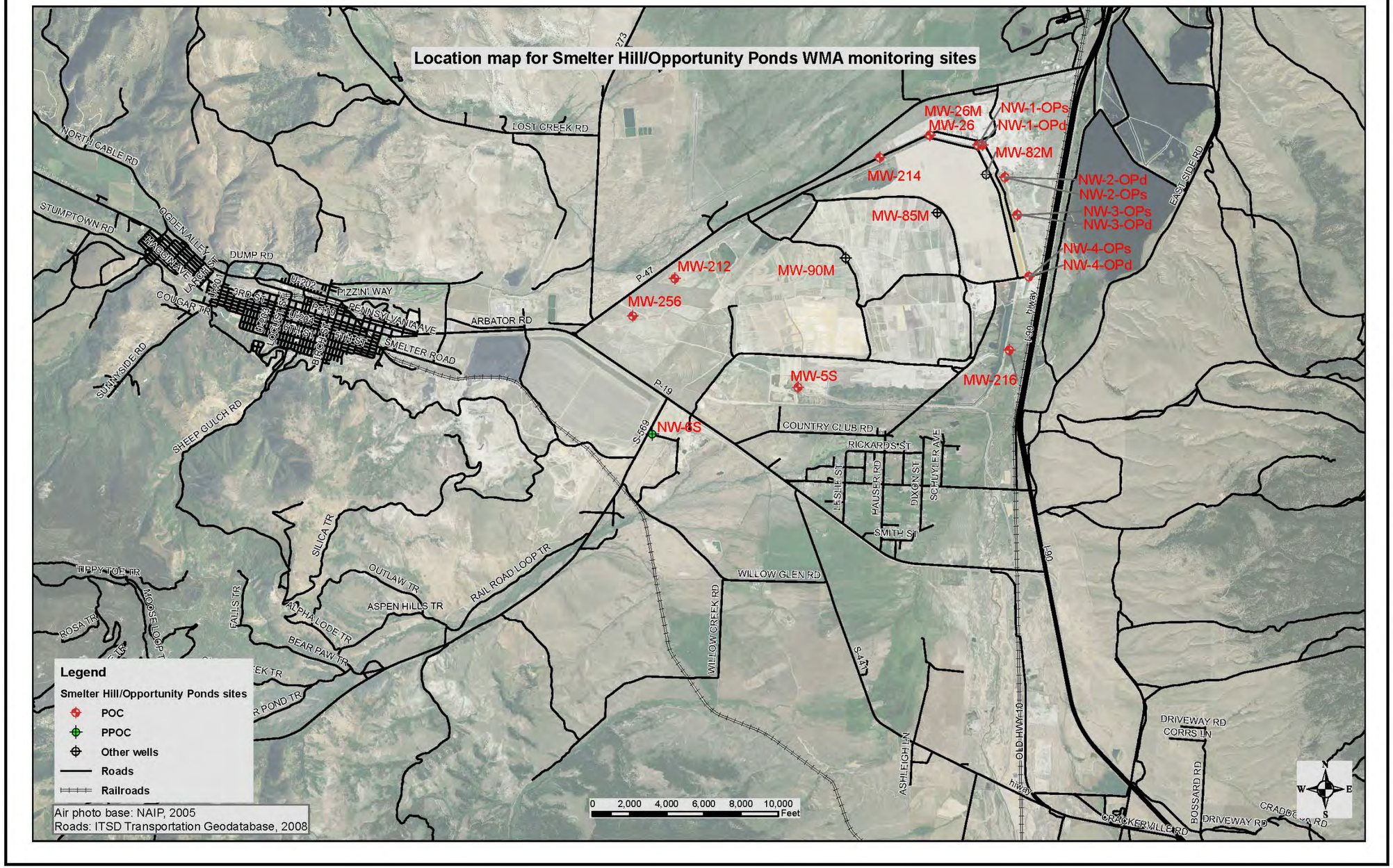


Figure 4.1-1. Location map for Smelter Hill/Opportunity Ponds WMA.

Table 4.1.1. Smelter Hill/Opportunity Ponds Waste Management Area monitoring wells.

| Well ID | New ID | GWIC ID | Total Depth (ft) | Screen Interval (ft) | Water Quality Analytes |
|---|---|---|---|---|---|
| **Smelter Hill Sites** | | | | | |
| NW-6S | MW-256 | 249909 | 98 | 78-98 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| **Opportunity Ponds Sites** | | | | | |
| MW-212 | | 138007 | 62 | 39.3-53.7 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-214 | | 138065 | 15 | 5.6-15 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-216 | | 137957 | 15 | 5-14.3 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-256 | | 249851 | 95 | 75-94.7 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-26 | | 249793 | 15 | 5-15 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-26M | | 249790 | 71 | 60.5-70.5 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-31 | | 249794 | 15 | 5-15 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-31M | | 249785 | 88.5 | 78-88 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-82 | | 249840 | 50 | 40-50 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-82M | | 249896 | 110 | 100-110 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-85 | | 249843 | 56 | 45-55 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-85M | | 249897 | 155 | 136-146 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-90 | | 249844 | 66 | 56-66 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-90M | | 249899 | 135 | 125-135 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-5S | MW-273 | 249942 | 18 | 5-15 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| NW-1-OPs | MW-266 | 249901 | 20 | 9-19 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| NW-1-OPd | MW-265 | 249900 | 77 | 67-77 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| NW-2-OPs | MW-268 | 249904 | 20 | 8-18 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| NW-2-OPd | MW-267 | 249903 | 74.5 | 64-74 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| NW-3-OPs | MW-270 | 249906 | 25 | 12-22 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| NW-3-OPd | MW-269 | 249905 | 76 | 62.5-72.5 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| NW-4-OPs | MW-272 | 249908 | 21 | 10.5-20.5 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| NW-4-OPd | MW-271 | 249907 | 81.5 | 71.5-81.5 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |

Table 4.1-2. Smelter Hill/Opportunity Ponds Waste Management Area monitoring well summary.

| Well ID | New ID | Screen Interval (ft) | Water Type | 2013 Low-Water Arsenic (µg/L) | 2013 High-Water Arsenic (µg/L) | Long-Term Average Arsenic (µg/L) | Comment |
|---|---|---|---|---|---|---|---|
| **Smelter Hill Site** | | | | | | | |
| NW-6S | MW-258 | 78–98 | Ca-$HCO_3$ | 0.67 | 0.73 | 0.69 | Well installed spring 2009—No DEQ-7 exceedances. |
| **Opportunity Ponds Sites** | | | | | | | |
| MW-212 | | 39.3–53.7 | Ca-$HCO_3$ | 0.61 | 0.59 | 1.04 | No COC exceedances; slight As decline over time. |
| MW-214 | | 5.6–15 | Ca-$SO_4$ | 0.95 | 1.06 | 1.43 | No COC exceedances; slight As decline over time. |
| MW-216 | | 5–14.3 | Ca-$SO_4$ | 1.98 | 2.63 | 3.42 | No COC exceedances. |
| MW-256 | | 75–94.7 | Ca-$HCO_3$ | 0.45 | 0.52 | 0.75 | No COC exceedances; slight As decline over time. |
| MW-26 | | 5–15 | Ca-$SO_4$ | <0.25 | 0.73 | 1.19 | Slight As decrease over time; no seasonal trend. |
| MW-26M | | 60.5–70.5 | Ca-$SO_4$ | 0.51 | 0.54 | 1.11 | Highest As concentrations usually during high-water sampling events. |
| MW-31 | | 5–15 | Ca-$SO_4$ | 4.65 | 6.15 | 2.70 | No COC exceedances or seasonal trends. As increasing since 2005. |
| MW-31M | | 78–88 | Ca-$SO_4$ | 1.71 | 1.82 | 1.77 | No COC exceedances. No seasonal trend. |
| MW-82 | | 40-50 | Ca-$SO_4$ | 0.41 | 0.89 | 2.31 | No COC exceedances; slight As decline over time. |
| MW-82M | | 100-110 | Ca-$SO_4$ | 1.05 | 1.08 | 1.24 | Limited data. |
| MW-85 | | 45–55 | Ca-$SO_4$ | 63.15 | 70.84 | 64.8 | Limited data. As exceeds DEQ-7 standard. |

Table 4.1-2. Smelter Hill/Opportunity Ponds Waste Management Area monitoring well summary *(continued).*

| Well ID | New ID | Screen Interval (ft) | Water Type | 2013 Low-Water Arsenic (µg/L) | 2013 High-Water Arsenic (µg/L) | Long-Term Average Arsenic (µg/L) | Comment |
|---|---|---|---|---|---|---|---|
| MW-85M | | 136-146 | $Ca\text{-}SO_4$ | 0.71 | 0.84 | 0.70 | Limited data. |
| MW-90 | | 56–66 | $Ca\text{-}SO_4$ | 181.34 | 93.22 | 225 | As exceeds DEQ-7 standard. Slight As decrease over time; no seasonal trend. |
| MW-90M | | 125-135 | $Ca\text{-}SO_4$ | <0.25 | <0.25 | 0.43 | Limited data. |
| NW-1-OPs | MW-266 | 9-19 | $Ca\text{-}SO_4$ | 1.71 | 2.32 | 2.12 | Limited data. |
| NW-1-OPd | MW-265 | 67-77 | $Ca\text{-}SO_4$ | 1.38 | 1.39 | 1.31 | Limited data. |
| NW-2-OPs | MW-268 | 8-18 | $Ca\text{-}SO_4$ | <0.25 | 0.54 | 0.58 | Limited data. |
| NW-2-OPd | MW-267 | 64-74 | $Ca\text{-}SO_4$ | 1.29 | 1.41 | 1.29 | Limited data. |
| NW-3-OPs | MW-270 | 12-22 | $Ca\text{-}SO_4$ | 0.62 | 0.60 | 1.15 | Limited data. |
| NW-3-OPd | MW-269 | 62.5-72.5 | $Ca\text{-}SO_4$ | 1.28 | 1.36 | 1.30 | Limited data. |
| NW-4-OPs | MW-272 | 10.5-20.5 | $Ca\text{-}SO_4$ | <0.25 | 0.63 | 0.74 | Limited data. |
| NW-4-OPd | MW-271 | 71.5-81.5 | $Ca\text{-}SO_4$ | 1.31 | 1.29 | 1.50 | Limited data. |
| MW-5s | MW-273 | 5-15 | $Ca\text{-}HCO_3$ | 0.32 | 0.39 | 0.41 | Limited data. |

*Note.* MCL, maximum contaminant level.

Well NW-6S (MW-258) is located to the east (downgradient) of the East Anaconda Tailings Pond; it was installed during 2009 and groundwater samples have been collected semi-annually since then. The well is 98 ft deep, with the screened interval from 78 to 98 ft. It is completed in valley-fill material (table 4.1-1). Arsenic concentrations were below 1 µg/L, while the other COCs were below DEQ-7 standards.

Wells MW-212 and MW-256 are upgradient of current reclamation activities. Well depths vary from 50 to 90 ft within the valley-fill material (table 4.1-1). The long-term average arsenic is below the DEQ standard, as are all sample concentrations (fig. 4.1-2). None of the other COCs were exceeded in the 2013 samples for these two wells. Groundwater samples were collected three times each in 1992 and 1993 and once in 1995 from well MW-212. Samples have been collected semi-annually since 2000 from this well. MW-256 has a shorter period of record, with the first sample collected in 2004 and collected semi-annually from 2005 to 2013.

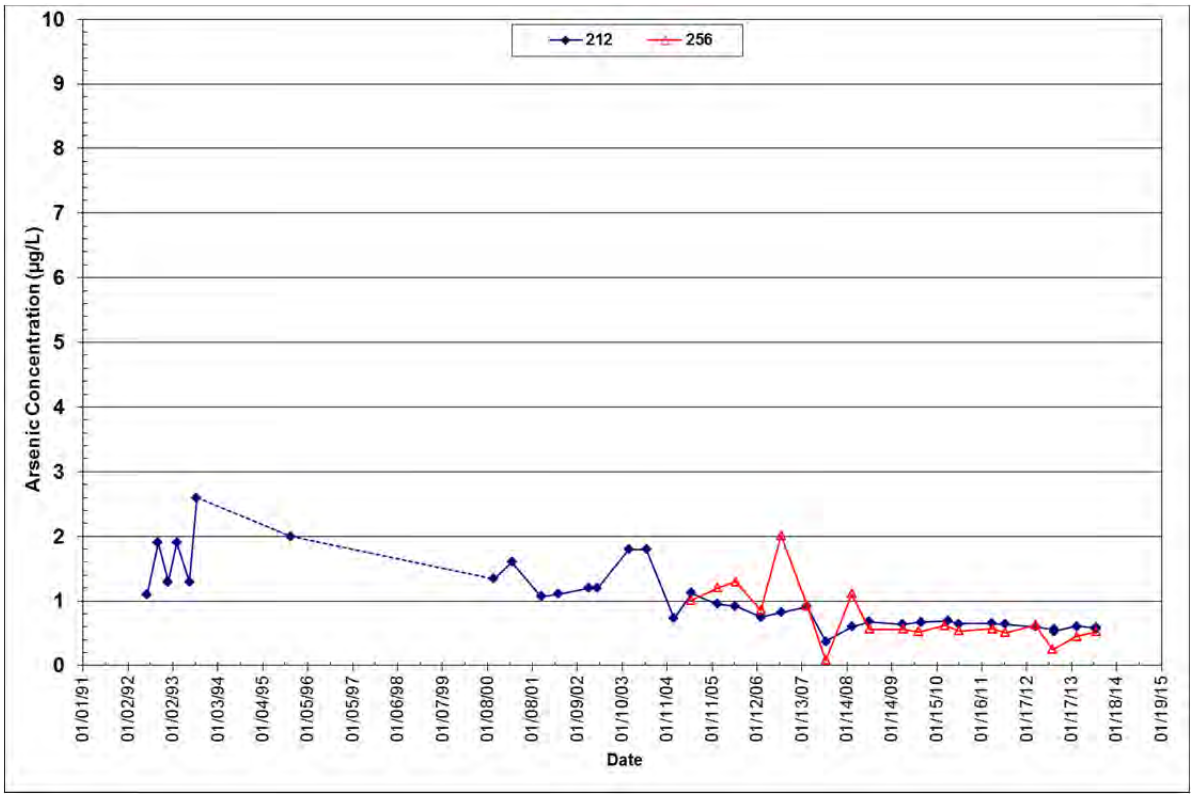


Figure 4.1-2 Arsenic concentrations over time for wells MW-212 and MW-256, located in the Opportunity Ponds.

Well MW-214 is located along the northeast boundary of the Opportunity Ponds WMA at a depth of 15 ft (fig. 4.1-1). Water-quality samples were collected three times each in 1992 and 1993 and semi-annually since 2000. Arsenic and COC concentrations were well below DEQ-7 standards in all samples (fig. 4.1-3).

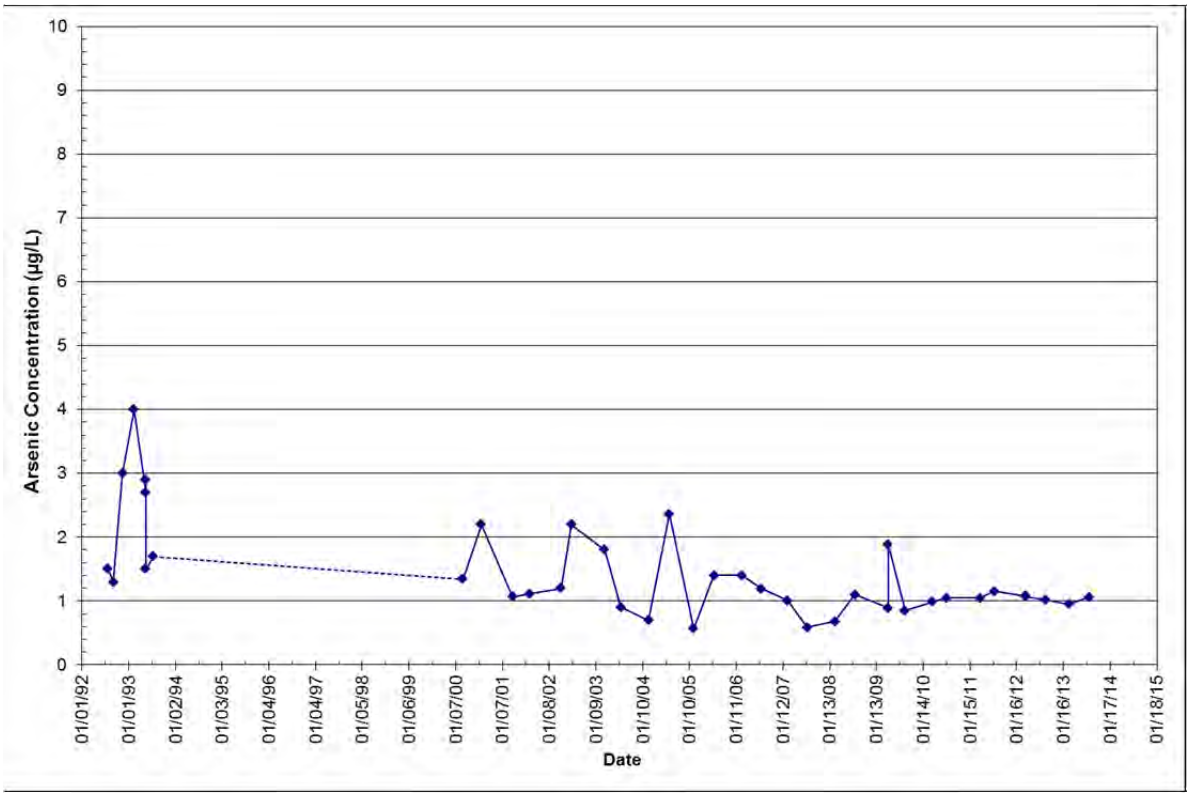


Figure 4.1-3. Arsenic concentrations over time for well MW-214, located in the Opportunity Ponds.

Wells MW-26 and MW-26M are nested wells, located in the far northeast corner of the WMA (fig. 4.1-1). Well MW-26 is a shallow well (screened interval from 5 to 15 ft), while MW-26M was completed moderately deep (screened interval 60–70 ft; table 4.1-2). Both wells have a similar water type (Ca-$SO_4$), with arsenic (fig. 4.1-4) and COC concentrations below DEQ-7 standards. Groundwater samples were first collected in 1985 (twice) and semi-annually from 2000 to 2013 in well MW-26; the first samples were collected in 1995 (twice) from well MW-26M, followed by semi-annual samples since 2000.

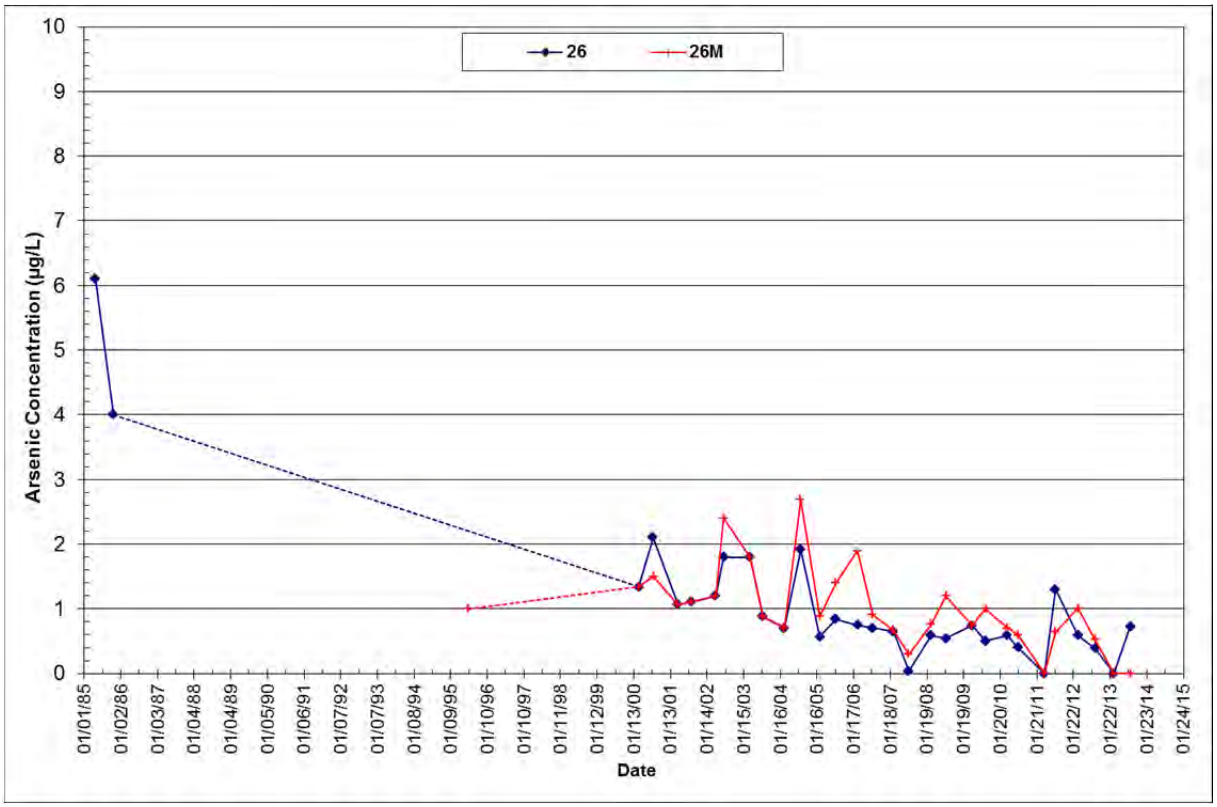


Figure 4.1-4. Arsenic concentrations over time for nested wells MW-26 and MW-26M, located in the Opportunity Ponds.

Wells MW-90 and MW-85 are located in the north-central area of the Opportunity Ponds WMA, at the toe of cells B-2 and C-2, respectively (fig. 4.1-1). Both wells were completed (screened) in the 45–65 ft range and have a similar water type (Ca-$SO_4$; table 4.1-2). Arsenic concentrations exceeded DEQ-7 standards in the long-term average for both wells.

Well MW-90 had a noticeable downward trend in arsenic concentrations, while arsenic concentrations in well MW-85 appear steady (fig. 4.1-5). Well MW-85 was sampled twice in 1985 and semi-annually since 2009, while well MW-90 was sampled twice in 1985, three times in 1991, four times in 1992, three times in 1993, and semi-annually from 2000 to 2013.

Paired monitoring wells were installed adjacent to wells MW-85 and MW-90 at depths of 155 and 135 ft, respectively, during 2011 field activities. The new wells were identified as MW-85M and MW-90M. Arsenic concentrations in these two wells were less than 1 µg/L in 2013 sample results (table 4.1-2; fig. 4.1-5).


Figure 4.1-5. Arsenic concentrations over time for wells MW-85 and MW-90, located in the Opportunity Ponds.

Wells MW-82, MW-31, MW-31M, and MW-216 are located on the north and northeast end of the ponds at the base of cells D-1 and D-2. Wells MW-31 and MW-216 are shallow-completed wells, with screen intervals between 5 and 15 ft; wells MW-82 and MW-31M are completed at depths from 40 to 50 ft and 78 to 88 ft, respectively (table 4.1-2). Wells MW-31 and MW-31M are a nested pair. All four wells have a similar water type, Ca-$SO_4$. None of the COCs were exceeded in the 2013 samples. Long-term arsenic concentrations are shown in figures 4.1-6 and 4.1-7. Arsenic concentrations since 2000 have been less than 10 µg/L in all four wells, with concentrations holding steady or trending down in three of the wells. Well MW-31 (shallow well) appears to have an increasing arsenic concentration. With one exception, groundwater samples have been collected with the same frequency in wells MW-31 and MW-82: two samples in 1985 and semi-annually since 2000. Well MW-31M had semi-annual samples collected in 1995 and from 2000 through 2013, while well MW-216 had three samples collected in 1992, two in 1993, and twice yearly from 2000 to 2013.

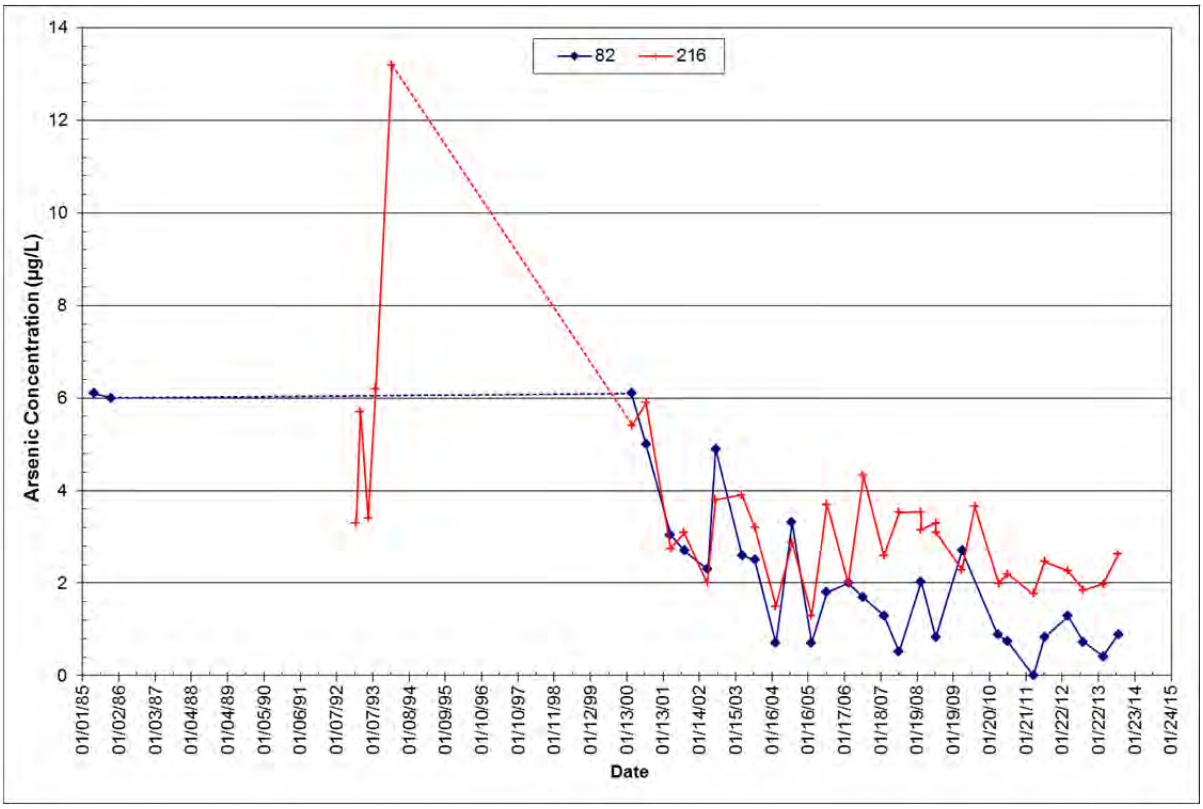


Figure 4.1-6. Arsenic concentrations over time for wells MW-82 and MW-216, located in the Opportunity Ponds.

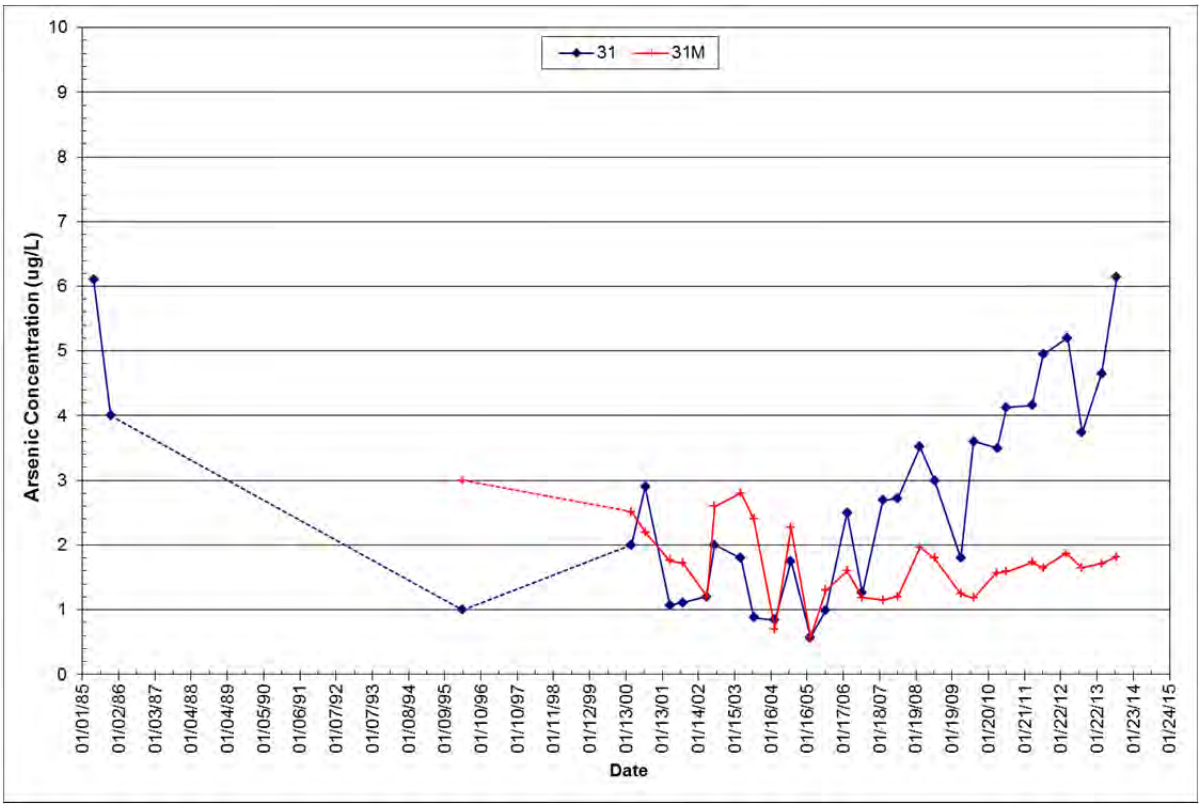


Figure 4.1-7. Arsenic concentrations over time for wells MW-31 and MW-31M, located in the Opportunity Ponds.

Groundwater wells within the Opportunity Ponds portion of the Smelter Hill/Opportunity Ponds WMA exhibit two different water types, Ca-$HCO_3$ and Ca-$SO_4$. The wells that would be

considered upgradient of the ponds are characterized as Ca-$HCO_3$ water and have very low concentrations of arsenic and the other COCs. The other 20 wells are Ca-$SO_4$ type waters, indicating an influence from mining and smelting wastes. Arsenic concentrations exceeded DEQ-7 standards in two wells, both of which are in the interior of the pond system (MW-85 and MW-90). None of the other COCs exceeded standards. This WMA contains 7 POC wells and 9 PPOC wells whose water-quality concentrations were all below DEQ-7 standards.

### 4.1.2 Smelter Hill/Opportunity Ponds Groundwater-Level Observations

This site contains the greatest number of monitoring wells, distributed between Smelter Hill to the southwest of Highway 1 and the Opportunity Ponds to the northeast of Highway 1 (fig. 4.1-1). Monitoring activities during 2013 consisted of one site associated with the Smelter Hill portion of the WMA, with the remainder of the sites within the Opportunity Ponds portion of the WMA. Table 4.1-3 shows the net water-level variations for the wells in this WMA; groundwater elevation changes range from a decline of 4.36 ft to a rise of 5.67 ft.

Plates 2 and 3 show the general groundwater flow direction for the spring (low-water) and summer (high-water) sampling events (2009 data). Groundwater flows from the south to the north on the west side of Smelter Hill and from the southwest to the northeast on the east side of Smelter Hill. Once it reaches the valley floor it takes a more west to east and southwest to northeast flow direction, paralleling Warm Springs Creek.

Table 4.1-3. Smelter Hill/Opportunity Ponds WMA 2013 monitoring well summary and net water-level change.

| Well ID | New ID | Total Depth (ft) | Screen Interval (ft) | Aquifer | Net Water-Level Change (ft) |
|---|---|---|---|---|---|
| **Smelter Hill Sites** | | | | | |
| NW-6S | **MW-258** | 98 | 78–98 | Valley-fill coarse | -3.45 |
| **Opportunity Pond Sites** | | | | | |
| MW-212 | | 62 | 39.3–53.7 | Valley-fill coarse | 5.67 |
| MW-214 | | 15 | 5.6–15 | Valley-fill coarse | -2.09 |
| MW-216 | | 15 | 5–14.3 | Valley-fill coarse | -1.88 |
| MW-256 | | 95 | 75–94.7 | Valley-fill med-fine | 4.07 |
| MW-26 | | 15 | 5–15 | Valley-fill coarse | -4.36 |
| MW-26M | | 71 | 60.5–70.5 | Valley-fill med-fine | -1.24 |
| MW-31 | | 15 | 5–15 | Valley-fill coarse | -3.64 |
| MW-31M | | 88.5 | 78–88 | Valley-fill med-fine | -0.82 |
| MW-82 | | 50 | 40–50 | Valley-fill coarse | -3.16 |
| MW-82M | | 110 | 100–110 | Valley-fill coarse | 0.72 |
| MW-85 | | 56 | 45–55 | Valley-fill coarse | -2.06 |
| MW-85M | | 155 | 136–146 | Valley-fill coarse | -0.23 |
| MW-90 | | 66 | 56–66 | Valley-fill coarse | -2.53 |
| MW-90M | | 135 | 125–135 | Valley-fill coarse | -2.75 |
| NW-1-OPs | **MW-266** | 20 | 9–19 | Valley-fill coarse | 0.20 |
| NW-1-OPd | **MW-265** | 77 | 67–77 | Valley-fill coarse | flowing |
| NW-2-OPs | **MW-268** | 20 | 8–18 | Valley-fill coarse | 0.15 |
| NW-2-OPd | **MW-267** | 74.5 | 64–74 | Valley-fill coarse | -0.24 |
| NW-3-OPs | **MW-270** | 25 | 12–22 | Valley-fill med-fine | -0.24 |
| NW-3-OPd | **MW-269** | 76 | 62.5–72.5 | Valley-fill medium | -0.12 |
| NW-4-OPs | **MW-272** | 21 | 10.5–20.5 | Valley-fill med-coarse | -0.00 |
| NW-4-OPd | **MW-271** | 81.5 | 71.5–81.5 | Valley-fill med-coarse | -0.28 |
| MW-5s | **MW-273** | 18 | 5–15 | Valley-fill coarse | -3.59 |

Well NW-6S (MW-258) was installed in 2009 and therefore has limited water-level data. No trend is reliable based upon such few measurements; however, information contained in the 2009 report (Duaime and Icopini, 2011) showed that water levels begin to rise in March, reaching their peak in late July, before declining through late summer and winter. This trend is harder to depict in wells with semi-annual measurements (fig. 4.1-8).

The Opportunity Ponds are downgradient from the Smelter Hill site, and the regional groundwater flow direction is from the west to the northeast (plate 3). Of the 23 wells in the pond area, 18 are completed in medium–coarse valley-fill material, while the others are completed in medium–fine-grained fill. Wells along the southwest side of the ponds have exhibited the largest net water-level increase (10 ft; fig. 4.1-9). Wells located along the toe of various cells within the pond system have exhibited the greatest water-level decline, ranging from 1 to 5 ft over time (fig. 4.1-10). This may be reflective of ongoing reclamation and capping activities in this portion of the site.

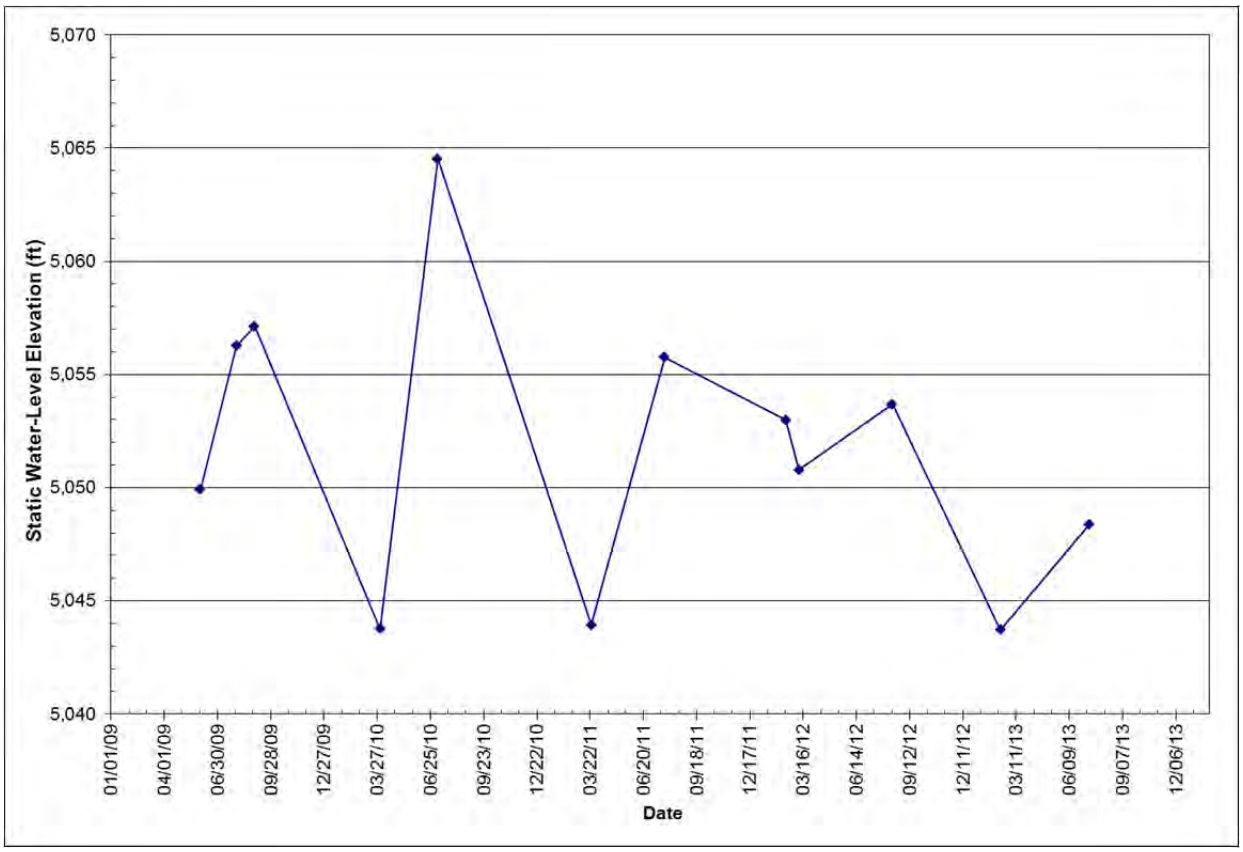


Figure 4.1-8. Water-level hydrograph for well NW-6S (MW-258) based upon semi-annual water-level measurements, 2009–2013.

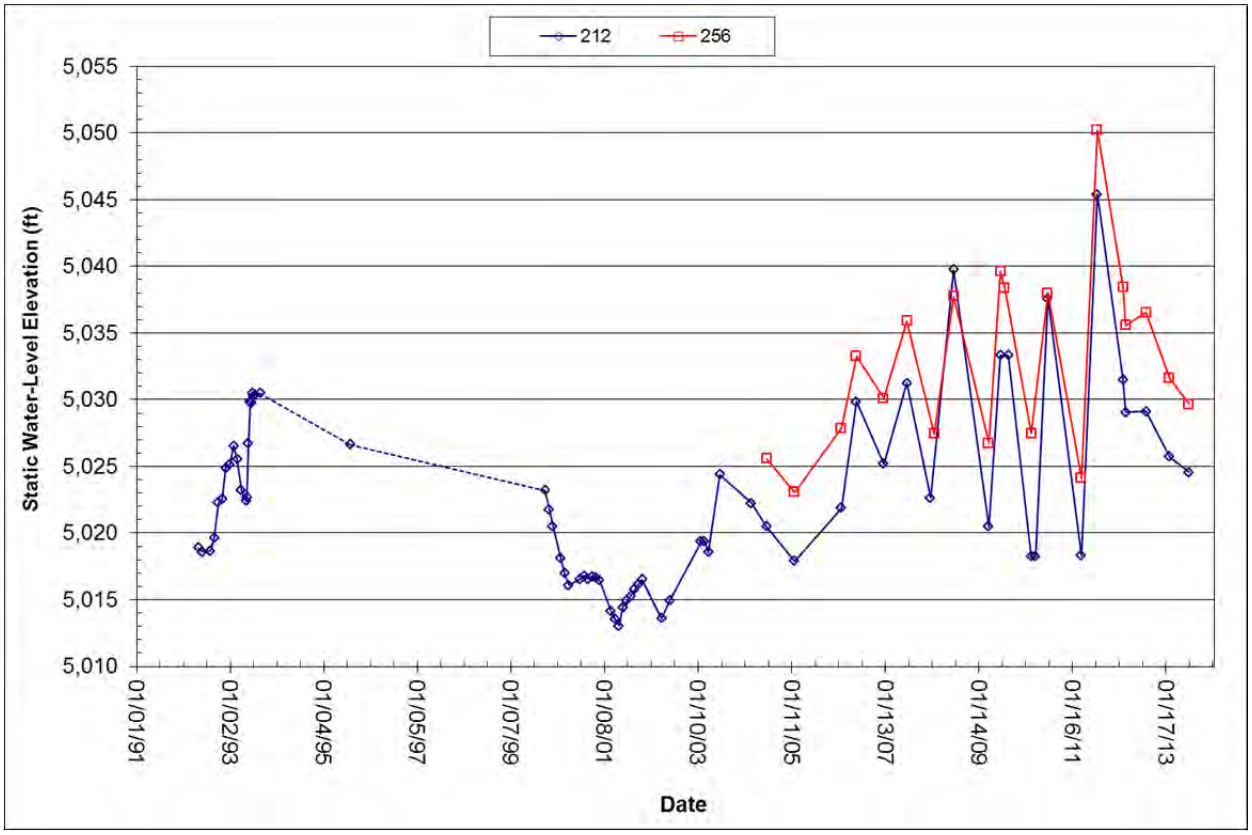


Figure 4.1-9. Water-level hydrographs for wells MW-212 and MW-256, located upgradient of the Opportunity Ponds.

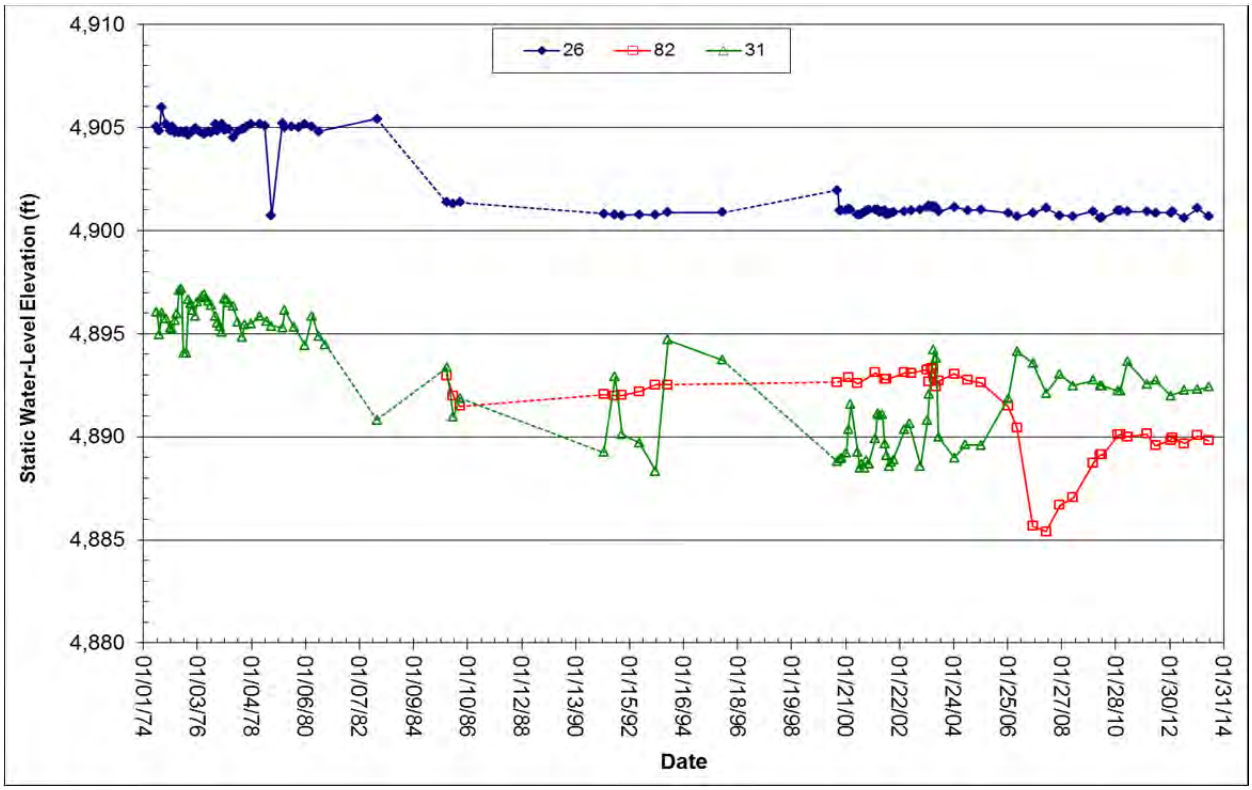


Figure 4.1-10. Water-level hydrographs for wells MW-26, MW-82, and MW-31, located along the northeast toe of the Opportunity Ponds.

## 4.2 Old Works Waste Management Area

The Old Works WMA contains 20 wells, 14 of which were monitored in 2013 (fig. 4.2-1), all completed in valley-fill. Major features within the WMA are: Old Works Golf Course, former Arbiter Plant, Anaconda–Deer Lodge Landfill, wastewater treatment plant, and Lost Creek Raceway. There is waste from the historic Old Works Smelter within the approximate 2.2 square miles that constitute the WMA.

Table 4.2-1 contains a listing of wells within the WMA monitored in 2013, along with well completion details and a listing of COCs for this group of wells. Four wells (POCs) were sampled during both 2013 sample events; however, the 10 event-sampled wells were not sampled during event-driven monitoring (high water), as the water level in well MW-213 did not reach the trigger elevation. Additional sampling of selected site wells is required when the water level reaches a predetermined elevation in monitoring well MW-213. This is discussed in section 4.2.3.

The COCs for this group of wells is more comprehensive and includes Cd, Cu, Pb, and Zn. Due to the nature of waste and historic processing facilities, Cd levels are a concern during periods of increased water levels. Table 4.2-2 contains a general summary of water-quality conditions for each of the wells within the WMA. Arsenic concentrations for the 2013 sampling are shown, along with the long-term average for each well. COCs that exceeded DEQ-7 water-quality standards are also noted. Appendix B contains 2013 water-quality data for sites in this WMA. The WMA contains one nested pair of wells.

### 4.2.1 Old Works Wells Water-Quality Results

Arsenic concentrations were below DEQ-7 standards in both 2013 sample events and in the long-term average for all wells in this WMA. However, cadmium concentrations exceeded the standard in the long-term average for five wells. Copper and zinc concentrations exceeded the standard in one well for the long-term average. All the water-quality exceedances occur in the event-sampled wells; none of the POC wells exceeded standards.

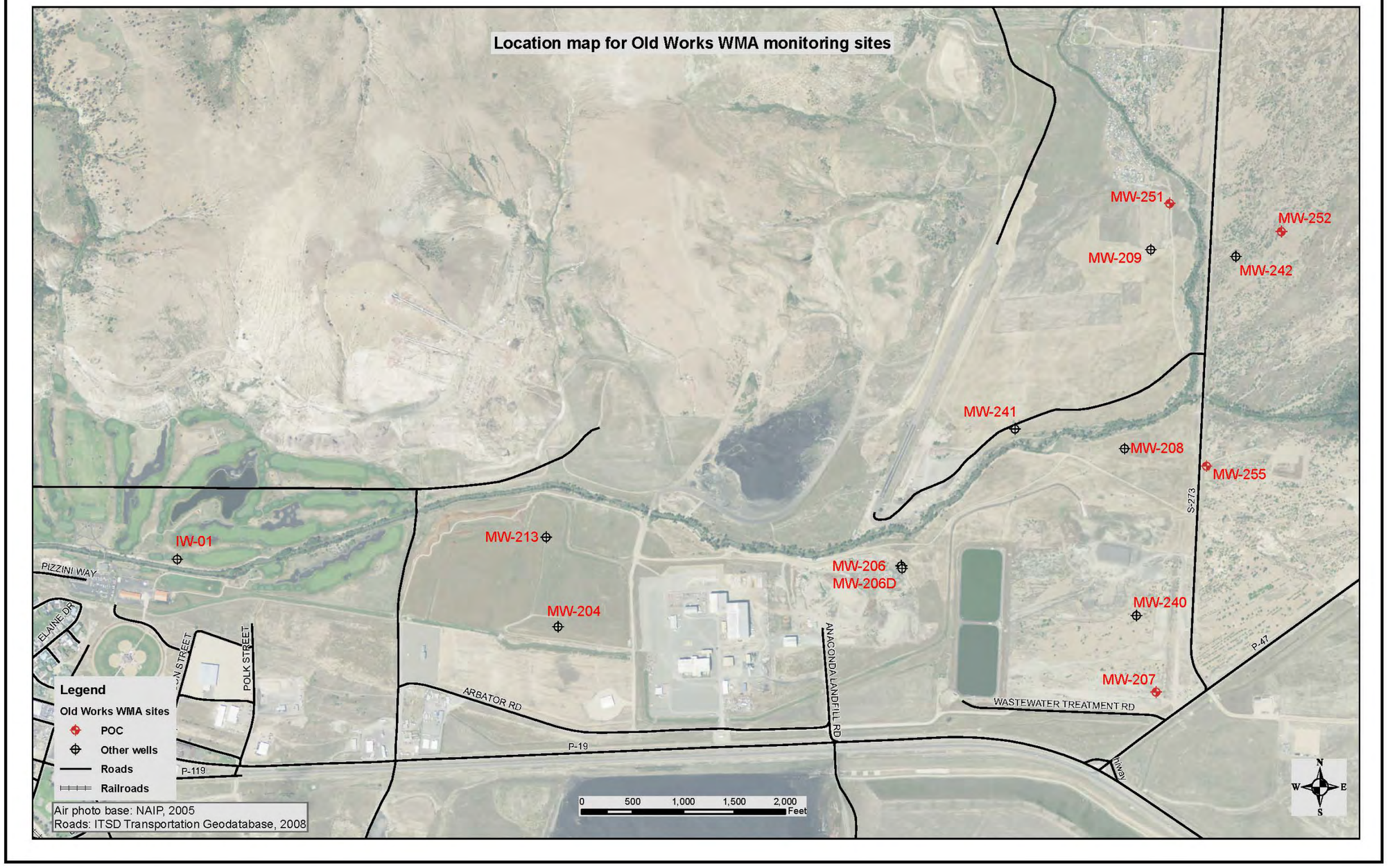


Figure 4.2-1. Location map for Old Works Waste Management Area monitoring sites.

Table 4.2-1. Old Works Waste Management Area monitoring wells, 2013.

| Well ID | GWIC ID | Total Depth (ft) | Screen Interval (ft) | Water-Quality Analytes |
|---|---|---|---|---|
| **Old Works** | | | | |
| IW-01 | 250038 | 46 | 22–42 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-204 | 250041 | 44.5 | 32–42 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-206 | 250042 | 50 | 28–43 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-206d | 254054 | 76 | 53–73 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-207 | 250043 | 103 | 77–92 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-208 | 250044 | 70 | 47–67 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-209 | 250045 | 70 | 49–69 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-213 | 138022 | 42 | 31–41 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-240 | 250047 | 87 | 77–87 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-241 | 250048 | 60 | 50–60 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-242 | 250049 | 67 | 57–67 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-251 | 250014 | 77 | 55–75 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-252 | 249797 | 76 | 55–75 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-255 | 250055 | 95 | 75–95 | As, Cd, Cu, Pb, Zn, Ca, Mg, Na, K, Fe, Mn, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |

Table 4.2-2. Old Works Waste Management Area water-quality summary.

| Well ID | GWIC ID | Screen Interval (ft) | Water Type | 2013 Low-Water Arsenic (µg/L) | 2013 High-Water Arsenic (µg/L) | Long-Term Average Arsenic (µg/L) | Comment |
|---|---|---|---|---|---|---|---|
| **Old Works** | | | | | | | |
| IW-01(EDW) | 250038 | 22–42 | Ca-$SO_4$ | — | — | 1.05 | No event-triggered sampling in 2013.Long-term Cu average exceeds DEQ-7 standard. |
| MW-204(EDW) | 250041 | 32–42 | Ca-$HCO_3$ | — | — | 1.23 | No event-triggered sampling in 2013. |
| MW-206(EDW) | 250042 | 28–43 | Ca-$HCO_3$ | — | — | 1.31 | No event-triggered sampling in 2013. Long-term Cd average exceeds DEQ-7 standard. |
| MW-206d(EDW) | 254054 | 53–73 | Ca-$HCO_3$ | — | — | 1.02 | No event-triggered sampling in 2013. Long-term Cd average exceeds DEQ-7 standard. |
| MW-207(POC) | 250043 | 77–92 | Ca-$HCO_3$ | 0.74 | 0.75 | 1.14 | No COC exceedances. |
| MW-208(EDW) | 250044 | 47–67 | Ca-$HCO_3$ | — | — | 1.32 | No event-triggered sampling in 2013. |
| MW-209(EDW) | 250045 | 49–69 | Ca-$HCO_3$ | — | — | 1.10 | No event-triggered sampling in 2013. Long-term Cd average exceeds DEQ-7 standard. |
| MW-213(EDW) | 138022 | 31–41 | Ca-$SO_4$ | — | — | 1.00 | No event-triggered sampling in 2013. Long-term Cd, Cu, and Zn averages exceed DEQ-7 standards. |
| MW-240(EDW) | 250047 | 77–87 | Ca-$HCO_3$ | — | — | 0.87 | No event-triggered sampling in 2013. |
| MW-241(EDW) | 250048 | 50–60 | Ca-$HCO_3$ | — | — | 0.82 | No event-triggered sampling in 2013. |
| MW-242(EDW) | 250049 | 57–67 | Ca-$HCO_3$ | — | — | 0.83 | No event-triggered sampling in 2013. |
| MW-251(POC) | 250014 | 55–75 | Ca-$SO_4$ | 0.45 | 0.49 | 0.76 | No COC exceedances. |
| MW-252(POC) | 249797 | 55–75 | Ca-$HCO_3$ | 0.43 | 0.42 | 0.66 | No COC exceedances. |
| MW-255(POC) | 250055 | 75–95 | Ca-$HCO_3$ | 0.83 | 0.79 | 0.77 | No COC exceedances. |

*Note.* EDW, well sampled when triggered by water-level elevation in MW-213.

Well MW-207 is located in the southeast corner of this WMA and is completed at intermediate depth with screen intervals between 77 and 92 ft. The well has a Ca-$HCO_3$ water type with no COC exceedances in the 2013 samples or long-term averages. Arsenic concentrations exhibited occasional seasonal variations prior to 2008; since then seasonal variations have not occurred and concentrations have been consistently less than 1 µg/L (fig. 4.2-2). Water-quality samples were collected once each in 1991 and 1995, with samples collected three times a year in 1992 and 1993. Water-quality samples have been collected semi-annually since 2000.

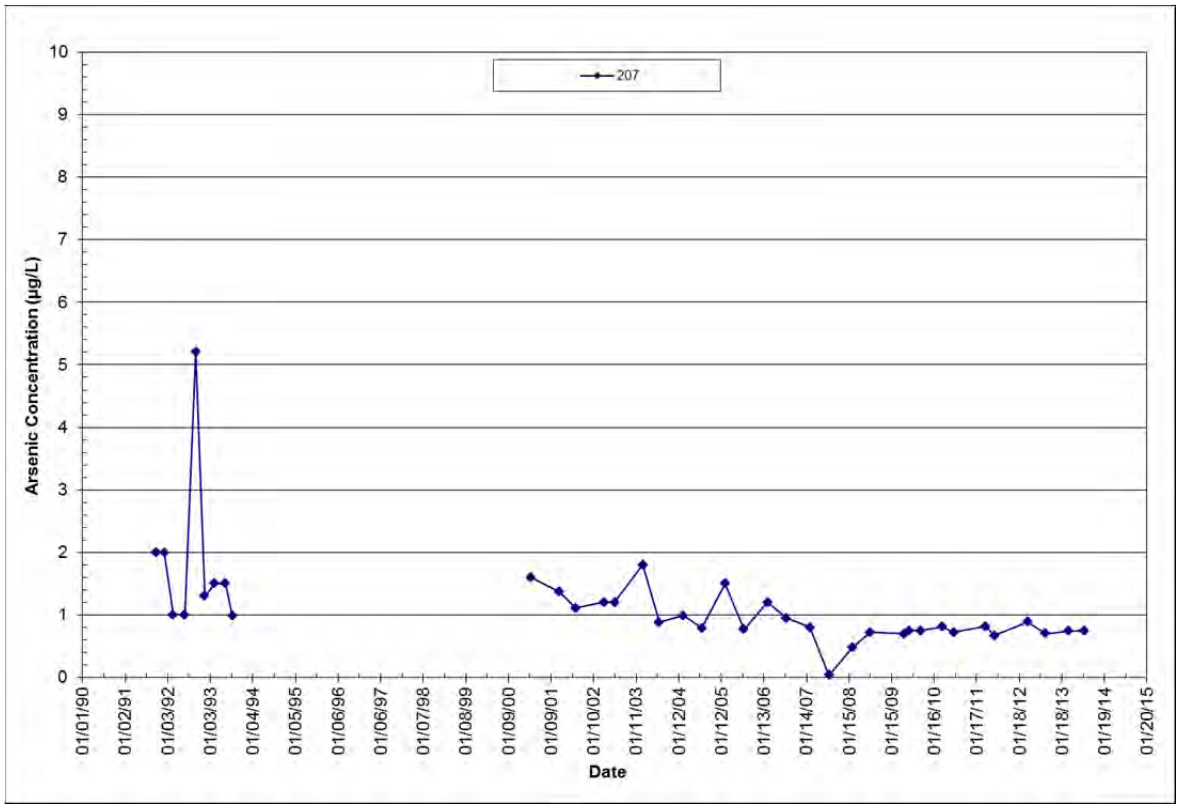


Figure 4.2-2. Arsenic concentrations over time for well MW-207.

Well MW-251 is located in the northeast corner of the Lost Creek Raceway and is completed at a depth of 77 ft, with the screen interval between 55 and 75 ft. The well water was a Ca-$SO_4$ type. Figure 4.2-3 shows arsenic concentrations over time. None of the COC concentrations in well MW-251 exceeded DEQ-7 standards.

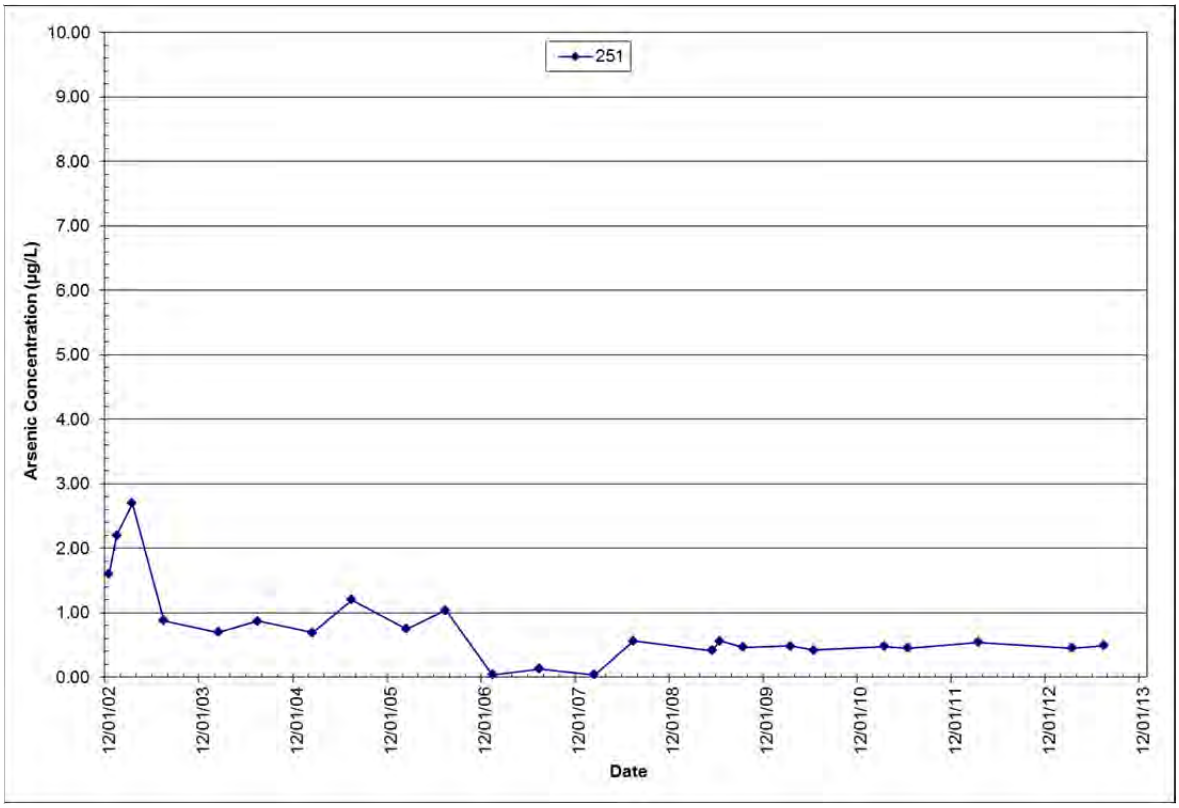


Figure 4.2-3. Arsenic concentrations over time for well MW-251.

Wells MW-252 and MW-255 are located on the far eastern side of the WMA on the east side of secondary highway 273 (fig. 4.2-1). Well MW-252 is completed at a depth of 76 ft (screen interval 55–75 ft), while well MW-255 is completed at a depth of 95 ft (screen interval 75–95 ft; table 4.2-2). Both wells are Ca-$HCO_3$ type water and have no COCs above standards. Figure 4.2-4 shows long-term arsenic concentrations for these wells. Well MW-252 was sampled once in 2002 and semi-annually from 2003 to 2013, while well MW-255 has been sampled semi-annually from 2004 to 2013.

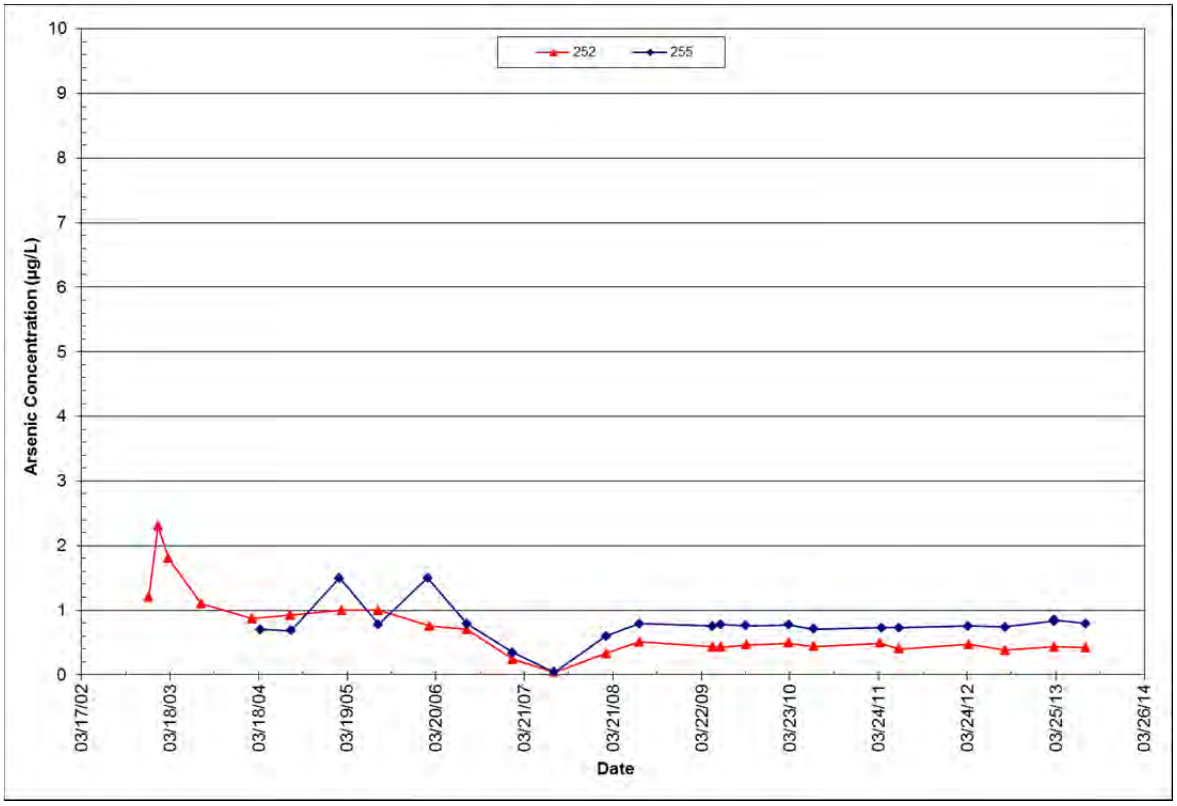


Figure 4.2-4. Arsenic concentrations over time for wells MW-252 and MW-255.

Arsenic concentrations in the Old Works WMA POC wells were well below DEQ-7 standards, with the maximum 2013 concentration being 0.83 µg/L. No COC exceedances were noted in any of the four POC wells.

### 4.2.2 Old Works Groundwater Levels

Warm Springs Creek crosses this WMA and is the major hydrologic feature. Groundwater flow direction is typically parallel to the creek (west to east) except during periods of high stream flow, when the creek becomes a losing stream from the Red Sands area east (plates 2 and 3).

Water levels have a net increase in all four POC wells within this WMA (table 4.2-3). Net water-level changes range from a decrease of 4 ft to an increase of more than 10 ft. The largest water-level increases occur in wells on the east and northeast portion of the site.

Figures 4.2-5 and 4.2-6 show long-term water-level fluctuations for wells on the southeast (MW-207 and MW-255) and northeast (MW-251 and MW-252) portions of the site. Water levels show considerable variation between low-water and high-water sample events, with fluctuations ranging from 1 to 7 ft during 2013. These seasonal fluctuations were less than those seen in the past 3 to 4 years.

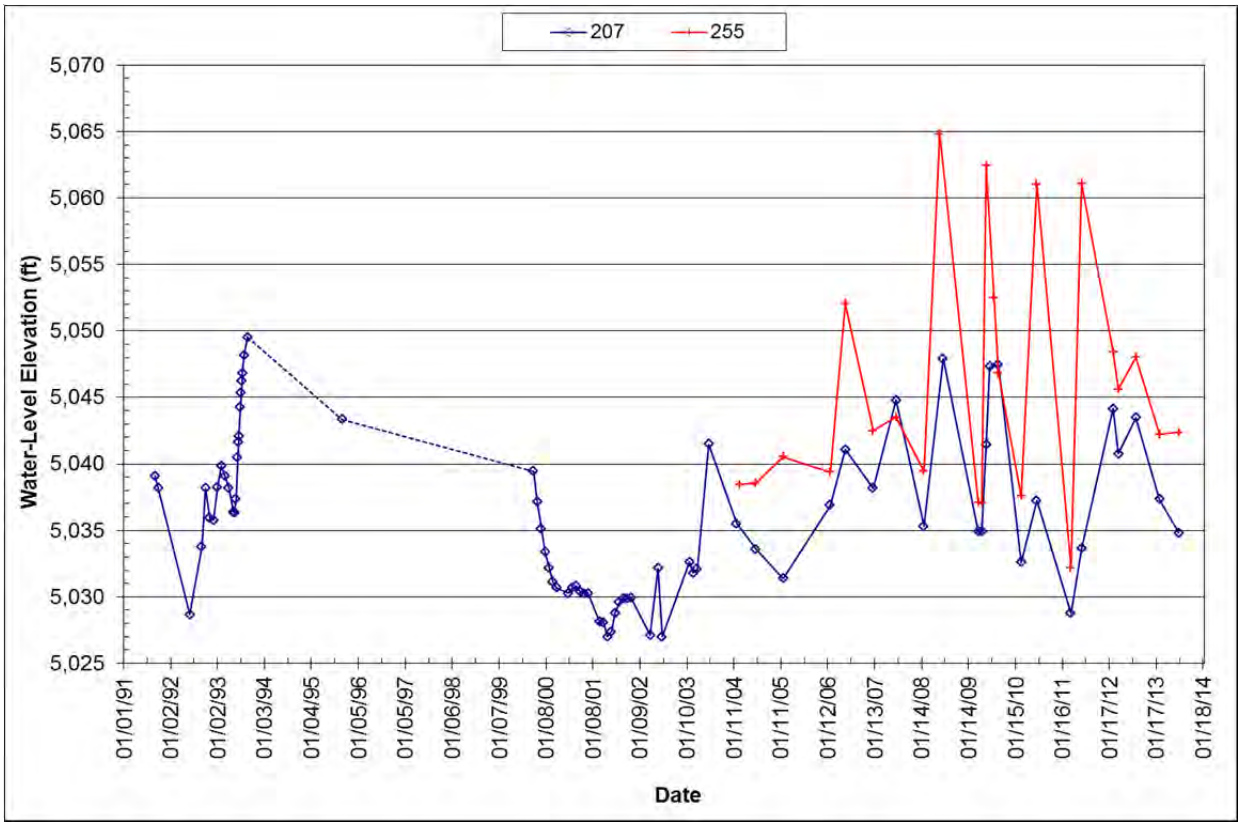


Figure 4.2-5. Water-level hydrographs for wells MW-207 and MW-255, located in the southeast corner of the Old Works WMA.

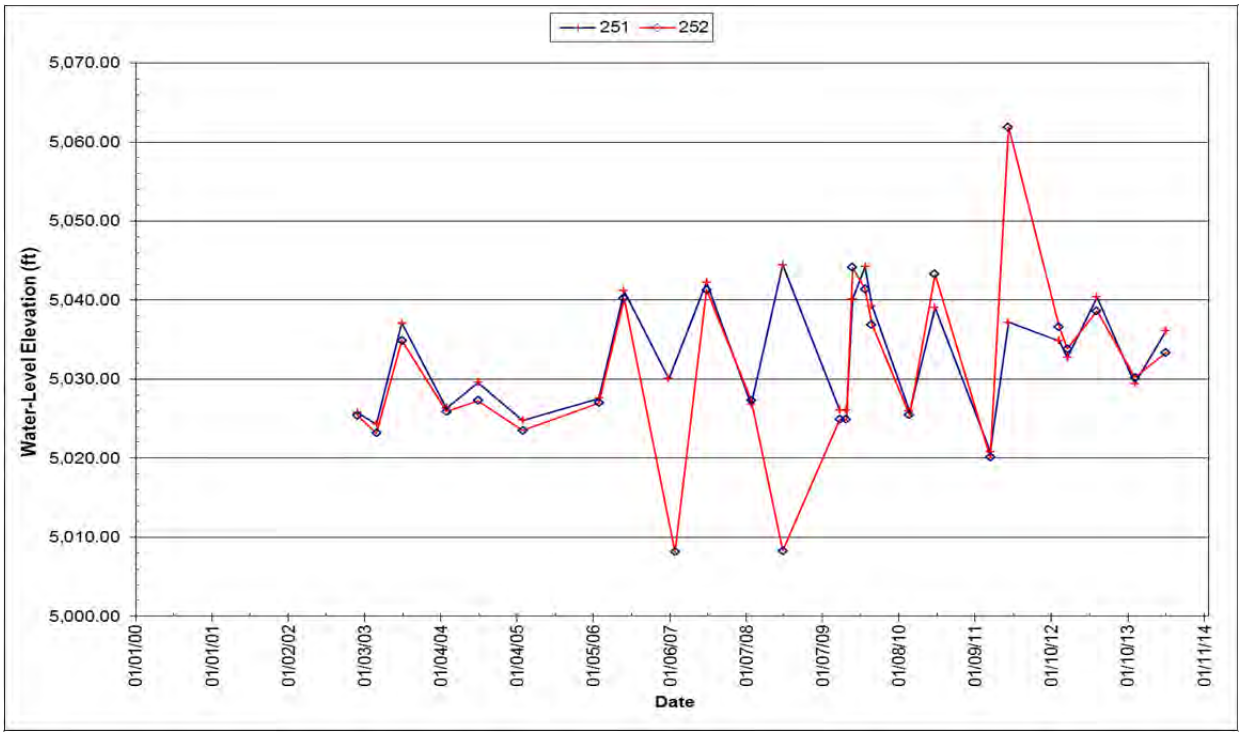


Figure 4.2-6. Water-level hydrographs for wells MW-251and MW-252, located in the northeast portion of the Old Works WMA.

Table 4.2-3. Net water-level changes for Old Works monitoring wells, 2013.

| Old Works | | | | |
|---|---|---|---|---|
| Well ID | Total Depth (ft) | Screen Interval (ft) | Aquifer | Net Water-Level Change (ft) |
| IW-01 | 46 | 22–42 | Valley-fill med-fine | NA |
| MW-204 | 44.5 | 32–42 | Valley-fill coarse | 0.68 |
| MW-206 | 50 | 28–43 | Valley-fill coarse | -2.08 |
| MW-206d | 76 | 53–73 | Valley-fill med-fine | -1.33 |
| MW-207 (POC) | 103 | 77–92 | Valley-fill med-fine | -4.30 |
| MW-208 | 70 | 47–67 | Valley-fill coarse | 3.54 |
| MW-209 | 70 | 49–69 | Valley-fill med-fine | -0.32 |
| MW-213 | 42 | 31–41 | Valley-fill med-fine | -3.16 |
| MW-240 | 87 | 77–87 | Valley-fill med-fine | -1.28 |
| MW-241 | 60 | 50–60 | Valley-fill med-fine | -2.91 |
| MW-242 | 67 | 57–67 | Valley-fill coarse | 5.93 |
| MW-251 (POC) | 77 | 55–75 | Valley-fill coarse | 10.37 |
| MW-252 (POC) | 76 | 55–75 | Valley-fill coarse | 7.99 |
| MW-255 (POC) | 95 | 75–95 | Valley-fill coarse | 3.89 |

*Note.* NA, not available.

### 4.2.3 Event-Driven Monitoring

The 2009 Monitoring Program included a provision requiring additional groundwater sampling of wells within the Old Works WMA when water levels reached a predetermined elevation. This provision was continued in the 2013 sampling program. Sampling is specific to cadmium and is based upon the water-level elevation in monitoring well MW-213. EPA and DEQ determined that once the water level reached an elevation of 5,156.50 ft in MW-213, leaching of cadmium from waste left in place might occur. Fourteen monitoring wells (table 4.2-2) were identified for sampling. It was specified that sampling of the monitoring wells would take place within 2 weeks of the water level reaching the trigger elevation.

In 2009, a pressure transducer was installed in well MW-213 and programmed to record water levels every hour. Following installation of the transducer, a remote monitoring telemetry system was installed at the well site (fig. 4.2-7). The system was programmed to notify MBMG personnel when the water level reached the trigger elevation.

Figure 4.2-8 shows the hydrograph for well MW-213 based upon transducer data from the date of its installation (4/9/2009) through December 2013. Water levels failed to exceed the trigger elevation during 2013; therefore, no water samples were collected.

Table 4.2-4 contains cadmium concentrations for the 4 POC wells during low- and high-water sampling.


Figure 4.2-7. Telemetry system installed at well MW-213.

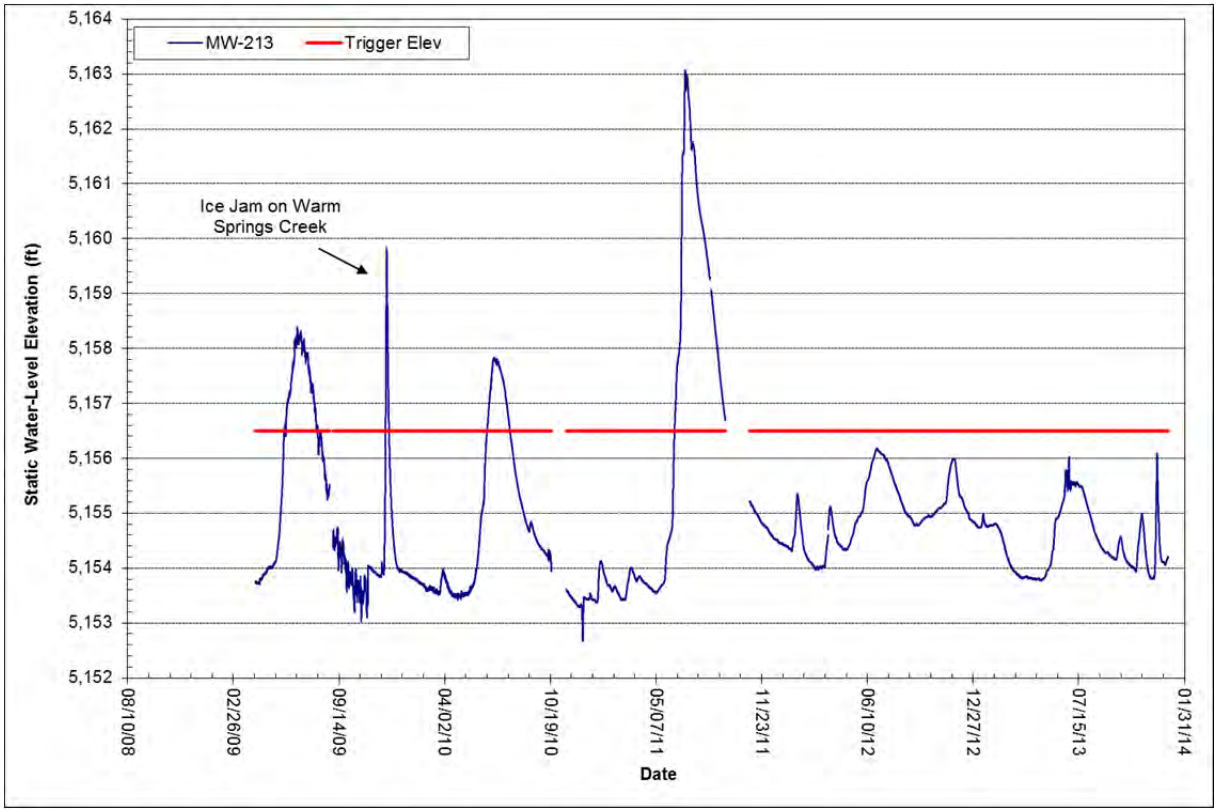


Figure 4.2-8. Water-level hydrograph for MW-213 based upon transducer data.

Table 4.2-4. Cadmium concentrations for event-driven monitoring wells.

| Well ID | Screen Interval (ft) | Water Type | 2013 Low-Water Cadmium (µg/L) | 2013 Event-Driven Cadmium (µg/L) | 2013 High-Water Cadmium (µg/L) | Comment |
|---|---|---|---|---|---|---|
| **Old Works** | | | | | | |
| IW-01(EDW) | 22–42 | Ca-$SO_4$ | — | — | | No event-driven sampling in 2013. |
| MW-204(EDW) | 32–42 | Ca-$HCO_3$ | — | — | — | No event-driven sampling in 2013. |
| MW-206(EDW) | 28–43 | Ca-$HCO_3$ | — | — | — | No event-driven sampling in 2013. |
| MW-206d(EDW) | 53–73 | Ca-$HCO_3$ | — | — | — | No event-driven sampling in 2013. |
| MW-207(POC-EDW) | 77–92 | Ca-$HCO_3$ | <0.10 | — | <0.10 | No event-driven sampling in 2013. |
| MW-208(EDW) | 47–67 | Ca-$HCO_3$ | — | — | — | No event-driven sampling in 2013. |
| MW-209(EDW) | 49–69 | Ca-$HCO_3$ | — | — | — | No event-driven sampling in 2013. |
| MW-213(EDW) | 31–41 | Ca-$SO_4$ | — | — | -- | No event-driven sampling in 2013. |
| MW-240(EDW) | 77–87 | Ca-$HCO_3$ | — | — | — | No event-driven sampling in 2013. |
| MW-241(EDW) | 50–60 | Ca-$HCO_3$ | — | — | — | No event-driven sampling in 2013. |
| MW-242(EDW) | 57–67 | Ca-$HCO_3$ | — | — | — | No event-driven sampling in 2013. |
| MW-251(POC-EDW) | 55–75 | Ca-$SO_4$ | <0.10 | — | 1.06 | No event-driven sampling in 2013. |
| MW-252(POC-EDW) | 55–75 | Ca-$HCO_3$ | 1.23 | — | 1.48 | No event-driven sampling in 2013. |
| MW-255(POC-EDW) | 75–95 | Ca-$HCO_3$ | <0.10 | — | <0.10 | No event-driven sampling in 2013. |
| **Domestic Wells** | | | | | | |
| East End Town Pump | 55–600 | Na-$HCO_3$ | — | — | — | No event-driven sampling in 2013. |
| Mike's Sales and Pawn | — | — | — | — | — | No event-driven sampling in 2013. |

*Note.* EDW, well sampled when triggered by water-level elevation in MW-213.

## 4.3 South Opportunity/Yellow Ditch Area of Concern

The South Opportunity/Yellow Ditch AOC contains seven wells for the 2013 monitoring program (fig. 4.3-1). The wells are all completed in valley-fill material, ranging from coarse to fine sand in the shallower completed wells. All the wells are located south and southwest of the town of Opportunity. The AOC consists of approximately 25 square miles. Physical parameters and water-quality samples were collected from monitoring wells during both low- and high-water sampling events.

Table 4.3-1 contains a listing of the wells within this AOC, along with completion details and a listing of COCs. The primary COC for this area is arsenic. There are three groups of nested pair wells spread throughout this area, which were installed during 2009. Table 4.3-2 contains a summary of water type and arsenic concentrations for 2013 samples, plus the long-term arsenic average. Appendix C contains water-quality data from 2013 samples.

### 4.3.1 South Opportunity/Yellow Ditch Area of Concern Water Quality

Arsenic concentrations in the 2013 samples were below DEQ-7 standards in all wells. Similar occurrences were observed in the long-term arsenic averages. All seven wells have a Ca-$HCO_3$ water type.

Six monitoring wells were installed in 2009 as part of the monitoring program, with wells nested in shallow and deep pairs at three locations (table 4.3-2). These six wells were identified as potential point of compliance sites. If water quality results show that DEQ-7 standards were met following four sample events the wells would then be considered POC sites. Water-quality results show that these wells meet this criteria and are shown as POC wells. These six new wells were sampled during both sampling events; however, water levels were below the bottom of the screen interval in well LTW-4SOS (MW-260) during the low-water sampling, so no sample was obtained. A replacement well (LTW-4SOSR (MW-274)) was installed in 2011 with the screen interval extending 8 ft deeper; this well was also dry during low-water sampling in 2013. Arsenic concentrations were considerably higher in the shallow wells than in the deeper wells at the LTW-1 and LTW-3 sites (figs. 4.3-2 and 4.3-3). Arsenic concentrations were similar in the shallow and deep wells at the LTW-4 (fig. 4.3-4) site. All six of these wells are located to the south and southwest of Opportunity.

Well MW-9 (55 ft deep) is located between the LTW-1 and LTW-4 groups of wells and had very low arsenic concentrations in 2013 samples (fig. 4.3-5). Water-quality data only exist for this well since 2009; therefore, the long-term average is based on only 10 samples.

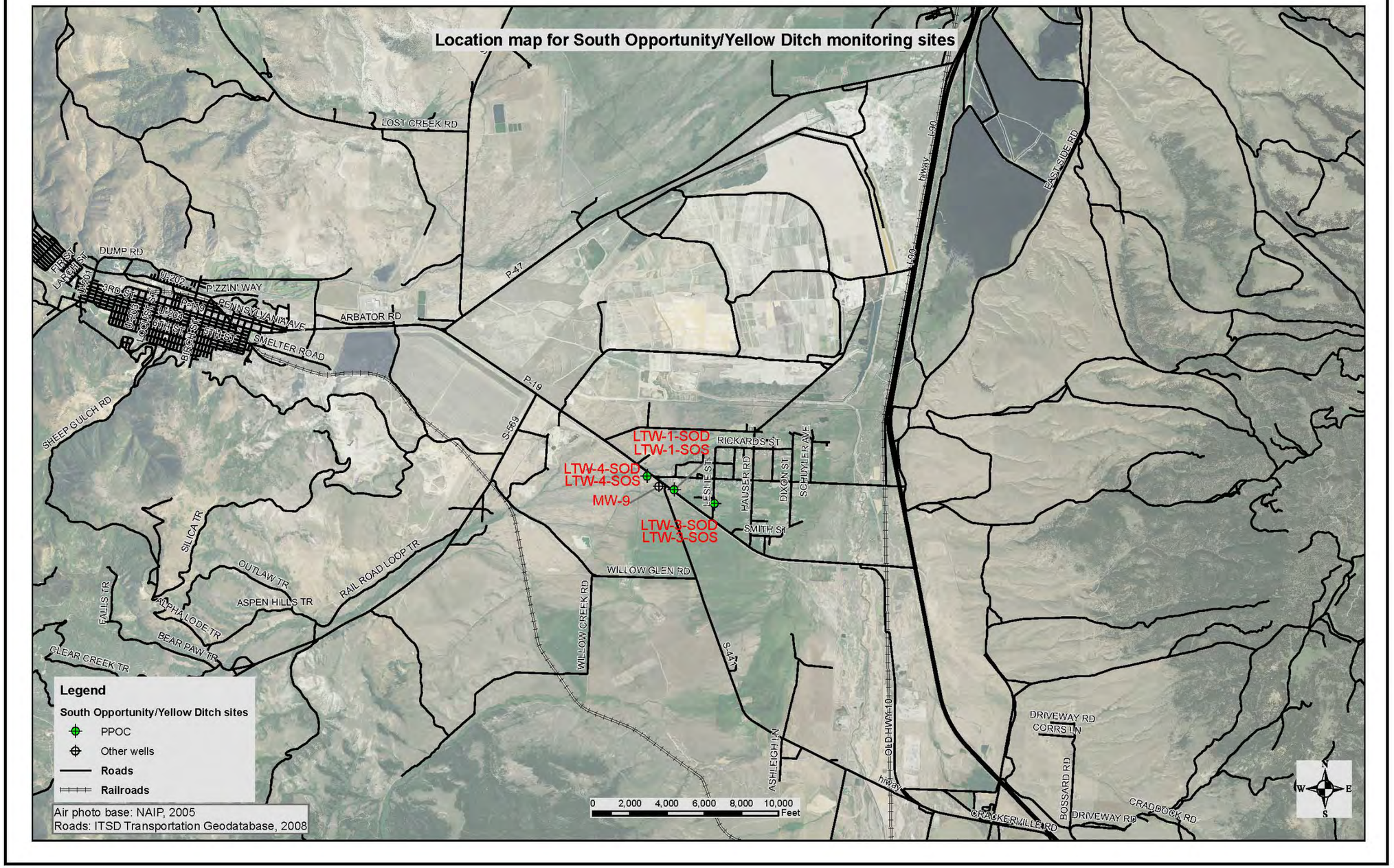


Figure 4.3-1. Location map for South Opportunity/Yellow Ditch Area of Concern monitoring sites.

Table 4.3-1. South Opportunity/Yellow Ditch Area of Concern water-quality COC.

| South Opportunity/Yellow Ditch AOC | | | | |
|---|---|---|---|---|
| **Well ID** | **New ID** | **Total Depth (ft)** | **Screen Interval (ft)** | **Water-Quality Analytes** |
| LTW-1-SOS | **MW-264** | 23 | 13–23 | As, Fe, Ca, Mg, Na, K, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| LTW-1-SOD | **MW-263** | 40 | 30–40 | As, Fe, Ca, Mg, Na, K, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| LTW-3-SOS | **MW-262** | 19 | 9–19 | As, Fe, Ca, Mg, Na, K, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| LTW-3-SOD | **MW-261** | 40 | 30–40 | As, Fe, Ca, Mg, Na, K, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| MW-9 (lab) | | 55 | 41–46 | As, Fe, Ca, Mg, Na, K, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| LTW-4-SOS | **MW-260** | 22 | 7.5–17.5 | As, Fe, Ca, Mg, Na, K, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| LTW-4-SOS-R | **MW-274** | 27 | 7–25 | As, Fe, Ca, Mg, Na, K, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |
| LTW-4-SOD | **MW-259** | 38 | 28–38 | As, Fe, Ca, Mg, Na, K, $HCO_3$, CO3, Cl, $SO_4$, pH, SC, TDS, Hardness |

Table 4.3-2. South Opportunity/Yellow Ditch Area of Concern water-quality summary.

| | South Opportunity/Yellow Ditch AOC | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Well ID** | **New ID** | **GWIC ID** | **Screen Interval (ft)** | **Water Type** | **2013 Low-Water Arsenic (µg/L)** | **2013 High-Water Arsenic (µg/L)** | **Long-Term Arsenic Average (µg/L)** | **Comment** |
| LTW-1-SOS | **MW-264** | 249937 | 13–23 | Ca-$HCO_3$ | 1.50 | 4.63 | 3.67 | Well installed spring 2009; only nine samples |
| LTW-1-SOD | **MW-263** | 249936 | 30–40 | Ca-$HCO_3$ | 0.42 | 0.38 | 0.43 | Well installed spring 2009; only nine samples |
| LTW-3-SOS | **MW-262** | 249939 | 9–19 | Ca-$HCO_3$ | 1.85 | 7.30 | 2.93 | Well installed spring 2009; only seven samples |
| LTW-3-SOD | **MW-261** | 249938 | 30–40 | Ca-$HCO_3$ | 0.40 | 0.42 | 0.39 | Well installed spring 2009; only nine samples |
| MW-9 (lab) | | 249898 | 41–46 | Ca-$HCO_3$ | 0.25 | 0.27 | 0.25 | |
| LTW-4-SOS | **MW-260** | 249941 | 7.5–17.5 | Ca-$HCO_3$ | — | — | 0.54 | Well installed spring 2009; no low-water sample 2013; well dry, only four samples |
| LTW-4-SOS-R | **MW-274** | 264393 | 7–27 | Ca-$HCO_3$ | — | 0.59 | 0.57 | Well installed 2011 as replacement for MW-259; no low-water sample 2013-well dry, only two samples |
| LTW-4-SOD | **MW-259** | 249940 | 28–38 | Ca-$HCO_3$ | 0.45 | 0.46 | 0.46 | Well installed spring 2009; only nine samples |

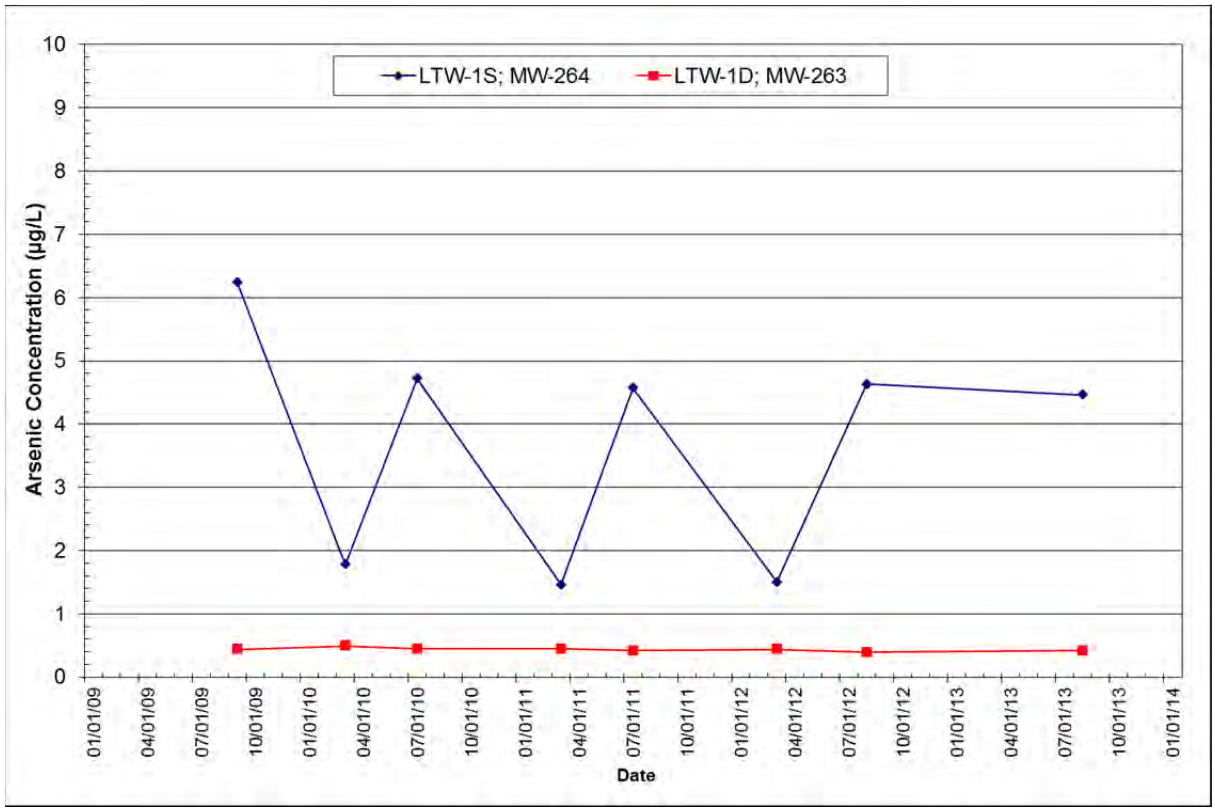


Figure 4.3-2. Arsenic concentrations over time for nested wells LTW-1-SOS (MW-264) and LTW-1-SOD (MW-263).

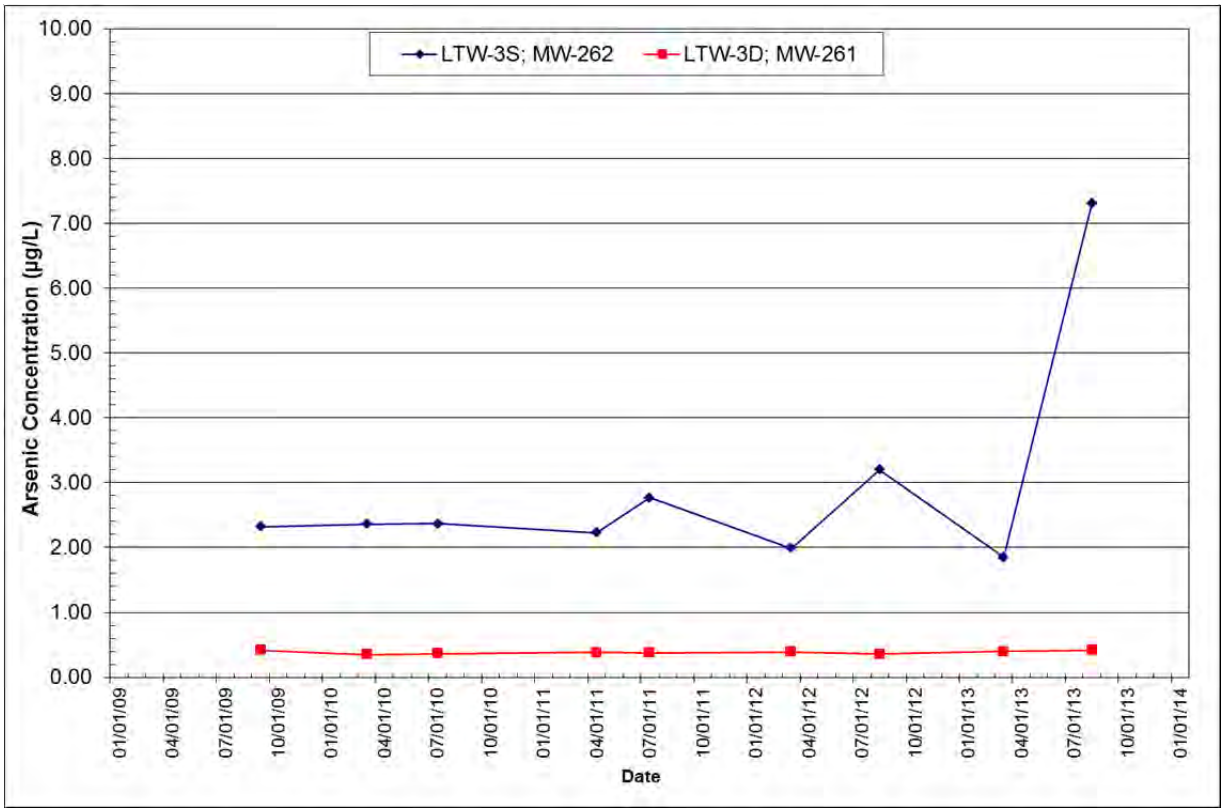


Figure 4.3-3. Arsenic concentrations over time for nested wells LTW-3-SOS (MW-262) and LTW-3-SOD (MW-261).

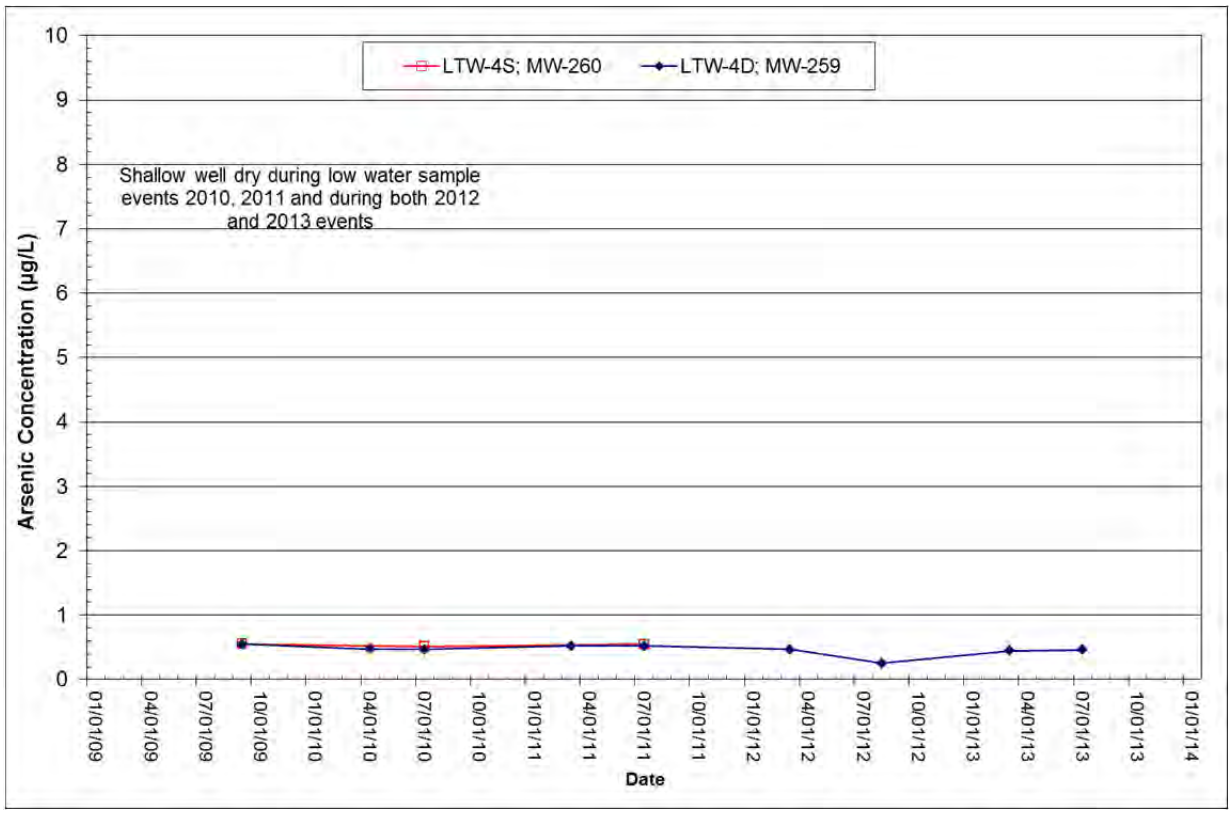


Figure 4.3-4. Arsenic concentrations over time for nested wells LTW-4-SOS (MW259) and LTW-4-SOD (MW-260).

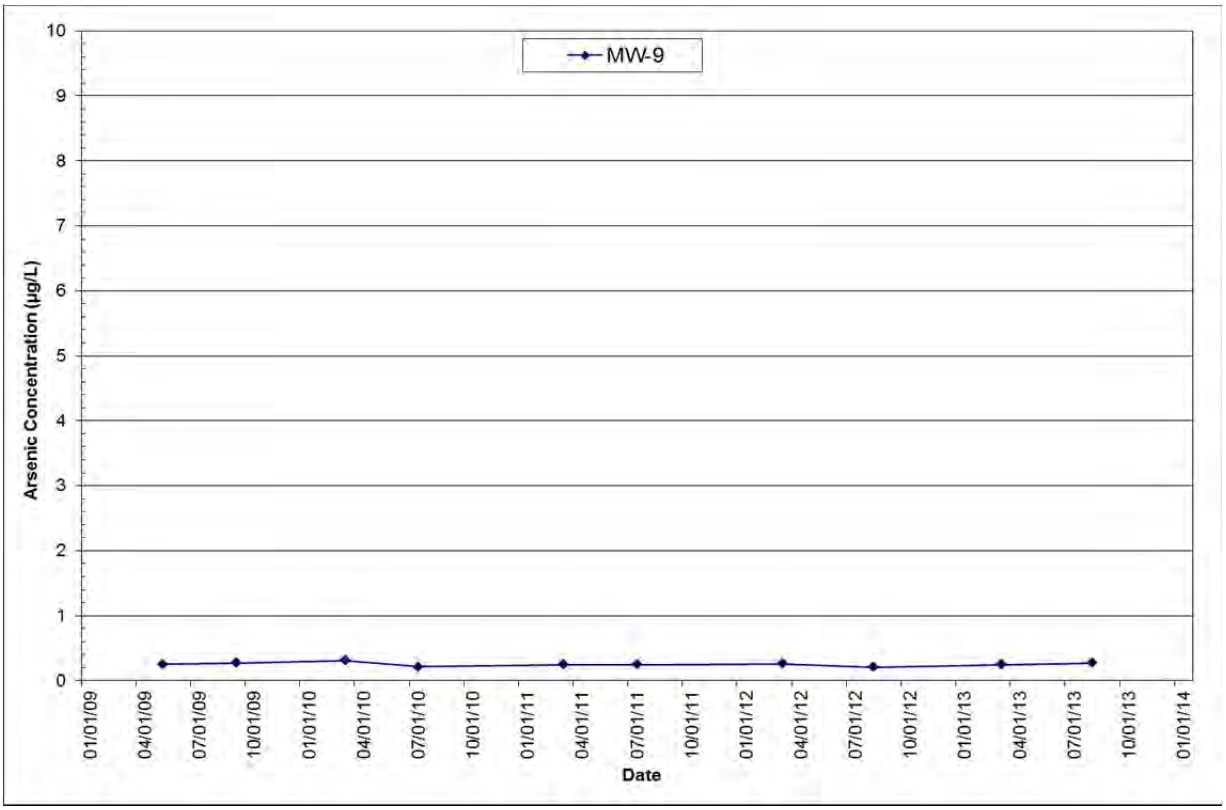


Figure 4.3-5. Arsenic concentrations over time for well MW-9.

### 4.3.2 South Opportunity/Yellow Ditch Water-Level Observations

Six of the seven monitoring wells in this portion of the ARWWS site were installed in 2009 and have limited water-level data. Table 4.3-3 shows net water-level change and general aquifer characteristics for each well.

Mill Creek bounds this AOC on the west, while Willow Creek bounds the site on the east. Groundwater flow direction is from the southwest to the northeast (plates 2 and 3). The shallow aquifer is composed of coarse sand valley-fill, while the deeper aquifer contains some medium- to fine-grained sand valley-fill material.

Large water-level fluctuations can occur in wells adjacent to streams or stream tributaries. Figures 4.3-6, 4.3-7, and 4.3-8 show water-level hydrographs for the three nested well pairs located in the south and southwest portion of the AOC. Figure 4.3-9 shows the water-level hydrograph for well MW-9. Water levels can vary seasonally between 3 and 25 ft in these wells. Water-level hydrographs based upon semi-annual measurements do not provide an accurate representation of water-level changes throughout the year. Pressure transducers that record water levels every hour were installed in the three nested well pairs; figures 4.3-10 through 4.3-12 show the daily average water level for these sites. Water levels reached their peak in mid-July during 2013, before declining the remainder of the year. Well pair LTW-3 shows a different trend (figure 4.3-11) throughout the summer and early fall, which may be related to operation of the irrigation ditch system located near these wells. From mid-May through early September, frequent spikes in water levels occur, which appear to correspond to periods when flows are occurring in irrigation ditches, flood irrigation is occurring, or both. Water levels respond in a similar fashion in both the shallow and deep well at each well pair.

The shallow well in the nested well pair at site LTW-4 went dry the fall of 2011, and a replacement well was installed the fall of 2011 (LTW-4-SOSR, MW-274) in an attempt to track changes in the shallow water system. The replacement well was drilled to a depth of 27 ft and screened between 7 and 27 ft. The water levels for this well are shown in green in figure 4.3-12. Well LTW-4-SOS was dry throughout 2013, while the replacement well had water from June through December.

Table 4.3-3. Net water-level changes for wells in the South Opportunity/ Yellow Ditch AOC.

| Well ID | New ID | GWIC ID | Total Depth (ft) | Screen Interval (ft) | Aquifer | Net Water-Level Change (ft) |
|---|---|---|---|---|---|---|
| LTW-1-SOS | MW-264 | 249937 | 23 | 13–23 | Valley-fill coarse | -7.06 |
| LTW-1-SOD | MW-263 | 249936 | 40 | 30–40 | Valley-fill coarse | -8.06 |
| LTW-3-SOS | MW-262 | 249939 | 19 | 9–19 | Valley-fill coarse | -0.20 |
| LTW-3-SOD | MW-261 | 249938 | 40 | 30–40 | Valley-fill coarse | -0.35 |
| MW-9 (lab) | | 249898 | 55 | 41–46 | NR | 4.02 |
| LTW-4-SOS | MW-260 | 249941 | 22 | 7.5–17.5 | Valley-fill coarse | -15.73 |
| LTW-4-SOS-R | MW-274 | 264393 | 27 | 7–27 | Valley-fill coarse | -0.54 |
| LTW-4-SOD | MW-259 | 249940 | 38 | 28–38 | Valley-fill coarse | -16.63 |

*Note.* NR, not reported.

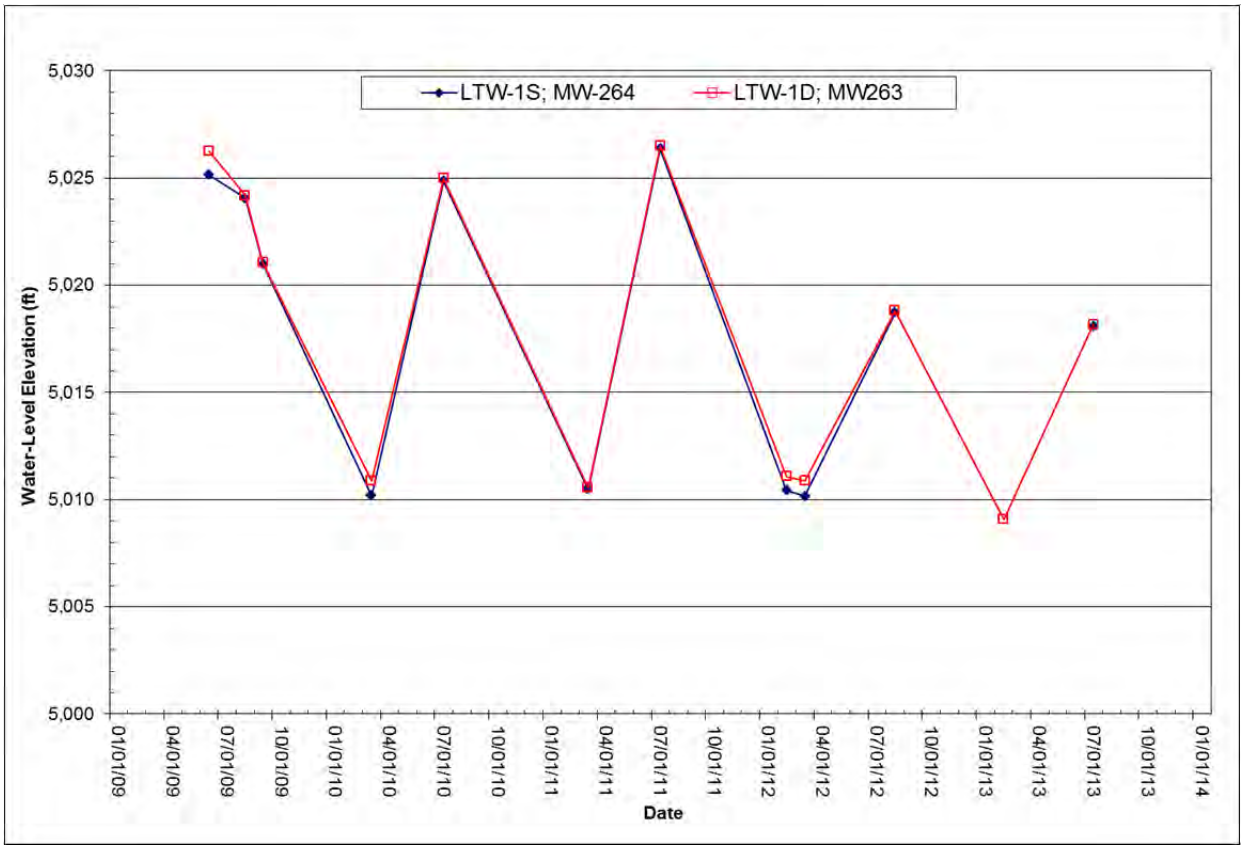


Figure 4.3-6. Water-level hydrograph for nested wells LTW-1-SOS (MW-264) and LTW-1-SOD (MW-263).

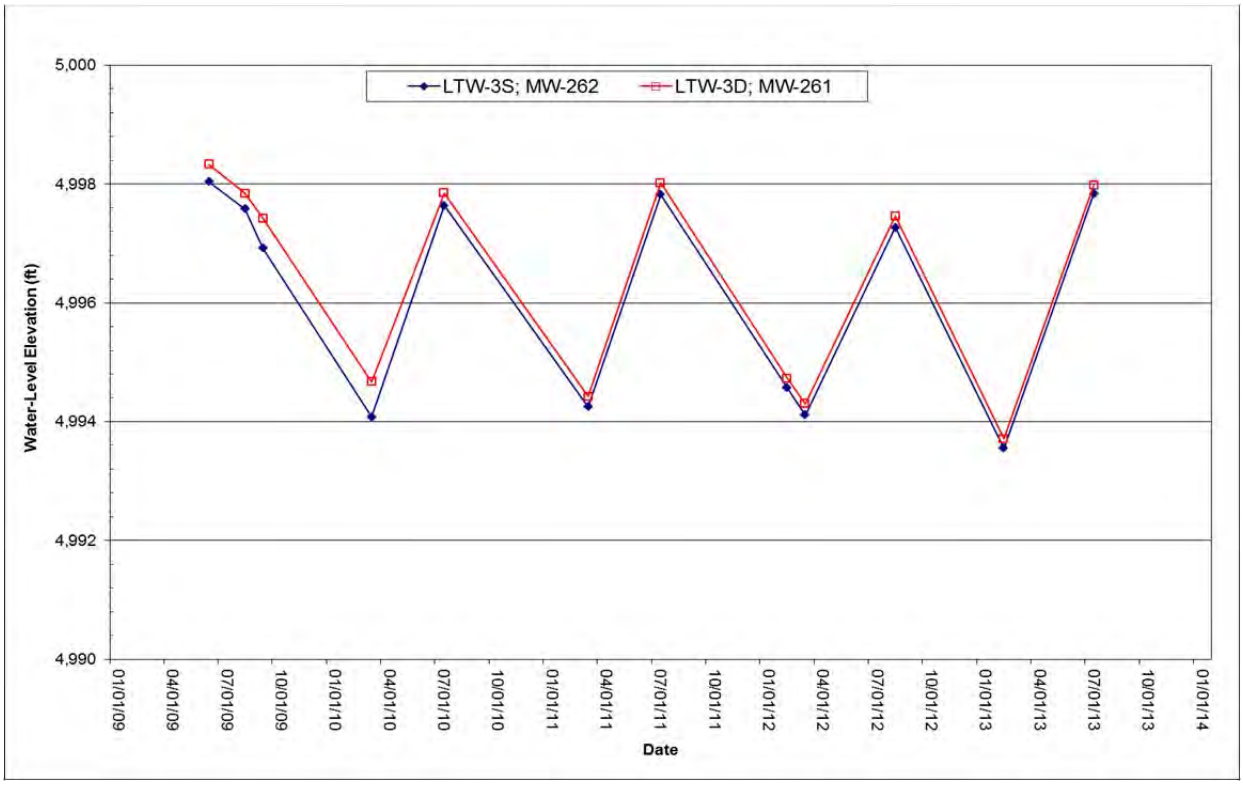


Figure 4.3-7. Water-level hydrograph for nested wells LTW-3-SOS (MW-MW-262) and LTW-3-SOD (MW-261).

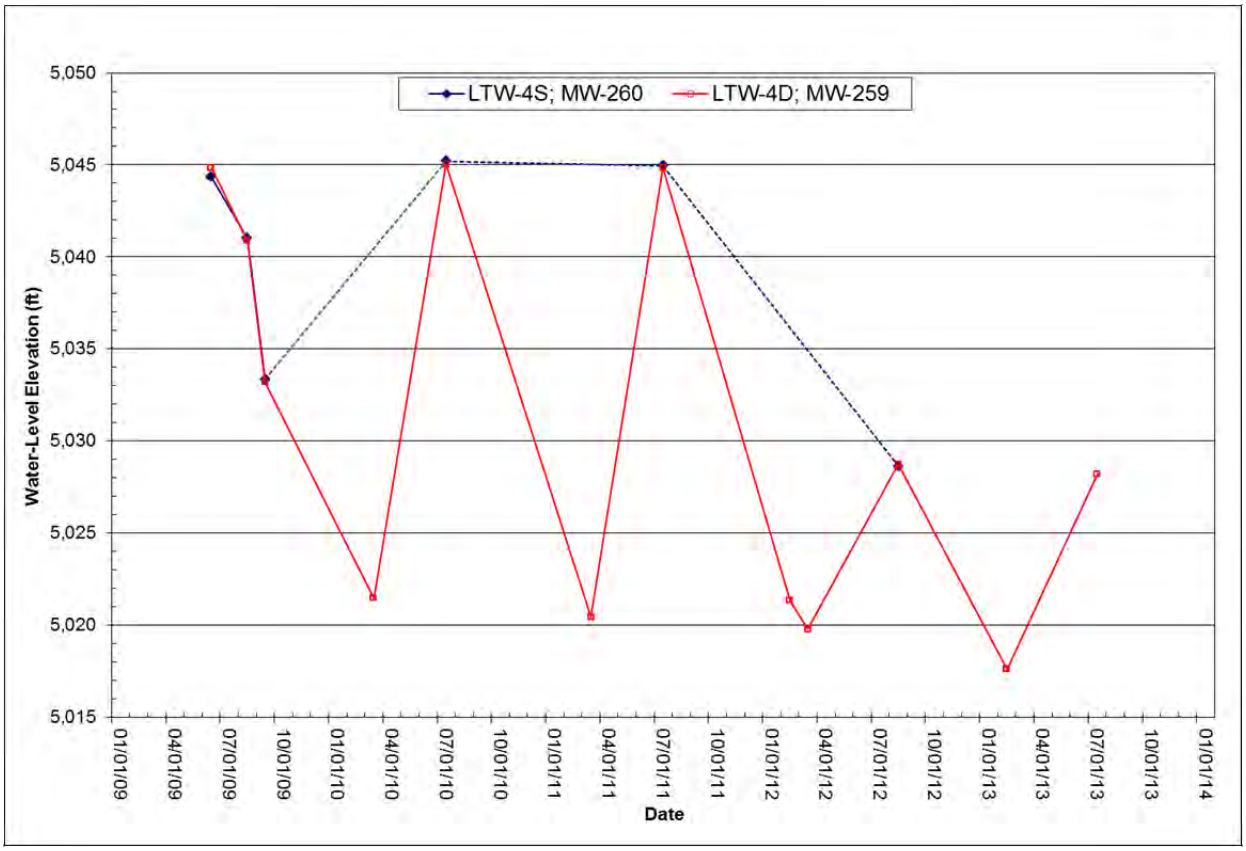


Figure 4.3-8. Water-level hydrograph for nested wells LTW-4-SOS (MW-259) and LTW-4-SOD (MW-260).

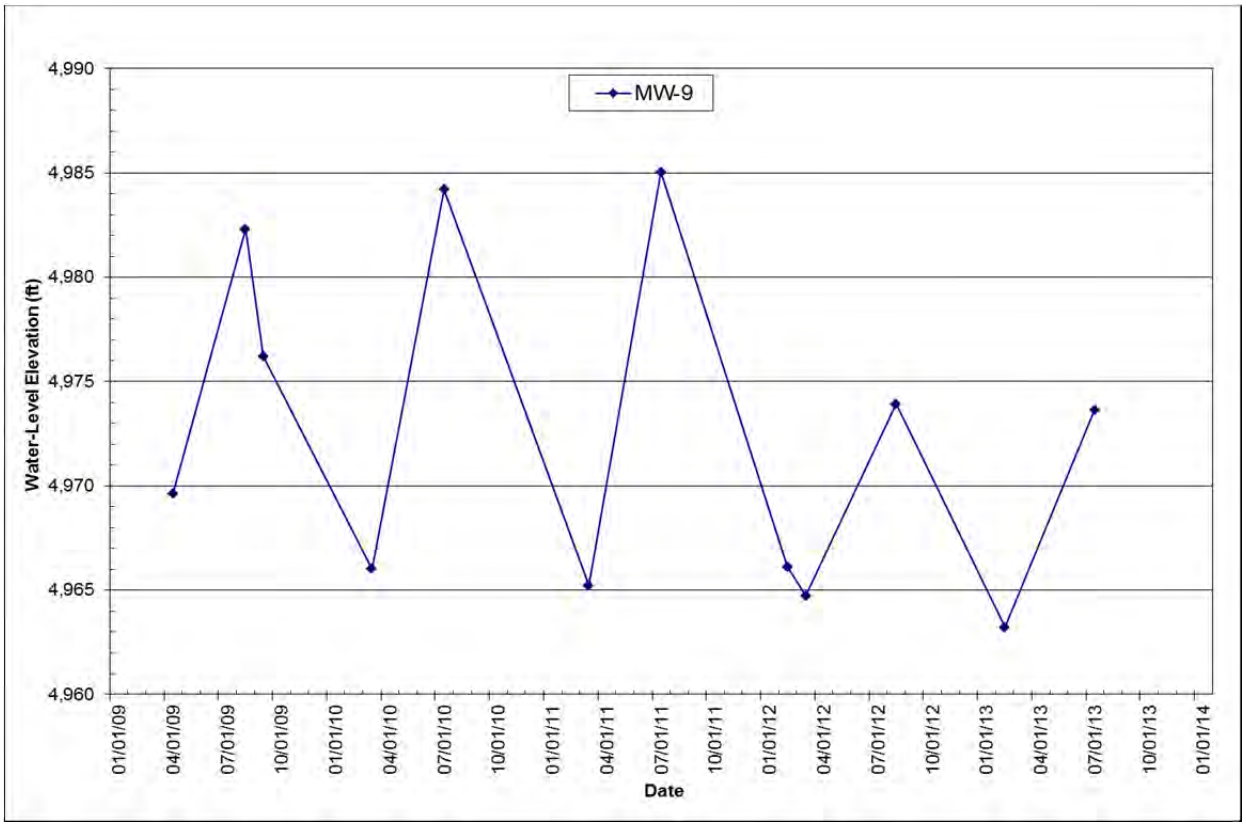


Figure 4.3-9. Water-level hydrograph for well MW-9.

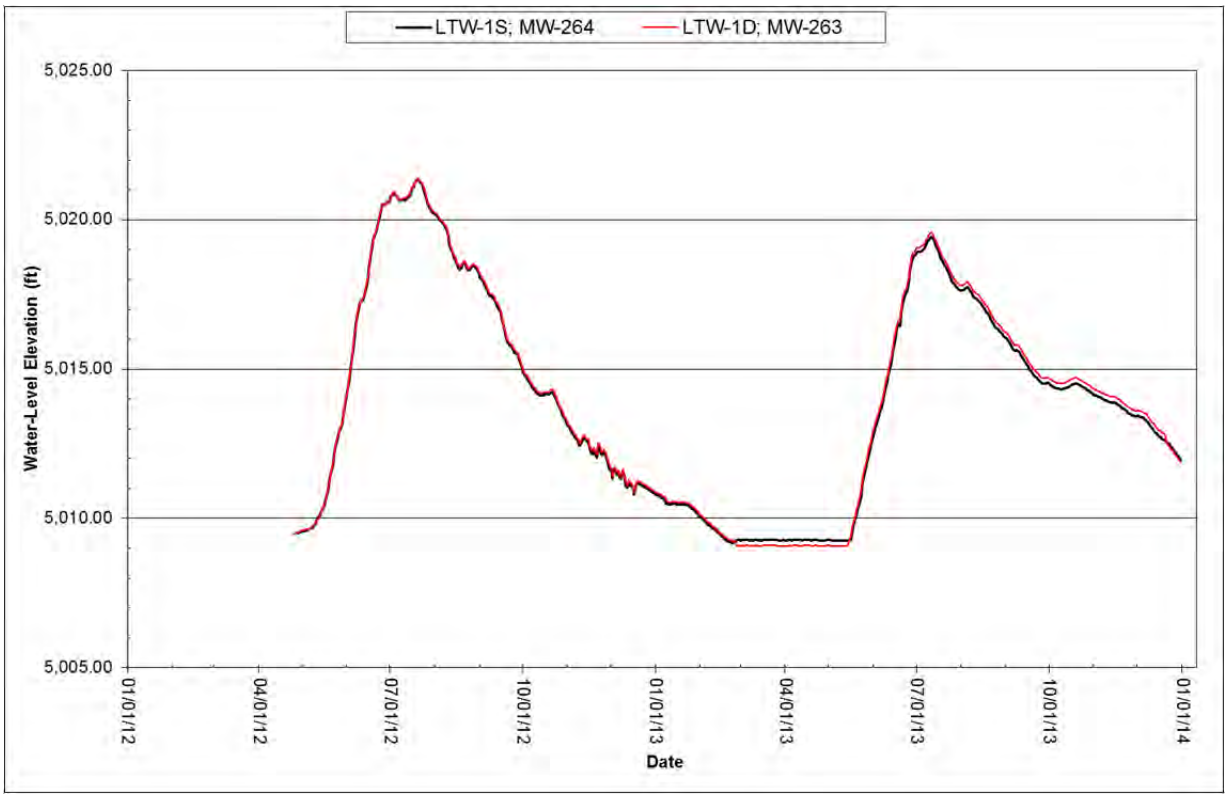


Figure 4.3-10. Daily average water-level hydrograph for nested wells LTW-1-SOS (MW-264) and LTW-1-SOD (MW-263).

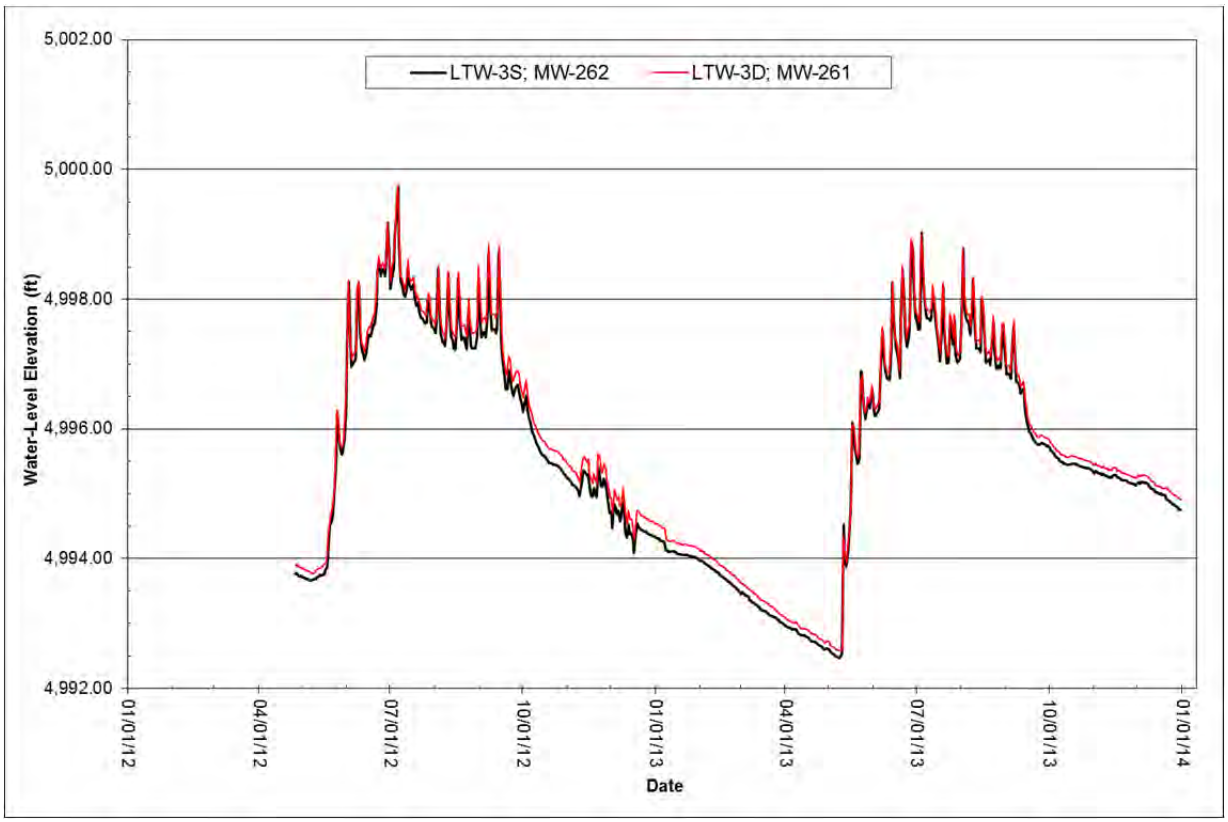


Figure 4.3-11. Daily average water-level hydrograph for nested wells LTW-3-SOS (MW-MW-262) and LTW-3-SOD (MW-261).

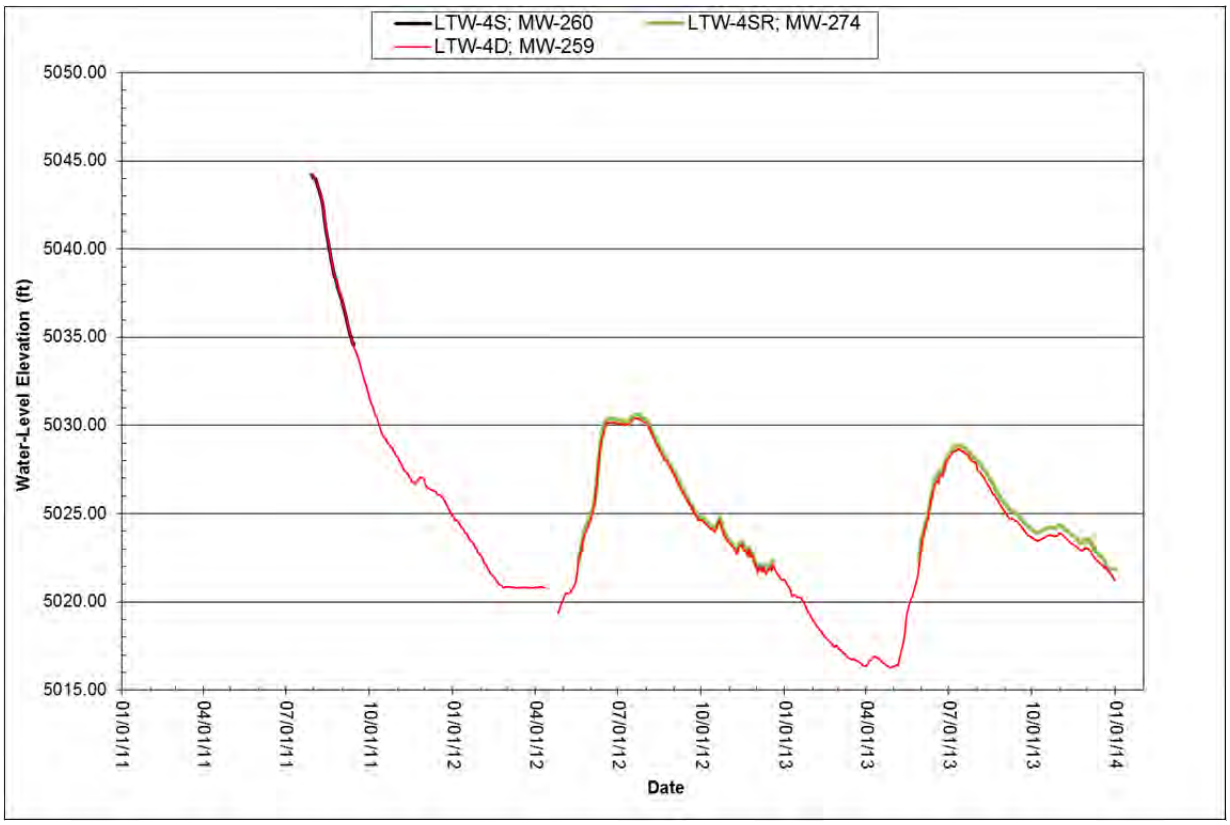


Figure 4.3-12. Daily average water-level hydrograph for nested wells LTW-4-SOS (MW-260), LTW-4-SOSR (MW-274), and LTW-4-SOD (MW-259).

## 4.4 Water-Quality Trends in Point of Compliance Monitoring Wells

The long-term monitoring program will require a statistical evaluation of water-quality trends in the POC/ PPOC wells. This evaluation will be performed using the software program Monitoring and Remediation Optimization System (MAROS) and may consist of both a 4-year (minimum of six sample events) Mann-Kendall Trend Test and long-term linear regression trend analysis. The evaluation includes all five COCs (As, Cd, Cu, Pb, and Zn) for the ARWWS site. Table 4.4-1 lists the POC/PPOC wells and their locations (WMA/AOC); their locations are also shown in figure 4.4-1. Ten wells are still considered PPOC wells due to the lack of the minimum required number of sample events to evaluate their adequacy as POC wells.

Table 4.4-1 Point of compliance monitoring wells.

| Well ID | New Well ID | GWIC ID | Status |
|---|---|---|---|
| SMELTER HILL/OPPORTUNITY PONDS WMA | | | |
| MW-212 | | 138007 | POC |
| MW-214 | | 138065 | POC |
| MW-216 | | 137957 | POC |
| NW-6s | **MW-258** | 249909 | POC |
| MW-26 | | 249793 | POC |
| MW-26M | | 249790 | POC |
| NW-5s | **MW-273** | 249942 | PPOC |
| NW-1-OPd | **MW-266** | 249900 | PPOC |
| NW-1-OPs | **MW-265** | 249901 | PPOC |
| NW-2-OPd | **MW-267** | 249903 | PPOC |
| NW-2-OPs | **MW-268** | 249904 | PPOC |
| NW-3-OPd | **MW-269** | 249905 | PPOC |
| NW-3-OPs | **MW-270** | 249906 | PPOC |
| NW-4-OPd | **MW-271** | 249907 | PPOC |
| NW-4-OPs | **MW-272** | 249908 | PPOC |
| OLD WORKS WMA | | | |
| MW-207 | | 250043 | |
| MW-251 | | 250014 | POC |
| MW-252 | | 249797 | POC |
| MW-255 | | 250055 | POC |
| SOUTH OPPORTUNITY/YELLOW DITCH AREA OF CONCERN | | | |
| LTW-1-SOS | **MW-264** | 249937 | POC |
| LTW-1-SOD | **MW-263** | 249936 | POC |
| LTW-3-SOS | **MW-262** | 249939 | POC |
| LTW-3-SOD | **MW-261** | 249938 | POC |
| LTW-4-SOS-R | **MW-274** | 264393 | PPOC |
| LTW-4-SOD | **MW-260** | 249940 | POC |

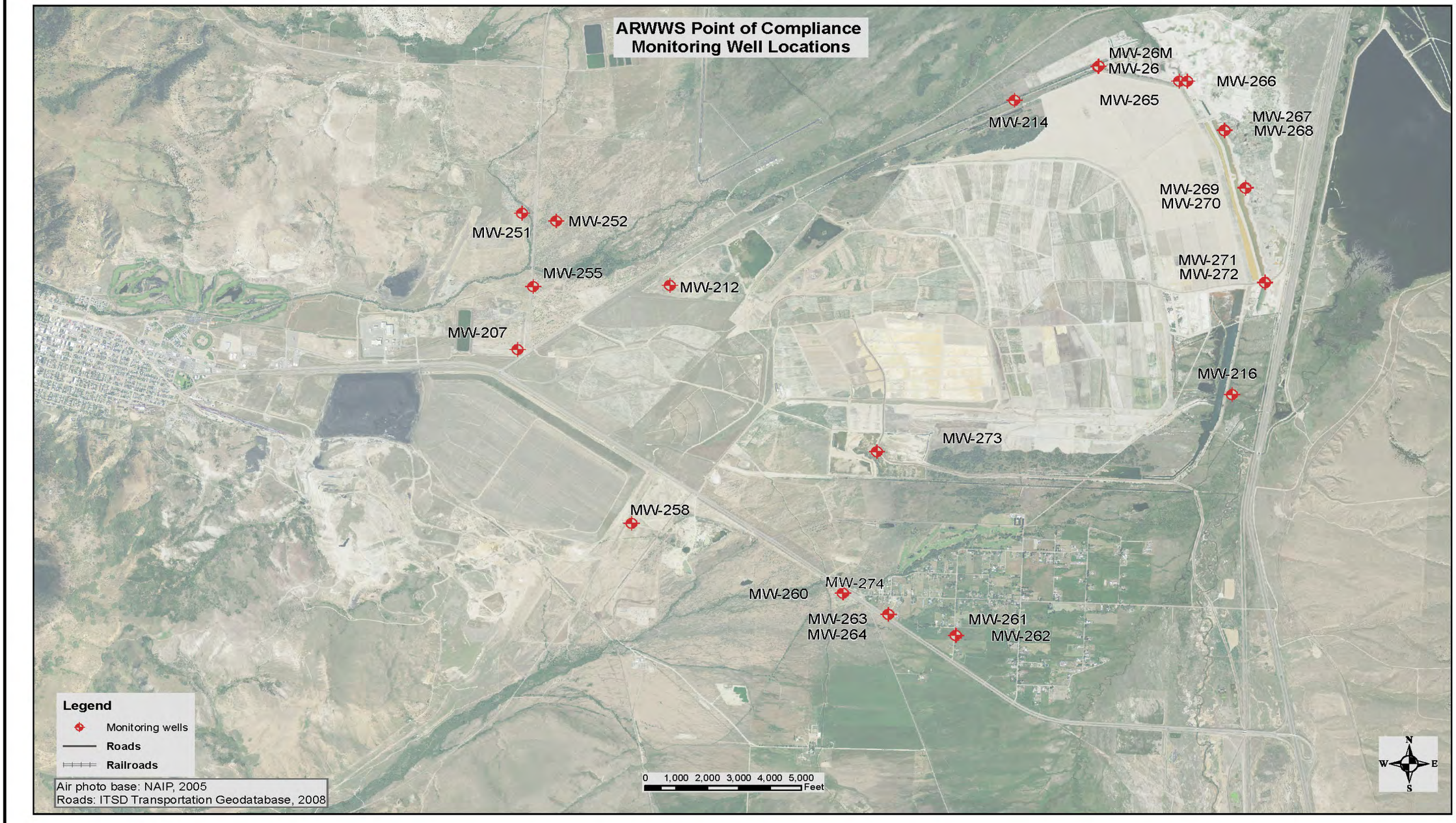


Figure 4.4-1 ARWWS points of compliance monitoring well locations.

The final Statistical Evaluation Plan (SEP) may require a statistical evaluation only when water-quality concentrations in the most recent sample results exceed one-half the performance standard or maximum contaminant level (MCL). None of the POC/PPOC wells had concentrations that meet this requirement in 2013; therefore, no evaluation would have been necessary under the anticipated SEP. Tables 4.4-2 and 4.4-3 show the COC water-quality results from the low-water and high-water sample events, respectively.

Table 4.4-2. 2013 Low-Water COC Water Quality.

| Well ID | New Well ID | GWIC ID | Arsenic (µg/L) | Cadmium (µg/L) | Copper (µg/L) | Lead (µg/L) | Zinc (µg/L) |
|---|---|---|---|---|---|---|---|
| **OPPORTUNITY PONDS/SMELTER HILL WMA** | | | | | | | |
| MW-212 | | 138007 | 0.61 | <0.10 U | <0.04 U | <0.06 U | <0.05 U |
| MW-214 | | 138065 | 0.95 | <0.10 U | <0.04 U | <0.06 U | <0.05 U |
| MW-216 | | 137957 | 1.98 | <0.10 U | <0.04 U | <0.06 U | <0.05 U |
| MW-256 | | 249851 | 0.45 J | <0.10 U | <0.04 U | <0.06 U | <0.05 U |
| NW-6s | MW-258 | 249909 | 0.67 | <0.10 U | <0.04 U | <0.06 U | <0.05 U |
| MW-26 | | 249793 | <0.25 U | <0.25 U | <0.10 U | <0.15 U | <0.13 U |
| MW-26M | | 249790 | 0.53 J | <0.25 U | <0.10 U | <0.15 U | 1.23 J |
| NW-1-OPd | MW-265 | 249900 | 1.43 | <0.25 U | <0.10 U | <0.15 U | 110.1 |
| NW-1-OPs | MW-266 | 249901 | 1.71 | <0.25 U | <0.10 U | <0.15 U | 1.07 J |
| NW-2-OPd | MW-267 | 249903 | 1.29 | <0.25 U | <0.10 U | <0.15 U | <0.13 U |
| NW-2-OPs | MW-268 | 249904 | <0.25 U | <0.25 U | <0.10 U | <0.15 U | <0.13 U |
| NW-3-OPd | MW-269 | 249905 | 1.28 | <0.25 U | <0.10 U | <0.15 U | <0.13 U |
| NW-3-OPs | MW-270 | 249906 | 0.62 J | <0.25 U | <0.10 U | <0.15 U | <0.13 U |
| NW-4-OPd | MW-271 | 249907 | 1.31 | <0.25 U | <0.10 U | <0.15 U | <0.13 U |
| NW-4-OPs | MW-272 | 249908 | <0.25 U | <0.25 U | <0.10 U | <0.15 U | <0.13 U |
| NW-5s | MW-273 | 249942 | 0.32 J | <0.10 U | <0.04 U | <0.06 U | 2.36 |
| **OLD WORKS WMA** | | | | | | | |
| MW-207 | | 250043 | 0.74 | <0.10 U | 0.44 J | <0.06 U | <0.05 U |
| MW-251 | | 250014 | 0.15 J | <0.10 U | 2.39 | <0.06 U | 5.98 |
| MW-252 | | 249797 | 0.43 J | 1.23 | <0.04 U | <0.06 U | 130.5 |
| MW-255 | | 250055 | 0.83 | <0.10 U | <0.04 U | <0.06 U | <0.05 U |
| **SOUTH OPPORTUNITY/YELLOW DITCH AREA OF CONCERN** | | | | | | | |
| LTW-1-SOd | MW-263 | 249936 | 0.42 J | <0.10 U | <0.04 U | <0.06 U | <0.05 U |
| LTW-1-SOs | MW-264 | 249937 | NS | NS | NS | NS | NS |
| LTW-3-SOd | MW-261 | 249938 | 0.40 J | <0.10 U | <0.04 U | <0.06 U | <0.10U |
| LTW-3-SOs | MW-262 | 249939 | 1.85 | <0.10 U | 0.49 J | <0.06 U | <0.05 U |
| LTW-4-SOd | MW-259 | 249940 | 0.45 J | <0.10 U | 0.47 J | <0.06 U | 69.5 |
| LTW-4-SOs-R | MW-274 | 249941 | NS | NS | NS | NS | NS |

*Note.* NS, no sample, well dry; U, undetected, quantity below detection limit; J, estimated, quantity above detection limit but below reporting limit.

Table 4.4-3. 2013 High-Water COC Water Quality.

| Well ID | New Well ID | GWIC ID | Arsenic (µg/L) | Cadmium (µg/L) | Copper (µg/L) | Lead (µg/L) | Zinc (µg/L) |
|---|---|---|---|---|---|---|---|
| **OPPORTUNITY PONDS/SMELTER HILL WMA** | | | | | | | |
| MW-212 | | 138007 | 0.57 | <0.10 U | <0.04 U | <0.06 U | <0.05 U |
| MW-214 | | 138065 | 1.06 | <0.10 U | <0.04 U | <0.06 U | <0.05 U |
| MW-216 | | 137957 | 2.63 | <0.10 U | <0.04 U | <0.06 U | <0.05 U |
| MW-256 | | 249851 | 0.52 | <0.10 U | <0.04 U | <0.06 U | <0.05 U |
| NW-6s | MW-258 | 249909 | 0.73 | <0.10 U | <0.04 U | <0.06 U | 0.56 |
| MW-26 | | 249793 | 0.73 | <0.25 U | <0.10 U | <0.15 U | <0.13 U |
| MW-26M | | 249790 | 0.54 | <0.25 U | <0.10 U | <0.15 U | <0.13 U |
| NW-1-OPd | MW-265 | 249900 | 1.34 | <0.25 U | <0.10 U | <0.15 U | 2.05 |
| NW-1-OPs | MW-266 | 249901 | 2.32 | <0.25 U | <0.10 U | <0.15 U | 1.03 |
| NW-2-OPd | MW-267 | 249903 | 1.41 | <0.25 U | <0.10 U | <0.15 U | <0.13 U |
| NW-2-OPs | MW-268 | 249904 | 0.54 | <0.25 U | 9.75 | <0.15 U | <0.13 U |
| NW-3-OPd | MW-269 | 249905 | 1.36 | <0.25 U | <0.10 U | <0.15 U | <0.13 U |
| NW-3-OPs | MW-270 | 249906 | 0.60 | <0.25 U | 10.12 | <0.15 U | <0.13 U |
| NW-4-OPd | MW-271 | 249907 | 1.29 | <0.25 U | <0.10 U | <0.15 U | <0.13 U |
| NW-4-OPs | MW-272 | 249908 | 0.63 | <0.25 U | <0.10 U | <0.15 U | <0.13 U |
| NW-5s | MW-273 | 249942 | 0.39 | <0.10 U | <0.04 U | <0.06 U | <0.05 U |
| **OLD WORKS WMA** | | | | | | | |
| MW-207 | | 250043 | 0.75 | <0.10 U | 0.70 J | 0.23 | 0.52 |
| MW-251 | | 250014 | 0.49 J | 1.06 | <0.04 U | <0.06 U | 118.8 |
| MW-252 | | 249797 | 0.42 J | 1.48 | <0.04 U | <0.06 U | 155.2 |
| MW-255 | | 250055 | 0.79 | <0.10 U | <0.04 U | <0.06 U | <0.05 U |
| **SOUTH OPPORTUNITY/YELLOW DITCH AREA OF CONCERN** | | | | | | | |
| LTW-1-SOd | MW-263 | 249936 | 0.38 | <0.10 U | <0.04 U | <0.06 U | <0.05 U |
| LTW-1-SOs | MW-264 | 249937 | 4.41 | <0.10 U | <0.04 U | <0.06 U | <0.05 U |
| LTW-3-SOd | MW-261 | 249938 | 0.42 | <0.10 U | <0.04 U | <0.06 U | <0.10U |
| LTW-3-SOs | MW-262 | 249939 | 7.30 | <0.10 U | 3.30 | <0.06 U | <0.05 U |
| LTW-4-SOd | MW-259 | 249940 | 0.46 | <0.10 U | <0.04 U | <0.06 U | 61.58 |
| LTW-4-SOs-R | MW-274 | 249941 | 0.59 | 0.22 | 0.86 | <0.06 U | 101.2 |

## 4.5 Smelter Hill Repository Complex

Several waste repositories are located on Smelter Hill, with five monitoring wells located adjacent to them for water-level and water-quality monitoring (figure 4.5-1). These wells are monitored and sampled once per year during high-water sampling. The COCs for this site include the same five described earlier for other ARWWS sites and beryllium due to the presence of beryllium waste. Table 4.5-1 contains well completion information for these wells.

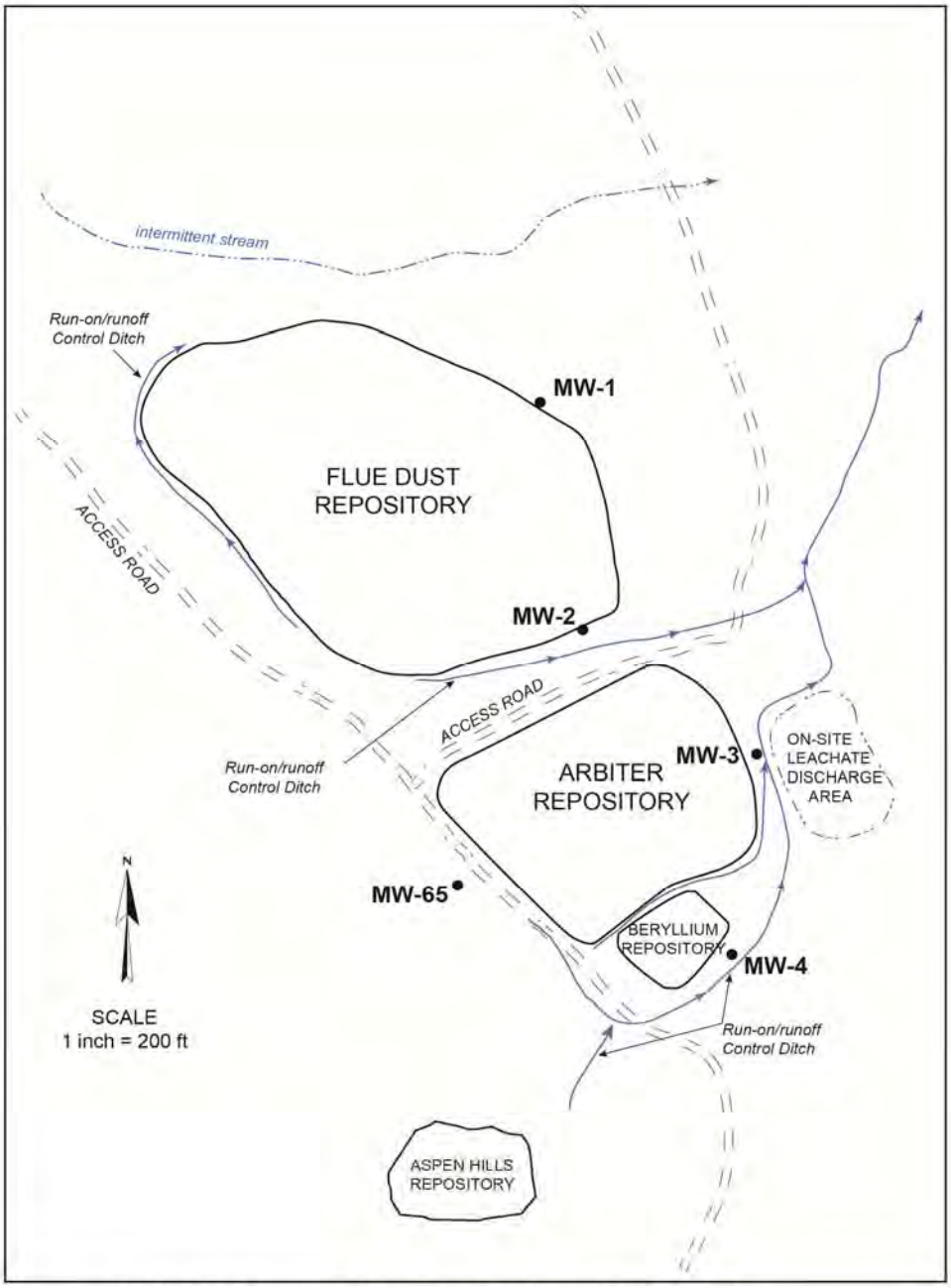


Figure 4.5-1. Location map for Smelter Hill Complex monitoring wells.

Table 4.5-1. Smelter Hill Complex monitoring well summary.

| Well ID | GWIC ID | Total Depth (ft) | Screen Interval (ft) | Aquifer |
|---|---|---|---|---|
| MW-01 | 257104 | 150 | 126-146 | Valley-fill coarse |
| MW-02 | 257100 | 140 | 114-134 | Valley-fill coarse |
| MW-03 | 250307 | 160 | NA | Valley-fill coarse |
| MW-04 | 250306 | 170 | NA | Valley-fill coarse |
| MW-65 | 250224 | 1123 | 108-118 | Valley-fill med-fine |

COC concentrations in these five wells are low, with the exception of arsenic in MW-03 and occasionally in the past in well MW-65. All other analyte concentrations are well below their respective DEQ-7 MCL. Figure 4.5-2 shows arsenic concentrations for all five wells since monitoring began in 1999 (note that arsenic concentrations are shown in log scale). Results of all water-quality samples for these wells are contained in appendix D.

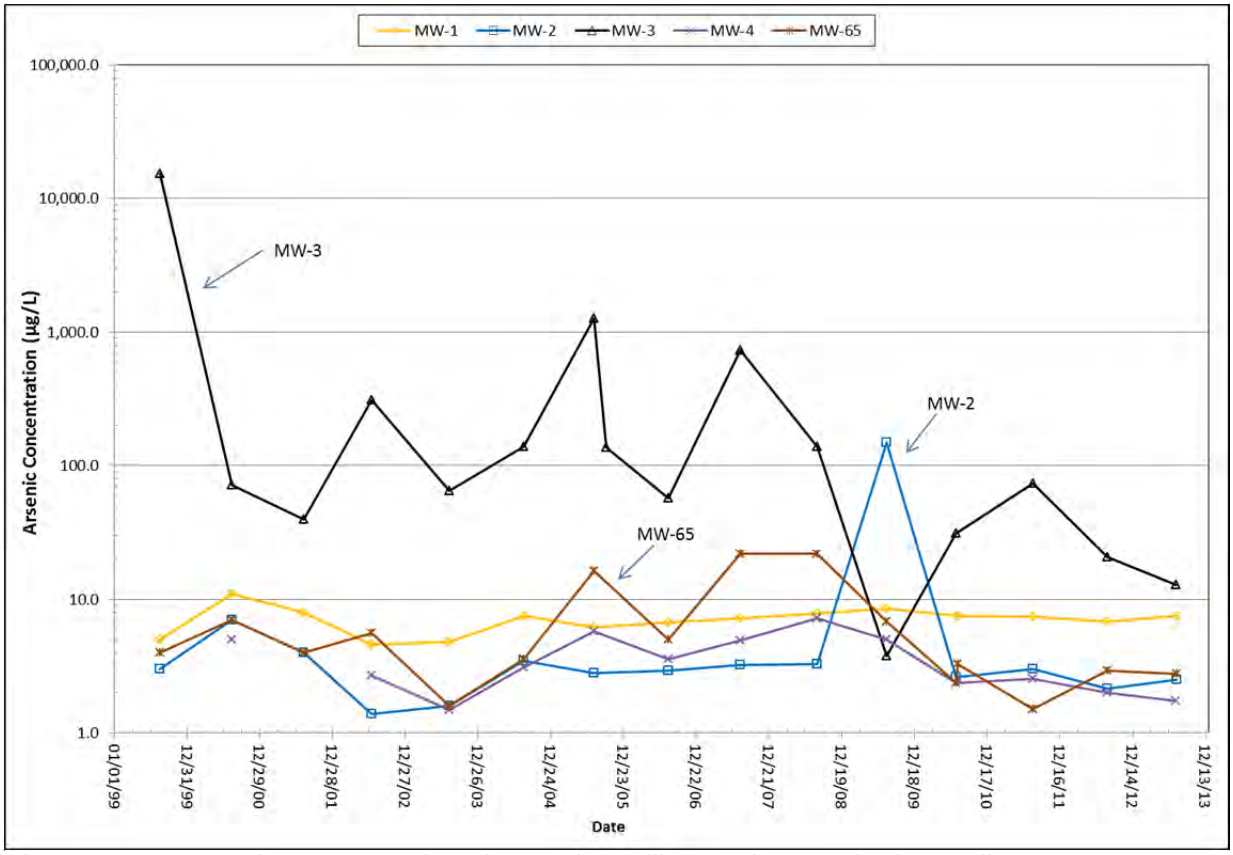

Figure 4.5-2. Arsenic concentrations in Smelter Hill Complex monitoring wells.

## Domestic Well Monitoring Program

### 5.1 Description of the Sampling Area

The boundary for domestic well sampling was defined in the U.S. EPA 2011 Record of Decision Modification (fig. 5.1-1). Typically the annual goal of the domestic well sampling effort was to sample 20% of the wells not previously sampled within the EPA-proposed Domestic Well Monitoring Area. However, 2013 was the 5th year of the 5-year resample cycle, and therefore the goal for 2013 was to sample as many of the remaining unsampled wells as possible.

### 5.2 New Domestic Well Sampling

A list of potential wells was generated using the Montana Cadastral Database, which includes tax-related data such as information on utilities and construction. All the cadastral parcels in the sampling area were downloaded into an ArcMap file and filtered to remove parcels served by community water and sewer. Although there are cadastral data categories for other useful screening criteria, such as wells, septic systems, and residences, these data are often inconsistently or inaccurately documented in the cadastral database and were not used in the filtering process. Therefore, aerial photos of each of the remaining parcels were then examined to identify structures or likely building sites. Building sites were identified by having a road ending in a cleared area. All of the parcels that had buildings or likely building sites were assumed to have a domestic well. Using this method we estimated there were 734 properties that potentially had a domestic well within the sampling area.

Approximately 272 properties were identified as potentially having a well that had not been previously sampled for this project by the MBMG. We attempted to contact the owners of all unsampled properties in 2013 using a variety of methods including postcards (206 sent), site visits (269), and phone calls (49). During the site visits postcards in plastic bags were left in conspicuous places. After at least three contact attempts (including two site visits for local owners) it was assumed that the owners were not interested in having their wells sampled; these properties were labeled as “failed contacts.” In 2013, 11 owners verbally declined to have their well sampled and 16 owners were listed as failed contacts. There were also a number of properties that were removed from the contact list for other reasons, including no well or house (18), clearly abandoned (9), and serviced by city water (7). In all, 61 properties were removed from the contact attempt list in 2013. The properties with failed contact attempts will be revisited in 2015. The ownership list will also be updated periodically and the properties with owners who declined sampling will be checked for new owners.

A total of 146 new domestic water supplies (144 wells, 1 spring, and 1 stream) were sampled in 2013 (fig. 5.1-1). Arsenic concentrations were less than 5 µg/L in 139 of these wells. Arsenic concentrations were greater than 5 µg/L and less than 10 µg/L in 4 of the new wells sampled (table 5.2-1). Two of the wells with arsenic concentrations greater than 5 µg/L were in the Powell Vista areas. One well was in the Antelope Gulch area. One well was within the town of Opportunity, which is the third time any of the MBMG domestic well samples from Opportunity have been above 5 µg/L.

Table 5.2-1. New sites with arsenic concentrations greater than 5 µg/L and less than 10 µg/L.

| Owner | GWIC ID | As (µg/L) | Area |
|---|---|---|---|
| Nelson, Jason | 250642 | 6.9 | Powell Vista |
| Hansen, Deb | 156248 | 7.57 | Powell Vista |
| Johnson, Wade | 166679 | 5.72 | Antelope Gulch |
| Clark, Herb | 275482 | 6.29 | Opportunity |

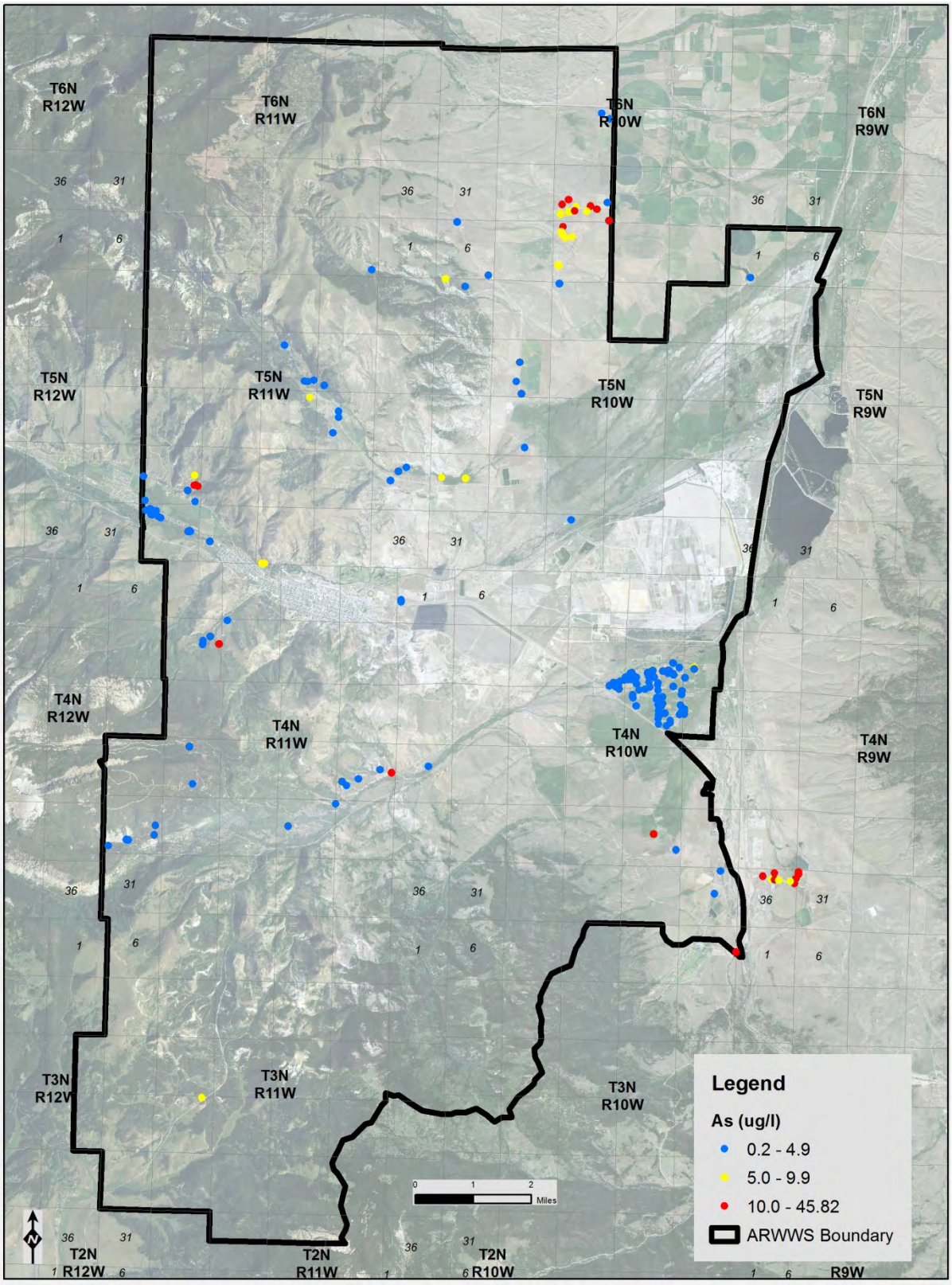


Figure 5.1-1. All wells sampled in 2013 are shown as dots, with the color indicating arsenic concentrations and the sampling area boundary outlined in black.

Arsenic concentrations were greater than 10 µg/L in three new domestic water supplies (1 well, 1 spring, and 1 stream; table 5.2-2). The well was in the Sunnyside area and is 550 ft deep with a water intake interval from 200 to 550 ft (perforated casing). The well was also completed in what the driller described as limestone bedrock, which was encountered at 11 ft and continued to the bottom of the borehole. Confirmation samples were not collected from the well in 2013, because the owners left for the winter. The spring and stream samples were collected from the same property, which doesn't have a well. The owners planned on developing the spring or stream as a water supply and had begun installing the infrastructure to utilize the spring. Water delivery was initiated to these residences with arsenic concentrations above 10 µg/L. Confirmation samples (dissolved and total recoverable) were collected from the well with an arsenic concentration greater than 10 µg/L in 2014. We viewed sampling this spring as analogous to a new domestic well that hasn't been hooked up yet. However, sampling of springs exceeds the scope of the ARWWS Short-Term Groundwater Monitoring SAP, because a plan has not been developed for sampling springs used as domestic water supplies. We have ceased sampling domestic springs as part of ARWWS Short-Term Groundwater Monitoring Program. The stream sample was collected in error, as streams are not identified as domestic water sources in the ARWWS Record of Decision (U.S. EPA, 1998)

Table 5.2-2. New sites with arsenic concentrations greater than 10 µg/L and dissolved confirmation samples.

| Owner | GWIC ID | Initial Total Recoverable As (µg/L) | Dissolved As (µg/L) | Area |
|---|---|---|---|---|
| Garrels, Joyce and Lloyd | 51363 | 22.62 | 27.25* | Sunnyside |
| Robinson, Ron | 275096 | 70.95 | | Mill Creek |
| Robinson, Ron | 275180 | 320.67 | | Mill Creek |

*Confirmation sample collected in 2014 (confirmation total recoverable = 26.47 µg/L).

## 5.3 Previously Sampled Wells

In addition to the new well samples, 20 wells with prior concentrations between 5 and 10 µg/L were resampled in 2013 (table 5.3-1). Four of these samples (Catalanello–174778; Swanson–264544; Varelia–264545; Norton–122659) had arsenic concentrations less than 5 µg/L in 2013. One sample (Salle–258964) had a total recoverable As concentration of 10.01 µg/L, but the concurrent dissolved As concentration was 5.25 µg/L. The well remained a "less than 10 µg/L well," because the dissolved As concentration (equivalent to a confirmation sample) was below 10 µg/L. The other 15 sites continued to have total recoverable arsenic concentrations between 5 and 10 µg/L. One well (Catalanello–217906) was not sampled, because the well was not in use and the owners declined to have it sampled.

Twenty wells with previous arsenic concentrations greater than 10 µg/L were resampled in 2013 (table 5.3-2). Two of these samples (Connors–246960; Arentz–153593) had arsenic concentrations less than 10 µg/L in 2013. The other 18 wells continued to have arsenic concentrations greater than 10 µg/L. Arsenic concentrations greater than 10 µg/L are concentrated in three areas: Crackerville, English Gulch, and Powell Vista (table 5.3-1).

Two wells (Mike's Sales and Pawn–254941; McDowell–51334) with previous As concentrations below 5 µg/L were also resampled in 2013 at Atlantic Richfield's request. The dissolved and total recoverable As concentrations from well 254941 were 2.05 and 2.29 µg/L, respectively. Previous As concentrations from well 254941 ranged from 1.8 to 2.22 µg/L (2 total recoverable samples and one dissolved sample). The dissolved and total recoverable As

concentrations from well 51334 were 2.26 and 2.09 µg/L, respectively. Previous As concentrations from well 51334 were 2.11 µg/L (dissolved) and 1.96 µg/L (total recoverable).

Table 5.3-1. Summary of sites with previous total recoverable arsenic concentrations greater than 5 µg/L and less than 10 µg/L, including arsenic concentrations from all years sampled.

| Well Owner | GWIC ID | 2013 Arsenic (µg/L) | 2012 Arsenic (µg/L) | 2011 Arsenic (µg/L) | 2010 Arsenic (µg/L) | 2009 Arsenic (µg/L) | Area |
|---|---|---|---|---|---|---|---|
| Faught, Stanley | 51327 | 7.86 | 7.59 | 7.5 | 6.85 | 6.26 | Crackerville |
| Jenrich, Tracy | 252926 | 9.18 | 9.44 | 8.74 | 9.31 | 6.64 | Crackerville |
| Swanson, Mark | 5330 | 7.74 | 8.40 | 7.79 | 8.28 | 5.54 | Crackerville |
| Norton, Lou | 122659 | 2.01 | 6.10 | | | | English Gulch |
| Salle, Ron | 258964 | 10.01* | 8.8** | 8.30 | 8.45 | 10.6 | English Gulch |
| Galle, Cliff Jr. | 5377 | 7.66 | 7.53 | 6.51 | 5.43 | | Lost Creek |
| Galle, Tyke | 51790 | 7.27 | 7.27 | 4.45 | 6.49 | | Lost Creek |
| Galle, Jeff | 230299 | 5.77 | 7.86 | 7.15 | 2.55 | 6.68 | Lost Creek |
| Catalenello, Mark | 174778 | <0.250 | 5.83 | | | | Mill Creek |
| Catalenello, Mark | 217906 | | 9.45 | | | | Mill Creek |
| Rankin, Keith | 198928 | 5.35 | 5.81 | 5.38 | | | Mill Creek |
| Blom, Lorin | 238047 | 6.59 | 6.15 | 5.40 | 5.43 | | Powell Vista |
| Dinsdale, Jeffery*** | 158808 | 9.19 | 9.98 | | | | Powell Vista |
| Flachmeyer, Dan | 241972 | 6.12 | 6.38 | 8.83 | | | Powell Vista |
| Mitchell, Harold | 260549 | 5.45 | 5.21 | 5.23 | | | Powell Vista |
| Stewart, John | 256622 | 6.40 | 6.25 | 5.62 | 6.48 | | Powell Vista |
| Stock-Jones, Charlene | 153592 | 7.84 | 7.77 | 8.04 | 8.22 | 7.35 | Powell Vista |
| Swanson, Ron | 264544 | 1.150 J | 7.85 | | | | Opportunity |
| Varelia, Helen | 264545 | 0.550 J | 7.14 | | | | Opportunity |
| Blotkamp, Mary | 266770 | 8.39 | 5.24 | | | | Anaconda |
| Pentilla, Mike | 267423 | 6.41 | 8.32 | | | | Anaconda |

*Dissolved concentration collected at the same time was 5.25 µg/L.
**Dissolved concentration.
***Residence with a reverse osmosis unit

Table 5.3-2. Summary of sites with previous arsenic concentrations greater than 10 µg/L, including arsenic concentrations from all years sampled.

| Well Owner | GWIC ID | 2013 Arsenic (µg/L) | 2012 Arsenic (µg/L) | 2011 Arsenic (µg/L) | 2010 Arsenic (µg/L) | 2009 Arsenic (µg/L) | Area |
|---|---|---|---|---|---|---|---|
| Bailey, Don | 254433 | 10.37 | 16.11 | 8.37 | 10.10* | 2.26 | Crackerville |
| Fresh, Elden*** | 51333 | 13.12 | 13.33 | | 11.6 | 11.8 | Crackerville |
| McKay, Robert | 197463 | 12.02 | 14.31 | | | | Crackerville |
| Keele, Don | 221430 | 12.17 | 15.52 | 12 | 7.97 | 6.74 | Crackerville |
| Maccioli, Joe*** | 252623 | 16.4 | 13.41 | 13.22 | 14.2 | 12.3 | Crackerville |
| Scherman, Rental | 51328 | 14.23 | 15.68 | 12.52 | 14.5 | 7.22 | Crackerville |
| Scherman, Russ*** | 226130 | 38.75 | 29.7 | 28.73 | 30.4 | 23.9 | Crackerville |
| Whitaker, Ray | 181457 | 10.8 | 10.49 | 9.33 | | | Crackerville |
| Shyba, Lori*** | 256874 | 21.33 | 29.92 | 30.61 | 28.3 | | Fairmont |
| Connors, Ken | 246960 | 7.54 | 14.14 | 12.9 | 6.68 | | English Gulch |
| Lussy, Jerry | 244470 | 13.73 | 13.0 | 15.58 | 13.3 | 9.38 | English Gulch |
| Walter, Richard | 51874 | 15.08 | 40.34 | 32.38 | 13.2 | 5.73 | English Gulch |
| Arentz, Ivan | 155393 | 7.89 | 11.34** | 13.3 | | | Powell Vista |
| Gessele, Edwin | 259949 | 12.76 | 13.23 | 12.4 | | | Powell Vista |
| Loehr, Jamie | 153591 | 14.16 | 13.67 | | | | Powell Vista |
| McQueary, Cam | 250294 | 12.14 | 12.47 | 10.4 | | | Powell Vista |
| Pierce, Colt | 266861 | 10.67 | 10.77 | | | | Powell Vista |
| Ruegamer, Anthony | 53591 | 13.21 | 12.06 | 11.4 | 13.2 | | Powell Vista |
| Smith, Monty | 256447 | 34.36 | 20.6 | 19.2** | 19.9 | 18.6 | Powell Vista |
| Waymire, Edward | 156249 | 13.16 | 13.91 | 12.3 | | | Powell Vista |

*Replacement well not currently in use.
**Dissolved concentration.
***Residence with a reverse osmosis unit

No replacement domestic wells were drilled during 2013. The wells (> 10 µg/L) that have not had remedial actions taken to date are in the English Gulch, Powell Vista, and Crackerville/Fairmont areas. We have attempted drilling replacement wells in each of these areas without success. Reverse osmosis (RO) units have been installed in homes in the Crackerville/Fairmont (four residences, one by owner) and Powell Vista (one residence, by owner) areas, and RO units appear to be effective at removing arsenic from drinking water (see section 5.4 below). The RO units were installed as an experimental approach. Currently the only approved remedial action for domestic wells is to drill a deeper well. Data from the 2013 Arsenic Source Investigation (Icopini, Smith and Duaime, 2013) indicated that natural sources of arsenic exist at depth in the English Gulch and Crackerville/Fairmont areas. Further remedial action in the English Gulch, Crackerville, and Powell Vista areas are dependent on a determination of the source of arsenic in those areas, which is the subject of ongoing discussions between the Agencies and Atlantic Richfield. Bottled water has been offered and is being provided upon request to all residences with arsenic concentrations above 10 µg/L.

## 5.4 Reverse Osmosis Units

Six samples were collected from reverse osmosis (RO) units in 2013. The Shyba property has a main residence and an apartment serviced by one well; both RO units were sampled in 2013. All of the arsenic concentrations from the RO units were below the detection limit of 0.250 µg/L (table 5.4-1). All of the RO systems sampled were point-of-use units installed under the kitchen sink. Two of these RO units were installed by the homeowner (Scherman and Dinsdale). The other four RO units were installed as part of this project. Similar to the 2011 and 2013 data, the RO units sampled in 2013 appear to effectively remove arsenic from the water.

Table 5.4-1. A summary of the arsenic concentrations in well water and well water treated with a reverse osmosis system (RO).

| Well Owner | GWIC ID | Dissolved Arsenic (µg/L) | Total Recoverable Arsenic (µg/L) | RO Arsenic (µg/L) | Area |
|---|---|---|---|---|---|
| Dinsdale, Jeffery | 158808 | 8.72 | 9.19 | <0.250 | Powell Vista |
| Fresh, Elden | 51333 | 12.20 | 13.12 | <0.250 | Crackerville |
| Maccioli, Joe | 252623 | 16.65 | 16.4 | <0.250 | Crackerville |
| Scherman, Russ | 226130 | 30.39 | 38.75 | <0.250 | Crackerville |
| Shyba, Lori | 256874 | 22.44 | 21.33 | <0.250* | Fairmont |

*There were two RO units on the property and both were below detection.

## 5.5 Domestic Well Status and 2014 Sampling Plans

During 2014, we will continue to attempt to contact property owners with wells that have not yet been sampled. After three contact attempts, including at least two site visits for local residents, we will assume the owners are not interested in having their wells sampled. We will also begin the 5-year resampling of the 85 wells initially sampled in 2009. We will also continue sampling the 45 wells with previous concentrations greater than 5 µg/L.

# Data Quality Objectives and Assessment

## 6.1 Data Quality Objectives

Specific data quality objectives for the Short-Term Groundwater Monitoring Plan were not presented in the ARWWS OU Final Short-Term Groundwater Monitoring Plan or the 2009 SAP Addendum (AERL, 2000 and AERL, 2009b). However, it was assumed that the Short-Term Groundwater Monitoring Plan and the subsequent 2009 SAP addendum data quality objectives were to collect data of sufficient quality to meet the objectives listed in Section 1.0.

### 6.1.2 Data Quality Assessment

The sampling plan entailed the collection of groundwater samples from monitoring wells identified in table 1.0.1 and selected domestic wells throughout the ARWWS OU domestic well AOC boundary (figure 5.1-1). Depth to groundwater was measured in all monitoring wells and domestic wells when possible. In addition physical parameters including pH, SC, temperature, ORP, and DO were measured during well purging and sampling.

Replicate samples from monitoring and domestic wells were collected to assess data quality for this project. The duplicate data were evaluated by calculating the relative percent differences (RPD) between the two samples. An RPD value less than 20 percent is considered acceptable data quality for data that exceed the reporting limit. A total of 5 duplicate samples were collected from the monitoring wells (table 6.1.2-1). The monitoring well As concentration RPDs were below 8 percent for all the dissolved samples, except one duplicate pair that had concentrations below the reporting limit. The dissolved concentrations of Cd, Cu, Pb, and Zn were all below the detection limit in the replicate samples.

One triplicate sample and 13 duplicate samples were collected from the domestic wells in 2013 (table 6.1.2-1). The triplicate sample was collected for the Arsenic Source Investigation; this site was also a resample site for the domestic well monitoring project. The triplicate data were evaluated by calculating the percent relative standard deviation (%RSD) of the three samples. All of the RPD values and the %RSD value were less than 8%.

Table 6.1.2-1. Replicate data with relative percent differences for duplicate samples collected from monitoring wells.

| Gwic Id | Well Id | As (µg/l) | Cd (µg/l) | Cu (µg/l) | Pb (µg/l) | Zn (µg/l) |
|---|---|---|---|---|---|---|
| **Dissolved** | | | | | | |
| 138007 | MW-212 | 0.59 | <0.100 U | <0.040 U | <0.060 U | <0.050 U |
| 138007 | MW-212 Duplicate | 0.57 | <0.100 U | <0.040 U | <0.060 U | <0.050 U |
| | Relative % Difference | **3.45** | **0** | **0** | **0** | **0** |
| 250055 | MW-255 | 0.83 | <0.100 U | <0.040 U | <0.060 U | <0.050 U |
| 250055 | MW-255 Duplicate | 0.85 | <0.100 U | <0.040 U | <0.060 U | <0.050 U |
| | Relative % Difference | **2.38** | **0** | **0** | **0** | **0** |
| 249900 | MW-265 | 1.38 | <0.250 U | <0.100 U | <0.150 U | <0.130 U |
| 249900 | MW-265 Duplicate | 1.39 | <0.250 U | <0.100 U | <0.150 U | <0.130 U |
| | Relative % Difference | **0.72** | **0** | **0** | **0** | **0** |
| 249790 | MW-26M | 0.510 J | <0.250 U | <0.100 U | <0.150 U | <0.130 U |
| 249790 | MW-26M Duplicate | 0.540 J | <0.250 U | <0.100 U | <0.150 U | <0.130 U |
| | Relative % Difference | **5.7** | **0** | **0** | **0** | **0** |
| 249898 | MW-9 | 0.250 J | <0.100 U | <0.040 U | <0.060 U | <0.050 U |
| 249898 | MW-9 Duplicate | 0.250 J | <0.100 U | <0.040 U | <0.060 U | <0.050 U |
| | Relative % Difference | **0** | **0** | **0** | **0** | **0** |

*Note.* J, indicates the concentration is below the reporting limit but above the detection limit;U, indicates the concentration is below the detection limit.

Table 6.1.2-2. Replicate data with relative percent differences for duplicate and triplicate samples collected from domestic wells. The triplicate samples were collected as part of the Arsenic Source Evaluation Project.

| Site Name | Gwic Id | As (µg/l) | Duplicate As (µg/l) | Triplicate As (µg/l) | Relative % Difference |
|---|---|---|---|---|---|
| **Dissolved** | | | | | |
| McDowell, Harold | 51334 | 1.78 | 1.79 | | **0.6** |
| Stock-Jones, Charlene | 153592 | 8.58 | 8.61 | | **0.3** |
| McKay, Robert | 197463 | 10.94 | 10.97 | 11.19 | **1.2*** |
| Gessele, Edwin | 259949 | 13.37 | 13.76 | | **2.9** |
| **Total Recoverable** | | | | | |
| Crisp, Doug | 218249 | <0.250 U | <0.250 U | | **0** |
| Johnston, Deborah | 271449 | <0.250 U | <0.250 U | | **0** |
| McGillen, Linda | 51140 | <0.250 U | <0.250 U | | **0** |
| McCurdy, Charlie | 274241 | 0.640 J | 0.680 J | | **6.1** |
| Vukovich, Mark | 52055 | 1.26 | 1.34 | | **6.2** |
| Kelly, John | 271369 | 1.5 | 1.6 | | **6.5** |
| Ruegamer, Lane | 276320 | 1.5 | 1.56 | | **3.9** |
| McDowell, Harold | 51334 | 2.09 | 2.26 | | **7.8** |
| Stock-Jones, Charlene | 153592 | 7.78 | 7.84 | | **0.8** |
| Gessele, Edwin | 259949 | 12.76 | 12.81 | | **0.4** |

*Percent Relative Standard Deviation.

## ACKNOWLEDGMENTS

Many parties have been involved with the collection of data throughout the ARWWS since the mid-1980s; these data were instrumental in the original site characterization and development of the monitoring program used during the 2009 5-year sampling and monitoring program and subsequent years. The efforts of those parties are greatly appreciated. Pioneer Technical Services provided assistance with the location of monitoring points, site access, and, most importantly, an electronic database of historical physical and chemical data.Special appreciation is given to the property owners who allowed access for monitoring and sampling activities. We thank all the property owners who gave permission to sample their wells as part of the domestic well program.

A special thank you is given to the MBMG employees who assisted with sampling and monitoring activities and provided technical support, specifically: Nick Tucci, Matt Berzel, Garrett Smith, Mark Wolfram, Zach Bury, Dave Butler, Paul Dumond, Ken Sandau, Paul Thale, and Peggy Delaney. Report edited by Susan Barth. Errors and omissions remain the responsibility of the authors.

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# APPENDICES

**Appendix A.** Smelter Hill/Opportunity Ponds WMA, Water-Quality Data

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Smelter Hill/Opportunity Ponds**
**Ion 5-Yr Samples**

| | | | | | PHYSICAL PARAMETERS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | FIELD | | | | | LAB | | | |
| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | TIME (HRS) | SWL (FT) | FLOW (GPM) | pH | SC (UMHOS) | TEMP (C) | REDOX (mv) | pH | SC (UMHOS) | HARDNESS (MG/L) | ALKALINITY (MG/L) |
| NW 6S | 249909 | DISSOLVED | 09/11/09 | 14:45 | 68.83 | 8.0 | 7.43 | 276 | 9.68 | 308 | 7.60 | 288 | 134 | 76 |
| MW-258 | | DISSOLVED | 04/15/10 | 15:45 | 82.21 | 2.5 | 6.56 | 244 | 10.24 | 299 | 7.56 | 332 | 110 | 74 |
| | | DISSOLVED | 07/14/10 | 12:40 | | 2.5 | 6.59 | 355 | 9.63 | 339 | 7.91 | 349 | 153 | 62 |
| | | DISSOLVED | 04/13/11 | 15:18 | 82.02 | 1.0 | 7.85 | 230 | 8.68 | 439 | 7.54 | 255 | 113 | 69 |
| | | DISSOLVED | 07/27/11 | 11:57 | 70.20 | 1.5 | 6.78 | 205 | 9.09 | 422 | 7.55 | 200 | 93 | 71 |
| | | DISSOLVED | 03/12/12 | 12:49 | 75.18 | 2.0 | 8.01 | 241 | 8.69 | 323 | 7.36 | 270 | 104 | 67 |
| | | DISSOLVED | 08/28/12 | 16:23 | 72.81 | 2.0 | 7.76 | 223 | 9.40 | 468 | 7.38 | 197 | 96 | 71 |
| DUP | | DISSOLVED | 08/28/12 | 16:26 | 72.81 | 2.0 | 7.76 | 223 | 9.40 | 468 | 7.38 | 193 | 94 | 66 |
| | | DISSOLVED | 03/20/13 | 12:11 | 83.37 | 1.5 | 7.51 | 195 | 8.50 | 405 | 7.19 | 176 | 83 | 66 |
| | | DISSOLVED | 07/31/13 | 14:03 | 77.51 | 1.5 | 6.34 | 200 | 9.68 | 411 | 6.61 | 198 | 83 | 58 |
| MW-212 | 138007 | DISSOLVED | 04/14/09 | 11:18 | 43.82 | 5.0 | 7.47 | 214 | 7.35 | 411 | 7.33 | 289 | 128 | 114 |
| | | DISSOLVED | 09/08/09 | 15:30 | 31.08 | 3.5 | 7.61 | 212 | 7.46 | 287 | 7.70 | 219 | 114 | 107 |
| | | DISSOLVED | 04/20/10 | 10:31 | 46.18 | 2.5 | 6.34 | 250 | 9.13 | 318 | 8.03 | 320 | 117 | 111 |
| | | DISSOLVED | 07/15/10 | 11:51 | | 2.5 | 6.51 | 260 | 8.36 | 343 | 7.97 | 278 | 135 | 111 |
| | | DISSOLVED | 04/06/11 | 13:12 | 46.12 | 2.0 | 7.71 | 220 | 7.10 | 413 | 7.66 | 260 | 109 | 103 |
| | | DISSOLVED | 07/27/11 | 12:10 | 18.01 | 2.0 | 6.36 | 350 | 8.47 | 376 | 7.59 | 335 | 171 | 109 |
| | | DISSOLVED | 03/26/12 | 15:57 | 35.34 | 2.0 | 7.33 | 292 | 8.90 | 389 | 7.52 | 337 | 140 | 131 |
| | | DISSOLVED | 08/27/12 | 16:08 | 36.05 | 2.0 | 7.63 | 281 | 10.52 | 444 | 7.36 | 255 | 138 | 127 |
| DUP | | DISSOLVED | 08/27/12 | 16:12 | 36.05 | 2.0 | 7.63 | 281 | 10.52 | 444 | 7.40 | 253 | 140 | 127 |
| | | DISSOLVED | 02/28/13 | 12:10 | 38.70 | 2.0 | 7.48 | 294 | 7.27 | 396 | 7.24 | 323 | 146 | 131 |
| | | DISSOLVED | 08/06/13 | 16:06 | 40.60 | 2.0 | 7.09 | 305 | 8.77 | 454 | 7.16 | 310 | 153 | 136 |
| DUP | | DISSOLVED | 08/06/13 | 16:10 | 40.60 | 2.0 | 7.09 | 305 | 8.77 | 454 | 6.91 | 295 | 148 | 137 |
| MW-214 | 138065 | DISSOLVED | 04/13/09 | 14:50 | 9.74 | 3.5 | 6.94 | 772 | 6.13 | 364 | 7.28 | 850 | 498 | 236 |
| DUP | | DISSOLVED | 04/13/09 | 14:55 | 9.74 | 3.5 | 6.95 | 772 | 6.13 | 364 | 6.99 | 774 | 503 | 223 |
| | | DISSOLVED | 08/24/09 | 15:20 | 10.41 | 3.0 | 6.93 | 1082 | 11.56 | 274 | 7.23 | 1048 | 634 | 220 |
| | | DISSOLVED | 03/30/10 | 12:59 | 10.35 | 2.5 | 6.73 | 1160 | 6.35 | 387 | 7.92 | 1195 | 676 | 281 |
| | | DISSOLVED | 07/16/10 | 12:28 | 9.90 | 2.5 | 6.68 | 703 | 10.91 | 358 | 7.77 | 720 | 332 | 208 |
| | | DISSOLVED | 04/06/11 | 14:00 | 10.82 | 2.5 | 7.31 | 645 | 5.87 | 470 | 7.34 | 715 | 342 | 201 |
| | | DISSOLVED | 07/26/11 | 11:20 | 10.84 | 2.0 | 7.51 | 940 | 11.01 | 356 | 7.05 | 870 | 508 | 249 |
| | | DISSOLVED | 03/26/12 | 14:46 | 10.77 | 1.0 | 6.91 | 925 | 7.09 | 393 | 7.11 | 945 | 418 | 213 |
| DUP | | DISSOLVED | 03/26/12 | 14:50 | 10.72 | 1.0 | 6.81 | 825 | 7.09 | 393 | 7.09 | 911 | 419 | 214 |
| | | DISSOLVED | 08/27/12 | 15:12 | 10.77 | 1.0 | 6.91 | 1002 | 13.12 | 387 | 6.97 | 917 | 505 | 226 |
| | | DISSOLVED | 02/28/13 | 14:10 | 10.49 | 1.0 | 7.56 | 659 | 6.55 | 384 | 7.08 | 711 | 333 | 183 |
| | | DISSOLVED | 08/06/13 | 14:57 | 11.38 | 0.8 | 6.75 | 880 | 12.52 | 459 | 7.13 | 882 | 465 | 241 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Smelter Hill/Opportunity Ponds**
**Ion 5-Yr Samples**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Ca (mg/L) | Mg (mg/L) | Na (mg/L) | K (mg/L) | Fe (mg/L) | Mn (mg/L) | $SiO_2$ (mg/L) | $HCO_3$ (mg/L) | $CO_3$ (mg/L) | Cl (mg/L) | $SO_4$ (mg/L) | $NO_3$-N (mg/L) | F (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NW-65 | 249909 | DISSOLVED | 09/11/09 | 40.4 | 8.0 | 5.4 | 0.94 | 0.004 | 0.001 | 14.9 | 93 | 0.0 | 0.8 | 65 | 0.55 | 0.47 |
| MW-258 | | DISSOLVED | 04/15/10 | 32.6 | 7.0 | 5.0 | 0.77 | 0.006 | 0.001 | 14.1 | 90 | 0.0 | 0.6 | 50 | 0.25 | 0.44 |
| | | DISSOLVED | 07/14/10 | 51.7 | 9.9 | 5.7 | 0.92 | 0.002 | <0.001 | 14.5 | 76 | 0.0 | 0.8 | 115 | 0.57 | 0.43 |
| | | DISSOLVED | 04/13/11 | 33.6 | 7.1 | 5.6 | 0.83 | <0.002 | <0.001 | 14.4 | 84 | 0.0 | 1.5 | 43 | 0.26 | 0.35 |
| | | DISSOLVED | 07/27/11 | 27.3 | 6.1 | 4.8 | 0.81 | <0.003 | <0.003 | 13.9 | 87 | 0.0 | 1.3 | 29 | 0.22 | 0.33 |
| | | DISSOLVED | 03/12/12 | 30.8 | 6.6 | 5.1 | 0.82 | <0.005 | <0.002 | 14.9 | 82 | 0.0 | 1.0 | 38 | 0.18 | 0.40 |
| | | DISSOLVED | 08/28/12 | 28.6 | 6.1 | 5.1 | 0.79 | <0.015 | <0.003 | 15.2 | 86 | 0.0 | 0.9 | 33 | 0.21 | 0.40 |
| DUP | | DISSOLVED | 08/28/12 | 27.8 | 5.9 | 4.7 | 0.83 | <0.015 | <0.004 | 15.3 | 80 | 0.0 | 1.0 | 36 | 0.21 | 0.41 |
| | | DISSOLVED | 03/20/13 | 24.8 | 5.2 | 4.4 | 0.72 | <0.015 | <0.002 | 13.9 | 80 | 0.0 | 0.9 | 27 | 0.21 | 0.45 |
| | | DISSOLVED | 07/31/13 | 24.7 | 5.1 | 4.5 | 0.73 | <0.015 | <0.002 | 15.1 | 71 | 0.0 | 1.1 | 26 | 6.72 | 0.47 |
| MW-212 | 138007 | DISSOLVED | 04/14/09 | 38.8 | 7.5 | 2.6 | 1.24 | <0.004 | 0.001 | 11.7 | 139 | 0.0 | 1.1 | 13 | 0.11 | 0.58 |
| | | DISSOLVED | 09/08/09 | 35.0 | 6.4 | 2.1 | 1.13 | 0.004 | 0.001 | 11.2 | 131 | 0.0 | 0.8 | 13 | 0.06 | 0.58 |
| | | DISSOLVED | 04/20/10 | 35.5 | 7.0 | 2.4 | 1.14 | 0.002 | <0.001 | 10.7 | 135 | 0.0 | 1.5 | 11 | 0.16 | 0.51 |
| | | DISSOLVED | 07/15/10 | 41.1 | 8.0 | 2.7 | 1.19 | <0.002 | <0.001 | 10.6 | 135 | 0.0 | 1.1 | 19 | 0.17 | 0.52 |
| | | DISSOLVED | 04/06/11 | 33.1 | 6.4 | 2.3 | 0.99 | <0.002 | <0.001 | 10.2 | 126 | 0.0 | 1.1 | 14 | 0.12 | 0.43 |
| | | DISSOLVED | 07/27/11 | 52.0 | 9.9 | 2.7 | 1.21 | <0.002 | <0.001 | 10.4 | 133 | 0.0 | 6.5 | 54 | 0.89 | 0.43 |
| | | DISSOLVED | 03/26/12 | 41.6 | 8.8 | 2.8 | 1.20 | 0.006 | <0.002 | 11.7 | 160 | 0.0 | 1.4 | 14 | 0.16 | 0.44 |
| | | DISSOLVED | 08/27/12 | 40.3 | 9.0 | 2.9 | 1.48 | <0.015 | <0.002 | 10.7 | 155 | 0.0 | 1.0 | 14 | 0.11 | 0.44 |
| DUP | | DISSOLVED | 08/27/12 | 42.1 | 8.4 | 2.7 | 1.38 | <0.015 | <0.002 | 11.6 | 155 | 0.0 | 1.0 | 14 | 0.11 | 0.44 |
| | | DISSOLVED | 02/28/13 | 44.5 | 8.5 | 2.5 | 1.19 | <0.015 | 0.018 | 10.6 | 160 | 0.0 | 1.4 | 13 | 0.74 | 0.46 |
| | | DISSOLVED | 08/06/13 | 46.0 | 9.2 | 2.6 | 1.18 | <0.015 | <0.002 | 11.2 | 166 | 0.0 | 1.3 | 16 | 1.52 | 0.44 |
| DUP | | DISSOLVED | 08/06/13 | 44.1 | 9.3 | 2.4 | 1.19 | <0.015 | <0.002 | 10.9 | 167 | 0.0 | 1.3 | 16 | 1.23 | 0.44 |
| MW-214 | 138065 | DISSOLVED | 04/13/09 | 159.0 | 24.5 | 9.2 | 2.59 | 0.004 | <0.001 | 22.8 | 288 | 0.0 | <5.0 | 267 | 0.73 | <0.50 |
| DUP | | DISSOLVED | 04/13/09 | 161.0 | 24.5 | 9.1 | 2.49 | 0.004 | <0.003 | 22.5 | 272 | 0.0 | <5.0 | 262 | 0.79 | <0.50 |
| | | DISSOLVED | 08/24/09 | 205.0 | 29.7 | 10.8 | 3.07 | <0.01 | 0.001 | 23.1 | 268 | 0.0 | 6.3 | 372 | <0.50 | <0.50 |
| | | DISSOLVED | 03/30/10 | 217.0 | 32.7 | 10.4 | 2.66 | <0.001 | <0.001 | 20.1 | 342 | 0.0 | 5.0 | 424 | 0.18 | 0.16 |
| | | DISSOLVED | 07/16/10 | 107.0 | 15.8 | 7.0 | 2.09 | <0.002 | <0.001 | 19.2 | 253 | 0.0 | 3.3 | 185 | 0.65 | 0.24 |
| | | DISSOLVED | 04/06/11 | 111.0 | 15.7 | 7.4 | 1.87 | <0.002 | <0.001 | 18.4 | 245 | 0.0 | 3.2 | 165 | 0.20 | 0.15 |
| | | DISSOLVED | 07/26/11 | 165.5 | 23.1 | 8.8 | 2.64 | <0.002 | <0.01 | 20.9 | 303 | 0.0 | 3.8 | 281 | 0.36 | 0.19 |
| | | DISSOLVED | 03/26/12 | 133.1 | 20.8 | 8.8 | 2.13 | 0.007 | <0.002 | 20.4 | 260 | 0.0 | 4.3 | 230 | 0.24 | 0.18 |
| DUP | | DISSOLVED | 03/26/12 | 133.2 | 20.9 | 8.9 | 2.20 | 0.052 | <0.002 | 20.6 | 261 | 0.0 | 4.3 | 229 | 0.24 | 0.18 |
| | | DISSOLVED | 08/27/12 | 159.0 | 26.1 | 10.3 | 3.23 | <0.038 | <0.005 | 21.2 | 275 | 0.0 | 4.1 | 297 | 0.23 | 0.18 |
| | | DISSOLVED | 02/28/13 | 108.2 | 15.4 | 6.6 | 1.84 | <0.015 | <0.002 | 16.9 | 223 | 0.0 | 3.6 | 167 | 0.27 | 0.23 |
| | | DISSOLVED | 08/06/13 | 148.2 | 23.1 | 9.0 | 2.48 | <0.015 | <0.002 | 22.0 | 294 | 0.0 | 4.2 | 251 | 0.48 | 0.20 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Smelter Hill/Opportunity Ponds**
**Ion 5-Yr Samples**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Al (µg/L) | Ag (µg/L) | As (µg/L) | B (µg/L) | Ba (µg/L) | Be (µg/L) | Cd (µg/L) | Co (µg/L) | Cr (µg/L) | Cu (µg/L) | Hg (µg/L) | Li (µg/L) | Mo (µg/L) | Ni (µg/L) | Pb (µg/L) | Se (µg/L) | Sr (µg/L) | U (µg/L) | Zn (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NW-65 | 249909 | DISSOLVED | 09/11/09 | <17.80 | <0.10 | 0.64 | 7.11 | 44.1 | <0.10 | <0.20 | <0.10 | 0.19 | <0.80 | | 1.16 | 3.32 | <0.10 | <0.10 | <0.30 | 278 | 3.18 | <1.90 |
| MW-258 | | DISSOLVED | 04/15/10 | <1.00 | <0.10 | 0.69 | 6.59 | 35.9 | <0.20 | <0.10 | 0.10 | 0.18 | <0.40 | | 8.77 | 3.52 | 0.26 | <2.00 | 0.14 | 254 | 2.26 | <1.00 |
| | | DISSOLVED | 07/14/10 | <2.0 | <0.20 | 0.69 | 7.83 | 58.4 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | | <2.0 | 3.48 | <0.20 | <0.20 | 0.26 | 388 | 7.15 | <1.00 |
| | | DISSOLVED | 04/13/11 | 5.3 | <0.20 | 0.69 | 6.13 | 35.6 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | | <2.0 | 3.16 | <0.20 | <0.20 | <0.20 | 240 | 1.81 | <0.50 |
| | | DISSOLVED | 07/27/11 | 9.9 | <0.50 | 0.63 | 6.35 | 31.0 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | | <2.0 | 3.22 | <0.50 | <2.00 | <0.50 | 179 | <2.00 | 0.43 |
| | | DISSOLVED | 03/12/12 | 3.0 | <0.100 | 0.74 | 7.14 | 34.1 | <0.100 | <0.100 | <0.100 | <0.100 | 0.11 | | <0.040 | 3.01 | <0.100 | <0.040 | <0.100 | 225 | 0.69 | 0.69 |
| | | DISSOLVED | 08/28/12 | <0.400 | <0.010 | 0.73 | 7.94 | 31.3 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | | 0.61 | 3.72 | 0.34 | <0.040 | <0.100 | 207 | 2.20 | <0.200 |
| DUP | | DISSOLVED | 08/28/12 | 1.2 | <0.010 | 0.73 | 7.75 | 30.5 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | | 0.86 | 3.72 | 0.31 | <0.040 | <0.100 | 201 | 2.03 | <0.200 |
| | | DISSOLVED | 03/20/13 | 1.2 | <0.100 | 0.67 | 6.81 | 26.3 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | <1.500 | 3.37 | 0.29 | <0.060 | <0.100 | 175 | 0.96 | <0.050 |
| | | DISSOLVED | 07/31/13 | 3.5 | <0.100 | 0.73 | 7.69 | 27.7 | <0.100 | <0.100 | <0.100 | <0.100 | <0.04 | | <1.5 | 4.00 | 0.23 | <0.06 | <0.10 | 176 | 1.01 | 0.56 |
| MW-212 | 138007 | DISSOLVED | 04/14/09 | <6.26 | <0.07 | 0.64 | 4.15 | 19.5 | <0.20 | <0.05 | 0.05 | <0.09 | <0.42 | | 2.39 | 3.61 | <0.09 | <0.20 | <0.21 | 80 | 0.52 | 1.84 |
| | | DISSOLVED | 09/08/09 | <7.60 | <0.04 | 0.67 | 4.14 | 19.7 | <0.20 | <0.05 | <0.10 | 0.12 | <0.40 | | 2.43 | 4.33 | <0.10 | <0.16 | 0.12 | 71 | 0.52 | <0.90 |
| | | DISSOLVED | 04/20/10 | <1.00 | <0.10 | 0.69 | 2.94 | 22.3 | <0.20 | <0.10 | <0.10 | 0.17 | <0.40 | | 10.20 | 3.89 | 0.16 | <2.00 | 0.12 | 85 | 0.55 | <1.00 |
| | | DISSOLVED | 07/15/10 | <2.0 | <0.20 | 0.65 | 5.98 | 23.3 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | | <2.00 | 3.98 | <0.20 | <0.20 | <0.20 | 81 | 0.78 | <1.00 |
| | | DISSOLVED | 04/06/11 | 2.1 | <0.20 | 0.65 | 3.43 | 15.5 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | | <2.00 | 3.37 | <0.20 | <0.20 | <0.20 | 62 | 0.39 | <0.50 |
| | | DISSOLVED | 07/27/11 | 15.3 | <0.10 | 0.64 | 3.75 | 29.4 | <0.10 | <0.10 | <0.10 | 0.21 | 0.36 | | 0.51 | 3.64 | 0.12 | <0.040 | 0.43 | 103 | 1.18 | 0.50 |
| | | DISSOLVED | 03/26/12 | <0.400 | <0.100 | 0.60 | 3.13 | 22.9 | <0.100 | <0.100 | <0.100 | <0.100 | 0.12 | | <0.040 | 2.79 | <0.100 | <0.040 | <0.100 | 92 | 0.49 | <0.200 |
| | | DISSOLVED | 08/27/12 | <0.400 | <0.010 | 0.56 | 4.43 | 25.2 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | | 5.19 | 3.94 | 0.51 | <0.040 | <0.100 | 86 | 0.68 | <0.200 |
| DUP | | DISSOLVED | 08/27/12 | <0.400 | <0.010 | 0.53 | 4.33 | 25.4 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | | 5.14 | 3.86 | 0.51 | <0.040 | <0.100 | 85 | 0.66 | <0.200 |
| | | DISSOLVED | 02/28/13 | 1.4 | <0.100 | 0.61 | 1.46 | 25.1 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | <1.500 | 3.55 | 0.51 | <0.060 | <0.100 | 86 | 0.51 | <0.050 |
| | | DISSOLVED | 08/06/13 | 0.8 | <0.100 | 0.59 | 3.46 | 26.4 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | <1.500 | 3.69 | 0.42 | <0.060 | <0.100 | 96 | 0.78 | <0.050 |
| DUP | | DISSOLVED | 08/06/13 | <0.400 | <0.100 | 0.57 | 3.34 | 26.6 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | <1.500 | 3.77 | 0.22 | <0.060 | <0.100 | 96 | 0.77 | <0.050 |
| MW-214 | 138065 | DISSOLVED | 04/13/09 | <30.41 | <0.35 | 0.89 | 14.70 | 15.9 | <0.96 | <0.24 | <0.21 | <0.43 | <2.05 | | 5.35 | 0.55 | <0.41 | <0.99 | <1.02 | 134 | 1.56 | <6.52 |
| DUP | | DISSOLVED | 04/13/09 | <60.82 | <0.70 | 1.88 | 30.50 | 32.1 | <1.93 | <0.48 | <0.42 | <0.86 | <4.11 | | 12.10 | 1.09 | <0.83 | <1.97 | <2.03 | 269 | 3.11 | <13.04 |
| | | DISSOLVED | 08/24/09 | <38.00 | <0.20 | 0.85 | 25.70 | 23.0 | <1.00 | <0.25 | <0.50 | <0.20 | <2.00 | | 7.50 | 0.64 | <0.50 | <0.76 | <0.50 | 159 | 2.68 | <4.50 |
| | | DISSOLVED | 03/30/10 | <4.04 | <0.51 | 0.99 | 15.50 | 24.7 | <0.51 | <0.50 | <0.50 | <0.50 | <0.50 | | 5.28 | 0.52 | <0.50 | <0.50 | <1.01 | 187 | 3.43 | <4.04 |
| | | DISSOLVED | 07/16/10 | <2.0 | <0.20 | 1.05 | 12.00 | 19.6 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | | 3.86 | 1.02 | <0.20 | <0.20 | 0.56 | 119 | 1.15 | <1.00 |
| | | DISSOLVED | 04/06/11 | <2.0 | <0.20 | 1.05 | 9.72 | 16.2 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | | 2.02 | 0.60 | <0.20 | <0.20 | 0.25 | 109 | 0.89 | <0.50 |
| | | DISSOLVED | 07/26/11 | 43.5 | <0.10 | 1.15 | 14.44 | 35.0 | <0.10 | <0.10 | 0.18 | 0.17 | 0.45 | | 4.84 | 0.36 | <0.10 | <0.040 | 0.48 | 174 | 1.81 | <0.20 |
| | | DISSOLVED | 03/26/12 | 48.7 | <0.010 | 1.08 | 10.93 | 23.7 | <0.100 | <0.100 | <0.100 | <0.100 | 0.40 | | <0.040 | 0.41 | <0.100 | <0.040 | <0.100 | 141 | 1.39 | 1.33 |
| DUP | | DISSOLVED | 03/26/12 | <0.100 | | 1.07 | 11.01 | 23.6 | <0.100 | <0.100 | <0.100 | <0.100 | 3.90 | | <0.040 | 0.42 | <0.100 | <0.040 | <0.100 | 141 | 1.39 | 1.34 |
| | | DISSOLVED | 08/27/12 | <1.000 | <0.250 | 1.02 | 16.39 | 35.1 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | | 10.49 | 0.55 | 2.13 | <0.100 | <0.250 | 171 | 2.87 | <0.500 |
| | | DISSOLVED | 02/28/13 | <0.400 | <0.100 | 0.95 | 8.73 | 20.2 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | <1.500 | 0.39 | 1.35 | <0.060 | 0.27 | 103 | 1.55 | <0.500 |
| | | DISSOLVED | 08/06/13 | 0.5 | <0.100 | 1.06 | 13.51 | 33.5 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | <1.500 | 0.78 | 1.43 | <0.060 | 0.22 | 149 | 3.87 | <0.500 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Smelter Hill/Opportunity Ponds**
**Ion 5-Yr Samples**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Additional Trace Metals Cerium Ce (µg/L) | Cesium Cs (µg/L) | Gallium Ga (µg/L) | Lanthanum La (µg/L) | Niobium Nb (µg/L) | Neodymium Nd (µg/L) | Palladium Pd (µg/L) | Praseodymium Pr (µg/L) | Rubidium Rb (µg/L) | Thallium Tl (µg/L) | Thorium Th (µg/L) | Tin Sn (µg/L) | Titanium Ti (µg/L) | Tungsten W (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NW-6S | 249909 | DISSOLVED | 09/11/09 | <0.10 | <0.10 | <0.10 | <0.10 | <0.20 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.77 | 0.27 |
| MW-258 | | DISSOLVED | 04/15/10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.30 | <0.10 | 0.04 | <0.10 | <0.10 | <0.10 | 0.51 | 0.29 |
| | | DISSOLVED | 07/14/10 | <0.02 | <0.50 | <0.02 | <0.02 | <0.02 | <0.02 | <0.50 | <0.02 | <0.50 | <0.02 | <0.02 | <0.02 | 0.97 | 0.24 |
| | | DISSOLVED | 04/13/11 | <0.02 | <0.50 | <0.02 | <0.02 | <0.50 | <0.02 | <0.50 | <0.02 | <0.50 | <0.02 | <0.02 | <0.50 | 0.74 | 0.21 |
| | | DISSOLVED | 07/27/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.16 | 0.21 |
| | | DISSOLVED | 03/12/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.22 | 0.23 |
| | | DISSOLVED | 08/28/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.30 |
| DUP | | DISSOLVED | 08/28/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.29 |
| | | DISSOLVED | 03/20/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.23 | 0.26 |
| | | DISSOLVED | 07/31/13 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.30 |
| MW-212 | 138007 | DISSOLVED | 04/14/09 | <0.04 | <0.04 | <0.04 | <0.05 | <0.03 | <0.04 | <0.07 | <0.03 | 1.19 | <0.03 | <0.02 | <0.05 | 0.15 | 0.12 |
| | | DISSOLVED | 09/08/09 | <0.02 | <0.04 | <0.05 | <0.02 | <0.04 | <0.05 | <0.10 | <0.02 | 1.04 | <0.03 | <0.02 | <0.04 | 0.23 | <0.04 |
| | | DISSOLVED | 04/20/10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.07 | <0.10 | 0.25 | <0.10 | 1.37 | <0.10 | <0.10 | <0.10 | <0.20 | 0.22 |
| | | DISSOLVED | 07/15/10 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.20 | 1.19 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 |
| | | DISSOLVED | 04/06/11 | <0.20 | <0.50 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | 0.96 | <0.20 | <0.20 | <0.50 | 0.26 | <0.20 |
| | | DISSOLVED | 07/27/11 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 1.21 | <0.10 | <0.10 | <0.10 | 0.62 | 0.12 |
| | | DISSOLVED | 03/26/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 1.08 | <0.100 | <0.100 | <0.100 | <0.100 | 0.10 |
| | | DISSOLVED | 08/27/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 1.35 | <0.100 | <0.100 | <0.100 | <0.100 | 0.15 |
| DUP | | DISSOLVED | 08/27/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 1.32 | <0.100 | <0.100 | <0.100 | <0.100 | 0.14 |
| | | DISSOLVED | 02/28/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 1.16 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 |
| | | DISSOLVED | 08/06/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 1.35 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 |
| DUP | | DISSOLVED | 08/06/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 1.39 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 |
| MW-214 | 138065 | DISSOLVED | 04/13/09 | <0.21 | <0.18 | <0.19 | <0.25 | <0.16 | <0.20 | <0.36 | <0.16 | 0.65 | <0.16 | <0.09 | <0.24 | 2.77 | <0.15 |
| DUP | | DISSOLVED | 04/13/09 | <0.42 | <0.36 | <0.38 | <0.49 | <0.31 | <0.39 | <0.72 | <0.32 | 1.33 | <0.33 | <0.18 | <0.47 | 5.75 | <0.29 |
| | | DISSOLVED | 08/24/09 | 0.21 | <0.21 | <0.25 | 0.21 | <0.20 | <0.26 | <0.50 | 0.23 | 0.81 | <0.17 | <0.12 | <0.21 | 3.16 | <0.25 |
| | | DISSOLVED | 03/30/10 | <0.50 | <0.50 | <0.50 | <0.50 | <1.00 | <0.50 | <0.50 | <0.50 | 0.85 | <0.50 | <0.50 | <0.50 | 3.99 | <0.50 |
| | | DISSOLVED | 07/16/10 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.20 | 0.77 | <0.20 | <0.20 | <0.20 | 1.46 | <0.20 |
| | | DISSOLVED | 04/06/11 | <0.20 | <0.50 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | 0.56 | <0.20 | <0.20 | <0.50 | 2.24 | <0.20 |
| | | DISSOLVED | 07/26/11 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.83 | <0.10 | <0.10 | <0.10 | 3.09 | <0.10 |
| | | DISSOLVED | 03/26/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.54 | <0.100 | <0.100 | <0.100 | 3.23 | <0.100 |
| DUP | | DISSOLVED | 03/26/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.55 | <0.100 | <0.100 | <0.100 | 3.24 | <0.100 |
| | | DISSOLVED | 08/27/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.99 | <0.250 | <0.250 | <0.250 | 2.83 | <0.250 |
| | | DISSOLVED | 02/28/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.54 | <0.100 | <0.100 | <0.100 | 1.96 | <0.100 |
| | | DISSOLVED | 08/06/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.97 | <0.100 | <0.100 | <0.100 | 1.89 | <0.100 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Ion 5-Yr Samples**

| | | | | | | PHYSICAL PARAMETERS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | FIELD | | | | LAB | | | | |
| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | TIME (HRS) | SWL (FT) | FLOW (GPM) | pH | SC (UMHOS) | TEMP (C) | REDOX (mv) | pH | SC (UMHOS) | HARDNESS (MG/L) | ALKALINITY (MG/L) |
| MW-216 | 137957 | DISSOLVED | 04/14/09 | 14:59 | 3.15 | 3.5 | 7.21 | 629 | 3.53 | 406 | 7.52 | 671 | 376 | 135 |
| | | DISSOLVED | 08/24/09 | 15:45 | 3.62 | 3.0 | 6.85 | 697 | 14.60 | 197 | 7.22 | 685 | 361 | 118 |
| | | DISSOLVED | 04/20/10 | 12:24 | 3.25 | 2.5 | 6.57 | 575 | 5.46 | 232 | 7.86 | 654 | 345 | 129 |
| | | DISSOLVED | 07/19/10 | 10:27 | 4.57 | 2.5 | 6.40 | 805 | 8.38 | 177 | 8.20 | 802 | 425 | 199 |
| | | DISSOLVED | 04/07/11 | 12:16 | 4.23 | 2.5 | 7.38 | 910 | 4.69 | 218 | 7.35 | 885 | 512 | 167 |
| | | DISSOLVED | 07/29/11 | 15:50 | 4.85 | 2.0 | 6.79 | 920 | 8.67 | 266 | 7.28 | 795 | 490 | 154 |
| | | DISSOLVED | 03/15/12 | 14:55 | 4.60 | 1.5 | 6.79 | 885 | 6.13 | 296 | 7.17 | 927 | 448 | 151 |
| | | DISSOLVED | 08/21/12 | 11:24 | 5.08 | 1.5 | 7.11 | 928 | 9.34 | 238 | 7.36 | 886 | 467 | 126 |
| | | DISSOLVED | 03/12/13 | 13:26 | 4.46 | 1.0 | 7.28 | 919 | 5.39 | 257 | 7.13 | 1005 | 450 | 166 |
| | | DISSOLVED | 08/08/13 | 12:59 | 5.11 | 1.0 | 6.86 | 880 | 9.47 | 223 | 7.15 | 869 | 441 | 147 |
| MW-256 | 249851 | DISSOLVED | 04/17/09 | 17:10 | 64.93 | 4.5 | 7.13 | 552 | 9.75 | 343 | 7.20 | 845 | 329 | 176 |
| | | DISSOLVED | 08/20/09 | 14:00 | 53.26 | 3.0 | 6.86 | 590 | 9.85 | 338 | 7.34 | 597 | 290 | 179 |
| | | DISSOLVED | 03/23/10 | 14:17 | 64.20 | 2.5 | 6.67 | 655 | 9.74 | 392 | 7.42 | 678 | 324 | 172 |
| | | DISSOLVED | 07/16/10 | 10:56 | 53.67 | 2.5 | 6.46 | 625 | 10.77 | 373 | 8.09 | 626 | 302 | 173 |
| | | DISSOLVED | 04/13/11 | 14:22 | 67.55 | 1.5 | 7.34 | 575 | 9.28 | 425 | 7.24 | 637 | 314 | 172 |
| | | DISSOLVED | 07/27/11 | 14:17 | 41.44 | 2.0 | 4.93 | 461 | 10.16 | 383 | 7.13 | 426 | 223 | 147 |
| | | DISSOLVED | 03/26/12 | 16:53 | 56.09 | 1.5 | 6.89 | 917 | 9.48 | 391 | 7.07 | 958 | 434 | 153 |
| | | DISSOLVED | 08/15/12 | 12:27 | 55.14 | 1.5 | 6.74 | 821 | 10.30 | 409 | 7.01 | 771 | 415 | 149 |
| | | DISSOLVED | 02/27/13 | 12:21 | 60.07 | 1.0 | 6.80 | 684 | 9.09 | 373 | 6.84 | 711 | 343 | 343 |
| | | DISSOLVED | 08/05/13 | 12:38 | 62.33 | 1.0 | 6.98 | 605 | 10.16 | 469 | 7.16 | 603 | 302 | 191 |
| MW-26 | 249793 | DISSOLVED | 04/13/09 | 17:20 | 9.31 | 3.5 | 6.64 | 1736 | 5.46 | | 6.80 | 1841 | 1301 | 318 |
| | | DISSOLVED | 08/25/09 | 13:44 | 9.54 | 2.7 | 6.31 | 1953 | 9.89 | 176 | 7.34 | 1883 | 1250 | 372 |
| | | DISSOLVED | 08/25/09 | 13:49 | 9.54 | 2.7 | 6.31 | 1953 | 9.89 | 176 | 7.44 | 1944 | 1365 | 372 |
| | | DISSOLVED | 04/01/10 | 14:22 | 9.21 | 2.5 | 6.57 | 2000 | 6.10 | 197 | 7.12 | 1834 | 1171 | 266 |
| | | DISSOLVED | 07/16/10 | 13:02 | 9.32 | 2.5 | 6.47 | 1960 | 9.96 | 199 | 7.22 | 2070 | 1207 | 331 |
| | | DISSOLVED | 04/06/11 | 14:51 | 9.25 | 2.5 | 6.74 | 1860 | 5.95 | 66 | 6.73 | 1668 | 1287 | 309 |
| | | DISSOLVED | 07/26/11 | 13:50 | 9.31 | 2.0 | 5.85 | 2074 | 9.12 | 231 | 6.61 | 1667 | 1272 | 323 |
| | | DISSOLVED | 03/07/12 | 14:17 | 9.26 | 2.0 | 6.00 | 1879 | 5.86 | 237 | 6.55 | 1946 | 1040 | 301 |
| | | DISSOLVED | 08/27/12 | 13:17 | 9.54 | 2.5 | 6.29 | 1957 | 10.64 | 182 | 6.59 | 1698 | 1111 | 296 |
| | | DISSOLVED | 02/28/13 | 15:07 | 9.06 | 2.0 | 6.92 | 1824 | 6.26 | 215 | 6.60 | 1861 | 1049 | 292 |
| | | DISSOLVED | 08/14/13 | 12:40 | 9.40 | 2.0 | 6.26 | 1825 | 10.12 | 198 | 6.72 | 1858 | 1147 | 326 |
| MW-26M | 249790 | DISSOLVED | 04/14/09 | 10:15 | 12.05 | 2.0 | 6.51 | 1543 | 6.98 | | 6.86 | 1571 | 1099 | 290 |
| | | DISSOLVED | 08/25/09 | 13:50 | 14.48 | 3.0 | 6.64 | 1680 | 8.06 | 321 | 7.14 | 1685 | 1031 | 258 |
| | | DISSOLVED | 04/01/10 | 13:41 | 13.65 | 2.5 | 6.60 | 1830 | 7.95 | 381 | 7.90 | 1817 | 1031 | 278 |
| | | DISSOLVED | 07/16/10 | 13:47 | 13.81 | 2.5 | 6.65 | 1790 | 9.34 | 283 | 7.07 | 1818 | 1014 | 282 |
| | | DISSOLVED | 04/06/11 | 15:47 | 13.07 | 2.5 | 6.74 | 1760 | 7.62 | 290 | 6.80 | 1626 | 1080 | 300 |
| | | DISSOLVED | 07/26/11 | 15:21 | 14.12 | 2.0 | 6.37 | 1966 | 8.60 | 305 | 6.64 | 1590 | 1886 | 307 |
| | | DISSOLVED | 03/07/12 | 15:55 | 13.52 | 2.0 | 6.32 | 1817 | 7.07 | 371 | 6.67 | 1888 | 975 | 289 |
| | | DISSOLVED | 08/27/12 | 14:20 | 14.21 | 2.0 | 6.41 | 1792 | 8.72 | 329 | 6.65 | 1578 | 1013 | 274 |
| | | DISSOLVED | 02/28/13 | 16:13 | 13.74 | 2.5 | 6.86 | 1761 | 7.74 | 325 | 6.65 | 1816 | 1007 | 282 |
| | | DISSOLVED | 08/14/13 | 14:36 | 14.24 | 2.5 | 6.27 | 1720 | 8.88 | 329 | 6.75 | 1736 | 1037 | 308 |
| | | DISSOLVED | 08/14/13 | 14:39 | 14.24 | 2.5 | 6.27 | 1720 | 8.88 | 329 | 6.77 | 1729 | 966 | 308 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Ion 5-Yr Samples**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Ca (mg/L) | Mg (mg/L) | Na (mg/L) | K (mg/L) | Fe (mg/L) | Mn (mg/L) | $SiO_2$ (mg/L) | $HCO_3$ (mg/L) | $CO_3$ (mg/L) | Cl (mg/L) | $SO_4$ (mg/L) | $NO_3$-N (mg/L) | F (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-216 | 137957 | DISSOLVED | 04/14/09 | 116.0 | 20.9 | 8.9 | 3.07 | 0.032 | 0.010 | 15.3 | 165 | 0.0 | 5.0 | 261 | <0.50 | 1.94 |
| | | DISSOLVED | 08/24/09 | 113.0 | 19.1 | 10.3 | 4.08 | 0.048 | 0.008 | 19.8 | 144 | 0.0 | 9.6 | 253 | <0.50 | 1.86 |
| | | DISSOLVED | 04/20/10 | 109.0 | 17.8 | 7.7 | 2.79 | 0.035 | 0.009 | 13.2 | 157 | 0.0 | 4.1 | 227 | 0.12 | 1.09 |
| | | DISSOLVED | 07/19/10 | 134.0 | 22.0 | 9.2 | 3.48 | 0.111 | 0.046 | 16.5 | 243 | 0.0 | 4.9 | 302 | <0.05 | 1.28 |
| | | DISSOLVED | 04/07/11 | 174.0 | 26.3 | 10.3 | 3.36 | 0.147 | 0.096 | 16.9 | 204 | 0.0 | 5.6 | 360 | 0.08 | 1.16 |
| | | DISSOLVED | 07/29/11 | 155.8 | 24.6 | 9.8 | 3.67 | 0.178 | 0.059 | 18.3 | 188 | 0.0 | 5.2 | 344 | 0.01 | 1.32 |
| | | DISSOLVED | 03/15/12 | 142.9 | 22.2 | 9.5 | 3.03 | 0.647 | 0.073 | 18.8 | 184 | 0.0 | 5.5 | 314 | 0.10 | 1.22 |
| | | DISSOLVED | 08/21/12 | 143.1 | 26.6 | 10.4 | 3.66 | 0.090 | 0.025 | 17.3 | 154 | 0.0 | 6.8 | 354 | <0.010 | 1.14 |
| | | DISSOLVED | 03/12/13 | 141.5 | 23.6 | 10.7 | 3.36 | 0.265 | 0.118 | 19.9 | 203 | 0.0 | 6.8 | 344 | 0.07 | 1.43 |
| | | DISSOLVED | 08/08/13 | 138.4 | 23.1 | 10.6 | 3.57 | 0.160 | 0.062 | 19.3 | 179 | 0.0 | 5.6 | 331 | 0.09 | 1.46 |
| MW-256 | 249851 | DISSOLVED | 04/17/09 | 102.0 | 18.1 | 7.5 | 2.50 | 0.005 | <0.001 | 18.0 | 215 | 0.0 | 11.9 | 116 | 5.12 | <0.50 |
| | | DISSOLVED | 08/20/09 | 90.3 | 15.7 | 6.9 | 2.17 | <0.004 | <0.001 | 16.4 | 218 | 0.0 | 21.1 | 94 | 8.66 | <0.50 |
| | | DISSOLVED | 03/23/10 | 100.0 | 18.1 | 7.1 | 2.23 | 0.005 | <0.001 | 15.7 | 210 | 0.0 | 13.9 | 142 | 6.00 | 0.32 |
| | | DISSOLVED | 07/16/10 | 93.5 | 16.6 | 6.6 | 2.18 | 0.003 | <0.001 | 15.9 | 211 | 0.0 | 17.6 | 121 | 5.95 | 0.33 |
| | | DISSOLVED | 04/13/11 | 97.5 | 17.2 | 7.6 | 2.26 | <0.002 | <0.001 | 15.5 | 210 | 0.0 | 12.9 | 109 | 5.22 | 0.26 |
| | | DISSOLVED | 07/27/11 | 69.0 | 12.4 | 6.0 | 1.94 | <0.000 | <0.001 | 15.2 | 179 | 0.0 | 7.2 | 66 | 3.72 | 0.33 |
| | | DISSOLVED | 03/26/12 | 132.1 | 25.4 | 9.0 | 2.61 | 0.055 | <0.002 | 17.2 | 186 | 0.0 | 24.7 | 255 | 9.51 | 0.28 |
| | | DISSOLVED | 08/15/12 | 124.7 | 25.2 | 8.7 | 2.66 | <0.015 | <0.002 | 16.5 | 182 | 0.0 | 23.4 | 209 | 5.94 | 0.26 |
| | | DISSOLVED | 02/27/13 | 105.9 | 19.1 | 7.4 | 2.40 | <0.015 | <0.002 | 15.8 | 204 | 0.0 | 14.3 | 162 | 4.83 | 0.32 |
| | | DISSOLVED | 08/05/13 | 93.0 | 16.9 | 7.0 | 2.23 | <0.015 | <0.002 | 16.9 | 233 | 0.0 | 9.9 | 120 | 4.13 | 0.33 |
| MW-26 | 249793 | DISSOLVED | 04/13/09 | 449.0 | 43.6 | 9.6 | 6.38 | 4.080 | 15.500 | 22.0 | 388 | 0.0 | <5.0 | 964 | <0.50 | 1.29 |
| | | DISSOLVED | 08/25/09 | 428.0 | 43.4 | 10.1 | 6.96 | 2.720 | 15.300 | 21.5 | 454 | 0.0 | 6.5 | 1011 | <0.50 | 1.40 |
| | | DISSOLVED | 08/25/09 | 474.0 | 44.1 | 9.8 | 6.88 | 2.650 | 14.000 | 22.9 | 454 | 0.0 | 6.5 | 986 | <0.50 | 1.39 |
| | | DISSOLVED | 04/01/10 | 396.0 | 44.2 | 9.3 | 5.93 | 1.930 | 13.600 | 19.4 | 324 | 0.0 | 5.4 | 987 | <0.05 | 1.55 |
| | | DISSOLVED | 07/16/10 | 407.0 | 46.3 | 9.2 | 6.50 | 1.970 | 14.100 | 19.8 | 404 | 0.0 | 4.9 | 934 | <0.05 | 1.70 |
| | | DISSOLVED | 04/06/11 | 436.0 | 48.1 | 10.5 | 3.18 | 3.510 | 13.900 | 19.6 | 377 | 0.0 | 4.4 | 946 | <0.05 | 1.37 |
| | | DISSOLVED | 07/26/11 | 431.4 | 47.3 | 9.7 | 6.58 | 1.505 | 14.328 | 20.1 | 394 | 0.0 | 4.6 | 984 | 0.06 | 1.58 |
| | | DISSOLVED | 03/07/12 | 249.9 | 40.4 | 9.6 | 5.49 | 5.244 | 13.021 | 20.6 | 367 | 0.0 | 4.2 | 808 | <0.010 | 1.46 |
| | | DISSOLVED | 08/27/12 | 369.4 | 45.9 | 10.3 | 6.93 | 3.078 | 12.434 | 20.6 | 361 | 0.0 | 4.2 | 865 | <0.010 | 1.58 |
| | | DISSOLVED | 02/28/13 | 357.6 | 37.9 | 9.1 | 5.34 | 2.459 | 12.190 | 20.1 | 356 | 0.0 | 4.4 | 924 | <0.010 | 1.64 |
| | | DISSOLVED | 08/14/13 | 392.6 | 40.5 | 9.8 | 6.29 | 2.060 | 12.977 | 21.4 | 397 | 0.0 | 4.2 | 884 | 0.05 | 1.83 |
| MW-26M | 249790 | DISSOLVED | 04/14/09 | 377.0 | 38.4 | 9.3 | 5.87 | 0.025 | 11.700 | 21.2 | 353 | 0.0 | <5.0 | 841 | <0.50 | 1.13 |
| | | DISSOLVED | 08/25/09 | 351.0 | 37.6 | 9.7 | 6.04 | <0.012 | 10.000 | 20.4 | 314 | 0.0 | 6.0 | 745 | <0.50 | 1.15 |
| | | DISSOLVED | 04/01/10 | 347.0 | 39.9 | 8.9 | 5.37 | <0.001 | 11.300 | 19.0 | 339 | 0.0 | 4.9 | 895 | 0.07 | 1.38 |
| | | DISSOLVED | 07/16/10 | 340.0 | 40.0 | 9.0 | 5.99 | 0.012 | 11.200 | 19.4 | 344 | 0.0 | 4.8 | 835 | 0.23 | 1.46 |
| | | DISSOLVED | 04/06/11 | 364.0 | 41.5 | 9.5 | 5.14 | <0.01 | 10.500 | 18.3 | 366 | 0.0 | 4.4 | 859 | 0.06 | 1.22 |
| | | DISSOLVED | 07/26/11 | 398.7 | 46.2 | 10.1 | 6.13 | <0.002 | 11.034 | 20.2 | 374 | 0.0 | 4.7 | 913 | 0.19 | 1.34 |
| | | DISSOLVED | 03/07/12 | 325.6 | 39.5 | 8.8 | 5.15 | 0.027 | 10.666 | 19.8 | 352 | 0.0 | 4.2 | 774 | <0.010 | 1.26 |
| | | DISSOLVED | 08/27/12 | 333.7 | 43.7 | 10.4 | 6.83 | <0.038 | 9.757 | 20.1 | 334 | 0.0 | 4.1 | 768 | 0.19 | 1.38 |
| | | DISSOLVED | 02/28/13 | 339.8 | 38.6 | 8.9 | 5.12 | <0.038 | 9.787 | 19.5 | 344 | 0.0 | 4.4 | 798 | 0.19 | 1.38 |
| | | DISSOLVED | 08/14/13 | 351.3 | 38.9 | 9.9 | 5.98 | <0.038 | 9.567 | 21.0 | 376 | 0.0 | 4.0 | 771 | 0.21 | 1.47 |
| | | DISSOLVED | 08/14/13 | 321.5 | 39.7 | 10.5 | 6.01 | <0.038 | 9.221 | 20.9 | 376 | 0.0 | 4.1 | 745 | 0.22 | 1.51 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Ion 5-Yr Samples**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Al (µg/L) | Ag (µg/L) | As (µg/L) | B (µg/L) | Ba (µg/L) | Be (µg/L) | Cd (µg/L) | Co (µg/L) | Cr (µg/L) | Cu (µg/L) | Hg (µg/L) | Li (µg/L) | Mo (µg/L) | Ni (µg/L) | Pb (µg/L) | Se (µg/L) | Sr (µg/L) | U (µg/L) | Zn (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-216 | 137957 | DISSOLVED | 04/14/09 | <30.41 | <0.35 | 2.29 | 12.40 | 23.6 | <0.96 | <0.24 | <0.21 | <0.43 | <2.05 | | 15.00 | 4.29 | <0.41 | <0.99 | 1.81 | 439 | 5.39 | <6.52 |
| | | DISSOLVED | 08/24/09 | <17.80 | <0.10 | 3.66 | 18.20 | 32.2 | <0.10 | <0.20 | 0.35 | 0.13 | 1.18 | | 16.40 | 6.55 | <1.90 | <0.10 | 0.34 | 467 | 3.61 | <1.90 |
| | | DISSOLVED | 04/20/10 | <1.00 | <0.10 | 1.99 | 7.19 | 26.7 | <0.20 | <0.10 | 0.18 | 0.10 | 0.70 | | 20.10 | 3.78 | <0.10 | <0.20 | 1.36 | 429 | 6.44 | <1.00 |
| | | DISSOLVED | 07/19/10 | <2.0 | <0.20 | 2.20 | 9.60 | 33.6 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | | 11.50 | 3.45 | <0.20 | <0.20 | <0.20 | 589 | 6.52 | <1.00 |
| | | DISSOLVED | 04/07/11 | 12.9 | <0.20 | 1.76 | 8.41 | 35.5 | <0.20 | <0.20 | 0.21 | <0.20 | 1.20 | | 10.30 | 3.15 | <0.20 | <0.20 | 0.67 | 659 | 5.42 | <0.50 |
| | | DISSOLVED | 07/29/11 | 42.2 | <0.10 | 2.46 | 11.52 | 36.2 | <0.10 | <0.10 | 0.26 | 0.15 | 0.60 | | 18.12 | 3.27 | 0.23 | <0.040 | 0.13 | 624 | 6.17 | <0.20 |
| | | DISSOLVED | 03/15/12 | 44.6 | <0.100 | 2.27 | 9.68 | 31.2 | <0.100 | <0.100 | <0.100 | <0.100 | 0.52 | | 13.07 | 2.67 | <0.100 | <0.040 | <0.100 | 575 | 54.12 | <0.200 |
| | | DISSOLVED | 08/21/12 | <0.400 | <0.010 | 1.85 | 11.69 | 36.6 | <0.100 | <0.100 | 0.20 | <0.100 | 0.32 | | 21.31 | 3.27 | 1.80 | <0.040 | 0.38 | 598 | 6.27 | 0.52 |
| | | DISSOLVED | 03/12/13 | <0.400 | <0.100 | 1.98 | 10.43 | 28.9 | <0.100 | <0.100 | 0.10 | <0.100 | <0.040 | | 14.72 | 2.29 | 2.49 | <0.060 | 0.62 | 601 | 4.32 | <0.500 |
| | | DISSOLVED | 08/08/13 | <0.400 | <0.100 | 2.63 | 10.7 | 35.0 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | 17.81 | 3.70 | 1.49 | <0.060 | <0.100 | 603 | 6.86 | <0.500 |
| MW 256 | 249851 | DISSOLVED | 04/17/09 | <6.08 | <0.07 | 0.56 | 17.30 | 51.3 | <0.19 | <0.05 | 0.23 | <0.09 | 0.98 | | 4.25 | 2.36 | <0.08 | <0.20 | 1.01 | 229 | 1.50 | <1.30 |
| | | DISSOLVED | 08/20/09 | <15.10 | <0.13 | 0.52 | 17.00 | 55.8 | <0.14 | <0.16 | 0.12 | <0.10 | 7.82 | | 4.31 | 2.44 | <0.24 | <0.104 | 0.74 | 220 | 1.54 | <0.89 |
| | | DISSOLVED | 03/23/10 | 1.7 | <0.10 | 0.62 | 15.50 | 61.2 | <0.10 | <0.10 | <0.10 | 0.31 | 0.46 | | 3.15 | 2.40 | <0.10 | 0.16 | 1.42 | 232 | 1.90 | 1.61 |
| | | DISSOLVED | 07/16/10 | <2.0 | <0.20 | 0.54 | 17.00 | 59.3 | <0.20 | <0.20 | <0.20 | <0.20 | 0.53 | | 3.78 | 2.10 | <0.20 | <0.20 | 1.06 | 223 | 1.43 | <1.00 |
| | | DISSOLVED | 04/13/11 | <2.0 | <0.20 | 0.57 | 14.60 | 52.0 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | | <2.0 | 2.37 | <0.20 | <0.20 | 1.13 | 224 | 1.45 | <0.50 |
| | | DISSOLVED | 07/27/11 | 23.8 | <1.00 | 0.51 | 17.57 | 41.9 | <0.10 | <0.10 | 0.11 | 0.16 | 0.24 | | 4.29 | 2.24 | <0.10 | <0.040 | 0.57 | 165 | 0.84 | <0.20 |
| | | DISSOLVED | 03/26/12 | 34.4 | <0.100 | 0.63 | 19.64 | 78.2 | <0.100 | <0.100 | <0.100 | <0.100 | 0.54 | | 0.49 | 1.58 | <0.100 | <0.040 | 1.44 | 336 | 1.71 | 1.72 |
| | | DISSOLVED | 08/15/12 | <0.400 | <0.010 | 0.25 | 18.83 | 78.1 | <0.100 | <0.100 | 0.14 | 0.16 | 0.82 | | 9.27 | 1.99 | 1.73 | <0.040 | 1.70 | 302 | 1.82 | 2.22 |
| | | DISSOLVED | 02/27/13 | 0.5 | <0.100 | 0.45 | 17.02 | 63.8 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | 3.53 | 2.11 | 1.37 | <0.060 | 1.15 | 259 | 1.38 | <0.500 |
| | | DISSOLVED | 08/05/13 | <0.400 | <0.100 | 0.52 | 14.64 | 56.1 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | <1.500 | 2.32 | 0.86 | <0.060 | 1.17 | 233 | 1.62 | <0.500 |
| MW-26 | 249793 | DISSOLVED | 04/13/09 | <60.82 | <0.70 | <0.74 | 15.00 | 11.9 | <1.93 | <0.48 | 3.29 | <0.86 | <4.11 | | 11.70 | 2.33 | 6.24 | <1.97 | <2.03 | 451 | 24.00 | <13.04 |
| | | DISSOLVED | 08/25/09 | <38.00 | <0.20 | <0.50 | 16.10 | 13.1 | <1.00 | <0.25 | 1.46 | <0.20 | <2.00 | | 11.50 | 2.44 | <0.50 | <0.76 | <0.50 | 444 | 33.00 | <4.50 |
| | | DISSOLVED | 08/25/09 | <38.00 | <0.20 | <0.50 | 13.70 | 13.1 | <1.00 | <0.25 | 1.50 | <0.20 | <2.00 | | 11.30 | 2.46 | <0.50 | <0.76 | <0.50 | 449 | 33.10 | <4.50 |
| | | DISSOLVED | 04/01/10 | 2.8 | <0.10 | 0.59 | 9.23 | 13.6 | <0.10 | <0.10 | 1.79 | <0.10 | 0.65 | | 7.07 | 2.96 | 0.31 | <0.10 | 0.26 | 474 | 48.70 | <0.50 |
| | | DISSOLVED | 07/16/10 | 3.1 | <0.20 | 0.40 | 10.80 | 15.1 | <0.20 | <0.20 | 1.80 | <0.20 | 0.60 | | 9.04 | 3.01 | 0.43 | <0.20 | <0.20 | 574 | 59.00 | <1.00 |
| | | DISSOLVED | 04/06/11 | <10.0 | <1.00 | <0.90 | 21.80 | 12.9 | <1.00 | <1.00 | 1.62 | <1.00 | <2.50 | | <10.0 | 2.41 | 2.33 | <1.00 | <0.90 | 488 | 43.50 | <2.50 |
| | | DISSOLVED | 07/26/11 | 182.7 | <0.50 | 1.30 | 15.12 | 15.4 | 1.8 | 1.02 | 2.45 | 0.56 | 3.07 | | 12.01 | 3.40 | 2.77 | 1.08 | <0.50 | 526 | 52.09 | 8.53 |
| | | DISSOLVED | 03/07/12 | 103.6 | <0.250 | 0.59 | 15.02 | 11.4 | <0.250 | <0.250 | 1.68 | <0.250 | 3.96 | | 9.25 | 2.23 | 3.31 | <0.100 | <0.250 | 455 | 39.61 | <0.500 |
| | | DISSOLVED | 08/27/12 | <1.00 | <0.250 | 0.39 | 17.05 | 14.3 | <0.250 | <0.250 | 1.16 | <0.25 | 7.90 | | 20.58 | 2.73 | 5.77 | <0.100 | <0.250 | 478 | 45.27 | <0.500 |
| | | DISSOLVED | 02/28/13 | 3.0 | <0.250 | <0.250 | 9.73 | 12.1 | <0.250 | <0.250 | 1.14 | <0.250 | <0.100 | | <3.750 | 2.38 | 6.64 | <0.150 | <0.250 | 481 | 26.71 | <0.130 |
| | | DISSOLVED | 08/14/13 | 3.4 | <0.250 | 0.73 | 15.14 | 14.3 | <0.250 | <0.250 | 0.68 | <0.250 | <0.100 | | 10.95 | 3.00 | 5.65 | <0.150 | <0.250 | 464 | 35.51 | <0.130 |
| MW-26M | 249790 | DISSOLVED | 04/14/09 | <60.82 | <0.70 | <0.74 | 12.50 | 6.2 | <1.93 | <0.48 | 0.51 | <0.86 | <4.11 | | 10.80 | 2.30 | 3.49 | <1.97 U | <2.03 | 429 | 17.20 | 13.04 |
| | | DISSOLVED | 08/25/09 | <89.00 | <0.50 | <1.00 | 15.60 | 8.6 | <0.50 | <1.00 | 0.56 | 0.55 | <4.00 | | 11.80 | 3.12 | 2.12 | <0.50 | <1.50 | 496 | 24.50 | <9.50 |
| | | DISSOLVED | 04/01/10 | 1.8 | <0.10 | 0.70 | 8.23 | 8.5 | <0.10 | 0.14 | 0.69 | <0.10 | 0.91 | | 6.40 | 2.95 | 1.57 | <0.10 | 0.23 | 447 | 30.00 | <0.81 |
| | | DISSOLVED | 07/16/10 | 2.2 | <0.20 | 0.60 | 10.20 | 9.9 | <0.20 | <0.20 | 0.81 | <0.20 | 0.82 | | 8.22 | 3.04 | 2.01 | <0.20 | <0.20 | 478 | 35.60 | <1.00 |
| | | DISSOLVED | 04/06/11 | <10.0 | <1.00 | <0.90 | 11.70 | 9.0 | <1.00 | <1.00 | <0.90 | <1.00 | <2.50 | | <10.0 | 2.63 | 3.80 | <1.00 | <0.90 | 472 | 29.70 | <2.50 |
| | | DISSOLVED | 07/26/11 | 90.5 | <0.50 | 0.64 | 14.20 | 11.2 | <0.50 | <0.50 | 1.00 | <0.50 | 5.56 | | 9.75 | 2.75 | 3.42 | <0.20 | <0.50 | 523 | 35.99 | 2.56 |
| | | DISSOLVED | 03/07/12 | 83.1 | <0.250 | 1.01 | 12.55 | 9.0 | <0.250 | 0.27 | 0.98 | <0.250 | 6.03 | | 9.61 | 2.32 | 4.30 | <0.100 | 0.77 | 442 | 31.11 | 0.77 |
| | | DISSOLVED | 08/27/12 | <1.000 | <0.250 | 0.52 | 15.22 | 10.5 | <0.250 | <0.250 | 0.87 | <0.250 | 7.55 | | 19.44 | 2.78 | 7.55 | <0.100 | <0.250 | 460 | 31.85 | <0.500 |
| | | DISSOLVED | 02/28/13 | 4.0 | <0.250 | 0.53 | 7.84 | 9.6 | <0.250 | <0.250 | 0.75 | <0.250 | <0.100 | | <3.750 | 2.52 | 8.22 | <0.150 | <0.250 | 431 | 21.49 | 1.23 |
| | | DISSOLVED | 08/14/13 | 2.2 | <0.250 | 0.51 | 13.37 | 10.3 | <0.250 | <0.250 | 0.40 | <0.250 | <0.100 | | 6.73 | 2.71 | 7.14 | <0.150 | <0.250 | 455 | 25.98 | <0.130 |
| | | DISSOLVED | 08/14/13 | 2.1 | <0.250 | 0.54 | 13.41 | 10.2 | <0.250 | <0.250 | 0.40 | <0.250 | <0.100 | | 6.65 | 2.69 | 7.18 | <0.150 | <0.250 | 457 | 25.94 | <0.130 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Ion 5-Yr Samples**

| Site ID | GWIC ID | Sample Type | DATE | Additional Trace Metals: Cerium | Cesium | Gallium | Lanthanum | Niobium | Neodymium | Palladium | Praseodymium | Rubidium | Thallium | Thorium | Tin | Titanium | Tungsten |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Ce | Cs | Ga | La | Nb | Nd | Pd | Pr | Rb | Tl | Th | Sn | Ti | W |
| | | | (MM/DD/YR) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) |
| MW-216 | 137957 | DISSOLVED | 04/14/09 | <0.21 | <0.18 | <0.19 | <0.25 | <0.16 | <0.20 | <0.36 | <0.16 | 0.49 | <0.16 | <0.09 | <0.24 | 2.63 | 0.74 |
| | | DISSOLVED | 08/24/09 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.14 | <0.10 | 0.82 | <0.10 | <0.10 | <0.10 | 2.50 | <0.10 |
| | | DISSOLVED | 04/20/10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.38 | <0.10 | 0.58 | <0.10 | <0.10 | <0.10 | 2.29 | 0.93 |
| | | DISSOLVED | 07/19/10 | 0.21 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.20 | 0.66 | <0.20 | <0.20 | <0.20 | 2.58 | 0.80 |
| | | DISSOLVED | 04/07/11 | <0.20 | <0.50 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | 0.62 | <0.20 | <0.20 | <0.50 | 4.64 | 0.61 |
| | | DISSOLVED | 07/29/11 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | 0.30 | <1.00 | 0.67 | <1.00 | <1.00 | <1.00 | 3.69 | 0.70 |
| | | DISSOLVED | 03/15/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.47 | <0.100 | <0.100 | <0.100 | 3.77 | 0.52 |
| | | DISSOLVED | 08/21/12 | 0.10 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.31 | <0.100 | 0.60 | <0.100 | <0.100 | <0.100 | 3.61 | 0.82 |
| | | DISSOLVED | 03/12/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.33 | <0.100 | 0.24 | <0.100 | <0.100 | <0.100 | 5.50 | 0.57 |
| | | DISSOLVED | 08/08/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.75 | <0.100 | <0.100 | <0.100 | 2.54 | 0.96 |
| MW-256 | 249851 | DISSOLVED | 04/17/09 | <0.04 | <0.04 | <0.04 | <0.05 | <0.03 | <0.04 | <0.07 | <0.03 | 2.63 | <0.03 | <0.02 | <0.05 | 1.22 | 0.12 |
| | | DISSOLVED | 08/20/09 | <0.10 | <0.12 | <0.10 | <0.10 | <0.34 | <0.13 | <0.12 | <0.10 | 2.74 | <0.14 | <0.18 | <0.16 | 0.98 | <0.13 |
| | | DISSOLVED | 03/23/10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.20 | <0.10 | <0.10 | <0.10 | 2.90 | <0.10 | 0.16 | <0.10 | 1.34 | <0.10 |
| | | DISSOLVED | 07/16/10 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.20 | 2.86 | <0.20 | <0.20 | <0.20 | 1.01 | <0.20 |
| | | DISSOLVED | 04/13/11 | <0.20 | <0.50 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | 2.64 | <0.20 | <0.20 | <0.20 | 1.45 | <0.20 |
| | | DISSOLVED | 07/27/11 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 2.10 | <0.10 | <0.10 | <0.10 | 0.39 | <0.10 |
| | | DISSOLVED | 03/26/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 2.52 | <0.100 | <0.100 | <0.100 | 3.96 | <0.100 |
| | | DISSOLVED | 08/15/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.17 | <0.100 | 3.01 | <0.100 | <0.100 | <0.100 | 2.15 | <0.100 |
| | | DISSOLVED | 02/27/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 2.85 | <0.100 | <0.100 | <0.100 | 1.74 | <0.100 |
| | | DISSOLVED | 08/05/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 2.88 | <0.100 | <0.100 | <0.100 | 0.82 | <0.100 |
| MW-26 | 249793 | DISSOLVED | 04/13/09 | <0.42 | <0.36 | <0.38 | <0.49 | <0.31 | <0.39 | <0.72 | <0.32 | 1.12 | <0.33 | <0.18 | <0.47 | 9.94 | <0.29 |
| | | DISSOLVED | 08/25/09 | 0.27 | <0.21 | <0.25 | 0.16 | <0.20 | <0.26 | <0.50 | <0.11 | 1.26 | <0.17 | <0.12 | <0.21 | 8.23 | <0.25 |
| | | DISSOLVED | 08/25/09 | 0.27 | <0.21 | <0.25 | 0.17 | <0.20 | <0.26 | <0.50 | <0.11 | 1.30 | <0.17 | <0.12 | <0.21 | 8.52 | <0.25 |
| | | DISSOLVED | 04/01/10 | 0.29 | <0.10 | <0.10 | 0.18 | <0.20 | <0.10 | 0.17 | <0.10 | 1.31 | <0.10 | <0.10 | <0.10 | 7.78 | 0.11 |
| | | DISSOLVED | 07/16/10 | 0.54 | <0.50 | <0.20 | 0.32 | <0.20 | <0.20 | <0.50 | <0.20 | 1.50 | <0.20 | <0.20 | <0.20 | 7.45 | <0.20 |
| | | DISSOLVED | 04/06/11 | <1.00 | <2.50 | <0.90 | <1.00 | <2.50 | <1.00 | <2.50 | <1.00 | <2.50 | <1.00 | <1.00 | <2.50 | 14.90 | <1.00 |
| | | DISSOLVED | 07/26/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.00 | <0.50 | 1.24 | 0.80 | <0.50 | <0.50 | 12.20 | <0.50 |
| | | DISSOLVED | 03/07/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.98 | <0.250 | <0.250 | <0.250 | 10.17 | <0.250 |
| | | DISSOLVED | 08/27/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 1.21 | <0.250 | <0.250 | <0.250 | 8.79 | <0.250 |
| | | DISSOLVED | 02/28/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.92 | <0.250 | <0.250 | <0.250 | 10.71 | <0.250 |
| | | DISSOLVED | 08/14/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 1.35 | <0.250 | <0.250 | <0.250 | 6.54 | <0.250 |
| MW-26M | 249790 | DISSOLVED | 04/14/09 | <0.42 | <0.36 | <0.38 | <0.49 | <0.31 | <0.39 | <0.72 | <0.32 | 1.03 | <0.33 | <0.18 | <0.47 | 8.51 | <0.29 |
| | | DISSOLVED | 08/25/09 | <0.50 | <0.50 | <0.50 | <0.50 | <1.00 | <0.50 | <0.50 | <0.50 | 1.37 | <0.50 | <0.50 | <0.50 | 9.41 | <0.50 |
| | | DISSOLVED | 04/01/10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.20 | <0.10 | 0.12 | <0.10 | 1.19 | <0.10 | <0.10 | <0.10 | 7.17 | <0.10 |
| | | DISSOLVED | 07/16/10 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.20 | 1.38 | <0.20 | <0.20 | <0.20 | 6.75 | <0.20 |
| | | DISSOLVED | 04/06/11 | <1.00 | <2.50 | <0.90 | <1.00 | <2.50 | <1.00 | <2.50 | <1.00 | <2.50 | <1.00 | <1.00 | <2.50 | 15.50 | <1.00 |
| | | DISSOLVED | 07/26/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.12 | <0.50 | <0.50 | <0.50 | 11.42 | <0.50 |
| | | DISSOLVED | 03/07/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.92 | <0.250 | <0.250 | <0.250 | 10.18 | <0.250 |
| | | DISSOLVED | 08/27/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 1.16 | <0.250 | <0.250 | <0.250 | 7.81 | <0.250 |
| | | DISSOLVED | 02/28/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.89 | <0.250 | <0.250 | <0.250 | 10.98 | <0.250 |
| | | DISSOLVED | 08/14/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 1.26 | <0.250 | <0.250 | <0.250 | 6.08 | <0.250 |
| | | DISSOLVED | 08/14/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 1.24 | <0.250 | <0.250 | <0.250 | 6.42 | <0.250 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Ion 5-Yr Samples**

| | | | | | PHYSICAL PARAMETERS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | FIELD | | | | LAB | | | |
| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | TIME (HRS) | SWL (FT) | FLOW (GPM) | pH | SC (UMHOS) | TEMP (C) | REDOX (mv) | pH | SC (UMHOS) | HARDNESS (MG/L) | ALKALINITY (MG/L) |
| MW-31 | 249794 | DISSOLVED | 04/20/09 | 15:30 | 6.81 | 3.5 | 7.21 | 1305 | 9.86 | 379 | 7.73 | 1419 | 944 | 152 |
| | | DISSOLVED | 08/24/09 | 14:23 | 7.07 | 3.0 | 6.79 | 1710 | 16.17 | 226 | 7.39 | 1724 | 1084 | 112 |
| | | DISSOLVED | 04/20/10 | 11:36 | 7.34 | 2.5 | 6.71 | 1140 | 5.15 | 227 | 7.79 | 1112 | 629 | 119 |
| | | DISSOLVED | 07/19/10 | 10:55 | 6.05 | 2.5 | 6.54 | 935 | 12.13 | 204 | 7.84 | 980 | 507 | 116 |
| | | DISSOLVED | 04/07/11 | 14:21 | 7.00 | 2.5 | 7.77 | 769 | 2.97 | 266 | 7.65 | 754 | 449 | 118 |
| | | DISSOLVED | 07/29/11 | 14:57 | 6.82 | 2.0 | 5.73 | 804 | 12.76 | 311 | 7.45 | 691 | 410 | 114 |
| | | DISSOLVED | 03/27/12 | 13:20 | 7.50 | 2.0 | 7.06 | 753 | 3.34 | 295 | 7.51 | 698 | 377 | 113 |
| | | DISSOLVED | 08/21/12 | 12:34 | 7.56 | 2.0 | 2.07 | 1030 | 16.19 | 194 | 7.35 | 977 | 523 | 98 |
| | | DISSOLVED | 03/12/13 | 16:20 | 7.08 | 2.0 | 7.89 | 841 | 4.06 | 284 | 7.45 | 933 | 405 | 144 |
| | | DISSOLVED | 08/09/13 | 15:31 | 7.20 | 2.0 | 7.24 | 1020 | 15.60 | 230 | 7.31 | 999 | 522 | 112 |
| MW-31M | 249785 | DISSOLVED | 04/20/09 | 15:40 | 18.88 | 2.5 | 7.48 | 129 | 7.48 | 366 | 7.55 | 692 | 377 | 213 |
| | | DISSOLVED | 08/24/09 | 13:45 | 19.55 | 1.5 | 7.07 | 803 | 11.51 | 241 | 7.51 | 806 | 416 | 211 |
| | | DISSOLVED | 04/15/10 | 13:54 | 19.47 | 2.5 | 7.17 | 790 | 11.11 | 283 | 7.86 | 759 | 398 | 194 |
| | | DISSOLVED | 07/19/10 | 12:04 | 19.50 | 2.5 | 7.13 | 690 | 10.63 | 315 | 8.07 | 654 | 334 | 210 |
| | | DISSOLVED | 04/07/11 | 13:38 | 19.37 | 2.5 | 7.53 | 681 | 9.22 | 404 | 7.41 | 744 | 374 | 202 |
| | | DISSOLVED | 07/29/11 | 13:48 | 19.38 | 2.0 | 7.09 | 728 | 10.58 | 393 | 7.37 | 641 | 359 | 211 |
| | | DISSOLVED | 03/15/12 | 16:47 | 19.19 | 2.0 | 7.13 | 697 | 9.48 | 418 | 7.37 | 730 | 345 | 202 |
| | | DISSOLVED | 08/21/12 | 13:25 | 19.47 | 5.0 | 7.06 | 709 | 11.17 | 380 | 7.38 | 702 | 330 | 200 |
| | | DISSOLVED | 03/12/13 | 15:25 | 19.38 | 2.5 | 7.80 | 701 | 9.58 | 408 | 7.28 | 770 | 334 | 222 |
| | | DISSOLVED | 08/09/13 | 14:30 | 19.70 | 2.5 | 7.00 | 720 | 10.30 | 398 | 7.24 | 704 | 343 | 222 |
| MW-82 | 249840 | DISSOLVED | 04/20/09 | 13:00 | 42.38 | 1.5 | 6.33 | 1610 | 12.41 | 210 | 6.68 | 1670 | 1151 | 263 |
| | | DISSOLVED | 04/15/10 | 12:23 | 41.17 | 2.5 | 6.42 | 1780 | 10.30 | 218 | 6.56 | 1796 | 1086 | 268 |
| | | DISSOLVED | 07/21/10 | 9:46 | 41.39 | 2.5 | 6.31 | 1750 | 9.59 | 227 | 7.65 | 1819 | 1160 | 254 |
| | | DISSOLVED | 04/07/11 | 14:56 | 41.13 | 2.0 | 6.87 | 1660 | 8.96 | 243 | 6.72 | 1544 | 1089 | 235 |
| | | DISSOLVED | 07/28/11 | 15:03 | 41.69 | 2.0 | 5.04 | 1778 | 10.32 | 263 | 6.69 | 1430 | 969 | 247 |
| | | DISSOLVED | 03/22/12 | 14:11 | 41.31 | 1.5 | 6.38 | 1755 | 10.14 | 279 | 6.70 | 1866 | 957 | 235 |
| | | DISSOLVED | 08/23/12 | 15:20 | 41.54 | 1.5 | 6.49 | 1808 | 10.25 | 226 | 6.87 | 1638 | 1013 | 230 |
| | | DISSOLVED | 03/13/13 | 15:20 | 41.22 | 1.0 | 7.00 | 1717 | 9.23 | 232 | 6.78 | 1764 | 967 | 263 |
| | | DISSOLVED | 08/12/13 | 15:02 | 41.48 | 1.0 | 6.27 | 1715 | 8.92 | 258 | 6.59 | 1724 | 953 | 245 |
| MW-82M | 249896 | DISSOLVED | 09/27/11 | 15:43 | 35.88 | 2.0 | 5.98 | 2461 | 10.69 | 339 | 7.12 | 2500 | 1470 | 276 |
| | | DISSOLVED | 03/22/12 | 13:09 | 35.40 | 2.0 | 6.76 | 2450 | 9.73 | 338 | 7.16 | 2547 | 1529 | 254 |
| | | DISSOLVED | 08/23/12 | 14:24 | 36.02 | 1.5 | 6.75 | 2539 | 9.20 | 267 | 7.27 | 2219 | 1644 | 253 |
| | | DISSOLVED | 03/13/13 | 14:38 | 35.28 | 1.5 | 7.53 | 2466 | 8.89 | 269 | 7.22 | 2512 | 1476 | 287 |
| | | DISSOLVED | 08/12/13 | 16:05 | 35.93 | 1.5 | 6.82 | 2460 | 9.92 | 249 | 7.19 | 2488 | 1587 | 291 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Ion 5-Yr Samples**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Ca (mg/L) | Mg (mg/L) | Na (mg/L) | K (mg/L) | Fe (mg/L) | Mn (mg/L) | $SiO_2$ (mg/L) | $HCO_3$ (mg/L) | $CO_3$ (mg/L) | Cl (mg/L) | $SO_4$ (mg/L) | $NO_3$-N (mg/L) | F (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-31 | 249794 | DISSOLVED | 04/20/09 | 291.0 | 52.8 | 12.8 | 7.23 | 0.222 | 0.005 | 15.6 | 185 | 0.0 | 5.1 | 840 | <0.50 | 2.30 |
| | | DISSOLVED | 08/24/09 | 333.0 | 61.3 | 18.0 | 11.00 | 0.385 | 0.010 | 18.4 | 137 | 0.0 | 10.2 | 967 | <0.50 | 2.59 |
| | | DISSOLVED | 04/20/10 | 186.0 | 39.9 | 11.4 | 5.46 | 0.090 | 0.005 | 11.4 | 145 | 0.0 | 5.0 | 520 | 0.16 | 2.13 |
| | | DISSOLVED | 07/19/10 | 152.0 | 31.0 | 10.2 | 6.08 | 0.067 | 0.003 | 15.2 | 141 | 0.0 | 5.3 | 409 | 0.12 | 2.55 |
| | | DISSOLVED | 04/07/11 | 136.0 | 26.7 | 8.9 | 4.17 | 0.026 | 0.002 | 10.5 | 144 | 0.0 | 4.1 | 316 | 0.30 | 1.72 |
| | | DISSOLVED | 07/29/11 | 124.8 | 24.0 | 9.7 | 9.72 | 0.049 | 0.003 | 16.0 | 139 | 0.0 | 6.0 | 301 | 0.11 | 2.04 |
| | | DISSOLVED | 03/27/12 | 112.8 | 23.3 | 8.4 | 3.80 | 0.050 | <0.002 | 11.2 | 138 | 0.0 | 4.8 | 275 | 0.26 | 1.52 |
| | | DISSOLVED | 08/21/12 | 154.0 | 33.7 | 13.0 | 6.50 | 0.153 | 0.005 | 17.9 | 119 | 0.0 | 8.1 | 440 | 0.09 | 1.62 |
| | | DISSOLVED | 03/12/13 | 119.2 | 26.2 | 9.4 | 3.53 | 0.038 | <0.002 | 11.9 | 176 | 0.0 | 5.6 | 326 | 0.28 | 1.45 |
| | | DISSOLVED | 08/09/13 | 157.4 | 31.3 | 12.3 | 5.55 | 0.142 | <0.005 | 18.3 | 137 | 0.0 | 6.7 | 439 | 0.09 | 1.68 |
| MW-31M | 249785 | DISSOLVED | 04/20/09 | 110.0 | 24.8 | 18.1 | 3.41 | 0.030 | 0.002 | 31.5 | 260 | 0.0 | 3.1 | 186 | 0.06 | 0.67 |
| | | DISSOLVED | 08/24/09 | 123.0 | 26.4 | 18.5 | 3.19 | 0.071 | 0.027 | 30.5 | 257 | 0.0 | 5.1 | 221 | <0.50 | 0.55 |
| | | DISSOLVED | 04/15/10 | 116.0 | 26.4 | 17.6 | 3.40 | <0.002 | <0.001 | 28.2 | 236 | 0.0 | 3.9 | 232 | 0.08 | 0.69 |
| | | DISSOLVED | 07/19/10 | 97.8 | 21.9 | 16.4 | 2.80 | <0.002 | <0.001 | 27.3 | 256 | 0.0 | 3.4 | 168 | 0.09 | 0.61 |
| | | DISSOLVED | 04/07/11 | 110.0 | 24.1 | 18.5 | 2.88 | <0.002 | <0.001 | 29.5 | 249 | 0.0 | 3.5 | 190 | 0.09 | 0.48 |
| | | DISSOLVED | 07/29/11 | 105.0 | 23.6 | 17.7 | 2.90 | 0.005 | 0.001 | 29.1 | 257 | 0.0 | 3.3 | 176 | 0.08 | 0.51 |
| | | DISSOLVED | 03/15/12 | 100.9 | 22.6 | 18.2 | 2.71 | 0.010 | <0.002 | 30.2 | 246 | 0.0 | 3.3 | 164 | 0.09 | 0.44 |
| | | DISSOLVED | 08/21/12 | 91.9 | 24.5 | 18.4 | 2.81 | <0.015 | <0.002 | 29.7 | 244 | 0.0 | 3.1 | 152 | 0.11 | 0.42 |
| | | DISSOLVED | 03/12/13 | 95.0 | 23.4 | 18.6 | 2.82 | <0.015 | <0.002 | 30.2 | 271 | 0.0 | 3.4 | 174 | 0.09 | 0.45 |
| | | DISSOLVED | 08/09/13 | 99.0 | 23.3 | 18.6 | 2.68 | <0.015 | 0.026 | 31.4 | 271 | 0.0 | 3.3 | 173 | 0.09 | 0.43 |
| MW-82 | 249840 | DISSOLVED | 04/20/09 | 404.0 | 34.5 | 16.6 | 10.60 | 1.150 | 11.700 | 21.9 | 321 | 0.0 | 5.8 | 916 | <0.50 | 3.42 |
| | | DISSOLVED | 04/15/10 | 379.0 | 33.9 | 16.6 | 10.30 | 1.160 | 11.300 | 20.2 | 327 | 0.0 | 6.3 | 883 | <0.05 | 3.16 |
| | | DISSOLVED | 07/21/10 | 408.0 | 34.2 | 16.8 | 9.89 | 1.690 | 11.500 | 20.3 | 310 | 0.0 | 6.2 | 872 | 0.06 | 3.84 |
| | | DISSOLVED | 04/07/11 | 380.0 | 34.0 | 17.0 | 9.50 | 1.860 | 10.300 | 20.1 | 287 | 0.0 | 6.0 | 859 | 0.05 | 3.14 |
| | | DISSOLVED | 07/28/11 | 357.0 | 33.6 | 16.4 | 9.47 | 1.722 | 10.280 | 19.8 | 301 | 0.0 | 5.9 | 828 | <0.01 | 3.56 |
| | | DISSOLVED | 03/22/12 | 331.4 | 31.4 | 15.9 | 8.52 | 1.751 | 9.510 | 21.3 | 286 | 0.0 | 6.0 | 795 | <0.010 | 3.48 |
| | | DISSOLVED | 08/23/12 | 346.3 | 35.9 | 17.6 | 9.86 | 2.276 | 9.721 | 20.0 | 280 | 0.0 | 6.2 | 792 | <0.010 | 3.51 |
| | | DISSOLVED | 03/13/13 | 334.0 | 32.2 | 15.5 | 8.70 | 1.875 | 9.150 | 20.7 | 321 | 0.0 | 7.2 | 785 | 0.06 | 4.03 |
| | | DISSOLVED | 08/12/13 | 326.5 | 33.5 | 16.8 | 9.23 | 2.105 | 9.669 | 21.2 | 299 | 0.0 | 7.1 | 739 | 5.5 | 4.00 |
| MW-82M | 249896 | DISSOLVED | 09/27/11 | 417.6 | 103.9 | 18.0 | 4.93 | 0.066 | 0.119 | 21.4 | 336 | 0.0 | 6.5 | 1333 | <0.01 | 0.50 |
| | | DISSOLVED | 03/22/12 | 445.4 | 101.2 | 19.5 | 4.53 | 0.228 | 0.024 | 22.6 | 310 | 0.0 | 6.4 | 1318 | <0.010 | 0.50 |
| | | DISSOLVED | 08/23/12 | 472.7 | 112.8 | 22.1 | 4.99 | 0.099 | 0.051 | 21.3 | 309 | 0.0 | 6.3 | 1354 | <0.010 | 0.47 |
| | | DISSOLVED | 03/13/13 | 422.3 | 102.5 | 18.1 | 4.42 | 0.125 | 0.046 | 22.6 | 350 | 0.0 | 7.0 | 1354 | <0.010 | 0.54 |
| | | DISSOLVED | 08/12/13 | 456.9 | 108.5 | 20.7 | 4.97 | 0.140 | 0.040 | 22.8 | 355 | 0.0 | 6.7 | 1304 | 0.08 | 0.53 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Ion 5-Yr Samples**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Al (µg/L) | Ag (µg/L) | As (µg/L) | B (µg/L) | Ba (µg/L) | Be (µg/L) | Cd (µg/L) | Co (µg/L) | Cr (µg/L) | Cu (µg/L) | Hg (µg/L) | Li (µg/L) | Mo (µg/L) | Ni (µg/L) | Pb (µg/L) | Se (µg/L) | Sr (µg/L) | U (µg/L) | Zn (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-31 | 249794 | DISSOLVED | 04/20/09 | <62.62 | <0.72 | 1.80 | 17.60 | 8.1 | <1.99 | <0.50 | <0.43 | <0.89 | <4.23 | | 20.80 | 1.68 | <0.85 | <2.03 | <2.09 | 714 | 6.78 | <13.43 |
| | | DISSOLVED | 08/24/09 | <89.00 | <0.50 | 3.60 | 39.30 | 17.0 | <0.50 | <1.00 | <0.50 | 0.56 | <4.00 | | 31.70 | 2.59 | <0.50 | <0.50 | <1.50 | 974 | 4.49 | 14.50 |
| | | DISSOLVED | 04/20/10 | <1.00 | <0.10 | 3.50 | 12.00 | 9.1 | <0.20 | <0.10 | 0.23 | 0.21 | 0.72 | <0.10 | 22.90 | 2.45 | <0.10 | <0.20 | 0.97 | 564 | 6.65 | 7.93 |
| | | DISSOLVED | 07/19/10 | <2.0 | <0.20 | 4.13 | 18.60 | 13.2 | <0.20 | <0.20 | <0.20 | <0.20 | 0.54 | | 13.50 | 3.19 | <0.2 | <0.20 | 1.21 | 515 | 4.40 | 4.35 |
| | | DISSOLVED | 04/07/11 | <2.0 | <0.20 | 4.16 | 6.74 | 11.4 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | | 8.85 | 2.60 | <0.2 | <0.20 | 1.01 | 439 | 4.14 | 4.15 |
| | | DISSOLVED | 07/29/11 | 32.3 | <0.10 | 4.95 | 23.07 | 15.0 | <0.10 | <0.10 | 0.13 | 0.16 | 0.65 | | 17.38 | 3.63 | <0.10 | <0.04 | 1.03 | 434 | 3.23 | 3.38 |
| | | DISSOLVED | 03/27/12 | 40.6 | <0.100 | 5.20 | 5.41 | 14.8 | <0.100 | <0.100 | <0.100 | <0.100 | 0.38 | | 9.64 | 2.12 | <0.100 | <0.100 | <0.100 | 398 | 3.36 | 4.08 |
| | | DISSOLVED | 08/21/12 | <1.000 | <0.250 | 3.74 | 25.37 | 27.4 | <0.250 | <0.250 | <0.250 | <0.250 | 0.42 | | 26.52 | 3.39 | 1.84 | <0.100 | 0.80 | 589 | 3.45 | 4.43 |
| | | DISSOLVED | 03/12/13 | <0.400 | <0.100 | 4.65 | 8.79 | 13.8 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | 9.01 | 1.95 | 2.17 | <0.060 | 1.02 | 451 | 6.29 | 3.86 |
| | | DISSOLVED | 08/09/13 | <1.000 | <0.250 | 6.15 | 28.13 | 25.4 | <0.250 | <0.250 | <0.250 | <0.250 | <0.100 | | 19.00 | 3.48 | 1.51 | <0.150 | 0.73 | 625 | 4.83 | 7.35 |
| MW-31M | 249785 | DISSOLVED | 04/20/09 | 17.6 | <0.07 | 1.25 | 7.06 | 15.6 | <0.20 | <0.05 | 0.28 | 0.26 | <0.42 | | 12.40 | 3.11 | 0.41 | <0.20 | <0.21 | 459 | 19.90 | 2.54 |
| | | DISSOLVED | 08/24/09 | 68.3 | <0.10 | 1.18 | 7.35 | 21.3 | <0.10 | <0.20 | 0.53 | 0.44 | 5.32 | | 12.80 | 4.54 | 6.21 | <0.10 | 0.34 | 467 | 3.61 | <1.90 |
| | | DISSOLVED | 04/15/10 | <1.00 | <0.10 | 1.57 | 6.09 | 21.5 | <0.20 | <0.10 | 0.11 | 0.32 | <0.40 | | 20.00 | 3.23 | <0.10 | <0.20 | 0.26 | 504 | 24.40 | 1.76 |
| | | DISSOLVED | 07/19/10 | <2.0 | <0.20 | 1.59 | 6.85 | 19.2 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | | 9.48 | 3.35 | <0.20 | <0.20 | 0.21 | 442 | 23.50 | <1.00 |
| | | DISSOLVED | 04/07/11 | <2.0 | <0.20 | 1.73 | 5.60 | 21.7 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | | 6.22 | 3.15 | <0.20 | <0.20 | 0.22 | 503 | 21.80 | <0.50 |
| | | DISSOLVED | 07/29/11 | 26.4 | <0.10 | 1.65 | 9.72 | 20.9 | <0.10 | <0.10 | 0.13 | 0.21 | 0.22 | | 14.89 | 3.27 | <0.10 | <0.04 | 0.32 | 482 | 21.49 | <0.20 |
| | | DISSOLVED | 03/15/12 | 32.6 | <0.100 | 1.87 | 7.00 | 21.4 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | | 12.21 | 2.87 | <0.100 | <0.040 | <0.100 | 480 | 4.37 | <0.200 |
| | | DISSOLVED | 08/21/12 | <0.400 | <0.010 | 1.65 | 8.23 | 21.3 | <0.100 | <0.100 | <0.010 | 0.26 | 1.61 | | 18.19 | 3.15 | 1.05 | <0.040 | 0.20 | 457 | 19.78 | 1.79 |
| | | DISSOLVED | 03/12/13 | 2.2 | <0.010 | 1.71 | 7.12 | 20.8 | <0.010 | <0.010 | <0.010 | <0.010 | <0.040 | | 12.16 | 2.36 | 1.59 | <0.060 | 0.15 | 474 | 32.32 | <0.050 |
| | | DISSOLVED | 08/09/13 | 3.3 | <0.010 | 1.82 | 7.61 | 23.4 | <0.010 | <0.010 | 0.12 | <0.100 | <0.040 | | 13.52 | 3.57 | 1.00 | <0.060 | <0.100 | 499 | 22.15 | <0.050 |
| MW-82 | 249840 | DISSOLVED | 04/20/09 | <62.62 | <0.72 | 2.70 | 22.50 | 17.5 | <1.99 | 0.66 | 6.00 | <0.89 | 11.80 | | 16.50 | 2.19 | 1.95 | <2.03 | <2.09 | 623 | 8.10 | 34.70 |
| | | DISSOLVED | 04/15/10 | <36.0 | 0.25 | 0.88 | 20.10 | 19.9 | <1.01 | <1.00 | 6.06 | 0.27 | <2.00 | | 56.60 | 2.74 | 0.61 | <0.77 | 0.57 | 612 | 9.72 | 10.80 |
| | | DISSOLVED | 07/21/10 | 4.7 | <0.20 | 0.73 | 16.40 | 19.7 | <0.20 | <0.20 | 5.43 | <0.20 | <0.20 | | 8.75 | 2.76 | <0.20 | <0.20 | 0.23 | 598 | 12.20 | 3.37 |
| | | DISSOLVED | 04/07/11 | <10.0 | <1.00 | <0.90 | 18.80 | 18.6 | <1.00 | <1.00 | 4.29 | <1.00 | <2.50 | | <10.0 | 2.48 | <0.90 | <1.00 | <0.90 | 557 | 8.74 | 4.34 |
| | | DISSOLVED | 07/28/11 | 93.3 | <0.50 | 0.83 | 22.31 | 18.4 | <0.50 | <0.50 | 4.19 | <0.50 | 0.97 | | 15.65 | 2.77 | <0.50 | <0.20 | <0.50 | 582 | 9.62 | 4.21 |
| | | DISSOLVED | 03/22/12 | 83.5 | <0.500 | 1.29 | 22.47 | 16.7 | <0.500 | <0.500 | 3.25 | <0.500 | 6.13 | | 10.89 | 2.23 | 1.45 | <0.200 | <0.500 | 532 | 7.04 | 6.49 |
| | | DISSOLVED | 08/23/12 | 21.1 | <0.250 | 0.73 | 22.42 | 19.4 | <0.250 | <0.250 | 4.83 | <0.250 | <0.250 | | 15.87 | 2.84 | 4.75 | <0.100 | <0.250 | 576 | 9.24 | <0.500 |
| | | DISSOLVED | 03/13/13 | 3.9 | <0.250 | 0.41 | 25.43 | 17.5 | <0.250 | <0.250 | 2.82 | <0.250 | <0.100 | | 12.82 | 1.66 | 3.72 | <0.150 | <0.250 | 530 | 6.71 | 3.47 |
| | | DISSOLVED | 08/12/13 | 10.1 | <0.250 | 0.89 | 22.35 | 18.7 | <0.250 | <0.250 | 4.87 | <0.250 | <0.100 | | 14.16 | 3.03 | 3.98 | <0.150 | <0.250 | 556 | 9.65 | 6.95 |
| MW-82M | 249896 | DISSOLVED | 09/27/11 | 103.2 | <0.25 | 1.00 | 6.86 | 29.8 | <0.25 | <0.25 | 0.98 | 0.36 | 1.18 | | 7.79 | 3.71 | 2.00 | <0.10 | 0.59 | 1269 | 74.15 | 4.04 |
| | | DISSOLVED | 03/22/12 | 122.4 | <0.500 | 1.83 | 4.26 | 22.2 | <0.500 | <0.500 | <0.500 | <0.500 | 7.53 | | 7.49 | 3.31 | <0.500 | <0.200 | <0.500 | 1227 | 56.93 | 2.79 |
| | | DISSOLVED | 08/23/12 | <2.000 | <0.500 | <0.500 | 6.00 | 22.9 | <0.500 | <0.500 | 0.52 | <0.500 | <0.500 | | <2.000 | 3.94 | 5.37 | <0.200 | <0.500 | 1317 | 62.05 | <0.100 |
| | | DISSOLVED | 03/13/13 | 1.7 | <0.250 | 1.05 | 6.13 | 19.9 | <0.250 | <0.250 | <0.250 | <0.250 | <0.100 | | 7.85 | 3.00 | 7.91 | <0.150 | 0.57 | 1272 | 109.41 | <0.130 |
| | | DISSOLVED | 08/12/13 | 4.2 | <0.250 | 1.08 | 6.4 | 22.0 | <0.250 | <0.250 | <0.250 | <0.250 | 9.55 | | 6.86 | 4.20 | 4.92 | <0.150 | 0.52 | 1354 | 74.52 | <0.130 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Ion 5-Yr Samples**

| Site ID | GWIC ID | Sample Type | DATE | Additional Trace Metals: Cerium | Cesium | Gallium | Lanthanum | Niobium | Neodymium | Palladium | Praseodymium | Rubidium | Thallium | Thorium | Tin | Titanium | Tungsten |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Ce | Cs | Ga | La | Nb | Nd | Pd | Pr | Rb | Tl | Th | Sn | Ti | W |
| | | | (MM/DD/YR) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) |
| MW-31 | 249794 | DISSOLVED | 04/20/09 | <0.43 | <0.37 | <0.39 | <0.50 | <0.32 | <0.40 | <0.74 | <0.32 | 2.26 | <0.34 | <0.18 | <0.49 | 8.05 | <0.30 |
| | | DISSOLVED | 08/24/09 | <0.50 | <0.50 | <0.50 | <0.50 | <1.00 | <0.50 | <0.50 | <0.50 | 4.62 | <0.50 | <0.50 | <0.50 | 12.60 | <0.50 |
| | | DISSOLVED | 04/20/10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.43 | <0.10 | 2.00 | <0.10 | <0.10 | <0.10 | 5.25 | 0.13 |
| | | DISSOLVED | 07/19/10 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.20 | 2.50 | <0.20 | <0.20 | <0.20 | 3.48 | <0.20 |
| | | DISSOLVED | 04/07/11 | <0.20 | <0.50 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | 1.32 | <0.20 | <0.20 | <0.50 | 4.14 | <0.20 |
| | | DISSOLVED | 07/29/11 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.11 | <0.10 | 2.05 | <0.10 | <0.10 | 0.10 | 3.16 | 0.18 |
| | | DISSOLVED | 03/27/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.92 | <0.100 | <0.100 | <0.100 | 3.45 | <0.100 |
| | | DISSOLVED | 08/21/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 2.43 | <0.250 | <0.250 | <0.250 | 4.76 | <0.250 |
| | | DISSOLVED | 03/12/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.24 | <0.100 | 0.86 | <0.100 | <0.100 | <0.100 | 5.52 | <0.100 |
| | | DISSOLVED | 08/09/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 2.41 | <0.250 | <0.250 | <0.250 | 3.73 | <0.250 |
| MW-31M | 249785 | DISSOLVED | 04/20/09 | 0.07 | <0.04 | <0.04 | <0.05 | <0.03 | <0.04 | 0.12 | <0.03 | 1.13 | <0.03 | 0.02 | <0.05 | 2.55 | 1.06 |
| | | DISSOLVED | 08/24/09 | 0.29 | <0.10 | <0.10 | 0.14 | <0.10 | <0.10 | 0.14 | <0.10 | 0.82 | <0.10 | <0.10 | <0.10 | 2.50 | 1.35 |
| | | DISSOLVED | 04/15/10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.41 | <0.10 | 1.24 | <0.10 | <0.10 | <0.10 | 2.01 | 1.20 |
| | | DISSOLVED | 07/19/10 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.2 | 1.16 | <0.20 | <0.20 | <0.20 | 1.25 | 1.16 |
| | | DISSOLVED | 04/07/11 | <0.20 | <0.50 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.50 | 1.14 | <0.20 | <0.20 | <0.50 | 2.35 | 1.09 |
| | | DISSOLVED | 07/29/11 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.11 | <0.10 | 1.16 | <0.10 | <0.10 | <0.10 | 2.04 | 1.21 |
| | | DISSOLVED | 03/15/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.99 | <0.100 | <0.100 | <0.100 | 2.42 | 0.86 |
| | | DISSOLVED | 08/21/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.22 | <0.100 | 1.11 | <0.100 | <0.100 | <0.100 | 1.75 | 1.47 |
| | | DISSOLVED | 03/12/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.26 | <0.100 | 0.44 | <0.100 | <0.100 | <0.100 | 2.93 | 1.06 |
| | | DISSOLVED | 08/09/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 1.28 | <0.100 | <0.100 | <0.100 | 1.56 | 1.48 |
| MW-82 | 249840 | DISSOLVED | 04/20/09 | <0.43 | <0.37 | <0.39 | <0.50 | <0.32 | <0.40 | <0.74 | <0.32 | 0.73 | <0.34 | <0.18 | <0.49 | 9.13 | <0.30 |
| | | DISSOLVED | 04/15/10 | 0.89 | <0.26 | <0.25 | 0.30 | 0.37 | <0.26 | 1.34 | <0.11 | 0.84 | 0.25 | <0.12 | <0.21 | 8.67 | <0.25 |
| | | DISSOLVED | 07/21/10 | 0.86 | <0.50 | <0.20 | 0.40 | <0.20 | <0.20 | <0.50 | <0.20 | 0.76 | <0.20 | <0.20 | <0.20 | 6.22 | <0.20 |
| | | DISSOLVED | 04/07/11 | <1.00 | <2.50 | <0.90 | <1.00 | <2.50 | <1.00 | <2.50 | <1.00 | <2.50 | <1.00 | <1.00 | <2.50 | 12.90 | <1.00 |
| | | DISSOLVED | 07/28/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.62 | <0.50 | <0.50 | <0.50 | 10.29 | <0.50 |
| | | DISSOLVED | 03/22/12 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | 0.50 | <0.500 | <0.500 | <0.500 | 7.77 | <0.500 |
| | | DISSOLVED | 08/23/12 | 0.57 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.66 | <0.250 | <0.250 | <0.250 | 4.22 | <0.250 |
| | | DISSOLVED | 03/13/13 | 0.27 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.32 | <0.250 | <0.250 | <0.250 | 6.04 | <0.250 |
| | | DISSOLVED | 08/12/13 | 1.08 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.65 | <0.250 | <0.250 | <0.250 | 5.75 | <0.250 |
| MW-82M | 249896 | DISSOLVED | 09/27/11 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | 0.80 | <0.25 | <0.25 | <0.25 | 14.64 | 2.21 |
| | | DISSOLVED | 03/22/12 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | 0.68 | <0.500 | <0.500 | <0.500 | 11.49 | 1.44 |
| | | DISSOLVED | 08/23/12 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | 0.89 | <0.500 | <0.500 | <0.500 | <0.500 | 1.80 |
| | | DISSOLVED | 03/13/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.77 | <0.250 | 0.68 | <0.250 | <0.250 | <0.250 | 21.35 | 1.63 |
| | | DISSOLVED | 08/12/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.95 | <0.250 | <0.250 | <0.250 | 11.56 | 1.91 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Ion 5-Yr Samples**

| | | | | | | PHYSICAL PARAMETERS | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | FIELD | | | | LAB | | | |
| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | TIME (HRS) | SWL (FT) | FLOW (GPM) | pH | SC (UMHOS) | TEMP (C) | REDOX (mv) | pH | SC (UMHOS) | HARDNESS (MG/L) | ALKALINITY (MG/L) |
| MW-85 | 249843 | DISSOLVED | 04/20/09 | 12:10 | 38.21 | 8.0 | 6.69 | 1626 | 9.37 | 195 | 6.58 | 1632 | 1067 | 206 |
| | | DISSOLVED | 04/06/10 | 15:20 | 38.18 | 2.5 | 6.57 | 1730 | 8.38 | 150 | 6.65 | 1696 | 1020 | 213 |
| | | DISSOLVED | 07/21/10 | 10:22 | 38.31 | 2.5 | 6.40 | 1690 | 9.62 | 160 | 7.94 | 1625 | 1020 | 199 |
| | | DISSOLVED | 04/13/11 | 12:49 | 38.08 | 2.0 | 7.00 | 1620 | 8.97 | 170 | 6.78 | 1524 | 979 | 209 |
| | | DISSOLVED | 07/28/11 | 13:40 | 38.20 | 2.0 | 5.76 | 1731 | 10.22 | 187 | 6.69 | 1398 | 380 | 227 |
| | | DISSOLVED | 03/27/12 | 14:50 | 37.88 | 2.0 | 6.16 | 1706 | 9.03 | 272 | 6.69 | 1650 | 897 | 211 |
| | | DISSOLVED | 08/16/12 | 16:16 | 37.91 | 2.0 | 6.57 | 1722 | 10.99 | 168 | 6.71 | 1569 | 933 | 211 |
| | | DISSOLVED | 03/13/13 | 12:58 | 37.93 | 2.0 | 7.20 | 1679 | 9.18 | 199 | 6.68 | 1727 | 828 | 228 |
| | | DISSOLVED | 08/12/13 | 11:42 | 38.20 | 2.0 | 6.29 | 1655 | 9.49 | 200 | 6.65 | 1655 | 900 | 231 |
| MW-85M | 249897 | DISSOLVED | 09/27/11 | 14:23 | 63.51 | 2.0 | 6.17 | 778 | 10.96 | 374 | 7.42 | 803 | 364 | 203 |
| | | DISSOLVED | 03/22/12 | 15:51 | 63.21 | 2.0 | 7.27 | 754 | 9.28 | 366 | 7.40 | 884 | 366 | 180 |
| | | DISSOLVED | 08/16/12 | 15:27 | 63.21 | 2.0 | 7.09 | 784 | 10.58 | 366 | 7.40 | 761 | 404 | 196 |
| | | DISSOLVED | 03/13/13 | 13:35 | 63.10 | 1.5 | 7.69 | 788 | 9.16 | 270 | 7.39 | 878 | 384 | 202 |
| | | DISSOLVED | 08/12/13 | 13:38 | 63.65 | 1.5 | 7.03 | 800 | 9.30 | 334 | 7.35 | 794 | 400 | 204 |
| MW-90 | 249844 | DISSOLVED | 04/23/09 | 11:05 | 55.01 | 3.5 | 6.86 | 1046 | 9.05 | 169 | 6.95 | 1058 | 617 | 221 |
| | | DISSOLVED | 08/24/09 | 16:10 | 53.62 | 3.0 | 6.84 | 1148 | 9.90 | 144 | 7.71 | 1148 | 620 | 217 |
| | | DISSOLVED | 04/06/10 | 14:09 | 55.05 | 2.5 | 6.56 | 1160 | 9.13 | 136 | 7.22 | 1065 | 595 | 218 |
| | | DISSOLVED | 07/21/10 | 11:11 | 54.70 | 2.5 | 6.60 | 1135 | 11.37 | 131 | 0.00 | 1132 | 600 | 226 |
| | | DISSOLVED | 04/13/11 | 13:30 | 55.34 | 2.0 | 7.11 | 1086 | 9.71 | 146 | 6.90 | 947 | 544 | 218 |
| | | DISSOLVED | 07/27/11 | 15:50 | 54.39 | 2.0 | 5.47 | 1137 | 11.33 | 169 | 6.83 | 946 | 564 | 233 |
| | | DISSOLVED | 03/28/12 | 14:30 | 53.22 | 2.0 | 6.45 | 1129 | 9.78 | 281 | 6.75 | 1120 | 558 | 217 |
| | | DISSOLVED | 08/15/12 | 14:57 | 53.92 | 1.5 | 6.72 | 1262 | 11.31 | 163 | 6.80 | 1173 | 641 | 214 |
| | | DISSOLVED | 02/27/13 | 15:30 | 54.41 | 1.5 | 6.72 | 1317 | 9.17 | 183 | 6.65 | 1380 | 677 | 215 |
| | | DISSOLVED | 08/05/13 | 15:14 | 55.70 | 1.5 | 6.50 | 1225 | 10.83 | 182 | 6.24 | 1178 | 547 | 103 |
| MW-90M | 249899 | DISSOLVED | 09/27/11 | 12:52 | 55.06 | 2.0 | 5.46 | 1229 | 11.70 | 376 | 6.43 | 1262 | 570 | 183 |
| | | DISSOLVED | 03/22/12 | 17:01 | 55.37 | 2.0 | 6.39 | 1198 | 10.19 | 376 | 6.53 | 1325 | 628 | 171 |
| | | DISSOLVED | 08/15/12 | 16:08 | 56.07 | 2.0 | 6.44 | 1218 | 11.27 | 360 | 6.54 | 1150 | 612 | 173 |
| | | DISSOLVED | 02/27/13 | 16:19 | 56.53 | 2.0 | 6.57 | 1162 | 8.96 | 318 | 6.41 | 1219 | 600 | 173 |
| | | DISSOLVED | 08/06/13 | 13:40 | 57.87 | 2.0 | 6.10 | 1160 | 10.47 | 304 | 6.61 | 1174 | 590 | 194 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Ion 5-Yr Samples**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Ca (mg/L) | Mg (mg/L) | Na (mg/L) | K (mg/L) | Fe (mg/L) | Mn (mg/L) | $SiO_2$ (mg/L) | $HCO_3$ (mg/L) | $CO_3$ (mg/L) | Cl (mg/L) | $SO_4$ (mg/L) | $NO_3$-N (mg/L) | F (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-85 | 249843 | DISSOLVED | 04/20/09 | 366.0 | 37.1 | 18.2 | 8.63 | 16.200 | 10.400 | 22.7 | 251 | 0.0 | 5.3 | 939 | <0.50 | 3.10 |
| | | DISSOLVED | 04/06/10 | 350.0 | 35.6 | 17.9 | 8.16 | 15.100 | 8.330 | 20.3 | 260 | 0.0 | 5.6 | 863 | <0.05 | 3.41 |
| | | DISSOLVED | 07/21/10 | 351.0 | 34.9 | 18.0 | 7.74 | 14.200 | 9.250 | 19.7 | 243 | 0.0 | 5.7 | 859 | 0.13 | 3.51 |
| | | DISSOLVED | 04/13/11 | 340.0 | 31.7 | 17.0 | 6.95 | 12.600 | 8.110 | 19.1 | 255 | 0.0 | 5.6 | 835 | <0.05 | 2.70 |
| | | DISSOLVED | 07/28/11 | 336.8 | 33.9 | 17.6 | 7.76 | 14.987 | 8.790 | 19.6 | 277 | 0.0 | 5.5 | 814 | <0.01 | 3.11 |
| | | DISSOLVED | 03/27/12 | 304.1 | 33.6 | 20.5 | 7.47 | 12.768 | 8.271 | 21.1 | 257 | 0.0 | 5.7 | 786 | 0.09 | 0.11 |
| | | DISSOLVED | 08/16/12 | 313.4 | 36.5 | 17.6 | 7.76 | 12.590 | 8.356 | 19.7 | 257 | 0.0 | 5.5 | 766 | <0.010 | 3.05 |
| | | DISSOLVED | 03/13/13 | 279.8 | 31.5 | 16.7 | 6.97 | 14.765 | 8.104 | 20.7 | 278 | 0.0 | 6.2 | 779 | <0.010 | 3.47 |
| | | DISSOLVED | 08/12/13 | 306.4 | 32.9 | 18.1 | 7.55 | 12.598 | 8.405 | 20.4 | 282 | 0.0 | 6.2 | 737 | <0.010 | 3.52 |
| MW-85M | 249897 | DISSOLVED | 09/27/11 | 104.4 | 25.0 | 14.2 | 2.22 | 0.005 | 0.786 | 22.6 | 247 | 0.0 | 2.6 | 223 | 0.07 | 0.40 |
| | | DISSOLVED | 03/22/12 | 107.8 | 23.6 | 15.3 | 2.03 | <0.005 | 0.122 | 24.6 | 220 | 0.0 | 2.7 | 220 | 0.10 | 0.40 |
| | | DISSOLVED | 08/16/12 | 115.1 | 28.4 | 14.9 | 2.31 | <0.015 | 0.042 | 24.1 | 239 | 0.0 | 2.5 | 222 | 0.09 | 0.37 |
| | | DISSOLVED | 03/13/13 | 110.7 | 26.2 | 16.4 | 2.14 | <0.015 | 0.009 | 24.8 | 246 | 0.0 | 2.8 | 245 | 0.09 | 0.43 |
| | | DISSOLVED | 08/12/13 | 117.2 | 26.2 | 16.8 | 2.24 | <0.015 | 0.010 | 25.4 | 249 | 0.0 | 2.8 | 243 | 0.09 | 0.42 |
| MW-90 | 249844 | DISSOLVED | 04/23/09 | 212.0 | 21.4 | 16.0 | 8.26 | 10.400 | 3.640 | 23.8 | 270 | 0.0 | 6.3 | 443 | <0.50 | 5.18 |
| | | DISSOLVED | 08/24/09 | 214.0 | 20.8 | 15.3 | 7.70 | 9.860 | 3.470 | 21.7 | 264 | 0.0 | 6.9 | 426 | <0.50 | 4.92 |
| | | DISSOLVED | 04/06/10 | 204.0 | 20.9 | 20.9 | 7.47 | 9.490 | 3.380 | 21.3 | 266 | 0.0 | 6.7 | 393 | <0.05 | 4.64 |
| | | DISSOLVED | 07/21/10 | 206.0 | 20.9 | 20.9 | 7.31 | 9.080 | 3.220 | 20.8 | 276 | 0.0 | 6.8 | 410 | <0.05 | 4.89 |
| | | DISSOLVED | 04/13/11 | 187.0 | 18.8 | 13.4 | 6.36 | 8.010 | 2.720 | 17.5 | 266 | 0.0 | 7.4 | 409 | <0.05 | 4.52 |
| | | DISSOLVED | 07/27/11 | 191.7 | 20.7 | 14.4 | 7.19 | 9.729 | 3.073 | 20.3 | 284 | 0.0 | 7.1 | 343 | <0.01 | 4.75 |
| | | DISSOLVED | 03/28/12 | 188.1 | 21.5 | 17.0 | 7.38 | 8.709 | 3.065 | 21.9 | 264 | 0.0 | 8.6 | 375 | 0.09 | 4.90 |
| | | DISSOLVED | 08/15/12 | 214.5 | 25.6 | 15.5 | 7.41 | 9.648 | 3.472 | 21.3 | 261 | 0.0 | 9.3 | 443 | <0.010 | 4.70 |
| | | DISSOLVED | 02/27/13 | 230.8 | 24.6 | 15.2 | 6.91 | 10.793 | 3.479 | 20.9 | 262 | 0.0 | 13.0 | 510 | 0.09 | 5.00 |
| | | DISSOLVED | 08/05/13 | 185.9 | 20.2 | 13.9 | 6.19 | 4.794 | 2.739 | 19.7 | 126 | 0.0 | 10.5 | 366 | 53.78 | 5.08 |
| MW-90M | 249899 | DISSOLVED | 09/27/11 | 203.0 | 15.5 | 17.5 | 6.16 | 0.076 | 12.268 | 17.8 | 223 | 0.0 | 6.4 | 508 | <0.01 | 0.99 |
| | | DISSOLVED | 03/22/12 | 225.1 | 16.0 | 18.2 | 6.18 | 0.081 | 12.468 | 18.3 | 208 | 0.0 | 6.4 | 489 | <0.010 | 0.92 |
| | | DISSOLVED | 08/15/12 | 216.9 | 17.1 | 17.4 | 6.28 | 0.059 | 12.032 | 17.9 | 211 | 0.0 | 6.3 | 480 | <0.010 | 0.93 |
| | | DISSOLVED | 02/27/13 | 215.4 | 15.1 | 17.0 | 6.07 | <0.038 | 11.102 | 17.7 | 211 | 0.0 | 7.8 | 524 | <0.010 | 1.27 |
| | | DISSOLVED | 08/06/13 | 211.1 | 15.3 | 16.1 | 5.98 | <0.038 | 11.412 | 18.0 | 236 | 0.0 | 8.0 | 458 | 0.06 | 1.33 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Ion 5-Yr Samples**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Al (µg/L) | Ag (µg/L) | As (µg/L) | B (µg/L) | Ba (µg/L) | Be (µg/L) | Cd (µg/L) | Co (µg/L) | Cr (µg/L) | Cu (µg/L) | Hg (µg/L) | Li (µg/L) | Mo (µg/L) | Ni (µg/L) | Pb (µg/L) | Se (µg/L) | Sr (µg/L) | U (µg/L) | Zn (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-85 | 249843 | DISSOLVED | 04/20/09 | <60.82 | <0.70 | 71.80 | 19.90 | 16.7 | <1.93 | <0.48 | 5.95 | <0.86 | <4.11 | | 15.10 | 3.54 | 1.06 | <1.97 | <2.03 | 636 | 11.70 | 53.50 |
| | | DISSOLVED | 04/06/10 | <7.68 | <0.04 | 62.40 | 12.10 | 17.9 | <0.20 | 0.12 | 5.32 | 0.05 | 0.52 | | 18.80 | 3.97 | 0.50 | 0.15 | 0.26 | 604 | 15.00 | 32.90 |
| | | DISSOLVED | 07/21/10 | 3.5 | <0.20 | 61.60 | 13.70 | 18.6 | <0.20 | <0.20 | 5.47 | <0.20 | <0.50 | | 9.72 | 4.10 | <0.20 | <0.20 | 0.20 | 579 | 16.40 | 32.60 |
| | | DISSOLVED | 04/13/11 | <10.0 | <1.00 | 59.30 | 17.10 | 15.1 | <1.00 | <1.00 | 4.40 | <1.00 | <2.50 | | <10.0 | 3.80 | 1.68 | <1.00 | <0.90 | 543 | 10.80 | 38.00 |
| | | DISSOLVED | 07/28/11 | 112.0 | <0.50 | 66.88 | 21.30 | <0.50 | <0.50 | <0.50 | 4.72 | <0.50 | 1.05 | | 16.85 | 4.17 | 1.13 | 0.41 | <0.50 | 581 | 12.78 | 41.78 |
| | | DISSOLVED | 03/27/12 | 84.8 | <0.500 | 64.49 | 20.19 | 15.2 | <0.500 | <0.500 | 3.87 | <0.500 | <0.500 | | 9.35 | 3.01 | 2.55 | <0.200 | <0.500 | 534 | 8.46 | 42.87 |
| | | DISSOLVED | 08/16/12 | <1.000 | <0.250 | 60.86 | 27.38 | 17.8 | <0.250 | <0.250 | 4.83 | <0.250 | 0.35 | | 19.56 | 3.92 | 5.23 | <0.100 | <0.250 | 544 | 11.46 | 44.08 |
| | | DISSOLVED | 03/13/13 | 1.7 | <0.250 | 63.15 | 27.02 | 16.2 | <0.250 | <0.250 | 3.76 | <0.250 | <0.100 | | 13.44 | 2.89 | 6.91 | <0.150 | <0.250 | 530 | 8.76 | 40.84 |
| | | DISSOLVED | 08/12/13 | 4.7 | <0.250 | 70.84 | 21.73 | 17.6 | <0.250 | <0.250 | 5.48 | <0.250 | <0.100 | | 13.72 | 4.20 | 4.39 | <0.150 | <0.250 | 544 | 11.65 | 42.08 |
| MW-85M | 249897 | DISSOLVED | 09/27/11 | 38.4 | <0.10 | 0.58 | 6.03 | 87.5 | <0.10 | <0.10 | 0.48 | 0.18 | 0.52 | | 0.84 | 5.27 | 3.85 | <0.040 | 0.24 | 549 | 26.65 | 1.69 |
| | | DISSOLVED | 03/22/12 | 37.8 | <0.100 | 0.68 | 5.03 | 62.3 | <0.100 | <0.100 | <0.100 | 0.17 | 0.23 | | 0.85 | 3.66 | 1.72 | <0.040 | <0.100 | 502 | 21.72 | 1.19 |
| | | DISSOLVED | 08/16/12 | <0.400 | <0.010 | 0.68 | 5.85 | 65.2 | <0.100 | <0.100 | 0.15 | 0.30 | 0.37 | | 4.96 | 4.20 | 1.83 | <0.040 | 0.21 | 535 | 25.54 | 1.27 |
| | | DISSOLVED | 03/13/13 | 0.7 | <0.100 | 0.71 | 5.3 | 51.2 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | <1.500 | 3.34 | 1.97 | <0.060 | 0.12 | 529 | 41.47 | <0.050 |
| | | DISSOLVED | 08/12/13 | 3.3 | <0.100 | 0.84 | 5.2 | 53.2 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | 1.68 | 4.84 | 1.06 | <0.060 | <0.100 | 556 | 28.39 | <0.050 |
| MW-90 | 249844 | DISSOLVED | 04/23/09 | <30.41 | <0.35 | 196 | 21.10 | 17.0 | <0.96 | <0.24 | 3.01 | <0.43 | <2.50 | | 12.80 | 10.70 | 0.83 | <0.99 | <1.00 | 311 | 6.47 | 11.90 |
| | | DISSOLVED | 08/24/09 | <89.00 | <0.50 | 188 | 23.30 | 19.8 | <0.50 | <1.00 | 3.30 | <0.50 | <4.00 | | 13.70 | 12.20 | <0.50 | <0.50 | <1.50 | 323 | 8.19 | 10.60 |
| | | DISSOLVED | 04/06/10 | <5.0 | <0.50 | 183 | 15.40 | 18.8 | <1.00 | <0.50 | 3.42 | <0.50 | <0.20 | | 54.50 | 11.70 | 0.70 | <1.00 | <0.50 | 304 | 8.48 | 11.60 |
| | | DISSOLVED | 07/21/10 | 10.9 | <1.00 | 183 | 20.30 | 18.0 | <1.00 | <1.00 | 3.24 | <1.00 | <2.50 | | <10.0 | 11.70 | <1.00 | <1.00 | <1.00 | 317 | 9.00 | 8.22 |
| | | DISSOLVED | 04/13/11 | <10.0 | <1.00 | 174 | 18.00 | 16.4 | <1.00 | <1.00 | 2.45 | <1.00 | <2.50 | | <10.0 | 11.40 | <0.90 | <1.00 | <0.90 | 293 | 7.63 | 8.58 |
| | | DISSOLVED | 07/27/11 | 76.9 | <0.50 | 180 | 23.03 | 1.6 | <0.50 | <0.50 | 2.70 | <0.50 | 1.07 | | 13.44 | 12.53 | 1.15 | 0.59 | <0.50 | 283 | 8.87 | 11.20 |
| | | DISSOLVED | 03/28/12 | 12.8 | <0.500 | 170 | 21.01 | 17.2 | <0.500 | <0.500 | 2.21 | <0.500 | <0.500 | | 7.60 | 9.54 | <0.500 | <0.200 | <0.500 | 285 | 6.39 | 10.06 |
| | | DISSOLVED | 08/15/12 | <1.000 | <0.250 | 182 | 22.15 | 21.3 | 0.3 | <0.250 | 3.03 | <0.250 | <0.250 | | 16.71 | 11.94 | 3.46 | <0.100 | <0.250 | 323 | 10.22 | 13.18 |
| | | DISSOLVED | 02/27/13 | 5.7 | <0.250 | 181 | 19.02 | 21.5 | <0.250 | <0.250 | 2.65 | <0.250 | <0.100 | | 8.79 | 11.77 | 3.71 | <0.150 | <0.250 | 322 | 9.42 | 11.62 |
| | | DISSOLVED | 08/05/13 | 93.6 | <0.250 | 93 | 19.37 | 27.6 | <0.250 | 3.02 | 2.18 | <0.250 | 61.27 | | 5.81 | 7.28 | 3.04 | 1.38 | <0.250 | 284 | 8.95 | 151.96 |
| MW-90M | 249899 | DISSOLVED | 09/27/11 | 46.5 | <0.25 | 0.34 | 22.12 | 14.3 | <0.25 | 0.97 | 2.11 | 0.33 | 1.93 | | 10.27 | 0.27 | 4.09 | 0.19 | <0.25 | 447 | 4.24 | 7.33 |
| | | DISSOLVED | 03/22/12 | 74.7 | <0.500 | 0.56 | 19.69 | 12.7 | <0.500 | 0.84 | 1.45 | <0.500 | 5.89 | | 8.90 | <0.500 | 1.82 | <0.200 | <0.500 | 448 | 3.18 | 3.32 |
| | | DISSOLVED | 08/15/12 | <1.000 | <0.250 | 0.39 | 21.86 | 13.2 | 0.4 | 0.98 | 1.71 | <0.250 | 1.43 | | 18.23 | 0.35 | 3.63 | <0.100 | <0.250 | 449 | 4.22 | 3.73 |
| | | DISSOLVED | 02/27/13 | 18.0 | <0.250 | <0.250 | 17.46 | 12.8 | <0.250 | 0.88 | 1.30 | <0.250 | <0.100 | | 9.78 | <0.250 | 3.67 | <0.150 | <0.250 | 425 | 3.77 | <0.130 |
| | | DISSOLVED | 08/06/13 | 5.6 | <0.250 | <0.250 | 20.42 | 13.1 | <0.250 | 0.83 | 1.50 | <0.250 | <0.100 | | 8.33 | <0.250 | 3.00 | <0.150 | <0.250 | 448 | 5.02 | <0.130 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Ion 5-Yr Samples**

| | | | | Additional Trace Metals | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site ID | GWIC ID | Sample Type | DATE | Cerium Ce | Cesium Cs | Gallium Ga | Lanthanum La | Niobium Nb | Neodymium Nd | Palladium Pd | Praseodymium Pr | Rubidium Rb | Thallium Tl | Thorium Th | Tin Sn | Titanium Ti | Tungsten W |
| | | | (MM/DD/YR) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) |
| MW-85 | 249843 | DISSOLVED | 04/20/09 | <0.42 | <0.36 | <0.38 | <0.49 | <0.31 | <0.39 | <0.72 | <0.32 | 0.78 | <0.33 | <0.18 | <0.47 | 9.23 | <0.29 |
| | | DISSOLVED | 04/06/10 | 1.00 | <0.04 | <0.05 | 0.40 | 0.06 | 0.20 | 0.46 | 0.08 | 0.93 | 0.07 | 0.06 | <0.04 | 6.99 | 0.20 |
| | | DISSOLVED | 07/21/10 | 1.09 | <0.50 | <0.20 | 0.45 | <0.20 | 0.22 | <0.50 | <0.20 | 0.93 | <0.20 | <0.20 | <0.20 | 6.70 | <0.20 |
| | | DISSOLVED | 04/13/11 | <1.00 | <2.50 | <0.90 | <1.00 | <2.50 | <1.00 | <2.50 | <1.00 | <2.50 | <1.00 | <1.00 | <2.50 | 12.20 | <1.00 |
| | | DISSOLVED | 07/28/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.77 | <0.50 | <0.50 | <0.50 | 9.88 | <0.50 |
| | | DISSOLVED | 03/27/12 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | 0.62 | <0.500 | <0.500 | <0.500 | 7.27 | <0.500 |
| | | DISSOLVED | 08/16/12 | 0.50 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.78 | <0.250 | <0.250 | <0.250 | 7.81 | <0.250 |
| | | DISSOLVED | 03/13/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.65 | <0.250 | <0.250 | <0.250 | 12.25 | <0.250 |
| | | DISSOLVED | 08/12/13 | 0.28 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.88 | <0.250 | <0.250 | <0.250 | 5.53 | <0.250 |
| MW-85M | 249897 | DISSOLVED | 09/27/11 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.16 | <0.10 | 0.71 | <0.10 | <0.10 | <0.10 | 2.42 | 3.94 |
| | | DISSOLVED | 03/22/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.58 | <0.100 | <0.100 | <0.100 | 3.20 | 1.41 |
| | | DISSOLVED | 08/16/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.24 | <0.100 | 0.70 | <0.100 | <0.100 | <0.100 | 2.38 | 1.52 |
| | | DISSOLVED | 03/13/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.29 | <0.100 | 0.53 | <0.100 | <0.100 | <0.100 | 4.03 | 1.26 |
| | | DISSOLVED | 08/12/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.75 | <0.100 | <0.100 | <0.100 | 1.85 | 1.68 |
| MW-90 | 249844 | DISSOLVED | 04/23/09 | <0.21 | <0.18 | <0.19 | <0.25 | <0.16 | <0.20 | <0.36 | <0.16 | 1.13 | <0.16 | <0.09 | <0.24 | 5.17 | <0.15 |
| | | DISSOLVED | 08/24/09 | <0.50 | <0.50 | <0.50 | <0.50 | <1.00 | <0.50 | <0.50 | <0.50 | 1.23 | <0.50 | <0.50 | <0.50 | 4.71 | <0.50 |
| | | DISSOLVED | 04/06/10 | 0.19 | <0.50 | <0.50 | <0.10 | 0.26 | <0.25 | 1.25 | <0.10 | 1.24 | <0.50 | 0.15 | <0.50 | 4.42 | <0.50 |
| | | DISSOLVED | 07/21/10 | <1.00 | <2.50 | <1.00 | <1.00 | <1.00 | <1.00 | <2.50 | <1.00 | <2.50 | <1.00 | <1.00 | <1.00 | 3.74 | <1.00 |
| | | DISSOLVED | 04/13/11 | <1.00 | <2.50 | <0.90 | <1.00 | <2.50 | <1.00 | <2.50 | <1.00 | <2.50 | <1.00 | <1.00 | <2.50 | 5.62 | <1.00 |
| | | DISSOLVED | 07/27/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.99 | <0.50 | <0.50 | <0.50 | 4.67 | <0.50 |
| | | DISSOLVED | 03/28/12 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | 0.84 | <0.500 | <0.500 | <0.500 | 4.74 | <0.500 |
| | | DISSOLVED | 08/15/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 1.08 | <0.250 | <0.250 | <0.250 | 4.68 | <0.250 |
| | | DISSOLVED | 02/27/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 1.01 | <0.250 | <0.250 | <0.250 | 6.21 | <0.250 |
| | | DISSOLVED | 08/05/13 | 0.54 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 1.23 | <0.250 | <0.250 | <0.250 | 2.82 | <0.250 |
| MW-90M | 249899 | DISSOLVED | 09/27/11 | 0.35 | <0.25 | <0.25 | 0.27 | <0.25 | <0.25 | <0.25 | <0.25 | 2.11 | <0.25 | <0.25 | <0.25 | 5.47 | <0.25 |
| | | DISSOLVED | 03/22/12 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | 1.85 | <0.500 | <0.500 | <0.500 | 5.94 | <0.500 |
| | | DISSOLVED | 08/15/12 | 0.33 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 2.26 | <0.250 | <0.250 | <0.250 | 5.00 | <0.250 |
| | | DISSOLVED | 02/27/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 2.09 | <0.250 | <0.250 | <0.250 | 5.62 | <0.250 |
| | | DISSOLVED | 08/06/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 2.46 | <0.250 | <0.250 | <0.250 | 3.57 | <0.250 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Ion 5-Yr Samples**

| | | | | | PHYSICAL PARAMETERS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | FIELD | | | | | LAB | | |
| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | TIME (HRS) | SWL (FT) | FLOW (GPM) | pH | SC (UMHOS) | TEMP (C) | REDOX (mv) | pH | SC (UMHOS) | HARDNESS (MG/L) | ALKALINITY (MG/L) |
| NW-5S | 249942 | DISSOLVED | 10/25/11 | 15:28 | 9.13 | 0.5 | 7.62 | 311 | 15.14 | 344 | 6.68 | 363 | 132 | 80 |
| MW-273 | | DISSOLVED | 03/26/12 | 12:59 | 9.61 | | 6.62 | 352 | 7.22 | 393 | 6.87 | 434 | 157 | 75 |
| | | DISSOLVED | 08/15/12 | 13:49 | 10.92 | | 6.73 | 379 | 13.93 | 438 | 6.82 | 348 | 168 | 80 |
| | | DISSOLVED | 02/27/13 | 14:32 | 11.91 | 0.5 | 6.58 | 250 | 6.91 | 416 | 6.65 | 260 | 110 | 64 |
| | | DISSOLVED | 08/05/13 | 14:20 | 12.73 | 0.5 | 6.75 | 250 | 13.33 | 432 | 6.91 | 247 | 105 | 75 |
| NW-1S-OP | 249901 | DISSOLVED | 09/28/11 | 13:26 | 4.65 | 1.0 | 6.33 | 2058 | 14.47 | 334 | 6.62 | 2130 | 1141 | 304 |
| MW-266 | | DISSOLVED | 03/09/12 | 12:45 | 3.25 | 0.5 | 6.42 | 1787 | 6.18 | 366 | 6.55 | 1732 | 991 | 283 |
| | | DISSOLVED | 08/23/12 | 11:45 | 5.10 | 0.5 | 6.50 | 1858 | 14.12 | 298 | 6.80 | 1689 | 1058 | 279 |
| | | DISSOLVED | 03/06/13 | 15:46 | 3.14 | 1.0 | 6.78 | 1798 | 5.12 | 299 | 6.60 | 2008 | 1119 | 312 |
| | | DISSOLVED | 08/15/13 | 13:58 | 4.60 | 0.5 | 6.57 | 1785 | 14.33 | 286 | 6.82 | 1800 | 982 | 312 |
| NW-1D-OP | 249900 | DISSOLVED | No sample | | | | | | | | | | | |
| MW-265 | | DISSOLVED | 03/05/12 | 14:24 | NR | 0.6 | 7.01 | 1276 | 7.96 | 454 | 7.26 | 1280 | 703 | 218 |
| | | DISSOLVED | 08/23/12 | 12:30 | | 0.6 | 7.45 | 1325 | 9.79 | 424 | 7.48 | 1244 | 752 | 217 |
| | | DISSOLVED | 03/06/13 | 14:28 | | 0.6 | 7.53 | 1282 | 7.85 | 359 | 4.35 | 1369 | 740 | 244 |
| | | DISSOLVED | 10/07/13 | 12:37 | | 0.6 | 7.09 | 1295 | 8.66 | 358 | 7.56 | 1308 | 722 | 241 |
| DUP | | DISSOLVED | 10/07/13 | 12:37 | | 0.6 | 7.09 | 1295 | 8.66 | 358 | 7.55 | 1314 | 726 | 240 |
| NW-2S-OP | 249904 | DISSOLVED | 09/28/11 | 16:11 | 8.02 | 1.0 | 5.31 | 2182 | 16.75 | 603 | 7.12 | 2250 | 1221 | 116 |
| MW-268 | | DISSOLVED | 03/09/12 | 13:59 | 7.34 | 0.5 | 7.09 | 1999 | 3.70 | 448 | 7.14 | 1946 | 1135 | 207 |
| | | DISSOLVED | 08/22/12 | 16:28 | 8.18 | 0.5 | 7.18 | 2412 | 19.55 | 505 | 7.22 | 2079 | 1425 | 104 |
| | | DISSOLVED | 03/07/13 | 16:07 | 7.43 | 0.5 | 7.21 | 2010 | 2.95 | 449 | 7.09 | 2208 | 1158 | 235 |
| | | DISSOLVED | 08/15/13 | 11:49 | 7.96 | 0.5 | 7.21 | 2320 | 21.04 | 466 | 7.27 | 2335 | 1353 | 117 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Ion 5-Yr Samples**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Ca (mg/L) | Mg (mg/L) | Na (mg/L) | K (mg/L) | Fe (mg/L) | Mn (mg/L) | $SiO_2$ (mg/L) | $HCO_3$ (mg/L) | $CO_3$ (mg/L) | Cl (mg/L) | $SO_4$ (mg/L) | $NO_3$-N (mg/L) | F (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NW-5S | 249942 | DISSOLVED | 10/25/11 | 37.5 | 9.4 | 7.9 | 1.59 | 0.025 | 0.012 | 19.4 | 97 | 0.0 | 3.0 | 72 | 0.20 | 0.34 |
| MW-273 | | DISSOLVED | 03/26/12 | 43.7 | 11.7 | 8.1 | 1.21 | 0.040 | 0.003 | 15.5 | 91 | 0.0 | 2.9 | 93 | 0.87 | 0.26 |
| | | DISSOLVED | 08/15/12 | 46.5 | 12.6 | 8.0 | 1.54 | 0.017 | 0.002 | 16.9 | 97 | 0.0 | 3.3 | 89 | 1.83 | 0.28 |
| | | DISSOLVED | 02/27/13 | 31.2 | 7.7 | 5.9 | 1.03 | <0.015 | <0.002 | 13.8 | 78 | 0.0 | 2.3 | 54 | 1.4 | 0.35 |
| | | DISSOLVED | 08/05/13 | 29.9 | 7.4 | 6.1 | 1.04 | <0.015 | <0.002 | 15.5 | 92 | 0.0 | 2.3 | 45 | 1.68 | 0.41 |
| NW-1S-OP | 249901 | DISSOLVED | 09/28/11 | 384.5 | 43.9 | 12.3 | 9.65 | 0.343 | 14.139 | 25.5 | 371 | 0.0 | 6.0 | 992 | <0.01 | 1.43 |
| MW-266 | | DISSOLVED | 03/09/12 | 335.0 | 37.5 | 11.8 | 7.04 | 0.874 | 12.955 | 22.4 | 345 | 0.0 | 6.0 | 765 | <0.010 | 1.22 |
| | | DISSOLVED | 08/23/12 | 357.8 | 39.9 | 13.4 | 9.20 | 0.359 | 12.130 | 25.1 | 340 | 0.0 | 5.8 | 788 | <0.010 | 1.51 |
| | | DISSOLVED | 03/06/13 | 380.3 | 41.3 | 12.5 | 7.43 | 0.363 | 12.962 | 22.2 | 381 | 0.0 | 6.3 | 798 | <0.10 | 1.40 |
| | | DISSOLVED | 08/15/13 | 328.3 | 39.5 | 13.1 | 9.97 | 0.326 | 11.840 | 25.9 | 381 | 0.0 | 6.1 | 757 | <0.01 | 1.80 |
| NW-1D-OP | 249900 | DISSOLVED | No sample | | | | | | | | | | | | | |
| MW-265 | | DISSOLVED | 03/05/12 | 213.3 | 41.5 | 8.8 | 2.91 | 0.028 | <0.005 | 22.9 | 266 | 0.0 | 3.2 | 513 | <0.010 | 0.33 |
| | | DISSOLVED | 08/23/12 | 221.8 | 48.2 | 9.3 | 3.38 | 0.196 | 0.022 | 21.5 | 265 | 0.0 | 3.2 | 517 | <0.010 | 0.33 |
| | | DISSOLVED | 03/06/13 | 221.5 | 45.3 | 9.1 | 3.03 | <0.038 | <0.005 | 22.7 | 297 | 0.0 | 3.4 | 525 | 0.06 | 0.38 |
| | | DISSOLVED | 10/07/13 | 211.8 | 46.8 | 9.1 | 2.99 | <0.038 | <0.005 | 22.3 | 294 | 0.0 | 3.5 | 540 | 0.06 | 0.38 |
| DUP | | DISSOLVED | 10/07/13 | 213.0 | 47.1 | 9.1 | 3.11 | <0.038 | <0.005 | 23.1 | 296 | 0.0 | 3.5 | 542 | 0.06 | 0.39 |
| NW-2S-OP | 249904 | DISSOLVED | 09/28/11 | 376.8 | 68.1 | 17.0 | 12.79 | 0.011 | 0.004 | 15.8 | 141 | 0.0 | 7.7 | 1239 | 0.11 | 3.48 |
| MW-268 | | DISSOLVED | 03/09/12 | 353.7 | 61.2 | 16.6 | 7.23 | <0.013 | 0.007 | 14.3 | 252 | 0.0 | 6.2 | 1008 | <0.010 | 2.39 |
| | | DISSOLVED | 08/22/12 | 434.0 | 83.0 | 21.4 | 14.49 | <0.038 | <0.005 | 18.1 | 127 | 0.0 | 7.5 | 1366 | <0.010 | 3.45 |
| | | DISSOLVED | 03/07/13 | 354.3 | 66.3 | 17.8 | 7.65 | <0.038 | <0.005 | 14.1 | 287 | 0.0 | 6.5 | 1144 | 0.3 | 2.76 |
| | | DISSOLVED | 08/15/13 | 415.2 | 76.8 | 21.1 | 14.65 | <0.038 | <0.005 | 18.3 | 143 | 0.0 | 8.1 | 1298 | 0.17 | 3.82 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Ion 5-Yr Samples**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Al (µg/L) | Ag (µg/L) | As (µg/L) | B (µg/L) | Ba (µg/L) | Be (µg/L) | Cd (µg/L) | Co (µg/L) | Cr (µg/L) | Cu (µg/L) | Hg (µg/L) | Li (µg/L) | Mo (µg/L) | Ni (µg/L) | Pb (µg/L) | Se (µg/L) | Sr (µg/L) | U (µg/L) | Zn (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NW-5S | 249942 | DISSOLVED | 10/25/11 | 14.0 | <0.10 | 0.57 | 8.62 | 50.9 | <0.10 | <0.10 | <0.10 | 0.16 | 1.42 | | 3.07 | 2.04 | 0.48 | <0.040 | <0.100 | 174 | 2.01 | 2.15 |
| MW-273 | | DISSOLVED | 03/26/12 | 3.0 | <0.100 | 0.36 | 4.08 | 49.1 | <0.100 | <0.100 | <0.100 | <0.100 | 0.73 | | <0.040 | 1.07 | 0.52 | <0.040 | <0.100 | 202 | 2.30 | 1.55 |
| | | DISSOLVED | 08/15/12 | <0.400 | <0.010 | 0.42 | 8.63 | 57.8 | <0.100 | <0.100 | <0.100 | 0.17 | 1.41 | | 3.11 | 1.62 | 1.42 | <0.040 | <0.100 | 207 | 2.34 | 3.34 |
| | | DISSOLVED | 02/27/13 | 6.3 | <0.10 | 0.32 | 4.02 | 34.5 | <0.10 | <0.10 | <0.10 | <0.10 | <0.04 | | <1.5 | 1.82 | 0.44 | <0.06 | 0.25 | 131 | 1.54 | 2.36 |
| | | DISSOLVED | 08/05/13 | 5.2 | <0.100 | 0.39 | 4.91 | 36.0 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | <1.500 | 2.49 | 0.33 | <0.060 | 0.35 | 134 | 2.13 | <0.050 |
| NW-1S-OP | 249901 | DISSOLVED | 09/28/11 | 124.9 | <0.25 | 2.24 | 21.78 | 26.2 | <0.25 | 0.26 | 3.69 | 0.30 | 2.23 | | 8.47 | 3.52 | 4.29 | <0.100 | 0.52 | 661 | 11.90 | 9.55 |
| MW-266 | | DISSOLVED | 03/09/12 | 84.3 | <0.250 | 2.22 | 17.60 | 16.8 | <0.250 | <0.250 | 3.08 | <0.250 | 6.76 | | 9.90 | 2.80 | 3.66 | <0.100 | <0.250 | 553 | 8.76 | 1.72 |
| | | DISSOLVED | 08/23/12 | 15.0 | <0.250 | 2.31 | 20.78 | 22.6 | <0.250 | <0.250 | 3.15 | <0.250 | <0.250 | | 13.92 | 4.30 | 6.58 | <0.100 | <0.250 | 570 | 9.83 | <0.500 |
| | | DISSOLVED | 03/06/13 | <1.0 | <0.25 | 1.71 | 17.77 | 17.3 | <0.25 | <0.25 | 2.63 | <0.25 | <0.10 | | 8.35 | 2.39 | 8.25 | <0.15 | <0.25 | 556 | 8.04 | 1.07 |
| | | DISSOLVED | 08/15/13 | 2.7 | <0.25 | 2.32 | 20.02 | 21.2 | <0.25 | <0.25 | 3.42 | <0.25 | <0.10 | | 6.94 | 4.33 | 5.89 | <0.15 | <0.25 | 573 | 11.14 | 1.03 |
| NW-1D-OP | 249900 | DISSOLVED | No sample | | | | | | | | | | | | | | | | | | | |
| MW-265 | | DISSOLVED | 03/05/12 | 61.7 | <0.250 | 1.61 | 1.55 | 27.9 | <0.250 | <0.250 | <0.250 | <0.250 | 0.41 | | 5.15 | 3.07 | <0.250 | <0.100 | <0.250 | 598 | 45.33 | 52.34 |
| | | DISSOLVED | 08/23/12 | <1.000 | <0.250 | 0.55 | 6.83 | 31.7 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | | 8.35 | 3.62 | 2.79 | 0.75 | <0.250 | 649 | 39.85 | 2292 |
| | | DISSOLVED | 03/06/13 | <1.0 | <0.25 | 1.43 | 4.19 | 28.9 | <0.25 | <0.25 | <0.25 | <0.25 | <0.1 | | 6.00 | 2.55 | 3.26 | <0.15 | <0.25 | 631 | 44.99 | 110 |
| | | DISSOLVED | 10/07/13 | <5.0 | <0.25 | 1.38 | 3.83 | 30.4 | <0.25 | <0.25 | <0.25 | <0.25 | <0.1 | | <5.0 | 3.61 | 2.05 | <0.15 | <0.25 | 665 | 49.21 | <0.13 |
| DUP | | DISSOLVED | 10/07/13 | <5.0 | <0.25 | 1.39 | 4.1 | 30.7 | <0.25 | <0.25 | <0.25 | <0.25 | <0.1 | | <5.0 | 3.49 | 1.97 | <0.15 | <0.25 | 665 | 50.15 | <0.13 |
| NW-2S-OP | 249904 | DISSOLVED | 09/28/11 | 85.9 | <0.25 | 0.53 | 23.98 | 23.0 | <0.25 | <0.25 | 0.69 | 0.28 | 1.69 | | 18.50 | 2.20 | 1.57 | <0.100 | 0.84 | 848 | 5.86 | 4.23 |
| MW-268 | | DISSOLVED | 03/09/12 | 96.8 | <0.250 | 0.81 | 22.71 | 12.9 | <0.250 | <0.250 | <0.250 | <0.250 | 4.39 | | 13.59 | 1.06 | 0.95 | <0.100 | <0.250 | 791 | 8.86 | <0.500 |
| | | DISSOLVED | 08/22/12 | <1.000 | <0.250 | 0.39 | 29.05 | 26.4 | <0.250 | <0.250 | <0.250 | <0.250 | 9.79 | | 38.84 | 2.21 | 5.50 | <0.100 | 0.82 | 973 | 4.94 | 1.36 |
| | | DISSOLVED | 03/07/13 | <1.001 | <0.251 | <0.250 | 24.17 | 12.2 | <0.250 | <0.250 | <0.250 | <0.250 | <0.100 | | 12.40 | 0.45 | 6.06 | <0.150 | 0.64 | 768 | 8.64 | <0.130 |
| | | DISSOLVED | 08/15/13 | 4.6 | <0.250 | 0.54 | 30.25 | 26.6 | <0.250 | <0.250 | <0.250 | <0.250 | 9.75 | | 26.95 | 2.36 | 4.95 | <0.150 | 0.54 | 1014 | 5.37 | <0.130 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

| Ion 5-Yr Samples | | | | Additional Trace Metals | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Cerium | Cesium | Gallium | Lanthanum | Niobium | Neodymium | Palladium | Praseodymium | Rubidium | Thallium | Thorium | Tin | Titanium | Tungsten |
| Site ID | GWIC ID | Sample Type | DATE | Ce | Cs | Ga | La | Nb | Nd | Pd | Pr | Rb | Tl | Th | Sn | Ti | W |
| | | | (MM/DD/YR) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) |
| NW-5S | 249942 | DISSOLVED | 10/25/11 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.24 | <0.10 | <0.10 | <0.10 | 0.87 | 0.13 |
| MW-273 | | DISSOLVED | 03/26/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.11 | <0.100 | <0.100 | <0.100 | 1.08 | <0.100 |
| | | DISSOLVED | 08/15/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.20 | <0.100 | <0.100 | <0.100 | 1.11 | <0.100 |
| | | DISSOLVED | 02/27/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.71 | <0.10 |
| | | DISSOLVED | 08/05/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.43 | <0.100 |
| NW-1S-OP | 249901 | DISSOLVED | 09/28/11 | 0.62 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | 0.48 | <0.25 | <0.25 | <0.25 | 10.70 | 0.33 |
| MW-266 | | DISSOLVED | 03/09/12 | 0.51 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.26 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 9.92 | <0.250 |
| | | DISSOLVED | 08/23/12 | 0.69 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.47 | <0.250 | <0.250 | <0.250 | 3.95 | <0.250 |
| | | DISSOLVED | 03/06/13 | <0.25 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 1.47 | <0.250 | <0.250 | <0.250 | 12 | <0.250 |
| | | DISSOLVED | 08/15/13 | 0.74 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.25 | <0.250 | <0.250 | <0.250 | 6.04 | <0.250 |
| NW-1D-OP | 249900 | DISSOLVED | No sample | | | | | | | | | | | | | | |
| MW-265 | | DISSOLVED | 03/05/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 6.24 | 2.03 |
| | | DISSOLVED | 08/23/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.58 | <0.250 | <0.250 | <0.250 | <0.250 | 2.43 |
| | | DISSOLVED | 03/06/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 7.44 | 1.93 |
| | | DISSOLVED | 10/07/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.55 | <0.250 | <0.250 | <0.250 | 4.79 | 2.74 |
| DUP | | DISSOLVED | 10/07/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.55 | <0.250 | <0.250 | <0.250 | 5.02 | 2.61 |
| NW-2S-OP | 249904 | DISSOLVED | 09/28/11 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | 0.47 | <0.2050 | <0.25 | <0.25 | 13.96 | <0.25 |
| MW-268 | | DISSOLVED | 03/09/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.35 | <0.250 | 0.33 | <0.250 | <0.250 | <0.250 | 13.93 | <0.250 |
| | | DISSOLVED | 08/22/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.49 | <0.250 | 0.52 | <0.250 | <0.250 | <0.250 | 16.58 | <0.250 |
| | | DISSOLVED | 03/07/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 17.08 | <0.250 |
| | | DISSOLVED | 08/15/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.89 | <0.250 | <0.250 | <0.250 | 11.9 | <0.250 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Ion 5-Yr Samples**

| | | | | | | PHYSICAL PARAMETERS | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | FIELD | | | | LAB | | | |
| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | TIME (HRS) | SWL (FT) | FLOW (GPM) | pH | SC (UMHOS) | TEMP (C) | REDOX (mv) | pH | SC (UMHOS) | HARDNESS (MG/L) | ALKALINITY (MG/L) |
| NW-2D-OP | 249903 | DISSOLVED | 09/28/11 | 15:05 | 15.22 | 1.5 | 4.98 | 944 | 10.04 | 549 | 7.32 | 976 | 461 | 231 |
| MW-267 | | DISSOLVED | 03/09/12 | 15:02 | 14.92 | 1.5 | 7.13 | 975 | 8.45 | 416 | 7.34 | 996 | 483 | 213 |
| | | DISSOLVED | 08/22/12 | 17:11 | 15.91 | 1.5 | 7.25 | 1000 | 9.23 | 370 | 7.43 | 945 | 519 | 211 |
| | | DISSOLVED | 03/07/13 | 15:12 | 14.94 | 1.5 | 7.57 | 1013 | 8.35 | 370 | 7.19 | 1182 | 567 | 235 |
| | | DISSOLVED | 08/15/13 | 12:46 | 15.54 | 1.5 | 7.03 | 1005 | 9.95 | 430 | 7.41 | 1003 | 517 | 238 |
| NW-3S-OP | 249906 | DISSOLVED | 09/29/11 | 14:24 | 7.23 | 1.0 | 5.52 | 2334 | 10.52 | 576 | 6.92 | 2430 | 1499 | 221 |
| MW-270 | | DISSOLVED | 03/09/12 | 16:02 | 6.75 | 1.0 | 6.73 | 2104 | 8.67 | 442 | 6.89 | 2177 | 1309 | 194 |
| | | DISSOLVED | 08/22/12 | 14:42 | 7.70 | 0.5 | 6.83 | 2336 | 12.69 | 490 | 7.04 | 2048 | 1385 | 184 |
| | | DISSOLVED | 03/08/13 | 14:35 | 6.85 | 0.5 | 7.05 | 2214 | 7.96 | 465 | 6.87 | 2325 | 1338 | 194 |
| | | DISSOLVED | 08/13/13 | 15:20 | 8.58 | 0.5 | 6.62 | 2245 | 11.20 | 484 | 6.96 | 2259 | 1387 | 189 |
| NW-3D-OP | 249905 | DISSOLVED | 09/29/11 | 13:31 | 13.19 | 1.5 | 6.92 | 950 | 10.10 | 401 | 7.38 | 936 | 477 | 191 |
| MW-269 | | DISSOLVED | 03/12/12 | 14:46 | 12.94 | 1.5 | 6.87 | 989 | 8.36 | 413 | 7.21 | 1059 | 463 | 175 |
| | | DISSOLVED | 08/22/12 | 15:31 | 13.76 | 1.5 | 7.21 | 1054 | 9.92 | 462 | 7.40 | 1008 | 515 | 173 |
| | | DISSOLVED | 03/08/13 | 13:03 | 13.03 | 1.5 | 7.43 | 1052 | 8.39 | 423 | 7.27 | 1186 | 542 | 193 |
| | | DISSOLVED | 08/13/13 | 16:13 | 13.44 | 1.5 | 7.02 | 1075 | 9.88 | 459 | 7.37 | 1056 | 582 | 195 |
| NW-4S-OP | 249908 | DISSOLVED | 09/29/11 | 2:36 | 5.58 | 1.0 | 4.38 | 2252 | 14.12 | 610 | 6.98 | 2110 | 1337 | 172 |
| MW-272 | | DISSOLVED | 03/12/12 | 15:32 | 4.72 | 1.0 | 6.82 | 1758 | 5.59 | 435 | 7.12 | 1706 | 969 | 144 |
| | | DISSOLVED | 08/22/12 | 13:06 | 5.71 | 1.0 | 6.82 | 1888 | 14.43 | 412 | 7.12 | 1696 | 1055 | 135 |
| | | DISSOLVED | 03/08/13 | 16:13 | 4.85 | 0.5 | 7.44 | 1842 | 4.83 | 371 | 7.14 | 1937 | 987 | 162 |
| | | DISSOLVED | 08/13/13 | 13:26 | 5.73 | 0.5 | 6.83 | 1815 | 14.10 | 407 | 7.13 | 1799 | 1093 | 156 |
| NW-4D-OP | 249907 | DISSOLVED | 09/29/11 | 15:45 | 12.88 | 1.5 | 4.29 | 728 | 11.34 | 560 | 7.46 | 751 | 348 | 217 |
| MW-271 | | DISSOLVED | 03/12/12 | 16:31 | 12.80 | 1.5 | 7.06 | 1300 | 9.02 | 341 | 7.31 | 1300 | 645 | 166 |
| | | DISSOLVED | 08/22/12 | 12:10 | 13.28 | 1.5 | 6.99 | 1334 | 10.14 | 270 | 7.33 | 1259 | 682 | 166 |
| | | DISSOLVED | 03/08/13 | 15:34 | 12.96 | 2.0 | 7.59 | 1396 | 8.86 | 291 | 7.27 | 1514 | 710 | 180 |
| | | DISSOLVED | 08/13/13 | 14:22 | 13.20 | 2.0 | 6.95 | 1420 | 10.23 | 268 | 7.32 | 1421 | 819 | 181 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Ion 5-Yr Samples**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Ca (mg/L) | Mg (mg/L) | Na (mg/L) | K (mg/L) | Fe (mg/L) | Mn (mg/L) | $SiO_2$ (mg/L) | $HCO_3$ (mg/L) | $CO_3$ (mg/L) | Cl (mg/L) | $SO_4$ (mg/L) | $NO_3$-N (mg/L) | F (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NW-2D-OP | 249903 | DISSOLVED | 09/28/11 | 132.8 | 31.3 | 12.4 | 2.38 | 0.070 | 0.044 | 22.9 | 282 | 0.0 | 3.6 | 309 | 0.06 | 0.41 |
| MW-267 | | DISSOLVED | 03/09/12 | 140.7 | 31.9 | 13.2 | 2.30 | 0.023 | 0.017 | 24.3 | 260 | 0.0 | 3.6 | 310 | <0.010 | 0.38 |
| | | DISSOLVED | 08/22/12 | 145.5 | 37.9 | 14.3 | 2.43 | <0.038 | 0.012 | 23.4 | 257 | 0.0 | 3.5 | 316 | 0.07 | 0.37 |
| | | DISSOLVED | 03/07/13 | 167.3 | 36.1 | 14.5 | 2.34 | <0.038 | 0.017 | 23.5 | 286 | 0.0 | 3.9 | 374 | 0.06 | 0.42 |
| | | DISSOLVED | 08/15/13 | 148.2 | 35.6 | 14.2 | 2.53 | <0.038 | 0.011 | 24.1 | 290 | 0.0 | 3.8 | 338 | 0.08 | 0.42 |
| NW-3S-OP | 249906 | DISSOLVED | 09/29/11 | 432.1 | 102.0 | 18.5 | 9.51 | 3.932 | 0.373 | 46.0 | 269 | 0.0 | 7.3 | 1316 | 0.20 | 0.34 |
| MW-270 | | DISSOLVED | 03/09/12 | 372.9 | 91.9 | 18.5 | 8.01 | 0.017 | 0.010 | 25.1 | 236 | 0.0 | 6.8 | 1157 | <0.010 | 0.30 |
| | | DISSOLVED | 08/22/12 | 377.6 | 107.3 | 19.7 | 8.49 | <0.038 | 0.007 | 23.9 | 224 | 0.0 | 6.8 | 1243 | <0.010 | 0.29 |
| | | DISSOLVED | 03/08/13 | 374.9 | 97.7 | 19.8 | 9.08 | <0.038 | 0.006 | 25.7 | 237 | 0.0 | 7.5 | 1209 | 0.25 | 0.32 |
| | | DISSOLVED | 08/13/13 | 401.4 | 93.5 | 18.6 | 8.52 | <0.038 | 0.008 | 25.6 | 231 | 0.0 | 7.7 | 1228 | 0.24 | 0.32 |
| NW-3D-OP | 249905 | DISSOLVED | 09/29/11 | 139.9 | 31.1 | 21.0 | 2.56 | 0.045 | 0.013 | 21.5 | 233 | 0.0 | 4.6 | 329 | 0.08 | 0.37 |
| MW-269 | | DISSOLVED | 03/12/12 | 133.0 | 31.9 | 19.9 | 2.39 | <0.013 | <0.002 | 21.7 | 213 | 0.0 | 4.6 | 346 | <0.010 | 0.34 |
| | | DISSOLVED | 08/22/12 | 142.4 | 38.7 | 18.2 | 2.58 | <0.038 | <0.005 | 21.5 | 211 | 0.0 | 4.4 | 373 | 0.07 | 0.34 |
| | | DISSOLVED | 03/08/13 | 153.6 | 38.6 | 18.7 | 2.72 | <0.038 | <0.005 | 21.1 | 235 | 0.0 | 4.9 | 408 | 0.06 | 0.39 |
| | | DISSOLVED | 08/13/13 | 170.8 | 37.7 | 17.7 | 2.53 | <0.038 | <0.005 | 21.7 | 238 | 0.0 | 4.9 | 411 | 0.3 | 0.39 |
| NW-4S-OP | 249908 | DISSOLVED | 09/29/11 | 392.9 | 86.4 | 19.6 | 8.50 | 0.114 | 0.012 | 28.2 | 210 | 0.0 | 9.3 | 1210 | 0.14 | 0.55 |
| MW-272 | | DISSOLVED | 03/12/12 | 283.7 | 63.3 | 16.3 | 6.70 | <0.013 | <0.005 | 19.3 | 175 | 0.0 | 7.6 | 841 | <0.010 | 1.21 |
| | | DISSOLVED | 08/22/12 | 296.2 | 76.7 | 18.7 | 8.06 | 0.043 | 0.007 | 24.8 | 165 | 0.0 | 8.1 | 898 | <0.010 | 1.02 |
| | | DISSOLVED | 03/08/13 | 282.3 | 68.3 | 16.4 | 6.55 | <0.038 | <0.005 | 20.3 | 197 | 0.0 | 7.8 | 953 | 0.15 | 1.06 |
| | | DISSOLVED | 08/13/13 | 322.5 | 69.8 | 18.0 | 7.73 | <0.038 | <0.005 | 24.5 | 190 | 0.0 | 7.2 | 955 | 0.12 | 1.06 |
| NW-4D-OP | 249907 | DISSOLVED | 09/29/11 | 101.7 | 22.9 | 19.6 | 2.83 | 0.049 | 0.049 | 21.8 | 265 | 0.0 | 3.5 | 171 | 0.10 | 0.54 |
| MW-271 | | DISSOLVED | 03/12/12 | 186.1 | 43.8 | 24.3 | 3.54 | 0.035 | 0.026 | 22.3 | 203 | 0.0 | 4.8 | 534 | <0.010 | 0.37 |
| | | DISSOLVED | 08/22/12 | 189.7 | 50.7 | 25.7 | 3.52 | 0.047 | 0.030 | 21.8 | 203 | 0.0 | 4.8 | 558 | 0.09 | 0.37 |
| | | DISSOLVED | 03/08/13 | 201.5 | 50.3 | 22.3 | 3.59 | 0.070 | 0.019 | 22.0 | 219 | 0.0 | 5.4 | 646 | 0.07 | 0.41 |
| | | DISSOLVED | 08/13/13 | 240.6 | 53.0 | 23.0 | 3.74 | 0.108 | 0.021 | 22.1 | 221 | 0.0 | 5.3 | 655 | 0.06 | 0.40 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Ion 5-Yr Samples**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Al (µg/L) | Ag (µg/L) | As (µg/L) | B (µg/L) | Ba (µg/L) | Be (µg/L) | Cd (µg/L) | Co (µg/L) | Cr (µg/L) | Cu (µg/L) | Hg (µg/L) | Li (µg/L) | Mo (µg/L) | Ni (µg/L) | Pb (µg/L) | Se (µg/L) | Sr (µg/L) | U (µg/L) | Zn (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NW-2D-OP | 249903 | DISSOLVED | 09/28/11 | 36.9 | <0.10 | 0.87 | 5.77 | 44.1 | <0.10 | <0.10 | 0.48 | 0.18 | 0.44 | | 5.25 | 2.96 | 1.15 | 0.05 | 0.41 | 553 | 35.12 | 2.12 |
| MW-267 | | DISSOLVED | 03/09/12 | 44.0 | <0.100 | 1.51 | 4.60 | 41.0 | <0.100 | <0.100 | <0.100 | <0.100 | 0.25 | | 6.96 | 2.75 | 0.15 | <0.040 | 0.18 | 581 | 29.27 | <0.200 |
| | | DISSOLVED | 08/22/12 | <1.000 | <0.250 | 1.39 | 6.58 | 43.0 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | | 18.04 | 3.02 | 1.84 | <0.100 | <0.250 | 591 | 30.05 | <0.500 |
| | | DISSOLVED | 03/07/13 | <1.000 | <0.250 | 1.29 | 5.81 | 41.5 | <0.250 | <0.250 | <0.250 | <0.250 | <0.100 | | 6.15 | 2.25 | 2.45 | <0.150 | <0.250 | 591 | 27.93 | <0.130 |
| | | DISSOLVED | 08/15/13 | 5.1 | <0.250 | 1.41 | 5.65 | 43.9 | <0.250 | <0.250 | <0.250 | <0.250 | <0.100 | | <3.750 | 3.23 | 2.02 | <0.150 | <0.250 | 611 | 31.46 | <0.130 |
| NW-3S-OP | 249906 | DISSOLVED | 09/29/11 | 5048.2 | <0.25 | 2.22 | 17.64 | 81.1 | 0.4 | <0.25 | 2.98 | 2.95 | 35.97 | | 19.44 | 1.89 | 3.80 | 6.51 | 0.60 | 1238 | 26.26 | 21.58 |
| MW-270 | | DISSOLVED | 03/09/12 | 105.5 | <0.250 | 1.09 | 15.90 | 16.1 | <0.250 | <0.250 | <0.250 | <0.250 | 4.17 | | 10.79 | 1.64 | 1.73 | <0.100 | 0.44 | 1162 | 16.35 | <0.500 |
| | | DISSOLVED | 08/22/12 | <1.000 | <0.250 | 0.65 | 16.18 | 17.1 | <0.250 | <0.250 | 0.45 | <0.250 | 7.45 | | 24.08 | 1.55 | 4.83 | <0.100 | 0.61 | 1136 | 13.34 | 0.52 |
| | | DISSOLVED | 03/08/13 | 4.6 | <0.250 | 0.62 | 18.63 | 16.7 | <0.250 | <0.250 | <0.250 | <0.250 | <0.100 | | 12.71 | 1.06 | 6.48 | <0.150 | 0.28 | 1125 | 8.81 | <0.130 |
| | | DISSOLVED | 08/13/13 | 1.0 | <0.250 | 0.6 | 17.92 | 17.5 | <0.250 | <0.250 | <0.250 | <0.250 | 10.15 | | 13.43 | 0.74 | 4.28 | <0.150 | <0.250 | 1149 | 9.72 | <0.130 |
| NW-3D-OP | 249905 | DISSOLVED | 09/29/11 | 49.3 | <0.10 | 1.16 | 10.25 | 40.3 | <0.10 | <0.10 | 0.33 | 0.18 | 0.39 | | 10.83 | 5.22 | 0.22 | <0.040 | 0.66 | 594 | 23.64 | 2.77 |
| MW-269 | | DISSOLVED | 03/12/12 | 47.2 | <0.100 | 1.48 | 3.70 | 27.8 | <0.100 | <0.100 | <0.100 | <0.100 | 0.25 | | 7.04 | 4.33 | 0.19 | <0.040 | 0.97 | 619 | 22.68 | <0.200 |
| | | DISSOLVED | 08/22/12 | <1.000 | <0.250 | 1.26 | 5.21 | 26.6 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | | 16.82 | 4.67 | 1.82 | <0.100 | 0.50 | 649 | 23.81 | <0.500 |
| | | DISSOLVED | 03/08/13 | <1.000 | <0.250 | 1.28 | 4.92 | 23.0 | <0.250 | <0.250 | <0.250 | <0.250 | <0.100 | | 6.1 | 3.63 | 2.48 | <0.150 | <0.250 | 683 | 18.91 | <0.130 |
| | | DISSOLVED | 08/13/13 | 7.2 | <0.250 | 1.36 | 4.5 | 23.7 | <0.250 | <0.250 | <0.250 | <0.250 | <0.100 | | <3.750 | 5.28 | 1.50 | <0.150 | <0.250 | 704 | 26.52 | <0.130 |
| NW-4S-OP | 249908 | DISSOLVED | 09/29/11 | 153.3 | <0.25 | 0.74 | 26.96 | 18.6 | <0.25 | <0.25 | 0.43 | 0.34 | 4.34 | | 25.65 | 2.55 | 0.72 | <0.100 | 0.81 | 1447 | 11.46 | 2.84 |
| MW-272 | | DISSOLVED | 03/12/12 | 81.6 | <0.250 | 0.82 | 16.91 | 11.1 | <0.250 | <0.250 | <0.250 | <0.250 | 1.65 | | 16.66 | 2.05 | 0.53 | <0.100 | | 1048 | 9.18 | <0.500 |
| | | DISSOLVED | 08/22/12 | <1.000 | <0.250 | 0.65 | 27.18 | 14.2 | <0.250 | <0.250 | 0.36 | 0.31 | 8.17 | | 29.68 | 2.70 | 3.82 | <0.100 | 0.79 | 1148 | 7.61 | 0.59 |
| | | DISSOLVED | 03/08/13 | <1.0 | <0.250 | <0.25 | 18.24 | 10.7 | <0.250 | <0.250 | <0.250 | <0.250 | <0.1 | | 13.74 | 0.85 | 4.97 | <0.15 | 0.71 | 1064 | 7.65 | <0.13 |
| | | DISSOLVED | 08/13/13 | 4.6 | <0.250 | 0.63 | 27.76 | 13.4 | <0.250 | <0.250 | <0.250 | <0.250 | <0.100 | | 19.88 | 2.81 | 3.18 | <0.150 | 0.65 | 1177 | 7.54 | <0.130 |
| NW-4D-OP | 249907 | DISSOLVED | 09/29/11 | 39.4 | <0.10 | 1.52 | 8.34 | 32.8 | <0.10 | <0.10 | 0.36 | 0.20 | 0.28 | | 16.62 | 5.01 | 0.44 | <0.040 | 0.36 | 500 | 18.01 | 1.54 |
| MW-271 | | DISSOLVED | 03/12/12 | 63.3 | <0.250 | 1.59 | 6.59 | 34.2 | <0.250 | <0.250 | <0.250 | <0.250 | 0.35 | | 17.12 | 2.81 | 0.43 | <0.100 | 0.45 | 1019 | 23.07 | <0.500 |
| | | DISSOLVED | 08/22/12 | 69.4 | <0.250 | 1.39 | 8.00 | 31.0 | <0.250 | <0.250 | 0.29 | <0.250 | <0.250 | | 28.02 | 3.15 | 2.52 | <0.100 | <0.250 | 1020 | 24.07 | <0.500 |
| | | DISSOLVED | 03/08/13 | <1.000 | <0.250 | 1.31 | 7.25 | 25.1 | <0.250 | <0.250 | <0.250 | <0.250 | <0.100 | | 16.94 | 2.27 | 3.61 | <0.150 | <0.250 | 1073 | 20.69 | <0.130 |
| | | DISSOLVED | 08/13/13 | <1.000 | <0.250 | 1.29 | 6.69 | 26.9 | <0.250 | <0.250 | <0.250 | <0.250 | <0.100 | | 15.93 | 3.23 | 2.26 | <0.150 | <0.250 | 1173 | 25.84 | <0.130 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Smelter Hills/Opportunity Ponds WMA**
**Appendix A**

**Ion 5-Yr Samples**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Additional Trace Metals: Cerium Ce (µg/L) | Cesium Cs (µg/L) | Gallium Ga (µg/L) | Lanthanum La (µg/L) | Niobium Nb (µg/L) | Neodymium Nd (µg/L) | Palladium Pd (µg/L) | Praseodymium Pr (µg/L) | Rubidium Rb (µg/L) | Thallium Tl (µg/L) | Thorium Th (µg/L) | Tin Sn (µg/L) | Titanium Ti (µg/L) | Tungsten W (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NW-2D-OP MW-267 | 249903 | DISSOLVED | 09/28/11 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.16 | <0.10 | 0.78 | <0.10 | <0.10 | <0.10 | 3.20 | 2.25 |
| | | DISSOLVED | 03/09/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.29 | <0.100 | 0.61 | <0.100 | <0.100 | <0.100 | 3.89 | 2.05 |
| | | DISSOLVED | 08/22/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.67 | <0.250 | <0.250 | <0.250 | 4.11 | 2.43 |
| | | DISSOLVED | 03/07/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.26 | <0.250 | <0.250 | <0.250 | 5.11 | 1.90 |
| | | DISSOLVED | 08/15/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.74 | <0.250 | <0.250 | <0.250 | 3.11 | 2.70 |
| NW-3S-OP MW-270 | 249906 | DISSOLVED | 09/29/11 | 22.15 | 1.25 | 1.66 | 14.12 | <0.25 | 8.34 | <0.25 | 2.39 | 11.15 | <0.25 | 6.29 | <0.25 | 83.26 | 2.08 |
| | | DISSOLVED | 03/09/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.60 | <0.250 | 0.33 | <0.250 | <0.250 | <0.250 | 17.20 | 0.48 |
| | | DISSOLVED | 08/22/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.56 | <0.250 | 0.69 | <0.250 | <0.250 | <0.250 | 14.71 | 0.44 |
| | | DISSOLVED | 03/08/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.59 | <0.250 | 0.58 | <0.250 | <0.250 | <0.250 | 20.52 | <0.250 |
| | | DISSOLVED | 08/13/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.8 | <0.250 | <0.250 | <0.250 | 10.96 | <0.250 |
| NW-3D-OP MW-269 | 249905 | DISSOLVED | 09/29/11 | 0.11 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.98 | <0.10 | <0.10 | <0.10 | 3.73 | 0.88 |
| | | DISSOLVED | 03/12/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.29 | <0.100 | 0.69 | <0.100 | <0.100 | <0.100 | 4.80 | 0.72 |
| | | DISSOLVED | 08/22/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.80 | <0.250 | <0.250 | <0.250 | 4.73 | 0.86 |
| | | DISSOLVED | 03/08/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.64 | <0.250 | <0.250 | <0.250 | 6.39 | 0.67 |
| | | DISSOLVED | 08/13/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.91 | <0.250 | <0.250 | <0.250 | 3.74 | 1.04 |
| NW-4S-OP MW-272 | 249908 | DISSOLVED | 09/29/11 | 0.32 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | 0.92 | <0.25 | <0.25 | <0.25 | 13.87 | 1.10 |
| | | DISSOLVED | 03/12/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.53 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 12.46 | 0.36 |
| | | DISSOLVED | 08/22/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.59 | <0.250 | 0.79 | <0.250 | <0.250 | <0.250 | 14.01 | 0.55 |
| | | DISSOLVED | 03/08/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.58 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 15.94 | <0.25 |
| | | DISSOLVED | 08/13/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.71 | <0.250 | <0.250 | <0.250 | 7.85 | 0.61 |
| NW-4D-OP MW-271 | 249907 | DISSOLVED | 09/29/11 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.95 | <0.10 | <0.10 | <0.10 | 1.95 | 3.11 |
| | | DISSOLVED | 03/12/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.59 | <0.250 | 0.91 | <0.250 | <0.250 | <0.250 | 7.64 | 1.81 |
| | | DISSOLVED | 08/22/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.49 | <0.250 | 1.07 | <0.250 | <0.250 | <0.250 | 6.59 | 2.11 |
| | | DISSOLVED | 03/08/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.58 | <0.250 | 0.82 | <0.250 | <0.250 | <0.250 | 10.57 | 0.93 |
| | | DISSOLVED | 08/13/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 1.19 | <0.250 | <0.250 | <0.250 | 5.85 | 2.29 |

NA-not applicable
NR-not reported

**Appendix B.** Anaconda Regional Water, Waste, and Soils Old Works WMA, Old Works WMA Water-Quality Data

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Old Works WMA**
**Appendix B**

| | | | | | | PHYSICAL PARAMETERS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | FIELD | | | | LAB | | | |
| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | TIME (HRS) | SWL (FT) | FLOW (GPM) | pH | SC (UMHOS) | TEMP (C) | REDOX (mv) | pH | SC (UMHOS) | HARDNESS (MG/L) | ALKALINITY (MG/L) |
| IW-01 | 250038 | DISSOLVED | 06/10/09 | 10:05 | NR | NR | 6.91 | 475 | 7.40 | 455 | 7.02 | 452 | 244 | 118 |
| | | DISSOLVED | 10/13/10 | 14:03 | NR | NR | 5.87 | 320 | 8.92 | 461 | 7.74 | 320 | 149 | 105 |
| | | DISSOLVED | 06/23/11 | 11:30 | NR | NR | 3.52 | 508 | 9.02 | 504 | 6.71 | 532 | 251 | 73 |
| MW-204 | 250041 | DISSOLVED | 06/08/09 | 14:45 | 31.13 | 2.5 | 7.39 | 415 | 8.30 | 372 | 7.36 | 425 | 191 | 157 |
| | | DISSOLVED | 07/01/10 | 10:30 | 30.76 | 2.5 | 6.54 | 440 | 9.01 | 402 | 7.72 | 450 | 214 | 193 |
| | | Total Rec | 07/01/10 | 10:30 | 30.76 | 2.5 | 6.54 | 440 | 9.01 | 402 | | | 248 | |
| | | DISSOLVED | 06/17/11 | 10:47 | 30.78 | 2.0 | 7.32 | 477 | 8.33 | 437 | 7.32 | 457 | 234 | 154 |
| | | Total Rec | 06/17/11 | 10:47 | 30.78 | 2.0 | 6.81 | 477 | 8.33 | 437 | | | 221 | |
| | | DISSOLVED | 03/28/12 | 10:38 | 33.72 | 2.0 | 7.07 | 386 | 8.25 | 463 | 7.28 | 425 | 186 | 147 |
| MW-206 | 250042 | DISSOLVED | 06/08/09 | 17:15 | 31.22 | 2.5 | 7.28 | 535 | 8.50 | 381 | 7.39 | 531 | 242 | 198 |
| | | DISSOLVED | 07/01/10 | 12:26 | 30.66 | 2.5 | 6.81 | 515 | 9.99 | 378 | 7.81 | 525 | 243 | 237 |
| | | Total Rec | 07/01/10 | 12:26 | 30.66 | 2.5 | 6.81 | 515 | 9.99 | 378 | | | 291 | |
| | | DISSOLVED | 06/17/11 | 15:12 | 30.46 | 2.0 | 6.81 | 634 | 8.58 | 467 | 7.31 | 655 | 316 | 195 |
| | | Total Rec | 06/17/11 | 15:12 | 30.46 | 2.0 | 6.81 | 634 | 8.58 | 467 | | | 283 | |
| | | DISSOLVED | 03/27/12 | 11:40 | 36.37 | 2.0 | 7.18 | 465 | 8.64 | 430 | 7.27 | 496 | 216 | 176 |
| MW-206D | 250054 | DISSOLVED | 06/08/09 | 17:50 | 37.58 | 2.5 | 7.29 | 495 | 8.60 | 374 | 7.58 | 501 | 221 | 175 |
| | | DISSOLVED | 07/01/10 | 12:02 | 36.25 | 2.5 | 6.58 | 475 | 9.62 | 383 | 7.64 | 460 | 207 | 245 |
| | | Total Rec | 07/01/10 | 13:02 | 36.25 | 2.5 | 6.58 | 475 | 9.62 | 383 | | | 279 | |
| | | DISSOLVED | 06/17/11 | 15:42 | 36.56 | 0.8 | 6.90 | 559 | 9.18 | 492 | 7.30 | 586 | 262 | 185 |
| | | Total Rec | 06/17/11 | 15:42 | 36.56 | 0.8 | 6.90 | 559 | 9.18 | 492 | | | 259 | |
| | | DISSOLVED | 03/27/12 | 11:05 | 41.73 | 2.0 | 8.51 | 474 | 8.73 | 339 | 7.27 | 509 | 225 | 172 |

NA-not applicable
NR not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Old Works WMA**
**Appendix B**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Ca (mg/L) | Mg (mg/L) | Na (mg/L) | K (mg/L) | Fe (mg/L) | Mn (mg/L) | $SiO_2$ (mg/L) | $HCO_3$ (mg/L) | $CO_2$ (mg/L) | Cl (mg/L) | $SO_4$ (mg/L) | $NO_3$-N (mg/L) | F (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IW-01 | 250038 | DISSOLVED | 06/10/09 | 74.8 | 14.0 | 6.1 | 1.84 | <0.008 | 0.002 | 13.8 | 144 | 0.0 | 2.0 | 126 | 1.31 | 0.57 |
| | | DISSOLVED | 10/13/10 | 45.7 | 8.6 | 4.6 | 1.52 | 0.013 | 0.010 | 12.3 | 128 | 0.0 | 1.8 | 54 | 0.32 | 0.60 |
| | | DISSOLVED | 06/23/11 | 77.7 | 13.9 | 5.7 | 1.69 | 0.029 | 0.099 | 13.2 | 89 | 0.0 | 1.6 | 187 | 0.98 | 0.66 |
| MW-204 | 250041 | DISSOLVED | 06/08/09 | 55.2 | 12.8 | 6.8 | 1.74 | <0.002 | 0.004 | 12.3 | 191 | 0.0 | 6.1 | 50 | 0.63 | 0.55 |
| | | DISSOLVED | 07/01/10 | 62.1 | 14.3 | 7.0 | 1.70 | <0.002 | <0.001 | 11.5 | 235 | 0.0 | 6.7 | 73 | 0.63 | 0.54 |
| | | Total Rec | 07/01/10 | 75.1 | 14.7 | 7.8 | 1.92 | 0.025 | <0.003 | | | | | | | |
| | | DISSOLVED | 06/17/11 | 69.7 | 14.6 | 7.4 | 1.71 | <0.004 | <0.002 | 11.2 | 188 | 0.0 | 7.4 | 79 | 0.70 | 0.41 |
| | | Total Rec | 06/17/11 | 64.9 | 14.3 | 7.4 | 1.81 | 0.051 | <0.004 | NR | | | | | | |
| | | DISSOLVED | 03/28/12 | 55.7 | 11.4 | 6.5 | 1.52 | 0.009 | <0.002 | 11.5 | 179 | 0.0 | 3.4 | 36 | 0.36 | 0.48 |
| MW-206 | 250042 | DISSOLVED | 06/08/09 | 72.9 | 14.5 | 8.1 | 2.09 | 0.004 | 0.019 | 13.4 | 242 | 0.0 | 8.8 | 61 | 2.99 | 0.50 |
| | | DISSOLVED | 07/01/10 | 75.3 | 13.4 | 8.2 | 1.98 | <0.002 | <0.001 | 12.5 | 289 | 0.0 | 8.6 | 60 | 2.55 | 0.56 |
| | | Total Rec | 07/01/10 | 91.0 | 15.4 | 9.7 | 2.24 | 0.029 | <0.003 | | | | | | | |
| | | DISSOLVED | 06/17/11 | 97.6 | 17.6 | 9.9 | 2.18 | <0.004 | <0.002 | 12.0 | 238 | 0.0 | 13.0 | 96 | 4.66 | 0.42 |
| | | Total Rec | 06/17/11 | 86.5 | 16.3 | 9.6 | 2.22 | 0.040 | 0.007 | | | | | | | |
| | | DISSOLVED | 03/27/12 | 66.7 | 12.0 | 10.3 | 1.95 | 0.008 | <0.002 | 12.9 | 214 | 0.0 | 4.5 | 40 | 1.02 | 0.65 |
| MW-206D | 250054 | DISSOLVED | 06/08/09 | 66.1 | 13.5 | 8.2 | 1.86 | 0.006 | 0.035 | 13.5 | 213 | 0.0 | 7.2 | 56 | 2.82 | 0.50 |
| | | DISSOLVED | 07/01/10 | 62.8 | 12.3 | 8.4 | 1.73 | 0.008 | 0.013 | 12.8 | 299 | 0.0 | 6.7 | 46 | 2.42 | 0.55 |
| | | Total Rec | 07/01/10 | 87.4 | 14.8 | 10.4 | 2.10 | 0.026 | 0.016 | | | | | | | |
| | | DISSOLVED | 06/17/11 | 80.8 | 14.6 | 9.5 | 1.83 | 0.023 | 0.011 | 12.2 | 225 | 0.0 | 11.0 | 73 | 3.43 | 0.44 |
| | | Total Rec | 06/17/11 | 79.1 | 15.0 | 9.8 | 2.04 | 0.047 | 0.011 | | | | | | | |
| | | DISSOLVED | 03/27/12 | 69.7 | 12.5 | 10.4 | 1.83 | 0.008 | 0.011 | 12.7 | 210 | 0.0 | 4.6 | 47 | 1.71 | 0.59 |

NA-not applicable
NR not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Old Works WMA**
**Appendix B**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Al (µg/L) | Ag (µg/L) | As (µg/L) | B (µg/L) | Ba (µg/L) | Be (µg/L) | Cd (µg/L) | Co (µg/L) | Cr (µg/L) | Cu (µg/L) | Hg (µg/L) | Li (µg/L) | Mo (µg/L) | Ni (µg/L) | Pb (µg/L) | Se (µg/L) | Sr (µg/L) | U (µg/L) | Zn (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IW-01 | 250038 | DISSOLVED | 06/10/09 | <0.35 | <0.06 | 0.68 | 12.3 | 63.8 | <0.15 | 3.44 | <0.13 | <0.12 | 608.00 | | 8.00 | 3.53 | 2.22 | 2.44 | 0.74 | 191 | 0.26 | 602 |
| | | DISSOLVED | 10/13/10 | 3.3 | <0.20 | 0.83 | 9.0 | 34.6 | <0.20 | 3.29 | 0.21 | <0.20 | 1,120 | | 7.28 | 1.39 | 2.56 | 0.47 | 0.30 | 119 | <0.20 | 590 |
| | | DISSOLVED | 06/23/11 | 193.1 | <0.50 | 1.05 | 8.5 | 39.1 | <0.50 | 6.91 | 2.26 | <0.50 | 2,333 | | 9.81 | 2.48 | 7.03 | 0.24 | 0.74 | 162 | 0.65 | 1411 |
| MW-204 | 250041 | DISSOLVED | 06/08/09 | <7.68 | <0.04 | 0.67 | 11.8 | 35.7 | <0.20 | 1.13 | <0.10 | 0.09 | 258.00 | | 5.84 | 3.62 | 0.38 | <0.15 | 0.48 | 173 | 1.62 | 338 |
| | | DISSOLVED | 07/01/10 | <2.00 | <0.20 | 0.62 | 10.6 | 34.6 | <0.20 | 1.26 | <0.20 | <0.20 | 249.00 | | 4.76 | 3.63 | <0.20 | <0.20 | 0.49 | 168 | 2.53 | 406 |
| | | Total Rec | 07/01/10 | <5.00 | <0.50 | 0.51 | | 36.1 | <0.50 | 1.33 | <0.50 | <0.50 | 257.00 | | 8.87 | 3.71 | <0.50 | <0.50 | <0.50 | 174 | 2.45 | 433 |
| | | DISSOLVED | 06/17/11 | 28.5 | <0.50 | 0.66 | 11.4 | 38.4 | <0.50 | 1.36 | <0.50 | <0.50 | 261.88 | | 7.21 | 3.65 | 0.77 | <0.20 | 0.50 | 181 | 2.67 | 369 |
| | | Total Rec | 06/17/11 | 29.1 | <1.25 | 0.62 | | 40.4 | 0.04 | 1.39 | <1.25 | 0.40 | 265.17 | | 5.75 | 3.97 | 1.38 | <0.50 | 0.38 | 188 | 2.79 | 369 |
| | | DISSOLVED | 03/28/12 | 27.8 | <0.100 | 0.55 | 13.6 | 24.4 | <0.100 | 1.33 | <0.100 | <0.100 | 405.02 | | 10.47 | 2.32 | 0.10 | <0.400 | 0.59 | 141 | 0.30 | 319 |
| MW-206 | 250042 | DISSOLVED | 06/08/09 | <7.68 | <0.04 | 0.58 | 15.1 | 39.8 | <0.20 | 9.03 | <0.10 | 0.09 | 115.00 | | 7.88 | 3.02 | 1.03 | <0.15 | 1.94 | 208 | <0.02 | 1606 |
| | | DISSOLVED | 07/01/10 | <2.00 | <0.20 | 0.56 | 14.1 | 43.9 | <0.20 | 9.01 | <0.20 | <0.20 | 101.00 | | 5.72 | 3.00 | 0.71 | <0.20 | 2.54 | 195 | <0.20 | 1532 |
| | | Total Rec | 07/01/10 | <5.00 | <0.50 | <0.50 | | 47.9 | <0.50 | 9.51 | <0.50 | <0.50 | 120.00 | | 9.45 | 3.29 | 0.86 | <0.50 | 2.12 | 200 | <0.50 | 1692 |
| | | DISSOLVED | 06/17/11 | 36.2 | <0.50 | 0.68 | 14.6 | 48.2 | <0.50 | 10.82 | 0.11 | <0.50 | 121.20 | | 7.86 | 3.22 | 1.67 | <0.200 | 3.26 | 228 | <0.50 | 1782 |
| | | Total Rec | 06/17/11 | 49.1 | <1.25 | 1.55 | | 48.1 | <1.25 | 10.62 | <1.25 | 0.43 | 122.74 | | 9.01 | 3.47 | 2.32 | 2.22 | 2.91 | 230 | <1.25 | 1685 |
| | | DISSOLVED | 03/27/12 | 25.0 | <0.100 | 0.53 | 16.6 | 31.0 | <0.100 | 6.75 | <0.100 | <0.100 | 113.01 | | 10.47 | 1.73 | 0.75 | <0.400 | 1.48 | 155 | <0.100 | 1142 |
| MW-206D | 250054 | DISSOLVED | 06/08/09 | <7.68 | <0.04 | 0.55 | 15.1 | 48.3 | <0.20 | 7.57 | 0.23 | 0.04 | 76.40 | | 7.78 | 2.45 | 0.85 | <0.15 | 1.93 | 185 | 0.04 | 983 |
| | | DISSOLVED | 07/01/10 | <2.00 | <0.20 | 0.54 | 13.3 | 46.0 | <0.20 | 6.09 | <0.20 | <0.20 | 66.20 | | 5.90 | 2.32 | 0.31 | <0.20 | 1.92 | 167 | <0.20 | 725 |
| | | Total Rec | 07/01/10 | <5.00 | <0.50 | <0.50 | | 52.7 | <0.50 | 7.20 | <0.50 | <0.50 | 81.50 | | 9.59 | 2.50 | 0.48 | <0.50 | 1.70 | 186 | <0.50 | 953 |
| | | DISSOLVED | 06/17/11 | 31.6 | <0.50 | 0.59 | 13.8 | 52.6 | <0.50 | 7.96 | 0.12 | <0.50 | 80.33 | | 7.62 | 2.53 | 1.26 | <0.200 | 2.52 | 188 | <0.50 | 983 |
| | | Total Rec | 06/17/11 | 30.3 | <1.25 | 0.64 | | 57.3 | <1.25 | 8.18 | <1.25 | 0.40 | 80.27 | | 5.65 | 2.82 | 1.95 | <0.50 | 2.44 | 208 | <1.25 | 996 |
| | | DISSOLVED | 03/27/12 | 18.8 | <0.100 | 0.51 | 15.9 | 46.8 | <0.100 | 5.81 | <0.100 | <0.100 | 59.66 | | 9.56 | 1.65 | 0.46 | <0.400 | 1.50 | 161 | <0.100 | 631 |

NA-not applicable
NR not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Old Works WMA**
**Appendix B**

| | | | | Additional Trace Metals | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Cerium Ce (µg/L) | Cesium Cs (µg/L) | Gallium Ga (µg/L) | Lanchanum La (µg/L) | Niobium Nb (µg/L) | Neodymium Nd (µg/L) | Palladium Pd (µg/L) | Praseodymium Pr (µg/L) | Rubidium Rb (µg/L) | Thallium Tl (µg/L) | Thorium Th (µg/L) | Tin Sn (µg/L) | Titanium Ti (µg/L) | Tungsten W (µg/L) |
| IW-01 | 250038 | DISSOLVED | 06/10/09 | <0.05 | 0.14 | <0.07 | 0.22 | <0.03 | 0.13 | <0.10 | 0.03 | 3.02 | 0.05 | <0.02 | 0.11 | 1.14 | 0.08 |
| | | DISSOLVED | 10/13/10 | <0.20 | <0.50 | <0.20 | 0.27 | <0.50 | <0.20 | <0.50 | <0.20 | 2.51 | <0.20 | <0.20 | <0.50 | 0.48 | <0.20 |
| | | DISSOLVED | 06/23/11 | 0.42 | <0.50 | <0.50 | 0.74 | <0.50 | <0.50 | <0.50 | <0.50 | 2.78 | 0.11 | <0.50 | <0.50 | 2.87 | <0.50 |
| MW-204 | 250041 | DISSOLVED | 06/08/09 | <0.02 | 0.13 | <0.050 | 0.27 | <0.04 | 0.16 | <0.10 | 0.04 | 2.66 | <0.03 | <0.02 | <0.04 | 0.29 | 0.06 |
| | | DISSOLVED | 07/01/10 | <0.20 | <0.50 | <0.20 | 0.41 | <0.20 | 0.25 | <0.50 | <0.20 | 2.59 | <0.20 | <0.20 | <0.20 | 0.65 | <0.20 |
| | | Total Rec | 07/01/10 | <0.50 | <1.30 | <0.50 | <0.50 | <0.40 | <0.50 | <1.30 | <0.50 | 2.70 | <0.50 | <0.50 | | 0.58 | <0.50 |
| | | DISSOLVED | 06/17/11 | <0.50 | <0.50 | <0.50 | 0.28 | <0.50 | <0.50 | <0.50 | <0.50 | 2.69 | 0.17 | <0.50 | <0.50 | 1.15 | <0.50 |
| | | Total Rec | 06/17/11 | <1.25 | <1.25 | <1.25 | 0.29 | <1.25 | <1.25 | <1.25 | <1.25 | 2.88 | <1.25 | <1.25 | <1.25 | 1.94 | <1.25 |
| | | DISSOLVED | 03/28/12 | <0.100 | <0.100 | <0.100 | 0.27 | <0.100 | 0.14 | <0.100 | <0.100 | 2.10 | <0.100 | <0.100 | <0.100 | 0.16 | <0.100 |
| MW-206 | 250042 | DISSOLVED | 06/08/09 | <0.02 | 0.06 | <0.05 | 0.08 | <0.04 | 0.66 | <0.10 | <0.02 | 1.81 | 0.06 | <0.02 | <0.04 | 1.08 | 0.36 |
| | | DISSOLVED | 07/01/10 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | 1.73 | <0.20 | <0.20 | <0.20 | 0.54 | 0.29 |
| | | Total Rec | 07/01/10 | <0.50 | <1.30 | <0.50 | <0.50 | <0.40 | <0.50 | <1.30 | <0.50 | 1.90 | <0.50 | <0.50 | | 0.60 | 0.75 |
| | | DISSOLVED | 06/17/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.89 | 0.24 | <0.50 | <0.50 | 1.57 | 0.28 |
| | | Total Rec | 06/17/11 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | 2.08 | <1.25 | <1.25 | <1.25 | 3.42 | 0.31 |
| | | DISSOLVED | 03/27/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 1.55 | <0.100 | <0.100 | <0.100 | 1.09 | 0.12 |
| MW-206D | 250054 | DISSOLVED | 06/08/09 | <0.02 | 0.07 | <0.05 | 0.04 | <0.04 | <0.05 | <0.10 | <0.02 | 1.90 | 0.06 | <0.02 | <0.04 | 1.00 | 0.22 |
| | | DISSOLVED | 07/01/10 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | 1.89 | <0.20 | <0.20 | <0.20 | 0.43 | 0.26 |
| | | Total Rec | 07/01/10 | <0.50 | <1.30 | <0.50 | <0.50 | <0.40 | <0.50 | <1.30 | <0.50 | 2.17 | <0.50 | <0.50 | | <0.50 | <0.50 |
| | | DISSOLVED | 06/17/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.94 | 0.23 | <0.50 | <0.50 | 1.17 | 0.20 |
| | | Total Rec | 06/17/11 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | 2.11 | <1.25 | <1.25 | <1.25 | 1.63 | <1.25 |
| | | DISSOLVED | 03/27/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 1.76 | <0.100 | <0.100 | <0.100 | 1.55 | 0.18 |

NA-not applicable
NR not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Old Works WMA**
**Appendix B**

| | | | | | | PHYSICAL PARAMETERS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | FIELD | | | | | LAB | | | |
| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | TIME (HRS) | SWL (FT) | FLOW (GPM) | pH | SC (UMHOS) | TEMP (C) | REDOX (mv) | pH | SC (UMHOS) | HARDNESS (MG/L) | ALKALINITY (MG/L) |
| MW-207 | 250043 | DISSOLVED | 05/05/09 | 12:00 | 85.03 | 2.0 | 7.11 | 526 | 12.42 | 431 | 8.07 | 537 | 283 | 172 |
| | | DISSOLVED | 06/11/09 | 0:00 | 78.52 | 3.0 | 7.41 | 620 | 9.51 | 324 | 7.39 | 581 | 299 | 173 |
| | | DISSOLVED | 09/21/09 | 10:55 | 72.47 | 2.5 | 6.65 | 825 | 10.42 | 335 | 7.63 | 710 | 341 | 178 |
| | | DISSOLVED | 03/23/10 | 13:12 | 84.27 | 3.0 | 6.70 | 565 | 9.81 | 392 | 7.57 | 510 | 279 | 163 |
| | | DISSOLVED | 07/01/10 | 13:45 | 79.61 | 3.0 | 6.63 | 600 | 10.78 | 351 | 7.75 | 545 | 266 | 176 |
| | | Total Rec | 07/01/10 | 13:45 | 79.61 | 3.0 | 6.63 | 600 | 10.78 | 351 | | | 343 | |
| | | DISSOLVED | 04/04/11 | 13:14 | 88.11 | 2.0 | 6.75 | 571 | 9.54 | 346 | 7.20 | 586 | 288 | 172 |
| | | Total Rec | 04/04/11 | 13:14 | 88.11 | 2.0 | 6.75 | 571 | 9.54 | 346 | | | 302 | |
| | | DISSOLVED | 06/17/11 | 9:20 | 83.25 | 1.5 | 6.62 | 565 | 9.38 | 397 | 7.06 | 615 | 282 | 178 |
| | | Total Rec | 06/17/11 | 9:20 | 83.25 | 1.5 | 6.62 | 565 | 9.38 | 397 | | | 296 | |
| | | DISSOLVED | 03/29/12 | 10:14 | 76.09 | 2.0 | 6.99 | 888 | 8.98 | 392 | 7.13 | 908 | 436 | 169 |
| | | DISSOLVED | 08/28/12 | 15:14 | 74.40 | 2.0 | 7.00 | 662 | 10.41 | 478 | 7.05 | 618 | 317 | 185 |
| | | DISSOLVED | 03/19/13 | 16:10 | 80.97 | | 7.32 | 534 | 9.15 | 506 | 6.92 | 547 | 250 | 175 |
| | | DISSOLVED | 07/30/13 | 15:35 | 82.08 | 1.50 | 6.64 | 402 | 9.87 | 459 | 6.85 | 524 | 230 | 180 |
| | | Total Rec | 07/30/13 | 15:35 | 82.08 | 1.50 | 6.64 | 505 | 9.87 | 459 | | | 247 | |
| MW-208 | 250044 | DISSOLVED | 06/10/09 | 13:45 | 45.94 | 2.5 | 7.60 | 270 | 76.00 | 372 | 7.64 | 292 | 136 | 117 |
| | | DISSOLVED | 06/30/10 | 14:34 | 45.49 | 2.5 | 6.62 | 245 | 8.99 | 344 | 8.11 | 240 | 119 | 160 |
| | | Total Rec | 06/30/10 | 14:34 | 45.49 | 2.5 | 6.62 | 245 | 8.99 | 344 | | | 130 | |
| | | DISSOLVED | 06/21/11 | 10:50 | 43.31 | 2.4 | 7.81 | 245 | 7.91 | 329 | 7.63 | 264 | 125 | 115 |
| | | Total Rec | 06/21/11 | 10:50 | 43.31 | 2.4 | 7.81 | 245 | 7.91 | 329 | | | 115 | |
| | | DISSOLVED | 03/27/12 | 12:21 | 62.83 | 2.0 | 7.22 | 283 | 6.45 | 408 | 7.62 | 316 | 141 | 119 |
| MW-209 | 250045 | DISSOLVED | 06/12/09 | 11:00 | 52.70 | 1.0 | 7.57 | 573 | 8.16 | 333 | 7.67 | 561 | 279 | 157 |
| | | DISSOLVED | 06/29/10 | 15:18 | 52.79 | 1.0 | 6.94 | 470 | 10.00 | 365 | 8.15 | 465 | 235 | 202 |
| | | Total Rec | 06/29/10 | 15:18 | 52.79 | 1.0 | 6.94 | 470 | 10.00 | 365 | | | 248 | |
| | | DISSOLVED | 06/20/11 | 15:15 | 52.20 | 2.4 | 6.80 | 450 | 8.65 | 366 | 7.43 | 487 | 232 | 163 |
| | | Total Rec | 06/20/11 | 15:15 | 52.20 | 2.4 | 6.80 | 450 | 8.65 | 366 | | | 229 | |
| | | DISSOLVED | 03/13/12 | 12:02 | 60.79 | 2.0 | 8.50 | 532 | 7.78 | 368 | 7.31 | 551 | 264 | 153 |
| MW-213 | 138022 | DISSOLVED | 06/08/09 | 13:30 | 33.92 | 2.5 | 6.61 | 615 | 7.70 | 402 | 6.73 | 614 | 262 | 98 |
| | | DISSOLVED | 08/28/09 | 14:50 | 35.40 | 3.0 | 6.64 | 550 | 7.48 | 363 | 7.11 | 570 | 285 | 132 |
| | | DISSOLVED | 07/01/10 | 9:47 | 33.50 | 3.0 | 6.16 | 440 | 8.23 | 417 | 8.23 | 455 | 214 | 169 |
| | | Total Rec | 07/01/10 | 9:47 | 33.50 | 3.0 | 6.16 | 440 | 8.23 | 417 | | | 240 | |
| | | DISSOLVED | 06/17/11 | 13:24 | 33.31 | 2.0 | 6.55 | 473 | 8.24 | 495 | 6.96 | 499 | 221 | 14 |
| | | Total Rec | 06/17/11 | 13:24 | 33.31 | 2.0 | 6.55 | 473 | 8.24 | 495 | | | 215 | |
| | | DISSOLVED | 03/28/12 | 10:03 | 36.44 | 2.0 | 7.05 | 407 | 7.62 | 449 | 6.86 | 448 | 192 | 135 |

NA-not applicable
NR not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Old Works WMA**
**Appendix B**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Ca (mg/L) | Mg (mg/L) | Na (mg/L) | K (mg/L) | Fe (mg/L) | Mn (mg/L) | $SiO_2$ (mg/L) | $HCO_3$ (mg/L) | $CO_2$ (mg/L) | Cl (mg/L) | $SO_4$ (mg/L) | $NO_3$-N (mg/L) | F (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-207 | 250043 | DISSOLVED | 05/05/09 | 86.3 | 16.5 | 6.3 | 2.75 | 0.808 | <0.001 | 14.7 | 210 | 0.0 | 12.1 | 98 | 6.65 | <0.50 |
| | | DISSOLVED | 06/11/09 | 91.8 | 17.0 | 7.0 | 2.97 | <0.002 | <0.001 | 15.9 | 211 | 0.0 | 15.5 | 90 | 7.29 | <0.50 |
| | | DISSOLVED | 09/21/09 | 105.0 | 19.1 | 7.0 | 2.76 | 0.003 | 0.001 | 14.0 | 217 | 0.0 | 10.2 | 155 | 4.15 | 0.68 |
| | | DISSOLVED | 03/23/10 | 85.3 | 16.1 | 6.6 | 2.53 | 0.003 | <0.001 | 13.4 | 199 | 0.0 | 14.5 | 101 | 2.83 | 0.72 |
| | | DISSOLVED | 07/01/10 | 81.4 | 15.2 | 6.5 | 2.70 | <0.002 | <0.001 | 15.3 | 214 | 0.0 | 15.5 | 102 | 6.28 | 0.57 |
| | | Total Rec | 07/01/10 | 107.0 | 18.5 | 7.8 | 3.12 | 0.003 | <0.003 | | | | | | | |
| | | DISSOLVED | 04/04/11 | 88.6 | 16.3 | 7.3 | 2.60 | 0.015 | <0.001 | 14.3 | 510 | 0.0 | 15.4 | 72 | 3.33 | 0.51 |
| | | Total Rec | 04/04/11 | 93.8 | 16.5 | 7.3 | 2.68 | 0.109 | <0.003 | | | | | | | |
| | | DISSOLVED | 06/17/11 | 86.5 | 15.9 | 7.2 | 2.71 | 0.001 | <0.000 | 14.1 | 217 | 0.0 | 13.0 | 75 | 5.47 | 0.47 |
| | | Total Rec | 06/17/11 | 91.5 | 16.4 | 7.9 | 3.10 | <0.025 | <0.013 | | | | | | | |
| | | DISSOLVED | 03/29/12 | 134.7 | 24.3 | 8.9 | 3.14 | 0.023 | <0.002 | 14.5 | 206 | 0.0 | 22.9 | 243 | 3.56 | 0.57 |
| | | DISSOLVED | 08/28/12 | 96.9 | 18.1 | 8.4 | 2.86 | <0.015 | <0.002 | 15.2 | 226 | 0.0 | 11.8 | 126 | 2.82 | 0.61 |
| | | DISSOLVED | 03/19/13 | 77.0 | 14.0 | 8.2 | 2.33 | <0.015 | <0.002 | 13.8 | 213 | 0.0 | 8.8 | 75 | 2.85 | 0.69 |
| | | DISSOLVED | 07/30/13 | 70.5 | 13.2 | 8.5 | 2.42 | <0.015 | <0.002 | 14.3 | 219 | 0.0 | 7.7 | 60 | 6.48 | 0.70 |
| | | Total Rec | 07/30/13 | 75.7 | 14.1 | 9.2 | 2.85 | <0.038 | <0.005 | | | | | | | |
| MW-208 | 250044 | DISSOLVED | 06/10/09 | 41.0 | 8.1 | 3.2 | 1.34 | <0.008 | <0.001 | 12.6 | 143 | 0.0 | 1.9 | 23 | 0.23 | 0.41 |
| | | DISSOLVED | 06/30/10 | 35.6 | 7.3 | 2.8 | 1.21 | <0.003 | <0.001 | 10.3 | 195 | 0.0 | 0.9 | 15 | 0.13 | 0.44 |
| | | Total Rec | 06/30/10 | 39.9 | 7.5 | 3.0 | 1.30 | 0.031 | <0.003 | | | | | | | |
| | | DISSOLVED | 06/21/11 | 38.1 | 7.2 | 2.9 | 1.23 | 0.006 | <0.000 | 10.1 | 140 | 0.0 | 1.1 | 11 | 0.08 | 0.34 |
| | | Total Rec | 06/21/11 | 34.8 | 6.9 | 2.6 | 1.24 | <0.025 | <0.013 | | | | | | | |
| | | DISSOLVED | 03/27/12 | 42.9 | 8.2 | 3.3 | 1.20 | 0.007 | <0.002 | 9.6 | 145 | 0.0 | 1.9 | 16 | 0.13 | 0.35 |
| MW-209 | 250045 | DISSOLVED | 06/12/09 | 87.5 | 14.8 | 6.7 | 1.97 | 0.010 | <0.001 | 14.6 | 192 | 0.0 | <5.0 | 119 | 1.82 | 0.78 |
| | | DISSOLVED | 06/29/10 | 72.9 | 12.9 | 5.9 | 1.76 | <0.002 | <0.001 | 13.4 | 246 | 0.0 | 2.5 | 81 | 0.69 | 0.81 |
| | | Total Rec | 06/29/10 | 78.6 | 12.5 | 5.5 | 74.40 | 0.036 | <0.005 | | | | | | | |
| | | DISSOLVED | 06/20/11 | 73.3 | 12.0 | 5.7 | 1.63 | 0.002 | <0.000 | 12.7 | 199 | 0.0 | 3.1 | 65 | 0.66 | 0.65 |
| | | Total Rec | 06/20/11 | 72.7 | 11.5 | 5.1 | 1.77 | <0.025 | <0.013 | | | | | | | |
| | | DISSOLVED | 03/13/12 | 83.2 | 13.7 | 6.3 | 1.64 | <0.005 | <0.002 | 13.7 | 187 | 0.0 | | | | |
| MW-213 | 138022 | DISSOLVED | 06/08/09 | 77.4 | 16.6 | 6.8 | 1.94 | <0.002 | 0.447 | 13.5 | 120 | 0.0 | <5.0 | 230 | 0.93 | 0.55 |
| | | DISSOLVED | 08/28/09 | 88.6 | 15.6 | 7.7 | 1.81 | <0.002 | 0.058 | 12.0 | 161 | 0.0 | <5.0 | 151 | 2.14 | 0.65 |
| | | DISSOLVED | 07/01/10 | 64.4 | 13.0 | 6.2 | 1.61 | <0.002 | 0.108 | 11.2 | 206 | 0.0 | 1.9 | 103 | 0.64 | 0.74 |
| | | Total Rec | 07/01/10 | 74.1 | 13.4 | 6.8 | 1.80 | 0.030 | 0.105 | | | | | | | |
| | | DISSOLVED | 06/17/11 | 67.7 | 12.6 | 6.3 | 1.55 | <0.004 | 0.061 | 10.6 | 177 | 0.0 | 2.3 | 92 | 0.82 | 0.64 |
| | | Total Rec | 06/17/11 | 65.1 | 12.8 | 6.6 | 1.83 | 0.047 | 0.059 | | | | | | | |
| | | DISSOLVED | 03/28/12 | 59.1 | 10.9 | 6.3 | 1.50 | 0.010 | 0.006 | 12.4 | 164 | 0.0 | 2.6 | 59 | 0.41 | 0.65 |

NA-not applicable
NR not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Old Works WMA**
**Appendix B**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Al (µg/L) | Ag (µg/L) | As (µg/L) | B (µg/L) | Ba (µg/L) | Be (µg/L) | Cd (µg/L) | Co (µg/L) | Cr (µg/L) | Cu (µg/L) | Hg (µg/L) | Li (µg/L) | Mo (µg/L) | Ni (µg/L) | Pb (µg/L) | Se (µg/L) | Sr (µg/L) | U (µg/L) | Zn (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-207 | 250043 | DISSOLVED | 05/05/09 | 12.0 | <0.07 | 0.69 | 15.3 | 57.1 | <0.19 | <0.05 | 0.09 | 0.09 | 0.58 | | 5.44 | 2.09 | <0.08 | <0.20 | 1.32 | 217 | 1.28 | <1.29 |
| | | DISSOLVED | 06/11/09 | <7.68 | <0.04 | 0.75 | 18.6 | 61.9 | <0.20 | <0.05 | <0.10 | <0.04 | 0.46 | | 6.03 | 2.11 | <0.10 | <0.15 | 1.10 | 260 | 1.22 | <0.91 |
| | | DISSOLVED | 09/21/09 | <7.60 | <0.04 | 0.75 | 15.8 | 64.7 | <0.20 | <0.05 | <0.10 | 0.32 | 1.06 | | 5.76 | 2.34 | <0.10 | <0.16 | 1.14 | 259 | 1.75 | <0.90 |
| | | DISSOLVED | 03/23/10 | 2.6 | <0.10 | 0.81 | 15.1 | 52.1 | <0.10 | <0.10 | 0.12 | 0.17 | 0.74 | | 3.96 | 2.36 | <0.10 | 0.15 | 1.25 | 213 | 1.32 | 1.40 |
| | | DISSOLVED | 07/01/10 | <2.00 | <0.20 | 0.73 | 16.8 | 55.9 | <0.20 | <0.20 | <0.20 | <0.20 | 1.93 | | 3.21 | 2.04 | <0.20 | <0.20 | 1.26 | 229 | 1.23 | <1.00 |
| | | Total Rec | 07/01/10 | 9.2 | <0.50 | 0.56 | | 61.4 | <0.50 | <0.50 | <0.50 | <0.50 | 2.74 | | <0.50 | 2.07 | <0.50 | <0.50 | 0.96 | 248 | 1.27 | <2.50 |
| | | DISSOLVED | 04/04/11 | 26.5 | <0.20 | 0.81 | 14.0 | 51.3 | <0.20 | <0.20 | <0.20 | <0.20 | 0.58 | | 3.09 | 1.94 | <0.20 | <0.20 | 1.23 | 232 | 1.11 | <0.50 |
| | | Total Rec | 04/04/11 | 76.2 | 0.97 | 0.80 | 16.8 | 51.6 | <0.50 | <0.50 | <0.50 | <0.50 | <1.30 | | <5.00 | 2.12 | <0.50 | <0.50 | 0.99 | 234 | 1.30 | <1.30 |
| | | DISSOLVED | 06/17/11 | 23.9 | <0.50 | 0.67 | 18.1 | 57.4 | <0.50 | <0.50 | <0.50 | <0.50 | 0.33 | | 7.76 | 2.01 | 0.48 | <0.200 | 1.14 | 225 | 1.08 | <1.00 |
| | | Total Rec | 06/17/11 | 11.3 | <1.25 | 0.68 | | 60.3 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | | <5.00 | 2.28 | 0.95 | 0.47 | 0.91 | 259 | 1.22 | <2.50 |
| | | DISSOLVED | 03/29/12 | 39.2 | <0.100 | 0.89 | 20.6 | 84.2 | <0.100 | <0.100 | <0.100 | 0.25 | 0.56 | | 12.79 | 2.23 | <0.100 | <0.400 | 3.51 | 333 | 2.06 | <0.200 |
| | | DISSOLVED | 08/28/12 | <0.400 | <0.100 | 0.70 | 21.3 | 61.0 | <0.100 | <0.100 | 0.12 | <0.100 | <0.100 | | 8.32 | 2.58 | 1.30 | <0.400 | 1.12 | 242 | 1.65 | <0.200 |
| | | DISSOLVED | 03/19/13 | 1.4 | <0.100 | 0.74 | 18.31 | 47.42 | <0.100 | <0.100 | <0.100 | 0.20 | 0.44 | | 2.72 | 2.47 | 1.05 | <0.060 | 1.51 | 191 | 1.05 | <0.050 |
| | | DISSOLVED | 07/30/13 | 7.3 | <0.100 | 0.75 | 15.97 | 49.52 | <0.100 | <0.100 | <0.100 | <0.100 | 0.70 | | 4.05 | 2.24 | 0.84 | 0.23 | 1.31 | 183 | 0.98 | 0.52 |
| | | Total Rec | 07/30/13 | 22.1 | | 0.82 | 29.21 | 50.26 | <0.25 | <0.25 | <0.25 | 1.68 | 1.09 | | 23.16 | 2.29 | 1.40 | <0.15 | 11.14 | 187 | 0.92 | 1.22 |
| MW-208 | 250044 | DISSOLVED | 06/10/09 | <0.35 | <0.06 | 0.72 | 6.0 | 25.1 | <0.15 | <0.11 | <0.13 | <0.12 | 0.42 | | 5.86 | 3.07 | <0.08 | <0.05 | 0.29 | 98 | 0.64 | <0.48 |
| | | DISSOLVED | 06/30/10 | <2.00 | <0.20 | 0.70 | 4.6 | 22.1 | <0.20 | <0.20 | <0.20 | <0.20 | <0.5 | | 4.14 | 3.42 | <0.20 | <0.20 | <0.20 | 87 | 0.66 | <1.00 |
| | | Total Rec | 06/30/10 | 8.9 | <0.50 | 0.58 | | 21.8 | <0.50 | <0.50 | <0.50 | <0.50 | <1.30 | | 7.06 | 3.35 | <0.50 | <0.50 | <0.50 | 81 | 0.60 | <2.50 |
| | | DISSOLVED | 06/21/11 | 18.2 | <0.50 | 0.71 | 4.2 | 22.5 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | | 8.45 | 3.39 | <0.50 | <0.20 | 0.11 | 80 | 0.49 | <1.00 |
| | | Total Rec | 06/21/11 | 6.9 | <1.25 | 0.70 | | 22.4 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | | <5.00 | 3.65 | 0.50 | 0.24 | <1.25 | 81 | 0.53 | <2.50 |
| | | DISSOLVED | 03/27/12 | 13.2 | <0.100 | 0.70 | 3.6 | 24.0 | <0.100 | <0.100 | <0.100 | 0.12 | 0.51 | | 7.78 | 2.67 | <0.100 | <0.400 | 0.54 | 95 | 0.85 | 0.68 |
| MW-209 | 250045 | DISSOLVED | 06/12/09 | 11.9 | <0.04 | 0.47 | 11.1 | 51.9 | <0.20 | 7.99 | 0.12 | 0.13 | 0.56 | | 10.40 | 1.65 | 0.49 | <0.15 | 0.87 | 195 | 0.22 | 1168 |
| | | DISSOLVED | 06/29/10 | <2.00 | <0.20 | 0.37 | 10.3 | 41.8 | <0.20 | 6.22 | <0.20 | <0.20 | <0.5 | | 7.27 | 1.70 | <0.20 | <0.20 | 0.40 | 163 | <0.20 | 951 |
| | | Total Rec | 06/29/10 | <10.00 | <1.00 | <0.90 | 12.6 | 42.7 | <1.00 | 6.40 | <0.90 | <1.00 | <2.50 | | <10.00 | 1.92 | <0.90 | <1.00 | <0.90 | 165 | <1.00 | 936 |
| | | DISSOLVED | 06/20/11 | 26.6 | <0.50 | 0.35 | 10.3 | 45.1 | <0.50 | 5.71 | <0.50 | <0.50 | <0.50 | | 12.42 | 1.68 | 0.80 | <0.200 | 0.41 | 143 | 0.13 | 805 |
| | | Total Rec | 06/20/11 | 6.7 | <1.25 | <1.25 | | 46.8 | <1.25 | 5.61 | <1.25 | 0.52 | <1.25 | | 8.83 | 1.98 | 1.38 | <0.50 | <1.25 | 164 | <1.25 | 763 |
| | | DISSOLVED | 03/13/12 | <0.400 | | 0.44 | 14.5 | 36.5 | <0.100 | 5.69 | <0.100 | <0.100 | 0.35 | | 9.17 | 1.26 | 0.44 | <0.040 | <0.100 | 159 | 2.19 | 648 |
| MW-213 | 138022 | DISSOLVED | 06/08/09 | 33.4 | <0.04 | 0.22 | 18.3 | 30.6 | 0.25 | 21.10 | 7.51 | 0.07 | 4,574 | | 15.50 | 1.84 | 6.90 | <0.15 | 0.96 | 218 | 3.63 | 12780 |
| | | DISSOLVED | 08/28/09 | <7.60 | <0.04 | 0.21 | 20.6 | 20.5 | <0.20 | 8.59 | 0.97 | 0.11 | 1,295 | | 9.45 | 1.77 | 2.07 | <0.16 | 0.92 | 189 | 0.72 | 3873 |
| | | DISSOLVED | 07/01/10 | 6.9 | <0.20 | <0.20 | 15.2 | 32.7 | <0.20 | 6.87 | 1.60 | <0.20 | 1,306 | | 8.23 | 1.83 | 1.67 | <0.20 | 0.62 | 164 | 0.26 | 3212 |
| | | Total Rec | 07/01/10 | 11.5 | <0.50 | <0.50 | | 31.9 | <0.50 | 6.87 | 1.55 | <0.50 | 1,422 | | 12.20 | 1.81 | 1.87 | <0.50 | 0.51 | 156 | <0.50 | 3391 |
| | | DISSOLVED | 06/17/11 | 31.2 | <0.50 | 0.23 | 14.4 | 34.5 | <0.50 | 5.04 | 0.83 | <0.50 | 1,013 | | 9.25 | 1.97 | 2.59 | <0.200 | 0.64 | 151 | 0.23 | 2029 |
| | | Total Rec | 06/17/11 | 33.2 | <1.25 | <1.25 | | 37.9 | <1.25 | 4.99 | 0.91 | 0.30 | 1,006 | | 9.46 | 2.27 | 2.61 | <0.50 | 0.62 | 166 | 0.26 | 1948 |
| | | DISSOLVED | 03/28/12 | 24.0 | <0.100 | <0.100 | 18.8 | 34.6 | <0.100 | 3.72 | <0.100 | <0.100 | 836 | | 13.44 | 1.13 | 2.14 | <0.040 | 0.64 | 145 | <0.100 | 1351 |

NA-not applicable
NR not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Old Works WMA**
**Appendix B**

| | | | | Additional Trace Metals | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Cerium Ce (µg/L) | Cesium Cs (µg/L) | Gallium Ga (µg/L) | Lanthanum La (µg/L) | Niobium Nb (µg/L) | Neodymium Nd (µg/L) | Palladium Pd (µg/L) | Praseodymium Pr (µg/L) | Rubidium Rb (µg/L) | Thallium Tl (µg/L) | Thorium Th (µg/L) | Tin Sn (µg/L) | Titanium Ti (µg/L) | Tungsten W (µg/L) |
| MW-207 | 250043 | DISSOLVED | 05/05/09 | <0.04 | <0.04 | <0.04 | <0.05 | <0.03 | <0.04 | <0.07 | <0.03 | 3.89 | <0.03 | <0.02 | <0.05 | 0.86 | 1.51 |
| | | DISSOLVED | 06/11/09 | <0.02 | <0.04 | <0.05 | 0.03 | <0.04 | <0.05 | <0.10 | <0.02 | 4.33 | <0.03 | <0.02 | <0.04 | 1.02 | 1.41 |
| | | DISSOLVED | 09/21/09 | <0.02 | <0.04 | <0.05 | 0.02 | <0.10 | <0.04 | <0.10 | <0.02 | 3.85 | <0.03 | <0.02 | <0.04 | 1.81 | 1.74 |
| | | DISSOLVED | 03/23/10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.20 | <0.10 | <0.10 | <0.10 | 3.71 | <0.10 | <0.10 | <0.10 | 0.93 | 1.77 |
| | | DISSOLVED | 07/01/10 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | 3.94 | <0.20 | <0.20 | <0.20 | 0.97 | 1.27 |
| | | Total Rec | 07/01/10 | <0.50 | <1.30 | <0.50 | <0.50 | <0.40 | <0.50 | <1.30 | <0.50 | 4.32 | <0.50 | <0.50 | | 1.06 | 1.42 |
| | | DISSOLVED | 04/04/11 | <0.20 | <0.50 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | 3.73 | <0.20 | <0.20 | <0.50 | 2.03 | 1.50 |
| | | Total Rec | 04/04/11 | <0.50 | <1.30 | 69.80 | <0.50 | <1.30 | <0.50 | <1.30 | <0.50 | 4.11 | <0.50 | <0.50 | | 4.45 | 1.73 |
| | | DISSOLVED | 06/17/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 4.31 | 0.21 | <0.50 | <0.50 | 1.20 | 1.12 |
| | | Total Rec | 06/17/11 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | 4.71 | <1.25 | <1.25 | <1.25 | 2.06 | 1.21 |
| | | DISSOLVED | 03/29/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 3.85 | <0.100 | <0.100 | <0.100 | 2.52 | 1.45 |
| | | DISSOLVED | 08/28/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 3.73 | <0.100 | <0.100 | <0.100 | <0.100 | 1.74 |
| | | DISSOLVED | 03/19/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 3.44 | <0.100 | <0.100 | <0.100 | 0.82 | 1.84 |
| | | DISSOLVED | 07/30/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 3.67 | <0.100 | <0.100 | <0.100 | 0.65 | 1.75 |
| | | Total Rec | 07/30/13 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | 3.97 | <0.25 | <0.25 | <0.25 | 8.61 | 1.77 |
| MW-208 | 250044 | DISSOLVED | 06/10/09 | <0.05 | 0.07 | <0.07 | <0.03 | <0.03 | <0.07 | <0.10 | <0.02 | 1.84 | <0.03 | <0.02 | <0.05 | <0.32 | 0.17 |
| | | DISSOLVED | 06/30/10 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.20 | 1.75 | <0.20 | <0.20 | <0.20 | <0.20 | 0.26 |
| | | Total Rec | 06/30/10 | <0.50 | <1.30 | <0.50 | <0.50 | <0.40 | <0.50 | <1.30 | <0.50 | 1.74 | <0.50 | <0.50 | | <0.50 | <0.50 |
| | | DISSOLVED | 06/21/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.77 | <0.50 | <0.50 | <0.50 | 0.10 | 0.16 |
| | | Total Rec | 06/21/11 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | 1.83 | <1.25 | <1.25 | <1.25 | 0.58 | <1.25 |
| | | DISSOLVED | 03/27/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 1.46 | <0.100 | <0.100 | <0.100 | <0.100 | 0.16 |
| MW-209 | 250045 | DISSOLVED | 06/12/09 | <0.02 | <0.04 | <0.05 | 0.05 | <0.04 | <0.05 | <0.10 | <0.02 | 2.97 | <0.03 | <0.02 | <0.04 | 1.78 | 0.07 |
| | | DISSOLVED | 06/29/10 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.20 | 2.71 | <0.20 | <0.20 | <0.20 | 0.72 | <0.20 |
| | | Total Rec | 06/29/10 | <1.00 | <2.50 | <0.90 | <1.00 | <0.90 | <1.00 | <2.50 | <1.00 | 2.78 | <1.00 | <1.00 | | <1.00 | <1.00 |
| | | DISSOLVED | 06/20/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.51 | <0.50 | <0.50 | <0.50 | 1.01 | <0.50 |
| | | Total Rec | 06/20/11 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | 2.76 | <1.25 | <1.25 | <1.25 | 1.62 | <1.25 |
| | | DISSOLVED | 03/13/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 2.09 | <0.100 | <0.100 | <0.100 | 1.96 | <0.100 |
| MW-213 | 138022 | DISSOLVED | 06/08/09 | 1.57 | 0.17 | <0.05 | 2.11 | <0.04 | 1.35 | 0.18 | 0.35 | 3.51 | 0.09 | <0.02 | <0.04 | 3.63 | <0.05 |
| | | DISSOLVED | 08/28/09 | 0.18 | 0.13 | <0.05 | 0.67 | 0.04 | 0.48 | 0.11 | 0.13 | 2.94 | 0.07 | <0.02 | <0.04 | 1.60 | <0.05 |
| | | DISSOLVED | 07/01/10 | <0.20 | <0.50 | <0.20 | 0.67 | <0.20 | 0.56 | <0.50 | <0.20 | 2.82 | <0.20 | <0.20 | <0.20 | 0.92 | <0.20 |
| | | Total Rec | 07/01/10 | <0.50 | <1.30 | <0.50 | <0.50 | <0.40 | <0.50 | <1.30 | <0.50 | 2.81 | <0.50 | <0.50 | | 0.87 | <0.50 |
| | | DISSOLVED | 06/17/11 | <0.50 | <0.50 | <0.50 | 0.39 | <0.50 | <0.50 | 0.14 | <0.50 | 2.62 | 0.14 | <0.50 | <0.50 | 1.45 | <0.50 |
| | | Total Rec | 06/17/11 | <1.25 | <1.25 | <1.25 | 0.37 | <1.25 | <1.25 | <1.25 | <1.25 | 2.85 | <1.25 | <1.25 | <1.25 | 1.98 | <1.25 |
| | | DISSOLVED | 03/28/12 | <0.100 | <0.100 | <0.100 | 0.24 | <0.100 | 0.19 | <0.100 | <0.100 | 2.19 | <0.100 | <0.100 | <0.100 | 2.04 | <0.100 |

NA-not applicable
NR not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Old Works WMA**
**Appendix B**

| | | | | | | PHYSICAL PARAMETERS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | FIELD | | | | | LAB | | | |
| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | TIME (HRS) | SWL (FT) | FLOW (GPM) | pH | SC (UMHOS) | TEMP (C) | REDOX (mv) | pH | SC (UMHOS) | HARDNESS (MG/L) | ALKALINITY (MG/L) |
| MW-240 | 250047 | DISSOLVED | 06/10/09 | 16:45 | 68.88 | 3.0 | 7.42 | 615 | 9.15 | 318 | 7.48 | 595 | 291 | 176 |
| | | DISSOLVED | 07/01/10 | 13:05 | 68.53 | 3.0 | 6.62 | 480 | 11.46 | 358 | 7.52 | 485 | 219 | 212 |
| | | Total Rec | 07/01/10 | 13:05 | 68.53 | 3.0 | 6.62 | 480 | 11.46 | 358 | | | 270 | |
| | | DISSOLVED | 6/21/11 | 11:50 | 68.26 | 2.0 | 7.35 | 485 | 10.00 | 347 | 7.16 | 544 | 236 | 175 |
| | | Total Rec | 06/21/11 | 11:50 | 68.26 | 2.0 | 7.35 | 485 | 10.00 | 347 | | | 233 | |
| | | DISSOLVED | 03/29/12 | 10:46 | 73.26 | 2.0 | 8.42 | 695 | 8.64 | 320 | 7.15 | 745 | 324 | 163 |
| MW-241 | 250048 | DISSOLVED | 06/10/09 | 15:40 | 37.89 | 2.5 | 7.01 | 355 | 8.00 | 357 | 7.09 | 335 | 160 | 125 |
| | | DISSOLVED | 06/30/10 | 13:38 | 37.49 | 2.0 | 6.33 | 335 | 9.25 | 396 | 8.15 | 340 | 164 | 181 |
| | | Total Rec | 06/30/10 | 13:38 | 37.49 | 2.0 | 6.33 | 335 | 9.25 | 396 | | | 185 | |
| | | DISSOLVED | 06/20/11 | 16:05 | 36.20 | 2.0 | 6.74 | 366 | 9.10 | 424 | 7.18 | 398 | 179 | 132 |
| | | Total Rec | 06/20/11 | 16:05 | 36.20 | 2.0 | 6.74 | 366 | 9.10 | 424 | | | 166 | |
| | | DISSOLVED | 03/29/12 | 12:03 | 50.28 | 2.0 | 6.70 | 361 | 8.40 | 419 | 6.87 | 397 | 151 | 116 |
| DUP | | DISSOLVED | 03/29/12 | 12:03 | 50.28 | 2.0 | 6.70 | 361 | 8.40 | 419 | 6.86 | 413 | 159 | 116 |
| MW-242 | 250049 | DISSOLVED | 06/09/09 | 16:35 | 44.86 | 2.5 | 7.43 | 435 | 8.80 | 367 | 7.55 | 417 | 202 | 160 |
| | | DISSOLVED | 06/29/10 | 13:29 | 43.28 | 2.0 | 6.53 | 380 | 9.51 | 377 | 8.33 | 370 | 186 | 196 |
| | | Total Rec | 06/29/10 | 13:29 | 43.28 | 2.0 | 6.53 | 380 | 9.51 | 377 | | | 219 | |
| | | DISSOLVED | 06/17/11 | 11:15 | 44.65 | 2.4 | 6.90 | 396 | 8.37 | 440 | 7.42 | 398 | 204 | 163 |
| | | Total Rec | 06/17/11 | 11:15 | 44.65 | 2.4 | 6.90 | 396 | 8.37 | 440 | | | 203 | |
| | | DISSOLVED | 03/30/12 | 0:00 | 52.32 | 2.0 | 7.26 | 429 | 8.35 | 400 | 7.47 | 469 | 206 | 153 |
| MW-251 | 250014 | DISSOLVED | 05/05/09 | 17:10 | 69.05 | 2.2 | 7.33 | 635 | 8.07 | 573 | 7.69 | 641 | 350 | 164 |
| | | DISSOLVED | 06/12/09 | 13:00 | 54.98 | 0.2 | 7.68 | 595 | 10.40 | 308 | 7.62 | 577 | 292 | 161 |
| | | DISSOLVED | 09/23/09 | 11:36 | 55.80 | 1.0 | 7.16 | 490 | 9.39 | 345 | 7.42 | 500 | 235 | 146 |
| | | DISSOLVED | 03/19/10 | 12:33 | 69.19 | 1.0 | 6.86 | 480 | 7.87 | 379 | 7.80 | 475 | 231 | 162 |
| | | DISSOLVED | 06/30/10 | 12:59 | 53.28 | 1.0 | 6.43 | 455 | 9.19 | 366 | 8.01 | 410 | 228 | 178 |
| | | Total Rec | 06/30/10 | 12:59 | 53.28 | 1.0 | 6.43 | 455 | 9.19 | 366 | | | 282 | |
| | | DISSOLVED | 03/31/11 | 14:41 | 71.52 | 2.0 | 7.18 | 469 | 8.59 | 348 | 7.40 | 480 | 240 | 157 |
| | | Total Rec | 03/31/11 | 14:41 | 71.52 | 2.0 | 7.18 | 469 | 8.59 | 348 | | | 234 | |
| | | DISSOLVED | 06/20/11 | 14:15 | 55.15 | 2.5 | 6.61 | 444 | 9.23 | 338 | 7.42 | 478 | 220 | 166 |
| | | Total Rec | 06/20/11 | 14:15 | 55.15 | 2.5 | 6.61 | 444 | 9.23 | 338 | | | 216 | |
| | | DISSOLVED | 03/13/12 | 11:03 | 59.62 | 1.0 | 8.31 | 549 | 7.93 | 341 | | | 272 | 146 |
| | | DISSOLVED | 09/13/12 | 15:37 | 56.16 | | 7.23 | 466 | 9.67 | 445 | 7.26 | 433 | 232 | 162 |
| | | DISSOLVED | 03/19/13 | 15:18 | 64.53 | | 7.73 | 433 | 8.23 | 478 | 7.14 | 441 | 212 | 158 |
| | | DISSOLVED | 07/30/13 | 13:04 | 56.94 | 0.50 | 6.58 | 455 | 11.43 | 415 | 7.03 | 466 | 207 | 166 |
| | | Total Rec | 07/30/13 | 13:04 | 56.94 | 0.50 | 6.58 | 455 | 11.43 | 415 | | | 221 | |

NA-not applicable
NR not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Old Works WMA**
**Appendix B**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Ca (mg/L) | Mg (mg/L) | Na (mg/L) | K (mg/L) | Fe (mg/L) | Mn (mg/L) | $SiO_2$ (mg/L) | $HCO_3$ (mg/L) | $CO_2$ (mg/L) | Cl (mg/L) | $SO_4$ (mg/L) | $NO_3$-N (mg/L) | F (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-240 | 250047 | DISSOLVED | 06/10/09 | 89.7 | 16.2 | 8.7 | 1.84 | <0.002 | 0.102 | 15.9 | 214 | 0.0 | 7.2 | 96 | 6.40 | <0.50 |
| | | DISSOLVED | 07/01/10 | 67.9 | 11.9 | 7.4 | 1.66 | <0.002 | 0.144 | 14.9 | 259 | 0.0 | 7.6 | 52 | 4.21 | 0.59 |
| | | Total Rec | 07/01/10 | 85.2 | 14.0 | 8.8 | 1.76 | 0.032 | 0.164 | | | | | | | |
| | | DISSOLVED | 6/21/11 | 73.2 | 13.0 | 8.8 | 1.38 | 0.003 | 0.149 | 14.0 | 213 | 0.0 | 10.4 | 46 | 4.31 | 0.45 |
| | | Total Rec | 06/21/11 | 71.5 | 13.3 | 9.3 | 1.67 | <0.001 | <0.001 | | | | | | | |
| | | DISSOLVED | 03/29/12 | 100.2 | 17.8 | 9.6 | 1.92 | 0.020 | 0.182 | 15.7 | 199 | 0.0 | | | | |
| MW-241 | 250048 | DISSOLVED | 06/10/09 | 46.9 | 10.4 | 5.9 | 1.51 | <0.008 | <0.001 | 13.8 | 152 | 0.0 | 3.5 | 51 | 0.44 | 0.54 |
| | | DISSOLVED | 06/30/10 | 48.5 | 10.4 | 5.9 | 1.59 | <0.002 | <0.001 | 11.2 | 221 | 0.0 | 4.0 | 36 | 0.45 | 0.68 |
| | | Total Rec | 06/30/10 | 55.9 | 11.1 | 6.5 | 1.72 | 0.032 | <0.003 | | | | | | | |
| | | DISSOLVED | 06/20/11 | 53.4 | 11.1 | 6.2 | 1.58 | 0.001 | <0.001 | 10.5 | 161 | 0.0 | 6.3 | 44 | 0.52 | 0.52 |
| | | Total Rec | 06/20/11 | 48.8 | 10.8 | 5.7 | 1.71 | <0.025 | <0.013 | | | | | | | |
| | | DISSOLVED | 03/29/12 | 45.5 | 9.1 | 5.2 | 1.40 | 0.013 | <0.002 | 13.2 | 141 | 0.0 | 3.0 | 52 | 0.37 | 0.58 |
| DUP | | DISSOLVED | 03/29/12 | 48.0 | 9.6 | 5.2 | 1.51 | 0.014 | <0.002 | 13.2 | 141 | 0.0 | 2.9 | 21 | 0.36 | 0.56 |
| MW-242 | 250049 | DISSOLVED | 06/09/09 | 61.8 | 11.7 | 6.4 | 1.61 | <0.008 | 0.001 | 14.1 | 195 | 0.0 | 4.2 | 68 | 0.55 | 0.54 |
| | | DISSOLVED | 06/29/10 | 55.9 | 11.3 | 6.4 | 1.67 | <0.002 | <0.001 | 11.6 | 239 | 0.0 | 2.7 | 33 | 0.35 | 0.58 |
| | | Total Rec | 06/29/10 | 67.9 | 11.9 | 7.0 | 1.79 | 0.048 | <0.003 | | | | | | | |
| | | DISSOLVED | 06/17/11 | 62.7 | 11.6 | 6.2 | 1.60 | 0.001 | <0.001 | 11.6 | 199 | 0.0 | 4.7 | 37 | 0.41 | 0.45 |
| | | Total Rec | 06/17/11 | 62.6 | 11.5 | 6.5 | 1.69 | <0.025 | <0.013 | | | | | | | |
| | | DISSOLVED | 03/30/12 | 63.5 | 11.5 | 6.1 | 1.63 | 0.014 | <0.002 | 13.0 | 187 | 0.0 | 2.9 | 49 | 0.38 | 0.51 |
| MW-251 | 250014 | DISSOLVED | 05/05/09 | 110.0 | 18.2 | 7.0 | 2.08 | 0.008 | <0.001 | 13.6 | 200 | 0.0 | <5.0 | 234 | 0.97 | 0.75 |
| | | DISSOLVED | 06/12/09 | 92.1 | 15.1 | 6.7 | 2.01 | 0.105 | 0.002 | 15.5 | 196 | 0.0 | <5.0 | 133 | 1.64 | 0.89 |
| | | DISSOLVED | 09/23/09 | 74.5 | 11.8 | 5.7 | 1.67 | 0.007 | 0.001 | 12.7 | 178 | 0.0 | 3.1 | 111 | 1.24 | 0.84 |
| | | DISSOLVED | 03/19/10 | 73.0 | 11.9 | 5.5 | 1.57 | 0.002 | 0.001 | 11.5 | 198 | 0.0 | 2.2 | 94 | 0.66 | 0.93 |
| | | DISSOLVED | 06/30/10 | 71.3 | 12.1 | 5.7 | 1.65 | <0.002 | <0.001 | 12.9 | 217 | 0.0 | 2.3 | 74 | 0.53 | 0.90 |
| | | Total Rec | 06/30/10 | 90.8 | 13.4 | 6.3 | 1.96 | 0.131 | <0.003 | | | | | | | |
| | | DISSOLVED | 03/31/11 | 76.5 | 12.0 | 6.2 | 1.64 | 0.003 | <0.001 | 12.6 | 192 | 0.0 | 2.3 | 80 | 0.60 | 0.80 |
| | | Total Rec | 03/31/11 | 74.3 | 11.8 | 5.9 | 1.63 | 0.101 | <0.003 | | | | | | | |
| | | DISSOLVED | 06/20/11 | 69.6 | 11.2 | 5.7 | 1.53 | 0.001 | <0.001 | 12.5 | 203 | 0.0 | 2.9 | 61 | 0.56 | 0.77 |
| | | Total Rec | 06/20/11 | 37.9 | 11.3 | 5.4 | 1.82 | <0.025 | <0.013 | | | | | | | |
| | | DISSOLVED | 03/13/12 | 86.0 | 13.9 | 6.2 | 1.63 | <0.005 | <0.002 | 13.2 | 178 | 0.0 | | | | |
| | | DISSOLVED | 09/13/12 | 72.8 | 12.3 | 5.7 | 1.72 | <0.015 | <0.002 | 14.0 | 198 | 0.0 | 2.5 | 66 | 0.36 | 0.82 |
| | | DISSOLVED | 03/19/13 | 67.0 | 10.9 | 5.2 | 1.48 | <0.015 | <0.002 | 12.7 | 193 | 0.0 | 2.4 | 56 | 0.41 | 0.89 |
| | | DISSOLVED | 07/30/13 | 65.1 | 10.9 | 5.7 | 1.58 | <0.015 | <0.002 | 13.7 | 203 | 0.0 | 2.6 | 56 | 3.49 | 0.85 |
| | | Total Rec | 07/30/13 | 69.6 | 11.5 | 5.7 | 1.86 | 0.050 | <0.005 | | | | | | | |

NA-not applicable
NR not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Old Works WMA**
**Appendix B**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Al (µg/L) | Ag (µg/L) | As (µg/L) | B (µg/L) | Ba (µg/L) | Be (µg/L) | Cd (µg/L) | Co (µg/L) | Cr (µg/L) | Cu (µg/L) | Hg (µg/L) | Li (µg/L) | Mo (µg/L) | Ni (µg/L) | Pb (µg/L) | Se (µg/L) | Sr (µg/L) | U (µg/L) | Zn (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-240 | 250047 | DISSOLVED | 06/10/09 | <7.68 | <0.04 | 0.72 | 20.4 | 71.6 | <0.20 | 0.12 | 0.14 | <0.04 | 0.83 | | 8.59 | 2.41 | <0.10 | <0.15 | 2.96 | 254 | 0.83 | <0.91 |
| | | DISSOLVED | 07/01/10 | <2.00 | <0.20 | 0.59 | 16.7 | 53.6 | <0.20 | <0.20 | <0.20 | <0.20 | 2.90 | | 5.40 | 2.06 | <0.20 | <0.20 | 1.55 | 187 | 0.54 | <1.00 |
| | | Total Rec | 07/01/10 | 14.0 | <0.50 | 0.49 | | 56.2 | <0.50 | <0.50 | <0.50 | <0.50 | 3.57 | | 10.10 | 2.08 | <0.50 | <0.50 | 1.22 | 196 | 0.52 | <2.50 |
| | | DISSOLVED | 6/21/11 | 25.4 | <0.50 | 0.64 | 17.1 | 52.1 | <0.50 | <0.50 | 0.12 | <0.50 | <0.50 | | 9.71 | 1.88 | 0.20 | <0.200 | 1.76 | 180 | 0.42 | <1.00 |
| | | Total Rec | 06/21/11 | 5.0 | <1.25 | 0.55 | 17.8 | 55.4 | 0.04 | <1.25 | <1.25 | <1.25 | <25.00 | | 6.98 | 2.19 | 1.02 | <1.25 | 1.49 | 209 | <1.25 | <2.500 |
| | | DISSOLVED | 03/29/12 | 39.0 | | 0.63 | 20.5 | 71.9 | <0.100 | <0.100 | <0.100 | <0.100 | 0.59 | | 14.06 | 1.49 | <0.100 | <0.040 | 2.98 | 253 | 0.68 | <0.200 |
| MW-241 | 250048 | DISSOLVED | 06/10/09 | 5.0 | <0.06 | 0.39 | 11.6 | 31.4 | <0.15 | 3.20 | <0.13 | <0.12 | 169.00 | | 6.37 | 2.26 | 0.82 | <0.05 | 0.39 | 119 | <0.01 | 957 |
| | | DISSOLVED | 06/30/10 | <2.00 | <0.20 | 0.35 | 10.7 | 42.6 | <0.20 | 3.24 | <0.20 | <0.20 | 183.00 | | 5.11 | 2.44 | 0.72 | <0.20 | 0.30 | 129 | <0.20 | 952 |
| | | Total Rec | 06/30/10 | 7.4 | <0.50 | <0.50 | | 42.4 | <0.50 | 3.23 | <0.50 | <0.50 | 182.00 | | 8.54 | 2.39 | 0.95 | <0.50 | <0.50 | 124 | <0.50 | 1004 |
| | | DISSOLVED | 06/20/11 | 0.4 | <0.50 | 0.45 | 12.1 | 41.0 | <0.50 | 3.18 | <0.50 | <0.50 | 185.28 | | 7.28 | 2.79 | 1.14 | <0.200 | 0.48 | 126 | <0.50 | 850 |
| | | Total Rec | 06/20/11 | 8.8 | <1.25 | <1.25 | | 41.2 | <1.25 | 3.07 | <1.25 | <1.25 | 183.80 | | 5.00 | 2.95 | 1.63 | <0.50 | <1.25 | 137 | <1.25 | 763 |
| | | DISSOLVED | 03/29/12 | <0.400 | <0.100 | 0.37 | 12.8 | 32.6 | <0.100 | 5.22 | <0.100 | 0.11 | 244.97 | | 16.20 | 1.13 | 2.09 | <0.040 | 0.76 | 117 | <0.100 | 1949 |
| DUP | | DISSOLVED | 03/29/12 | 12.3 | <0.100 | 0.35 | 12.5 | 33.9 | <0.100 | 5.06 | <0.100 | 0.15 | 250.35 | | 16.49 | 1.10 | 2.06 | <0.040 | 0.71 | 119 | <0.100 | 1974 |
| MW-242 | 250049 | DISSOLVED | 06/09/09 | <0.35 | <0.06 | 0.47 | 11.8 | 49.8 | <0.15 | 0.30 | <0.13 | <0.12 | <0.33 | | 7.88 | 2.72 | <0.08 | <0.05 | 0.40 | 139 | 0.25 | 46.90 |
| | | DISSOLVED | 06/29/10 | <2.00 | <0.20 | 0.46 | 11.8 | 49.0 | <0.20 | 0.24 | <0.20 | <0.20 | <0.50 | | 6.61 | 2.98 | <0.20 | <0.20 | 0.25 | 135 | 0.21 | 36.00 |
| | | Total Rec | 06/29/10 | 30.7 | <0.50 | <0.50 | | 49.6 | <0.50 | <0.50 | <0.50 | <0.50 | <0.3 | | 7.87 | 3.03 | <0.50 | <0.50 | <0.50 | 131 | <0.50 | 36.30 |
| | | DISSOLVED | 06/17/11 | 19.8 | <0.50 | 0.47 | 12.6 | 51.5 | <0.50 | 0.25 | <0.50 | <0.50 | <0.50 | | 10.79 | 2.80 | 0.13 | <0.200 | 0.37 | 133 | 0.20 | 40.87 |
| | | Total Rec | 06/17/11 | 77.0 | <1.25 | 0.83 | | 52.2 | <1.25 | 0.58 | <1.25 | 0.78 | 1.70 | | 7.69 | 3.22 | 1.30 | <0.50 | 0.49 | 145 | <1.25 | 35.73 |
| | | DISSOLVED | 03/30/12 | 24.9 | <0.100 | 0.50 | 14.3 | 52.9 | <0.100 | 0.45 | <0.100 | 0.15 | 0.98 | | 15.88 | 2.12 | <0.100 | <0.040 | 0.92 | 141 | 0.12 | 67.52 |
| MW-251 | 250014 | DISSOLVED | 05/05/09 | 9.6 | <0.07 | 0.41 | 9.6 | 77.5 | <0.19 | 0.07 | 0.09 | <0.09 | 0.46 | | 14.10 | 1.20 | <0.08 | <0.20 | 0.76 | 236 | 0.33 | 5.39 |
| | | DISSOLVED | 06/12/09 | 111.0 | <0.04 | 0.56 | 11.0 | 58.1 | <0.20 | 0.67 | <0.10 | 0.22 | 0.52 | | 12.70 | 1.49 | <0.10 | <0.15 | 0.72 | 198 | 0.31 | 81.80 |
| | | DISSOLVED | 09/23/09 | 45.8 | <0.13 | 0.46 | 9.8 | 51.1 | <0.14 | <0.09 | 0.34 | 0.15 | 0.53 | | 11.80 | 1.38 | <0.23 | <0.11 | 0.47 | 168 | 0.23 | 4.09 |
| | | DISSOLVED | 03/19/10 | 3.6 | <0.10 | 0.48 | 7.8 | 49.1 | <0.10 | <0.10 | <0.10 | 11.00 | 0.33 | | 10.50 | 1.42 | <0.10 | <0.10 | 0.47 | 171 | 0.21 | 2.88 |
| | | DISSOLVED | 06/30/10 | <2.00 | <0.20 | 0.42 | 10.4 | 46.3 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | | 9.55 | 1.41 | <0.20 | <0.20 | 0.37 | 153 | 0.21 | 10.50 |
| | | Total Rec | 06/30/10 | 103.0 | <0.50 | <0.50 | | 48.0 | <0.50 | <0.50 | <0.50 | <0.50 | <1.30 | | 14.30 | 1.48 | <0.50 | <0.50 | <0.50 | 153 | <0.50 | 10.50 |
| | | DISSOLVED | 03/31/11 | <2.00 | <2.00 | 0.48 | 9.7 | 45.7 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | | 7.71 | 1.32 | <0.20 | <0.20 | 0.44 | 158 | <0.20 | 3.85 |
| | | Total Rec | 03/31/11 | 67.6 | <0.50 | <0.50 | 10.4 | 46.0 | <0.50 | <0.50 | <0.50 | <0.50 | <1.30 | | 10.10 | 1.41 | <0.50 | <0.50 | <0.50 | 156 | <0.50 | 2.03 |
| | | DISSOLVED | 06/20/11 | 36.0 | <0.50 | 0.45 | 10.3 | 42.6 | <0.50 | 0.22 | <0.50 | <0.50 | <0.50 | | 15.21 | 1.46 | 0.12 | <0.200 | 0.38 | 133 | 0.17 | 23.19 |
| | | Total Rec | 06/20/11 | 24.1 | <1.25 | 0.50 | | 46.1 | <1.25 | <1.25 | <1.25 | 0.61 | <1.25 | | 11.45 | 1.72 | 0.81 | <0.50 | <1.25 | 157 | <1.25 | 20.18 |
| | | DISSOLVED | 03/13/12 | 26.7 | | 0.54 | 10.9 | 50.3 | <0.100 | 0.33 | <0.100 | <0.100 | 3.78 | | 10.24 | 1.17 | <0.100 | <0.040 | <0.100 | 172 | 0.43 | 40.28 |
| | | DISSOLVED | 09/13/12 | 1.6 | <0.100 | 0.45 | 13.4 | 39.8 | <0.100 | 1.07 | <0.100 | <0.100 | 0.30 | | 8.43 | 1.44 | 1.07 | <0.040 | 0.34 | 142 | 0.19 | 143 |
| | | DISSOLVED | 03/19/13 | 1.7 | <0.100 | 0.45 | 12.17 | 40.5 | <0.101 | <0.100 | <0.100 | <0.100 | 2.39 | | 9.33 | 1.60 | 1.08 | <0.060 | 0.33 | 138 | <0.100 | 5.98 |
| | | DISSOLVED | 07/30/13 | 3.0 | <0.100 | 0.49 | 10.35 | 38.58 | <0.1 | 1.06 | <0.1 | <0.1 | <0.04 | | 8.71 | 1.55 | 0.91 | <0.06 | 0.23 | 136 | 0.20 | 119 |
| | | Total Rec | 07/30/13 | 60.3 | | 0.63 | 19.7 | 38.9 | <0.25 | 0.98 | <0.25 | 1.41 | <0.1 | | 34.61 | 1.56 | 1.25 | <0.15 | <0.25 | 135 | <0.25 | 125 |

NA-not applicable
NR not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Old Works WMA**
**Appendix B**

| | | | | Additional Trace Metals | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Cerium Ce (µg/L) | Cesium Cs (µg/L) | Gallium Ga (µg/L) | Lanthanum La (µg/L) | Niobium Nb (µg/L) | Neodymium Nd (µg/L) | Palladium Pd (µg/L) | Praseodymium Pr (µg/L) | Rubidium Rb (µg/L) | Thallium Tl (µg/L) | Thorium Th (µg/L) | Tin Sn (µg/L) | Titanium Ti (µg/L) | Tungsten W (µg/L) |
| MW-240 | 250047 | DISSOLVED | 06/10/09 | <0.02 | <0.04 | <0.05 | 0.04 | <0.04 | <0.05 | <0.10 | <0.02 | 3.34 | 0.08 | <0.02 | <0.04 | 1.06 | 1.04 |
| | | DISSOLVED | 07/01/10 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.20 | 2.81 | <0.20 | <0.20 | <0.20 | 0.49 | 0.97 |
| | | Total Rec | 07/01/10 | <0.50 | <1.30 | <0.50 | <0.50 | <0.40 | <0.50 | <1.30 | <0.50 | 3.03 | <0.50 | <0.50 | | 0.89 | 0.99 |
| | | DISSOLVED | 6/21/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.64 | 0.22 | <0.50 | <0.50 | 0.75 | 0.78 |
| | | Total Rec | 06/21/11 | <1.25 | <1.25 | <1.25 | <5.00 | <1.25 | <1.25 | <1.25 | <1.25 | 2.90 | <1.25 | <1.25 | <1.25 | 1.24 | <5.00 |
| | | DISSOLVED | 03/29/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 2.86 | <0.100 | <0.100 | <0.100 | 1.81 | 0.57 |
| MW-241 | 250048 | DISSOLVED | 06/10/09 | <0.05 | 0.08 | <0.07 | 0.06 | <0.03 | <0.07 | <0.10 | <0.02 | 2.19 | 0.04 | <0.02 | <0.05 | 0.58 | <0.07 |
| | | DISSOLVED | 06/30/10 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.50 | 2.50 | <0.20 | <0.20 | <0.20 | 0.34 | <0.20 |
| | | Total Rec | 06/30/10 | <0.50 | <1.30 | <0.50 | <0.50 | <0.40 | <0.50 | <1.30 | <0.50 | 2.52 | <0.50 | <0.50 | | <0.50 | <0.50 |
| | | DISSOLVED | 06/20/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.44 | 0.11 | <0.50 | <0.50 | 0.63 | <0.50 |
| | | Total Rec | 06/20/11 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | 2.52 | <1.25 | <1.25 | <1.25 | 1.17 | <1.25 |
| | | DISSOLVED | 03/29/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 2.22 | <0.100 | <0.100 | <0.100 | 0.52 | <0.100 |
| DUP | | DISSOLVED | 03/29/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 2.12 | <0.100 | <0.100 | <0.100 | 0.54 | <0.100 |
| MW-242 | 250049 | DISSOLVED | 06/09/09 | <0.05 | <0.04 | <0.07 | <0.03 | <0.03 | <0.07 | <0.10 | <0.02 | 2.35 | <0.03 | <0.02 | <0.05 | 0.63 | 0.10 |
| | | DISSOLVED | 06/29/10 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.20 | 2.52 | <0.20 | <0.20 | <0.20 | 0.34 | <0.20 |
| | | Total Rec | 06/29/10 | <0.50 | <1.30 | <0.50 | <0.50 | <0.40 | <0.50 | <1.30 | <0.50 | 2.63 | <0.50 | <0.50 | | 1.48 | <0.50 |
| | | DISSOLVED | 06/17/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.44 | 0.16 | <0.50 | <0.50 | 0.63 | <0.50 |
| | | Total Rec | 06/17/11 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | 2.69 | <1.25 | <1.25 | <1.25 | 3.66 | <1.25 |
| | | DISSOLVED | 03/30/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 2.11 | <0.100 | <0.100 | <0.100 | 1.10 | <0.100 |
| MW-251 | 250014 | DISSOLVED | 05/05/09 | <0.04 | <0.04 | <0.04 | <0.05 | <0.03 | <0.04 | <0.07 | <0.03 | 2.98 | <0.03 | <0.02 | <0.05 | 1.81 | 0.05 |
| | | DISSOLVED | 06/12/09 | 0.15 | 0.05 | <0.05 | 0.09 | <0.04 | 0.09 | <0.10 | 0.02 | 3.34 | <0.03 | 0.03 | <0.04 | 7.28 | 0.09 |
| | | DISSOLVED | 09/23/09 | <0.05 | <0.06 | <0.11 | <0.05 | <0.24 | <0.09 | <0.13 | <0.10 | 2.60 | <0.07 | <0.06 | <0.10 | 1.13 | <0.14 |
| | | DISSOLVED | 03/19/10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.20 | <0.10 | <0.10 | <0.10 | 2.57 | <0.10 | <0.10 | <0.10 | 0.94 | <0.10 |
| | | DISSOLVED | 06/30/10 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.20 | 2.50 | <0.20 | <0.20 | <0.20 | 0.70 | <0.20 |
| | | Total Rec | 06/30/10 | <0.50 | <1.30 | <0.50 | <0.50 | <0.40 | <0.50 | <1.30 | <0.50 | 2.85 | <0.50 | <0.50 | | 5.17 | <0.50 |
| | | DISSOLVED | 03/31/11 | <0.20 | <0.50 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | 2.38 | <0.20 | <0.20 | <0.50 | 1.05 | <0.20 |
| | | Total Rec | 03/31/11 | <0.50 | <1.30 | 65.60 | <0.50 | <1.30 | <0.50 | <1.30 | <0.50 | 2.75 | <0.50 | <0.50 | NR | 4.34 | <0.50 |
| | | DISSOLVED | 06/20/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.42 | 0.11 | <0.50 | <0.50 | 1.01 | <0.50 |
| | | Total Rec | 06/20/11 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | 2.65 | <1.25 | <1.25 | <1.25 | 2.17 | <1.25 |
| | | DISSOLVED | 03/13/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 2.07 | <0.100 | <0.100 | <0.100 | 2.08 | <0.100 |
| | | DISSOLVED | 09/13/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 2.38 | <0.100 | <0.100 | <0.100 | 0.77 | <0.100 |
| | | DISSOLVED | 03/19/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 2.39 | <0.100 | <0.100 | <0.100 | 0.63 | <0.100 |
| | | DISSOLVED | 07/30/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 2.49 | <0.100 | <0.100 | <0.100 | 0.68 | <0.100 |
| | | Total Rec | 07/30/13 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | 2.71 | <0.25 | <0.25 | <0.25 | 11.00 | <0.25 |

NA-not applicable
NR not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Old Works WMA**
**Appendix B**

| | | | | | PHYSICAL PARAMETERS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | FIELD | | | | | LAB | | | |
| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | TIME (HRS) | SWL (FT) | FLOW (GPM) | pH | SC (UMHOS) | TEMP (C) | REDOX (mv) | pH | SC (UMHOS) | HARDNESS (MG/L) | ALKALINITY (MG/L) |
| MW-252 | 249797 | DISSOLVED | 05/06/09 | 13:55 | 61.46 | 2.3 | 7.48 | 410 | 8.66 | 408 | 8.22 | 457 | 223 | 162 |
| | | DISSOLVED | 06/09/09 | 17:50 | 42.20 | 2.5 | 7.49 | 445 | 8.70 | 384 | 7.50 | 420 | 222 | 164 |
| Dup | | DISSOLVED | 06/09/09 | 17:52 | 42.20 | 2.5 | 7.49 | 445 | 8.70 | 384 | 7.45 | 430 | 220 | 160 |
| | | DISSOLVED | 09/22/09 | 14:35 | 49.44 | 0.8 | 7.32 | 415 | 8.92 | 353 | 7.74 | 490 | 205 | 145 |
| | | DISSOLVED | 03/18/10 | 13:34 | 60.89 | 1.0 | 6.51 | 400 | 8.74 | 407 | 7.74 | 425 | 185 | 166 |
| Dup | | DISSOLVED | 03/18/10 | 13:34 | 60.89 | 1.0 | 6.51 | 400 | 8.74 | 407 | 7.67 | 430 | 183 | 154 |
| | | DISSOLVED | 06/29/10 | 14:08 | 40.56 | 1.0 | 6.54 | 380 | 9.60 | 372 | 7.96 | 380 | 175 | 197 |
| | | Total Rec | 06/29/10 | 14:08 | 40.56 | 1.0 | 6.54 | 380 | 9.60 | 372 | | | 178 | |
| | | DISSOLVED | 03/31/11 | 14:03 | 63.70 | 2.0 | 6.81 | 407 | 8.83 | 336 | 7.54 | 405 | 209 | 153 |
| | | Total Rec | 03/31/11 | 14:03 | 63.70 | 2.0 | 6.81 | 407 | 8.83 | 336 | | | 211 | |
| | | DISSOLVED | 06/17/11 | 10:25 | 21.91 | 2.0 | 6.81 | 390 | 8.37 | 430 | 7.47 | 430 | 199 | 162 |
| | | Total Rec | 06/17/11 | 10:25 | 21.91 | 2.0 | 6.81 | 390 | 8.37 | 430 | | | 201 | |
| | | DISSOLVED | 03/30/12 | 10:58 | 49.99 | 2.0 | 7.25 | 419 | 8.12 | 403 | 7.48 | 446 | 202 | 149 |
| | | DISSOLVED | 08/28/12 | 13:47 | 47.12 | 1.0 | 7.49 | 375 | 10.11 | 483 | 7.40 | 335 | 177 | 147 |
| | | DISSOLVED | 03/19/13 | 14:20 | 55.01 | 1.00 | 7.76 | 380 | 8.59 | 472 | 7.19 | 382 | 175 | 150 |
| | | DISSOLVED | 07/29/13 | 16:18 | 50.96 | 1.00 | 4.10 | 370 | 9.80 | 466 | 7.32 | 381 | 188 | 160 |
| | | Total Rec | 07/29/13 | 16:18 | 50.96 | 1.00 | 4.10 | 370 | 9.80 | 466 | 7.32 | 381 | 185 | |
| MW-255 | 250055 | DISSOLVED | 05/05/09 | 17:05 | 70.43 | 2.0 | 7.48 | 330 | 7.76 | 400 | 7.64 | 395 | 177 | 133 |
| | | DISSOLVED | 06/09/09 | 15:30 | 45.08 | 2.5 | 7.44 | 345 | 8.20 | 378 | 7.51 | 425 | 179 | 137 |
| | | DISSOLVED | 09/22/09 | 12:25 | 60.67 | 1.0 | 7.26 | 360 | 10.06 | 340 | 7.64 | 355 | 173 | 121 |
| | | DISSOLVED | 03/19/10 | 14:52 | 69.92 | 1.0 | 6.72 | 330 | 8.09 | 373 | 7.66 | 350 | 155 | 136 |
| | | DISSOLVED | 06/29/10 | 12:49 | 43.85 | 1.0 | 6.51 | 320 | 8.74 | 392 | 8.12 | 300 | 145 | 166 |
| | | Total Rec | 06/29/10 | 12:49 | 43.85 | 1.0 | 6.51 | 320 | 8.74 | 392 | | | 155 | |
| | | DISSOLVED | 04/04/11 | 12:31 | 72.73 | 2.0 | 6.72 | 338 | 7.40 | 338 | 7.52 | 380 | 171 | 135 |
| | | Total Rec | 04/04/11 | 12:31 | 72.73 | 2.0 | 6.72 | 338 | 7.40 | 338 | | | 161 | |
| | | DISSOLVED | 06/17/11 | 9:50 | 43.81 | 2.4 | 6.78 | 310 | 7.47 | 410 | 7.44 | 347 | 157 | 136 |
| | | Total Rec | 06/17/11 | 9:50 | 43.81 | 2.4 | 6.78 | 310 | 7.47 | 410 | | | 155 | |
| | | DISSOLVED | 03/28/12 | 11:26 | 59.28 | 2.0 | 7.04 | 368 | 7.43 | 312 | 7.47 | 407 | 181 | 119 |
| | | DISSOLVED | 08/28/12 | 11:35 | 58.67 | 1.0 | 7.47 | 277 | 10.25 | 452 | 7.33 | 266 | 133 | 116 |
| | | DISSOLVED | 03/19/13 | 13:12 | 64.24 | 1.00 | 7.55 | 274 | 7.69 | 396 | 7.16 | 267 | 131 | 119 |
| | | DISSOLVED | 03/19/13 | 13:15 | 64.24 | 1.00 | 7.55 | 274 | 7.69 | 396 | 7.13 | 267 | 133 | 114 |
| | | DISSOLVED | 07/29/13 | 15:26 | 63.15 | 1.00 | 6.79 | 290 | 9.01 | 403 | 7.33 | 313 | 145 | 137 |
| | | Total Rec | 07/29/13 | 15:26 | 63.15 | 1.00 | 6.79 | 290 | 9.01 | 403 | 7.33 | 313 | 149 | |

NA-not applicable
NR not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Old Works WMA**
**Appendix B**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Ca (mg/L) | Mg (mg/L) | Na (mg/L) | K (mg/L) | Fe (mg/L) | Mn (mg/L) | $SiO_2$ (mg/L) | $HCO_3$ (mg/L) | $CO_2$ (mg/L) | Cl (mg/L) | $SO_4$ (mg/L) | $NO_3$-N (mg/L) | F (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-252 | 249797 | DISSOLVED | 05/06/09 | 67.3 | 13.3 | 6.7 | 1.77 | 0.005 | <0.001 | 12.3 | 198 | 0.0 | 3.6 | 86 | 0.54 | 0.56 |
| | | DISSOLVED | 06/09/09 | 67.9 | 12.7 | 6.9 | 1.73 | <0.008 | <0.001 | 13.6 | 200 | 0.0 | 4.4 | 74 | 0.51 | 0.54 |
| Dup | | DISSOLVED | 06/09/09 | 66.7 | 13.0 | 7.1 | 1.83 | <0.008 | <0.001 | 14.1 | 195 | 0.0 | 4.2 | 69 | 0.42 | 0.53 |
| | | DISSOLVED | 09/22/09 | 63.4 | 11.4 | 5.7 | 1.53 | <0.003 | 0.001 | 11.4 | 177 | 0.0 | 6.0 | 74 | 0.97 | 0.59 |
| | | DISSOLVED | 03/18/10 | 56.1 | 10.9 | 6.1 | 1.49 | 0.002 | 0.001 | 11.5 | 202 | 0.0 | 3.3 | 46 | 0.51 | 0.57 |
| Dup | | DISSOLVED | 03/18/10 | 55.6 | 10.7 | 6.1 | 1.47 | 0.002 | 0.001 | 11.5 | 188 | 0.0 | 3.3 | 46 | 0.51 | 0.58 |
| | | DISSOLVED | 06/29/10 | 52.4 | 10.7 | 6.2 | 1.55 | 0.004 | <0.001 | 12.2 | 240 | 0.0 | 3.2 | 36 | 0.42 | 0.57 |
| | | Total Rec | 06/29/10 | 54.2 | 10.4 | 5.8 | 1.67 | 0.110 | <0.002 | | | | | | | |
| | | DISSOLVED | 03/31/11 | 64.0 | 12.0 | 6.9 | 1.41 | <0.002 | <0.001 | 11.9 | 187 | 0.0 | 3.5 | 41 | 0.46 | 0.51 |
| | | Total Rec | 03/31/11 | 65.4 | 11.7 | 7.0 | 1.62 | 0.072 | <0.003 | | | | | | | |
| | | DISSOLVED | 06/17/11 | 60.8 | 11.5 | 6.6 | 1.59 | 0.002 | <0.000 | 11.5 | 197 | 0.0 | 4.0 | 37 | 0.39 | 0.43 |
| | | Total Rec | 06/17/11 | 61.9 | 11.4 | 6.2 | 1.80 | <0.025 | <0.013 | | | | | | | |
| | | DISSOLVED | 03/30/12 | 62.0 | 11.6 | 6.2 | 1.61 | 0.016 | <0.002 | 12.7 | 182 | 0.0 | 2.9 | 48 | 0.38 | 0.50 |
| | | DISSOLVED | 08/28/12 | 53.7 | 10.3 | 5.5 | 1.48 | <0.015 | <0.002 | 12.6 | 179 | 0.0 | 2.7 | 35 | 0.28 | 0.49 |
| | | DISSOLVED | 03/19/13 | 53.6 | 10.1 | 5.5 | 1.39 | <0.015 | <0.002 | 12.3 | 183 | 0.0 | 2.8 | 34 | 0.30 | 0.55 |
| | | DISSOLVED | 07/29/13 | 57.4 | 10.9 | 5.6 | 1.65 | <0.015 | <0.002 | 12.2 | 195 | 0.0 | 3.7 | 32 | 0.34 | 0.57 |
| | | Total Rec | 07/29/13 | 56.5 | 10.6 | 5.5 | 1.71 | <0.038 | <0.005 | | | | | | | |
| MW-255 | 250055 | DISSOLVED | 05/05/09 | 51.9 | 11.5 | 4.3 | 1.64 | 0.004 | <0.001 | 11.5 | 162 | 0.0 | 4.9 | 50 | 0.61 | 0.36 |
| | | DISSOLVED | 06/09/09 | 52.9 | 11.3 | 4.2 | 1.60 | <0.008 | 0.001 | 12.3 | 167 | 0.0 | 3.8 | 42 | 0.48 | 0.40 |
| | | DISSOLVED | 09/22/09 | 51.6 | 10.7 | 4.0 | 1.55 | 0.013 | 0.001 | 10.8 | 148 | 0.0 | 18.2 | 46 | 0.84 | 0.45 |
| | | DISSOLVED | 03/19/10 | 45.8 | 9.9 | 4.0 | 1.42 | 0.004 | 0.001 | 10.1 | 166 | 0.0 | 3.3 | 34 | 0.33 | 0.43 |
| | | DISSOLVED | 06/29/10 | 42.4 | 9.5 | 3.8 | 1.45 | <0.002 | <0.001 | 11.2 | 203 | 0.0 | 2.2 | 26 | 0.29 | 0.42 |
| | | Total Rec | 06/29/10 | 45.5 | 10.0 | 3.8 | 1.59 | 0.081 | <0.005 | | | | | | | |
| | | DISSOLVED | 04/04/11 | 51.2 | 10.5 | 4.8 | 1.53 | <0.002 | <0.001 | 10.8 | 165 | 0.0 | 3.2 | 27 | 0.32 | 0.36 |
| | | Total Rec | 04/04/11 | 48.3 | 9.7 | 4.2 | 1.45 | 0.760 | 0.004 | | | | | | | |
| | | DISSOLVED | 06/17/11 | 46.7 | 9.8 | 3.8 | 1.38 | <0.002 | <0.000 | 10.6 | 166 | 0.0 | 2.7 | 22 | 0.24 | 0.31 |
| | | Total Rec | 06/17/11 | 46.0 | 9.7 | 4.0 | 1.39 | 0.039 | <0.013 | | | | | | | |
| | | DISSOLVED | 03/28/12 | 53.8 | 11.2 | 4.6 | 1.53 | 0.011 | <0.002 | 11.1 | 145 | 0.0 | 2.0 | 55 | 0.26 | 0.37 |
| | | DISSOLVED | 08/28/12 | 39.3 | 8.4 | 3.6 | 1.43 | <0.015 | <0.002 | 11.3 | 141 | 0.0 | 1.4 | 21 | 0.14 | 0.40 |
| | | DISSOLVED | 03/19/13 | 39.2 | 8.1 | 3.3 | 1.28 | <0.016 | <0.003 | 10.7 | 145 | 0.0 | 1.6 | 16 | 0.16 | 0.41 |
| | | DISSOLVED | 03/19/13 | 39.5 | 8.2 | 3.2 | 1.29 | <0.017 | <0.004 | 10.7 | 139 | 0.0 | 1.5 | 16 | 0.16 | 0.40 |
| | | DISSOLVED | 07/29/13 | 42.9 | 9.2 | 3.5 | 1.42 | <0.018 | 0.003 | 11.1 | 167 | 0.0 | 1.6 | 19 | 0.16 | 0.41 |
| | | Total Rec | 07/29/13 | 44.2 | 9.4 | 3.4 | 1.75 | 0.043 | <0.005 | | | | | | | |

NA-not applicable
NR not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Old Works WMA**
**Appendix B**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Al (µg/L) | Ag (µg/L) | As (µg/L) | B (µg/L) | Ba (µg/L) | Be (µg/L) | Cd (µg/L) | Co (µg/L) | Cr (µg/L) | Cu (µg/L) | Hg (µg/L) | Li (µg/L) | Mo (µg/L) | Ni (µg/L) | Pb (µg/L) | Se (µg/L) | Sr (µg/L) | U (µg/L) | Zn (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-252 | 249797 | DISSOLVED | 05/06/09 | 7.0 | <0.07 | 0.43 | 10.1 | 59.7 | <0.19 | 0.94 | 0.18 | <0.09 | <0.41 | | 8.37 | 2.81 | <0.08 | <0.20 | 0.43 | 169 | 0.37 | 98.20 |
| | | DISSOLVED | 06/09/09 | 0.9 | <0.06 | 0.43 | 12.0 | 56.7 | <0.15 | 2.21 | <0.13 | <0.12 | 0.35 | | 7.29 | 2.90 | <0.08 | <0.05 | 0.43 | 153 | 0.32 | 248 |
| Dup | | DISSOLVED | 06/09/09 | <0.35 | <0.06 | 0.43 | 11.7 | 58.1 | <0.15 | 2.25 | 0.22 | <0.12 | 0.37 | | 7.37 | 2.94 | <0.08 | <0.05 | 0.42 | 156 | 0.33 | 249 |
| | | DISSOLVED | 09/22/09 | <15.83 | <0.13 | 0.46 | 9.4 | 51.9 | <0.14 | 1.54 | 0.11 | 0.12 | 0.71 | | 6.85 | 3.05 | <0.23 | <0.11 | 0.32 | 144 | 0.33 | 152 |
| | | DISSOLVED | 03/18/10 | 2.7 | <0.10 | 0.49 | 10.0 | 50.0 | <0.10 | 1.20 | <0.10 | <0.10 | 0.73 | | 6.20 | 2.90 | <0.10 | <0.10 | 0.36 | 142 | 0.24 | 129 |
| Dup | | DISSOLVED | 03/18/10 | 2.2 | <0.10 | 0.49 | 9.1 | 49.8 | <0.10 | 1.23 | <0.10 | 0.13 | 0.66 | | 6.17 | 2.90 | <0.10 | <0.10 | 0.33 | 142 | 0.26 | 130 |
| | | DISSOLVED | 06/29/10 | <2.00 | <0.20 | 0.44 | 11.4 | 49.9 | <0.20 | 1.24 | <0.20 | <0.20 | <0.50 | | 6.23 | 3.01 | <0.20 | <0.20 | 0.32 | 135 | 0.26 | 128 |
| | | Total Rec | 06/29/10 | 109.0 | <1.00 | <0.90 | 12.3 | 51.4 | <1.00 | 1.21 | <0.90 | <1.00 | <2.50 | | <10 | 2.97 | <0.90 | <1.00 | <0.90 | 132 | <1.00 | 129 |
| | | DISSOLVED | 03/31/11 | <2.00 | <0.20 | 0.49 | 9.7 | 48.3 | <0.20 | 0.43 | <0.20 | <0.20 | <0.50 | | 5.73 | 2.81 | <0.20 | <0.20 | 0.29 | 150 | 0.28 | 45.10 |
| | | Total Rec | 03/31/11 | 35.5 | <0.50 | <0.50 | 10.1 | 48.9 | <0.50 | <0.50 | <0.50 | <0.50 | <1.30 | | 6.46 | 3.03 | <0.50 | <0.50 | <0.50 | 145 | <0.50 | 41.10 |
| | | DISSOLVED | 06/17/11 | 19.2 | <0.50 | 0.40 | 9.9 | 51.6 | <0.50 | 2.00 | <0.50 | <0.50 | <0.50 | | 9.85 | 2.88 | 0.18 | <0.200 | 0.31 | 130 | 0.22 | 211 |
| | | Total Rec | 06/17/11 | 23.4 | <1.25 | <1.25 | | <1.25 | <1.25 | 2.08 | 0.49 | 0.54 | 1.71 | | 6.13 | 3.18 | 0.88 | <0.50 | <1.25 | 150 | <1.25 | 197 |
| | | DISSOLVED | 03/30/12 | 18.2 | <0.100 | 0.47 | 14.6 | 52.6 | <0.100 | 1.65 | <0.100 | 0.19 | 0.68 | | 15.68 | 2.12 | <0.100 | <0.040 | 0.88 | 141 | 0.24 | 188 |
| | | DISSOLVED | 08/28/12 | <0.400 | <0.100 | 0.38 | 9.9 | 44.3 | <0.100 | 1.50 | <0.100 | <0.100 | <0.100 | | 9.16 | 2.73 | 0.82 | <0.040 | <0.100 | 121 | 0.23 | 151 |
| | | DISSOLVED | 03/19/13 | <0.400 | <0.100 | 0.43 | 10.09 | 44 | <0.100 | 1.28 | <0.100 | <0.100 | <0.040 | | 4.50 | 2.37 | 0.80 | <0.060 | 0.25 | 123 | 0.21 | 131 |
| | | DISSOLVED | 07/29/13 | 0.8 | <0.100 | 0.42 | 7.63 | 48.37 | <0.1 | 1.48 | <0.1 | <0.1 | <0.04 | | 5.76 | 2.66 | 0.76 | <0.06 | 0.26 | 130 | 0.22 | 155 |
| | | Total Rec | 07/29/13 | 33.8 | | 0.26 | 17.11 | 46.93 | <0.25 | 1.35 | <0.25 | 1.77 | <0.1 | | 25.90 | 2.66 | 1.09 | 0.72 | <0.25 | 125 | <0.25 | 151 |
| MW-255 | 250055 | DISSOLVED | 05/05/09 | 24.9 | <0.07 | 0.75 | 6.0 | 35.5 | <0.19 | <0.05 | <0.04 | <0.09 | <0.41 | | 3.98 | 2.82 | <0.08 | <0.20 | 0.41 | 140 | 1.41 | 1.59 |
| | | DISSOLVED | 06/09/09 | 0.8 | <0.06 | 0.78 | 7.0 | 33.6 | <0.15 | <0.11 | 0.21 | <0.12 | 0.36 | | 3.85 | 2.79 | <0.08 | <0.05 | 0.36 | 129 | 1.26 | <0.48 |
| | | DISSOLVED | 09/22/09 | <15.83 | <0.13 | 0.76 | 6.0 | 33.1 | <0.14 | <0.09 | 0.46 | 0.12 | 0.54 | | 3.79 | 2.69 | <0.23 | <0.11 | 0.36 | 127 | 1.21 | 3.37 |
| | | DISSOLVED | 03/19/10 | 5.8 | <0.10 | 0.77 | 4.2 | 30.8 | <0.10 | <0.10 | 0.13 | 0.11 | 0.32 | | 2.84 | 2.91 | <0.10 | <0.10 | 0.26 | 124 | 1.21 | <0.81 |
| | | DISSOLVED | 06/29/10 | <2.00 | <0.20 | 0.71 | 6.3 | 27.4 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | | 2.57 | 2.79 | <0.20 | <0.20 | 0.19 | 109 | 0.97 | <1.00 |
| | | Total Rec | 06/29/10 | 70.4 | <1.00 | <0.90 | <10 | 31.5 | <1.00 | <1.00 | <0.90 | <1.00 | <2.50 | | <10.00 | 2.83 | <0.90 | <1.00 | <0.90 | 119 | 1.06 | <5.0 |
| | | DISSOLVED | 04/04/11 | 4.8 | <0.20 | 0.72 | 5.5 | 29.1 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | | 2.08 | 2.73 | <0.20 | <0.20 | 0.19 | 123 | 0.95 | <0.50 |
| | | Total Rec | 04/04/11 | 410.0 | <0.50 | 0.82 | 5.8 | 36.4 | <0.50 | <0.50 | <0.50 | <0.50 | 1.98 | | <5.00 | 2.92 | 0.48 | <0.50 | <0.50 | 125 | 1.07 | <1.30 |
| | | DISSOLVED | 06/17/11 | 1.6 | <0.50 | 0.73 | 5.2 | 27.9 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | | 5.69 | 2.76 | <0.50 | <0.200 | 0.18 | 103 | 0.84 | 0.47 |
| | | Total Rec | 06/17/11 | 41.3 | 0.00 | 0.82 | | 28.3 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | | 6.03 | 2.80 | <1.25 | <0.50 | 0.33 | 112 | 0.86 | 0.00 |
| | | DISSOLVED | 03/28/12 | 33.0 | <0.100 | 0.75 | 6.9 | 33.3 | <0.100 | <0.100 | <0.100 | 0.13 | 0.45 | | 9.94 | 2.37 | <0.100 | <0.040 | 0.62 | 126 | 1.13 | 0.24 |
| | | DISSOLVED | 08/28/12 | 1.6 | <0.100 | 0.74 | 5.9 | 24.8 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | | 6.19 | 3.04 | 0.50 | <0.040 | <0.100 | 93 | 0.77 | <0.200 |
| | | DISSOLVED | 03/19/13 | 1.1 | <0.100 | 0.83 | 5.25 | 23.26 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | <1.500 | 2.68 | 0.46 | <0.060 | <0.100 | 90 | 0.67 | <0.050 |
| | | DISSOLVED | 03/19/13 | 1.4 | <0.100 | 0.85 | 4.96 | 23.12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | <1.500 | 2.62 | 0.48 | <0.060 | <0.100 | 91 | 0.66 | <0.050 |
| | | DISSOLVED | 07/29/13 | 1.9 | <0.1 | 0.79 | 3.72 | 26.89 | <0.1 | <0.1 | <0.1 | <0.1 | <0.04 | | 2.55 | 2.84 | 0.45 | <0.06 | <0.100 | 101 | 0.90 | <0.05 |
| | | Total Rec | 07/29/13 | 64.5 | | 0.94 | 10.45 | 27.72 | <0.25 | <0.25 | <0.25 | 1.91 | <0.1 | | 19.76 | 2.91 | 0.72 | <0.15 | <0.25 | 99 | 0.82 | 1.60 |

NA-not applicable
NR not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soils**
**Old Works WMA**
**Appendix B**

| | | | | Additional Trace Metals | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Cerium Ce (µg/L) | Cesium Cs (µg/L) | Gallium Ga (µg/L) | Lanthanum La (µg/L) | Niobium Nb (µg/L) | Neodymium Nd (µg/L) | Palladium Pd (µg/L) | Praseodymium Pr (µg/L) | Rubidium Rb (µg/L) | Thallium Tl (µg/L) | Thorium Th (µg/L) | Tin Sn (µg/L) | Titanium Ti (µg/L) | Tungsten W (µg/L) |
| MW-252 | 249797 | DISSOLVED | 05/06/09 | <0.04 | <0.04 | <0.04 | <0.05 | <0.03 | <0.04 | <0.07 | <0.03 | 2.63 | <0.03 | <0.02 | <0.05 | 0.66 | 0.08 |
| | | DISSOLVED | 06/09/09 | <0.05 | 0.06 | <0.07 | <0.03 | <0.03 | <0.07 | <0.10 | <0.02 | 2.58 | <0.03 | <0.02 | <0.05 | 0.70 | 0.09 |
| | Dup | DISSOLVED | 06/09/09 | <0.05 | 0.07 | <0.07 | 0.04 | <0.03 | <0.07 | <0.10 | <0.02 | 2.67 | 0.03 | <0.02 | <0.05 | 0.71 | 0.09 |
| | | DISSOLVED | 09/22/09 | <0.05 | <0.06 | <0.11 | <0.05 | <0.24 | <0.09 | <0.13 | <0.10 | 2.46 | <0.07 | <0.06 | <0.10 | 0.67 | <0.14 |
| | | DISSOLVED | 03/18/10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.20 | <0.10 | <0.10 | <0.10 | 2.51 | <0.10 | <0.10 | <0.10 | 0.47 | <0.10 |
| | Dup | DISSOLVED | 03/18/10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.20 | <0.10 | <0.10 | <0.10 | 2.51 | <0.10 | <0.10 | <0.10 | 0.47 | <0.10 |
| | | DISSOLVED | 06/29/10 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.20 | 2.54 | <0.20 | <0.20 | <0.20 | 0.35 | <0.20 |
| | | Total Rec | 06/29/10 | <1.00 | <2.50 | <0.90 | <1.00 | <0.90 | <1.00 | <2.50 | <1.00 | 3.14 | <1.00 | <1.00 | | 5.27 | <1.00 |
| | | DISSOLVED | 03/31/11 | <0.20 | <0.50 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | 2.48 | <0.20 | <0.20 | <0.50 | 0.57 | <0.20 |
| | | Total Rec | 03/31/11 | <0.50 | <1.30 | 54.70 | <0.50 | <1.30 | <0.50 | <1.30 | <0.50 | 2.70 | <0.50 | <0.50 | | 2.18 | <0.50 |
| | | DISSOLVED | 06/17/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.52 | 0.14 | <0.50 | <0.50 | 0.67 | <0.50 |
| | | Total Rec | 06/17/11 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | 2.79 | <1.25 | <1.25 | <1.25 | 1.99 | <1.25 |
| | | DISSOLVED | 03/30/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 2.12 | <0.100 | <0.100 | <0.100 | 0.45 | <0.100 |
| | | DISSOLVED | 08/28/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 2.17 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 |
| | | DISSOLVED | 03/19/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 2.21 | <0.100 | <0.100 | <0.100 | 0.37 | <0.100 |
| | | DISSOLVED | 07/29/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 2.45 | <0.100 | <0.100 | <0.100 | 0.43 | <0.100 |
| | | Total Rec | 07/29/13 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | 0.60 | <0.25 | 2.66 | <0.25 | <0.25 | <0.1 | 10.87 | <0.25 |
| MW-255 | 250055 | DISSOLVED | 05/05/09 | <0.04 | <0.04 | <0.04 | <0.05 | <0.03 | <0.04 | <0.07 | <0.03 | 2.28 | <0.03 | <0.02 | <0.05 | 0.41 | 0.15 |
| | | DISSOLVED | 06/09/09 | <0.05 | <0.04 | <0.07 | <0.03 | <0.03 | <0.07 | <0.10 | <0.02 | 2.30 | <0.03 | <0.02 | <0.05 | 0.36 | 0.18 |
| | | DISSOLVED | 09/22/09 | <0.05 | <0.06 | <0.11 | <0.05 | <0.24 | <0.09 | <0.13 | <0.10 | 2.28 | <0.07 | <0.06 | <0.10 | 0.64 | 0.15 |
| | | DISSOLVED | 03/19/10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.20 | <0.10 | <0.10 | 2.19 | <0.10 | <0.10 | <0.10 | 0.42 | 0.15 |
| | | DISSOLVED | 06/29/10 | <0.20 | <0.50 | <0.50 | <0.20 | <0.20 | <0.20 | <0.50 | <0.20 | 2.04 | <0.20 | <0.20 | <0.20 | 0.27 | <0.20 |
| | | Total Rec | 06/29/10 | <1.00 | <2.50 | <0.90 | <1.00 | <0.90 | <1.00 | <2.50 | <1.00 | <2.50 | <1.00 | <1.00 | | 2.33 | <1.00 |
| | | DISSOLVED | 04/04/11 | <0.20 | <0.50 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | 2.07 | <0.20 | <0.20 | <0.50 | 0.53 | <0.20 |
| | | Total Rec | 04/04/11 | <0.50 | <1.30 | 43.90 | <0.50 | <1.30 | <0.50 | <1.30 | <0.50 | 3.28 | <0.50 | <0.50 | | 13.00 | <0.50 |
| | | DISSOLVED | 06/17/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.84 | <0.50 | <0.50 | <0.50 | 0.20 | <0.50 |
| | | Total Rec | 06/17/11 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | 1.96 | <1.25 | <1.25 | <1.25 | 1.18 | <1.25 |
| | | DISSOLVED | 03/28/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 1.85 | <0.100 | <0.100 | <0.100 | 0.53 | 0.14 |
| | | DISSOLVED | 08/28/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 1.83 | <0.100 | <0.100 | <0.100 | <0.100 | 0.18 |
| | | DISSOLVED | 03/19/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 1.77 | <0.100 | <0.100 | <0.100 | 0.21 | 0.21 |
| | | DISSOLVED | 03/19/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 1.75 | <0.100 | <0.100 | <0.100 | <0.100 | 0.21 |
| | | DISSOLVED | 07/29/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 2.01 | <0.100 | <0.100 | <0.100 | 0.28 | 0.23 |
| | | Total Rec | 07/29/13 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | 2.07 | <0.25 | 2.33 | <0.25 | <0.25 | <0.25 | 13.05 | <0.25 |

NA-not applicable
NR not reported

**Appendix C.** Anaconda Regional Water, Waste, and Soils South/Opportunity Yellow Ditch AOC, Water-Quality Data

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soil**
**South Opportunity/Yellow Ditch AOC**
**Appendix C**

| | | | | | PHYSICAL PARAMETERS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | FIELD | | | | LAB | | | |
| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | TIME (HRS) | SWL (FT) | FLOW (GPM) | pH | SC (UMHOS) | TEMP (C) | REDOX (mv) | pH | SC (UMHOS) | HARDNESS (MG/L) | ALKALINITY (MG/L) |
| LTW-1D | 249936 | DISSOLVED | 09/11/09 | 18:05 | 12.34 | 3.0 | 6.96 | 180 | 8.80 | 301 | 6.91 | 190 | 78 | 80 |
| MW-263 | | DISSOLVED | 03/17/10 | 12:22 | 22.50 | 2.5 | 6.05 | 190 | 8.73 | 403 | 6.91 | 195 | 76 | 67 |
| | | DISSOLVED | 07/15/10 | 9:40 | 8.41 | 4.0 | 6.25 | 190 | 8.94 | 353 | 8.94 | 190 | 80 | 68 |
| | | TOTAL REC | 07/15/10 | 9:40 | 8.41 | 4.0 | 6.25 | 190 | 8.94 | 353 | | | 88 | |
| | | DISSOLVED | 03/30/11 | 15:00 | 22.84 | 2.5 | 6.47 | 202 | 8.64 | 323 | 6.85 | 214 | 85 | 65 |
| | | TOTAL REC | 03/30/11 | 15:00 | 22.84 | 2.5 | 6.74 | 202 | 8.64 | 323 | | | 86 | |
| | | DISSOLVED | 07/25/11 | 16:50 | 6.89 | 2.8 | 6.12 | 190 | 8.51 | 449 | 6.88 | 179 | 81 | 65 |
| | | TOTAL REC | 07/25/11 | 16:50 | 6.89 | 2.8 | 6.12 | 190 | 8.51 | | | | 77 | |
| | | DISSOLVED | 03/16/12 | 10:38 | 22.51 | 2.0 | 7.97 | 191 | 8.00 | 299 | 6.60 | 216 | 75 | 62 |
| | | TOTAL REC | 03/16/12 | 10:38 | 22.51 | 2.0 | 7.97 | 191 | 8.00 | 299 | 6.60 | 216 | 82 | |
| | | DISSOLVED | 08/22/12 | 14:38 | 15.16 | 3.3 | 5.79 | 195 | 7.66 | 340 | 6.61 | 165 | 83 | 66 |
| | | DISSOLVED | 03/25/13 | 12:10 | 25.26 | | 6.53 | 191 | 8.09 | 429 | 6.20 | 169 | 77 | 64 |
| | | DISSOLVED | 08/02/13 | 11:07 | 15.65 | 2.0 | 6.28 | 195 | 9.01 | 454 | 6.54 | 191 | 83 | 76 |
| | | TOTAL REC | 08/02/13 | 11:07 | 15.65 | 2.0 | 6.28 | 195 | 9.01 | 454 | 6.54 | 191 | 87 | |
| LTW-1S | 249937 | DISSOLVED | 09/11/09 | 17:25 | 12.40 | 3.0 | 7.23 | 170 | 10.19 | 288 | 6.73 | 195 | 73 | 62 |
| MW-264 | | DISSOLVED | 03/17/10 | 12:45 | 23.20 | 2.0 | 6.30 | 190 | 8.37 | 401 | 6.88 | 210 | 75 | 66 |
| | | DISSOLVED | 07/15/10 | 9:21 | 8.54 | 4.0 | 5.99 | 200 | 8.75 | 354 | 7.84 | 205 | 83 | 60 |
| | | TOTAL REC | 07/15/10 | 9:21 | 8.54 | 4.0 | 5.99 | 200 | 8.75 | 354 | | | 88 | |
| | | DISSOLVED | 03/30/11 | 14:34 | 22.91 | 2.5 | 6.71 | 201 | 8.33 | 315 | 6.86 | 203 | 86 | 62 |
| | | TOTAL REC | 03/30/11 | 14:34 | 22.91 | 2.5 | 6.71 | 201 | 8.33 | 315 | | | 88 | |
| | | DISSOLVED | 07/25/11 | 16:05 | 7.01 | 2.5 | 6.53 | 219 | 8.90 | 219 | 6.94 | 218 | 92 | 66 |
| | | TOTAL REC | 07/25/11 | 16:05 | 7.01 | 2.5 | 6.53 | 219 | 8.90 | 219 | | | 91 | |
| | | DISSOLVED | 03/16/12 | 11:03 | 23.22 | 1.0 | 7.23 | 198 | 7.23 | 380 | 6.62 | 232 | 71 | 60 |
| | | TOTAL REC | 03/16/12 | 11:03 | 23.22 | 1.0 | 7.23 | 198 | 7.23 | 380 | 6.62 | 232 | 86 | |
| | | DISSOLVED | 08/22/12 | 13:51 | 14.96 | 3.3 | 5.82 | 173 | 8.59 | 338 | 6.55 | 148 | 72 | 59 |
| | | DISSOLVED | 08/02/13 | 11:54 | 15.75 | 1.0 | 6.37 | 175 | 9.71 | 509 | 6.48 | 172 | 73 | 64 |
| | | TOTAL REC | 08/02/13 | 11:54 | 15.75 | 1.0 | 6.37 | 175 | 9.71 | 509 | | | 75 | |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soil**
**South Opportunity/Yellow Ditch AOC**
**Appendix C**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Ca (mg/L) | Mg (mg/L) | Na (mg/L) | K (mg/L) | Fe (mg/L) | Mn (mg/L) | $SiO_2$ (mg/L) | $HCO_3$ (mg/L) | $CO_2$ (mg/L) | Cl (mg/L) | $SO_4$ (mg/L) | $NO_3$-N (mg/L) | F (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LTW-1D | 249936 | DISSOLVED | 09/11/09 | 21.6 | 6.0 | 6.6 | 0.89 | 0.012 | 0.001 | 14.1 | 97 | 0.0 | 1.2 | 21 | 1.34 | 0.29 |
| MW-263 | | DISSOLVED | 03/17/10 | 20.6 | 5.9 | 6.3 | 0.77 | 0.007 | 0.001 | 12.5 | 82 | 0.0 | 1.0 | 21 | 1.26 | 0.28 |
| | | DISSOLVED | 07/15/10 | 21.8 | 6.1 | 6.3 | 0.82 | 0.004 | <0.001 | 13.1 | 83 | 0.0 | 1.1 | 22 | 1.42 | 0.30 |
| | | TOTAL REC | 07/15/10 | 24.2 | 6.7 | 7.3 | 1.02 | 0.090 | <0.003 | | | | | | | |
| | | DISSOLVED | 03/30/11 | 23.3 | 6.5 | 7.0 | 0.82 | <0.002 | <0.001 | 12.9 | 79 | 0.0 | 0.8 | 25 | 1.08 | 0.22 |
| | | TOTAL REC | 03/30/11 | 23.6 | 6.6 | 6.9 | 0.83 | 0.059 | <0.003 | | | | | | | |
| | | DISSOLVED | 07/25/11 | 21.9 | 6.4 | 6.2 | 0.94 | 0.019 | <0.003 | 12.8 | 79 | 0.0 | 0.9 | 25 | 0.86 | 0.21 |
| | | TOTAL REC | 07/25/11 | 20.5 | 6.3 | 6.2 | 0.85 | 0.051 | <0.006 | | | | | | | |
| | | DISSOLVED | 03/16/12 | 20.5 | 5.8 | 6.2 | 0.71 | 0.013 | <0.002 | 13.4 | 75 | 0.0 | 0.8 | 25 | 0.83 | 0.27 |
| | | TOTAL REC | 03/16/12 | 22.4 | 6.4 | 6.4 | 0.85 | 0.148 | <0.005 | | | | | | | |
| | | DISSOLVED | 08/22/12 | 21.5 | 7.0 | 6.6 | 0.88 | <0.015 | <0.002 | 13.0 | 80 | 0.0 | 0.8 | 24 | 0.98 | 0.26 |
| | | DISSOLVED | 03/25/13 | 21.1 | 5.9 | 6.8 | 0.81 | <0.015 | <0.002 | 13.7 | 78 | 0.0 | 0.7 | 25 | 0.88 | 0.30 |
| | | DISSOLVED | 08/02/13 | 22.5 | 6.5 | 6.5 | 0.82 | <0.015 | <0.002 | 13.9 | 93 | 0.0 | 1.2 | 22 | 0.58 | 0.30 |
| | | TOTAL REC | 08/02/13 | 23.9 | 6.8 | 6.8 | 1.05 | <0.038 | <0.005 | | | | | | | |
| LTW-1S | 249937 | DISSOLVED | 09/11/09 | 20.2 | 5.4 | 6.3 | 0.91 | 0.004 | <0.001 | 14.6 | 75 | 0.0 | 1.3 | 21 | 1.11 | 0.46 |
| MW-264 | | DISSOLVED | 03/17/10 | 20.6 | 5.7 | 5.7 | 0.80 | 0.005 | 0.001 | 12.8 | 80 | 0.0 | 1.0 | 26 | 1.87 | 0.41 |
| | | DISSOLVED | 07/15/10 | 23.1 | 6.2 | 6.0 | 0.82 | <0.002 | <0.001 | 12.9 | 73 | 0.0 | 7.8 | 24 | 1.63 | 0.43 |
| | | TOTAL REC | 07/15/10 | 24.6 | 6.5 | 6.7 | 1.01 | 0.140 | 0.002 | | | | | | | |
| | | DISSOLVED | 03/30/11 | 24.0 | 6.4 | 6.3 | 0.84 | <0.002 | <0.001 | 12.7 | 75 | 0.0 | 1.3 | 26 | 1.19 | 0.33 |
| | | TOTAL REC | 03/30/11 | 24.3 | 6.5 | 6.3 | 0.86 | 0.099 | <0.003 | | | | | | | |
| | | DISSOLVED | 07/25/11 | 25.4 | 6.9 | 6.6 | 0.91 | <0.002 | <0.003 | 13.0 | 80 | 0.0 | 7.3 | 30 | 1.28 | 0.33 |
| | | TOTAL REC | 07/25/11 | 24.6 | 7.2 | 6.9 | 0.95 | 0.054 | <0.006 | | | | | | | |
| | | DISSOLVED | 03/16/12 | 19.7 | 5.4 | 5.9 | 0.73 | 0.006 | <0.002 | 14.0 | 73 | 0.0 | 1.0 | 27 | 0.96 | 0.37 |
| | | TOTAL REC | 03/16/12 | 23.7 | 6.6 | 6.4 | 0.97 | 0.832 | <0.005 | | | | | | | |
| | | DISSOLVED | 08/22/12 | 19.1 | 6.0 | 5.9 | 0.87 | <0.015 | <0.002 | 13.6 | 72 | 0.0 | 1.2 | 20 | 0.80 | 0.39 |
| | | DISSOLVED | 08/02/13 | 20.0 | 5.5 | 5.8 | 0.80 | <0.015 | <0.002 | 14.5 | 78 | 0.0 | 4.1 | 19 | 0.60 | 0.42 |
| | | TOTAL REC | 08/02/13 | 20.6 | 5.8 | 6.1 | 0.98 | <0.038 | <0.005 | | | | | | | |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soil**
**South Opportunity/Yellow Ditch AOC**
**Appendix C**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Al (µg/L) | Ag (µg/L) | As (µg/L) | B (µg/L) | Ba (µg/L) | Be (µg/L) | Cd (µg/L) | Co (µg/L) | Cr (µg/L) | Cu (µg/L) | Hg (µg/L) | Li (µg/L) | Mo (µg/L) | Ni (µg/L) | Pb (µg/L) | Se (µg/L) | Sr (µg/L) | U (µg/L) | Zn (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LTW-1D | 249936 | DISSOLVED | 09/11/09 | <17.80 | <0.10 | 0.44 | 4.6 | 51.6 | <0.10 | <0.20 | <0.10 | 0.18 | <0.80 | | 2.54 | 0.89 | <1.90 | <0.10 | <0.30 | 108 | 1.47 | <1.90 |
| MW-263 | | DISSOLVED | 03/17/10 | 3.2 | <0.10 | 0.49 | <2.00 | 49.9 | <0.10 | <0.10 | 0.11 | 0.12 | 3.59 | | 1.62 | 0.80 | <0.10 | <0.10 | 0.30 | 110 | 1.49 | 6.06 |
| | | DISSOLVED | 07/15/10 | 6.8 | <0.20 | 0.45 | 51.8 | 4.1 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | | 2.58 | 0.80 | <0.20 | <0.20 | 0.28 | 111 | 1.40 | <1.00 |
| | | TOTAL REC | 07/15/10 | 71.1 | <0.50 | <0.50 | <5.00 | 54.3 | <0.50 | <0.50 | <0.50 | <0.50 | 1.65 | | <5.00 | 0.93 | <0.50 | <0.50 | <0.50 | 109 | 1.35 | <2.50 |
| | | DISSOLVED | 03/30/11 | <2.00 | <0.20 | 0.44 | 3.2 | 51.0 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | | <2.00 | 0.71 | <0.20 | <0.20 | 0.39 | 113 | 1.40 | 0.59 |
| | | TOTAL REC | 03/30/11 | 11.6 | <0.50 | <0.50 | <5.00 | 51.3 | <0.50 | <0.50 | <0.50 | <0.50 | <1.30 | | <5.00 | 0.80 | <0.50 | <0.50 | <0.50 | 116 | 1.61 | <1.30 |
| | | DISSOLVED | 07/25/11 | 84.5 | <0.50 | 0.42 | 2.0 | 53.5 | <0.50 | <0.50 | <0.50 | <0.50 | 0.27 | | <2.00 | 0.76 | <0.50 | <0.20 | 0.45 | 104 | 1.52 | 0.33 |
| | | TOTAL REC | 07/25/11 | 10.3 | <1.25 | 0.45 | | 50.8 | <1.25 | <1.25 | <1.25 | <1.25 | 0.37 | | 10.51 | 0.67 | 0.45 | 6.80 | <1.25 | 105 | 1.61 | <2.50 |
| | | DISSOLVED | 03/16/12 | 1.1 | <0.100 | 0.44 | 3.2 | 46.0 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | | <0.040 | 0.66 | <0.100 | <0.040 | <0.100 | 99 | 0.21 | <0.200 |
| | | TOTAL REC | 03/16/12 | 1.5 | <0.250 | 1.21 | 4.9 | 52.4 | <0.250 | <0.250 | <0.250 | 1.47 | 0.37 | | 8.20 | 0.75 | <0.250 | <0.100 | 0.95 | 106 | 1.47 | 0.64 |
| | | DISSOLVED | 08/22/12 | <0.400 | <0.100 | 0.39 | 3.9 | 50.5 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | | 3.24 | 0.75 | 0.29 | <0.040 | 0.35 | 107 | 1.50 | <0.200 |
| | | DISSOLVED | 03/25/13 | 1.3 | <0.10 | 0.42 | 4.0 | 47.3 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | <1.500 | 0.76 | 0.33 | <0.060 | 0.50 | 101 | 1.41 | <0.050 |
| | | DISSOLVED | 08/02/13 | <0.400 | <0.100 | 0.38 | 3.8 | 51.3 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | <1.500 | 0.87 | 0.22 | <0.060 | 0.29 | 110 | 1.95 | <0.050 |
| | | TOTAL REC | 08/02/13 | 4.3 | | 0.63 | 3.0 | 50.0 | <0.250 | <0.250 | <0.250 | 0.88 | <0.100 | | <3.750 | 0.87 | <0.250 | <0.150 | <0.250 | 110 | 2.03 | 1.08 |
| LTW-1S | 249937 | DISSOLVED | 09/11/09 | <17.80 | <0.10 | 6.24 | 5.5 | 55.7 | <0.10 | <0.20 | 0.15 | 0.16 | <0.80 | | 2.74 | 1.12 | <0.10 | <0.10 | 0.44 | 102 | 1.20 | <1.90 |
| MW-264 | | DISSOLVED | 03/17/10 | 5.9 | <0.10 | 1.78 | 2.3 | 57.6 | <0.10 | <0.10 | 0.32 | 0.17 | 1.28 | | 1.70 | 0.77 | <0.10 | <0.10 | 0.49 | 110 | 1.01 | 1.69 |
| | | DISSOLVED | 07/15/10 | <2.00 | <0.20 | 4.72 | 4.5 | 63.4 | <0.20 | <0.20 | <0.20 | <0.20 | 0.64 | | 2.82 | 0.71 | <0.20 | <0.20 | <0.20 | 117 | 1.04 | <1.00 |
| | | TOTAL REC | 07/15/10 | 18.4 | <0.50 | 4.22 | <5.00 | 65.3 | <0.50 | <0.50 | <0.50 | <0.50 | <1.30 | | <5.00 | 0.79 | <0.5 | <0.50 | 0.52 | 115 | 1.01 | <2.50 |
| | | DISSOLVED | 03/30/11 | 3.1 | <0.20 | 1.46 | 3.1 | 58.1 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | | 2.03 | 0.66 | <0.20 | <0.20 | 0.46 | 114 | 1.07 | <0.50 |
| | | TOTAL REC | 03/30/11 | 52.0 | <0.50 | 1.27 | <5.00 | 61.9 | <0.50 | <0.50 | <0.50 | <0.50 | <1.30 | | <5.00 | 0.77 | <0.50 | <0.50 | <0.50 | 120 | 1.26 | <1.30 |
| | | DISSOLVED | 07/25/11 | 1.4 | <0.50 | 4.57 | 6.1 | 67.9 | <0.500 | <0.50 | <0.50 | <0.50 | 0.67 | | <2.00 | 0.79 | <0.50 | <0.20 | 0.66 | 118 | 1.51 | 0.73 |
| | | TOTAL REC | 07/25/11 | 11.0 | <1.25 | 4.56 | NR | 70.4 | <1.25 | <1.25 | <1.25 | <1.25 | 0.78 | | 7.47 | 0.74 | 0.58 | 0.32 | 0.52 | 134 | 1.65 | <2.50 |
| | | DISSOLVED | 03/16/12 | 0.6 | <0.100 | 1.50 | 3.2 | 52.2 | <0.100 | <0.100 | <0.100 | <0.100 | 0.37 | | <0.040 | 0.61 | <0.100 | <0.040 | <0.100 | 94 | 0.20 | <0.200 |
| | | TOTAL REC | 03/16/12 | 300.1 | <0.250 | 2.37 | 5.0 | 67.6 | <0.250 | <0.250 | <0.250 | 1.68 | 1.00 | | 8.97 | 0.71 | 0.38 | <0.100 | 1.79 | 111 | 1.65 | 2.41 |
| | | DISSOLVED | 08/22/12 | <0.400 | <0.100 | 4.63 | 4.1 | 53.1 | <0.100 | <0.100 | <0.100 | <0.100 | 0.28 | | 8.05 | 0.77 | 0.28 | <0.040 | 0.45 | 94 | 0.96 | <0.200 |
| | | DISSOLVED | 08/02/13 | 1.1 | <0.100 | 4.41 | 3.9 | 54.1 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | <1.500 | 0.71 | 0.22 | <0.060 | 0.43 | 98 | 1.03 | <0.050 |
| | | TOTAL REC | 08/02/13 | 10.4 | | 4.46 | 3.0 | 53.0 | <0.250 | <0.250 | <0.250 | 1.04 | <0.100 | | <3.750 | 0.75 | <0.250 | <0.150 | 0.59 | 97 | 1.06 | <0.130 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soil**
**South Opportunity/Yellow Ditch AOC**
**Appendix C**

| | | | | Additional Trace Metals | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Cerium Ce (µg/L) | Cesium Cs (µg/L) | Gallium Ga (µg/L) | Lanthanum La (µg/L) | Niobium Nb (µg/L) | Neodymium Nd (µg/L) | Palladium Pd (µg/L) | Praseodymium Pr (µg/L) | Rubidium Rb (µg/L) | Thallium Tl (µg/L) | Thorium Th (µg/L) | Tin Sn (µg/L) | Titanium Ti (µg/L) | Tungsten W (µg/L) |
| LTW-1D | 249936 | DISSOLVED | 09/11/09 | <0.10 | <0.10 | <0.10 | <0.10 | <0.20 | <0.10 | <0.10 | <0.10 | 0.43 | <0.10 | <0.10 | <0.10 | <0.30 | <0.10 |
| MW-263 | | DISSOLVED | 03/17/10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.20 | <0.10 | <0.10 | <0.10 | 0.42 | <0.10 | <0.10 | <0.10 | 0.25 | <0.10 |
| | | DISSOLVED | 07/15/10 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | 0.39 | <0.20 |
| | | TOTAL REC | 07/15/10 | <0.50 | <1.30 | <0.50 | <0.50 | <0.4 | <0.50 | <1.30 | <0.50 | <1.30 | <0.50 | <0.50 | | 2.61 | <0.50 |
| | | DISSOLVED | 03/30/11 | <0.20 | <0.50 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | <0.20 | <0.50 | 0.37 | <0.20 |
| | | TOTAL REC | 03/30/11 | <0.50 | <1.30 | 17.20 | <0.50 | <1.30 | <0.50 | <1.30 | <0.50 | <1.30 | <0.50 | <0.50 | | 0.74 | <0.50 |
| | | DISSOLVED | 07/25/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.35 | <0.50 | <0.50 | <0.50 | 0.12 | <0.50 |
| | | TOTAL REC | 07/25/11 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | 0.36 | <1.25 | <1.25 | NR | 0.39 | <1.25 |
| | | DISSOLVED | 03/16/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.31 | <0.100 | <0.100 | <0.100 | 0.11 | <0.100 |
| | | TOTAL REC | 03/16/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.38 | <0.250 | <0.250 | 0.45 | 8.34 | <0.250 |
| | | DISSOLVED | 08/22/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.37 | <0.100 | <0.100 | <0.100 | 0.25 | <0.100 |
| | | DISSOLVED | 03/25/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.37 | <0.100 | <0.100 | <0.100 | 0.37 | <0.100 |
| | | DISSOLVED | 08/02/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.43 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 |
| | | TOTAL REC | 08/02/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 3.62 | <0.250 |
| LTW-1S | 249937 | DISSOLVED | 09/11/09 | <0.10 | <0.10 | <0.10 | <0.10 | <0.20 | <0.10 | <0.10 | <0.10 | 0.35 | <0.10 | <0.10 | <0.10 | <0.30 | <0.10 |
| MW-264 | | DISSOLVED | 03/17/10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.20 | <0.10 | <0.10 | <0.10 | 0.34 | <0.10 | <0.10 | <0.10 | 0.36 | <0.10 |
| | | DISSOLVED | 07/15/10 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | 0.22 | <0.20 |
| | | TOTAL REC | 07/15/10 | <0.50 | <1.30 | <0.50 | <0.50 | <0.40 | <0.50 | <1.30 | <0.50 | <1.30 | <0.50 | <0.50 | NR | 0.81 | <0.50 |
| | | DISSOLVED | 03/30/11 | <0.20 | <0.50 | <0.50 | <0.50 | <0.50 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | <0.20 | <0.50 | 0.45 | <0.20 |
| | | TOTAL REC | 03/30/11 | <0.50 | <1.30 | 20.10 | <0.50 | <1.30 | <0.50 | <1.30 | <1.30 | <1.30 | <0.50 | <0.50 | NR | 3.36 | <0.50 |
| | | DISSOLVED | 07/25/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 280.00 | <0.50 | <0.50 | <0.50 | 0.18 | <0.50 |
| | | TOTAL REC | 07/25/11 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | 0.30 | <1.25 | <1.25 | NR | 0.87 | <1.25 |
| | | DISSOLVED | 03/16/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.24 | <0.100 | <0.100 | <0.100 | 0.38 | <0.100 |
| | | TOTAL REC | 03/16/12 | 0.62 | <0.250 | <0.250 | 0.27 | <0.250 | <0.250 | <0.250 | <0.250 | 1.34 | <0.250 | <0.250 | 0.32 | 18.13 | <0.250 |
| | | DISSOLVED | 08/22/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.28 | <0.100 | <0.100 | <0.100 | 0.14 | <0.100 |
| | | DISSOLVED | 08/02/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.31 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 |
| | | TOTAL REC | 08/02/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 3.36 | <0.250 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soil**
**South Opportunity/Yellow Ditch AOC**
**Appendix C**

| | | | | | PHYSICAL PARAMETERS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | FIELD | | | | LAB | | | |
| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | TIME (HRS) | SWL (FT) | FLOW (GPM) | pH | SC (UMHOS) | TEMP (C) | REDOX (mv) | pH | SC (UMHOS) | HARDNESS (MG/L) | ALKALINITY (MG/L) |
| LTW-3D | 249938 | DISSOLVED | 09/15/09 | 14:38 | 5.58 | 8.0 | 6.80 | 245 | 8.86 | 382 | 6.89 | 275 | 124 | 112 |
| MW-261 | | DISSOLVED | 03/17/10 | 13:27 | 8.33 | 4.0 | 6.42 | 255 | 9.14 | 389 | 6.96 | 230 | 85 | 57 |
| | | DISSOLVED | 07/14/10 | 10:09 | 5.15 | 3.0 | 6.46 | 245 | 8.81 | 346 | 7.89 | 270 | 96 | 104 |
| | | TOTAL REC | 07/14/10 | 10:09 | 5.15 | 3.0 | 6.46 | 245 | 8.81 | 346 | | | 121 | |
| | | DISSOLVED | 04/04/11 | 14:11 | 8.58 | 2.5 | 6.77 | 244 | 8.25 | 336 | 7.22 | 293 | 116 | 103 |
| | | TOTAL REC | 04/04/11 | 14:11 | 8.58 | 2.5 | 6.77 | 244 | 8.25 | 336 | | | 116 | |
| | | DISSOLVED | 07/26/11 | 11:15 | 4.98 | 2.5 | 7.00 | 225 | 9.04 | 402 | 7.16 | 217 | 105 | 99 |
| | | TOTAL REC | 07/26/11 | 11:15 | 4.98 | 2.5 | 7.00 | 225 | 9.04 | 402 | | | 103 | |
| | | DISSOLVED | 03/26/12 | 12:42 | 8.70 | 2.0 | 7.52 | 239 | 8.13 | 320 | 7.03 | 249 | 109 | 94 |
| | | TOTAL REC | 03/26/12 | 12:42 | 8.70 | 2.0 | 7.52 | 239 | 8.13 | 320 | 7.03 | 249 | 114 | |
| | | DISSOLVED | 08/22/12 | 11:57 | 5.54 | 3.9 | 6.23 | 231 | 7.95 | 323 | 6.77 | 195 | 105 | 95 |
| | | DISSOLVED | 03/25/13 | 14:30 | 9.78 | | 7.19 | 225 | 8.28 | 427 | 6.63 | 187 | 98 | 99 |
| | | DISSOLVED | 08/02/13 | 13:51 | 4.17 | 2.5 | 6.59 | 215 | 9.14 | 422 | 6.85 | 211 | 97 | 94 |
| | | TOTAL REC | 08/02/13 | 13:51 | 4.17 | 2.5 | 6.59 | 215 | 9.14 | 422 | | | 99 | |
| LTW-3S | 249939 | DISSOLVED | 09/15/09 | 14:40 | 6.35 | 8.0 | 6.54 | 265 | 9.37 | 368 | 6.76 | 270 | 125 | 111 |
| MW-262 | | DISSOLVED | 03/17/10 | 13:45 | 8.78 | 4.0 | 6.60 | 235 | 7.16 | 380 | 7.31 | 250 | 101 | 99 |
| | | DISSOLVED | 07/14/10 | 10:28 | 5.63 | 4.0 | 6.48 | 230 | 8.24 | 355 | 8.25 | 240 | 97 | 101 |
| | | TOTAL REC | 07/14/10 | 10:28 | 5.63 | 4.0 | 6.48 | 230 | 8.24 | 355 | | | 110 | |
| | | DISSOLVED | 04/04/11 | 14:39 | 9.02 | 3.0 | 6.77 | 246 | 6.38 | 352 | 6.90 | 262 | 111 | 101 |
| | | TOTAL REC | 04/04/11 | 14:39 | 9.02 | 3.0 | 6.77 | 246 | 6.38 | 352 | | | 110 | |
| | | DISSOLVED | 07/26/11 | 11:50 | 5.45 | 2.5 | 7.06 | 249 | 9.27 | 486 | 6.91 | 256 | 114 | 112 |
| | | TOTAL REC | 07/26/11 | 11:50 | 5.45 | 2.5 | 7.06 | 249 | 9.27 | 486 | | | 112 | |
| | | DISSOLVED | 03/26/12 | 13:07 | 9.16 | 2.0 | 7.96 | 255 | 5.94 | 313 | 6.74 | 275 | 117 | 99 |
| | | TOTAL REC | 03/26/12 | 13:07 | 9.16 | 2.0 | 7.96 | 255 | 5.94 | 313 | 6.74 | 275 | 123 | |
| | | DISSOLVED | 08/22/12 | 12:45 | 6.02 | 3.9 | 5.93 | 215 | 9.50 | 326 | 6.65 | 189 | 95 | 86 |
| | | DISSOLVED | 03/25/13 | 15:08 | 10.20 | | 7.01 | 221 | 6.90 | 453 | 6.39 | 180 | 86 | 89 |
| | | DISSOLVED | 08/02/13 | 14:40 | 4.46 | 1.5 | 6.30 | 210 | 11.09 | 461 | 6.41 | 212 | 94 | 102 |
| | | TOTAL REC | 08/02/13 | 14:40 | 4.46 | 1.5 | 6.30 | 210 | 11.09 | 461 | | | 96 | |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soil**
**South Opportunity/Yellow Ditch AOC**
**Appendix C**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Ca (mg/L) | Mg (mg/L) | Na (mg/L) | K (mg/L) | Fe (mg/L) | Mn (mg/L) | $SiO_2$ (mg/L) | $HCO_3$ (mg/L) | $CO_3$ (mg/L) | Cl (mg/L) | $SO_4$ (mg/L) | $NO_3$-N (mg/L) | F (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LTW-3D | 249938 | DISSOLVED | 09/15/09 | 34.3 | 9.3 | 6.5 | 1.01 | 0.004 | 0.001 | 14.1 | 137 | 0.0 | 2.6 | 22 | <0.05 | 0.49 |
| MW-261 | | DISSOLVED | 03/17/10 | 23.4 | 6.3 | 5.2 | 0.84 | <0.001 | 0.001 | 9.6 | 69 | 0.0 | 2.1 | 22 | 0.70 | 0.44 |
| | | DISSOLVED | 07/14/10 | 25.7 | 7.8 | 5.6 | 0.91 | <0.002 | 0.001 | 13.0 | 127 | 0.0 | 1.2 | 21 | 0.41 | 0.47 |
| | | TOTAL REC | 07/14/10 | 33.6 | 9.1 | 6.8 | 1.13 | 0.043 | <0.003 | | | | | | | |
| | | DISSOLVED | 04/04/11 | 32.3 | 8.6 | 6.7 | 0.98 | <0.002 | <0.001 | 13.6 | 126 | 0.0 | 0.0 | 17 | 0.21 | 0.38 |
| | | TOTAL REC | 04/04/11 | 32.2 | 8.7 | 6.5 | 0.97 | 0.058 | <0.003 | | | | | | | |
| | | DISSOLVED | 07/26/11 | 29.0 | 7.9 | 5.9 | 0.98 | <0.002 | <0.003 | 12.9 | 121 | 0.0 | 0.8 | 16 | 0.22 | 0.37 |
| | | TOTAL REC | 07/26/11 | 27.7 | 8.2 | 6.0 | 1.03 | 0.052 | <0.006 | | | | | | | |
| | | DISSOLVED | 03/26/12 | 30.4 | 8.2 | 5.9 | 0.91 | <0.005 | <0.002 | 13.3 | 115 | 0.0 | 1.4 | 17 | 0.29 | 0.46 |
| | | TOTAL REC | 03/26/12 | 31.5 | 8.5 | 6.7 | 1.02 | 0.131 | <0.005 | | | | | | | |
| | | DISSOLVED | 08/22/12 | 27.8 | 8.6 | 5.8 | 0.97 | <0.015 | <0.002 | 13.2 | 116 | 0.0 | 0.9 | 18 | 0.31 | 0.42 |
| | | DISSOLVED | 03/25/13 | 27.1 | 7.4 | 5.7 | 0.83 | <0.015 | <0.002 | 13.0 | 121 | 0.0 | 0.9 | 17 | 0.38 | 0.53 |
| | | DISSOLVED | 08/02/13 | 26.5 | 7.4 | 5.8 | 0.79 | <0.015 | <0.002 | 14.0 | 115 | 0.0 | 0.8 | 18 | 0.37 | 0.60 |
| | | TOTAL REC | 08/02/13 | 27.0 | 7.6 | 6.1 | 1.06 | <0.038 | <0.005 | | | | | | | |
| LTW-3S | 249939 | DISSOLVED | 09/15/09 | 34.9 | 9.3 | 7.5 | 0.96 | <0.002 | <0.001 | 14.3 | 135 | 0.0 | 4.4 | 27 | 0.31 | 0.65 |
| MW-262 | | DISSOLVED | 03/17/10 | 27.9 | 7.5 | 6.5 | 0.79 | <0.001 | 0.001 | 12.9 | 121 | 0.0 | 1.1 | 20 | 0.12 | 0.58 |
| | | DISSOLVED | 07/14/10 | 26.9 | 7.1 | 6.0 | 0.76 | <0.002 | <0.001 | 13.1 | 123 | 0.0 | 1.0 | 18 | 0.16 | 0.62 |
| | | TOTAL REC | 07/14/10 | 30.6 | 8.0 | 7.1 | 0.98 | 0.056 | <0.003 | | | | | | | |
| | | DISSOLVED | 04/04/11 | 31.0 | 8.2 | 7.2 | 0.78 | <0.002 | <0.001 | 13.1 | 123 | 0.0 | 1.1 | 17 | 0.10 | 0.48 |
| | | TOTAL REC | 04/04/11 | 29.8 | 8.6 | 7.4 | 0.87 | 0.064 | <0.003 | | | | | | | |
| | | DISSOLVED | 07/26/11 | 31.2 | 8.8 | 6.7 | 0.89 | <0.002 | <0.003 | 13.1 | 137 | 0.0 | 1.7 | 18 | 0.10 | 0.50 |
| | | TOTAL REC | 07/26/11 | 30.5 | 8.8 | 7.3 | 1.00 | 0.099 | <0.006 | | | | | | | |
| | | DISSOLVED | 03/26/12 | 32.6 | 8.6 | 7.1 | 0.80 | 0.006 | <0.002 | 13.4 | 121 | 0.0 | 1.6 | 21 | 0.13 | 0.53 |
| | | TOTAL REC | 03/26/12 | 34.3 | 9.0 | 7.5 | 0.88 | 0.059 | <0.005 | | | | | | | |
| | | DISSOLVED | 08/22/12 | 25.4 | 7.7 | 6.6 | 0.93 | <0.015 | <0.002 | 14.3 | 105 | 0.0 | 1.8 | 17 | 0.15 | 0.60 |
| | | DISSOLVED | 03/25/13 | 24.0 | 6.4 | 5.5 | 0.70 | <0.015 | <0.002 | 13.6 | 108 | 0.0 | 0.9 | 16 | 0.19 | 0.62 |
| | | DISSOLVED | 08/02/13 | 26.0 | 7.0 | 7.0 | 0.92 | <0.015 | <0.002 | 20.1 | 124 | 0.0 | 0.9 | 11 | 0.10 | 0.67 |
| | | TOTAL REC | 08/02/13 | 26.5 | 7.3 | 7.3 | 0.98 | <0.038 | <0.005 | | | | | | | |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soil**
**South Opportunity/Yellow Ditch AOC**
**Appendix C**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Al (µg/L) | Ag (µg/L) | As (µg/L) | B (µg/L) | Ba (µg/L) | Be (µg/L) | Cd (µg/L) | Co (µg/L) | Cr (µg/L) | Cu (µg/L) | Hg (µg/L) | Li (µg/L) | Mo (µg/L) | Ni (µg/L) | Pb (µg/L) | Se (µg/L) | Sr (µg/L) | U (µg/L) | Zn (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LTW-3D | 249938 | DISSOLVED | 09/15/09 | <17.80 | <0.10 | 0.42 | 4.1 | 73.1 | <0.10 | <0.20 | 0.47 | 0.18 | <0.80 | | 2.36 | 3.19 | <0.10 | <0.10 | <0.30 | 169 | 10.50 | <1.90 |
| MW-261 | | DISSOLVED | 03/17/10 | 1.1 | <0.10 | 0.35 | 2.7 | 50.5 | <0.10 | <0.10 | <0.10 | 0.11 | 0.91 | | 1.28 | 2.46 | <0.10 | <0.10 | <0.20 | 121 | 6.28 | <0.81 |
| | | DISSOLVED | 07/14/10 | <2.00 | <0.20 | 0.36 | 4.6 | 63.8 | <0.20 | <0.20 | <0.20 | <0.20 | 0.67 | | <2.00 | 3.18 | <0.20 | <0.20 | <0.20 | 153 | 8.40 | <1.00 |
| | | TOTAL REC | 07/14/10 | 8.1 | <0.50 | <0.50 | <5.00 | 66.1 | <0.50 | <0.50 | <0.50 | <0.50 | <1.30 | | <5.00 | 3.38 | <0.50 | <0.50 | <0.50 | 106 | 7.99 | <2.50 |
| | | DISSOLVED | 04/04/11 | <2.00 | <0.20 | 0.39 | 27.8 | 58.5 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | | <2.00 | 3.07 | <0.20 | <0.20 | <0.20 | 150 | 7.75 | <0.50 |
| | | TOTAL REC | 04/04/11 | 11.9 | <0.50 | <0.50 | <5.00 | 60.4 | <0.50 | <0.50 | <0.50 | <0.50 | <1.30 | | <5.00 | 3.52 | <0.50 | <0.50 | <0.50 | 153 | 8.86 | <1.30 |
| | | DISSOLVED | 07/26/11 | 16.5 | <0.50 | 0.38 | 5.1 | 57.9 | <0.50 | <0.50 | <0.50 | <0.50 | 0.35 | | 2.38 | 3.24 | <0.50 | <0.20 | <0.50 | 132 | 7.65 | <1.00 |
| | | TOTAL REC | 07/26/11 | 24.5 | <1.25 | 0.44 | NR | 60.8 | <1.25 | <1.25 | <1.25 | <1.25 | 0.51 | | 9.74 | 2.96 | 0.59 | 0.14 | <1.25 | 144 | 8.28 | 0.92 |
| | | DISSOLVED | 03/26/12 | 1.6 | 0.10 | 0.39 | 3.9 | 60.8 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | | 2.62 | 2.79 | <0.100 | <0.040 | 0.23 | 134 | 6.85 | <0.200 |
| | | TOTAL REC | 03/26/12 | 41.1 | NR | 1.74 | 5.8 | 62.4 | <0.250 | <0.250 | <0.250 | 1.30 | 5.71 | | 8.83 | 3.05 | <0.250 | <0.100 | 1.75 | 135 | 8.07 | 1.32 |
| | | DISSOLVED | 08/22/12 | <0.400 | <0.100 | 0.36 | 4.6 | 56.1 | <0.100 | <0.100 | <0.100 | <0.100 | 0.14 | | 2.49 | 3.26 | 0.16 | <0.040 | <0.100 | 132 | 7.25 | <0.200 |
| | | DISSOLVED | 03/25/13 | <0.400 | <0.100 | 0.40 | 4.6 | 51.9 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | <1.500 | 3.41 | 0.34 | <0.060 | <0.100 | 124 | 7.43 | <0.050 |
| | | DISSOLVED | 08/02/13 | 0.4 | <0.100 | 0.42 | 4.8 | 54.2 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | <1.500 | 3.59 | 0.23 | <0.060 | <0.100 | 125 | 6.47 | <0.050 |
| | | TOTAL REC | 08/02/13 | 12.2 | | 0.60 | 4.2 | 51.7 | <0.250 | <0.250 | <0.250 | 0.96 | <0.100 | | <3.750 | 3.60 | <0.250 | <0.150 | <0.250 | 123 | 6.57 | <0.130 |
| LTW-3S | 249939 | DISSOLVED | 09/15/09 | <17.80 | <0.10 | 2.32 | 5.6 | 92.4 | <0.10 | <0.20 | <0.10 | 0.14 | 1.08 | | 2.77 | 3.22 | 0.16 | <0.10 | <0.30 | 170 | 20.90 | <1.90 |
| MW-262 | | DISSOLVED | 03/17/10 | 1.4 | <0.10 | 2.36 | 2.5 | 74.6 | <0.10 | <0.10 | <0.10 | <0.10 | 1.15 | | 1.64 | 2.78 | 0.14 | <0.10 | 0.23 | 147 | 17.30 | <0.81 |
| | | DISSOLVED | 07/14/10 | <2.00 | <0.20 | 2.37 | 4.5 | 71.7 | <0.20 | <0.20 | <0.20 | <0.20 | 1.16 | | 2.10 | 2.95 | <0.20 | <0.20 | 0.32 | 140 | 15.10 | <1.00 |
| | | TOTAL REC | 07/14/10 | 19.9 | <0.50 | 2.10 | <5.00 | 74.4 | <0.50 | <0.50 | <0.50 | <0.50 | 11.50 | | 5.15 | 3.08 | <0.50 | <0.50 | <0.50 | 138 | 14.00 | <2.50 |
| | | DISSOLVED | 04/04/11 | <2.00 | <0.20 | 2.23 | 4.0 | 67.7 | <0.20 | <0.20 | <0.20 | <0.20 | 0.66 | | <2.00 | 2.70 | <0.20 | <0.20 | 0.28 | 142 | 19.50 | <0.50 |
| | | TOTAL REC | 04/04/11 | 60.4 | <0.50 | 1.98 | <5.00 | 73.3 | <0.50 | <0.50 | <0.50 | <0.50 | 2.38 | | <5.00 | 3.08 | <0.50 | <0.50 | <0.50 | 156 | 20.70 | 4.16 |
| | | DISSOLVED | 07/26/11 | 19.1 | <0.50 | 2.77 | 3.2 | 79.1 | <0.50 | <0.50 | <0.50 | <0.50 | 0.99 | | <2.00 | 3.23 | 0.23 | <0.20 | 0.47 | 144 | 23.24 | 0.49 |
| | | TOTAL REC | 07/26/11 | 33.7 | <1.25 | 2.52 | NR | 80.0 | <1.25 | <1.25 | <1.25 | <1.25 | 1.19 | | 10.48 | 2.87 | 0.83 | <0.50 | 0.32 | 155 | 22.51 | <2.50 |
| | | DISSOLVED | 03/26/12 | 15.0 | <0.100 | 1.99 | 4.4 | 78.2 | <0.100 | <0.100 | <0.100 | <0.100 | 0.42 | | 4.05 | 2.45 | <0.100 | <0.040 | 0.54 | 142 | 18.30 | <0.200 |
| | | TOTAL REC | 03/26/12 | 67.4 | | 2.84 | 5.9 | 81.3 | <0.250 | <0.250 | <0.250 | 1.39 | 0.94 | | 9.18 | 2.66 | <0.250 | <0.100 | 1.70 | 146 | 20.59 | 1.56 |
| | | DISSOLVED | 08/22/12 | <0.400 | <0.100 | 3.20 | 5.3 | 65.6 | <0.100 | <0.100 | <0.100 | <0.100 | 0.87 | | 2.98 | 3.53 | 0.49 | <0.040 | 0.30 | 121 | 10.88 | <0.200 |
| | | DISSOLVED | 03/25/13 | 1.0 | <0.100 | 1.85 | 5.0 | 56.9 | <0.100 | <0.100 | <0.100 | <0.100 | 0.49 | | <1.500 | 2.93 | 0.45 | <0.060 | 0.38 | 112 | 13.88 | <0.050 |
| | | DISSOLVED | 08/02/13 | 7.9 | <0.100 | 7.30 | 5.3 | 68.9 | <0.100 | <0.100 | <0.100 | <0.100 | 3.30 | | <1.500 | 3.37 | 0.56 | <0.060 | <0.100 | 122 | 10.35 | <0.050 |
| | | TOTAL REC | 08/02/13 | 30.6 | | 7.89 | 4.9 | 69.1 | <0.250 | <0.250 | <0.250 | 1.00 | 3.94 | | <3.750 | 3.42 | 0.73 | <0.150 | <0.250 | 121 | 10.70 | <0.130 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soil**
**South Opportunity/Yellow Ditch AOC**
**Appendix C**

| | | | | Additional Trace Metals | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Cerium | Cesium | Gallium | Lanthanum | Niobium | Neodymium | Palladium | Praseodymium | Rubidium | Thallium | Thorium | Tin | Titanium | Tungsten |
| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Ce (µg/L) | Cs (µg/L) | Ga (µg/L) | La (µg/L) | Nb (µg/L) | Nd (µg/L) | Pd (µg/L) | Pr (µg/L) | Rb (µg/L) | Tl (µg/L) | Th (µg/L) | Sn (µg/L) | Ti (µg/L) | W (µg/L) |
| LTW-3D | 249938 | DISSOLVED | 09/15/09 | <0.10 | <0.10 | <0.10 | <0.10 | <0.20 | <0.10 | <0.10 | <0.10 | 0.37 | <0.10 | <0.10 | <0.10 | 0.34 | 0.12 |
| MW-261 | | DISSOLVED | 03/17/10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.20 | <0.10 | <0.10 | <0.10 | 0.33 | <0.10 | <0.10 | <0.10 | <0.20 | <0.10 |
| | | DISSOLVED | 07/14/10 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 |
| | | TOTAL REC | 07/14/10 | <0.50 | <1.30 | <0.50 | <0.50 | <0.40 | <0.50 | <1.30 | <0.50 | <1.30 | <0.50 | <0.50 | | <0.50 | <0.20 |
| | | DISSOLVED | 04/04/11 | <0.20 | <0.50 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | <0.20 | <0.50 | 0.26 | <0.20 |
| | | TOTAL REC | 04/04/11 | <0.50 | <1.30 | 23.30 | <0.50 | <1.30 | <0.50 | <1.30 | <0.50 | <1.30 | <0.50 | <0.50 | NR | 0.52 | <0.50 |
| | | DISSOLVED | 07/26/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.29 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | | TOTAL REC | 07/26/11 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | 0.31 | <1.25 | <1.25 | NR | <1.25 | <1.25 |
| | | DISSOLVED | 03/26/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.27 | <0.100 | <0.100 | <0.100 | 0.10 | <0.100 |
| | | TOTAL REC | 03/26/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.40 | <0.250 | <0.250 | <0.250 | 13.58 | <0.250 |
| | | DISSOLVED | 08/22/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.31 | <0.100 | <0.100 | <0.100 | <0.100 | 0.12 |
| | | DISSOLVED | 03/25/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.29 | <0.100 | <0.100 | <0.100 | 0.23 | <0.100 |
| | | DISSOLVED | 08/02/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.31 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 |
| | | TOTAL REC | 08/02/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 3.63 | <0.250 |
| LTW-3S | 249939 | DISSOLVED | 09/15/09 | <0.10 | <0.10 | <0.10 | <0.10 | <0.20 | <0.10 | <0.10 | <0.10 | 0.17 | <0.10 | <0.10 | <0.10 | <0.30 | <0.10 |
| MW-262 | | DISSOLVED | 03/17/10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.20 | <0.10 | <0.10 | <0.10 | 0.14 | <0.10 | <0.10 | <0.10 | <0.20 | <0.10 |
| | | DISSOLVED | 07/14/10 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 |
| | | TOTAL REC | 07/14/10 | <0.50 | <1.30 | <0.50 | <0.50 | <0.40 | <0.50 | <1.30 | <0.50 | <1.30 | <0.50 | <0.50 | | 0.79 | <0.50 |
| | | DISSOLVED | 04/04/11 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.50 | <0.20 | <0.20 | <0.50 | 0.28 | <0.20 |
| | | TOTAL REC | 04/04/11 | <0.50 | <1.30 | 27.70 | <0.50 | <1.30 | <0.50 | <1.30 | <0.50 | <1.30 | <0.50 | <0.50 | NR | 0.91 | <0.50 |
| | | DISSOLVED | 07/26/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.16 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | | TOTAL REC | 07/26/11 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | NR | 0.30 | <1.25 |
| | | DISSOLVED | 03/26/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.11 | <0.100 | <0.100 | <0.100 | 0.11 | <0.100 |
| | | TOTAL REC | 03/26/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.28 | <0.250 | <0.250 | <0.250 | 8.63 | <0.250 |
| | | DISSOLVED | 08/22/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 |
| | | DISSOLVED | 03/25/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.23 | <0.100 |
| | | DISSOLVED | 08/02/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.21 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 |
| | | TOTAL REC | 08/02/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.78 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 4.45 | <0.250 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soil**
**South Opportunity/Yellow Ditch AOC**
**Appendix C**

| | | | | | PHYSICAL PARAMETERS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | FIELD | | | | LAB | | | |
| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | TIME (HRS) | SWL (FT) | FLOW (GPM) | pH | SC (UMHOS) | TEMP (C) | REDOX (mv) | pH | SC (UMHOS) | HARDNESS (MG/L) | ALKALINITY (MG/L) |
| LTW-4D | 249940 | DISSOLVED | 09/11/09 | 16:20 | 15.64 | 8.0 | 7.25 | 120 | 9.45 | 303 | 6.95 | 135 | 50 | 56 |
| MW-260 | | DISSOLVED | 04/13/10 | 12:55 | 27.38 | 2.5 | 6.41 | 145 | 7.72 | 289 | 8.11 | 180 | 61 | 61 |
| | | DISSOLVED | 07/15/10 | 10:25 | 3.81 | 3.0 | 6.38 | 155 | 7.68 | 355 | 7.86 | 155 | 65 | 69 |
| | | TOTAL REC | 07/15/10 | 10:25 | 3.81 | 3.0 | 6.38 | 155 | 7.68 | 355 | | | 73 | |
| | | DISSOLVED | 03/30/11 | 12:42 | 28.41 | 2.5 | 6.46 | 153 | 7.93 | 332 | 7.07 | 153 | 68 | 61 |
| | | TOTAL REC | 03/30/11 | 12:42 | 28.41 | 2.5 | 6.46 | 153 | 7.93 | 332 | | | 67 | |
| | | DISSOLVED | 07/26/11 | 13:45 | 4.00 | 2.8 | 6.87 | 136 | 9.15 | 457 | 7.11 | 133 | 58 | 54 |
| | | TOTAL REC | 07/26/11 | 13:45 | 4.00 | 2.8 | 6.87 | 136 | 9.15 | 457 | | | 59 | |
| | | DISSOLVED | 03/15/12 | 11:51 | 29.07 | 2.0 | 8.24 | 191 | 8.61 | 312 | 6.88 | 221 | 81 | 67 |
| | | TOTAL REC | 03/15/12 | 11:51 | 29.07 | 2.0 | 8.24 | 191 | 8.61 | 312 | | | 84 | |
| | | DISSOLVED | 08/23/12 | 13:40 | 20.92 | 3.4 | 6.19 | 140 | 8.27 | 339 | 6.80 | 113 | 60 | 56 |
| | | DISSOLVED | 03/20/13 | 15:37 | 32.15 | | 7.60 | 222 | 9.07 | 474 | 6.68 | 201 | 90 | 75 |
| | | DISSOLVED | 07/31/13 | 16:12 | 21.00 | 1.5 | 6.64 | 190 | 9.98 | 528 | 6.74 | 185 | 80 | 75 |
| | | TOTAL REC | 07/31/13 | 16:12 | 21.00 | 1.5 | 6.64 | 190 | 9.98 | 528 | | | 84 | |
| LTW-4S | 249941 | DISSOLVED | 09/11/09 | 15:40 | 15.17 | 3.0 | 7.29 | 125 | 11.74 | 300 | 6.88 | 150 | 56 | 62 |
| MW-259 | | DISSOLVED | 04/13/10 | | Dry | | | | | | | | | |
| | | DISSOLVED | 07/15/10 | 10:07 | 3.33 | 3.0 | 6.07 | 115 | 9.76 | 351 | 6.91 | 120 | 47 | 45 |
| | | TOTAL REC | 07/15/10 | 10:07 | 3.33 | 3.0 | 6.07 | 115 | 9.76 | 351 | | | 52 | |
| | | DISSOLVED | 07/26/11 | 14:15 | 3.57 | 2.8 | 6.63 | 106 | 11.17 | 463 | 7.07 | 107 | 46 | 49 |
| | | TOTAL REC | 07/26/11 | 14:15 | 3.57 | 2.8 | 6.63 | 106 | 11.17 | 463 | | | 44 | |
| | | DISSOLVED | 07/31/13 | 16:12 | 21.00 | 1.5 | 6.64 | 190 | 9.98 | 528 | 6.74 | 185 | | |
| | | TOTAL REC | 07/31/13 | 16:12 | 21.00 | 1.5 | 6.64 | 190 | 9.98 | 528 | | | | |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soil**
**South Opportunity/Yellow Ditch AOC**
**Appendix C**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Ca (mg/L) | Mg (mg/L) | Na (mg/L) | K (mg/L) | Fe (mg/L) | Mn (mg/L) | $SiO_2$ (mg/L) | $HCO_3$ (mg/L) | $CO_3$ (mg/L) | Cl (mg/L) | $SO_4$ (mg/L) | $NO_3$-N (mg/L) | F (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LTW-4D | 249940 | DISSOLVED | 09/11/09 | 13.7 | 4.0 | 4.9 | 0.93 | 0.009 | 0.001 | 13.3 | 68 | 0.0 | <0.50 | 7 | <0.05 | 0.45 |
| MW-260 | | DISSOLVED | 04/13/10 | 16.4 | 4.9 | 5.2 | 0.92 | <0.002 | <0.001 | 12.3 | 74 | 0.0 | <0.50 | 11 | 0.12 | 0.46 |
| | | DISSOLVED | 07/15/10 | 17.4 | 5.2 | 4.8 | 0.92 | 0.005 | <0.001 | 11.5 | 84 | 0.0 | <0.50 | 13 | 0.18 | 0.45 |
| | | TOTAL REC | 07/15/10 | 20.0 | 5.7 | 5.7 | 1.11 | 0.177 | <0.003 | | | | | | | |
| | | DISSOLVED | 03/30/11 | 18.6 | 5.3 | 5.8 | 0.94 | <0.002 | <0.001 | 13.4 | 74 | 0.0 | 0.9 | 10 | 0.16 | 0.36 |
| | | TOTAL REC | 03/30/11 | 18.2 | 5.3 | 5.5 | 1.04 | 0.191 | <0.003 | | | | | | | |
| | | DISSOLVED | 07/26/11 | 15.8 | 4.6 | 4.6 | 0.85 | <0.002 | <0.003 | 12.7 | 66 | 0.0 | <0.50 | 14 | 0.07 | 0.34 |
| | | TOTAL REC | 07/26/11 | 15.8 | 4.8 | 5.2 | 0.90 | 0.060 | <0.006 | | | | | | | |
| | | DISSOLVED | 03/15/12 | 22.0 | 6.3 | 6.3 | 0.95 | <0.005 | <0.002 | 14.0 | 82 | 0.0 | 0.9 | 21 | 0.09 | 0.35 |
| | | TOTAL REC | 03/15/12 | 22.9 | 6.6 | 5.5 | 1.20 | 0.094 | <0.005 | | | | | | | |
| | | DISSOLVED | 08/23/12 | 15.5 | 5.1 | 5.0 | 0.95 | <0.015 | <0.002 | 13.4 | 68 | 0.0 | 0.6 | 12 | 0.18 | 0.38 |
| | | DISSOLVED | 03/20/13 | 24.6 | 6.9 | 5.7 | 1.00 | <0.015 | <0.002 | 13.1 | 92 | 0.0 | 1.2 | 30 | 0.20 | 0.36 |
| | | DISSOLVED | 07/31/13 | 21.6 | 6.2 | 5.9 | 1.02 | <0.015 | <0.002 | 14.8 | 91 | 0.0 | 0.7 | 22 | 0.23 | 0.39 |
| | | TOTAL REC | 07/31/13 | 22.9 | 6.6 | 6.0 | 1.17 | 0.054 | <0.005 | | | | | | | |
| LTW-4S | 249941 | DISSOLVED | 09/11/09 | 15.5 | 4.2 | 4.7 | 1.20 | 0.008 | <0.001 | 14.5 | 75 | 0.0 | <0.50 | 7 | <0.05 | 0.44 |
| MW-259 | | DISSOLVED | 04/13/10 | | | | | | | | | | | | | |
| | | DISSOLVED | 07/15/10 | 12.7 | 3.8 | 3.9 | 0.98 | <0.002 | <0.001 | 12.4 | 55 | 0.0 | <0.50 | 8 | 0.12 | 0.54 |
| | | TOTAL REC | 07/15/10 | 14.2 | 4.1 | 4.6 | 1.11 | 0.071 | <0.003 | | | | | | | |
| | | DISSOLVED | 07/26/11 | 12.5 | 3.6 | 4.0 | 0.90 | 0.002 | <0.003 | 13.6 | 60 | 0.0 | 0.4 | 6 | 0.05 | 0.37 |
| | | TOTAL REC | 07/26/11 | 11.8 | 3.7 | 4.1 | 1.01 | 0.047 | <0.006 | | | | | | | |
| | | DISSOLVED | 07/31/13 | 21.6 | 6.2 | 5.9 | 1.02 | <0.015 | <0.002 | 14.8 | 91 | 0.0 | 0.7 | 22 | 0.23 | 0.39 |
| | | TOTAL REC | 07/31/13 | 22.9 | 6.6 | 6.0 | 1.17 | 0.054 | <0.005 | NR | NR | NR | NR | NR | NR | NR |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soil**
**South Opportunity/Yellow Ditch AOC**
**Appendix C**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Al (µg/L) | Ag (µg/L) | As (µg/L) | B (µg/L) | Ba (µg/L) | Be (µg/L) | Cd (µg/L) | Co (µg/L) | Cr (µg/L) | Cu (µg/L) | Hg (µg/L) | Li (µg/L) | Mo (µg/L) | Ni (µg/L) | Pb (µg/L) | Se (µg/L) | Sr (µg/L) | U (µg/L) | Zn (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LTW-4D | 249940 | DISSOLVED | 09/11/09 | <17.80 | <0.10 | 0.55 | 4.2 | 39.1 | <0.10 | <0.20 | 0.12 | 0.17 | 1.01 | | 1.69 | 2.60 | 0.26 | <0.10 | <0.30 | 88 | 0.97 | 53.50 |
| MW-260 | | DISSOLVED | 04/13/10 | <1.00 | <0.10 | 0.48 | 3.1 | 45.0 | <0.20 | <0.10 | 0.34 | 0.09 | 0.55 | | 9.80 | 2.49 | 0.44 | <0.20 | <0.10 | 107 | 1.59 | 70.50 |
| | | DISSOLVED | 07/15/10 | 10.0 | <0.20 | 0.47 | 3.6 | 49.3 | <0.20 | <0.20 | <0.20 | <0.20 | 0.75 | | <2.00 | 2.11 | 0.27 | <0.20 | <0.20 | 114 | 1.73 | 78.00 |
| | | TOTAL REC | 07/15/10 | 284.0 | <0.50 | 0.47 | <5.00 | 55.8 | <0.50 | <0.50 | <0.50 | <0.50 | 4.14 | | <5.00 | 2.33 | 0.47 | <0.50 | <0.50 | 120 | 1.83 | 72.00 |
| | | DISSOLVED | 03/30/11 | 25.5 | <0.20 | 0.52 | 3.2 | 44.7 | <0.20 | <0.20 | <0.20 | <0.20 | 0.66 | | <2.00 | 2.15 | 0.30 | <0.20 | <0.20 | 108 | 1.49 | 80.80 |
| | | TOTAL REC | 03/30/11 | 246.0 | <0.50 | 0.52 | <5.00 | 47.7 | <0.50 | <0.50 | <0.50 | <0.50 | <1.30 | | <5.00 | 2.39 | 0.53 | <0.50 | <0.50 | 107 | 1.65 | 65.50 |
| | | DISSOLVED | 07/26/11 | 0.9 | <0.50 | 0.52 | 2.3 | 40.4 | <0.50 | <0.50 | <0.50 | <0.50 | 0.73 | | <2.00 | 2.27 | 0.28 | <0.20 | <0.50 | 88 | 1.19 | 48.03 |
| | | TOTAL REC | 07/26/11 | 22.0 | <1.25 | 0.59 | NR | 42.2 | <1.25 | <1.25 | <1.25 | <1.25 | 0.91 | | 6.97 | 2.08 | 0.66 | <0.50 | <1.25 | 93 | 1.33 | 47.90 |
| | | DISSOLVED | 03/15/12 | 3.3 | <0.100 | 0.47 | 2.4 | 57.8 | <0.100 | <0.100 | <0.100 | <0.100 | 0.53 | | <0.040 | 1.70 | 0.37 | <0.040 | <0.100 | 124 | 11.43 | 80.88 |
| | | TOTAL REC | 03/15/12 | 187.8 | <0.250 | 1.29 | 5.2 | 63.0 | <0.250 | <0.250 | <0.250 | 1.50 | 1.09 | | 7.46 | 1.88 | 0.59 | 0.29 | <0.250 | 134 | 0.94 | 84.50 |
| | | DISSOLVED | 08/23/12 | <0.400 | <0.100 | 0.25 | 3.4 | 41.3 | <0.100 | <0.100 | <0.100 | <0.100 | 0.22 | | 0.42 | 2.10 | 0.40 | <0.040 | <0.100 | 89 | 1.03 | 58.88 |
| | | DISSOLVED | 03/20/13 | 2.3 | <0.100 | 0.45 | 3.7 | 61.3 | <0.100 | <0.100 | <0.100 | <0.100 | 0.47 | | <1.500 | 1.71 | 0.72 | <0.060 | <0.100 | 140 | 2.98 | 69.50 |
| | | DISSOLVED | 07/31/13 | 1.9 | <0.100 | 0.46 | 4.0 | 54.3 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | <1.500 | 2.01 | 0.49 | <0.060 | <0.100 | 124 | 2.26 | 61.58 |
| | | TOTAL REC | 07/31/13 | 39.3 | | 0.67 | 3.7 | 53.2 | <0.250 | <0.250 | <0.250 | 0.93 | <0.100 | | <3.750 | 2.07 | 0.56 | <0.150 | <0.250 | 122 | 2.29 | 64.67 |
| LTW-4S | 249941 | DISSOLVED | 09/11/09 | <17.80 | <0.10 | 0.56 | 4.7 | 37.3 | <0.100 | <0.20 | <0.100 | 0.10 | 1.09 | | 1.23 | 1.99 | 0.27 | <0.10 | <0.30 | 89 | 0.75 | 68.90 |
| MW-259 | | DISSOLVED | 04/13/10 | | | | | | | | | | | | | | | | | | | |
| | | DISSOLVED | 07/15/10 | 4.9 | <0.20 | 0.51 | 3.5 | 29.2 | <0.20 | <0.20 | <0.20 | <0.20 | 1.39 | | <2.00 | 1.66 | 0.28 | <0.20 | <0.20 | 76 | 0.48 | 64.00 |
| | | TOTAL REC | 07/15/10 | 57.3 | <0.50 | <0.50 | <5.00 | 30.8 | <0.50 | <0.50 | <0.50 | <0.50 | 1.75 | | <5.00 | 1.70 | <0.50 | <0.50 | <0.50 | 74 | <0.50 | 57.80 |
| | | DISSOLVED | 07/26/11 | 15.2 | <0.50 | 0.55 | 2.7 | 26.9 | <0.50 | <0.50 | <0.50 | <0.50 | 1.34 | | <2.00 | 1.52 | 0.31 | <0.20 | <0.50 | 66 | 0.45 | 58.25 |
| | | TOTAL REC | 07/26/11 | 35.2 | <1.25 | 0.59 | NR | 27.5 | <1.25 | <1.25 | <1.25 | <1.25 | 1.76 | | 9.84 | 1.36 | 0.78 | 0.17 | <1.25 | 67 | 0.48 | 52.77 |
| | | DISSOLVED | 07/31/13 | 1.9 | <0.1 | 0.46 | 4.0 | 54.3 | <0.1 | <0.1 | <0.1 | <0.1 | <0.04 | | <1.5 | 2.01 | 0.49 | <0.06 | <0.1 | 124 | 2.26 | 61.58 |
| | | TOTAL REC | 07/31/13 | 39.3 | | 0.67 | 3.7 | 53.2 | <0.250 | <0.250 | <0.250 | 0.93 | <0.1 | | <3.750 | 2.07 | 0.56 | <0.15 | <0.25 | 122 | 2.29 | 64.67 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soil**
**South Opportunity/Yellow Ditch AOC**
**Appendix C**

| | | | | Additional Trace Metals | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Cerium | Cesium | Gallium | Lanthanum | Niobium | Neodymium | Palladium | Praseodymium | Rubidium | Thallium | Thorium | Tin | Titanium | Tungsten |
| Site ID | GWIC ID | Sample Type | DATE | Ce | Cs | Ga | La | Nb | Nd | Pd | Pr | Rb | Tl | Th | Sn | Ti | W |
| | | | (MM/DD/YR) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) | (µg/L) |
| LTW-4D | 249940 | DISSOLVED | 09/11/09 | <0.10 | <0.10 | <0.10 | <0.10 | <0.20 | <0.10 | <0.10 | <0.10 | 0.32 | <0.10 | <0.10 | <0.10 | 0.82 | 0.11 |
| MW-260 | | DISSOLVED | 04/13/10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.07 | <0.10 | 0.26 | <0.10 | 0.33 | <0.10 | <0.10 | <0.10 | <0.20 | 0.12 |
| | | DISSOLVED | 07/15/10 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | 0.24 | <0.20 |
| | | TOTAL REC | 07/15/10 | 0.74 | <1.30 | <0.50 | <0.50 | <0.40 | <0.50 | <1.30 | <0.50 | <1.30 | <0.50 | <0.50 | | 5.43 | <0.50 |
| | | DISSOLVED | 03/30/11 | <0.20 | <0.50 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | <0.20 | <0.50 | 1.06 | <0.20 |
| | | TOTAL REC | 03/30/11 | 0.90 | <1.30 | 15.10 | 0.51 | <1.30 | <0.50 | <1.30 | <0.50 | <1.30 | <0.50 | <0.50 | NR | 6.49 | <0.50 |
| | | DISSOLVED | 07/26/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.27 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | | TOTAL REC | 07/26/11 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | 0.32 | <1.25 | <1.25 | NR | 0.76 | <1.25 |
| | | DISSOLVED | 03/15/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.30 | <0.100 | <0.100 | <0.100 | 0.18 | <0.100 |
| | | TOTAL REC | 03/15/12 | 0.32 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.84 | <0.250 | <0.250 | 0.61 | 10.57 | <0.250 |
| | | DISSOLVED | 08/23/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.28 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 |
| | | DISSOLVED | 03/20/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.35 | <0.100 | <0.100 | <0.100 | 0.36 | <0.100 |
| | | DISSOLVED | 07/31/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.39 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 |
| | | TOTAL REC | 07/31/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 4.69 | <0.250 |
| LTW-4S | 249941 | DISSOLVED | 09/11/09 | <0.10 | <0.10 | <0.10 | 0.11 | <0.20 | <0.10 | <0.10 | <0.10 | 0.20 | <0.10 | <0.10 | <0.100 | <0.30 | 0.12 |
| MW-259 | | DISSOLVED | 04/13/10 | | | | | | | | | | | | | | |
| | | DISSOLVED | 07/15/10 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 |
| | | TOTAL REC | 07/15/10 | <0.50 | <1.30 | <0.50 | <0.50 | <0.40 | <0.50 | <1.30 | <0.50 | <1.30 | <0.50 | <0.50 | | 1.77 | <0.50 |
| | | DISSOLVED | 07/26/11 | <0.50 | <0.50 | <0.50 | 0.10 | <0.50 | <0.50 | <0.50 | <0.50 | 0.14 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| | | TOTAL REC | 07/26/11 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | NR | 1.06 | <1.25 |
| | | DISSOLVED | 07/31/13 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.39 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| | | TOTAL REC | 07/31/13 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | 4.69 | <0.25 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soil**
**South Opportunity/Yellow Ditch AOC**
**Appendix C**

| | | | | | PHYSICAL PARAMETERS | | FIELD | | | | LAB | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | TIME (HRS) | SWL (FT) | FLOW (GPM) | pH | SC (UMHOS) | TEMP (C) | REDOX (mv) | pH | SC (UMHOS) | HARDNESS (MG/L) | ALKALINITY (MG/L) |
| LTW-4SR | 264393 | DISSOLVED | 08/23/12 | 10:00 | 21.41 | 3.4 | 6.18 | 160 | 9.33 | 349 | 6.77 | 135 | 70 | 66 |
| MW-274 | | DISSOLVED | 07/31/13 | 15:23 | 20.24 | 0.5 | 6.46 | 200 | 12.45 | 550 | 6.50 | 190 | 80 | 68 |
| | | TOTAL REC | 07/31/13 | 15:23 | 20.24 | 0.5 | 6.46 | 200 | 12.45 | 550 | | | 85 | |
| MW-9 (LAB) | 249898 | DISSOLVED | 05/06/09 | 15:10 | 24.38 | 3.0 | 6.24 | 160 | 8.30 | 330 | 6.79 | 230 | 78 | 64 |
| | | DISSOLVED | 09/17/09 | 12:45 | 17.79 | 8.0 | 6.57 | 178 | 8.48 | 253 | 7.05 | 210 | 73 | 66 |
| | | DISSOLVED | 03/18/10 | 15:38 | 27.98 | 4.0 | 6.43 | 185 | 7.98 | 313 | 7.12 | 210 | 77 | 62 |
| | | DISSOLVED | 07/14/10 | 11:14 | 9.79 | 4.0 | 6.31 | 185 | 8.20 | 289 | 8.05 | 200 | 76 | 62 |
| | | TOTAL REC | 07/14/10 | 11:14 | 9.79 | 4.0 | 6.31 | 185 | 8.20 | 289 | | | 86 | |
| | | DISSOLVED | 03/30/11 | 13:56 | 28.77 | 2.5 | 6.67 | 181 | 8.99 | 284 | 6.93 | 206 | 74 | 57 |
| | | TOTAL REC | 03/30/11 | 13:56 | 28.77 | 2.5 | 6.67 | 181 | 8.99 | 284 | | | 76 | |
| | | DISSOLVED | 07/26/11 | 15:40 | 8.96 | 2.5 | 6.86 | 168 | 9.41 | 456 | 6.86 | 158 | 70 | 54 |
| | | TOTAL REC | 07/26/11 | 15:40 | 8.96 | 2.5 | 6.86 | 168 | 9.41 | 456 | | | 70 | |
| | | DISSOLVED | 03/15/12 | 10:47 | 29.27 | 2.0 | 6.55 | 168 | 8.76 | 337 | 6.75 | 187 | 64 | 56 |
| | | TOTAL REC | 03/15/12 | 10:47 | 29.27 | 2.0 | 6.55 | 168 | 8.76 | 337 | 6.75 | 187 | 72 | |
| | | DISSOLVED | 08/23/12 | 12:41 | 20.84 | 3.4 | 5.97 | 167 | 8.58 | 316 | 6.59 | 141 | 70 | 57 |
| | | DISSOLVED | 03/20/13 | 14:27 | 31.71 | | 6.99 | 166 | 9.13 | 363 | 6.52 | 150 | 70 | 64 |
| | | DISSOLVED | 03/20/13 | 14:31 | 31.71 | | 6.99 | 166 | 9.13 | 363 | 6.50 | 144 | 68 | 62 |
| | | DISSOLVED | 08/01/13 | 12:00 | 20.93 | 2.5 | 6.43 | 170 | 9.51 | 343 | 6.57 | 170 | 74 | 65 |
| | | TOTAL REC | 08/01/13 | 12:00 | 20.93 | 2.5 | 6.43 | 170 | 9.51 | 343 | 6.57 | 170 | 78 | |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soil**
**South Opportunity/Yellow Ditch AOC**
**Appendix C**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Ca (mg/L) | Mg (mg/L) | Na (mg/L) | K (mg/L) | Fe (mg/L) | Mn (mg/L) | $SiO_2$ (mg/L) | $HCO_3$ (mg/L) | $CO_3$ (mg/L) | Cl (mg/L) | $SO_4$ (mg/L) | $NO_3$-N (mg/L) | F (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LTW-4SR | 264393 | DISSOLVED | 08/23/12 | 18.5 | 5.8 | 5.2 | 1.22 | <0.015 | <0.002 | 13.8 | 80 | 0.0 | 0.7 | 12 | 0.21 | 0.34 |
| MW-274 | | DISSOLVED | 07/31/13 | 22.0 | 6.1 | 5.6 | 1.15 | <0.015 | 0.003 | 14.6 | 83 | 0.0 | 0.7 | 19 | 3.01 | 0.38 |
| | | TOTAL REC | 07/31/13 | 23.6 | 6.4 | 5.4 | 1.41 | 0.038 | 0.005 | | | | | | | |
| MW-9 (LAB) | 249898 | DISSOLVED | 05/06/09 | 21.3 | 5.9 | 6.0 | 0.88 | 0.007 | <0.001 | 13.4 | 78 | 0.0 | 0.9 | 21 | 1.19 | 0.43 |
| | | DISSOLVED | 09/17/09 | 20.1 | 5.5 | 5.7 | 0.78 | 0.128 | 0.006 | 12.2 | 81 | 0.0 | 0.9 | 24 | 0.77 | 0.43 |
| | | DISSOLVED | 03/18/10 | 21.2 | 5.9 | 5.8 | 0.78 | 0.060 | 0.005 | 11.6 | 76 | 0.0 | 0.6 | 29 | 0.83 | 0.45 |
| | | DISSOLVED | 07/14/10 | 20.7 | 6.0 | 5.8 | 0.78 | 0.051 | 0.006 | 11.0 | 75 | 0.0 | 0.7 | 30 | 0.87 | 0.47 |
| | | TOTAL REC | 07/14/10 | 23.7 | 6.4 | 6.5 | 0.96 | 0.910 | 0.011 | | | | | | | |
| | | DISSOLVED | 03/30/11 | 20.7 | 5.5 | 6.7 | 0.62 | 0.041 | 0.006 | 12.0 | 70 | 0.0 | 0.6 | 24 | 0.61 | 0.38 |
| | | TOTAL REC | 03/30/11 | 21.1 | 5.7 | 6.0 | 0.78 | 0.936 | 0.011 | | | | | | | |
| | | DISSOLVED | 07/26/11 | 19.0 | 5.5 | 5.2 | 0.75 | 0.011 | 0.002 | 11.9 | 66 | 0.0 | 0.5 | 26 | 0.40 | 0.36 |
| | | TOTAL REC | 07/26/11 | 18.8 | 5.6 | 5.9 | 0.81 | 0.446 | 0.005 | | | | | | | |
| | | DISSOLVED | 03/15/12 | 17.8 | 4.8 | 5.6 | 0.66 | 0.020 | <0.002 | 12.9 | 68 | 0.0 | | | | |
| | | TOTAL REC | 03/15/12 | 19.9 | 5.5 | 5.9 | 0.87 | 0.511 | <0.005 | | | | | | | |
| | | DISSOLVED | 08/23/12 | 18.6 | 5.9 | 5.7 | 0.86 | 0.021 | 0.007 | 12.5 | 69 | 0.0 | 0.7 | 22 | 0.34 | 0.42 |
| | | DISSOLVED | 03/20/13 | 19.4 | 5.3 | 5.7 | 0.83 | 0.017 | 0.003 | 12.3 | 78 | 0.0 | 0.7 | 16 | 0.50 | 0.47 |
| | | DISSOLVED | 03/20/13 | 18.6 | 5.1 | 5.6 | 0.74 | 0.018 | 0.003 | 12.1 | 76 | 0.0 | 0.7 | 15 | 0.50 | 0.46 |
| | | DISSOLVED | 08/01/13 | 20.2 | 5.7 | 6.7 | 0.80 | 0.033 | 0.006 | 13.2 | 79 | 0.0 | 0.6 | 23 | 0.22 | 0.48 |
| | | TOTAL REC | 08/01/13 | 21.5 | 5.9 | 6.4 | 0.98 | 0.355 | 0.008 | | | | | | | |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soil**
**South Opportunity/Yellow Ditch AOC**
**Appendix C**

| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Al (µg/L) | Ag (µg/L) | As (µg/L) | B (µg/L) | Ba (µg/L) | Be (µg/L) | Cd (µg/L) | Co (µg/L) | Cr (µg/L) | Cu (µg/L) | Hg (µg/L) | Li (µg/L) | Mo (µg/L) | Ni (µg/L) | Pb (µg/L) | Se (µg/L) | Sr (µg/L) | U (µg/L) | Zn (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LTW-4SR | 264393 | DISSOLVED | 08/23/12 | <0.400 | <0.100 | 0.55 | 3.5 | 46.8 | <0.100 | 0.15 | <0.100 | <0.100 | 0.78 | | <0.040 | 1.47 | 0.42 | <0.040 | <0.100 | 102 | 1.16 | 77.96 |
| MW-274 | | DISSOLVED | 07/31/13 | 21.4 | <0.100 | 0.59 | 3.5 | 62.1 | <0.100 | 0.22 | <0.100 | <0.100 | 0.86 | | <1.500 | 1.59 | 0.45 | <0.060 | <0.100 | 124 | 1.98 | 101.21 |
| | | TOTAL REC | 07/31/13 | 77.3 | | 0.80 | 3.5 | 62.9 | <0.250 | <0.250 | <0.250 | 1.04 | 1.39 | | <3.750 | 1.61 | 0.56 | <0.150 | <0.250 | 123 | 2.06 | 111.95 |
| MW-9 (LAB) | 249898 | DISSOLVED | 05/06/09 | <6.02 | <0.07 | 0.25 | 2.9 | 46.8 | <0.19 | <0.01 | <0.04 | <0.09 | <0.41 | | 2.59 | 0.83 | <0.08 | <0.20 | 0.41 | 110 | 1.42 | <1.29 |
| | | DISSOLVED | 09/17/09 | <7.60 | <0.04 | 0.27 | 3.4 | 46.4 | <0.20 | <0.05 | 0.29 | 0.85 | <0.40 | | 2.29 | 0.81 | 0.15 | <0.16 | 0.42 | 106 | 1.33 | <0.90 |
| | | DISSOLVED | 03/18/10 | <0.81 | <0.10 | 0.31 | <2.00 | 46.7 | <0.10 | <0.10 | <0.10 | <0.10 | 0.27 | | 1.71 | 0.78 | <0.10 | <0.10 | 0.51 | 113 | 1.44 | <0.81 |
| | | DISSOLVED | 07/14/10 | <2.00 | <0.20 | 0.22 | 3.0 | 42.3 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | | 2.09 | 0.70 | <0.20 | <0.20 | 0.43 | 99 | 1.09 | <1.00 |
| | | TOTAL REC | 07/14/10 | 6.4 | <0.50 | <0.50 | <5.00 | 48.5 | <0.50 | <0.50 | <0.50 | <0.50 | <1.30 | | <5.00 | 0.74 | <0.50 | <0.50 | <0.50 | 106 | 1.18 | <2.50 |
| | | DISSOLVED | 03/30/11 | <2.00 | <0.20 | 0.25 | 3.2 | 39.5 | <0.20 | <0.20 | <0.20 | <0.20 | <0.5 | | <2.00 | 0.77 | <0.20 | <0.20 | 0.42 | 98 | 1.05 | <0.50 |
| | | TOTAL REC | 03/30/11 | 6.9 | <0.50 | <0.50 | <5.00 | 43.9 | <0.50 | <0.50 | <0.50 | <0.50 | <1.30 | | <5.00 | 0.80 | <0.50 | <0.50 | <0.50 | 104 | 1.22 | <1.30 |
| | | DISSOLVED | 07/26/11 | 0.8 | <0.50 | 0.25 | 1.1 | 43.0 | <0.50 | <0.50 | <0.50 | <0.50 | 0.25 | | 2.39 | 0.44 | <0.50 | <0.20 | 0.51 | 90 | 1.05 | <1.00 |
| | | TOTAL REC | 07/26/11 | 18.7 | <1.25 | 0.32 | NR | 43.2 | <1.25 | <1.25 | <1.25 | <1.25 | 0.50 | | 10.38 | 0.75 | 0.50 | <0.50 | 0.38 | 94 | 1.13 | <2.50 |
| | | DISSOLVED | 03/15/12 | <0.400 | | 0.26 | 2.6 | 38.2 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | | <0.040 | 0.76 | <0.100 | <0.040 | <0.100 | 81 | 0.17 | <0.200 |
| | | TOTAL REC | 03/15/12 | 1.1 | | 1.02 | 4.9 | 43.1 | <0.250 | <0.250 | <0.250 | 1.37 | 0.39 | | 7.66 | 0.85 | <0.250 | <0.100 | <0.250 | 92 | 2.34 | 1.63 |
| | | DISSOLVED | 08/23/12 | <0.400 | <0.100 | 0.21 | 3.8 | 40.4 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | | 1.04 | 0.88 | 0.12 | <0.040 | 0.36 | 89 | 0.99 | 0.38 |
| | | DISSOLVED | 03/20/13 | <0.400 | <0.100 | 0.25 | 3.8 | 41.7 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | <1.500 | 0.91 | 0.27 | <0.060 | 0.33 | 94 | 1.26 | <0.050 |
| | | DISSOLVED | 03/20/13 | <0.400 | <0.100 | 0.25 | 3.8 | 39.8 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | <1.500 | 0.90 | 0.26 | <0.060 | 0.31 | 90 | 1.22 | <0.050 |
| | | DISSOLVED | 08/01/13 | <0.400 | <0.100 | 0.27 | 3.4 | 44.3 | <0.100 | <0.100 | <0.100 | <0.100 | <0.040 | | <1.500 | 0.95 | 0.21 | <0.060 | 0.34 | 97 | 1.35 | <0.050 |
| | | TOTAL REC | 08/01/13 | 10.4 | | 0.51 | 3.1 | 42.9 | <0.250 | <0.250 | <0.250 | 0.80 | <0.100 | | <3.750 | 0.96 | <0.250 | <0.150 | 0.57 | 96 | 1.41 | 1.05 |

NA-not applicable
NR-not reported

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste and Soil**
**South Opportunity/Yellow Ditch AOC**
**Appendix C**

| | | | | Additional Trace Metals | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Cerium | Cesium | Gallium | Lanthanum | Niobium | Neodymium | Palladium | Praseodymium | Rubidium | Thallium | Thorium | Tin | Titanium | Tungsten |
| Site ID | GWIC ID | Sample Type | DATE (MM/DD/YR) | Ce (µg/L) | Cs (µg/L) | Ga (µg/L) | La (µg/L) | Nb (µg/L) | Nd (µg/L) | Pd (µg/L) | Pr (µg/L) | Rb (µg/L) | Tl (µg/L) | Th (µg/L) | Sn (µg/L) | Ti (µg/L) | W (µg/L) |
| LTW-4SR | 264393 | DISSOLVED | 08/23/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.33 | <0.100 | <0.100 | <0.100 | <0.100 | 0.13 |
| MW-274 | | DISSOLVED | 07/31/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.36 | <0.100 | <0.100 | <0.100 | <0.100 | 0.21 |
| | | TOTAL REC | 07/31/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.54 | <0.250 | <0.250 | <0.250 | 5.31 | <0.250 |
| MW-9 (LAB) | 249898 | DISSOLVED | 05/06/09 | <0.04 | <0.04 | <0.04 | <0.05 | <0.03 | <0.04 | <0.07 | <0.03 | 0.37 | <0.03 | <0.02 | <0.05 | 0.14 | <0.03 |
| | | DISSOLVED | 09/17/09 | <0.04 | <0.04 | <0.05 | <0.02 | <0.04 | <0.05 | <0.10 | <0.02 | 0.36 | <0.03 | <0.02 | <0.04 | 0.25 | 0.10 |
| | | DISSOLVED | 03/18/10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.20 | <0.10 | <0.10 | <0.10 | 0.37 | <0.10 | <0.10 | <0.10 | 0.26 | <0.10 |
| | | DISSOLVED | 07/14/10 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | <0.20 | <0.20 | 0.22 | <0.20 |
| | | TOTAL REC | 07/14/10 | <0.50 | <1.30 | <0.50 | <0.50 | <0.40 | <0.50 | <1.30 | <0.50 | <1.30 | <0.50 | <0.50 | | <0.50 | <0.50 |
| | | DISSOLVED | 03/30/11 | <0.20 | <0.50 | <0.20 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | <0.50 | <0.20 | <0.20 | <0.50 | 0.29 | <0.20 |
| | | TOTAL REC | 03/30/11 | <0.50 | <1.30 | 17.50 | <0.50 | <1.30 | <0.50 | <1.30 | <0.50 | <1.30 | <0.50 | <0.50 | NR | 0.53 | <0.50 |
| | | DISSOLVED | 07/26/11 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.32 | <0.50 | <0.50 | <0.50 | 0.17 | <0.50 |
| | | TOTAL REC | 07/26/11 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | <1.25 | 0.33 | <1.25 | <1.25 | NR | 0.34 | <1.25 |
| | | DISSOLVED | 03/15/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.27 | <0.100 | <0.100 | <0.100 | 0.12 | <0.100 |
| | | TOTAL REC | 03/15/12 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 0.34 | <0.250 | <0.250 | 0.35 | 9.44 | <0.250 |
| | | DISSOLVED | 08/23/12 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.32 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 |
| | | DISSOLVED | 03/20/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.36 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 |
| | | DISSOLVED | 03/20/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.34 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 |
| | | DISSOLVED | 08/01/13 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 | 0.39 | <0.100 | <0.100 | <0.100 | <0.100 | <0.100 |
| | | TOTAL REC | 08/01/13 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | <0.250 | 3.91 | <0.250 |

NA-not applicable
NR-not reported

**Appendix D.** Anaconda Regional Water, Waste, and Soils Smelter Hill Repository Complex, Water-Quality Data

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste, and Soils**
**Smelter Hill Repository Complex**
**Appendix D**

| Site ID | Sample Date (MM/DD/YY) | Time (HRS | SWL (FT) | Flow (GPM) | Fld pH | Fld SC (umhos/cm) | Temp (°C) | Redox (mv) | Lab pH | Lab SC (umhos/cm) | Hardness (mg/l) | Alkalinity (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-1 | 08/16/99 | | | | 7.50 | | | | | | | |
| | 08/10/00 | | | | | | | | | | | |
| | 08/06/01 | | | | | | | | | | | |
| | 07/12/02 | | | | | | | | | | | |
| | 08/06/03 | | | | | | | | | | | |
| | 08/10/04 | | | | | | | | | | | |
| | 07/28/05 | | | | | | | | | | | |
| | 08/04/06 | | | | | | | | | | | |
| | 07/31/07 | | | | | | | | | | | |
| | 08/20/08 | | | | | | | | | | | |
| | 07/31/09 | | | | | | | | | | | |
| | 07/21/10 | | | | 6.97 | 1,124 | 14.3 | | 7.55 | 1,210 | 545 | 137 |
| | 08/04/11 | | | | 4.00 | 1,118 | 14.0 | | 7.28 | 1,040 | 458 | 127 |
| | 08/09/12 | | | | 7.16 | 1,164 | 15.2 | | 7.27 | 1,072 | 454 | 124 |
| | 07/23/13 | 14:02 | 118.6 | 2.0 | 6.87 | 1,120 | 15.2 | 428 | 7.23 | 1,138 | 445 | 135 |
| MW-2 | 08/16/99 | | | | | | | | | | | |
| | 08/10/00 | | | | | | | | | | | |
| | 08/06/01 | | | | | | | | | | | |
| | 07/12/02 | | | | | | | | | | | |
| | 08/06/03 | | | | | | | | | | | |
| | 08/10/04 | | | | | | | | | | | |
| | 07/28/05 | | | | | | | | | | | |
| | 08/04/06 | | | | | | | | | | | |
| | 07/31/07 | | | | | | | | | | | |
| | 08/20/08 | | | | | | | | | | | |
| | 07/31/09 | | | | | | | | | | | |
| | 07/15/10 | | | | 7.22 | 836 | 13.0 | | 7.78 | 844 | 385 | 120 |
| | 08/01/11 | | | | 4.52 | 891 | 12.7 | | 7.46 | 854 | 382 | 114 |
| | 08/09/12 | | | | 6.91 | 896 | 13.8 | | 7.25 | 834 | 360 | 104 |
| | 07/23/13 | 12:09 | 119.4 | 1.0 | 7.01 | 900 | 13.7 | | 7.31 | 908 | 385 | 117 |
| MW-3 | 08/16/99 | | | | | | | | | | | |
| | 08/10/00 | | | | | | | | | | | |
| | 08/06/01 | | | | | | | | | | | |
| | 07/12/02 | | | | | | | | | | | |
| | 08/06/03 | | | | | | | | | | | |
| | 08/10/04 | | | | | | | | | | | |
| | 07/28/05 | | | | | | | | | | | |
| | 09/29/05 | | | | | | | | | | | |
| | 08/04/06 | | | | | | | | | | | |
| | 07/31/07 | | | | | | | | | | | |
| | 08/20/08 | | | | | | | | | | | |
| | 07/31/09 | | | | | | | | | | | |
| | 07/16/10 | | | | 7.32 | 860 | 14.8 | | 7.75 | 923 | 400 | 146 |
| | 08/03/11 | | | | 3.83 | 920 | 13.5 | | 7.46 | 866 | 414 | 139 |
| | 08/09/12 | | | | 7.01 | 905 | 12.7 | | 7.45 | 852 | 382 | 133 |
| | 07/22/13 | 16:15 | 125.8 | 1.0 | 7.12 | 950 | 14.4 | 419 | 7.31 | 854 | 378 | 145 |

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste, and Soils**
**Smelter Hill Repository Complex**
**Appendix D**

| Site ID | Sample Date (MM/DD/YY) | Ca (mg/l) | Mg (mg/l) | Na (mg/l) | K (mg/l) | Fe (mg/l) | Mn (mg/l) | SiO2 (mg/l) | HCO3 (mg/l) | CO3 (mg/l) | Cl (mg/l) | SO4 (mg/l) | NO3-N (mg/l) | F (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-1 | 08/16/99 | | | | | | | | | | | | | |
| | 08/10/00 | | | | | | | | | | | | | |
| | 08/06/01 | | | | | | | | | | | | | |
| | 07/12/02 | | | | | | | | | | | | | |
| | 08/06/03 | | | | | | | | | | | | | |
| | 08/10/04 | | | | | | | | | | | | | |
| | 07/28/05 | | | | | | | | | | | | | |
| | 08/04/06 | | | | | | | | | | | | | |
| | 07/31/07 | | | | | | | | | | | | | |
| | 08/20/08 | | | | | | | | | | | | | |
| | 07/31/09 | | | | | | | | | | | | | |
| | 07/21/10 | 181.5 | 22.2 | 44.1 | 8.49 | 0.015 | <0.005 | 23.1 | 167 | 0.0 | 66.21 | 355 | 12.37 | 1.76 |
| | 08/04/11 | 147.1 | 22.0 | 50.6 | 8.69 | <0.002 U | <0.003 U | 22.5 | 155 | 0.0 | 65.73 | 307 | 11.66 | 1.65 |
| | 08/09/12 | 143.8 | 22.9 | 50.5 | 9.11 | <0.038 U | <0.005 U | 23.1 | 151 | 0.0 | 62.08 | 327 | 11.00 | 1.62 |
| | 07/23/13 | 142.1 | 21.8 | 50.4 | 8.65 | <0.038 | <0.005 | 24.1 | 165 | 0.0 | 65.43 | 332 | 12.36 | 1.77 |
| MW-2 | 08/16/99 | | | | | | | | | | | | | |
| | 08/10/00 | | | | | | | | | | | | | |
| | 08/06/01 | | | | | | | | | | | | | |
| | 07/12/02 | | | | | | | | | | | | | |
| | 08/06/03 | | | | | | | | | | | | | |
| | 08/10/04 | | | | | | | | | | | | | |
| | 07/28/05 | | | | | | | | | | | | | |
| | 08/04/06 | | | | | | | | | | | | | |
| | 07/31/07 | | | | | | | | | | | | | |
| | 08/20/08 | | | | | | | | | | | | | |
| | 07/31/09 | | | | | | | | | | | | | |
| | 07/15/10 | 128.0 | 16.0 | 30.7 | 4.80 | 0.044 | 0.001 | 19.9 | 146 | 0.0 | 55.63 | 239 | 5.59 | 0.81 |
| | 08/01/11 | 126.3 | 16.1 | 32.8 | 5.04 | 0.012 | 0.002 J | 19.7 | 139 | 0.0 | 56.44 | 238 | 5.62 | 0.75 |
| | 08/09/12 | 118.1 | 15.9 | 32.2 | 4.81 | 0.041 J | 0.003 J | 19.4 | 127 | 0.0 | 57.39 | 234 | 5.39 | 0.67 |
| | 07/23/13 | 126.9 | 16.5 | 33.9 | 4.86 | <0.015 | <0.002 | 20.1 | 143 | 0.0 | 65.30 | 243 | 6.38 | 0.76 |
| MW-3 | 08/16/99 | | | | | | | | | | | | | |
| | 08/10/00 | | | | | | | | | | | | | |
| | 08/06/01 | | | | | | | | | | | | | |
| | 07/12/02 | | | | | | | | | | | | | |
| | 08/06/03 | | | | | | | | | | | | | |
| | 08/10/04 | | | | | | | | | | | | | |
| | 07/28/05 | | | | | | | | | | | | | |
| | 09/29/05 | | | | | | | | | | | | | |
| | 08/04/06 | | | | | | | | | | | | | |
| | 07/31/07 | | | | | | | | | | | | | |
| | 08/20/08 | | | | | | | | | | | | | |
| | 07/31/09 | | | | | | | | | | | | | |
| | 07/16/10 | 132.0 | 17.1 | 37.1 | 3.67 | 0.026 | 0.001 | 20.2 | 178 | 0.0 | 27.53 | 301 | 2.17 | 0.76 |
| | 08/03/11 | 135.4 | 18.5 | 43.5 | 4.30 | 0.005 | 0.001 J | 20.5 | 170 | 0.0 | 31.57 | 316 | 2.75 | 0.75 |
| | 08/09/12 | 124.9 | 17.1 | 36.7 | 3.44 | 0.034 J | 0.005 J | 20.1 | 162 | 0.0 | 24.48 | 291 | 1.90 | 0.59 |
| | 07/22/13 | 122.7 | 16.8 | 39.5 | 3.50 | <0.015 | <0.002 | 21.4 | 177 | 0.0 | 31.63 | 309 | 2.59 | 0.70 |

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste, and Soils**
**Smelter Hill Repository Complex**
**Appendix D**

| Site ID | Sample Date (MM/DD/YY) | Ag (ug/l) | Al (ug/l) | As (ug/l) | B (ug/l) | Ba (ug/l) | Be (ug/l) | Cd (ug/l) | Co (ug/l) | Cr (ug/l) | Cu (ug/l) | Hg (ug/l) | Li (ug/l) | Mo (ug/l) | Ni (ug/l) | Pb (ug/l) | Se (ug/l) | Sr (ug/l) | U (ug/l) | Zn (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-1 | 08/16/99 | | | 5.00 | | | 0.10 | <0.1 | | | | | | | | <1.0 | | | | |
| | 08/10/00 | | | 11.00 | | | 0.30 | <0.1 | | | | | | | | 2.40 | | | | |
| | 08/06/01 | | | 8.00 | | | 0.50 | <0.1 | | | | | | | | | | | | 9.00 |
| | 07/12/02 | | | 4.60 | | | <0.06 | 0.03 | | | | | | | | | | | | 0.70 |
| | 08/06/03 | | | 4.80 | | | <0.05 | 0.08 | | | | | | | | <0.66 | | | | |
| | 08/10/04 | | | 7.50 | | | | <0.1 | | | <1.6 | | | | | <0.1 | | | | <9.6 |
| | 07/28/05 | | | 6.20 | | | | <0.1 | | | <1.6 | | | | | <0.1 | | | | <6.6 |
| | 08/04/06 | | | 6.70 | | | | <0.03 | | | 2.16 | | | | | 0.20 | | | | 3.65 |
| | 07/31/07 | | | 7.19 | | | | 0.14 | | | 1.21 | | | | | <0.045 | | | | <15.4 |
| | 08/20/08 | | | 7.90 | | | | 0.05 | | | 1.90 | | | | | | | | | |
| | 07/31/09 | | | 8.50 | | | | 0.06 | | | 3.00 | | | | | | | | | 3.30 |
| | 07/21/10 | <1.0 | <10.0 | 7.50 | 48.9 | 11.2 | <1.0 | <1.0 | <1.0 | 1.58 | <2.5 | | 73.90 | 10.00 | <1.0 | <1.0 | 6.56 | 1,914 | 1.26 | <5.0 |
| | 08/04/11 | <0.500 U | 49.7 | 7.40 | 47.8 | 12.3 | <0.500 U | <0.500 U | <0.500 U | 0.920 J | <0.500 U | | 74.11 | 10.14 | <0.500 U | <0.200 U | 6.75 | 1,890 | 1.240 J | <1.000 U |
| | 08/09/12 | <0.250 U | <1.000 U | 6.80 | 49.4 | 16.1 | <0.250 U | <0.250 U | <0.250 U | 0.970 J | 0.890 J | | 75.95 | 9.56 | 2.60 | <0.100 U | 7.03 | 1,956 | 1.160 J | 1.850 J |
| | 07/23/13 | <0.250 | <1.00 | 7.50 | 45.4 | 12.1 | <0.250 | <0.250 | <0.250 | 0.92 | <0.100 | | 74.47 | 11.11 | 2.09 | <0.150 | 6.86 | 1,898 | 1.35 | 9.33 |
| MW-2 | 08/16/99 | | | 3.00 | | | 0.10 | <0.1 | | | | | | | | <1.0 | | | | |
| | 08/10/00 | | | 7.00 | | | 0.10 | <0.1 | | | | | | | | 1.00 | | | | |
| | 08/06/01 | | | 4.00 | | | 0.30 | <0.1 | | | | | | | | | | | | 7.00 |
| | 07/12/02 | | | 1.40 | | | <0.06 | <0.03 | | | | | | | | | | | | <0.59 |
| | 08/06/03 | | | 1.60 | | | <0.05 | <0.08 | | | | | | | | <0.66 | | | | |
| | 08/10/04 | | | 3.50 | | | | <0.1 | | | <1.6 | | | | | <0.10 | | | | <9.6 |
| | 07/28/05 | | | 2.80 | | | | 0.12 | | | 2.00 | | | | | <0.10 | | | | <6.6 |
| | 08/04/06 | | | 2.92 | | | | <0.03 | | | 1.36 | | | | | <0.123 | | | | 0.33 |
| | 07/31/07 | | | 3.25 | | | | 0.16 | | | 1.12 | | | | | <0.045 | | | | <15.4 |
| | 08/20/08 | | | 3.30 | | | | | | | 1.40 | | | | | | | | | |
| | 07/31/09 | | | 150 | | | | | | | 2.30 | | | | | | | | | 2.70 |
| | 07/15/10 | <0.2 | <2.0 | 2.64 | 22.0 | 12.8 | <0.2 | <0.2 | 0.39 | 0.22 | <0.5 | | 33.00 | 4.31 | <0.2 | <0.2 | 6.74 | 1,373 | 1.71 | 2.75 |
| | 08/02/11 | <0.100 U | 52.0 | 3.03 | 22.1 | 13.6 | <0.100 U | <0.100 U | 0.310 J | 0.260 J | 0.340 J | | 36.85 | 4.36 | 0.180 J | <0.040 U | 7.66 | 1,359 | 1.59 | <0.200 U |
| | 08/09/12 | <0.100 U | 3.9 | 2.15 | 23.9 | 18.2 | <0.100 U | <0.100 U | 0.290 J | 0.160 J | 9.73 | | 36.19 | 4.10 | 2.73 | 0.40 | 6.95 | 1,333 | 1.38 | 11.16 |
| | 07/23/13 | <0.100 | <0.400 | 2.52 | 18.6 | 13.6 | <0.100 | <0.100 | <0.100 | 0.25 | 0.51 | | 38.12 | 4.34 | 1.60 | <0.060 | 6.36 | 1,398 | 1.57 | 12.56 |
| MW-3 | 08/16/99 | | | 15,300 | | | <0.10 | 0.20 | | | | | | | | 5.00 | | | | |
| | 08/10/00 | | | 72.0 | | | 0.10 | <0.10 | | | | | | | | 0.19 | | | | |
| | 08/06/01 | | | 40.0 | | | 0.40 | <0.10 | | | | | | | | | | | | 7.00 |
| | 07/12/02 | | | 310 | | | <0.06 | <0.03 | | | | | | | | | | | | <0.59 |
| | 08/06/03 | | | 65.3 | | | <0.05 | <0.08 | | | | | | | | <0.66 | | | | |
| | 08/10/04 | | | 139 | | | | <0.10 | | | <1.6 | | | | | <0.10 | | | | <9.6 |
| | 07/28/05 | | | 1,260 | | | | <0.10 | | | 2.70 | | | | | <0.10 | | | | <6.6 |
| | 09/29/05 | | | 137 | | | | <0.10 | | | 5.60 | | | | | <0.10 | | | | <6.6 |
| | 08/04/06 | | | 57.2 | | | | <0.03 | | | 1.86 | | | | | 0.15 | | | | 3.73 |
| | 07/31/07 | | | 730 | | | | 0.12 | | | 1.26 | | | | | <0.045 | | | | <15.4 |
| | 08/20/08 | | | 140 | | | | | | | 1.60 | | | | | | | | | |
| | 07/31/09 | | | 3.80 | | | | | | | 2.10 | | | | | | | | | |
| | 07/16/10 | <0.2 | 8.9 | 31.1 | 20.1 | 12.1 | <0.2 | <0.2 | 0.34 | 0.25 | <0.5 | | 31.10 | 2.73 | 0.68 | <0.2 | 1.54 | 1,355 | 1.40 | 3.38 |
| | 08/03/11 | <0.100 U | 53.1 | 73.9 | 25.5 | 11.9 | <0.100 U | <0.100 U | 0.180 J | 0.240 J | 0.400 J | | 40.14 | 2.60 | 0.220 J | <0.040 U | 2.42 | 1,460 | 1.29 | <0.200 U |
| | 08/09/12 | <0.100 U | 19.6 | 20.8 | 20.0 | 17.1 | <0.100 U | <0.100 U | 0.240 J | 0.230 J | 4.97 | | 31.78 | 2.68 | 4.39 | <0.040 U | 1.88 | 1,304 | 1.27 | 3.96 |
| | 07/22/13 | <0.100 | 0.6 | 12.8 | 19.5 | 11.9 | <0.100 | <0.100 | <0.100 | 0.30 | 0.42 | | 36.38 | 2.61 | 2.13 | <0.060 | 1.58 | 1,327 | 1.41 | 7.77 |

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste, and Soils**
**Smelter Hill Repository Complex**
**Appendix D**

| Site ID | Sample Date (MM/DD/YY) | Ce (ug/l) | Cs (ug/l) | Ga (ug/l) | La (ug/l) | Nb (ug/l) | Nd (ug/l) | Pd (ug/l) | Pr (ug/l) | Rb (ug/l) | Sn (ug/l) | Th (ug/l) | Tl (ug/l) | Tl (ug/l) | W (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-1 | 08/16/99 | | | | | | | | | | | | | | |
| | 08/10/00 | | | | | | | | | | | | | | |
| | 08/06/01 | | | | | | | | | | | | | | |
| | 07/12/02 | | | | | | | | | | | | | | |
| | 08/06/03 | | | | | | | | | | | | | | |
| | 08/10/04 | | | | | | | | | | | | | | |
| | 07/28/05 | | | | | | | | | | | | | | |
| | 08/04/06 | | | | | | | | | | | | | | |
| | 07/31/07 | | | | | | | | | | | | | | |
| | 08/20/08 | | | | | | | | | | | | | | |
| | 07/31/09 | | | | | | | | | | | | | | |
| | 07/21/10 | <1.0 | 3.90 | <1.0 | <1.0 | <1.0 | <1.0 | <2.5 | <1.0 | 38.50 | <1.0 | <1.0 | 3.22 | <1.0 | <1.0 |
| | 08/04/11 | <0.500 U | 3.51 | <0.500 U | <0.500 U | <0.500 U | <0.500 U | 0.940 J | <0.500 U | 31.23 | <0.500 U | <0.500 U | 3.67 | <0.500 U | <0.500 U |
| | 08/09/12 | <0.250 U | 3.47 | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.030 J | <0.250 U | 29.43 | <0.250 U | <0.250 U | 3.96 | <0.250 U | <0.250 U |
| | 07/23/13 | <0.250 | 4.01 | <0.250 | <0.250 | <0.250 | <0.250 | 0.77 | <0.250 | 33.55 | <0.250 | <0.250 | 3.80 | <0.250 | <0.250 |
| MW-2 | 08/16/99 | | | | | | | | | | | | | | |
| | 08/10/00 | | | | | | | | | | | | | | |
| | 08/06/01 | | | | | | | | | | | | | | |
| | 07/12/02 | | | | | | | | | | | | | | |
| | 08/06/03 | | | | | | | | | | | | | | |
| | 08/10/04 | | | | | | | | | | | | | | |
| | 07/28/05 | | | | | | | | | | | | | | |
| | 08/04/06 | | | | | | | | | | | | | | |
| | 07/31/07 | | | | | | | | | | | | | | |
| | 08/20/08 | | | | | | | | | | | | | | |
| | 07/31/09 | | | | | | | | | | | | | | |
| | 07/15/10 | <0.2 | 5.88 | <0.2 | <0.2 | <0.2 | <0.2 | <0.5 | <0.2 | 21.00 | <0.2 | <0.2 | 1.55 | <0.2 | 0.44 |
| | 08/01/11 | <0.100 U | 5.26 | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 0.68 | <0.100 U | 20.50 | 0.230 J | <0.100 U | 3.78 | <0.100 U | 1.13 |
| | 08/09/12 | <0.100 U | 5.20 | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 0.77 | <0.100 U | 18.47 | <0.100 U | <0.100 U | 3.68 | <0.100 U | 0.420 J |
| | 07/23/13 | <0.100 | 5.94 | <0.100 | <0.100 | <0.100 | <0.100 | 0.63 | <0.100 | 20.85 | <0.100 | <0.100 | 2.48 | <0.100 | 0.38 |
| MW-3 | 08/16/99 | | | | | | | | | | | | | | |
| | 08/10/00 | | | | | | | | | | | | | | |
| | 08/06/01 | | | | | | | | | | | | | | |
| | 07/12/02 | | | | | | | | | | | | | | |
| | 08/06/03 | | | | | | | | | | | | | | |
| | 08/10/04 | | | | | | | | | | | | | | |
| | 07/28/05 | | | | | | | | | | | | | | |
| | 09/29/05 | | | | | | | | | | | | | | |
| | 08/04/06 | | | | | | | | | | | | | | |
| | 07/31/07 | | | | | | | | | | | | | | |
| | 08/20/08 | | | | | | | | | | | | | | |
| | 07/31/09 | | | | | | | | | | | | | | |
| | 07/16/10 | <0.2 | 5.24 | <0.2 | <0.2 | <0.2 | <0.2 | <0.5 | <0.2 | 19.40 | <0.2 | <0.2 | 1.95 | <0.2 | 0.93 |
| | 08/03/11 | <0.100 U | 5.16 | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 0.72 | <0.100 U | 21.03 | 0.190 J | <0.100 U | 4.41 | <0.100 U | 0.84 |
| | 08/09/12 | <0.100 U | 4.19 | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 0.67 | <0.100 U | 16.32 | <0.100 U | <0.100 U | 4.11 | <0.100 U | 0.300 J |
| | 07/22/13 | <0.100 | 5.36 | <0.100 | <0.100 | <0.100 | <0.100 | 0.58 | <0.100 | 19.54 | <0.100 | <0.100 | 3.15 | <0.100 | 0.17 |

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste, and Soils**
**Smelter Hill Repository Complex**
**Appendix D**

| Site ID | Sample Date (MM/DD/YY) | Time (HRS | SWL (FT) | Flow (GPM) | Fld pH | Fld SC (umhos/cm) | Temp (°C) | Redox (mv) | Lab pH | Lab SC (umhos/cm) | Hardness (mg/l) | Alkalinity (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-4 | 08/16/99 | | | | | | | | | | | |
| | 08/10/00 | | | | | | | | | | | |
| | 08/06/01 | | | | | | | | | | | |
| | 07/12/02 | | | | | | | | | | | |
| | 08/06/03 | | | | | | | | | | | |
| | 08/10/04 | | | | | | | | | | | |
| | 07/28/05 | | | | | | | | | | | |
| | 08/04/06 | | | | | | | | | | | |
| | 07/31/07 | | | | | | | | | | | |
| | 08/20/08 | | | | | | | | | | | |
| | 07/31/09 | | | | | | | | | | | |
| | 07/16/10 | | | | 7.12 | 1,245 | 13.1 | | 7.66 | 1,330 | 596 | 127 |
| | 08/02/11 | | | | 4.24 | 1,347 | 12.6 | | 7.29 | 1,209 | 590 | 121 |
| | 08/10/12 | | | | 7.48 | 1,379 | 12.5 | | 7.34 | 1,238 | 602 | 116 |
| | 07/22/13 | 14:20 | 129.2 | 2.5 | 7.01 | 1,360 | 12.8 | 411 | 7.16 | 1,407 | 594 | 128 |
| MW-65 | 08/16/99 | | | | | | | | | | | |
| | 08/10/00 | | | | | | | | | | | |
| | 08/06/01 | | | | | | | | | | | |
| | 07/12/02 | | | | | | | | | | | |
| | 08/06/03 | | | | | | | | | | | |
| | 08/10/04 | | | | | | | | | | | |
| | 07/28/05 | | | | | | | | | | | |
| | 08/04/06 | | | | | | | | | | | |
| | 07/31/07 | | | | | | | | | | | |
| | 08/20/08 | | | | | | | | | | | |
| | 07/31/09 | | | | | | | | | | | |
| | 07/16/10 | | | | | | | | | | | |
| | 07/21/10 | | | | 7.16 | 879 | 13.6 | | 7.68 | 941 | 386 | 96 |
| | 08/02/11 | | | | 3.64 | 925 | 15.9 | | 6.56 | 814 | 380 | 62 |
| | 08/10/12 | | | | 7.40 | 963 | 13.9 | | 7.56 | 882 | 388 | 83 |
| | 07/23/13 | 16:50 | 103.9 | 0.8 | 7.29 | 760 | 16.1 | 477 | 7.43 | 986 | 385 | 87 |

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste, and Soils**
**Smelter Hill Repository Complex**
**Appendix D**

| Site ID | Sample Date (MM/DD/YY) | Ca (mg/l) | Mg (mg/l) | Na (mg/l) | K (mg/l) | Fe (mg/l) | Mn (mg/l) | SiO2 (mg/l) | HCO3 (mg/l) | CO3 (mg/l) | Cl (mg/l) | SO4 (mg/l) | NO3-N (mg/l) | F (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-4 | 08/16/99 | | | | | | | | | | | | | |
| | 08/10/00 | | | | | | | | | | | | | |
| | 08/06/01 | | | | | | | | | | | | | |
| | 07/12/02 | | | | | | | | | | | | | |
| | 08/06/03 | | | | | | | | | | | | | |
| | 08/10/04 | | | | | | | | | | | | | |
| | 07/28/05 | | | | | | | | | | | | | |
| | 08/04/06 | | | | | | | | | | | | | |
| | 07/31/07 | | | | | | | | | | | | | |
| | 08/20/08 | | | | | | | | | | | | | |
| | 07/31/09 | | | | | | | | | | | | | |
| | 07/16/10 | 195.0 | 26.4 | 56.9 | 2.86 | 0.019 | <0.005 | 18.6 | 155 | 0.0 | 84.36 | 442 | 9.06 | 0.73 |
| | 08/02/11 | 193.6 | 26.0 | 59.1 | 2.97 | 0.030 | <0.003 U | 18.4 | 148 | 0.0 | 86.75 | 446 | 8.83 | 0.67 |
| | 08/10/12 | 191.6 | 30.0 | 63.1 | 3.07 | <0.038 U | <0.005 U | 19.5 | 142 | 0.0 | 88.67 | 452 | 8.63 | 0.62 |
| | 07/22/13 | 193.3 | 27.0 | 62.0 | 2.85 | <0.038 | <0.005 | 19.8 | 156 | 0.0 | 98.63 | 453 | 9.84 | 0.68 |
| MW-65 | 08/16/99 | | | | | | | | | | | | | |
| | 08/10/00 | | | | | | | | | | | | | |
| | 08/06/01 | | | | | | | | | | | | | |
| | 07/12/02 | | | | | | | | | | | | | |
| | 08/06/03 | | | | | | | | | | | | | |
| | 08/10/04 | | | | | | | | | | | | | |
| | 07/28/05 | | | | | | | | | | | | | |
| | 08/04/06 | | | | | | | | | | | | | |
| | 07/31/07 | | | | | | | | | | | | | |
| | 08/20/08 | | | | | | | | | | | | | |
| | 07/31/09 | | | | | | | | | | | | | |
| | 07/16/10 | | | | | | | | | | | | | |
| | 07/21/10 | 138.0 | 10.1 | 25.0 | 2.21 | 0.115 | 0.024 | 17.8 | 117 | 0.0 | 112.10 | 192 | 6.44 | 0.42 |
| | 08/02/11 | 136.3 | 9.7 | 26.2 | 2.06 | 0.153 | 0.022 | 17.8 | 76 | 0.0 | 106.20 | 174 | 14.90 | 0.35 |
| | 08/10/12 | 136.2 | 11.7 | 30.1 | 2.16 | 0.030 J | 0.002 J | 19.3 | 101 | 0.0 | 123.50 | 170 | 6.46 | 0.40 |
| | 07/23/13 | 136.2 | 10.6 | 32.7 | 2.26 | <0.015 | 0.003 | 19.0 | 105 | 0.0 | 156.60 | 153 | 6.92 | 0.49 |

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste, and Soils**
**Smelter Hill Repository Complex**
**Appendix D**

| Site ID | Sample Date (MM/DD/YY) | Ag (ug/l) | Al (ug/l) | As (ug/l) | B (ug/l) | Ba (ug/l) | Be (ug/l) | Cd (ug/l) | Co (ug/l) | Cr (ug/l) | Cu (ug/l) | Hg (ug/l) | Li (ug/l) | Mo (ug/l) | Ni (ug/l) | Pb (ug/l) | Se (ug/l) | Sr (ug/l) | U (ug/l) | Zn (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-4 | 08/16/99 | | | <1.0 | | | <0.1 | <0.40 | | | | | | | | <1.0 | | | | |
| | 08/10/00 | | | 5.00 | | | 0.10 | <0.10 | | | | | | | | 3.00 | | | | |
| | 08/06/01 | | | <2.0 | | | 0.30 | <0.10 | | | | | | | | | | | | 6.00 |
| | 07/12/02 | | | 2.70 | | | <0.05 | <0.03 | | | | | | | | | | | | <0.59 |
| | 08/06/03 | | | 1.50 | | | <0.05 | <0.08 | | | | | | | | <0.86 | | | | |
| | 08/10/04 | | | 3.10 | | | | <0.10 | | | <1.6 | | | | | <0.10 | | | | <9.6 |
| | 07/28/05 | | | 5.80 | | | | <0.10 | | | <1.6 | | | | | <0.10 | | | | <6.6 |
| | 08/04/06 | | | 3.59 | | | | <0.03 | | | 1.98 | | | | | 0.14 | | | | 3.07 |
| | 07/31/07 | | | 4.95 | | | | 0.09 | | | 1.55 | | | | | <0.045 | | | | <15.4 |
| | 08/20/08 | | | 7.20 | | | | | | | 2.00 | | | | | | | | | |
| | 07/31/09 | | | 5.00 | | | | | | | 2.50 | | | | | | | | | |
| | 07/16/10 | <1.0 | <10.0 | 2.38 | 25.9 | 10.7 | <1.0 | <1.0 | <0.9 | <1.0 | <2.5 | | 50.70 | 1.78 | <0.9 | <1.0 | 3.89 | 1,378 | 1.15 | <5.0 |
| | 08/02/11 | <0.500 U | 39.0 | 2.56 | 26.0 | 10.8 | <0.500 U | <0.500 U | <0.500 U | <0.500 U | 1.260 J | | 47.36 | 1.840 J | 0.860 J | <0.200 U | 4.57 | 1,382 | 1.180 J | <1.000 U |
| | 08/10/12 | <0.250 U | <1.000 U | 2.02 | 31.7 | 11.1 | <0.250 U | <0.250 U | 0.300 J | <0.250 U | 6.49 | | 52.94 | 1.78 | 2.85 | <0.100 U | 4.91 | 1,439 | 1.140 J | <0.500 U |
| | 07/22/13 | <0.250 | <1.00 | 1.74 | 23.7 | 11.1 | <0.250 | <0.250 | <0.250 | <0.250 | <0.100 | | 47.64 | 1.85 | 2.67 | <0.150 | 3.07 | 1,406 | 1.34 | 5.04 |
| MW-65 | 08/16/99 | | | 4.00 | | | <0.10 | 0.10 | | | | | | | | <1.0 | | | | |
| | 08/10/00 | | | 7.00 | | | 0.10 | 0.10 | | | | | | | | 0.10 | | | | |
| | 08/06/01 | | | 4.00 | | | 0.10 | <0.10 | | | | | | | | | | | | 2.00 |
| | 07/12/02 | | | 5.80 | | | <0.05 | <0.03 | | | | | | | | | | | | <0.59 |
| | 08/06/03 | | | 1.60 | | | <0.05 | <0.08 | | | | | | | | <0.86 | | | | |
| | 08/10/04 | | | 3.60 | | | | <0.10 | | | <1.6 | | | | | <0.10 | | | | <9.6 |
| | 07/28/05 | | | 18.40 | | | | <0.12 | | | 2.40 | | | | | <0.10 | | | | 9.80 |
| | 08/04/06 | | | 5.04 | | | | 0.07 | | | 4.10 | | | | | 0.28 | | | | 7.73 |
| | 07/31/07 | | | 22.00 | | | | 0.33 | | | 2.94 | | | | | <0.045 | | | | <15.4 |
| | 08/20/08 | | | 22.00 | | | | 0.06 | | | 2.60 | | | | | | | | | 2.60 |
| | 07/31/09 | | | 6.80 | | | | 0.11 | | | 4.40 | | | | | 0.12 | | | | 6.80 |
| | 07/16/10 | | | 2.38 | | | <1.0 | <1.0 | | | <2.5 | | | | | <1.0 | | | | <5.0 |
| | 07/21/10 | <0.2 | 29.4 | 3.28 | 12.9 | 33.1 | <0.2 | <0.2 | 2.71 | 0.28 | 1.26 | | 9.99 | 2.10 | 6.85 | <0.2 | 4.27 | 857 | 0.80 | 11.30 |
| | 08/02/11 | 0.131 J | 98.5 | 1.51 | 9.5 | 35.3 | <0.100 U | 0.370 J | 1.04 | 0.51 | 113.44 | | 10.55 | 1.36 | 3.55 | 8.83 | 4.15 | 823 | 0.76 | 165.63 |
| | 08/10/12 | <0.100 U | 5.9 | 2.92 | 12.3 | 34.0 | <0.100 U | <0.100 U | 0.200 J | 0.380 J | 1.41 | | 14.30 | 1.96 | 2.60 | <0.040 U | 4.04 | 907 | 0.90 | 7.46 |
| | 07/23/13 | <0.100 | 1.2 | 2.76 | 10.6 | 40.3 | <0.100 | <0.100 | <0.100 | 0.62 | 0.70 | | 9.05 | 2.37 | 2.84 | <0.060 | 2.53 | 920 | 1.05 | 188.08 |

**Montana Bureau of Mines and Geology**
**Anaconda Regional Water, Waste, and Soils**
**Smelter Hill Repository Complex**
**Appendix D**

| Site ID | Sample Date (MM/DD/YY) | Ce (ug/l) | Cs (ug/l) | Ga (ug/l) | La (ug/l) | Nb (ug/l) | Nd (ug/l) | Pd (ug/l) | Pr (ug/l) | Rb (ug/l) | Sn (ug/l) | Th (ug/l) | Ti (ug/l) | Tl (ug/l) | W (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-4 | 08/16/99 | | | | | | | | | | | | | | |
| | 08/10/00 | | | | | | | | | | | | | | |
| | 08/06/01 | | | | | | | | | | | | | | |
| | 07/12/02 | | | | | | | | | | | | | | |
| | 08/06/03 | | | | | | | | | | | | | | |
| | 08/10/04 | | | | | | | | | | | | | | |
| | 07/28/05 | | | | | | | | | | | | | | |
| | 08/04/06 | | | | | | | | | | | | | | |
| | 07/31/07 | | | | | | | | | | | | | | |
| | 08/20/08 | | | | | | | | | | | | | | |
| | 07/31/09 | | | | | | | | | | | | | | |
| | 07/16/10 | <1.0 | 5.98 | <0.9 | <1.0 | <0.9 | <1.0 | <2.5 | <1.0 | 16.90 | <1.0 | <1.0 | 2.76 | <1.0 | <1.0 |
| | 08/02/11 | <0.500 U | 5.59 | <0.500 U | <0.500 U | <0.500 U | <0.500 U | 0.680 J | <0.500 U | 16.24 | <0.500 U | <0.500 U | 5.07 | <0.500 U | <0.500 U |
| | 08/10/12 | <0.250 U | 6.05 | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.620 J | <0.250 U | 16.73 | <0.250 U | <0.250 U | 4.14 | <0.250 U | <0.250 U |
| | 07/22/13 | <0.250 | 6.49 | <0.250 | <0.250 | <0.250 | <0.250 | 1.07 | <0.250 | 17.34 | <0.250 | <0.250 | 4.44 | <0.250 | <0.250 |
| MW-65 | 08/16/99 | | | | | | | | | | | | | | |
| | 08/10/00 | | | | | | | | | | | | | | |
| | 08/06/01 | | | | | | | | | | | | | | |
| | 07/12/02 | | | | | | | | | | | | | | |
| | 08/06/03 | | | | | | | | | | | | | | |
| | 08/10/04 | | | | | | | | | | | | | | |
| | 07/28/05 | | | | | | | | | | | | | | |
| | 08/04/06 | | | | | | | | | | | | | | |
| | 07/31/07 | | | | | | | | | | | | | | |
| | 08/20/08 | | | | | | | | | | | | | | |
| | 07/31/09 | | | | | | | | | | | | | | |
| | 07/16/10 | | | | | | | | | | | | | | |
| | 07/21/10 | <0.2 | 4.47 | <0.2 | <0.2 | <0.2 | <0.2 | <0.5 | <0.2 | 13.70 | <0.2 | <0.2 | 3.41 | <0.2 | 1.90 |
| | 08/02/11 | 0.180 J | 3.81 | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 0.420 J | <0.100 U | 11.78 | 0.58 | <0.100 U | 4.40 | <0.100 U | 0.58 |
| | 08/10/12 | <0.100 U | 4.78 | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 0.390 J | <0.100 U | 12.90 | <0.100 U | <0.100 U | 1.40 | <0.100 U | 0.180 J |
| | 07/23/13 | <0.100 | 4.37 | <0.100 | <0.100 | <0.100 | <0.100 | 0.48 | <0.100 | 13.83 | <0.100 | <0.100 | 1.79 | <0.100 | 0.25 |

**Appendix E.** Anaconda Regional Water, Waste, and Soils
Domestic Well Water-Quality Results

Appendix E

ARWWS 2013 Domestic Well Water Quality Results

| Sample | Gwic Id | Site Name | Sample Date | Field Number | Water Temp | Fld pH | Fld SC | Lab pH | Lab SC | Ca (mg/l) | Mg (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 205360 | 256874 | SHYBA, LORI | 10/23/2013 15:59 | SHYBA | 16.57 | 6.85 | 538.8 | | | | |
| 205375 | 256874 | SHYBA, LORI | 10/23/2013 15:59 | SHYBA | 16.57 | 6.85 | 538.8 | 7.08 | 557.57 | 63.63 | 12.01 |
| 205362 | 256874 | SHYBA, LORI | 10/23/2013 16:00 | SHYBA RO DOWNSTAIRS | | | | | | | |
| 205363 | 256874 | SHYBA, LORI | 10/23/2013 16:00 | SHYBA RO UPSTAIRS | | | | | | | |
| 205357 | 198928 | RANKIN, KEITH AND JEAN | 10/23/2013 12:13 | RANKIN | 5.34 | 5.38 | 62 | | | | |
| 205372 | 198928 | RANKIN, KEITH AND JEAN | 10/23/2013 12:13 | RANKIN | 5.34 | 5.38 | 62 | 5.5 | 53.8 | 6.58 | 1.22 |
| 205002 | 252623 | MACCIOLI JOE & PATTI | 9/13/2013 16:16 | MACCIOLI | 14.87 | 7.23 | 1061 | | | | |
| 205026 | 252623 | MACCIOLI JOE & PATTI | 9/13/2013 16:16 | MACCIOLI | 14.87 | 7.23 | 1061 | 7.6 | 1053.2 | 53.84 | 14.93 |
| 205019 | 252623 | MACCIOLI JOE & PATTI | 9/13/2013 16:16 | MACCIOLI - RO | | | | | | | |
| 203621 | 271935 | YATES, KEN AND SHARON | 4/25/2013 11:35 | YATES | 9.13 | 6.3 | 137.2 | | | | |
| 203817 | 194331 | HARWOOD, LARRY E AND BARBARA | 5/24/2013 12:35 | HARWOOD | 9.03 | 5.99 | 132.8 | | | | |
| 203936 | 273576 | WILLEY, DARLENE AND MICHAEL | 6/6/2013 | WILLEY-273576 | 6.34 | 6.24 | 192 | | | | |
| 204684 | 274411 | KAIN, DONALD | 8/13/2013 | KAIN | 10.9 | 6.67 | 145 | | | | |
| 204094 | 273801 | VAUTHIER, THOMAS | 6/25/2013 13:14 | VAUTHIER-273801 | 8.03 | 6.67 | 170 | | | | |
| 204685 | 51068 | OLSON, ROGER | 8/13/2013 15:20 | OLSON | 9 | 6.6 | 161 | | | | |
| 203622 | 51094 | COLWELL, DUANE | 4/25/2013 13:55 | COLWELL | 9.06 | 6.45 | 181.7 | | | | |
| 203707 | 51079 | CHRISTIAN, GREGORY AND MICHELLE | 5/8/2013 14:40 | CHRISTIAN | 8.11 | 5.83 | 181.7 | | | | |
| 203435 | 271373 | KOPP, ROSE & KEN | 3/5/2013 14:10 | KOPP | 8.3 | 7.16 | 163 | | | | |
| 203575 | 194334 | GARCIA, RICARDO AND RUTH L | 4/5/2013 13:50 | GARCIA | 8.09 | 7.09 | 162 | | | | |
| 203576 | 271684 | DAVIS, JEREMY | 4/5/2013 14:20 | JEREMY DAVIS | 8.46 | 7.22 | 156 | | | | |
| 205201 | 137932 | PAMIN, JEFF & BECKY * 2013 PAMIN | 9/26/2013 9:20 | PAMIN | 8.1 | 6.66 | 129 | | | | |
| 203369 | 271338 | KRUMM, JENNY AND TIM | 2/22/2013 11:50 | KRUMM | 5.62 | 7.15 | 178 | | | | |
| 204240 | 274025 | RICE, CLARK (CORKY) * 117 RICE | 7/16/2013 12:30 | 117 RICE | 5.8 | 7.14 | 213 | | | | |
| 204242 | 274028 | RICE, CLARK (CORKY) * 109 RICE | 7/16/2013 14:00 | 109 RICE | 6.55 | 7.05 | 208 | | | | |
| 204241 | 274027 | RICE, CLARK (CORKY) * 111 RICE | 7/16/2013 13:15 | 111 RICE | 6.95 | 7 | 179 | | | | |
| 204226 | 274006 | RICE, CLARK (CORKY) * 303 ERICKSON | 7/12/2013 13:20 | 303 ERICKSON | 7.9 | 6.67 | 188 | | | | |
| 203267 | 235579 | CLARK LEE | 2/4/2013 14:40 | LEE CLARK | 7.92 | 7 | 146 | | | | |
| 205142 | 120711 | PATTERSON, NATHAN & SHERRIE | 9/17/2013 13:00 | PATTERSON | 8.64 | 6.76 | 176 | | | | |
| 203577 | 271686 | BLANK, DORIS | 4/5/2013 14:50 | DORIS BLANK | 8.09 | 6.94 | 172 | | | | |
| 203351 | 271248 | MORSE, DEDE & RICK | 2/14/2013 | MORSE | 7.36 | 7.36 | 181 | | | | |
| 205141 | 275057 | EVANS, ALBERT | 9/17/2013 15:23 | EVANS | 8.47 | 6.79 | 138.5 | | | | |
| 203371 | 195486 | DOYLE, DUANE R. AND JEANETTE I. | 2/22/2013 13:50 | DOYLE | 7.66 | 6.93 | 182 | | | | |
| 205257 | 275248 | REDD, GINNY & STEVE | 10/8/2013 15:00 | GINNY REDD | 8 | 6.68 | 163 | | | | |
| 203665 | 227965 | NEWELL, JOHN | 4/30/2013 11:30 | NEWELL | 8.15 | 6.83 | 183.9 | | | | |
| 203664 | 272001 | RAASAKKA, DARYL | 4/30/2013 11:00 | RAASAKKA | 9.81 | 6.92 | 177.1 | | | | |
| 203666 | 230073 | HENDRICKSON, MICHAEL | 4/30/2013 12:05 | HENDRICKSON | 8.01 | 7.81 | 163.6 | | | | |
| 205538 | 51134 | FRANCISCO, JOHN * WELL #1 | 11/21/2013 15:40 | FRANCISCO | 7.5 | 6.84 | 193 | | | | |
| 203370 | 174769 | HUESTIS, MIKE | 2/22/2013 13:00 | HUESTIS | 8.21 | 7.34 | 165 | | | | |
| 205351 | 51144 | DYE, DIXIE * HOUSE | 10/10/2013 14:50 | DYE HOUSE | 8.09 | 6.69 | 175.5 | | | | |
| 205254 | 137922 | WENGER, GARY * WENGER | 10/1/2013 16:00 | WENGER | 8.72 | 6.65 | 191.2 | | | | |
| 205354 | 275360 | ALOYSIUS, AL AND LOUISE | 10/15/2013 15:10 | ALOYIUS | 7.82 | 6.86 | 195.1 | | | | |
| 205352 | 251784 | DYE, DIXIE * SHOP | 10/10/2013 15:20 | DYE SHOP | 7.55 | 6.87 | 191.3 | | | | |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Sample Date | Field Number | Water Temp | Fld pH | Fld SC | Lab pH | Lab SC | Ca (mg/l) | Mg (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 203433 | 271435 | MYERS, NANCY & SERGE | 3/5/2013 12:45 | SERGE 10 | 7.81 | 6.95 | 187 | | | | |
| 203434 | 153529 | MYERS, SERGE | 3/5/2013 13:15 | SERGE 8 | 6.95 | 7 | 175 | | | | |
| 205441 | 275639 | MCKNIGHT, SCOTT AND MICHELLE | 10/30/2013 14:18 | MCKNIGHT | 7.6 | 6.87 | 196 | | | | |
| 205356 | 51140 | MCGILLEN, LINDA & PAUL | 10/16/2013 16:00 | MCGILLEN | 7.9 | 7.18 | 115 | | | | |
| 205377 | 51140 | MCGILLEN, LINDA & PAUL | 10/16/2013 16:00 | MCGILLEN DUP | 7.9 | 7.18 | 115 | | | | |
| 203816 | 170884 | PETERS, TAMMY | 5/24/2013 11:50 | T. PETERS | 7.81 | 6.16 | 213.6 | | | | |
| 205416 | 275482 | CLARK, HERB | 10/23/2013 16:35 | HERB CLARK | 10.1 | 7.2 | 227 | | | | |
| 203554 | 271660 | KELSEY, BARBARA | 4/3/2013 14:50 | KELSEY | 8.09 | 7.26 | 175 | | | | |
| 205442 | 275671 | MICKELBRRY, DALTON | 10/30/2013 15:01 | MICKELBRRY | 8.4 | 6.89 | 205 | | | | |
| 204350 | 274200 | WILLENE POND GUEST HOUSE | 7/25/2013 | POND GUEST HOUSE | 8.15 | 6.88 | 241 | | | | |
| 204348 | 274199 | WILLENE POND | 7/25/2013 | POND | 7.7 | 7.2 | 219 | | | | |
| 205602 | 276397 | VAUTHIER, GARY | 12/30/2013 15:35 | VAUTHIER | 7.7 | 6.95 | 214 | | | | |
| 203726 | 272210 | SILZLY, ROSEMARIE | 5/15/2013 14:45 | HOLMLUND | 10.13 | 6.96 | 194.3 | | | | |
| 205355 | 51182 | KETO, DIXIE/WEST, DIANE | 10/15/2013 17:15 | KETO | 7.46 | 6.93 | 201.3 | | | | |
| 203432 | 51222 | MYERS, NANCY & SERGE | 3/5/2013 12:05 | SERGE MYERS | 8 | 6.86 | 188 | | | | |
| 205255 | 275243 | FISCHER, FRED & RUBY * ANGELA BORGEN | 10/8/2013 13:35 | BORGEN | 9.7 | 6.73 | 217 | | | | |
| 205256 | 275244 | FISCHER, FRED & RUBY * LINDA BARNEY | 10/8/2013 14:00 | BARNEY | 9.7 | 6.94 | 198 | | | | |
| 203814 | 272246 | O'BRIEN, MICHAEL AND LALONNIE | 5/21/2013 11:45 | OBRIEN | 9.88 | 6.12 | 228.5 | | | | |
| 203813 | 272245 | SILZLY, ROSEMARIE | 5/21/2013 11:15 | HALL- SILZLY | 9.03 | 6.05 | 200.5 | | | | |
| 203243 | 269888 | EGGEN, LINDA | 1/25/2013 15:15 | EGGEN | 8.09 | 6.95 | 211 | | | | |
| 205463 | 275869 | POFFENBERGER, DON | 11/12/2013 12:50 | POFFENBERGER | 8.2 | 6.94 | 253 | | | | |
| 204681 | 274374 | GREY, JACK | 8/8/2013 | GREY | 8.6 | 9.8 | 219 | | | | |
| 204299 | 274104 | SILZLY, ROSEMARIE * 116 HAUSER | 7/24/2013 12:10 | LETOURNEAU - SILZLY | 8.22 | 6.17 | 205.2 | | | | |
| 204682 | 274418 | CRISLER, MARY ELLEN & FRANCIS | 8/13/2013 | CRISLER | 8 | 6.74 | 284 | | | | |
| 203725 | 153530 | MANN, LEONARD | 5/15/2013 13:55 | MANN | 7.44 | 6.41 | 254.4 | | | | |
| 203815 | 272253 | PETERS, JUDY | 5/24/2013 11:05 | J. PETERS | 6.31 | 6.07 | 260.5 | | | | |
| 203442 | 271449 | JOHNSTON, DEBORAH | 3/11/2013 13:30 | DEB JOHNSON | 7.98 | 7.21 | 257 | | | | |
| 203443 | 271449 | JOHNSTON, DEBORAH | 3/11/2013 13:30 | DEB JOHNSON DUP | 7.98 | 7.21 | 257 | | | | |
| 204683 | 274377 | NICHOLSON, JUDY | 8/8/2013 | HARVEY | 7.3 | 6.95 | 268 | | | | |
| 205601 | 276396 | MICKEY, GAIL AND TOM | 12/30/2013 14:45 | MICKEY | 7.4 | 7.2 | 192 | | | | |
| 203430 | 264545 | VARELIA, HELEN | 3/7/2013 11:45 | VARELIA | 7.79 | 6.19 | 272.6 | 6.51 | 332.5 | 40.25 | 11.23 |
| 203418 | 264545 | VARELIA, HELEN | 3/7/2013 11:45 | VARELIA | 7.79 | 6.19 | 272.6 | | | 37.64 | 11.68 |
| 204678 | 274346 | RUSTAD, HOWARD | 8/8/2013 | RUSTAD | 7.24 | 7.16 | 224 | | | | |
| 204686 | 274363 | RAYMOND JOHNSON | 8/8/2013 | JOHNSON-274363 | 9.32 | 6.52 | 166 | | | | |
| 203706 | 163966 | HILMO, TIM | 5/8/2013 14:00 | HILMO | 8.75 | 5.95 | 232.8 | | | | |
| 203342 | 242287 | KITTLESON, JANET | 2/12/2013 14:20 | KITTLESON 311-A | 8.44 | 7.25 | 174 | | | | |
| 203932 | 273569 | SCHAFER, DALE | 6/6/2013 14:05 | SCHAFER-273569 | 8.55 | 6.21 | 153 | | | | |
| 203340 | 270198 | KITTLESON 311-C | 2/8/2013 15:10 | KITTLESON 311-C | 8.08 | 7.09 | 178 | | | | |
| 203341 | 270197 | KITTLESON 311-B | 2/8/2013 15:50 | KITTLESON 311-B | 9.12 | 6.6 | 160 | | | | |
| 203429 | 264544 | SWANSON, RON | 3/7/2013 10:30 | SWANSON | 8.28 | 6.79 | 248.7 | 6.98 | 290.8 | 37.62 | 9.02 |
| 203417 | 264544 | SWANSON, RON | 3/7/2013 10:30 | SWANSON | 8.28 | 6.79 | 248.7 | | | 36.16 | 9.65 |
| 204679 | 104978 | SAFFLE, KAREN & BOB | 8/8/2013 | SAFFLE | 9.4 | 7.43 | 241 | | | | |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Sample Date | Field Number | Water Temp | Fld pH | Fld SC | Lab pH | Lab SC | Ca (mg/l) | Mg (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 203441 | 271441 | JOHNSON, SYLVIA & HAROLD | 3/11/2013 12:50 | SYLVIA JOHNSON | 7.11 | 7.32 | 256 | | | | |
| 203663 | 51243 | COONEY, FRANKLIN AND VICKI | 4/30/2013 12:30 | COONEY | 8.52 | 7.21 | 261.6 | | | | |
| 204680 | 274358 | COX, CARL | 8/8/2013 | COX | 9 | 7.19 | 286 | | | | |
| 203578 | 271689 | MCCARTHY, JIM | 4/5/2013 15:15 | JIM MCCARTHY | 8.85 | 6.88 | 169 | | | | |
| 203427 | 197463 | MCKAY, ROBERT | 3/6/2013 12:15 | MCKAY 2 | 8.57 | 6.69 | 259.1 | 6.87 | 325.6 | 36.2 | 7.56 |
| 203428 | 197463 | MCKAY, ROBERT | 3/6/2013 12:25 | MCKAY 3 | 8.57 | 6.69 | 259.1 | 7 | 312.4 | 34.64 | 7.17 |
| 203426 | 197463 | MCKAY, ROBERT | 3/6/2013 12:05 | MCKAY | 8.57 | 6.69 | 259.1 | 6.86 | 325.4 | 36.08 | 7.5 |
| 203416 | 197463 | MCKAY, ROBERT | 3/6/2013 12:05 | MCKAY RESAMPLE | 8.57 | 6.69 | 259.1 | | | 35.58 | 8.19 |
| 203620 | 251790 | PHILLIPS, ROB | 4/25/2013 10:50 | PHILLIPS | 9.19 | 6.83 | 647.9 | | | | |
| 204243 | 202080 | DANIELS, LOYD | 7/16/2013 15:35 | DANIELS 2 | 10.7 | 7.01 | 1065 | | | | |
| 203266 | 51318 | DANIELS, LLOYD | 2/4/2013 14:00 | LLOYD DANIELS | 9.13 | 7.2 | 1203 | | | | |
| 203491 | 271503 | HOGGE, VERNAN AND MARJORIE | 3/13/2013 10:25 | HOGGE | 8.58 | 6.45 | 890.2 | 6.67 | 1016 | 89 | 28.48 |
| 203485 | 271503 | HOGGE, VERNAN AND MARJORIE | 3/13/2013 10:25 | HOGGE | 8.58 | 6.45 | 890.2 | | | 87.87 | 25.12 |
| 205023 | 51333 | FRESH, JEAN AND ELDEN | 9/12/2013 11:32 | FRESH | 12.01 | 7.22 | 878 | 7.63 | 856 | 31.82 | 7.85 |
| 204987 | 51333 | FRESH, JEAN AND ELDEN | 9/12/2013 11:32 | FRESH | 12.01 | 7.22 | 878 | | | | |
| 204988 | 51333 | FRESH, JEAN AND ELDEN | 9/12/2013 11:32 | FRESH RO | | | | | | | |
| 205144 | 276484 | SWANSON, MARK | 9/19/2013 11:58 | SWANSON | 10.24 | 6.47 | 561 | 6.67 | 545.5 | 30.99 | 8.61 |
| 205145 | 276484 | SWANSON, MARK | 9/19/2013 11:58 | SWANSON | 10.24 | 6.47 | 561 | | | | |
| 204905 | 221430 | KEELE, DON - SHOP | 9/10/2013 15:05 | KEELE | 10.24 | 7.01 | 688.5 | 7.43 | 666.83 | 42.97 | 14.11 |
| 204896 | 221430 | KEELE, DON - SHOP | 9/10/2013 15:05 | KEELE | 10.24 | 7.01 | 688.5 | | | | |
| 204897 | 254433 | BAILEY, DON & DEBRAH | 9/5/2013 15:05 | BAILEY | 9.8 | 6.5 | 425.9 | 6.82 | 412.41 | 27.76 | 8.05 |
| 204881 | 254433 | BAILEY, DON & DEBRAH | 9/5/2013 15:05 | BAILEY | 9.8 | 6.5 | 425.9 | | | | |
| 204901 | 226130 | SCHERMAN, RUSS | 9/9/2013 14:53 | SCHERMAN | 11.76 | 7.25 | 580.4 | 7.51 | 570.72 | 14.31 | 3.04 |
| 204890 | 226130 | SCHERMAN, RUSS | 9/9/2013 14:53 | SCHERMAN | 11.76 | 7.25 | 580.4 | | | | |
| 205015 | 226130 | SCHERMAN, RUSS | 9/17/2013 15:40 | SCHERMAN - RO | | | | | | | |
| 204888 | 51327 | FAUGHT, STANLEY | 9/9/2013 | FAUGHT | 9.89 | 7.06 | 621 | | | | |
| 204900 | 51327 | FAUGHT, STANLEY | 9/9/2013 | FAUGHT | 9.89 | 7.06 | 621 | 7.35 | 628.74 | 55.94 | 15.37 |
| 204898 | 252926 | WYBENGA, TRACY | 9/5/2013 16:18 | WYBENGA | 10.32 | 6.44 | 572.5 | 6.69 | 557.99 | 40.43 | 11.18 |
| 204884 | 252926 | WYBENGA, TRACY | 9/5/2013 16:18 | WYBENGA | 10.32 | 6.44 | 572.5 | | | | |
| 204902 | 51328 | SCHERMAN, RUSS- RENTAL | 9/9/2013 15:55 | SCHERMAN-RENTAL | 11.59 | 7.12 | 515.7 | 7.33 | 496.83 | 18.26 | 4.15 |
| 204891 | 51328 | SCHERMAN, RUSS- RENTAL | 9/9/2013 15:55 | SCHERMAN-RENTAL | 11.59 | 7.12 | 515.7 | | | | |
| 203483 | 181457 | WHITAKER, RAY | 3/11/2013 14:45 | WHITAKER CONFIRM | 9.9 | 7.35 | 525.9 | | | 44.32 | 10.98 |
| 203482 | 181457 | WHITAKER, RAY | 3/11/2013 14:45 | WHITAKER CONFIRM | 9.9 | 7.35 | 525.9 | 7.35 | 593.3 | 43.69 | 10.84 |
| 204057 | 51334 | MCDOWELL, HAROLD | 6/21/2013 14:05 | DEAN MCDOWELL | 8.92 | 7.39 | 383 | 7.29 | 397.4 | 61.46 | 13.58 |
| 204052 | 51334 | MCDOWELL, HAROLD | 6/21/2013 14:05 | DEAN MCDOWELL | 8.92 | 7.39 | 383 | 7.22 | 390.6 | 63.09 | 13.91 |
| 204055 | 51334 | MCDOWELL, HAROLD | 6/21/2013 14:05 | DEAN MCDOWELL | 8.92 | 7.39 | 383 | | | | |
| 204056 | 51334 | MCDOWELL, HAROLD | 6/21/2013 14:05 | DEAN MCDOWELL | 8.92 | 7.39 | 383 | | | | |
| 204053 | 254941 | MIKES SALES AND PAWN | 6/21/2013 11:20 | MIKES PAWN | 9.66 | 7.4 | 386 | 7.28 | 378 | 56.61 | 12.4 |
| 204054 | 254941 | MIKES SALES AND PAWN | 6/21/2013 11:20 | MIKES PAWN | 9.66 | 7.4 | 386 | | | | |
| 205539 | 275908 | JEAN, HARMON | 11/14/2013 14:20 | JEAN HARMON | 7.1 | 6.18 | 114 | | | | |
| 205540 | 275922 | WIGERT, JANICE & GARY | 11/15/2013 14:20 | GARY WIGERT | 6.3 | 6.17 | 86 | | | | |
| 205541 | 173110 | WIGERT, ROXANNE & HOWARD | 11/12/2013 15:00 | HOWARD WIGERT | 6.1 | 6.68 | 100 | | | | |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Sample Date | Field Number | Water Temp | Fld pH | Fld SC | Lab pH | Lab SC | Ca (mg/l) | Mg (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 205464 | 51378 | PECUKONIS, DAVE & LAURIE | 11/12/2013 15:30 | PECUKONIS | 6.5 | 6.01 | 84 | | | | |
| 205462 | 51363 | GARRELS, DR L. | 11/7/2013 14:50 | GARRELS | 9.2 | 6.38 | 185 | | | | |
| 205461 | 123812 | GERVAIS, LESLIE | 11/7/2013 13:10 | GERVAIS | 7.9 | 7.07 | 746 | | | | |
| 204765 | 197464 | WACKERBARTH, DANA & BART | 8/15/2013 12:20 | WACKERBARTH | 6.1 | 6.61 | 61 | | | | |
| 205199 | 275101 | PETERSON, DONNA | 9/25/2013 15:10 | PETERSON | 12.3 | 7.8 | 679 | | | | |
| 205240 | 275180 | ROBINSON, RON & STORMIE * CREEK | 10/2/2013 15:00 | ROBINSON CREEK | 6.5 | 8.06 | 1033 | | | | |
| 204049 | 237374 | DICKERSON, PHILIP | 6/21/2013 10:00 | PHIL DICKERSON | 9.64 | 7.54 | 582 | | | | |
| 204345 | 214966 | VANMEEL, MIKE | 7/29/2013 15:10 | VAN MEEL | 12.1 | 8.5 | 395 | | | | |
| 205242 | 163148 | WEBB, DAVE & BARBARA | 10/2/2013 13:00 | WEBB RESIDENCE | 6.5 | 8.06 | 1033 | | | | |
| 205192 | 275096 | ROBINSON, RON AND STORMIE * SPRING | 9/25/2013 14:10 | ROBINSON | 6.7 | 7.71 | 628 | | | | |
| 205151 | 174778 | CATALENELLO, MARK | 9/20/2013 12:54 | CATALANELLO | 8.46 | 6.47 | 181 | | | | |
| 205150 | 174778 | CATALENELLO, MARK | 9/20/2013 12:54 | CATALANELLO | 8.46 | 6.47 | 181 | 6.7 | 171.3 | 21.89 | 5.85 |
| 203290 | 269999 | BLAKESLEE, RONALD | 2/5/2013 14:50 | BLAKESLEE | 7.53 | 7.53 | 319 | | | | |
| 204227 | 163968 | KEISTER, RODNEY AND ELAINE | 7/12/2013 14:45 | KEISTER | 8.54 | 7.33 | 131 | | | | |
| 204768 | 274553 | MILLER, GREG | 8/20/2013 14:05 | MILLER | 7.3 | 6.89 | 82 | | | | |
| 204296 | 274103 | SHEFFIELD, REGINA AND DAVID | 7/23/2013 14:25 | SHEFFIELD | 8.9 | 7.05 | 24 | | | | |
| 204767 | 274501 | SCHRANZ, PETER | 8/15/2013 14:45 | SCHRANZ SPRING | 15.6 | 6.35 | 26 | | | | |
| 204766 | 274500 | SCHRANZ, JOAN AND PETER | 8/15/2013 14:10 | SCHRANZ CREEK | 10.2 | 6 | 33 | | | | |
| 204295 | 274102 | FISH, SUSAN * SPRING | 7/23/2013 13:40 | FISH | 6.28 | 6.21 | 34 | | | | |
| 205236 | 194340 | WEBB, DAVID * CABIN | 10/2/2013 10:40 | WEBB CABIN | 6.6 | 6.46 | 55 | | | | |
| 205415 | 51735 | HEGGELUND, TOM | 10/23/2013 13:40 | HEGGELUND | 9.9 | 7.6 | 462 | | | | |
| 204998 | 238047 | BLOM LORIN | 9/13/2013 14:35 | BLOM | 13.46 | 7.21 | 336 | | | | |
| 205025 | 238047 | BLOM LORIN | 9/13/2013 14:35 | BLOM | 13.46 | 7.21 | 336 | 7.48 | 310.3 | 46.63 | 6.12 |
| 205149 | 260549 | MITCHELL, HAROLD | 9/19/2013 15:05 | MITCHELL | 12.49 | 7.31 | 342 | | | | |
| 205148 | 260549 | MITCHELL, HAROLD | 9/19/2013 15:05 | MITCHELL | 12.49 | 7.31 | 342 | 7.45 | 313.4 | 0.12 | <0.020 U |
| 205028 | 256447 | SMITH MONTY & JULIE | 9/17/2013 13:30 | SMITH | 14.44 | 7.36 | 679.3 | 7.61 | 662.2 | 50.18 | 3.55 |
| 205013 | 256447 | SMITH MONTY & JULIE | 9/17/2013 13:30 | SMITH | 14.44 | 7.36 | 679.3 | | | | |
| 204990 | 256622 | STEWART JOHN & PHYLLIS | 9/13/2013 13:38 | STEWART | 14.3 | 7.26 | 402.3 | | | | |
| 205024 | 256622 | STEWART JOHN & PHYLLIS | 9/13/2013 13:38 | STEWART | 14.3 | 7.26 | 402.3 | 7.48 | 385.9 | 49.51 | 6.32 |
| 205147 | 241972 | FLACHMEYER DAN | 9/19/2013 13:59 | FLACHMEYER | 12.33 | 7.22 | 378 | | | | |
| 205146 | 241972 | FLACHMEYER DAN | 9/19/2013 13:59 | FLACHMEYER | 12.33 | 7.22 | 378 | 7.3 | 351.8 | 45.14 | 6.95 |
| 203423 | 51744 | JETTE, ARTHUR & JESSIE | 3/5/2013 11:50 | JETTE- ART | 10.42 | 7.41 | 269.8 | 7.42 | 337.6 | 40.01 | 5.88 |
| 203381 | 271369 | KELLY, JOHN | 2/26/2013 12:45 | JOHN KELLY | 9.77 | 7.52 | 522 | | | | |
| 203382 | 271369 | KELLY, JOHN | 2/26/2013 12:45 | JOHN KELLY DUP | 9.77 | 7.52 | 522 | | | | |
| 203424 | 250642 | NELSON, JASON | 3/5/2013 14:15 | NELSON | 8.98 | 7.48 | 261.4 | 7.32 | 358.6 | 41.38 | 7.08 |
| 203415 | 250642 | NELSON, JASON | 3/5/2013 14:15 | NELSON | 8.98 | 7.48 | 261.4 | | | 39.43 | 6.39 |
| 204095 | 51751 | KIEWATT, CHARLES (MEL) | 6/24/2013 14:34 | KIEWATT-51751 | 9.55 | 7.59 | 499 | | | | |
| 203492 | 229026 | SEVEYKA, PAUL | 3/13/2013 11:55 | SEVEYKA | 8.48 | 7.18 | 581.4 | 7.39 | 661.4 | 41.4 | 13.39 |
| 204047 | 273745 | KITTLESON, JANET (RENTAL) | 6/21/2013 14:01 | KITTLESON-273745 | 9.59 | 7.38 | 498 | | | | |
| 203240 | 218249 | CRISP, SHARON & DOUG | 1/25/2013 13:30 | CRISP | 9.62 | 7.34 | 823 | | | | |
| 203241 | 218249 | CRISP, SHARON & DOUG | 1/25/2013 13:30 | CRISP DUP | 9.62 | 7.34 | 823 | | | | |
| 205353 | 51724 | DELONG, DARCY * WELL #1 | 10/11/2013 17:45 | DELONG | 10.19 | 6.7 | 178.9 | | | | |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Sample Date | Field Number | Water Temp | Fld pH | Fld SC | Lab pH | Lab SC | Ca (mg/l) | Mg (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 203383 | 195488 | CHIRICO, KIMBERLY | 2/26/2013 13:45 | CHIRICO 4113 | 8.79 | 7.68 | 522 | | | | |
| 203384 | 51762 | CHIRICO, KIMBERLY | 2/26/2013 14:35 | CHIRICO 3711 | 8.62 | 7.85 | 423 | | | | |
| 205600 | 276366 | MANZ, TOM | 12/26/2013 14:30 | MANZ | 6.7 | 7.99 | 270 | | | | |
| 203587 | 5376 | UELAND RANCHES | 4/9/2013 15:00 | UELAND 5376 | 8.93 | 8.17 | 384 | 7.45 | 407 | 48.73 | 10.09 |
| 203590 | 5376 | UELAND RANCHES | 4/9/2013 15:00 | UELAND 5376 | 8.93 | 8.17 | 384 | | | | |
| 205010 | 5377 | GALLE CLIFF JR | 9/17/2013 11:14 | CLIFF GALLE | 13.6 | 6.94 | 320.4 | | | | |
| 205027 | 5377 | GALLE CLIFF JR | 9/17/2013 11:14 | CLIFF GALLE | 13.6 | 6.94 | 320.4 | 7.31 | 306.7 | 54.58 | 7.9 |
| 204984 | 51790 | GALLE, TYKE | 9/12/2013 16:10 | TYKE GALLE | 12.12 | 7.11 | 290.5 | | | | |
| 205022 | 51790 | GALLE, TYKE | 9/12/2013 16:10 | TYKE GALLE | 12.12 | 7.11 | 290.5 | 7.38 | 268.3 | 43.83 | 7.66 |
| 204342 | 257526 | RICE CLARK | 7/26/2013 14:20 | HANGER 9 | 7.69 | 7.51 | 309 | | | | |
| 203928 | 166679 | JOHNSON, WADE | 6/6/2013 10:51 | JOHNSON-166679 | 11.67 | 7.76 | 372 | | | | |
| 203930 | 183266 | PETERSON, RON | 6/6/2013 15:13 | PETERSON-183266 | 11.54 | 7.09 | 508 | | | | |
| 203372 | 196333 | HEFFERNAN, DAVE | 2/22/2013 14:50 | HEFFERNAN | 8.53 | 7.56 | 299 | | | | |
| 204174 | 273926 | GREGORICH, TERENCE | 7/3/2013 13:51 | GREGORICH-273926 | 10.09 | 6.96 | 273 | | | | |
| 203349 | 271244 | JOHNSON, CLAUDIA | 2/14/2013 11:45 | CLAUDIA J-1 | 6.35 | 7.81 | 230 | | | | |
| 204221 | 178947 | SLOCUM, JAY | 7/10/2013 13:57 | SLOCUM-178947 | 9.25 | 7.98 | 240 | | | | |
| 203350 | 271245 | JOHNSON, CLAUDIA (RENTAL) | 2/14/2013 12:20 | CLAUDIA J-2 | 6.28 | 7.57 | 186 | | | | |
| 205021 | 230299 | GALLE JEFF AND ANGELLA | 9/13/2013 15:22 | JEFFE GALLE | 10.9 | 7.14 | 364.5 | 7.4 | 341.1 | 50.06 | 10.82 |
| 204981 | 230299 | GALLE JEFF AND ANGELLA | 9/13/2013 15:22 | JEFF GALLE | 10.9 | 7.14 | 364.5 | | | | |
| 204222 | 273982 | RASMUSSEN, KATHY | 7/11/2013 10:34 | RASMUSSEN- 273982 | 7.65 | 7.52 | 299 | | | | |
| 204343 | 160171 | GRAFF, STEVE | 7/26/2013 15:40 | GRAFF | 9.63 | 7.47 | 554 | | | | |
| 204173 | 273924 | BAKER, CLIFF | 7/2/2013 12:57 | BAKER-273924 | 7.09 | 7.8 | 296 | | | | |
| 203431 | 184525 | KLEMANN, RUSS | 3/7/2013 13:25 | KLEMANN | 8.58 | 7.4 | 343.3 | 7.42 | 411.1 | 50.53 | 11.32 |
| 203419 | 184525 | KLEMANN, RUSS | 3/7/2013 13:25 | KLEMANN | 8.58 | 7.4 | 343.3 | | | 50.44 | 12.52 |
| 204581 | 274241 | MCCURDY, CHARLIE | 7/31/2013 | MCCURDY DUP | 8.06 | 7.42 | 307 | | | | |
| 204580 | 274241 | MCCURDY, CHARLIE | 7/31/2013 | MCCURDY | 8.06 | 7.42 | 307 | | | | |
| 203934 | 273573 | HARVEY, DONALD D. | 6/6/2013 | HARVEY-273573 | 8.37 | 7.12 | 390 | | | | |
| 205020 | 246960 | CONNORS, KEN | 9/12/2013 11:43 | CONNERS | 13.79 | 6.81 | 667.4 | 7.25 | 642.1 | 66.32 | 16.96 |
| 204961 | 246960 | CONNORS, KEN | 9/12/2013 11:43 | CONNORS | 13.79 | 6.81 | 667.4 | | | | |
| 204587 | 274336 | BOYER, JOE | 8/6/2013 13:30 | BOYER | 9.3 | 7.44 | 374 | | | | |
| 204792 | 196668 | SMITH, SEAN | 8/23/2013 | SMITTY'S BARN | 8.7 | 7.53 | 283 | | | | |
| 204899 | 258964 | SALLE, RON | 9/6/2013 15:07 | SALLE | 15.03 | 6.31 | 10.52 | 6.68 | 1097.19 | 102.25 | 29.19 |
| 204886 | 258964 | SALLE, RON | 9/6/2013 15:07 | SALLE | 15.03 | 6.31 | 10.52 | | | | |
| 204904 | 244470 | LUSSY, JERRY | 9/10/2013 12:38 | LUSSY | 13.8 | 6.5 | 799.3 | 6.9 | 784.85 | 74.21 | 20.2 |
| 204895 | 244470 | LUSSY, JERRY | 9/10/2013 12:38 | LUSSY | 13.8 | 6.5 | 799.3 | | | | |
| 204903 | 51874 | WALTER, RICHARD | 9/10/2013 11:45 | WALTER | 13.52 | 6.48 | 804.1 | 6.83 | 806.14 | 79.04 | 21.61 |
| 204892 | 51874 | WALTER, RICHARD | 9/10/2013 11:45 | WALTER | 13.52 | 6.48 | 804.1 | | | | |
| 205030 | 122659 | NORTON, LOU | 9/18/2013 12:20 | NORTON | 12.92 | 6.96 | 722.9 | 7.46 | 722.2 | 95.13 | 18.7 |
| 205016 | 122659 | NORTON, LOU | 9/18/2013 12:20 | NORTON | 12.92 | 6.96 | 722.9 | | | | |
| 204586 | 274330 | KOHUT, MARGARET & TRISTAN | 8/5/2013 15:00 | KOHUT | 8.9 | 7.44 | 379 | | | | |
| 205598 | 52055 | VUCKOVICH, MARK | 12/23/2013 15:35 | VUCKOVICH | 7.8 | 7.52 | 298 | | | | |
| 205599 | 52055 | VUCKOVICH, MARK | 12/23/2013 15:35 | VUCKOVICH DUP | 7.8 | 7.52 | 298 | | | | |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Sample Date | Field Number | Water Temp | Fld pH | Fld SC | Lab pH | Lab SC | Ca (mg/l) | Mg (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 205595 | 276320 | RUEGAMER, LANE | 12/23/2013 14:47 | LANE RUEGAMER | 7.7 | 7.45 | 296 | | | | |
| 205596 | 276320 | RUEGAMER, LANE | 12/23/2013 14:47 | LANE RUEGAMER DUP | 7.7 | 7.45 | 296 | | | | |
| 203242 | 269881 | DODGE, CATHY AND WARREN | 1/25/2013 12:00 | DODGE | 7.37 | 7.75 | 300 | | | | |
| 204796 | 52036 | SMITH, TERI | 8/23/2013 14:15 | TERI SMITH | 10.8 | 7.3 | 323 | | | | |
| 204795 | 153771 | CAUGHLIN, BOBBY | 8/23/2013 13:20 | BOBBY CAUGHLIN | 8.2 | 7.51 | 284 | | | | |
| 203574 | 52042 | HANCOCK, ARLOW JR. | 4/5/2013 11:25 | HANCOCK | 6.2 | 7.65 | 280 | | | | |
| 204842 | 274718 | KONICEK, SUE | 8/29/2013 15:45 | SUE KONICEK | 7.9 | 7.28 | 255 | | | | |
| 204338 | 274162 | BENSON, ZALE | 7/25/2013 | BENSON | 9.01 | 7.41 | 317 | | | | |
| 204579 | 52046 | KEETCH, CRAIG * WELL 1 | 7/31/2013 | KEETCH | 7.54 | 7.23 | 275 | | | | |
| 204588 | 274338 | JONES, BOYD | 8/6/2013 | JONES | 8.6 | 7.25 | 243 | | | | |
| 204582 | 274263 | STAUDOHAR, CONNIE & JOE | 7/31/2013 | STAUDOHAR | 7.48 | 7.31 | 255 | | | | |
| 203343 | 52086 | CASQUILHO, LAUREN | 2/12/2013 11:40 | CASQUILHO | 8.09 | 7.59 | 307 | | | | |
| 204593 | 266770 | BLOTKAMP, MARY | 8/5/2013 12:40 | BLOTKAMP | 9.4 | 7.26 | 485 | 7.09 | 471.32 | 60.88 | 15.24 |
| 204594 | 267423 | PENTILLA, MIKE AND APRIL | 8/5/2013 13:30 | PENTILLA | 9.6 | 7.38 | 363 | 7.2 | 350.1 | 47.7 | 11.63 |
| 204584 | 267423 | PENTILLA, MIKE AND APRIL | 8/5/2013 13:30 | PENTILLA | 9.6 | 7.38 | 363 | | | | |
| 204583 | 266770 | BLOTKAMP, MARY | 8/5/2013 12:40 | BLOTKAMP | 9.4 | 7.26 | 485 | | | | |
| 203484 | 271507 | BROWN, SCOTT | 3/15/2013 10:10 | BROWN | 9.22 | 7 | 582.5 | | | 57.65 | 15.9 |
| 203495 | 271507 | BROWN, SCOTT | 3/15/2013 10:10 | BROWN | 9.22 | 7 | 582.5 | 7.21 | 667.4 | 55.69 | 17.08 |
| 203579 | 179072 | LORANGER BILL | 4/5/2013 16:30 | LORANGER | 9.23 | 7.43 | 294 | | | | |
| 203425 | 5412 | RILEY WESLEY & LEONA | 3/5/2013 15:45 | RILEY | 7.32 | 7.52 | 401.2 | 7.49 | 520.1 | 33.08 | 17.96 |
| 203412 | 153591 | LOEHR JOANN AND JAMIE | 3/1/2013 12:35 | LOEHR CONFIRM. | 13.31 | 7.68 | 284.3 | 7.4 | 317.9 | 29.82 | 4.02 |
| 203413 | 153591 | LOEHR JOANN AND JAMIE | 3/1/2013 12:35 | LOEHR CONFIRMATION | 13.31 | 7.68 | 284.3 | | | | |
| 203461 | 156248 | HANSEN, DEBORAH | 3/14/2013 16:20 | DEB HANSEN | 11.05 | 8 | 329 | | | | |
| 205157 | 156249 | WAYMIRE, EDWARD | 9/20/2013 14:59 | WAYMIRE | 14.36 | 7.42 | 296 | | | | |
| 205156 | 156249 | WAYMIRE, EDWARD | 9/20/2013 14:59 | WAYMIRE | 14.36 | 7.42 | 296 | 7.53 | 273.6 | 32.17 | 3.44 |
| 205271 | 158808 | DINSDALE JEFFERY E & JULIE M | 10/2/2013 12:40 | DINSDALE | 14.35 | 7.34 | 297.7 | 7.31 | 284.6 | 34.62 | 3.95 |
| 205258 | 158808 | DINSDALE JEFFERY E & JULIE M | 10/2/2013 12:40 | DINSDALE | 14.35 | 7.34 | 297.7 | | | | |
| 205259 | 158808 | DINSDALE JEFFERY E & JULIE M | 10/2/2013 12:40 | DINSDALE RO | | | | | | | |
| 205155 | 259949 | GESSELE, EDWIN C JR | 9/20/2013 16:06 | GESSELE-DUP | 12.42 | 7.54 | 270 | | | | |
| 205153 | 259949 | GESSELE, EDWIN C JR | 9/20/2013 16:04 | GESSELE | 12.42 | 7.51 | 270 | | | | |
| 205152 | 259949 | GESSELE, EDWIN C JR | 9/20/2013 16:04 | GESSELE | 12.42 | 7.51 | 270 | 7.53 | 261.2 | 28.98 | 2.94 |
| 205154 | 259949 | GESSELE, EDWIN C JR | 9/20/2013 16:06 | GESSELE-DUP | 12.42 | 7.54 | 270 | 7.57 | 256.1 | 28.74 | 2.95 |
| 205359 | 153592 | CHARLENE STOCK JONES | 10/23/2013 14:42 | STOCK-JONES DUP | 13.53 | 7.24 | 294.6 | | | | |
| 205358 | 153592 | CHARLENE STOCK JONES | 10/23/2013 14:42 | STOCK-JONES | 13.53 | 7.24 | 294.6 | | | | |
| 205374 | 153592 | CHARLENE STOCK JONES | 10/23/2013 14:42 | STOCK-JONES DUP | 13.53 | 7.24 | 294.6 | 7.34 | 262.4 | 31.33 | 3.3 |
| 205373 | 153592 | CHARLENE STOCK JONES | 10/23/2013 14:42 | STOCK-JONES | 13.53 | 7.24 | 294.6 | 7.28 | 259.4 | 32.6 | 3.36 |
| 203420 | 152683 | HELSPER WILLIAM F & LISA A | 3/1/2013 10:35 | HELSPER | 10.09 | 7.19 | 948.2 | 7.4 | 1081.2 | 167.2 | 23.24 |
| 203414 | 152683 | HELSPER WILLIAM F & LISA A | 3/1/2013 10:35 | HELSPER | 10.09 | 7.19 | 948.2 | | | 159.2 | 20.77 |
| 203422 | 148956 | ADAMS ARLO AND JERYL | 3/1/2013 13:40 | ADAMS | 11.19 | 7.47 | 437.8 | 7.38 | 544.1 | 61.1 | 10.13 |
| 205014 | 53591 | RUEGAMER, ANTHONY | 9/17/2013 14:33 | RUEGAMER | 11.87 | 7.37 | 505.1 | | | | |
| 205029 | 53591 | RUEGAMER, ANTHONY | 9/17/2013 14:33 | RUEGAMER | 11.87 | 7.37 | 505.1 | 7.69 | 480.7 | 34.24 | 4.44 |
| 205032 | 153593 | ARENTZ, IVAN EUGENE | 9/18/2013 15:36 | ARENTZ | 13.78 | 7.68 | 357 | 7.76 | 342.6 | 28.8 | 3.44 |

Appendix E
ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Sample Date | Field Number | Water Temp | Fld pH | Fld SC | Lab pH | Lab SC | Ca (mg/l) | Mg (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 205018 | 153593 | ARENTZ, IVAN EUGENE | 9/18/2013 15:36 | ARENTZ | 13.78 | 7.68 | 357 | | | | |
| 205031 | 250294 | MCQUEARY CAM | 9/18/2013 14:40 | MCQUEARY | 12.49 | 7.26 | 496.9 | 7.75 | 489.2 | 36.22 | 5.89 |
| 205017 | 250294 | MCQUEARY CAM | 9/18/2013 14:40 | MCQUEARY | 12.49 | 7.26 | 496.9 | | | | |
| 205260 | 266861 | PIERCE, COLT | 10/2/2013 14:18 | PIERCE | 12.56 | 7.69 | 402.9 | | | | |
| 205272 | 266861 | PIERCE, COLT | 10/2/2013 14:18 | PIERCE | 12.56 | 7.69 | 402.9 | 7.48 | 370.19 | 32.76 | 7.25 |
| 203555 | 271663 | GRANT, PAM & PAUL | 4/3/2013 15:50 | PAUL GRANT | 8.82 | 6.78 | 147 | | | | |
| 204793 | 274502 | WILLIAMS, LEAH | 8/23/2013 12:30 | WILLIAMS | 9.2 | 7.28 | 307 | | | | |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Na (mg/l) | K (mg/l) | Fe (mg/l) | Mn (mg/l) | SiO2 (mg/l) | HCO3 (mg/l) | CO3 (mg/l) | SO4 (mg/l) | Cl (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 205360 | 256874 | SHYBA, LORI | | | 0.078 J | <0.005 U | | | | | |
| 205375 | 256874 | SHYBA, LORI | 37 | 2.18 | <0.015 U | <0.002 U | 35.82 | 146.64 | 0 | 144.9 | 30 |
| 205362 | 256874 | SHYBA, LORI | | | <0.038 U | <0.005 U | | | | | |
| 205363 | 256874 | SHYBA, LORI | | | <0.038 U | <0.005 U | | | | | |
| 205357 | 198928 | RANKIN, KEITH AND JEAN | | | 0.225 | <0.005 U | | | | | |
| 205372 | 198928 | RANKIN, KEITH AND JEAN | 3.6 | 1.16 | 0.091 | <0.002 U | 29.8 | 40.11 | 0 | 6.65 | 1.12 |
| 205002 | 252623 | MACCIOLI JOE & PATTI | | | 0.056 J | <0.005 U | | | | | |
| 205026 | 252623 | MACCIOLI JOE & PATTI | 169.5 | 6.66 | <0.038 U | <0.005 U | 29.58 | 415.64 | 0 | 152.2 | 47.33 |
| 205019 | 252623 | MACCIOLI JOE & PATTI | | | <0.038 U | <0.005 U | | | | | |
| 203621 | 271935 | YATES, KEN AND SHARON | | | 2.026 | 0.010 J | | | | | |
| 203817 | 194331 | HARWOOD, LARRY E AND BARBARA | | | 0.064 J | <0.005 U | | | | | |
| 203936 | 273576 | WILLEY, DARLENE AND MICHAEL | | | 0.062 J | <0.005 U | | | | | |
| 204684 | 274411 | KAIN, DONALD | | | 0.068 J | <0.005 U | | | | | |
| 204094 | 273801 | VAUTHIER, THOMAS | | | 0.057 J | <0.005 U | | | | | |
| 204685 | 51068 | OLSON, ROGER | | | <0.038 U | <0.005 U | | | | | |
| 203622 | 51094 | COLWELL, DUANE | | | 0.365 | <0.005 U | | | | | |
| 203707 | 51079 | CHRISTIAN, GREGORY AND MICHELLE | | | 0.306 | <0.005 U | | | | | |
| 203435 | 271373 | KOPP, ROSE & KEN | | | 0.152 J | <0.005 U | | | | | |
| 203575 | 194334 | GARCIA, RICARDO AND RUTH L | | | 0.204 | 0.103 J | | | | | |
| 203576 | 271684 | DAVIS, JEREMY | | | 0.126 J | 0.063 J | | | | | |
| 205201 | 137932 | PAMIN, JEFF & BECKY * 2013 PAMIN | | | 0.073 J | <0.005 U | | | | | |
| 203369 | 271338 | KRUMM, JENNY AND TIM | | | 0.069 J | <0.005 U | | | | | |
| 204240 | 274025 | RICE, CLARK (CORKY) * 117 RICE | | | <0.038 U | <0.005 U | | | | | |
| 204242 | 274028 | RICE, CLARK (CORKY) * 109 RICE | | | <0.038 U | <0.005 U | | | | | |
| 204241 | 274027 | RICE, CLARK (CORKY) * 111 RICE | | | <0.038 U | <0.005 U | | | | | |
| 204226 | 274006 | RICE, CLARK (CORKY) * 303 ERICKSON | | | <0.038 U | <0.005 U | | | | | |
| 203267 | 235579 | CLARK LEE | | | 0.041 J | <0.005 U | | | | | |
| 205142 | 120711 | PATTERSON, NATHAN & SHERRIE | | | 0.130 J | <0.005 U | | | | | |
| 203577 | 271686 | BLANK, DORIS | | | <0.038 U | <0.005 U | | | | | |
| 203351 | 271248 | MORSE, DEDE & RICK | | | <0.038 U | <0.005 U | | | | | |
| 205141 | 275057 | EVANS, ALBERT | | | 0.414 | <0.005 U | | | | | |
| 203371 | 195486 | DOYLE, DUANE R. AND JEANETTE I. | | | 0.423 | 0.005 J | | | | | |
| 205257 | 275248 | REDD, GINNY & STEVE | | | <0.038 U | <0.005 U | | | | | |
| 203665 | 227965 | NEWELL, JOHN | | | 2.849 | 0.048 J | | | | | |
| 203664 | 272001 | RAASAKKA, DARYL | | | 0.077 J | <0.005 U | | | | | |
| 203666 | 230073 | HENDRICKSON, MICHAEL | | | 1.135 | 0.016 J | | | | | |
| 205538 | 51134 | FRANCISCO, JOHN * WELL #1 | | | 0.040 J | <0.005 U | | | | | |
| 203370 | 174769 | HUESTIS, MIKE | | | 0.041 J | <0.005 U | | | | | |
| 205351 | 51144 | DYE, DIXIE * HOUSE | | | 0.195 | 0.009 J | | | | | |
| 205254 | 137922 | WENGER, GARY * WENGER | | | 0.069 J | <0.005 U | | | | | |
| 205354 | 275360 | ALOYSIUS, AL AND LOUISE | | | 0.054 J | <0.005 U | | | | | |
| 205352 | 251784 | DYE, DIXIE * SHOP | | | <0.038 U | <0.005 U | | | | | |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Na (mg/l) | K (mg/l) | Fe (mg/l) | Mn (mg/l) | SiO2 (mg/l) | HCO3 (mg/l) | CO3 (mg/l) | SO4 (mg/l) | Cl (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 203433 | 271435 | MYERS, NANCY & SERGE | | | 0.131 J | <0.005 U | | | | | |
| 203434 | 153529 | MYERS, SERGE | | | <0.038 U | <0.005 U | | | | | |
| 205441 | 275639 | MCKNIGHT, SCOTT AND MICHELLE | | | <0.038 U | <0.005 U | | | | | |
| 205356 | 51140 | MCGILLEN, LINDA & PAUL | | | 0.396 | <0.005 U | | | | | |
| 205377 | 51140 | MCGILLEN, LINDA & PAUL | | | 0.549 | <0.005 U | | | | | |
| 203816 | 170884 | PETERS, TAMMY | | | 0.092 J | <0.005 U | | | | | |
| 205416 | 275482 | CLARK, HERB | | | 35.834 | 0.337 | | | | | |
| 203554 | 271660 | KELSEY, BARBARA | | | <0.038 U | 0.007 J | | | | | |
| 205442 | 275671 | MICKELBRRY, DALTON | | | 0.486 | <0.005 U | | | | | |
| 204350 | 274200 | WILLENE POND GUEST HOUSE | | | 0.073 J | <0.005 U | | | | | |
| 204348 | 274199 | WILLENE POND | | | 0.347 | <0.005 U | | | | | |
| 205602 | 276397 | VAUTHIER, GARY | | | 0.367 | 0.007 J | | | | | |
| 203726 | 272210 | SILZLY, ROSEMARIE | | | 0.252 | <0.005 U | | | | | |
| 205355 | 51182 | KETO, DIXIE/WEST, DIANE | | | <0.038 U | <0.005 U | | | | | |
| 203432 | 51222 | MYERS, NANCY & SERGE | | | 0.126 J | <0.005 U | | | | | |
| 205255 | 275243 | FISCHER, FRED & RUBY * ANGELA BORGEN | | | <0.038 U | <0.005 U | | | | | |
| 205256 | 275244 | FISCHER, FRED & RUBY * LINDA BARNEY | | | <0.038 U | <0.005 U | | | | | |
| 203814 | 272246 | O'BRIEN, MICHAEL AND LALONNIE | | | 0.075 J | <0.005 U | | | | | |
| 203813 | 272245 | SILZLY, ROSEMARIE | | | <0.038 U | <0.005 U | | | | | |
| 203243 | 269888 | EGGEN, LINDA | | | 0.78 | 0.100 J | | | | | |
| 205463 | 275869 | POFFENBERGER, DON | | | <0.038 U | <0.005 U | | | | | |
| 204681 | 274374 | GREY, JACK | | | 0.102 J | <0.005 U | | | | | |
| 204299 | 274104 | SILZLY, ROSEMARIE * 116 HAUSER | | | <0.038 U | <0.005 U | | | | | |
| 204682 | 274418 | CRISLER, MARY ELLEN & FRANCIS | | | <0.038 U | <0.005 U | | | | | |
| 203725 | 153530 | MANN, LEONARD | | | <0.038 U | <0.005 U | | | | | |
| 203815 | 272253 | PETERS, JUDY | | | <0.038 U | <0.005 U | | | | | |
| 203442 | 271449 | JOHNSTON, DEBORAH | | | <0.038 U | <0.005 U | | | | | |
| 203443 | 271449 | JOHNSTON, DEBORAH | | | <0.038 U | <0.005 U | | | | | |
| 204683 | 274377 | NICHOLSON, JUDY | | | <0.038 U | <0.005 U | | | | | |
| 205601 | 276396 | MICKEY, GAIL AND TOM | | | 0.041 J | <0.005 U | | | | | |
| 203430 | 264545 | VARELIA, HELEN | 8.41 | 1.3 | 0.041 J | <0.002 U | 21.55 | 157.84 | 0 | 23.8 | 5.17 |
| 203418 | 264545 | VARELIA, HELEN | 8.8 | 1.49 | 0.076 J | <0.005 U | | | | | |
| 204678 | 274346 | RUSTAD, HOWARD | | | 0.182 J | <0.005 U | | | | | |
| 204686 | 274363 | RAYMOND JOHNSON | | | <0.038 U | <0.005 U | | | | | |
| 203706 | 163966 | HILMO, TIM | | | 0.158 J | <0.005 U | | | | | |
| 203342 | 242287 | KITTLESON, JANET | | | 0.157 J | 0.006 J | | | | | |
| 203932 | 273569 | SCHAFER, DALE | | | <0.038 U | <0.005 U | | | | | |
| 203340 | 270198 | KITTLESON 311-C | | | 0.223 | <0.005 U | | | | | |
| 203341 | 270197 | KITTLESON 311-B | | | <0.038 U | <0.005 U | | | | | |
| 203429 | 264544 | SWANSON, RON | 7.27 | 1.09 | 0.016 J | <0.002 U | 24.48 | 139.77 | 0 | 29.21 | 1.78 |
| 203417 | 264544 | SWANSON, RON | 7.85 | 1.28 | 0.455 | 0.007 J | | | | | |
| 204679 | 104978 | SAFFLE, KAREN & BOB | | | 0.332 | <0.005 U | | | | | |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Na (mg/l) | K (mg/l) | Fe (mg/l) | Mn (mg/l) | SiO2 (mg/l) | HCO3 (mg/l) | CO3 (mg/l) | SO4 (mg/l) | Cl (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 203441 | 271441 | JOHNSON, SYLVIA & HAROLD | | | <0.038 U | <0.005 U | | | | | |
| 203663 | 51243 | COONEY, FRANKLIN AND VICKI | | | 1.474 | 0.053 J | | | | | |
| 204680 | 274358 | COX, CARL | | | 0.737 | 0.025 J | | | | | |
| 203578 | 271689 | MCCARTHY, JIM | | | <0.038 U | 0.012 J | | | | | |
| 203427 | 197463 | MCKAY, ROBERT | 9.96 | 1.95 | 0.131 | 0.174 | 21.82 | 106.93 | 0 | 57.3 | 2.23 |
| 203428 | 197463 | MCKAY, ROBERT | 9.39 | 1.91 | 0.126 | 0.168 | 22.23 | 106.85 | 0 | 58 | 2.25 |
| 203426 | 197463 | MCKAY, ROBERT | 9.9 | 1.93 | 0.145 | 0.176 | 22.15 | 107.09 | 0 | 57.48 | 2.22 |
| 203416 | 197463 | MCKAY, ROBERT | 10.84 | 2.33 | 0.36 | 0.183 | | | | | |
| 203620 | 251790 | PHILLIPS, ROB | | | <0.038 U | <0.005 U | | | | | |
| 204243 | 202080 | DANIELS, LOYD | | | 0.148 J | <0.005 U | | | | | |
| 203266 | 51318 | DANIELS, LLOYD | | | <0.075 U | <0.010 U | | | | | |
| 203491 | 271503 | HOGGE, VERNAN AND MARJORIE | 66.44 | 9.5 | 0.023 J | 2.461 | 45.48 | 327.45 | 0 | 169.6 | 38.04 |
| 203485 | 271503 | HOGGE, VERNAN AND MARJORIE | 57.58 | 8.15 | 0.277 | 2.567 | | | | | |
| 205023 | 51333 | FRESH, JEAN AND ELDEN | 136.98 | 4.26 | <0.015 U | <0.002 U | 31.22 | 237.81 | 0 | 153.2 | 60.47 |
| 204987 | 51333 | FRESH, JEAN AND ELDEN | | | 0.078 J | <0.005 U | | | | | |
| 204988 | 51333 | FRESH, JEAN AND ELDEN | | | <0.038 U | <0.005 U | | | | | |
| 205144 | 276484 | SWANSON, MARK | 75.63 | 5.45 | <0.015 U | <0.002 U | 45.25 | 231.89 | 0 | 61.97 | 21.67 |
| 205145 | 276484 | SWANSON, MARK | | | 0.063 J | <0.005 U | | | | | |
| 204905 | 221430 | KEELE, DON - SHOP | 82.82 | 5.7 | 0.031 J | 0.002 J | 43.37 | 304.11 | 0 | 72.42 | 23.65 |
| 204896 | 221430 | KEELE, DON - SHOP | | | 1.791 | 0.014 J | | | | | |
| 204897 | 254433 | BAILEY, DON & DEBRAH | 50.61 | 6.07 | <0.015 U | <0.002 U | 40.04 | 204.89 | 0 | 38.31 | 10.33 |
| 204881 | 254433 | BAILEY, DON & DEBRAH | | | <0.038 U | <0.005 U | | | | | |
| 204901 | 226130 | SCHERMAN, RUSS | 102.77 | 5.02 | <0.015 U | <0.002 U | 34.02 | 186.82 | 0 | 99.51 | 16.93 |
| 204890 | 226130 | SCHERMAN, RUSS | | | 2.131 | 0.011 J | | | | | |
| 205015 | 226130 | SCHERMAN, RUSS | | | <0.038 U | <0.005 U | | | | | |
| 204888 | 51327 | FAUGHT, STANLEY | | | <0.038 U | <0.005 U | | | | | |
| 204900 | 51327 | FAUGHT, STANLEY | 51.62 | 5.9 | <0.015 U | <0.002 U | 45.53 | 320.87 | 0 | 49.57 | 7.39 |
| 204898 | 252926 | WYBENGA, TRACY | 65.48 | 6.46 | <0.015 U | <0.002 U | 45.62 | 262.98 | 0 | 63.39 | 15.42 |
| 204884 | 252926 | WYBENGA, TRACY | | | 0.084 J | <0.005 U | | | | | |
| 204902 | 51328 | SCHERMAN, RUSS- RENTAL | 87.81 | 5.79 | 0.031 J | <0.002 U | 34.5 | 233.04 | 0 | 50.65 | 16.35 |
| 204891 | 51328 | SCHERMAN, RUSS- RENTAL | | | 0.416 | <0.005 U | | | | | |
| 203483 | 181457 | WHITAKER, RAY | 52.21 | 5.57 | 0.139 J | <0.005 U | | | | | |
| 203482 | 181457 | WHITAKER, RAY | 52.58 | 5.43 | <0.015 U | <0.002 U | 43.34 | 238.27 | 0 | 61.92 | 12.36 |
| 204057 | 51334 | MCDOWELL, HAROLD | 7.4 | 1.82 | <0.015 U | <0.002 U | 12.18 | 211.43 | 0 | 38.38 | 9.8 |
| 204052 | 51334 | MCDOWELL, HAROLD | 7.45 | 1.91 | <0.015 U | <0.002 U | 11.95 | 210.36 | 0 | 38.38 | 9.78 |
| 204055 | 51334 | MCDOWELL, HAROLD | | | 0.438 | <0.005 U | | | | | |
| 204056 | 51334 | MCDOWELL, HAROLD | | | 0.161 J | <0.005 U | | | | | |
| 204053 | 254941 | MIKES SALES AND PAWN | 5.89 | 1.58 | <0.015 U | <0.002 U | 12.13 | 211.84 | 0 | 32.89 | 7.62 |
| 204054 | 254941 | MIKES SALES AND PAWN | | | 0.092 J | 0.007 J | | | | | |
| 205539 | 275908 | JEAN, HARMON | | | 0.089 J | <0.005 U | | | | | |
| 205540 | 275922 | WIGERT, JANICE & GARY | | | <0.038 U | <0.005 U | | | | | |
| 205541 | 173110 | WIGERT, ROXANNE & HOWARD | | | 0.206 | 0.006 J | | | | | |

Appendix E
ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Na (mg/l) | K (mg/l) | Fe (mg/l) | Mn (mg/l) | SiO2 (mg/l) | HCO3 (mg/l) | CO3 (mg/l) | SO4 (mg/l) | Cl (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 205464 | 51378 | PECUKONIS, DAVE & LAURIE | | | 0.114 J | <0.005 U | | | | | |
| 205462 | 51363 | GARRELS, DR L. | | | <0.038 U | <0.005 U | | | | | |
| 205461 | 123812 | GERVAIS, LESLIE | | | <0.038 U | <0.005 U | | | | | |
| 204765 | 197464 | WACKERBARTH, DANA & BART | | | 0.678 | 0.024 J | | | | | |
| 205199 | 275101 | PETERSON, DONNA | | | <0.038 U | <0.005 U | | | | | |
| 205240 | 275180 | ROBINSON, RON & STORMIE * CREEK | | | 0.154 J | 0.075 J | | | | | |
| 204049 | 237374 | DICKERSON, PHILIP | | | <0.038 U | <0.005 U | | | | | |
| 204345 | 214966 | VANMEEL, MIKE | | | <0.038 U | <0.005 U | | | | | |
| 205242 | 163148 | WEBB, DAVE & BARBARA | | | <0.038 U | <0.005 U | | | | | |
| 205192 | 275096 | ROBINSON, RON AND STORMIE * SPRING | | | 0.038 J | 0.016 J | | | | | |
| 205151 | 174778 | CATALENELLO, MARK | | | <0.038 U | <0.005 U | | | | | |
| 205150 | 174778 | CATALENELLO, MARK | 7.42 | 0.97 | <0.015 U | <0.002 U | 12.25 | 103.61 | 0 | 11.85 | 0.59 |
| 203290 | 269999 | BLAKESLEE, RONALD | | | <0.038 U | <0.005 U | | | | | |
| 204227 | 163968 | KEISTER, RODNEY AND ELAINE | | | 0.222 | 0.007 J | | | | | |
| 204768 | 274553 | MILLER, GREG | | | 0.426 | <0.005 U | | | | | |
| 204296 | 274103 | SHEFFIELD, REGINA AND DAVID | | | <0.038 U | <0.005 U | | | | | |
| 204767 | 274501 | SCHRANZ, PETER | | | <0.038 U | <0.005 U | | | | | |
| 204766 | 274500 | SCHRANZ, JOAN AND PETER | | | <0.038 U | <0.005 U | | | | | |
| 204295 | 274102 | FISH, SUSAN * SPRING | | | <0.038 U | <0.005 U | | | | | |
| 205236 | 194340 | WEBB, DAVID * CABIN | | | 0.896 | 0.015 J | | | | | |
| 205415 | 51735 | HEGGELUND, TOM | | | 0.067 J | <0.005 U | | | | | |
| 204998 | 238047 | BLOM LORIN | | | <0.038 U | <0.005 U | | | | | |
| 205025 | 238047 | BLOM LORIN | 11.93 | 8.51 | <0.015 U | 0.003 J | 57.24 | 175.3 | 0 | 17.64 | 9.15 |
| 205149 | 260549 | MITCHELL, HAROLD | | | <0.038 U | <0.005 U | | | | | |
| 205148 | 260549 | MITCHELL, HAROLD | 80.78 | 0.55 | <0.015 U | <0.002 U | 55.21 | 166.02 | 0 | 17.42 | 12.45 |
| 205028 | 256447 | SMITH MONTY & JULIE | 78.2 | 16.89 | <0.015 U | <0.002 U | 58 | 162.68 | 0 | 91.62 | 78.43 |
| 205013 | 256447 | SMITH MONTY & JULIE | | | 0.275 | 0.005 J | | | | | |
| 204990 | 256622 | STEWART JOHN & PHYLLIS | | | <0.038 U | <0.005 U | | | | | |
| 205024 | 256622 | STEWART JOHN & PHYLLIS | 21.28 | 10.2 | <0.015 U | <0.002 U | 54.8 | 168.34 | 0 | 25.4 | 28.12 |
| 205147 | 241972 | FLACHMEYER DAN | | | <0.038 U | <0.005 U | | | | | |
| 205146 | 241972 | FLACHMEYER DAN | 15.26 | 8.7 | <0.015 U | <0.002 U | 51.31 | 162.82 | 0 | 23.87 | 21.27 |
| 203423 | 51744 | JETTE, ARTHUR & JESSIE | 13.44 | 6.14 | <0.015 U | <0.002 U | 52.1 | 160 | 0 | 17.01 | 6.46 |
| 203381 | 271369 | KELLY, JOHN | | | 0.081 J | <0.005 U | | | | | |
| 203382 | 271369 | KELLY, JOHN | | | 0.108 J | <0.005 U | | | | | |
| 203424 | 250642 | NELSON, JASON | 15.04 | 8.05 | 0.061 J | 0.006 J | 52.34 | 181.61 | 0 | 13.5 | 5.54 |
| 203415 | 250642 | NELSON, JASON | 13.99 | 7.31 | 14.942 | 0.039 J | | | | | |
| 204095 | 51751 | KIEWATT, CHARLES (MEL) | | | 0.112 J | <0.005 U | | | | | |
| 203492 | 229026 | SEVEYKA, PAUL | 77.94 | 1.58 | <0.015 U | <0.002 U | 13.07 | 304.22 | 0 | 58.24 | 11.2 |
| 204047 | 273745 | KITTLESON, JANET (RENTAL) | | | <0.038 U | <0.005 U | | | | | |
| 203240 | 218249 | CRISP, SHARON & DOUG | | | 0.254 | 0.085 J | | | | | |
| 203241 | 218249 | CRISP, SHARON & DOUG | | | 0.284 | 0.084 J | | | | | |
| 205353 | 51724 | DELONG, DARCY * WELL #1 | | | 0.123 J | <0.005 U | | | | | |

Appendix E
ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Na (mg/l) | K (mg/l) | Fe (mg/l) | Mn (mg/l) | SiO2 (mg/l) | HCO3 (mg/l) | CO3 (mg/l) | SO4 (mg/l) | Cl (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 203383 | 195488 | CHIRICO, KIMBERLY | | | 0.425 | <0.005 U | | | | | |
| 203384 | 51762 | CHIRICO, KIMBERLY | | | 0.341 | <0.005 U | | | | | |
| 205600 | 276366 | MANZ, TOM | | | <0.038 U | <0.005 U | | | | | |
| 203587 | 5376 | UELAND RANCHES | 19.58 | 1.8 | <0.015 U | <0.002 U | 12.51 | 212.17 | 0 | 22.61 | 2.99 |
| 203590 | 5376 | UELAND RANCHES | | | <0.038 U | <0.005 U | | | | | |
| 205010 | 5377 | GALLE CLIFF JR | | | <0.038 U | <0.005 U | | | | | |
| 205027 | 5377 | GALLE CLIFF JR | 3.05 | 1.58 | <0.015 U | <0.002 U | 12.6 | 201.27 | 0 | 10.9 | 1.16 |
| 204984 | 51790 | GALLE, TYKE | | | <0.038 U | <0.005 U | | | | | |
| 205022 | 51790 | GALLE, TYKE | 3.08 | 1.66 | <0.015 U | <0.002 U | 12.14 | 180.1 | 0 | 10.88 | 0.9 |
| 204342 | 257526 | RICE CLARK | | | 0.054 J | <0.005 U | | | | | |
| 203928 | 166679 | JOHNSON, WADE | | | <0.038 U | <0.005 U | | | | | |
| 203930 | 183266 | PETERSON, RON | | | <0.038 U | <0.005 U | | | | | |
| 203372 | 196333 | HEFFERNAN, DAVE | | | <0.038 U | <0.005 U | | | | | |
| 204174 | 273926 | GREGORICH, TERENCE | | | 0.081 J | <0.005 U | | | | | |
| 203349 | 271244 | JOHNSON, CLAUDIA | | | 0.21 | <0.005 U | | | | | |
| 204221 | 178947 | SLOCUM, JAY | | | 0.783 | 0.012 J | | | | | |
| 203350 | 271245 | JOHNSON, CLAUDIA (RENTAL) | | | 0.045 J | <0.005 U | | | | | |
| 205021 | 230299 | GALLE JEFF AND ANGELLA | 7.36 | 2.22 | 0.141 | 0.045 J | 7.62 | 173.78 | 0 | 47.33 | 1.21 |
| 204981 | 230299 | GALLE JEFF AND ANGELLA | | | 0.207 | 0.045 J | | | | | |
| 204222 | 273982 | RASMUSSEN, KATHY | | | <0.038 U | <0.005 U | | | | | |
| 204343 | 160171 | GRAFF, STEVE | | | <0.038 U | <0.005 U | | | | | |
| 204173 | 273924 | BAKER, CLIFF | | | 0.039 J | <0.005 U | | | | | |
| 203431 | 184525 | KLEMANN, RUSS | 10.14 | 2.08 | <0.015 U | <0.002 U | 12.43 | 196.09 | 0 | 42.49 | 2.54 |
| 203419 | 184525 | KLEMANN, RUSS | 11.05 | 2.47 | 0.062 J | <0.005 U | | | | | |
| 204581 | 274241 | MCCURDY, CHARLIE | | | 0.796 | 0.012 J | | | | | |
| 204580 | 274241 | MCCURDY, CHARLIE | | | 1.343 | 0.017 J | | | | | |
| 203934 | 273573 | HARVEY, DONALD D. | | | 0.106 J | <0.005 U | | | | | |
| 205020 | 246960 | CONNORS, KEN | 51.76 | 3.1 | 0.315 | 0.016 J | 8.14 | 313.13 | 0 | 103 | 5.01 |
| 204961 | 246960 | CONNORS, KEN | | | 0.368 | 0.017 J | | | | | |
| 204587 | 274336 | BOYER, JOE | | | 0.064 J | <0.005 U | | | | | |
| 204792 | 196668 | SMITH, SEAN | | | 0.078 J | <0.005 U | | | | | |
| 204899 | 258964 | SALLE, RON | 101.3 | 6.02 | <0.038 U | 0.016 J | 42.57 | 688.43 | 0 | 60.63 | 4.79 |
| 204886 | 258964 | SALLE, RON | | | 0.679 | 0.018 J | | | | | |
| 204904 | 244470 | LUSSY, JERRY | 68.28 | 3.78 | 0.548 | 0.014 J | 17.81 | 440.04 | 0 | 75.36 | 5.06 |
| 204895 | 244470 | LUSSY, JERRY | | | 0.919 | 0.018 J | | | | | |
| 204903 | 51874 | WALTER, RICHARD | 73.51 | 3.99 | 0.541 | 0.017 J | 18.75 | 452.72 | 0 | 73.17 | 5.46 |
| 204892 | 51874 | WALTER, RICHARD | | | 0.733 | 0.021 J | | | | | |
| 205030 | 122659 | NORTON, LOU | 37.62 | 0.59 | <0.015 U | 0.003 J | 12.33 | 260.1 | 0 | 156.3 | 28.69 |
| 205016 | 122659 | NORTON, LOU | | | 0.057 J | 0.005 J | | | | | |
| 204586 | 274330 | KOHUT, MARGARET & TRISTAN | | | <0.038 U | <0.005 U | | | | | |
| 205598 | 52055 | VUCKOVICH, MARK | | | <0.038 U | <0.005 U | | | | | |
| 205599 | 52055 | VUCKOVICH, MARK | | | <0.038 U | <0.005 U | | | | | |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Na (mg/l) | K (mg/l) | Fe (mg/l) | Mn (mg/l) | SiO2 (mg/l) | HCO3 (mg/l) | CO3 (mg/l) | SO4 (mg/l) | Cl (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 205595 | 276320 | RUEGAMER, LANE | | | 0.326 | <0.005 U | | | | | |
| 205596 | 276320 | RUEGAMER, LANE | | | 0.319 | <0.005 U | | | | | |
| 203242 | 269881 | DODGE, CATHY AND WARREN | | | 0.106 J | <0.005 U | | | | | |
| 204796 | 52036 | SMITH, TERI | | | <0.038 U | <0.005 U | | | | | |
| 204795 | 153771 | CAUGHLIN, BOBBY | | | 0.36 | 0.010 J | | | | | |
| 203574 | 52042 | HANCOCK, ARLOW JR. | | | <0.038 U | <0.005 U | | | | | |
| 204842 | 274718 | KONICEK, SUE | | | <0.038 U | <0.005 U | | | | | |
| 204338 | 274162 | BENSON, ZALE | | | <0.038 U | <0.005 U | | | | | |
| 204579 | 52046 | KEETCH, CRAIG * WELL 1 | | | 0.43 | <0.005 U | | | | | |
| 204588 | 274338 | JONES, BOYD | | | <0.038 U | <0.005 U | | | | | |
| 204582 | 274263 | STAUDOHAR, CONNIE & JOE | | | <0.038 U | <0.005 U | | | | | |
| 203343 | 52086 | CASQUILHO, LAUREN | | | <0.038 U | <0.005 U | | | | | |
| 204593 | 266770 | BLOTKAMP, MARY | 14.54 | 2.3 | <0.015 U | 0.004 J | 14.33 | 190.79 | 0 | 87.87 | 5.92 |
| 204594 | 267423 | PENTILLA, MIKE AND APRIL | 8.41 | 1.75 | <0.015 U | <0.002 U | 13.26 | 188.19 | 0 | 33.07 | 2.12 |
| 204584 | 267423 | PENTILLA, MIKE AND APRIL | | | 0.105 J | <0.005 U | | | | | |
| 204583 | 266770 | BLOTKAMP, MARY | | | 1.544 | 0.050 J | | | | | |
| 203484 | 271507 | BROWN, SCOTT | 47.46 | 2.01 | 0.175 J | <0.005 U | | | | | |
| 203495 | 271507 | BROWN, SCOTT | 51.53 | 2.1 | 0.016 J | <0.002 U | 14.09 | 306.07 | 0 | 75.05 | 2.26 |
| 203579 | 179072 | LORANGER BILL | | | 0.788 | 0.405 | | | | | |
| 203425 | 5412 | RILEY WESLEY & LEONA | 42.69 | 2.37 | <0.015 U | <0.002 U | 8.34 | 251.39 | 0 | 44.68 | 3.7 |
| 203412 | 153591 | LOEHR JOANN AND JAMIE | 24.97 | 9.57 | 0.023 J | <0.002 U | 55.52 | 158.24 | 0 | 19.91 | 6.71 |
| 203413 | 153591 | LOEHR JOANN AND JAMIE | | | 0.198 | <0.005 U | | | | | |
| 203461 | 156248 | HANSEN, DEBORAH | | | <0.038 U | <0.005 U | | | | | |
| 205157 | 156249 | WAYMIRE, EDWARD | | | <0.038 U | <0.005 U | | | | | |
| 205156 | 156249 | WAYMIRE, EDWARD | 22.03 | 9.5 | <0.015 U | <0.002 U | 55.98 | 151.91 | 0 | 15.24 | 6.26 |
| 205271 | 158808 | DINSDALE JEFFERY E & JULIE M | 20.98 | 7.97 | 0.227 | 0.008 J | 56.53 | 141.37 | 0 | 22.41 | 9.56 |
| 205258 | 158808 | DINSDALE JEFFERY E & JULIE M | | | 0.421 | 0.012 J | | | | | |
| 205259 | 158808 | DINSDALE JEFFERY E & JULIE M | | | <0.038 U | <0.005 U | | | | | |
| 205155 | 259949 | GESSELE, EDWIN C JR | | | 0.3 | 0.006 J | | | | | |
| 205153 | 259949 | GESSELE, EDWIN C JR | | | 0.359 | 0.007 J | | | | | |
| 205152 | 259949 | GESSELE, EDWIN C JR | 23.07 | 8.71 | <0.015 U | <0.002 U | 55.93 | 141.71 | 0 | 14.92 | 6.64 |
| 205154 | 259949 | GESSELE, EDWIN C JR | 22.95 | 8.57 | <0.015 U | <0.002 U | 55.35 | 142.11 | 0 | 14.85 | 6.64 |
| 205359 | 153592 | CHARLENE STOCK JONES | | | 0.063 J | <0.005 U | | | | | |
| 205358 | 153592 | CHARLENE STOCK JONES | | | 0.060 J | <0.005 U | | | | | |
| 205374 | 153592 | CHARLENE STOCK JONES | 21.44 | 7.89 | <0.015 U | <0.002 U | 51.54 | 155.63 | 0 | 18.77 | 6.5 |
| 205373 | 153592 | CHARLENE STOCK JONES | 21.25 | 8.05 | <0.015 U | <0.002 U | 51.21 | 155.4 | 0 | 19.5 | 6.76 |
| 203420 | 152683 | HELSPER WILLIAM F & LISA A | 32.09 | 6.28 | 0.025 J | <0.002 U | 42.41 | 127.98 | 0 | 408.3 | 49.5 |
| 203414 | 152683 | HELSPER WILLIAM F & LISA A | 27.02 | 5.72 | 0.974 | 0.006 J | | | | | |
| 203422 | 148956 | ADAMS ARLO AND JERYL | 15.97 | 5.29 | <0.015 U | <0.002 U | 51.72 | 140.33 | 0 | 41.56 | 57.19 |
| 205014 | 53591 | RUEGAMER, ANTHONY | | | 0.157 J | <0.005 U | | | | | |
| 205029 | 53591 | RUEGAMER, ANTHONY | 57.81 | 8.93 | 0.033 J | 0.003 J | 56.58 | 151.48 | 0 | 44.46 | 53.54 |
| 205032 | 153593 | ARENTZ, IVAN EUGENE | 34.24 | 9.95 | 0.689 | 0.007 J | 42.38 | 157.47 | 0 | 21.18 | 23.75 |

Appendix E
ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Na (mg/l) | K (mg/l) | Fe (mg/l) | Mn (mg/l) | SiO2 (mg/l) | HCO3 (mg/l) | CO3 (mg/l) | SO4 (mg/l) | Cl (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 205018 | 153593 | ARENTZ, IVAN EUGENE | | | 1.571 | 0.010 J | | | | | |
| 205031 | 250294 | MCQUEARY CAM | 53.62 | 10.4 | 0.028 J | <0.002 U | 59.98 | 163.77 | 0 | 61.72 | 47.77 |
| 205017 | 250294 | MCQUEARY CAM | | | 0.193 | <0.005 U | | | | | |
| 205260 | 266861 | PIERCE, COLT | | | 0.2 | <0.005 U | | | | | |
| 205272 | 266861 | PIERCE, COLT | 41.04 | 7.09 | 0.107 | <0.002 U | 52.3 | 163.93 | 0 | 36.71 | 26.04 |
| 203555 | 271663 | GRANT, PAM & PAUL | | | 1.039 | 0.53 | | | | | |
| 204793 | 274502 | WILLIAMS, LEAH | | | <0.038 U | <0.005 U | | | | | |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | NO3-N (mg/l) | F (mg/l) | OPO4-P (mg/l) | Ag (ug/l) | Al (ug/l) | As (ug/l) | As(III) (ug/l) | As(V) (ug/l) | B (ug/l) | Ba (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 205360 | 256874 | SHYBA, LORI | | | | | <5.000 U | 21.33 | | | 26.61 | 20.85 |
| 205375 | 256874 | SHYBA, LORI | 0.65 | 0.56 | 0.18 | <0.100 U | <2.000 U | 22.44 | | | 28.01 | 19.69 |
| 205362 | 256874 | SHYBA, LORI | | | | | <5.000 U | <0.250 U | | | 15.72 | 0.570 J |
| 205363 | 256874 | SHYBA, LORI | | | | | <5.000 U | <0.250 U | | | 14.81 | 1.29 |
| 205357 | 198928 | RANKIN, KEITH AND JEAN | | | | | 561.41 | 5.35 | | | 2.040 J | 2.88 |
| 205372 | 198928 | RANKIN, KEITH AND JEAN | 0.5 | 0.12 | <0.020 U | <0.100 U | 211.57 | 5.89 | | | 15.33 | 2.43 |
| 205002 | 252623 | MACCIOLI JOE & PATTI | | | | | 42.79 | 16.4 | | | 249.54 | 50.24 |
| 205026 | 252623 | MACCIOLI JOE & PATTI | 2.9 | 6.5 | <0.020 U | <0.250 U | <5.000 U | 16.65 | | | 256.57 | 55.89 |
| 205019 | 252623 | MACCIOLI JOE & PATTI | | | | | <5.000 U | <0.250 U | | | 69.32 | 1.76 |
| 203621 | 271935 | YATES, KEN AND SHARON | | | | <0.250 U | 5.53 | 1.46 | | | 4.520 J | 28.92 |
| 203817 | 194331 | HARWOOD, LARRY E AND BARBARA | | | | | 1.230 J | <0.250 U | | | 3.610 J | 19.214 |
| 203936 | 273576 | WILLEY, DARLENE AND MICHAEL | | | | | 2.250 J | <0.250 U | | | 4.250 J | 29.12 |
| 204684 | 274411 | KAIN, DONALD | | | | | 3.390 J | <0.250 U | | | <1.250 U | 22.18 |
| 204094 | 273801 | VAUTHIER, THOMAS | | | | | 1.290 J | <0.250 U | | | 6.55 | 38.48 |
| 204685 | 51068 | OLSON, ROGER | | | | | 2.690 J | 2.04 | | | 2.940 J | 34.69 |
| 203622 | 51094 | COLWELL, DUANE | | | | <0.250 U | 19.85 | <0.250 U | | | 4.260 J | 29.79 |
| 203707 | 51079 | CHRISTIAN, GREGORY AND MICHELLE | | | | <0.250 U | 4.000 J | <0.250 U | | | 3.880 J | 29.52 |
| 203435 | 271373 | KOPP, ROSE & KEN | | | | | 2.500 J | <0.250 U | | | 4.440 J | 35.28 |
| 203575 | 194334 | GARCIA, RICARDO AND RUTH L | | | | | 1.220 J | <0.250 U | | | 5.38 | 36.88 |
| 203576 | 271684 | DAVIS, JEREMY | | | | | 3.390 J | <0.250 U | | | 5.36 | 32.7 |
| 205201 | 137932 | PAMIN, JEFF & BECKY * 2013 PAMIN | | | | | <5.000 U | <0.250 U | | | 3.890 J | 27.38 |
| 203369 | 271338 | KRUMM, JENNY AND TIM | | | | | 6.92 | 0.510 J | | | 5.82 | 33.58 |
| 204240 | 274025 | RICE, CLARK (CORKY) * 117 RICE | | | | | 4.240 J | 0.520 J | | | 4.930 J | 31.73 |
| 204242 | 274028 | RICE, CLARK (CORKY) * 109 RICE | | | | | 2.270 J | 0.520 J | | | 4.070 J | 42.81 |
| 204241 | 274027 | RICE, CLARK (CORKY) * 111 RICE | | | | | 1.880 J | 0.800 J | | | 3.990 J | 42.66 |
| 204226 | 274006 | RICE, CLARK (CORKY) * 303 ERICKSON | | | | | 2.120 J | <0.250 U | | | 6.3 | 50.44 |
| 203267 | 235579 | CLARK LEE | | | | | 5.1 | <0.250 U | | | 6.51 | 24.11 |
| 205142 | 120711 | PATTERSON, NATHAN & SHERRIE | | | | | <5.000 U | <0.250 U | | | 6.18 | 26.59 |
| 203577 | 271686 | BLANK, DORIS | | | | | 1.820 J | <0.250 U | | | 7.67 | 31.05 |
| 203351 | 271248 | MORSE, DEDE & RICK | | | | | <1.000 U | <0.250 U | | | 6.44 | 46.28 |
| 205141 | 275057 | EVANS, ALBERT | | | | | <5.000 U | <0.250 U | | | 13.49 | 24.14 |
| 203371 | 195486 | DOYLE, DUANE R. AND JEANETTE I. | | | | | 11.09 | <0.250 U | | | 8.26 | 26.49 |
| 205257 | 275248 | REDD, GINNY & STEVE | | | | | <5.000 U | <0.250 U | | | 5.83 | 41.1 |
| 203665 | 227965 | NEWELL, JOHN | | | | <0.250 U | 12.33 | 0.530 J | | | 7.84 | 30.57 |
| 203664 | 272001 | RAASAKKA, DARYL | | | | <0.250 U | 3.190 J | <0.250 U | | | 7.44 | 30.76 |
| 203666 | 230073 | HENDRICKSON, MICHAEL | | | | <0.250 U | 516.46 | 1.020 J | | | 3.950 J | 27.7 |
| 205538 | 51134 | FRANCISCO, JOHN * WELL #1 | | | | | <5.000 U | <0.250 U | | | 4.080 J | 28.76 |
| 203370 | 174769 | HUESTIS, MIKE | | | | | 14.17 | 0.610 J | | | 6.1 | 17.76 |
| 205351 | 51144 | DYE, DIXIE * HOUSE | | | | | <5.000 U | <0.250 U | | | 4.520 J | 16.49 |
| 205254 | 137922 | WENGER, GARY * WENGER | | | | | <5.000 U | <0.250 U | | | 7.08 | 36.24 |
| 205354 | 275360 | ALOYSIUS, AL AND LOUISE | | | | | <5.000 U | <0.250 U | | | 2.320 J | 16.21 |
| 205352 | 251784 | DYE, DIXIE * SHOP | | | | | <5.000 U | <0.250 U | | | 2.070 J | 16.94 |

Appendix E
ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | NO3-N (mg/l) | F (mg/l) | OPO4-P (mg/l) | Ag (ug/l) | Al (ug/l) | As (ug/l) | As(III) (ug/l) | As(V) (ug/l) | B (ug/l) | Ba (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 203433 | 271435 | MYERS, NANCY & SERGE | | | | | 3.180 J | <0.250 U | | | 6.77 | 27.12 |
| 203434 | 153529 | MYERS, SERGE | | | | | 5.03 | <0.250 U | | | 6.34 | 28.13 |
| 205441 | 275639 | MCKNIGHT, SCOTT AND MICHELLE | | | | | <5.000 U | <0.250 U | | | 3.300 J | 21.07 |
| 205356 | 51140 | MCGILLEN, LINDA & PAUL | | | | | 42.77 | <0.250 U | | | 1.760 J | 12.69 |
| 205377 | 51140 | MCGILLEN, LINDA & PAUL | | | | | 53.83 | <0.250 U | | | 2.880 J | 19.45 |
| 203816 | 170884 | PETERS, TAMMY | | | | | 5.4 | <0.250 U | | | 4.740 J | 21.801 |
| 205416 | 275482 | CLARK, HERB | | | | | 89.77 | 6.29 | | | 13.57 | 148.21 |
| 203554 | 271660 | KELSEY, BARBARA | | | | | 2.190 J | 1.120 J | | | 11.7 | 49.3 |
| 205442 | 275671 | MICKELBRRY, DALTON | | | | | <5.000 U | <0.250 U | | | 2.640 J | 22.35 |
| 204350 | 274200 | WILLENE POND GUEST HOUSE | | | | | 1.280 J | 0.770 J | | | 8.77 | 21.07 |
| 204348 | 274199 | WILLENE POND | | | | | 4.670 J | 0.800 J | | | 3.910 J | 18.72 |
| 205602 | 276397 | VAUTHIER, GARY | | | | | 6.110 J | <0.250 U | | | 3.460 J | 20.53 |
| 203726 | 272210 | SILZLY, ROSEMARIE | | | | <0.250 U | 5.44 | 1.84 | | | 12.64 | 73.66 |
| 205355 | 51182 | KETO, DIXIE/WEST, DIANE | | | | | <5.000 U | <0.250 U | | | 1.860 J | 10.96 |
| 203432 | 51222 | MYERS, NANCY & SERGE | | | | | 10.54 | <0.250 U | | | 5.59 | 25.66 |
| 205255 | 275243 | FISCHER, FRED & RUBY * ANGELA BORGEN | | | | | <5.000 U | <0.250 U | | | 5.06 | 28 |
| 205256 | 275244 | FISCHER, FRED & RUBY * LINDA BARNEY | | | | | <5.000 U | <0.250 U | | | 3.960 J | 25.44 |
| 203814 | 272246 | O'BRIEN, MICHAEL AND LALONNIE | | | | | 1.630 J | <0.250 U | | | 3.730 J | 23.566 |
| 203813 | 272245 | SILZLY, ROSEMARIE | | | | | 5.44 | <0.250 U | | | 3.770 J | 20.738 |
| 203243 | 269888 | EGGEN, LINDA | | | | | 4.560 J | <0.250 U | | | 4.310 J | 23.46 |
| 205463 | 275869 | POFFENBERGER, DON | | | | | <5.000 U | <0.250 U | | | 2.900 J | 20.45 |
| 204681 | 274374 | GREY, JACK | | | | | 4.430 J | <0.250 U | | | 2.450 J | 19.4 |
| 204299 | 274104 | SILZLY, ROSEMARIE * 116 HAUSER | | | | | 4.840 J | <0.250 U | | | 8.74 | 21.04 |
| 204682 | 274418 | CRISLER, MARY ELLEN & FRANCIS | | | | | 3.170 J | <0.250 U | | | 3.650 J | 24.34 |
| 203725 | 153530 | MANN, LEONARD | | | | <0.250 U | 4.890 J | <0.250 U | | | 3.690 J | 18.68 |
| 203815 | 272253 | PETERS, JUDY | | | | | 2.110 J | <0.250 U | | | 3.840 J | 18.782 |
| 203442 | 271449 | JOHNSTON, DEBORAH | | | | | 1.200 J | <0.250 U | | | 4.490 J | 18.83 |
| 203443 | 271449 | JOHNSTON, DEBORAH | | | | | <1.000 U | <0.250 U | | | 4.560 J | 18.4 |
| 204683 | 274377 | NICHOLSON, JUDY | | | | | 1.680 J | <0.250 U | | | 2.580 J | 20.68 |
| 205601 | 276396 | MICKEY, GAIL AND TOM | | | | | <5.000 U | 0.590 J | | | 3.420 J | 16.8 |
| 203430 | 264545 | VARELIA, HELEN | 0.75 | 0.28 | <0.020 U | <0.100 U | <0.400 U | 0.420 J | <0.250 U | 0.550 J | 4.94 | 26.04 |
| 203418 | 264545 | VARELIA, HELEN | | | | | 1.290 J | 0.550 J | | | 6.2 | 27.44 |
| 204678 | 274346 | RUSTAD, HOWARD | | | | | 1.720 J | 0.920 J | | | 2.670 J | 17.05 |
| 204686 | 274363 | RAYMOND JOHNSON | | | | | 2.150 J | <0.250 U | | | 3.560 J | 41.03 |
| 203706 | 163966 | HILMO, TIM | | | | <0.250 U | 2.910 J | <0.250 U | | | 5.2 | 31.33 |
| 203342 | 242287 | KITTLESON, JANET | | | | | 11.76 | <0.250 U | | | 6.27 | 25.16 |
| 203932 | 273569 | SCHAFER, DALE | | | | | 1.540 J | <0.250 U | | | 5.44 | 35.65 |
| 203340 | 270198 | KITTLESON 311-C | | | | | 10.33 | <0.250 U | | | 11.37 | 21.64 |
| 203341 | 270197 | KITTLESON 311-B | | | | | 4.450 J | 2.4 | | | 7.03 | 49.95 |
| 203429 | 264544 | SWANSON, RON | 0.39 | 0.29 | 0.030 J | <0.100 U | <0.400 U | 0.96 | <0.250 U | 1.170 J | 3.48 | 24.62 |
| 203417 | 264544 | SWANSON, RON | | | | | 57.3 | 1.150 J | | | 4.460 J | 27.91 |
| 204679 | 104978 | SAFFLE, KAREN & BOB | | | | | 10.49 | 0.740 J | | | <1.250 U | 18.77 |

Appendix E
ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | NO3-N (mg/l) | F (mg/l) | OPO4-P (mg/l) | Ag (ug/l) | Al (ug/l) | As (ug/l) | As(III) (ug/l) | As(V) (ug/l) | B (ug/l) | Ba (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 203441 | 271441 | JOHNSON, SYLVIA & HAROLD | | | | | 1.330 J | <0.250 U | | | 5.67 | 22.25 |
| 203663 | 51243 | COONEY, FRANKLIN AND VICKI | | | | <0.250 U | 5.09 | 1.140 J | | | 3.730 J | 23.56 |
| 204680 | 274358 | COX, CARL | | | | | 320.32 | 2.03 | | | 2.460 J | 35.55 |
| 203578 | 271689 | MCCARTHY, JIM | | | | | 1.330 J | <0.250 U | | | 3.630 J | 26.41 |
| 203427 | 197463 | MCKAY, ROBERT | 0.22 | 0.21 | 0.060 J | <0.100 U | <0.400 U | 10.94 | 0.250 J | 10.27 | 4.89 | 77.43 |
| 203428 | 197463 | MCKAY, ROBERT | 0.22 | 0.22 | 0.060 J | <0.100 U | <0.400 U | 10.97 | 0.250 J | 10.55 | 4.88 | 74.13 |
| 203426 | 197463 | MCKAY, ROBERT | 0.22 | 0.21 | 0.060 J | <0.100 U | <0.400 U | 11.19 | 0.250 J | 11.78 | 4.83 | 78.03 |
| 203416 | 197463 | MCKAY, ROBERT | | | | | 17.35 | 12.02 | | | 6.17 | 83.47 |
| 203620 | 251790 | PHILLIPS, ROB | | | | <0.250 U | 5.16 | <0.250 U | | | 10.08 | 57.44 |
| 204243 | 202080 | DANIELS, LOYD | | | | | 12.12 | 2.14 | | | 52.49 | 25.21 |
| 203266 | 51318 | DANIELS, LLOYD | | | | | <2.000 U | 1.420 J | | | 41.47 | 25.9 |
| 203491 | 271503 | HOGGE, VERNAN AND MARJORIE | 4.89 | 3.22 | 0.030 J | <0.100 U | <0.400 U | 0.95 | <0.250 U | 0.890 J | 66.2 | 25.5 |
| 203485 | 271503 | HOGGE, VERNAN AND MARJORIE | | | | | 1.890 J | 1.240 J | | | 80.75 | 22.07 |
| 205023 | 51333 | FRESH, JEAN AND ELDEN | 2.56 | 8.01 | <0.020 U | <0.100 U | <2.000 U | 12.2 | | | 220.33 | 32.36 |
| 204987 | 51333 | FRESH, JEAN AND ELDEN | | | | | 9.090 J | 13.12 | | | 213.55 | 33.8 |
| 204988 | 51333 | FRESH, JEAN AND ELDEN | | | | | 8.630 J | <0.250 U | | | 147.07 | 0.800 J |
| 205144 | 276484 | SWANSON, MARK | 1.99 | 4.77 | 0.020 J | <0.100 U | <2.000 U | 7.33 | | | 93.14 | 34.59 |
| 205145 | 276484 | SWANSON, MARK | | | | | 7.680 J | 7.74 | | | 102.51 | 38.05 |
| 204905 | 221430 | KEELE, DON - SHOP | 3.29 | 2.42 | <0.020 U | <0.100 U | <2.000 U | 7.07 | | | 95.07 | 56.16 |
| 204896 | 221430 | KEELE, DON - SHOP | | | | | 184.84 | 12.17 | | | 109.2 | 62.77 |
| 204897 | 254433 | BAILEY, DON & DEBRAH | 0.91 | 2.9 | 0.060 J | <0.100 U | <2.000 U | 10.27 | | | 49.09 | 42.65 |
| 204881 | 254433 | BAILEY, DON & DEBRAH | | | | | <5.000 U | 10.37 | | | 59.93 | 41.77 |
| 204901 | 226130 | SCHERMAN, RUSS | 0.32 | 10.31 | <0.020 U | <0.100 U | <2.000 U | 30.39 | | | 196.71 | 2.78 |
| 204890 | 226130 | SCHERMAN, RUSS | | | | | 10.470 J | 38.75 | | | 232.08 | 3.32 |
| 205015 | 226130 | SCHERMAN, RUSS | | | | | <5.000 U | <0.250 U | | | 264.78 | <0.250 U |
| 204888 | 51327 | FAUGHT, STANLEY | | | | | <5.000 U | 7.86 | | | 70.23 | 72.66 |
| 204900 | 51327 | FAUGHT, STANLEY | 5.48 | 0.95 | <0.020 U | <0.100 U | <2.000 U | 7.98 | | | 58.85 | 70.71 |
| 204898 | 252926 | WYBENGA, TRACY | 2.16 | 2.55 | 0.020 J | <0.100 U | <2.000 U | 7.47 | | | 65.39 | 54.5 |
| 204884 | 252926 | WYBENGA, TRACY | | | | | <5.000 U | 9.18 | | | 68.75 | 54.77 |
| 204902 | 51328 | SCHERMAN, RUSS- RENTAL | 0.55 | 3.18 | <0.020 U | <0.100 U | <2.000 U | 13.71 | | | 101.64 | 4.41 |
| 204891 | 51328 | SCHERMAN, RUSS- RENTAL | | | | | 11.350 J | 14.23 | | | 111.6 | 4.99 |
| 203483 | 181457 | WHITAKER, RAY | | | | | <1.000 U | 10.8 | | | 81.26 | 37.42 |
| 203482 | 181457 | WHITAKER, RAY | 3.19 | 1.49 | 0.020 J | <0.100 U | <0.400 U | 10.88 | <0.250 U | 11.67 | 61.23 | 39.99 |
| 204057 | 51334 | MCDOWELL, HAROLD | 0.87 | 0.44 | 0.020 J | <0.100 U | <0.400 U | 1.78 | | | 12.59 | 36.45 |
| 204052 | 51334 | MCDOWELL, HAROLD | 0.87 | 0.44 | <0.020 U | <0.100 U | <0.400 U | 1.79 | | | 13.1 | 38.35 |
| 204055 | 51334 | MCDOWELL, HAROLD | | | | | <1.000 U | 2.09 | | | 14.57 | 39.09 |
| 204056 | 51334 | MCDOWELL, HAROLD | | | | | 2.780 J | 2.26 | | | 14.66 | 39.52 |
| 204053 | 254941 | MIKES SALES AND PAWN | 0.94 | 0.42 | 0.030 J | <0.100 U | <0.400 U | 2.05 | | | 13.02 | 32.68 |
| 204054 | 254941 | MIKES SALES AND PAWN | | | | | <1.000 U | 2.29 | | | 14.61 | 36.89 |
| 205539 | 275908 | JEAN, HARMON | | | | | 23.900 J | <0.250 U | | | 4.870 J | 10.84 |
| 205540 | 275922 | WIGERT, JANICE & GARY | | | | | <5.000 U | <0.250 U | | | 2.670 J | 3.88 |
| 205541 | 173110 | WIGERT, ROXANNE & HOWARD | | | | | <5.000 U | <0.250 U | | | 2.470 J | 4.8 |

Appendix E
ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | NO3-N (mg/l) | F (mg/l) | OPO4-P (mg/l) | Ag (ug/l) | Al (ug/l) | As (ug/l) | As(III) (ug/l) | As(V) (ug/l) | B (ug/l) | Ba (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 205464 | 51378 | PECUKONIS, DAVE & LAURIE | | | | | 142.93 | 1.41 | | | 6.59 | 38.03 |
| 205462 | 51363 | GARRELS, DR L. | | | | | <5.000 U | 22.62 | | | 10.77 | 150.35 |
| 205461 | 123812 | GERVAIS, LESLIE | | | | | <5.000 U | 0.780 J | | | 18.13 | 40.78 |
| 204765 | 197464 | WACKERBARTH, DANA & BART | | | | | 650.79 | 1.100 J | | | <1.250 U | 12.95 |
| 205199 | 275101 | PETERSON, DONNA | | | | | <5.000 U | <0.250 U | | | 9.92 | 16.97 |
| 205240 | 275180 | ROBINSON, RON & STORMIE * CREEK | | | | | 105.99 | 320.67 | | | 30.44 | 48.55 |
| 204049 | 237374 | DICKERSON, PHILIP | | | | | 11.51 | 0.940 J | | | 6.89 | 47.86 |
| 204345 | 214966 | VANMEEL, MIKE | | | | | 21.64 | 2.4 | | | 24.46 | 9.76 |
| 205242 | 163148 | WEBB, DAVE & BARBARA | | | | | <5.000 U | <0.250 U | | | 6.49 | 56.92 |
| 205192 | 275096 | ROBINSON, RON AND STORMIE * SPRING | | | | | 27.43 | 70.95 | | | 10.52 | 38.13 |
| 205151 | 174778 | CATALENELLO, MARK | | | | | <5.000 U | <0.250 U | | | 3.990 J | 38.09 |
| 205150 | 174778 | CATALENELLO, MARK | 0.07 | 0.33 | <0.020 U | <0.100 U | <2.000 U | 0.230 J | | | 3.36 | 36.42 |
| 203290 | 269999 | BLAKESLEE, RONALD | | | | | 7.33 | 0.980 J | | | 7.65 | 29.12 |
| 204227 | 163968 | KEISTER, RODNEY AND ELAINE | | | | | 2.270 J | <0.250 U | | | 2.170 J | 5.15 |
| 204768 | 274553 | MILLER, GREG | | | | | 23.12 | 0.590 J | | | <1.250 U | 39.89 |
| 204296 | 274103 | SHEFFIELD, REGINA AND DAVID | | | | | 20.65 | 0.550 J | | | 4.440 J | 1.73 |
| 204767 | 274501 | SCHRANZ, PETER | | | | | 12.93 | 1.29 | | | <1.250 U | 1.43 |
| 204766 | 274500 | SCHRANZ, JOAN AND PETER | | | | | 25.05 | 0.990 J | | | <1.250 U | 2.23 |
| 204295 | 274102 | FISH, SUSAN * SPRING | | | | | 54.3 | <0.250 U | | | 6.01 | 3.66 |
| 205236 | 194340 | WEBB, DAVID * CABIN | | | | | 1031.17 | 0.580 J | | | 2.370 J | 8.72 |
| 205415 | 51735 | HEGGELUND, TOM | | | | | 23.560 J | 1.92 | | | 81.63 | 52.52 |
| 204998 | 238047 | BLOM LORIN | | | | | 5.240 J | 6.59 | | | 23.94 | 105.7 |
| 205025 | 238047 | BLOM LORIN | 1.25 | 0.24 | <0.020 U | <0.100 U | <2.000 U | 6.74 | | | 24.69 | 104.82 |
| 205149 | 260549 | MITCHELL, HAROLD | | | | | <5.000 U | 5.45 | | | 20.94 | <0.250 U |
| 205148 | 260549 | MITCHELL, HAROLD | 1.9 | 0.2 | 0.020 J | <0.100 U | <2.000 U | 5.96 | | | 20.84 | 0.250 J |
| 205028 | 256447 | SMITH MONTY & JULIE | 2.28 | 0.51 | <0.020 U | <0.100 U | <2.000 U | 20.18 | | | 35.88 | 28.95 |
| 205013 | 256447 | SMITH MONTY & JULIE | | | | | 177.74 | 34.36 | | | 21.39 | 42.53 |
| 204990 | 256622 | STEWART JOHN & PHYLLIS | | | | | 13.950 J | 6.4 | | | 29.84 | 78.78 |
| 205024 | 256622 | STEWART JOHN & PHYLLIS | 2.53 | 0.28 | <0.020 U | <0.100 U | <2.000 U | 6.43 | | | 31.4 | 77.92 |
| 205147 | 241972 | FLACHMEYER DAN | | | | | 10.230 J | 6.12 | | | 23.56 | 113.25 |
| 205146 | 241972 | FLACHMEYER DAN | 2.7 | 0.26 | <0.020 U | <0.100 U | <2.000 U | 6.49 | | | 22.38 | 104.98 |
| 203423 | 51744 | JETTE, ARTHUR & JESSIE | 0.96 | 0.2 | <0.020 U | <0.100 U | <0.400 U | 4.16 | <0.250 U | 4 | 11.51 | 93.31 |
| 203381 | 271369 | KELLY, JOHN | | | | | 47.31 | 1.5 | | | 17.91 | 119.59 |
| 203382 | 271369 | KELLY, JOHN | | | | | 55.06 | 1.6 | | | 17.13 | 120.93 |
| 203424 | 250642 | NELSON, JASON | 0.59 | 0.21 | <0.020 U | <0.100 U | <0.400 U | 3.65 | <0.250 U | 3.09 | 9.21 | 95.66 |
| 203415 | 250642 | NELSON, JASON | | | | | 32.8 | 6.9 | | | 25.05 | 122.13 |
| 204095 | 51751 | KIEWATT, CHARLES (MEL) | | | | | 13.89 | 2.1 | | | 26.37 | 84.6 |
| 203492 | 229026 | SEVEYKA, PAUL | 0.9 | 0.3 | <0.020 U | <0.100 U | <0.400 U | 1.68 | <0.250 U | 1.49 | 62.63 | 75.33 |
| 204047 | 273745 | KITTLESON, JANET (RENTAL) | | | | | 4.260 J | 0.980 J | | | 6.79 | 157.83 |
| 203240 | 218249 | CRISP, SHARON & DOUG | | | | | 131.14 | <0.250 U | | | 30.96 | 57.26 |
| 203241 | 218249 | CRISP, SHARON & DOUG | | | | | 146.72 | <0.250 U | | | 31.3 | 51.98 |
| 205353 | 51724 | DELONG, DARCY * WELL #1 | | | | | <5.000 U | <0.250 U | | | 4.190 J | 16.93 |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | NO3-N (mg/l) | F (mg/l) | OPO4-P (mg/l) | Ag (ug/l) | Al (ug/l) | As (ug/l) | As(III) (ug/l) | As(V) (ug/l) | B (ug/l) | Ba (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 203383 | 195488 | CHIRICO, KIMBERLY | | | | | 4.220 J | 1.33 | | | 10.4 | 158.09 |
| 203384 | 51762 | CHIRICO, KIMBERLY | | | | | 32.33 | 2.06 | | | 11.87 | 86.37 |
| 205600 | 276366 | MANZ, TOM | | | | | <5.000 U | 2.45 | | | 26.3 | 31.62 |
| 203587 | 5376 | UELAND RANCHES | 1.26 | 0.45 | 0.040 J | <0.100 U | 0.830 J | 0.86 | | | 70.93 | 48.97 |
| 203590 | 5376 | UELAND RANCHES | | | | | 2.040 J | 0.330 J | | | 50.6 | 29.54 |
| 205010 | 5377 | GALLE CLIFF JR | | | | | 6.110 J | 7.66 | | | 4.190 J | 19.92 |
| 205027 | 5377 | GALLE CLIFF JR | 0.11 | 0.4 | <0.020 U | <0.100 U | <2.000 U | 8.16 | | | 5.01 | 19.91 |
| 204984 | 51790 | GALLE, TYKE | | | | | <5.000 U | 7.27 | | | 4.550 J | 6.46 |
| 205022 | 51790 | GALLE, TYKE | 0.14 | 0.37 | <0.020 U | <0.100 U | <2.000 U | 7.6 | | | 4.95 | 6.2 |
| 204342 | 257526 | RICE CLARK | | | | | 4.840 J | 0.960 J | | | 5.4 | 26.66 |
| 203928 | 166679 | JOHNSON, WADE | | | | | 22.62 | 5.72 | | | 14.4 | 126.65 |
| 203930 | 183266 | PETERSON, RON | | | | | 1.610 J | <0.250 U | | | 12.98 | 62.75 |
| 203372 | 196333 | HEFFERNAN, DAVE | | | | | 8.92 | 0.620 J | | | 6.84 | 73.5 |
| 204174 | 273926 | GREGORICH, TERENCE | | | | | 193.45 | <0.250 U | | | 7.95 | 2.24 |
| 203349 | 271244 | JOHNSON, CLAUDIA | | | | | 8.08 | <0.250 U | | | 3.960 J | 28.82 |
| 204221 | 178947 | SLOCUM, JAY | | | | | 2.640 J | 1.000 J | | | 3.760 J | 35.52 |
| 203350 | 271245 | JOHNSON, CLAUDIA (RENTAL) | | | | | <1.000 U | 0.880 J | | | 2.480 J | 8.4 |
| 205021 | 230299 | GALLE JEFF AND ANGELLA | <0.010 U | 4.12 | <0.020 U | <0.100 U | <2.000 U | 5.55 | | | 21.2 | 27.01 |
| 204981 | 230299 | GALLE JEFF AND ANGELLA | | | | | 20.450 J | 5.77 | | | 21.79 | 27.94 |
| 204222 | 273982 | RASMUSSEN, KATHY | | | | | 2.020 J | 0.940 J | | | 5.55 | 63.7 |
| 204343 | 160171 | GRAFF, STEVE | | | | | 2.680 J | 1.85 | | | 15.33 | 66.15 |
| 204173 | 273924 | BAKER, CLIFF | | | | 1.38 | | <0.250 U | | | 6.17 | 45.42 |
| 203431 | 184525 | KLEMANN, RUSS | 0.29 | 0.65 | 0.030 J | <0.100 U | <0.400 U | 1.65 | <0.250 U | 1.68 | 6.97 | 51.29 |
| 203419 | 184525 | KLEMANN, RUSS | | | | | 1.170 J | 1.75 | | | 8.05 | 57.63 |
| 204581 | 274241 | MCCURDY, CHARLIE | | | | | 13.56 | 0.640 J | | | 3.910 J | 56.8 |
| 204580 | 274241 | MCCURDY, CHARLIE | | | | | 21 | 0.680 J | | | 4.120 J | 58.91 |
| 203934 | 273573 | HARVEY, DONALD D. | | | | | 7.55 | <0.250 U | | | 8.45 | 61.71 |
| 205020 | 246960 | CONNORS, KEN | <0.010 U | 2.68 | <0.020 U | 0.230 J | <2.000 U | 7.24 | | | 56.64 | 28.62 |
| 204961 | 246960 | CONNORS, KEN | | | | | 6.550 J | 7.54 | | | 53.73 | 28.66 |
| 204587 | 274336 | BOYER, JOE | | | | | 2.210 J | 1.48 | | | 6.18 | 43.99 |
| 204792 | 196668 | SMITH, SEAN | | | | | 5.46 | 1.51 | | | 8.22 | 25.24 |
| 204899 | 258964 | SALLE, RON | <0.010 U | 3.06 | <0.020 U | <0.250 U | <5.000 U | 5.25 | | | 80 | 51.81 |
| 204886 | 258964 | SALLE, RON | | | | | <10.000 U | 10.01 | | | 90.83 | 53.71 |
| 204904 | 244470 | LUSSY, JERRY | <0.010 U | 2.62 | 0.040 J | <0.100 U | <2.000 U | 12.8 | | | 57.37 | 34.34 |
| 204895 | 244470 | LUSSY, JERRY | | | | | <5.000 U | 13.73 | | | 62.36 | 35.8 |
| 204903 | 51874 | WALTER, RICHARD | 0.05 | 2.79 | <0.020 U | <0.100 U | <2.000 U | 14.37 | | | 55.99 | 37.45 |
| 204892 | 51874 | WALTER, RICHARD | | | | | 57.75 | 15.08 | | | 64.69 | 37.29 |
| 205030 | 122659 | NORTON, LOU | 0.14 | 0.16 | <0.020 U | <0.100 U | <2.000 U | 1.83 | | | 21.99 | 63.55 |
| 205016 | 122659 | NORTON, LOU | | | | | 34.34 | 2.01 | | | 22.65 | 64.46 |
| 204586 | 274330 | KOHUT, MARGARET & TRISTAN | | | | | 2.510 J | 1.93 | | | 6.72 | 40.89 |
| 205598 | 52055 | VUCKOVICH, MARK | | | | | <5.000 U | 1.26 | | | 3.970 J | 27.87 |
| 205599 | 52055 | VUCKOVICH, MARK | | | | | <5.000 U | 1.34 | | | 3.920 J | 27.65 |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | NO3-N (mg/l) | F (mg/l) | OPO4-P (mg/l) | Ag (ug/l) | Al (ug/l) | As (ug/l) | As(III) (ug/l) | As(V) (ug/l) | B (ug/l) | Ba (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 205595 | 276320 | RUEGAMER, LANE | | | | | <5.000 U | 1.5 | | | 4.940 J | 28.33 |
| 205596 | 276320 | RUEGAMER, LANE | | | | | <5.000 U | 1.56 | | | 4.650 J | 27.75 |
| 203242 | 269881 | DODGE, CATHY AND WARREN | | | | | 1.080 J | 0.750 J | | | 5.57 | 31.16 |
| 204796 | 52036 | SMITH, TERI | | | | | 5.46 | 2.07 | | | 8.17 | 28.02 |
| 204795 | 153771 | CAUGHLIN, BOBBY | | | | | 4.660 J | 1.120 J | | | 7.86 | 27.28 |
| 203574 | 52042 | HANCOCK, ARLOW JR. | | | | | 2.670 J | 0.580 J | | | 4.630 J | 26.5 |
| 204842 | 274718 | KONICEK, SUE | | | | | 3.730 J | 1.110 J | | | 6.1 | 24.55 |
| 204338 | 274162 | BENSON, ZALE | | | | | 3.010 J | 2.63 | | | 6.62 | 27.1 |
| 204579 | 52046 | KEETCH, CRAIG * WELL 1 | | | | | 8.57 | 1.45 | | | 3.780 J | 24.29 |
| 204588 | 274338 | JONES, BOYD | | | | | 6.31 | 1.32 | | | 3.420 J | 22.4 |
| 204582 | 274263 | STAUDOHAR, CONNIE & JOE | | | | | 3.260 J | 0.870 J | | | 2.970 J | 23.97 |
| 203343 | 52086 | CASQUILHO, LAUREN | | | | | <1.000 U | 1.31 | | | 6.68 | 29.3 |
| 204593 | 266770 | BLOTKAMP, MARY | 0.42 | 0.98 | 0.030 J | <0.100 U | 0.510 J | 5.23 | | | 13.38 | 50.12 |
| 204594 | 267423 | PENTILLA, MIKE AND APRIL | 0.29 | 0.6 | <0.020 U | <0.100 U | <0.400 U | 6.27 | | | 9.39 | 35.39 |
| 204584 | 267423 | PENTILLA, MIKE AND APRIL | | | | | 7.18 | 6.41 | | | 9.59 | 34.7 |
| 204583 | 266770 | BLOTKAMP, MARY | | | | | 5.1 | 8.39 | | | 14 | 52.06 |
| 203484 | 271507 | BROWN, SCOTT | | | | | 1.840 J | <0.250 U | | | 215.13 | 41.72 |
| 203495 | 271507 | BROWN, SCOTT | 0.64 | 0.44 | <0.020 U | <0.100 U | <0.400 U | 0.360 J | <0.250 U | 0.340 J | 214.1 | 46.18 |
| 203579 | 179072 | LORANGER BILL | | | | | 5.44 | <0.250 U | | | 17.32 | 70.24 |
| 203425 | 5412 | RILEY WESLEY & LEONA | <0.010 U | 0.28 | <0.020 U | <0.100 U | <0.400 U | 2.28 | 0.250 J | 2.29 | 34.19 | 111.01 |
| 203412 | 153591 | LOEHR JOANN AND JAMIE | 1.48 | 0.37 | 0.060 J | <0.100 U | <0.400 U | 13.14 | <0.250 U | 13.97 | 26.72 | 46.86 |
| 203413 | 153591 | LOEHR JOANN AND JAMIE | | | | | 31.84 | 14.16 | | | 30.22 | 47.68 |
| 203461 | 156248 | HANSEN, DEBORAH | | | | | 10.35 | 7.57 | | | 27.64 | 92.69 |
| 205157 | 156249 | WAYMIRE, EDWARD | | | | | 19.140 J | 13.16 | | | 33.23 | 84.88 |
| 205156 | 156249 | WAYMIRE, EDWARD | 0.98 | 0.34 | <0.020 U | <0.100 U | <2.000 U | 13.77 | | | 31.54 | 80.11 |
| 205271 | 158808 | DINSDALE JEFFERY E & JULIE M | 1.1 | 0.36 | <0.020 U | <0.100 U | 7.970 J | 8.72 | | | 35.96 | 54.55 |
| 205258 | 158808 | DINSDALE JEFFERY E & JULIE M | | | | | 19.180 J | 9.19 | | | 42.72 | 55.44 |
| 205259 | 158808 | DINSDALE JEFFERY E & JULIE M | | | | | <5.000 U | <0.250 U | | | 39.88 | 1.91 |
| 205155 | 259949 | GESSELE, EDWIN C JR | | | | | 309.23 | 12.76 | | | 39.31 | 44.08 |
| 205153 | 259949 | GESSELE, EDWIN C JR | | | | | 418.58 | 12.81 | | | 39.36 | 44.57 |
| 205152 | 259949 | GESSELE, EDWIN C JR | 0.79 | 0.51 | <0.020 U | <0.100 U | <2.000 U | 13.37 | | | 37.94 | 37.96 |
| 205154 | 259949 | GESSELE, EDWIN C JR | 0.78 | 0.51 | <0.020 U | <0.100 U | <2.000 U | 13.76 | | | 38.06 | 36.89 |
| 205359 | 153592 | CHARLENE STOCK JONES | | | | | <5.000 U | 7.78 | | | 33.18 | 73.99 |
| 205358 | 153592 | CHARLENE STOCK JONES | | | | | <5.000 U | 7.84 | | | 32.99 | 73.67 |
| 205374 | 153592 | CHARLENE STOCK JONES | 0.85 | 0.33 | <0.020 U | <0.100 U | <2.000 U | 8.58 | | | 36.45 | 70.53 |
| 205373 | 153592 | CHARLENE STOCK JONES | 0.88 | 0.34 | <0.020 U | <0.100 U | <2.000 U | 8.61 | | | 35.67 | 70.49 |
| 203420 | 152683 | HELSPER WILLIAM F & LISA A | 1.33 | 0.18 | 0.030 J | <0.100 U | <0.400 U | 3 | <0.250 U | 2.84 | 70.38 | 19.82 |
| 203414 | 152683 | HELSPER WILLIAM F & LISA A | | | | | 3.600 J | 3.91 | | | 66.62 | 21.62 |
| 203422 | 148956 | ADAMS ARLO AND JERYL | 2.04 | 0.28 | <0.020 U | <0.100 U | <0.400 U | 3.47 | <0.250 U | 3.55 | 27.42 | 177.54 |
| 205014 | 53591 | RUEGAMER, ANTHONY | | | | | 8.840 J | 13.21 | | | 52.86 | 21.69 |
| 205029 | 53591 | RUEGAMER, ANTHONY | 2.15 | 0.58 | <0.020 U | <0.100 U | <2.000 U | 13.61 | | | 65.65 | 20.6 |
| 205032 | 153593 | ARENTZ, IVAN EUGENE | 0.9 | 0.46 | <0.020 U | <0.100 U | <2.000 U | 6.62 | | | 40.43 | 58.05 |

Appendix E
ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | NO3-N (mg/l) | F (mg/l) | OPO4-P (mg/l) | Ag (ug/l) | Al (ug/l) | As (ug/l) | As(III) (ug/l) | As(V) (ug/l) | B (ug/l) | Ba (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 205018 | 153593 | ARENTZ, IVAN EUGENE | | | | | 5.250 J | 7.89 | | | 43.16 | 67.35 |
| 205031 | 250294 | MCQUEARY CAM | 1.7 | 0.47 | <0.020 U | <0.100 U | <2.000 U | 11.33 | | | 61.73 | 29.18 |
| 205017 | 250294 | MCQUEARY CAM | | | | | 26.43 | 12.14 | | | 55.12 | 31.46 |
| 205260 | 266861 | PIERCE, COLT | | | | | 28.76 | 10.67 | | | 61.88 | 46.48 |
| 205272 | 266861 | PIERCE, COLT | 1.64 | 0.5 | <0.020 U | <0.100 U | 9.890 J | 10.91 | | | 54.22 | 47.58 |
| 203555 | 271663 | GRANT, PAM & PAUL | | | | | 2.630 J | <0.250 U | | | 4.650 J | 19.67 |
| 204793 | 274502 | WILLIAMS, LEAH | | | | | 2.910 J | 2.1 | | | 7.84 | 27.08 |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Be (ug/l) | Br (ug/l) | Cd (ug/l) | Co (ug/l) | Cr (ug/l) | Cu (ug/l) | Li (ug/l) | Mo (ug/l) | Ni (ug/l) | Pb (ug/l) | Sb (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 205360 | 256874 | SHYBA, LORI | <0.250 U | | <0.250 U | <0.250 U | 0.740 J | 3.300 J | 46.03 | 1.38 | 3.53 | <0.150 U | <0.250 U |
| 205375 | 256874 | SHYBA, LORI | <0.100 U | <10.000 U | <0.100 U | <0.100 U | <0.100 U | 16.26 | 58.3 | 1.36 | 3.37 | <0.060 U | 0.94 |
| 205362 | 256874 | SHYBA, LORI | <0.250 U | | <0.250 U | <0.250 U | 0.740 J | 5.98 | 6.060 J | <0.250 U | 0.500 J | <0.150 U | <0.250 U |
| 205363 | 256874 | SHYBA, LORI | <0.250 U | | <0.250 U | <0.250 U | 0.840 J | 1.290 J | 9.440 J | <0.250 U | <0.250 U | <0.150 U | <0.250 U |
| 205357 | 198928 | RANKIN, KEITH AND JEAN | <0.250 U | | <0.250 U | <0.250 U | 1.66 | 2.440 J | <5.000 U | <0.250 U | 0.630 J | <0.150 U | <0.250 U |
| 205372 | 198928 | RANKIN, KEITH AND JEAN | <0.100 U | <10.000 U | <0.100 U | 0.330 J | 0.58 | 1.760 J | <2.000 U | <0.100 U | 0.420 J | <0.060 U | <0.100 U |
| 205002 | 252623 | MACCIOLI JOE & PATTI | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | <0.100 U | 542.4 | 12.55 | <0.250 U | <0.150 U | <0.250 U |
| 205026 | 252623 | MACCIOLI JOE & PATTI | <0.250 U | 318 | <0.250 U | <0.250 U | <0.250 U | <0.100 U | 546.62 | 11.99 | 0.520 J | <0.150 U | <0.250 U |
| 205019 | 252623 | MACCIOLI JOE & PATTI | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | 3.130 J | 40.15 | <0.250 U | <0.250 U | <0.150 U | <0.250 U |
| 203621 | 271935 | YATES, KEN AND SHARON | <0.250 U | | <0.250 U | <0.250 U | 0.890 J | 40.95 | <3.750 U | 1.34 | <0.250 U | 0.77 | <0.250 U |
| 203817 | 194331 | HARWOOD, LARRY E AND BARBARA | <0.250 U | | <0.250 U | <0.250 U | 0.890 J | 4.350 J | <3.750 U | 0.910 J | <0.250 U | <0.150 U | <0.250 U |
| 203936 | 273576 | WILLEY, DARLENE AND MICHAEL | <0.250 U | | <0.250 U | <0.250 U | 0.980 J | 16.04 | <3.750 U | 0.600 J | <0.250 U | <0.150 U | <0.250 U |
| 204684 | 274411 | KAIN, DONALD | <0.250 U | | <0.250 U | <0.250 U | 0.630 J | <0.100 U | <3.750 U | 0.520 J | <0.250 U | <0.150 U | <0.250 U |
| 204094 | 273801 | VAUTHIER, THOMAS | <0.250 U | | <0.250 U | <0.250 U | 1.150 J | 3.560 J | 9.890 J | 1.040 J | 3.3 | <0.150 U | <0.250 U |
| 204685 | 51068 | OLSON, ROGER | <0.250 U | | <0.250 U | <0.250 U | 0.520 J | 1.680 J | <3.750 U | 1.040 J | <0.250 U | <0.150 U | 0.560 J |
| 203622 | 51094 | COLWELL, DUANE | <0.250 U | | <0.250 U | <0.250 U | 0.560 J | 2.600 J | <3.750 U | 1.140 J | <0.250 U | <0.150 U | <0.250 U |
| 203707 | 51079 | CHRISTIAN, GREGORY AND MICHELLE | <0.250 U | | <0.250 U | <0.250 U | 0.880 J | 1.020 J | <3.750 U | 1.160 J | <0.250 U | <0.150 U | <0.250 U |
| 203435 | 271373 | KOPP, ROSE & KEN | <0.250 U | | <0.250 U | <0.250 U | 0.510 J | 2.160 J | <3.750 U | 1.170 J | <0.250 U | <0.150 U | <0.250 U |
| 203575 | 194334 | GARCIA, RICARDO AND RUTH L | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | <0.100 U | <3.750 U | 1.210 J | <0.250 U | <0.150 U | <0.250 U |
| 203576 | 271684 | DAVIS, JEREMY | <0.250 U | | <0.250 U | <0.250 U | 1.010 J | 52.21 | <3.750 U | 1.110 J | <0.250 U | <0.150 U | <0.250 U |
| 205201 | 137932 | PAMIN, JEFF & BECKY * 2013 PAMIN | <0.250 U | | <0.250 U | <0.250 U | 0.863 J | 1.200 J | <5.000 U | 0.960 J | <0.250 U | <0.150 U | <0.250 U |
| 203369 | 271338 | KRUMM, JENNY AND TIM | <0.250 U | | <0.250 U | <0.250 U | 0.910 J | 4.250 J | 6.610 J | 1.4 | <0.250 U | <0.150 U | <0.250 U |
| 204240 | 274025 | RICE, CLARK (CORKY) * 117 RICE | <0.250 U | | <0.250 U | <0.250 U | 1.42 | 6.85 | 6.770 J | 3.06 | <0.250 U | <0.150 U | <0.250 U |
| 204242 | 274028 | RICE, CLARK (CORKY) * 109 RICE | <0.250 U | | <0.250 U | <0.250 U | 1.150 J | 10.31 | 7.020 J | 2.26 | <0.250 U | <0.150 U | <0.250 U |
| 204241 | 274027 | RICE, CLARK (CORKY) * 111 RICE | <0.250 U | | <0.250 U | <0.250 U | 1.250 J | 12.52 | 7.450 J | 1.98 | <0.250 U | <0.150 U | 0.690 J |
| 204226 | 274006 | RICE, CLARK (CORKY) * 303 ERICKSON | <0.250 U | | <0.250 U | <0.250 U | 1.27 | 20.75 | 7.470 J | 1.250 J | <0.250 U | <0.150 U | 0.730 J |
| 203267 | 235579 | CLARK LEE | <0.250 U | | <0.250 U | 0.450 J | 1.090 J | 2.62 | 8.190 J | 1.64 | 0.460 J | <0.150 U | <0.250 U |
| 205142 | 120711 | PATTERSON, NATHAN & SHERRIE | <0.250 U | | <0.250 U | <0.250 U | 1.44 | 11.13 | <5.000 U | 1.090 J | <0.250 U | <0.150 U | <0.250 U |
| 203577 | 271686 | BLANK, DORIS | <0.250 U | | <0.250 U | <0.250 U | 0.820 J | 2.320 J | <3.750 U | 0.860 J | <0.250 U | <0.150 U | <0.250 U |
| 203351 | 271248 | MORSE, DEDE & RICK | <0.250 U | | <0.250 U | <0.250 U | 0.900 J | 1.860 J | <3.750 U | 1.44 | 0.470 J | <0.150 U | <0.250 U |
| 205141 | 275057 | EVANS, ALBERT | <0.250 U | | <0.250 U | <0.250 U | 1.39 | 1.720 J | <5.000 U | 1.040 J | 0.540 J | <0.150 U | <0.250 U |
| 203371 | 195486 | DOYLE, DUANE R. AND JEANETTE I. | <0.250 U | | <0.250 U | <0.250 U | 0.810 J | 16.02 | 8.940 J | 1.000 J | <0.250 U | <0.150 U | <0.250 U |
| 205257 | 275248 | REDD, GINNY & STEVE | <0.250 U | | <0.250 U | <0.250 U | 0.700 J | 4.800 J | <5.000 U | 1.65 | 0.670 J | <0.150 U | 0.770 J |
| 203665 | 227965 | NEWELL, JOHN | <0.250 U | | <0.250 U | <0.250 U | 0.780 J | 2.390 J | <3.750 U | 0.840 J | <0.250 U | <0.150 U | <0.250 U |
| 203664 | 272001 | RAASAKKA, DARYL | <0.250 U | | <0.250 U | <0.250 U | 0.990 J | 1.240 J | <3.750 U | 1.3 | <0.250 U | <0.150 U | <0.250 U |
| 203666 | 230073 | HENDRICKSON, MICHAEL | <0.250 U | | <0.250 U | <0.250 U | 1.91 | 15.82 | <3.750 U | 1.170 J | <0.250 U | 1.37 | <0.250 U |
| 205538 | 51134 | FRANCISCO, JOHN * WELL #1 | <0.250 U | | <0.250 U | <0.250 U | 0.860 J | 2.280 J | <5.000 U | 1.42 | <0.250 U | <0.150 U | <0.250 U |
| 203370 | 174769 | HUESTIS, MIKE | <0.250 U | | <0.250 U | <0.250 U | 1.060 J | <0.100 U | 6.080 J | 0.850 J | <0.250 U | <0.150 U | <0.250 U |
| 205351 | 51144 | DYE, DIXIE * HOUSE | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | 14.28 | <5.000 U | 0.530 J | <0.250 U | 0.81 | <0.250 U |
| 205254 | 137922 | WENGER, GARY * WENGER | <0.250 U | | <0.250 U | <0.250 U | 0.750 J | 16.89 | <5.000 U | 1.7 | 0.530 J | <0.150 U | 0.650 J |
| 205354 | 275360 | ALOYSIUS, AL AND LOUISE | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | 1.490 J | <5.000 U | 0.670 J | <0.250 U | <0.150 U | <0.250 U |
| 205352 | 251784 | DYE, DIXIE * SHOP | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | 1.670 J | <5.000 U | 0.910 J | <0.250 U | <0.150 U | <0.250 U |

Appendix E
ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Be (ug/l) | Br (ug/l) | Cd (ug/l) | Co (ug/l) | Cr (ug/l) | Cu (ug/l) | Li (ug/l) | Mo (ug/l) | Ni (ug/l) | Pb (ug/l) | Sb (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 203433 | 271435 | MYERS, NANCY & SERGE | <0.250 U | | <0.250 U | <0.250 U | 0.620 J | 3.800 J | <3.750 U | 0.720 J | <0.250 U | <0.150 U | <0.250 U |
| 203434 | 153529 | MYERS, SERGE | <0.250 U | | <0.250 U | <0.250 U | 0.550 J | 1.270 J | <3.750 U | 1.050 J | <0.250 U | <0.150 U | <0.250 U |
| 205441 | 275639 | MCKNIGHT, SCOTT AND MICHELLE | <0.250 U | | <0.250 U | <0.250 U | 0.530 J | 2.350 J | <5.000 U | 1.29 | <0.250 U | <0.150 U | <0.250 U |
| 205356 | 51140 | MCGILLEN, LINDA & PAUL | <0.250 U | | <0.250 U | <0.250 U | 0.540 J | 6.65 | <5.000 U | 0.690 J | 0.640 J | 0.170 J | <0.250 U |
| 205377 | 51140 | MCGILLEN, LINDA & PAUL | <0.250 U | | <0.250 U | <0.250 U | 1.070 J | 10.19 | <5.000 U | 1.110 J | 0.840 J | 0.79 | <0.250 U |
| 203816 | 170884 | PETERS, TAMMY | <0.250 U | | <0.250 U | <0.250 U | 0.970 J | 1.170 J | <3.750 U | 1.140 J | <0.250 U | <0.150 U | <0.250 U |
| 205416 | 275482 | CLARK, HERB | <0.250 U | | <0.250 U | <0.250 U | 2.14 | 13.75 | 10.110 J | 1.85 | 1.140 J | 2.23 | <0.250 U |
| 203554 | 271660 | KELSEY, BARBARA | <0.250 U | | <0.250 U | <0.250 U | | 1.890 J | 6.320 J | 0.710 J | <0.250 U | <0.150 U | <0.250 U |
| 205442 | 275671 | MICKELBRRY, DALTON | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | 2.840 J | <5.000 U | 1.120 J | <0.250 U | <0.150 U | <0.250 U |
| 204350 | 274200 | WILLENE POND GUEST HOUSE | <0.250 U | | <0.250 U | <0.250 U | 1.28 | 14.3 | <3.750 U | 1.140 J | 0.540 J | 0.660 J | <0.250 U |
| 204348 | 274199 | WILLENE POND | <0.250 U | | <0.250 U | <0.250 U | 1.150 J | 1.990 J | 7.520 J | 1.25 | <0.250 U | <0.150 U | <0.250 U |
| 205602 | 276397 | VAUTHIER, GARY | <0.250 U | | <0.250 U | <0.250 U | 1.070 J | 3.360 J | 5.230 J | 0.990 J | <0.250 U | <0.150 U | <0.250 U |
| 203726 | 272210 | SILZLY, ROSEMARIE | <0.250 U | | <0.250 U | <0.250 U | 1.71 | <0.100 U | 5.410 J | 1.140 J | <0.250 U | <0.150 U | <0.250 U |
| 205355 | 51182 | KETO, DIXIE/WEST, DIANE | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | 2.260 J | <5.000 U | 0.800 J | <0.250 U | <0.150 U | <0.250 U |
| 203432 | 51222 | MYERS, NANCY & SERGE | <0.250 U | | <0.250 U | <0.250 U | 0.760 J | 19.47 | <3.750 U | 0.780 J | <0.250 U | <0.150 U | <0.250 U |
| 205255 | 275243 | FISCHER, FRED & RUBY * ANGELA BORGEN | <0.250 U | | <0.250 U | <0.250 U | 0.750 J | 3.590 J | <5.000 U | 1.55 | <0.250 U | <0.150 U | 0.700 J |
| 205256 | 275244 | FISCHER, FRED & RUBY * LINDA BARNEY | <0.250 U | | <0.250 U | <0.250 U | 1.020 J | 3.140 J | <5.000 U | 1.79 | <0.250 U | <0.150 U | 0.600 J |
| 203814 | 272246 | O'BRIEN, MICHAEL AND LALONNIE | <0.250 U | | <0.250 U | <0.250 U | 1.62 | 23.5 | <3.750 U | 1.42 | <0.250 U | <0.150 U | <0.250 U |
| 203813 | 272245 | SILZLY, ROSEMARIE | <0.250 U | | <0.250 U | <0.250 U | 0.880 J | 9.11 | <3.750 U | 0.870 J | <0.250 U | <0.150 U | <0.250 U |
| 203243 | 269888 | EGGEN, LINDA | <0.250 U | | <0.250 U | <0.250 U | 0.940 J | 3.79 | 5.310 J | 1.150 J | 0.510 J | <0.150 U | <0.250 U |
| 205463 | 275869 | POFFENBERGER, DON | <0.250 U | | <0.250 U | <0.250 U | 0.590 J | 3.820 J | <5.000 U | 1.110 J | <0.250 U | <0.150 U | <0.250 U |
| 204681 | 274374 | GREY, JACK | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | 19.74 | <3.750 U | 1.32 | <0.250 U | 1.08 | <0.250 U |
| 204299 | 274104 | SILZLY, ROSEMARIE * 116 HAUSER | <0.250 U | | <0.250 U | <0.250 U | 1.57 | 2.020 J | 33.72 | 0.490 J | <0.250 U | <0.150 U | <0.250 U |
| 204682 | 274418 | CRISLER, MARY ELLEN & FRANCIS | <0.250 U | | <0.250 U | <0.250 U | 0.500 J | 4.330 J | <3.750 U | 1.28 | <0.250 U | <0.150 U | <0.250 U |
| 203725 | 153530 | MANN, LEONARD | <0.250 U | | <0.250 U | <0.250 U | 0.700 J | 4.990 J | <3.750 U | 1.040 J | <0.250 U | <0.150 U | <0.250 U |
| 203815 | 272253 | PETERS, JUDY | <0.250 U | | <0.25 U | <0.250 U | 1.070 J | <0.100 U | <3.750 U | 1.110 J | <0.250 U | <0.150 U | <0.250 U |
| 203442 | 271449 | JOHNSTON, DEBORAH | <0.250 U | | <0.250 U | <0.250 U | 0.610 J | 3.140 J | <3.750 U | 0.970 J | <0.250 U | <0.150 U | <0.250 U |
| 203443 | 271449 | JOHNSTON, DEBORAH | <0.250 U | | <0.250 U | <0.250 U | 0.620 J | 3.110 J | 5.310 J | 0.970 J | <0.250 U | <0.150 U | <0.250 U |
| 204683 | 274377 | NICHOLSON, JUDY | <0.250 U | | <0.250 U | <0.250 U | 0.510 J | <0.100 U | <3.750 U | 1.28 | <0.250 U | <0.150 U | <0.250 U |
| 205601 | 276396 | MICKEY, GAIL AND TOM | <0.250 U | | <0.250 U | <0.250 U | 1.29 | 2.640 J | <5.000 U | 0.730 J | <0.250 U | <0.150 U | <0.250 U |
| 203430 | 264545 | VARELIA, HELEN | <0.100 U | <10.000 U | <0.100 U | <0.100 U | <0.100 U | 0.290 J | <1.500 U | 0.250 J | 0.57 | <0.060 U | <0.100 U |
| 203418 | 264545 | VARELIA, HELEN | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | 1.110 J | 5.820 J | 0.590 J | 0.590 J | <0.150 U | <0.250 U |
| 204678 | 274346 | RUSTAD, HOWARD | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | <0.100 U | <3.750 U | <0.250 U | <0.250 U | <0.150 U | <0.250 U |
| 204686 | 274363 | RAYMOND JOHNSON | <0.250 U | | <0.250 U | <0.250 U | 0.510 J | 7.72 | <3.750 U | 1.77 | <0.250 U | <0.150 U | 0.770 J |
| 203706 | 163966 | HILMO, TIM | <0.250 U | | <0.250 U | <0.250 U | 1.150 J | <0.100 U | <3.750 U | 2.46 | <0.250 U | <0.150 U | <0.250 U |
| 203342 | 242287 | KITTLESON, JANET | <0.250 U | | <0.250 U | <0.250 U | 1.150 J | 11.87 | <3.750 U | 3.71 | 0.540 J | 0.240 J | <0.250 U |
| 203932 | 273569 | SCHAFER, DALE | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | <0.100 U | <3.750 U | <0.250 U | <0.250 U | <0.150 U | <0.250 U |
| 203340 | 270198 | KITTLESON 311-C | <0.250 U | | <0.250 U | 1.3 | 2.51 | 4.930 J | 10.070 J | 3.17 | 0.800 J | 0.260 J | <0.250 U |
| 203341 | 270197 | KITTLESON 311-B | <0.250 U | | <0.250 U | 0.340 J | 1.200 J | 3.960 J | 6.850 J | 1.63 | 0.490 J | <0.150 U | 0.810 J |
| 203429 | 264544 | SWANSON, RON | <0.100 U | <10.000 U | <0.100 U | <0.100 U | 0.280 J | 0.490 J | 3.180 J | 0.470 J | 0.52 | <0.060 U | <0.100 U |
| 203417 | 264544 | SWANSON, RON | <0.250 U | | <0.250 U | <0.250 U | 1.030 J | 3.490 J | 9.290 J | 1.090 J | 0.650 J | <0.150 U | <0.250 U |
| 204679 | 104978 | SAFFLE, KAREN & BOB | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | 6.48 | <3.750 U | 0.760 J | <0.250 U | <0.150 U | <0.250 U |

Appendix E
ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Be (ug/l) | Br (ug/l) | Cd (ug/l) | Co (ug/l) | Cr (ug/l) | Cu (ug/l) | Li (ug/l) | Mo (ug/l) | Ni (ug/l) | Pb (ug/l) | Sb (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 203441 | 271441 | JOHNSON, SYLVIA & HAROLD | <0.250 U | | <0.250 U | <0.250 U | 0.610 J | 1.980 J | 5.080 J | 1.170 J | <0.250 U | <0.150 U | <0.250 U |
| 203663 | 51243 | COONEY, FRANKLIN AND VICKI | <0.250 U | | <0.250 U | <0.250 U | 1.220 J | 5.87 | 8.680 J | 1.39 | <0.250 U | <0.150 U | <0.250 U |
| 204680 | 274358 | COX, CARL | <0.250 U | | <0.250 U | <0.250 U | 1.070 J | 67.77 | <3.750 U | 1.42 | 0.340 J | 1.46 | <0.250 U |
| 203578 | 271689 | MCCARTHY, JIM | <0.250 U | | <0.250 U | <0.250 U | 0.760 J | 11.27 | <3.750 U | 0.830 J | <0.250 U | <0.150 U | <0.250 U |
| 203427 | 197463 | MCKAY, ROBERT | <0.100 U | <10.000 U | <0.100 U | <0.100 U | <0.100 U | <0.040 U | <1.500 U | 5.56 | 1.63 | <0.060 U | <0.100 U |
| 203428 | 197463 | MCKAY, ROBERT | <0.100 U | <10.000 U | <0.100 U | <0.100 U | <0.100 U | <0.040 U | <1.500 U | 5.47 | 1.53 | <0.060 U | <0.100 U |
| 203426 | 197463 | MCKAY, ROBERT | <0.100 U | <10.000 U | <0.100 U | 0.270 J | <0.100 U | 0.440 J | <1.500 U | 5.55 | 1.72 | <0.060 U | <0.100 U |
| 203416 | 197463 | MCKAY, ROBERT | <0.250 U | | <0.250 U | <0.250 U | 0.640 J | 1.310 J | <3.750 U | 6.72 | 2.05 | <0.150 U | <0.250 U |
| 203620 | 251790 | PHILLIPS, ROB | <0.250 U | | <0.250 U | <0.250 U | 0.570 J | <0.100 U | 7.290 J | 1.76 | 0.810 J | <0.150 U | <0.250 U |
| 204243 | 202080 | DANIELS, LOYD | <0.250 U | | <0.250 U | <0.250 U | 0.750 J | 1.440 J | 112.36 | 5.15 | 1.25 | <0.150 U | <0.250 U |
| 203266 | 51318 | DANIELS, LLOYD | <0.500 U | | <0.500 U | 0.720 J | 1.080 J | 3.21 | 62.77 | 4.13 | 2.54 | <0.300 U | <0.500 U |
| 203491 | 271503 | HOGGE, VERNAN AND MARJORIE | <0.100 U | 142 | <0.100 U | 0.370 J | 0.79 | 7.18 | 78.53 | 2.05 | 11.89 | <0.060 U | <0.100 U |
| 203485 | 271503 | HOGGE, VERNAN AND MARJORIE | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | 19.07 | 93.48 | 1.51 | 12.35 | 0.590 J | <0.250 U |
| 205023 | 51333 | FRESH, JEAN AND ELDEN | <0.100 U | 430 | <0.100 U | <0.100 U | 0.230 J | 0.460 J | 577.38 | 14.69 | 0.240 J | <0.060 U | 0.280 J |
| 204987 | 51333 | FRESH, JEAN AND ELDEN | <0.250 U | | <0.250 U | <0.250 U | 0.960 J | <0.100 U | 569.69 | 15.89 | <0.250 U | <0.150 U | <0.250 U |
| 204988 | 51333 | FRESH, JEAN AND ELDEN | <0.250 U | | <0.250 U | <0.250 U | 0.520 J | 1.290 J | 63.75 | <0.250 U | <0.250 U | <0.150 U | <0.250 U |
| 205144 | 276484 | SWANSON, MARK | <0.100 U | 150 | <0.100 U | <0.100 U | <0.100 U | 3.7 | 160.64 | 11.67 | 0.210 J | <0.060 U | 0.54 |
| 205145 | 276484 | SWANSON, MARK | <0.250 U | | <0.250 U | <0.250 U | 1.190 J | 3.850 J | 165.88 | 12.77 | <0.250 U | <0.150 U | 0.590 J |
| 204905 | 221430 | KEELE, DON - SHOP | <0.100 U | 152 | <0.100 U | 1.01 | <0.100 U | 3.92 | 116.05 | 5.53 | 0.51 | <0.060 U | 0.320 J |
| 204896 | 221430 | KEELE, DON - SHOP | <0.250 U | | <0.250 U | 1.31 | 0.670 J | 6.5 | 134.27 | 5.69 | 0.340 J | <0.150 U | 0.250 J |
| 204897 | 254433 | BAILEY, DON & DEBRAH | <0.100 U | <10.000 U | <0.100 U | 0.77 | <0.100 U | 2.73 | 29.84 | 16.97 | 0.54 | 0.37 | 0.380 J |
| 204881 | 254433 | BAILEY, DON & DEBRAH | <0.250 U | | <0.250 U | 1.020 J | 0.520 J | 3.120 J | 39.55 | 17.46 | <0.250 U | <0.150 U | 0.300 J |
| 204901 | 226130 | SCHERMAN, RUSS | <0.100 U | 114 | <0.100 U | <0.100 U | <0.100 U | <0.040 U | 223.08 | 23.3 | <0.100 U | <0.060 U | <0.100 U |
| 204890 | 226130 | SCHERMAN, RUSS | <0.250 U | | <0.250 U | <0.250 U | 1.030 J | 2.030 J | 269.23 | 23.04 | <0.250 U | <0.150 U | <0.250 U |
| 205015 | 226130 | SCHERMAN, RUSS | <0.250 U | | <0.250 U | <0.250 U | 0.560 J | <0.100 U | 14.200 J | <0.250 U | <0.250 U | <0.150 U | <0.250 U |
| 204888 | 51327 | FAUGHT, STANLEY | <0.250 U | | <0.250 U | 3.03 | 0.640 J | <0.100 U | 38.07 | 4.1 | 0.560 J | <0.150 U | <0.250 U |
| 204900 | 51327 | FAUGHT, STANLEY | <0.100 U | <10.000 U | <0.100 U | 2.54 | <0.100 U | 0.500 J | 27.08 | 4.81 | 0.68 | <0.060 U | <0.100 U |
| 204898 | 252926 | WYBENGA, TRACY | <0.100 U | 127 | <0.100 U | <0.100 U | <0.100 U | 7 | 74.56 | 7.44 | 0.490 J | <0.060 U | 0.340 J |
| 204884 | 252926 | WYBENGA, TRACY | <0.250 U | | <0.250 U | <0.250 U | 0.770 J | 2.220 J | 84.78 | 7.36 | <0.250 U | <0.150 U | 0.530 J |
| 204902 | 51328 | SCHERMAN, RUSS- RENTAL | <0.100 U | 129 | <0.100 U | <0.100 U | <0.100 U | 0.460 J | 78.26 | 9.7 | 0.240 J | <0.060 U | <0.100 U |
| 204891 | 51328 | SCHERMAN, RUSS- RENTAL | <0.250 U | | <0.250 U | <0.250 U | 1.200 J | 4.670 J | 83.52 | 10.06 | <0.250 U | <0.150 U | <0.250 U |
| 203483 | 181457 | WHITAKER, RAY | <0.250 U | | <0.250 U | 0.830 J | 1.050 J | 1.110 J | 48 | 5.18 | 0.620 J | <0.150 U | <0.250 U |
| 203482 | 181457 | WHITAKER, RAY | <0.100 U | 93 | <0.100 U | 0.56 | <0.100 U | 0.550 J | 40.25 | 4.63 | 0.54 | <0.060 U | <0.100 U |
| 204057 | 51334 | MCDOWELL, HAROLD | <0.100 U | <10.000 U | <0.100 U | <0.100 U | <0.100 U | <0.040 U | 3.760 J | 2.32 | 0.67 | <0.060 U | 0.320 J |
| 204052 | 51334 | MCDOWELL, HAROLD | <0.100 U | <10.000 U | <0.100 U | <0.100 U | <0.100 U | <0.040 U | 4.040 J | 2.4 | 0.68 | <0.060 U | 0.340 J |
| 204055 | 51334 | MCDOWELL, HAROLD | <0.250 U | | <0.250 U | <0.250 U | 1.030 J | <0.100 U | 5.070 J | 2.67 | 0.820 J | <0.150 U | <0.250 U |
| 204056 | 51334 | MCDOWELL, HAROLD | <0.250 U | | <0.250 U | <0.250 U | 0.610 J | <0.100 U | 5.410 J | 2.65 | <0.250 U | <0.150 U | <0.250 U |
| 204053 | 254941 | MIKES SALES AND PAWN | <0.100 U | <10.000 U | <0.100 U | <0.100 U | <0.100 U | 2.84 | 3.330 J | 2.14 | 0.58 | <0.060 U | 0.300 J |
| 204054 | 254941 | MIKES SALES AND PAWN | <0.250 U | | <0.250 U | <0.250 U | 0.680 J | 2.470 J | <3.750 U | 2.56 | 0.570 J | <0.150 U | <0.250 U |
| 205539 | 275908 | JEAN, HARMON | <0.250 U | | <0.250 U | <0.250 U | 2.56 | 36.79 | <5.000 U | <0.250 U | 0.920 J | <0.150 U | <0.250 U |
| 205540 | 275922 | WIGERT, JANICE & GARY | <0.250 U | | <0.250 U | <0.250 U | 1.26 | 49.05 | <5.000 U | <0.250 U | <0.250 U | <0.150 U | <0.250 U |
| 205541 | 173110 | WIGERT, ROXANNE & HOWARD | <0.250 U | | <0.250 U | <0.250 U | 1.31 | 10.87 | <5.000 U | <0.250 U | <0.250 U | <0.150 U | <0.250 U |

Appendix E
ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Be (ug/l) | Br (ug/l) | Cd (ug/l) | Co (ug/l) | Cr (ug/l) | Cu (ug/l) | Li (ug/l) | Mo (ug/l) | Ni (ug/l) | Pb (ug/l) | Sb (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 205464 | 51378 | PECUKONIS, DAVE & LAURIE | <0.250 U | | <0.250 U | <0.250 U | 0.680 J | 7.82 | <5.000 U | <0.250 U | 0.630 J | 0.580 J | <0.250 U |
| 205462 | 51363 | GARRELS, DR L. | <0.250 U | | <0.250 U | <0.250 U | 0.540 J | 21.91 | <5.000 U | <0.250 U | 3.2 | 1.06 | <0.250 U |
| 205461 | 123812 | GERVAIS, LESLIE | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | 26.64 | <5.000 U | 1.070 J | 1.010 J | <0.150 U | <0.250 U |
| 204765 | 197464 | WACKERBARTH, DANA & BART | <0.250 U | | <0.250 U | <0.250 U | 1.020 J | 2.140 J | <3.750 U | <0.250 U | 0.500 J | 1.46 | <0.250 U |
| 205199 | 275101 | PETERSON, DONNA | <0.250 U | | <0.250 U | <0.250 U | 0.920 J | 19.75 | 31.75 | <0.250 U | 1.26 | 0.290 J | <0.250 U |
| 205240 | 275180 | ROBINSON, RON & STORMIE * CREEK | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | 8.31 | 55.25 | <0.250 U | 1.71 | 1.14 | 2.4 |
| 204049 | 237374 | DICKERSON, PHILIP | <0.250 U | | <0.250 U | <0.250 U | 0.580 J | 22.17 | <3.750 U | 2.05 | 1.32 | 0.98 | <0.250 U |
| 204345 | 214966 | VANMEEL, MIKE | <0.250 U | | <0.250 U | <0.250 U | 0.550 J | <0.100 U | 38.12 | 4.55 | <0.250 U | <0.150 U | <0.250 U |
| 205242 | 163148 | WEBB, DAVE & BARBARA | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | 2.130 J | <5.000 U | <0.250 U | <0.250 U | <0.150 U | <0.250 U |
| 205192 | 275096 | ROBINSON, RON AND STORMIE * SPRING | <0.250 U | | <0.250 U | <0.250 U | 0.800 J | 2.520 J | 11.780 J | 0.680 J | 0.990 J | <0.150 U | 1.010 J |
| 205151 | 174778 | CATALENELLO, MARK | <0.250 U | | <0.250 U | <0.250 U | 1.3 | 19.81 | <5.000 U | 2.14 | <0.250 U | <0.150 U | <0.250 U |
| 205150 | 174778 | CATALENELLO, MARK | <0.100 U | <10.000 U | <0.100 U | <0.100 U | <0.100 U | 61.21 | <2.000 U | 1.94 | 0.290 J | <0.060 U | 0.320 J |
| 203290 | 269999 | BLAKESLEE, RONALD | <0.250 U | | <0.250 U | 0.450 J | 0.960 J | 1.58 | 11.410 J | 1.33 | 0.810 J | <0.150 U | <0.250 U |
| 204227 | 163968 | KEISTER, RODNEY AND ELAINE | <0.250 U | | <0.250 U | <0.250 U | 1.170 J | <0.100 U | 7.510 J | 1.47 | <0.250 U | <0.150 U | <0.250 U |
| 204768 | 274553 | MILLER, GREG | <0.250 U | | <0.250 U | <0.250 U | 0.740 J | <0.100 U | <3.750 U | 0.410 J | <0.250 U | <0.150 U | <0.250 U |
| 204296 | 274103 | SHEFFIELD, REGINA AND DAVID | <0.250 U | | <0.250 U | <0.250 U | 1.62 | <0.100 U | 20.57 | 0.380 J | <0.250 U | <0.150 U | <0.250 U |
| 204767 | 274501 | SCHRANZ, PETER | <0.250 U | | <0.250 U | <0.250 U | 0.700 J | <0.100 U | <3.750 U | 0.390 J | <0.250 U | <0.150 U | <0.250 U |
| 204766 | 274500 | SCHRANZ, JOAN AND PETER | <0.250 U | | <0.250 U | <0.250 U | 0.610 J | 1.000 J | <3.750 U | <0.250 U | <0.250 U | <0.150 U | <0.250 U |
| 204295 | 274102 | FISH, SUSAN * SPRING | <0.250 U | | <0.250 U | <0.250 U | 1.48 | 0.730 J | 22.03 | 2.25 | <0.250 U | <0.150 U | <0.250 U |
| 205236 | 194340 | WEBB, DAVID * CABIN | <0.250 U | | <0.250 U | <0.250 U | 1.090 J | 9.21 | <5.000 U | 6.68 | 0.570 J | 1.73 | 0.860 J |
| 205415 | 51735 | HEGGELUND, TOM | <0.250 U | | <0.250 U | <0.250 U | 0.730 J | 4.960 J | <5.000 U | 4.92 | 0.770 J | <0.150 U | <0.250 U |
| 204998 | 238047 | BLOM LORIN | <0.250 U | | <0.250 U | <0.250 U | 0.680 J | 2.820 J | 10.570 J | 1.29 | <0.250 U | 0.540 J | <0.250 U |
| 205025 | 238047 | BLOM LORIN | <0.100 U | 110 | <0.100 U | <0.100 U | <0.100 U | 2.49 | 15.6 | 1.28 | 0.370 J | 0.39 | <0.100 U |
| 205149 | 260549 | MITCHELL, HAROLD | <0.250 U | | <0.250 U | <0.250 U | 1.180 J | <0.100 U | <5.000 U | 1.050 J | <0.250 U | <0.150 U | <0.250 U |
| 205148 | 260549 | MITCHELL, HAROLD | <0.100 U | 131 | <0.100 U | <0.100 U | <0.100 U | 0.850 J | <2.000 U | 1.03 | <0.100 U | <0.060 U | <0.100 U |
| 205028 | 256447 | SMITH MONTY & JULIE | <0.100 U | 727 | <0.100 U | <0.100 U | 0.310 J | 0.710 J | 59.83 | 5.92 | 0.380 J | 0.240 J | <0.100 U |
| 205013 | 256447 | SMITH MONTY & JULIE | <0.250 U | | <0.250 U | <0.250 U | 2.28 | 1.020 J | 36.37 | 7.09 | 1.67 | 3.76 | <0.250 U |
| 204990 | 256622 | STEWART JOHN & PHYLLIS | <0.250 U | | <0.250 U | <0.250 U | 0.590 J | 2.600 J | 11.130 J | 1.72 | <0.250 U | <0.150 U | <0.250 U |
| 205024 | 256622 | STEWART JOHN & PHYLLIS | <0.100 U | 248 | <0.100 U | <0.100 U | <0.100 U | 1.640 J | 17.57 | 1.61 | 0.350 J | <0.060 U | <0.100 U |
| 205147 | 241972 | FLACHMEYER DAN | <0.250 U | | <0.250 U | <0.250 U | 1.230 J | <0.100 U | 6.820 J | 1.79 | <0.250 U | <0.150 U | <0.250 U |
| 205146 | 241972 | FLACHMEYER DAN | <0.100 U | 178 | <0.100 U | <0.100 U | <0.100 U | <0.040 U | 9.910 J | 1.59 | 0.310 J | <0.060 U | <0.100 U |
| 203423 | 51744 | JETTE, ARTHUR & JESSIE | <0.100 U | 75 | <0.100 U | <0.100 U | <0.100 U | 0.550 J | <1.500 U | 0.78 | 0.54 | <0.060 U | <0.100 U |
| 203381 | 271369 | KELLY, JOHN | <0.250 U | | <0.250 U | <0.250 U | 0.590 J | 1.250 J | 11.460 J | <0.250 U | 1.010 J | <0.150 U | <0.250 U |
| 203382 | 271369 | KELLY, JOHN | <0.250 U | | <0.250 U | <0.250 U | 0.820 J | 1.320 J | 6.690 J | <0.250 U | 1.020 J | <0.150 U | <0.250 U |
| 203424 | 250642 | NELSON, JASON | <0.100 U | <10.000 U | <0.100 U | <0.100 U | <0.100 U | <0.040 U | 8.6 | 0.57 | 0.65 | <0.060 U | <0.100 U |
| 203415 | 250642 | NELSON, JASON | <0.250 U | | <0.250 U | <0.250 U | 1.37 | 4.730 J | 12.850 J | 0.730 J | 0.800 J | <0.150 U | <0.250 U |
| 204095 | 51751 | KIEWATT, CHARLES (MEL) | <0.250 U | | <0.250 U | <0.250 U | 1.51 | 1.490 J | 19.73 | 1.28 | 0.910 J | <0.150 U | <0.250 U |
| 203492 | 229026 | SEVEYKA, PAUL | <0.100 U | 90 | <0.100 U | <0.100 U | 1.01 | 1.280 J | 4.010 J | 0.5 | 0.490 J | <0.060 U | <0.100 U |
| 204047 | 273745 | KITTLESON, JANET (RENTAL) | <0.250 U | | <0.250 U | <0.250 U | 0.990 J | <0.100 U | 5.770 J | 5.73 | <0.250 U | <0.150 U | <0.250 U |
| 203240 | 218249 | CRISP, SHARON & DOUG | <0.250 U | | <0.250 U | <0.250 U | 1.28 | 1.58 | 35.87 | 1.82 | 1.47 | 1.27 | <0.250 U |
| 203241 | 218249 | CRISP, SHARON & DOUG | <0.250 U | | <0.250 U | <0.250 U | 1.170 J | 1.73 | 36.18 | 1.8 | 1.47 | 1.25 | <0.250 U |
| 205353 | 51724 | DELONG, DARCY * WELL #1 | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | 6.14 | <5.000 U | 0.830 J | <0.250 U | 0.700 J | <0.250 U |

Appendix E
ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Be (ug/l) | Br (ug/l) | Cd (ug/l) | Co (ug/l) | Cr (ug/l) | Cu (ug/l) | Li (ug/l) | Mo (ug/l) | Ni (ug/l) | Pb (ug/l) | Sb (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 203383 | 195488 | CHIRICO, KIMBERLY | <0.250 U | | <0.250 U | <0.250 U | 0.870 J | 3.340 J | 9.540 J | 4.58 | 0.950 J | <0.150 U | <0.250 U |
| 203384 | 51762 | CHIRICO, KIMBERLY | <0.250 U | | <0.250 U | <0.250 U | 0.890 J | 2.090 J | 7.160 J | 2.23 | 0.830 J | 3.12 | <0.250 U |
| 205600 | 276366 | MANZ, TOM | <0.250 U | | <0.250 U | <0.250 U | 1.030 J | 1.570 J | 5.380 J | 2.23 | <0.250 U | <0.150 U | <0.250 U |
| 203587 | 5376 | UELAND RANCHES | <0.100 U | <10.000 U | <0.100 U | <0.100 U | 0.83 | 0.540 J | 11.57 | 6.49 | 0.97 | 0.110 J | <0.100 U |
| 203590 | 5376 | UELAND RANCHES | <0.250 U | | <0.250 U | <0.250 U | 0.630 J | <0.100 U | <3.750 U | 3.3 | 0.600 J | <0.150 U | <0.250 U |
| 205010 | 5377 | GALLE CLIFF JR | <0.250 U | | <0.250 U | <0.250 U | 0.510 J | 1.800 J | <3.750 U | 2.09 | <0.250 U | <0.150 U | 0.860 J |
| 205027 | 5377 | GALLE CLIFF JR | <0.100 U | <10.000 U | <0.100 U | <0.100 U | <0.100 U | 1.480 J | 3.070 J | 2 | 0.54 | <0.060 U | 0.75 |
| 204984 | 51790 | GALLE, TYKE | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | 2.390 J | <3.750 U | 2.12 | <0.250 U | <0.150 U | 0.580 J |
| 205022 | 51790 | GALLE, TYKE | <0.100 U | <10.000 U | <0.100 U | <0.100 U | <0.100 U | 1.930 J | 3.640 J | 2.04 | 0.380 J | <0.060 U | 0.460 J |
| 204342 | 257526 | RICE CLARK | <0.250 U | | <0.250 U | <0.250 U | 0.610 J | 1.120 J | 7.480 J | 2.52 | <0.250 U | <0.150 U | 1.070 J |
| 203928 | 166679 | JOHNSON, WADE | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | <0.100 U | 6.870 J | <0.250 U | <0.250 U | <0.150 U | <0.250 U |
| 203930 | 183266 | PETERSON, RON | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | 45.42 | 12.730 J | <0.250 U | 3.54 | <0.150 U | <0.250 U |
| 203372 | 196333 | HEFFERNAN, DAVE | <0.250 U | | <0.250 U | <0.250 U | 0.690 J | 9.67 | 10.190 J | 4.14 | 0.520 J | <0.150 U | <0.250 U |
| 204174 | 273926 | GREGORICH, TERENCE | <0.250 U | | <0.250 U | <0.250 U | 1.250 J | 5.93 | 13.480 J | 112.01 | <0.250 U | <0.150 U | <0.250 U |
| 203349 | 271244 | JOHNSON, CLAUDIA | <0.250 U | | <0.250 U | <0.250 U | 1.020 J | 15.27 | 5.200 J | 3.65 | 0.780 J | 2.23 | <0.250 U |
| 204221 | 178947 | SLOCUM, JAY | <0.250 U | | <0.250 U | <0.250 U | 1.41 | 17.05 | 7.910 J | 4.75 | <0.250 U | 2.88 | <0.250 U |
| 203350 | 271245 | JOHNSON, CLAUDIA (RENTAL) | <0.250 U | | <0.250 U | <0.250 U | 0.970 J | 33.21 | <3.750 U | 2.01 | 0.510 J | <0.150 U | <0.250 U |
| 205021 | 230299 | GALLE JEFF AND ANGELLA | <0.100 U | <10.000 U | <0.100 U | <0.100 U | <0.100 U | <0.040 U | 35.91 | 21.59 | 0.440 J | <0.060 U | <0.100 U |
| 204981 | 230299 | GALLE JEFF AND ANGELLA | <0.250 U | | <0.250 U | <0.250 U | 0.810 J | <0.100 U | 35.41 | 23.33 | 0.530 J | <0.150 U | <0.250 U |
| 204222 | 273982 | RASMUSSEN, KATHY | <0.250 U | | <0.250 U | <0.250 U | 1.160 J | <0.100 U | 9.150 J | 3.26 | 0.590 J | <0.150 U | <0.250 U |
| 204343 | 160171 | GRAFF, STEVE | <0.250 U | | <0.250 U | <0.250 U | 0.600 J | 1.170 J | 19.46 | 2.26 | 0.560 J | <0.150 U | <0.250 U |
| 204173 | 273924 | BAKER, CLIFF | <0.250 U | | <0.250 U | <0.250 U | 1.180 J | <0.100 U | 13.160 J | 2.61 | 0.710 J | <0.150 U | <0.250 U |
| 203431 | 184525 | KLEMANN, RUSS | <0.100 U | <10.000 U | <0.100 U | <0.100 U | <0.100 U | 4.07 | 9.84 | 1.7 | 0.73 | <0.060 U | <0.100 U |
| 203419 | 184525 | KLEMANN, RUSS | <0.250 U | | <0.250 U | <0.250 U | 0.600 J | 3.370 J | 11.890 J | 2.02 | 0.760 J | <0.150 U | <0.250 U |
| 204581 | 274241 | MCCURDY, CHARLIE | <0.250 U | | <0.250 U | <0.250 U | 1.170 J | 1.230 J | 6.410 J | 2.01 | 0.680 J | <0.150 U | <0.250 U |
| 204580 | 274241 | MCCURDY, CHARLIE | <0.250 U | | <0.250 U | <0.250 U | 1.000 J | 1.440 J | 6.420 J | 2.06 | <0.250 U | <0.150 U | <0.250 U |
| 203934 | 273573 | HARVEY, DONALD D. | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | <0.100 U | 8.520 J | 1.95 | <0.250 U | <0.150 U | <0.250 U |
| 205020 | 246960 | CONNORS, KEN | <0.100 U | <10.000 U | <0.100 U | <0.100 U | <0.100 U | 1.140 J | 121.13 | 4.36 | 0.57 | <0.060 U | 0.260 J |
| 204961 | 246960 | CONNORS, KEN | <0.250 U | | <0.250 U | <0.250 U | 0.920 J | 1.610 J | 121.15 | 4.41 | 0.580 J | <0.150 U | <0.250 U |
| 204587 | 274336 | BOYER, JOE | <0.250 U | | <0.250 U | <0.250 U | 1.140 J | 1.010 J | 5.660 J | 1.97 | 0.570 J | <0.150 U | <0.250 U |
| 204792 | 196668 | SMITH, SEAN | <0.250 U | | <0.250 U | <0.250 U | 0.600 J | 1.110 J | 13.720 J | 2.73 | <0.250 U | <0.150 U | <0.250 U |
| 204899 | 258964 | SALLE, RON | 0.700 J | <10.000 U | <0.250 U | <0.250 U | <0.250 U | <0.100 U | 189.22 | 8.07 | 1.250 J | <0.150 U | <0.250 U |
| 204886 | 258964 | SALLE, RON | 0.560 J | | <0.500 U | <0.500 U | <0.500 U | <0.200 U | 214.05 | 8.36 | 1.030 J | <0.300 U | <0.500 U |
| 204904 | 244470 | LUSSY, JERRY | 0.220 J | <10.000 U | <0.100 U | <0.100 U | <0.100 U | <0.040 U | 131.51 | 4.4 | 1.01 | <0.060 U | 0.250 J |
| 204895 | 244470 | LUSSY, JERRY | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | 58.02 | 138.28 | 4.55 | 0.430 J | <0.150 U | 0.620 J |
| 204903 | 51874 | WALTER, RICHARD | 0.260 J | <10.000 U | <0.100 U | <0.100 U | <0.100 U | <0.040 U | 137.3 | 4.13 | 1.08 | <0.060 U | 0.290 J |
| 204892 | 51874 | WALTER, RICHARD | <0.250 U | | <0.250 U | <0.250 U | 0.650 J | <0.100 U | 144.65 | 4.18 | 0.830 J | <0.150 U | 0.260 J |
| 205030 | 122659 | NORTON, LOU | <0.100 U | 159 | <0.100 U | <0.100 U | <0.100 U | 3.29 | 30.09 | 2.56 | 1.25 | <0.060 U | 1.05 |
| 205016 | 122659 | NORTON, LOU | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | 4.720 J | 29.75 | 2.6 | 1.46 | <0.150 U | 1.190 J |
| 204586 | 274330 | KOHUT, MARGARET & TRISTAN | <0.250 U | | <0.250 U | <0.250 U | 1.210 J | <0.100 U | 5.350 J | 1.99 | <0.250 U | <0.150 U | <0.250 U |
| 205598 | 52055 | VUCKOVICH, MARK | <0.250 U | | <0.250 U | <0.250 U | 0.690 J | 2.930 J | <5.000 U | 2.62 | 0.790 J | <0.150 U | <0.250 U |
| 205599 | 52055 | VUCKOVICH, MARK | <0.250 U | | <0.250 U | <0.250 U | 0.740 J | 1.880 J | <5.000 U | 2.62 | 0.870 J | <0.150 U | <0.250 U |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Be (ug/l) | Br (ug/l) | Cd (ug/l) | Co (ug/l) | Cr (ug/l) | Cu (ug/l) | Li (ug/l) | Mo (ug/l) | Ni (ug/l) | Pb (ug/l) | Sb (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 205595 | 276320 | RUEGAMER, LANE | <0.250 U | | <0.250 U | <0.250 U | 0.780 J | 1.270 J | <5.000 U | 2.73 | 0.780 J | <0.150 U | <0.250 U |
| 205596 | 276320 | RUEGAMER, LANE | <0.250 U | | <0.250 U | <0.250 U | 0.770 J | 1.310 J | <5.000 U | 2.72 | 0.810 J | <0.150 U | <0.250 U |
| 203242 | 269881 | DODGE, CATHY AND WARREN | <0.250 U | | <0.250 U | <0.250 U | 0.840 J | 2.11 | 6.180 J | 2.67 | 0.730 J | <0.150 U | <0.250 U |
| 204796 | 52036 | SMITH, TERI | <0.250 U | | <0.250 U | <0.250 U | 0.920 J | 2.940 J | 6.270 J | 3.22 | <0.250 U | <0.150 U | <0.250 U |
| 204795 | 153771 | CAUGHLIN, BOBBY | <0.250 U | | <0.250 U | <0.250 U | 0.720 J | <0.100 U | <3.750 U | 2.81 | 0.510 J | <0.150 U | <0.250 U |
| 203574 | 52042 | HANCOCK, ARLOW JR. | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | 1.640 J | 5.080 J | 2.49 | <0.250 U | <0.150 U | <0.250 U |
| 204842 | 274718 | KONICEK, SUE | <0.250 U | | <0.250 U | <0.250 U | 0.860 J | 1.260 J | 5.520 J | 3 | <0.250 U | <0.150 U | <0.250 U |
| 204338 | 274162 | BENSON, ZALE | <0.250 U | | <0.250 U | <0.250 U | 0.660 J | 1.320 J | 8.700 J | 2.89 | <0.250 U | <0.150 U | <0.250 U |
| 204579 | 52046 | KEETCH, CRAIG * WELL 1 | <0.250 U | | <0.250 U | <0.250 U | 1.200 J | 1.310 J | <3.750 U | 3.12 | <0.250 U | <0.150 U | <0.250 U |
| 204588 | 274338 | JONES, BOYD | <0.250 U | | <0.250 U | <0.250 U | 1.140 J | 1.060 J | <3.750 U | 3.22 | <0.250 U | <0.150 U | <0.250 U |
| 204582 | 274263 | STAUDOHAR, CONNIE & JOE | <0.250 U | | <0.250 U | <0.250 U | 0.940 J | 4.380 J | <3.750 U | 2.68 | <0.250 U | <0.150 U | <0.250 U |
| 203343 | 52086 | CASQUILHO, LAUREN | <0.250 U | | <0.250 U | <0.250 U | 0.950 J | 2.710 J | 4.170 J | 2.71 | 0.830 J | <0.150 U | <0.250 U |
| 204593 | 266770 | BLOTKAMP, MARY | <0.100 U | <10.000 U | <0.100 U | <0.100 U | <0.100 U | 70.33 | 11.07 | 5.07 | 0.63 | <0.060 U | 0.460 J |
| 204594 | 267423 | PENTILLA, MIKE AND APRIL | <0.100 U | <10.000 U | <0.100 U | <0.100 U | <0.100 U | 5.93 | 6.99 | 4.15 | 0.5 | <0.060 U | 0.370 J |
| 204584 | 267423 | PENTILLA, MIKE AND APRIL | <0.250 U | | <0.250 U | <0.250 U | 1.200 J | 6.77 | 12.560 J | 3.98 | 0.530 J | <0.150 U | 0.580 J |
| 204583 | 266770 | BLOTKAMP, MARY | <0.250 U | | <0.250 U | <0.250 U | 1.080 J | 84.76 | 16.51 | 4.75 | 0.680 J | <0.150 U | 1.160 J |
| 203484 | 271507 | BROWN, SCOTT | <0.250 U | | <0.250 U | <0.250 U | 0.580 J | <0.100 U | 9.680 J | 2.14 | 0.780 J | <0.150 U | <0.250 U |
| 203495 | 271507 | BROWN, SCOTT | <0.100 U | <10.000 U | <0.100 U | <0.100 U | 0.390 J | 0.670 J | 5.630 J | 2.68 | 0.66 | <0.060 U | <0.100 U |
| 203579 | 179072 | LORANGER BILL | <0.250 U | | <0.250 U | <0.250 U | 0.870 J | 7.77 | <3.750 U | 1.95 | <0.250 U | 0.630 J | <0.250 U |
| 203425 | 5412 | RILEY WESLEY & LEONA | <0.100 U | <10.000 U | <0.100 U | <0.100 U | <0.100 U | 0.400 J | 11.25 | 1.25 | 0.56 | <0.060 U | <0.100 U |
| 203412 | 153591 | LOEHR JOANN AND JAMIE | <0.100 U | 80 | <0.100 U | <0.100 U | <0.100 U | <0.040 U | 9.6 | 2.72 | 0.320 J | <0.060 U | <0.100 U |
| 203413 | 153591 | LOEHR JOANN AND JAMIE | <0.250 U | | <0.250 U | <0.250 U | 0.650 J | <0.100 U | 14.890 J | 3.45 | <0.250 U | <0.150 U | <0.250 U |
| 203461 | 156248 | HANSEN, DEBORAH | <0.250 U | | <0.250 U | <0.250 U | | 1.420 J | <3.750 U | 0.670 J | 0.560 J | <0.150 U | <0.250 U |
| 205157 | 156249 | WAYMIRE, EDWARD | <0.250 U | | <0.250 U | <0.250 U | 1.200 J | <0.100 U | 7.560 J | 2.19 | <0.250 U | <0.150 U | <0.250 U |
| 205156 | 156249 | WAYMIRE, EDWARD | <0.100 U | <10.000 U | <0.100 U | <0.100 U | <0.100 U | <0.040 U | 10.7 | 2.08 | 0.240 J | <0.060 U | <0.100 U |
| 205271 | 158808 | DINSDALE JEFFERY E & JULIE M | <0.100 U | 119 | <0.100 U | <0.100 U | <0.100 U | 0.800 J | <2.000 U | 2.58 | 0.250 J | 0.4 | <0.100 U |
| 205258 | 158808 | DINSDALE JEFFERY E & JULIE M | <0.250 U | | <0.250 U | <0.250 U | 0.710 J | 2.680 J | 6.320 J | 2.46 | <0.250 U | <0.150 U | 0.600 J |
| 205259 | 158808 | DINSDALE JEFFERY E & JULIE M | <0.250 U | | <0.250 U | <0.250 U | 0.750 J | 4.340 J | <5.000 U | <0.250 U | <0.250 U | <0.150 U | 0.670 J |
| 205155 | 259949 | GESSELE, EDWIN C JR | <0.250 U | | <0.250 U | <0.250 U | 1.29 | <0.100 U | <5.000 U | 3.48 | 0.510 J | <0.150 U | <0.250 U |
| 205153 | 259949 | GESSELE, EDWIN C JR | <0.250 U | | <0.250 U | <0.250 U | 1.36 | <0.100 U | <5.000 U | 3.45 | <0.250 U | <0.150 U | <0.250 U |
| 205152 | 259949 | GESSELE, EDWIN C JR | <0.100 U | 96 | <0.100 U | <0.100 U | <0.100 U | <0.040 U | 6.200 J | 3.42 | 0.200 J | <0.060 U | <0.100 U |
| 205154 | 259949 | GESSELE, EDWIN C JR | <0.100 U | 97 | <0.100 U | <0.100 U | <0.100 U | <0.040 U | <2.000 U | 3.44 | 0.220 J | <0.060 U | <0.100 U |
| 205359 | 153592 | CHARLENE STOCK JONES | <0.250 U | | <0.250 U | <0.250 U | 0.750 J | 4.760 J | <5.000 U | 2.06 | 0.690 J | <0.150 U | <0.250 U |
| 205358 | 153592 | CHARLENE STOCK JONES | <0.250 U | | <0.250 U | <0.250 U | 0.760 J | 1.800 J | <5.000 U | 2.07 | <0.250 U | <0.150 U | <0.250 U |
| 205374 | 153592 | CHARLENE STOCK JONES | <0.100 U | 84 | <0.100 U | <0.100 U | <0.100 U | 0.920 J | 8.870 J | 2.21 | 0.320 J | <0.060 U | <0.100 U |
| 205373 | 153592 | CHARLENE STOCK JONES | <0.100 U | 98 | <0.100 U | <0.100 U | <0.100 U | 0.940 J | 4.730 J | 2.24 | 0.320 J | <0.060 U | <0.100 U |
| 203420 | 152683 | HELSPER WILLIAM F & LISA A | <0.100 U | 361 | <0.100 U | <0.100 U | 0.220 J | <0.040 U | 9.16 | <0.100 U | 2.04 | <0.060 U | <0.100 U |
| 203414 | 152683 | HELSPER WILLIAM F & LISA A | <0.250 U | | <0.250 U | <0.250 U | 0.650 J | <0.100 U | 10.820 J | <0.250 U | 2.08 | <0.150 U | <0.250 U |
| 203422 | 148956 | ADAMS ARLO AND JERYL | <0.100 U | 516 | <0.100 U | <0.100 U | <0.100 U | 1.490 J | <1.500 U | 1.28 | 0.62 | <0.060 U | <0.100 U |
| 205014 | 53591 | RUEGAMER, ANTHONY | <0.250 U | | <0.250 U | <0.250 U | 0.600 J | 3.020 J | 6.390 J | 7.64 | <0.250 U | <0.150 U | <0.250 U |
| 205029 | 53591 | RUEGAMER, ANTHONY | <0.100 U | 488 | <0.100 U | <0.100 U | <0.100 U | 0.640 J | 14.11 | 6.74 | 0.300 J | <0.060 U | <0.100 U |
| 205032 | 153593 | ARENTZ, IVAN EUGENE | <0.100 U | 232 | <0.100 U | <0.100 U | <0.100 U | <0.040 U | 20.45 | 2.97 | 0.58 | <0.060 U | <0.100 U |

Appendix E
ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Be (ug/l) | Br (ug/l) | Cd (ug/l) | Co (ug/l) | Cr (ug/l) | Cu (ug/l) | Li (ug/l) | Mo (ug/l) | Ni (ug/l) | Pb (ug/l) | Sb (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 205018 | 153593 | ARENTZ, IVAN EUGENE | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | <0.100 U | 16.23 | 3.38 | 0.640 J | <0.150 U | <0.250 U |
| 205031 | 250294 | MCQUEARY CAM | <0.100 U | 430 | <0.100 U | <0.100 U | 0.270 J | <0.040 U | 17.74 | 4.78 | 0.300 J | <0.060 U | <0.100 U |
| 205017 | 250294 | MCQUEARY CAM | <0.250 U | | <0.250 U | <0.250 U | 0.690 J | <0.100 U | 12.200 J | 5.37 | <0.250 U | <0.150 U | <0.250 U |
| 205260 | 266861 | PIERCE, COLT | <0.250 U | | <0.250 U | <0.250 U | 0.950 J | 3.360 J | 12.400 J | 6.29 | <0.250 U | <0.150 U | 0.530 J |
| 205272 | 266861 | PIERCE, COLT | <0.100 U | 221 | <0.100 U | <0.100 U | <0.100 U | 0.770 J | 11.27 | 6.27 | 0.230 J | <0.060 U | <0.100 U |
| 203555 | 271663 | GRANT, PAM & PAUL | <0.250 U | | <0.250 U | <0.250 U | <0.250 U | 29.01 | <3.750 U | <0.250 U | <0.250 U | <0.150 U | <0.250 U |
| 204793 | 274502 | WILLIAMS, LEAH | <0.250 U | | <0.250 U | <0.250 U | 0.710 J | 2.830 J | 4.170 J | 3.3 | <0.250 U | <0.150 U | <0.250 U |

Appendix E
ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Se (ug/l) | Sn (ug/l) | Sr (ug/l) | Ti (ug/l) | Tl (ug/l) | U (ug/l) | V (ug/l) | Zn (ug/l) | Zr (ug/l) | Ce (ug/l) | Cs (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 205360 | 256874 | SHYBA, LORI | 1.6 | <0.250 U | 929.5 | 2.58 | <0.250 U | 5.43 | 6.08 | 28.5 | <0.250 U | <0.250 U | 39.35 |
| 205375 | 256874 | SHYBA, LORI | 1.76 | <0.100 U | 831.17 | 1.04 | 0.56 | 5.07 | 5.24 | 32.08 | <0.100 U | <0.100 U | 41.16 |
| 205362 | 256874 | SHYBA, LORI | <0.250 U | <0.250 U | 14.95 | 1.56 | <0.250 U | <0.250 U | 0.940 J | 3.800 J | <0.250 U | <0.250 U | 4.96 |
| 205363 | 256874 | SHYBA, LORI | <0.250 U | <0.250 U | 33.42 | 1.85 | <0.250 U | <0.250 U | 1.100 J | 7.07 | <0.250 U | <0.250 U | 5.98 |
| 205357 | 198928 | RANKIN, KEITH AND JEAN | <0.250 U | <0.250 U | 16.85 | 17.92 | <0.250 U | <0.250 U | 2.05 | 16.73 | 0.340 J | 0.660 J | <0.250 U |
| 205372 | 198928 | RANKIN, KEITH AND JEAN | <0.100 U | <0.100 U | 16.67 | 5.97 | <0.100 U | <0.100 U | 0.97 | 19.72 | <0.100 U | 0.52 | <0.100 U |
| 205002 | 252623 | MACCIOLI JOE & PATTI | 1.31 | <0.250 U | 610.94 | 2.99 | <0.250 U | 24.64 | 13.53 | 5.2 | <0.250 U | <0.250 U | <0.250 U |
| 205026 | 252623 | MACCIOLI JOE & PATTI | 1.89 | <0.250 U | 563.65 | 0.900 J | <0.250 U | 21.12 | 14.53 | 4.400 J | <0.250 U | <0.250 U | <0.250 U |
| 205019 | 252623 | MACCIOLI JOE & PATTI | <0.250 U | <0.250 U | 23.11 | 2.03 | <0.250 U | <0.250 U | <0.250 U | 3.430 J | <0.250 U | <0.250 U | <0.250 U |
| 203621 | 271935 | YATES, KEN AND SHARON | <0.250 U | <0.250 U | 75.7 | 4.62 | <0.250 U | 1.33 | 3.95 | 10.36 | <0.250 U | <0.250 U | <0.250 U |
| 203817 | 194331 | HARWOOD, LARRY E AND BARBARA | <0.250 U | <0.250 U | 69.21 | 3.55 | <0.250 U | 0.892 J | 5.61 | 2.740 J | <0.250 U | <0.250 U | <0.250 U |
| 203936 | 273576 | WILLEY, DARLENE AND MICHAEL | <0.250 U | <0.250 U | 105.98 | 2.71 | <0.250 U | 1.200 J | 1.48 | 1.550 J | <0.250 U | <0.250 U | <0.250 U |
| 204684 | 274411 | KAIN, DONALD | <0.250 U | <0.250 U | 81.49 | 2.05 | <0.250 U | 0.450 J | 1.54 | 3.850 J | <0.250 U | <0.250 U | <0.250 U |
| 204094 | 273801 | VAUTHIER, THOMAS | <0.250 U | <0.250 U | 101.89 | 3.16 | <0.250 U | 1.27 | 5.45 | 3.220 J | <0.250 U | <0.250 U | <0.250 U |
| 204685 | 51068 | OLSON, ROGER | <0.250 U | <0.250 U | 96.13 | 1.89 | <0.250 U | 0.810 J | 1.59 | 1.250 J | 0.250 J | <0.250 U | <0.250 U |
| 203622 | 51094 | COLWELL, DUANE | <0.250 U | <0.250 U | 106.73 | 5.03 | <0.250 U | 2.37 | 2.2 | 4.200 J | <0.250 U | <0.250 U | <0.250 U |
| 203707 | 51079 | CHRISTIAN, GREGORY AND MICHELLE | <0.250 U | <0.250 U | 102.37 | 4.67 | <0.250 U | 2.22 | 3.55 | 31.41 | <0.250 U | <0.250 U | <0.250 U |
| 203435 | 271373 | KOPP, ROSE & KEN | <0.250 U | <0.250 U | 105.17 | 3.59 | <0.250 U | 1.210 J | 3.34 |  | <0.250 U | <0.250 U | <0.250 U |
| 203575 | 194334 | GARCIA, RICARDO AND RUTH L | <0.250 U | <0.250 U | 99.64 | <0.250 U | <0.250 U | 1.42 | 0.870 J |  | <0.250 U | <0.250 U | <0.250 U |
| 203576 | 271684 | DAVIS, JEREMY | <0.250 U | <0.250 U | 94.45 | 2.22 | <0.250 U | 1.200 J | 3.44 |  | <0.250 U | <0.250 U | <0.250 U |
| 205201 | 137932 | PAMIN, JEFF & BECKY * 2013 PAMIN | <0.250 U | <0.250 U | 75.84 | 3.69 | <0.250 U | 0.760 J | 4.67 | 13.44 | <0.250 U | <0.250 U | <0.250 U |
| 203369 | 271338 | KRUMM, JENNY AND TIM | <0.250 U | <0.250 U | 111.3 | 3.19 | <0.250 U | 4.51 | 3.17 |  | <0.250 U | <0.250 U | <0.250 U |
| 204240 | 274025 | RICE, CLARK (CORKY) * 117 RICE | <0.250 U | <0.250 U | 130.91 | 5.7 | <0.250 U | 8.85 | 4.71 | 1.660 J | <0.250 U | <0.250 U | <0.250 U |
| 204242 | 274028 | RICE, CLARK (CORKY) * 109 RICE | <0.250 U | <0.250 U | 130.22 | 6.54 | <0.250 U | 4.81 | 4.67 | 3.940 J | <0.250 U | <0.250 U | <0.250 U |
| 204241 | 274027 | RICE, CLARK (CORKY) * 111 RICE | <0.250 U | <0.250 U | 118.41 | 6.04 | <0.250 U | 2.8 | 5.59 | 5.47 | <0.250 U | <0.250 U | <0.250 U |
| 204226 | 274006 | RICE, CLARK (CORKY) * 303 ERICKSON | <0.250 U | <0.250 U | 121.66 | 6.02 | <0.250 U | 1.75 | 4.28 | 6.34 | <0.250 U | <0.250 U | <0.250 U |
| 203267 | 235579 | CLARK LEE | <0.250 U | <0.250 U | 87.76 | 3.52 | <0.250 U | 1.31 | 5.75 | 1559 | <0.250 U | <0.250 U | <0.250 U |
| 205142 | 120711 | PATTERSON, NATHAN & SHERRIE | <0.250 U | <0.250 U | 111.85 | 2.18 | <0.250 U | 1.28 | 2.87 | 1.820 J | <0.250 U | <0.250 U | <0.250 U |
| 203577 | 271686 | BLANK, DORIS | <0.250 U | <0.250 U | 89.82 | 2.31 | <0.250 U | 1.100 J | 3.26 |  | <0.250 U | <0.250 U | <0.250 U |
| 203351 | 271248 | MORSE, DEDE & RICK | <0.250 U | <0.250 U | 111.28 | 3.85 | <0.250 U | 3.64 | 6.49 | 206.53 | <0.250 U | <0.250 U | <0.250 U |
| 205141 | 275057 | EVANS, ALBERT | <0.250 U | <0.250 U | 81.91 | 2.24 | <0.250 U | 0.790 J | 2.46 | 480.25 | <0.250 U | <0.250 U | <0.250 U |
| 203371 | 195486 | DOYLE, DUANE R. AND JEANETTE I. | <0.250 U | <0.250 U | 109.33 | 3.43 | <0.250 U | 1.42 | 3.69 |  | <0.250 U | <0.250 U | <0.250 U |
| 205257 | 275248 | REDD, GINNY & STEVE | 0.530 J | <0.250 U | 100.88 | 4.48 | <0.250 U | 3.83 | 3.32 | 8.64 | <0.250 U | <0.250 U | <0.250 U |
| 203665 | 227965 | NEWELL, JOHN | <0.250 U | <0.250 U | 97.83 | 6.44 | <0.250 U | 1.230 J | 3.21 | 22.68 | <0.250 U | <0.250 U | <0.250 U |
| 203664 | 272001 | RAASAKKA, DARYL | <0.250 U | <0.250 U | 94.21 | 3.47 | <0.250 U | 1.39 | 3.12 | 2.380 J | <0.250 U | <0.250 U | <0.250 U |
| 203666 | 230073 | HENDRICKSON, MICHAEL | <0.250 U | <0.250 U | 99.14 | 30.37 | <0.250 U | 1.6 | 7.05 | 20.1 | <0.250 U | 0.730 J | <0.250 U |
| 205538 | 51134 | FRANCISCO, JOHN * WELL #1 | <0.250 U | <0.250 U | 141.43 | 2.63 | <0.250 U | 2.34 | 4.56 | <1.250 U | <0.250 U | <0.250 U | <0.250 U |
| 203370 | 174769 | HUESTIS, MIKE | <0.250 U | <0.250 U | 109.84 | 2.85 | <0.250 U | 1.67 | 5.57 |  | <0.250 U | <0.250 U | <0.250 U |
| 205351 | 51144 | DYE, DIXIE * HOUSE | <0.250 U | 0.750 J | 75.68 | 1.33 | <0.250 U | 0.810 J | 0.910 J | 4.740 J | <0.250 U | <0.250 U | <0.250 U |
| 205254 | 137922 | WENGER, GARY * WENGER | <0.250 U | <0.250 U | 123.27 | 4.07 | <0.250 U | 2.15 | 3.75 | 6.38 | <0.250 U | <0.250 U | <0.250 U |
| 205354 | 275360 | ALOYSIUS, AL AND LOUISE | <0.250 U | <0.250 U | 85.38 | 1.29 | <0.250 U | 1.190 J | 0.940 J | 7.83 | <0.250 U | <0.250 U | <0.250 U |
| 205352 | 251784 | DYE, DIXIE * SHOP | <0.250 U | <0.250 U | 89.04 | 1.35 | <0.250 U | 1.170 J | 0.900 J | <0.130 U | <0.250 U | <0.250 U | <0.250 U |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Se (ug/l) | Sn (ug/l) | Sr (ug/l) | Ti (ug/l) | Tl (ug/l) | U (ug/l) | V (ug/l) | Zn (ug/l) | Zr (ug/l) | Ce (ug/l) | Cs (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 203433 | 271435 | MYERS, NANCY & SERGE | <0.250 U | <0.250 U | 115.31 | 3.54 | <0.250 U | 1.250 J | 3.88 | | <0.250 U | <0.250 U | <0.250 U |
| 203434 | 153529 | MYERS, SERGE | <0.250 U | <0.250 U | 103.73 | 3.85 | <0.250 U | 1.030 J | 3.07 | | <0.250 U | <0.250 U | <0.250 U |
| 205441 | 275639 | MCKNIGHT, SCOTT AND MICHELLE | <0.250 U | <0.250 U | 126.84 | 2.27 | <0.250 U | 1.56 | 1.45 | 7.4 | <0.250 U | <0.250 U | <0.250 U |
| 205356 | 51140 | MCGILLEN, LINDA & PAUL | <0.250 U | <0.250 U | 74.74 | 3.32 | <0.250 U | 0.810 J | 1.61 | 19.52 | <0.250 U | <0.250 U | <0.250 U |
| 205377 | 51140 | MCGILLEN, LINDA & PAUL | <0.250 U | <0.250 U | 113.77 | 4.5 | <0.250 U | 1.210 J | 2.37 | 23.64 | <0.250 U | <0.250 U | <0.250 U |
| 203816 | 170884 | PETERS, TAMMY | <0.250 U | <0.250 U | 135.7 | 3.93 | <0.250 U | 2.895 J | 5.36 | 20.68 | <0.250 U | <0.250 U | 21.81 |
| 205416 | 275482 | CLARK, HERB | <0.250 U | <0.250 U | 202.03 | 10.04 | <0.250 U | 2.36 | 15.94 | 72.42 | <0.250 U | <0.250 U | <0.250 U |
| 203554 | 271660 | KELSEY, BARBARA | <0.250 U | <0.250 U | 175.25 | 0.870 J | <0.250 U | 0.740 J | 8.53 | | <0.250 U | <0.250 U | <0.250 U |
| 205442 | 275671 | MICKELBRRY, DALTON | <0.250 U | <0.250 U | 129.76 | 2.39 | <0.250 U | 1.86 | 1.52 | 1.600 J | <0.250 U | <0.250 U | <0.250 U |
| 204350 | 274200 | WILLENE POND GUEST HOUSE | <0.250 U | <0.250 U | 151.79 | 3.48 | <0.250 U | 2.6 | 3.14 | 6.38 | <0.250 U | <0.250 U | <0.250 U |
| 204348 | 274199 | WILLENE POND | <0.250 U | <0.250 U | 141.91 | 3.23 | <0.250 U | 3.06 | 3.76 | 3.060 J | <0.250 U | <0.250 U | <0.250 U |
| 205602 | 276397 | VAUTHIER, GARY | <0.250 U | <0.250 U | 142.44 | 4.54 | <0.250 U | 1.55 | 3.54 | 15.96 | <0.250 U | <0.250 U | <0.250 U |
| 203726 | 272210 | SILZLY, ROSEMARIE | <0.250 U | <0.250 U | 178.08 | 2.74 | <0.250 U | 1.130 J | 12.72 | 3.330 J | <0.250 U | <0.250 U | <0.250 U |
| 205355 | 51182 | KETO, DIXIE/WEST, DIANE | <0.250 U | <0.250 U | 88.45 | 1.250 J | <0.250 U | 1.43 | 1.020 J | 1.820 J | <0.250 U | <0.250 U | <0.250 U |
| 203432 | 51222 | MYERS, NANCY & SERGE | <0.250 U | <0.250 U | 116.28 | 3.75 | <0.250 U | 1.27 | 3.36 | | <0.250 U | <0.250 U | <0.250 U |
| 205255 | 275243 | FISCHER, FRED & RUBY * ANGELA BORGEN | <0.250 U | <0.250 U | 146.52 | 4.31 | <0.250 U | 3.56 | 3.23 | 19.32 | <0.250 U | <0.250 U | <0.250 U |
| 205256 | 275244 | FISCHER, FRED & RUBY * LINDA BARNEY | <0.250 U | <0.250 U | 127.69 | 4.58 | <0.250 U | 3.48 | 2.66 | 7.8 | <0.250 U | <0.250 U | <0.250 U |
| 203814 | 272246 | O'BRIEN, MICHAEL AND LALONNIE | <0.250 U | <0.250 U | 142.13 | 3.34 | <0.250 U | 3.683 | 6.21 | 4.520 J | <0.250 U | <0.250 U | <0.250 U |
| 203813 | 272245 | SILZLY, ROSEMARIE | <0.250 U | <0.250 U | 118.14 | 2.19 | <0.250 U | 2.152 J | 5.4 | 40.28 | <0.250 U | <0.250 U | <0.250 U |
| 203243 | 269888 | EGGEN, LINDA | <0.250 U | <0.250 U | 132.49 | 5.02 | <0.250 U | 2.65 | 5.15 | 8.11 | <0.250 U | <0.250 U | <0.250 U |
| 205463 | 275869 | POFFENBERGER, DON | <0.250 U | <0.250 U | 171.86 | 1.95 | <0.250 U | 2.98 | 1.92 | 4.650 J | <0.250 U | <0.250 U | <0.250 U |
| 204681 | 274374 | GREY, JACK | <0.250 U | <0.250 U | 137.08 | 2.46 | <0.250 U | 3.42 | 1.51 | 3.360 J | <0.250 U | <0.250 U | <0.250 U |
| 204299 | 274104 | SILZLY, ROSEMARIE * 116 HAUSER | <0.250 U | <0.250 U | 136.78 | 8.51 | <0.250 U | 2.09 | 4 | 2.750 J | <0.250 U | <0.250 U | <0.250 U |
| 204682 | 274418 | CRISLER, MARY ELLEN & FRANCIS | <0.250 U | <0.250 U | 207.92 | 2.02 | <0.250 U | 5.8 | 1.28 | 1.820 J | <0.250 U | <0.250 U | <0.250 U |
| 203725 | 153530 | MANN, LEONARD | <0.250 U | <0.250 U | 175.95 | 5.48 | <0.250 U | 3.31 | 3.46 | 2.900 J | <0.250 U | <0.250 U | <0.250 U |
| 203815 | 272253 | PETERS, JUDY | <0.250 U | <0.250 U | 178.52 | 3.42 | <0.250 U | 3.793 | 5.69 | 2.740 J | <0.250 U | <0.250 U | <0.250 U |
| 203442 | 271449 | JOHNSTON, DEBORAH | <0.250 U | <0.250 U | 177.78 | 3.57 | <0.250 U | 2.82 | 3.94 | | <0.250 U | <0.250 U | <0.250 U |
| 203443 | 271449 | JOHNSTON, DEBORAH | <0.250 U | <0.250 U | 176.17 | 3.68 | <0.250 U | 2.8 | 3.72 | | <0.250 U | <0.250 U | <0.250 U |
| 204683 | 274377 | NICHOLSON, JUDY | <0.250 U | <0.250 U | 185.54 | 2.2 | <0.250 U | 4.8 | 1.56 | 1.080 J | <0.250 U | <0.250 U | <0.250 U |
| 205601 | 276396 | MICKEY, GAIL AND TOM | <0.250 U | <0.250 U | 122.74 | 3.89 | <0.250 U | 1.8 | 4.28 | 2.010 J | <0.250 U | <0.250 U | <0.250 U |
| 203430 | 264545 | VARELIA, HELEN | <0.100 U | <0.100 U | 203.72 | 0.330 J | <0.100 U | 3.2 | 0.55 | 0.870 J | <0.100 U | <0.100 U | <0.100 U |
| 203418 | 264545 | VARELIA, HELEN | <0.250 U | <0.250 U | 210.1 | 4.93 | <0.250 U | 3.45 | 2.98 | | <0.250 U | <0.250 U | <0.250 U |
| 204678 | 274346 | RUSTAD, HOWARD | <0.250 U | <0.250 U | 141.48 | 0.650 J | <0.250 U | 2.58 | 0.630 J | 1.680 J | <0.250 U | <0.250 U | <0.250 U |
| 204686 | 274363 | RAYMOND JOHNSON | <0.250 U | <0.250 U | 94.73 | 2.03 | <0.250 U | 2.36 | 1.87 | 2.600 J | <0.250 U | <0.250 U | <0.250 U |
| 203706 | 163966 | HILMO, TIM | <0.250 U | <0.250 U | 132.47 | 5.78 | <0.250 U | 8.26 | 2.32 | 13.45 | <0.250 U | <0.250 U | <0.250 U |
| 203342 | 242287 | KITTLESON, JANET | <0.250 U | <0.250 U | 105.84 | 3.58 | <0.250 U | 3.15 | 7.31 | 834.15 | <0.250 U | <0.250 U | <0.250 U |
| 203932 | 273569 | SCHAFER, DALE | <0.250 U | <0.250 U | 84.71 | 1.36 | <0.250 U | 0.880 J | 1.26 | 1.010 J | <0.250 U | <0.250 U | <0.250 U |
| 203340 | 270198 | KITTLESON 311-C | <0.250 U | 0.270 J | 127.32 | 8.33 | <0.250 U | 5.39 | 12.66 | 4644.26 | <0.250 U | <0.250 U | <0.250 U |
| 203341 | 270197 | KITTLESON 311-B | <0.250 U | <0.250 U | 101.91 | 3.72 | <0.250 U | 1.63 | 6.6 | 1130.84 | <0.250 U | <0.250 U | <0.250 U |
| 203429 | 264544 | SWANSON, RON | <0.100 U | <0.100 U | 186.2 | 0.390 J | <0.100 U | 4.75 | 1.78 | 1.420 J | <0.100 U | <0.100 U | <0.100 U |
| 203417 | 264544 | SWANSON, RON | <0.250 U | <0.250 U | 194.71 | 8.19 | <0.250 U | 5.59 | 5.35 | | <0.250 U | <0.250 U | <0.250 U |
| 204679 | 104978 | SAFFLE, KAREN & BOB | <0.250 U | <0.250 U | 159.67 | 1.9 | <0.250 U | 3.41 | 1.6 | 33.33 | <0.250 U | <0.250 U | <0.250 U |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Se (ug/l) | Sn (ug/l) | Sr (ug/l) | Ti (ug/l) | Tl (ug/l) | U (ug/l) | V (ug/l) | Zn (ug/l) | Zr (ug/l) | Ce (ug/l) | Cs (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 203441 | 271441 | JOHNSON, SYLVIA & HAROLD | <0.250 U | <0.250 U | 178.27 | 4.77 | <0.250 U | 3.02 | 3.68 | | <0.250 U | <0.250 U | <0.250 U |
| 203663 | 51243 | COONEY, FRANKLIN AND VICKI | <0.250 U | <0.250 U | 179.87 | 6.26 | <0.250 U | 5.91 | 5.22 | 18.54 | <0.250 U | <0.250 U | <0.250 U |
| 204680 | 274358 | COX, CARL | <0.250 U | 15.05 | 198.71 | 13.44 | <0.250 U | 7.89 | 4.13 | 4.620 J | <0.250 U | 1.140 J | <0.250 U |
| 203578 | 271689 | MCCARTHY, JIM | <0.250 U | <0.250 U | 84.82 | 2.67 | <0.250 U | 0.970 J | 2.98 | | <0.250 U | <0.250 U | <0.250 U |
| 203427 | 197463 | MCKAY, ROBERT | 0.340 J | <0.100 U | 322.6 | 0.75 | <0.100 U | 7.48 | 1.8 | 6.25 | <0.100 U | <0.100 U | <0.100 U |
| 203428 | 197463 | MCKAY, ROBERT | 0.390 J | <0.100 U | 307.65 | 0.74 | <0.100 U | 7.66 | 1.75 | 6.41 | <0.100 U | <0.100 U | <0.100 U |
| 203426 | 197463 | MCKAY, ROBERT | 0.380 J | <0.100 U | 322.08 | 0.72 | <0.100 U | 8.05 | 1.82 | 7.09 | <0.100 U | <0.100 U | <0.100 U |
| 203416 | 197463 | MCKAY, ROBERT | <0.250 U | <0.250 U | 340.87 | 5.33 | <0.250 U | 9.09 | 5.66 | | <0.250 U | <0.250 U | <0.250 U |
| 203620 | 251790 | PHILLIPS, ROB | 0.690 J | <0.250 U | 553.86 | 4.3 | <0.250 U | 67.92 | 4.15 | 14.28 | <0.250 U | <0.250 U | <0.250 U |
| 204243 | 202080 | DANIELS, LOYD | <0.250 U | <0.250 U | 944.5 | 7.69 | <0.250 U | 80.53 | 7.37 | 7.44 | <0.250 U | <0.250 U | <0.250 U |
| 203266 | 51318 | DANIELS, LLOYD | <0.500 U | <0.500 U | 1298.17 | 7.76 | <0.500 U | 93.75 | 8.56 | 1072 | <0.500 U | <0.500 U | <0.500 U |
| 203491 | 271503 | HOGGE, VERNAN AND MARJORIE | 0.83 | <0.100 U | 709.89 | 1.15 | <0.100 U | 21.62 | 3.36 | 48.2 | <0.100 U | <0.100 U | 0.270 J |
| 203485 | 271503 | HOGGE, VERNAN AND MARJORIE | <0.250 U | <0.250 U | 684.27 | 4.79 | <0.250 U | 17.36 | 4.82 | | <0.250 U | <0.250 U | <0.250 U |
| 205023 | 51333 | FRESH, JEAN AND ELDEN | 0.73 | <0.100 U | 326.43 | 0.98 | <0.100 U | 3.69 | 8.41 | 15.2 | <0.100 U | <0.100 U | <0.100 U |
| 204987 | 51333 | FRESH, JEAN AND ELDEN | 1.130 J | <0.250 U | 366.45 | 2.2 | <0.250 U | 4.31 | 9.6 | 21.39 | <0.250 U | <0.250 U | <0.250 U |
| 204988 | 51333 | FRESH, JEAN AND ELDEN | <0.250 U | <0.250 U | 6.18 | 1.72 | <0.250 U | <0.250 U | 0.900 J | 13.66 | <0.250 U | <0.250 U | <0.250 U |
| 205144 | 276484 | SWANSON, MARK | 0.370 J | <0.100 U | 294.16 | 0.300 J | <0.100 U | 3.15 | 6.42 | 12.32 | <0.100 U | <0.100 U | 8.63 |
| 205145 | 276484 | SWANSON, MARK | <0.250 U | <0.250 U | 314.76 | 2.03 | <0.250 U | 3.51 | 9.48 | 7.17 | <0.250 U | <0.250 U | 9.52 |
| 204905 | 221430 | KEELE, DON - SHOP | 0.490 J | <0.100 U | 569.63 | 0.52 | <0.100 U | 13.39 | 8.94 | 5.54 | <0.100 U | <0.100 U | 3.23 |
| 204896 | 221430 | KEELE, DON - SHOP | 1.240 J | <0.250 U | 589.91 | 6.98 | <0.250 U | 13.79 | 16.13 | 7.48 | <0.250 U | 0.540 J | 3.61 |
| 204897 | 254433 | BAILEY, DON & DEBRAH | 0.53 | <0.100 U | 236.64 | 0.260 J | <0.100 U | 3.22 | 6.53 | 23.34 | <0.100 U | <0.100 U | 3.49 |
| 204881 | 254433 | BAILEY, DON & DEBRAH | 0.560 J | <0.250 U | 248.2 | 1.56 | <0.250 U | 3.2 | 9.25 | 17.01 | <0.250 U | <0.250 U | 3.72 |
| 204901 | 226130 | SCHERMAN, RUSS | 0.430 J | <0.100 U | 79.35 | 0.98 | <0.100 U | 3.14 | 9.54 | 4.4 | <0.100 U | <0.100 U | <0.100 U |
| 204890 | 226130 | SCHERMAN, RUSS | <0.250 U | <0.250 U | 83.02 | 1.6 | <0.250 U | 3.3 | 14.99 | 7.48 | <0.250 U | <0.250 U | <0.250 U |
| 205015 | 226130 | SCHERMAN, RUSS | <0.250 U | <0.250 U | <0.250 U | 1.88 | <0.250 U | <0.250 U | 1.210 J | <0.130 U | <0.250 U | <0.250 U | <0.250 U |
| 204888 | 51327 | FAUGHT, STANLEY | 0.580 J | <0.250 U | 527.35 | 0.690 J | <0.250 U | 21.71 | 12.69 | 2.850 J | <0.250 U | <0.250 U | 5.36 |
| 204900 | 51327 | FAUGHT, STANLEY | 0.62 | <0.100 U | 501.44 | 0.350 J | <0.100 U | 22.13 | 8.99 | 1.820 J | <0.100 U | <0.100 U | 4.92 |
| 204898 | 252926 | WYBENGA, TRACY | 0.52 | <0.100 U | 357.41 | 0.440 J | <0.100 U | 4.58 | 6.09 | 14.87 | <0.100 U | <0.100 U | 2.05 |
| 204884 | 252926 | WYBENGA, TRACY | <0.250 U | <0.250 U | 364.54 | 1.51 | <0.250 U | 4.46 | 11.52 | 6.22 | <0.250 U | <0.250 U | 2.19 |
| 204902 | 51328 | SCHERMAN, RUSS- RENTAL | 0.64 | <0.100 U | 94.77 | 0.420 J | <0.100 U | 4.63 | 7.11 | 3.41 | <0.100 U | <0.100 U | <0.100 U |
| 204891 | 51328 | SCHERMAN, RUSS- RENTAL | 0.580 J | <0.250 U | 96.36 | 2.64 | <0.250 U | 4.66 | 10.71 | 4.770 J | <0.250 U | <0.250 U | <0.250 U |
| 203483 | 181457 | WHITAKER, RAY | 0.670 J | <0.250 U | 343.13 | 2.5 | <0.250 U | 12.1 | 12.16 | | <0.250 U | <0.250 U | 6.03 |
| 203482 | 181457 | WHITAKER, RAY | 0.95 | <0.100 U | 334.54 | 0.51 | <0.100 U | 22.88 | 6.64 | 1.180 J | <0.100 U | <0.100 U | 5.45 |
| 204057 | 51334 | MCDOWELL, HAROLD | 0.440 J | <0.100 U | 153.71 | 0.350 J | <0.100 U | 1.99 | 0.51 | <0.050 U | <0.100 U | <0.100 U | <0.100 U |
| 204052 | 51334 | MCDOWELL, HAROLD | 0.460 J | <0.100 U | 160.48 | 0.330 J | <0.100 U | 2.11 | 0.56 | <0.050 U | 0.240 J | <0.100 U | <0.100 U |
| 204055 | 51334 | MCDOWELL, HAROLD | <0.250 U | <0.250 U | 166.58 | 2.12 | <0.250 U | 2.24 | 1.57 | <0.130 U | <0.250 U | <0.250 U | <0.250 U |
| 204056 | 51334 | MCDOWELL, HAROLD | 0.570 J | <0.250 U | 167.78 | 2.19 | <0.250 U | 2.26 | 1.61 | <0.130 U | <0.250 U | <0.250 U | <0.250 U |
| 204053 | 254941 | MIKES SALES AND PAWN | 0.470 J | <0.100 U | 138.13 | 0.320 J | <0.100 U | 1.89 | 0.54 | 0.790 J | <0.100 U | <0.100 U | <0.100 U |
| 204054 | 254941 | MIKES SALES AND PAWN | 0.580 J | <0.250 U | 159.16 | 2.24 | <0.250 U | 2.24 | 1.68 | <0.130 U | <0.250 U | <0.250 U | <0.250 U |
| 205539 | 275908 | JEAN, HARMON | <0.250 U | <0.250 U | 131.86 | 2.81 | <0.250 U | <0.250 U | 5.81 | 4.530 J | <0.250 U | <0.250 U | <0.250 U |
| 205540 | 275922 | WIGERT, JANICE & GARY | <0.250 U | <0.250 U | 68.76 | 1.72 | <0.250 U | <0.250 U | 5.29 | 2.720 J | <0.250 U | <0.250 U | <0.250 U |
| 205541 | 173110 | WIGERT, ROXANNE & HOWARD | <0.250 U | <0.250 U | 56.15 | 1.97 | <0.250 U | <0.250 U | 5.88 | <1.250 U | <0.250 U | <0.250 U | <0.250 U |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Se (ug/l) | Sn (ug/l) | Sr (ug/l) | Ti (ug/l) | Tl (ug/l) | U (ug/l) | V (ug/l) | Zn (ug/l) | Zr (ug/l) | Ce (ug/l) | Cs (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 205464 | 51378 | PECUKONIS, DAVE & LAURIE | <0.250 U | <0.250 U | 72.76 | 3.97 | <0.250 U | <0.250 U | 1.42 | 10.02 | <0.250 U | <0.250 U | <0.250 U |
| 205462 | 51363 | GARRELS, DR L. | <0.250 U | <0.250 U | 51.05 | 2.07 | <0.250 U | <0.250 U | 0.960 J | 1765.49 | <0.250 U | <0.250 U | 0.700 J |
| 205461 | 123812 | GERVAIS, LESLIE | <0.250 U | <0.250 U | 278.29 | 2.68 | <0.250 U | 3.87 | 0.810 J | 3.580 J | <0.250 U | <0.250 U | 0.800 J |
| 204765 | 197464 | WACKERBARTH, DANA & BART | <0.250 U | <0.250 U | 54.58 | 17.75 | <0.250 U | 1.88 | 2.33 | 4.150 J | <0.250 U | 6.14 | 0.380 J |
| 205199 | 275101 | PETERSON, DONNA | 0.560 J | <0.250 U | 1149.68 | 5.7 | <0.250 U | 23.76 | 3.66 | 14.57 | <0.250 U | <0.250 U | <0.250 U |
| 205240 | 275180 | ROBINSON, RON & STORMIE * CREEK | <0.250 U | <0.250 U | 1608.16 | 9.19 | <0.250 U | 2.14 | 4.26 | 11.75 | <0.250 U | <0.250 U | 2.07 |
| 204049 | 237374 | DICKERSON, PHILIP | <0.250 U | <0.250 U | 827.94 | 2.97 | <0.250 U | 14.47 | 4.02 | 9.94 | <0.250 U | <0.250 U | <0.250 U |
| 204345 | 214966 | VANMEEL, MIKE | <0.250 U | <0.250 U | 264.31 | 3.49 | <0.250 U | 3.39 | 2.28 | <0.130 U | <0.250 U | <0.250 U | <0.250 U |
| 205242 | 163148 | WEBB, DAVE & BARBARA | <0.250 U | <0.250 U | 518.78 | 4.44 | <0.250 U | 5.86 | 5.08 | 10.3 | <0.250 U | <0.250 U | <0.250 U |
| 205192 | 275096 | ROBINSON, RON AND STORMIE * SPRING | <0.250 U | <0.250 U | 722.89 | 6.97 | <0.250 U | 6.24 | 4.55 | 3.000 J | <0.250 U | <0.250 U | <0.250 U |
| 205151 | 174778 | CATALENELLO, MARK | <0.250 U | <0.250 U | 137.65 | 1.62 | <0.250 U | 2.19 | 3.53 | 3.800 J | <0.250 U | <0.250 U | <0.250 U |
| 205150 | 174778 | CATALENELLO, MARK | <0.100 U | <0.100 U | 122.28 | <0.100 U | <0.100 U | 1.84 | 0.78 | 5.74 | <0.100 U | <0.100 U | <0.100 U |
| 203290 | 269999 | BLAKESLEE, RONALD | <0.250 U | <0.250 U | 302.91 | 3.8 | <0.250 U | 5.96 | 6.44 | 1417.92 | <0.250 U | <0.250 U | <0.250 U |
| 204227 | 163968 | KEISTER, RODNEY AND ELAINE | <0.250 U | <0.250 U | 107.96 | 5.79 | <0.250 U | <0.250 U | 6.99 | 5.72 | <0.250 U | <0.250 U | <0.250 U |
| 204768 | 274553 | MILLER, GREG | <0.250 U | <0.250 U | 60.33 | 2.97 | <0.250 U | <0.250 U | 1.4 | 15.38 | <0.250 U | <0.250 U | <0.250 U |
| 204296 | 274103 | SHEFFIELD, REGINA AND DAVID | <0.250 U | <0.250 U | 25.23 | 9.24 | <0.250 U | <0.250 U | 2.64 | 1.310 J | <0.250 U | <0.250 U | <0.250 U |
| 204767 | 274501 | SCHRANZ, PETER | <0.250 U | <0.250 U | 23.58 | 2.17 | <0.250 U | <0.250 U | 1.44 | <0.130 U | <0.250 U | <0.250 U | <0.250 U |
| 204766 | 274500 | SCHRANZ, JOAN AND PETER | <0.250 U | <0.250 U | 25.48 | 2.62 | <0.250 U | <0.250 U | 1.43 | 1.220 J | <0.250 U | <0.250 U | <0.250 U |
| 204295 | 274102 | FISH, SUSAN * SPRING | <0.250 U | <0.250 U | 28.23 | 9.93 | <0.250 U | 1.210 J | 3.01 | 2.180 J | <0.250 U | <0.250 U | <0.250 U |
| 205236 | 194340 | WEBB, DAVID * CABIN | <0.250 U | 0.280 J | 49.59 | 26.88 | <0.250 U | 0.640 J | 4.54 | 34.52 | <0.250 U | 3.43 | <0.250 U |
| 205415 | 51735 | HEGGELUND, TOM | <0.250 U | <0.250 U | 324.69 | 2.71 | <0.250 U | 58.82 | 4.03 | 2.570 J | <0.250 U | <0.250 U | <0.250 U |
| 204998 | 238047 | BLOM LORIN | 0.630 J | <0.250 U | 213.65 | 1.59 | <0.250 U | 2 | 5.05 | 17.81 | <0.250 U | <0.250 U | <0.250 U |
| 205025 | 238047 | BLOM LORIN | 0.88 | <0.100 U | 199.6 | <0.100 U | <0.100 U | 1.66 | 4.21 | 20.46 | <0.100 U | <0.100 U | <0.100 U |
| 205149 | 260549 | MITCHELL, HAROLD | 0.670 J | <0.250 U | <0.250 U | 1.37 | <0.250 U | 0.760 J | 4.54 | 1.320 J | <0.250 U | <0.250 U | <0.250 U |
| 205148 | 260549 | MITCHELL, HAROLD | 0.88 | <0.100 U | 0.51 | <0.100 U | <0.100 U | 0.72 | 2.01 | 2.24 | <0.100 U | <0.100 U | <0.100 U |
| 205028 | 256447 | SMITH MONTY & JULIE | 5.33 | <0.100 U | 166.53 | 0.53 | <0.100 U | 1.08 | 7.04 | 14.74 | <0.100 U | <0.100 U | <0.100 U |
| 205013 | 256447 | SMITH MONTY & JULIE | 5.4 | 7.66 | 174.02 | 27.7 | <0.250 U | 1.35 | 8.4 | 10.87 | <0.250 U | 0.650 J | <0.250 U |
| 204990 | 256622 | STEWART JOHN & PHYLLIS | 1.32 | <0.250 U | 214.04 | 2.23 | <0.250 U | 2.01 | 5.82 | 5.56 | <0.250 U | <0.250 U | <0.250 U |
| 205024 | 256622 | STEWART JOHN & PHYLLIS | 1.89 | <0.100 U | 197.63 | <0.100 U | <0.100 U | 1.72 | 4.91 | 3.87 | <0.100 U | <0.100 U | <0.100 U |
| 205147 | 241972 | FLACHMEYER DAN | 1.29 | <0.250 U | 195.67 | 2.04 | <0.250 U | 1.82 | 6.19 | <0.130 U | <0.250 U | <0.250 U | <0.250 U |
| 205146 | 241972 | FLACHMEYER DAN | 1.19 | <0.100 U | 178.81 | <0.100 U | <0.100 U | 1.67 | 3.23 | 1.620 J | <0.100 U | <0.100 U | <0.100 U |
| 203423 | 51744 | JETTE, ARTHUR & JESSIE | 0.65 | <0.100 U | 168.44 | <0.100 U | <0.100 U | 1.31 | 1.43 | 1.220 J | <0.100 U | <0.100 U | <0.100 U |
| 203381 | 271369 | KELLY, JOHN | <0.250 U | <0.250 U | 277.37 | 6.33 | <0.250 U | 2.43 | 3.65 |  | <0.250 U | <0.250 U | <0.250 U |
| 203382 | 271369 | KELLY, JOHN | <0.250 U | <0.250 U | 273.03 | 6.56 | <0.250 U | 2.37 | 3.84 |  | <0.250 U | <0.250 U | <0.250 U |
| 203424 | 250642 | NELSON, JASON | 0.52 | <0.100 U | 214.15 | <0.100 U | <0.100 U | 2.05 | 0.340 J | 5.84 | <0.100 U | <0.100 U | <0.100 U |
| 203415 | 250642 | NELSON, JASON | <0.250 U | <0.250 U | 207.37 | 3.59 | <0.250 U | 2.34 | 5.9 |  | <0.250 U | <0.250 U | <0.250 U |
| 204095 | 51751 | KIEWATT, CHARLES (MEL) | 1.46 | <0.250 U | 335.69 | 6.46 | <0.250 U | 2.45 | 8.29 | 13.81 | <0.250 U | <0.250 U | <0.250 U |
| 203492 | 229026 | SEVEYKA, PAUL | 0.58 | <0.100 U | 177.37 | 0.500 J | <0.100 U | 2.1 | 1.69 | 1.570 J | <0.100 U | <0.100 U | <0.100 U |
| 204047 | 273745 | KITTLESON, JANET (RENTAL) | 0.690 J | <0.250 U | 276 | 2.31 | <0.250 U | 13.62 | 2.95 | 4.450 J | <0.250 U | <0.250 U | <0.250 U |
| 203240 | 218249 | CRISP, SHARON & DOUG | 0.850 J | <0.250 U | 2187.59 | 19.96 | <0.250 U | 6.36 | 4.37 | 11.68 | <0.250 U | <0.250 U | <0.250 U |
| 203241 | 218249 | CRISP, SHARON & DOUG | <0.250 U | <0.250 U | 2188.3 | 23.74 | <0.250 U | 6.39 | 4.01 | 12.68 | <0.250 U | <0.250 U | <0.250 U |
| 205353 | 51724 | DELONG, DARCY * WELL #1 | <0.250 U | <0.250 U | 70.89 | 1.43 | <0.250 U | 1.030 J | 1.030 J | 4.000 J | <0.250 U | <0.250 U | <0.250 U |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Se (ug/l) | Sn (ug/l) | Sr (ug/l) | Ti (ug/l) | Tl (ug/l) | U (ug/l) | V (ug/l) | Zn (ug/l) | Zr (ug/l) | Ce (ug/l) | Cs (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 203383 | 195488 | CHIRICO, KIMBERLY | 1.020 J | <0.250 U | 439 | 5.26 | <0.250 U | 11.71 | 4.28 | | <0.250 U | <0.250 U | <0.250 U |
| 203384 | 51762 | CHIRICO, KIMBERLY | 0.580 J | <0.250 U | 546.47 | 6.63 | <0.250 U | 4.85 | 5.49 | | <0.250 U | <0.250 U | <0.250 U |
| 205600 | 276366 | MANZ, TOM | <0.250 U | <0.250 U | 87.34 | 3.92 | <0.250 U | 1.76 | 6.47 | 27.59 | <0.250 U | <0.250 U | <0.250 U |
| 203587 | 5376 | UELAND RANCHES | <0.100 U | <0.100 U | 189.32 | 0.480 J | <0.100 U | 4.14 | 1.38 | 29 | <0.100 U | <0.100 U | <0.100 U |
| 203590 | 5376 | UELAND RANCHES | <0.250 U | <0.250 U | 160.66 | 3.53 | <0.250 U | 3.08 | 2.24 | | <0.250 U | <0.250 U | <0.250 U |
| 205010 | 5377 | GALLE CLIFF JR | <0.250 U | <0.250 U | 103.9 | 1.91 | <0.250 U | 2.08 | 2.49 | 4.430 J | <0.250 U | <0.250 U | <0.250 U |
| 205027 | 5377 | GALLE CLIFF JR | <0.100 U | <0.100 U | 100.31 | <0.100 U | <0.100 U | 1.71 | 1.52 | 4.32 | <0.100 U | <0.100 U | <0.100 U |
| 204984 | 51790 | GALLE, TYKE | <0.250 U | <0.250 U | 100.54 | 1.74 | <0.250 U | 2.13 | 1.97 | 4.970 J | <0.250 U | <0.250 U | <0.250 U |
| 205022 | 51790 | GALLE, TYKE | <0.100 U | <0.100 U | 95.44 | <0.100 U | <0.100 U | 1.84 | 1.13 | 5.97 | <0.100 U | <0.100 U | <0.100 U |
| 204342 | 257526 | RICE CLARK | <0.250 U | <0.250 U | 100.24 | 3.17 | <0.250 U | 2.52 | 1.88 | 5.22 | <0.250 U | <0.250 U | <0.250 U |
| 203928 | 166679 | JOHNSON, WADE | 1.31 | <0.250 U | 689.43 | 2.43 | <0.250 U | 5.29 | 8.45 | 7.67 | <0.250 U | <0.250 U | <0.250 U |
| 203930 | 183266 | PETERSON, RON | <0.250 U | <0.250 U | 372.86 | 1.81 | <0.250 U | 1.25 | 0.640 J | 25.03 | <0.250 U | <0.250 U | <0.250 U |
| 203372 | 196333 | HEFFERNAN, DAVE | <0.250 U | <0.250 U | 252.24 | 4.99 | <0.250 U | 6.8 | 3.01 | | <0.250 U | <0.250 U | 0.730 J |
| 204174 | 273926 | GREGORICH, TERENCE | <0.250 U | <0.250 U | 102.72 | 5.78 | <0.250 U | 61.56 | 3.94 | 148.81 | 77.18 | <0.250 U | <0.250 U |
| 203349 | 271244 | JOHNSON, CLAUDIA | <0.250 U | <0.250 U | 92.9 | 5.66 | <0.250 U | 3.67 | 5.46 | 479.88 | <0.250 U | <0.250 U | <0.250 U |
| 204221 | 178947 | SLOCUM, JAY | <0.250 U | 1.91 | 88.57 | 5.87 | <0.250 U | 5.9 | 4.79 | 4.520 J | <0.250 U | <0.250 U | 0.670 J |
| 203350 | 271245 | JOHNSON, CLAUDIA (RENTAL) | <0.250 U | <0.250 U | 44.22 | 4.81 | <0.250 U | 2.99 | 5.64 | 308.06 | <0.250 U | <0.250 U | <0.250 U |
| 205021 | 230299 | GALLE JEFF AND ANGELLA | <0.100 U | <0.100 U | 490 | 0.330 J | <0.100 U | 1.22 | <0.100 U | 4.48 | <0.100 U | <0.100 U | 2.54 |
| 204981 | 230299 | GALLE JEFF AND ANGELLA | <0.250 U | <0.250 U | 548.84 | 1.65 | <0.250 U | 1.5 | <0.250 U | 5.25 | <0.250 U | <0.250 U | 3.03 |
| 204222 | 273982 | RASMUSSEN, KATHY | <0.250 U | <0.250 U | 133.56 | 6.96 | <0.250 U | 3.8 | 3.48 | 12.76 | <0.250 U | <0.250 U | <0.250 U |
| 204343 | 160171 | GRAFF, STEVE | 0.780 J | <0.250 U | 845.9 | 3.24 | <0.250 U | 2.05 | 2.78 | 7.25 | <0.250 U | <0.250 U | <0.250 U |
| 204173 | 273924 | BAKER, CLIFF | <0.250 U | <0.250 U | 130.89 | 7.25 | 0.570 J | 4.69 | 3.82 | 4.370 J | <0.250 U | <0.250 U | <0.250 U |
| 203431 | 184525 | KLEMANN, RUSS | 0.210 J | <0.100 U | 272.64 | 0.57 | <0.100 U | 1.91 | 0.480 J | 5.93 | <0.100 U | <0.100 U | 0.420 J |
| 203419 | 184525 | KLEMANN, RUSS | <0.250 U | <0.250 U | 297.16 | 4.37 | <0.250 U | 2.26 | 3 | | <0.250 U | <0.250 U | 0.510 J |
| 204581 | 274241 | MCCURDY, CHARLIE | <0.250 U | <0.250 U | 157.2 | 4.91 | <0.250 U | 2.73 | 2.05 | 1.010 J | <0.250 U | <0.250 U | <0.250 U |
| 204580 | 274241 | MCCURDY, CHARLIE | <0.250 U | <0.250 U | 160.12 | 5.56 | <0.250 U | 2.82 | 2.18 | 1.370 J | <0.250 U | <0.250 U | <0.250 U |
| 203934 | 273573 | HARVEY, DONALD D. | <0.250 U | <0.250 U | 334.05 | 1.8 | <0.250 U | 1.84 | 1.36 | <0.130 U | <0.250 U | <0.250 U | <0.250 U |
| 205020 | 246960 | CONNORS, KEN | <0.100 U | <0.100 U | 2818.83 | 0.64 | <0.100 U | 0.54 | <0.100 U | 3.65 | <0.100 U | <0.100 U | 3.04 |
| 204961 | 246960 | CONNORS, KEN | <0.250 U | <0.250 U | 3106.36 | 2.06 | <0.250 U | 0.650 J | 0.790 J | 4.660 J | <0.250 U | <0.250 U | 3.57 |
| 204587 | 274336 | BOYER, JOE | <0.250 U | <0.250 U | 121.05 | 3.11 | <0.250 U | 1.120 J | 2.5 | <0.130 U | <0.250 U | <0.250 U | <0.250 U |
| 204792 | 196668 | SMITH, SEAN | <0.250 U | <0.250 U | 95.64 | 2.79 | <0.250 U | 1.87 | 1.34 | 4.490 J | <0.250 U | <0.250 U | 0.310 J |
| 204899 | 258964 | SALLE, RON | <0.250 U | <0.250 U | 1390.19 | 0.640 J | <0.250 U | 1.35 | <0.250 U | <0.130 U | <0.250 U | <0.250 U | 16.52 |
| 204886 | 258964 | SALLE, RON | <0.500 U | <0.500 U | 1427.32 | <0.500 U | <0.500 U | 1.340 J | 0.570 J | 2.360 J | <0.500 U | <0.500 U | 17.75 |
| 204904 | 244470 | LUSSY, JERRY | <0.100 U | <0.100 U | 2456.23 | 0.91 | <0.100 U | 0.97 | <0.100 U | <0.050 U | <0.100 U | <0.100 U | 6.36 |
| 204895 | 244470 | LUSSY, JERRY | <0.250 U | <0.250 U | 2653.29 | 2.48 | <0.250 U | 0.960 J | 1.200 J | 2.080 J | <0.250 U | <0.250 U | 7.07 |
| 204903 | 51874 | WALTER, RICHARD | <0.100 U | <0.100 U | 2448.74 | 0.93 | <0.100 U | 0.58 | <0.100 U | 0.430 J | <0.100 U | <0.100 U | 5.68 |
| 204892 | 51874 | WALTER, RICHARD | <0.250 U | <0.250 U | 2484.74 | 4.02 | <0.250 U | 0.280 J | 1.080 J | 1.400 J | <0.250 U | <0.250 U | 6.45 |
| 205030 | 122659 | NORTON, LOU | 0.5 | <0.100 U | 1585.3 | 1 | <0.100 U | 0.86 | <0.100 U | 34.92 | <0.100 U | <0.100 U | 0.490 J |
| 205016 | 122659 | NORTON, LOU | <0.250 U | <0.250 U | 1756.52 | 3.07 | <0.250 U | 1.030 J | 1.070 J | 35.43 | <0.250 U | <0.250 U | 0.610 J |
| 204586 | 274330 | KOHUT, MARGARET & TRISTAN | <0.250 U | 2.3 | 183.42 | 3.64 | <0.250 U | 1.56 | 2.66 | 1.340 J | <0.250 U | <0.250 U | <0.250 U |
| 205598 | 52055 | VUCKOVICH, MARK | <0.250 U | <0.250 U | 84.48 | 5.13 | <0.250 U | 1.240 J | 2.08 | 4.950 J | <0.250 U | <0.250 U | <0.250 U |
| 205599 | 52055 | VUCKOVICH, MARK | <0.250 U | <0.250 U | 84.66 | 4.79 | <0.250 U | 1.240 J | 2.12 | 4.460 J | <0.250 U | <0.250 U | <0.250 U |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Se (ug/l) | Sn (ug/l) | Sr (ug/l) | Ti (ug/l) | Tl (ug/l) | U (ug/l) | V (ug/l) | Zn (ug/l) | Zr (ug/l) | Ce (ug/l) | Cs (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 205595 | 276320 | RUEGAMER, LANE | <0.250 U | <0.250 U | 83.45 | 4.87 | <0.250 U | 1.150 J | 2.19 | 16.21 | <0.250 U | <0.250 U | <0.250 U |
| 205596 | 276320 | RUEGAMER, LANE | <0.250 U | <0.250 U | 84.05 | 5.34 | <0.250 U | 1.27 | 2.19 | 7.66 | <0.250 U | <0.250 U | <0.250 U |
| 203242 | 269881 | DODGE, CATHY AND WARREN | 0.590 J | <0.250 U | 91.27 | 5.64 | <0.250 U | 1.71 | 3.86 | 13.3 | <0.250 U | <0.250 U | <0.250 U |
| 204796 | 52036 | SMITH, TERI | <0.250 U | <0.250 U | 96.48 | 2.56 | <0.250 U | 2.01 | 1.74 | 12.02 | <0.250 U | <0.250 U | <0.250 U |
| 204795 | 153771 | CAUGHLIN, BOBBY | <0.250 U | <0.250 U | 98.33 | 2.8 | <0.250 U | 1.99 | 1.54 | 2.170 J | <0.250 U | <0.250 U | <0.250 U |
| 203574 | 52042 | HANCOCK, ARLOW JR. | <0.250 U | <0.250 U | 85.47 | 2.12 | <0.250 U | 1.62 | 1.070 J |  | <0.250 U | <0.250 U | <0.250 U |
| 204842 | 274718 | KONICEK, SUE | <0.250 U | <0.250 U | 78.29 | 2.74 | <0.250 U | 1.55 | 1.61 | 4.290 J | <0.250 U | <0.250 U | <0.250 U |
| 204338 | 274162 | BENSON, ZALE | <0.250 U | <0.250 U | 94.36 | 3.13 | <0.250 U | 2.1 | 2.01 | 3.860 J | <0.250 U | <0.250 U | <0.250 U |
| 204579 | 52046 | KEETCH, CRAIG * WELL 1 | <0.250 U | <0.250 U | 72.29 | 4.12 | <0.250 U | 1.67 | 2.85 | 9.24 | <0.250 U | <0.250 U | <0.250 U |
| 204588 | 274338 | JONES, BOYD | <0.250 U | <0.250 U | 63.57 | 3 | <0.250 U | 1.35 | 2.4 | 18.81 | <0.250 U | <0.250 U | <0.250 U |
| 204582 | 274263 | STAUDOHAR, CONNIE & JOE | <0.250 U | <0.250 U | 72.37 | 3.72 | <0.250 U | 1.41 | 2.15 | 4.300 J | <0.250 U | <0.250 U | <0.250 U |
| 203343 | 52086 | CASQUILHO, LAUREN | <0.250 U | <0.250 U | 83.11 | 5.19 | <0.250 U | 1.43 | 5.13 | 516.71 | <0.250 U | <0.250 U | <0.250 U |
| 204593 | 266770 | BLOTKAMP, MARY | 2.32 | <0.100 U | 301.44 | 0.65 | <0.100 U | 2.52 | 0.51 | 22.51 | <0.100 U | <0.100 U | 0.64 |
| 204594 | 267423 | PENTILLA, MIKE AND APRIL | 0.230 J | <0.100 U | 208.29 | 0.250 J | <0.100 U | 1.83 | 0.58 | 0.990 J | <0.100 U | <0.100 U | 0.280 J |
| 204584 | 267423 | PENTILLA, MIKE AND APRIL | <0.250 U | <0.250 U | 202.21 | 3.09 | <0.250 U | 1.77 | 2.68 | 2.210 J | <0.250 U | <0.250 U | 0.570 J |
| 204583 | 266770 | BLOTKAMP, MARY | 2.3 | <0.250 U | 299.24 | 4.11 | <0.250 U | 2.47 | 3.28 | 25.29 | <0.250 U | <0.250 U | 0.640 J |
| 203484 | 271507 | BROWN, SCOTT | <0.250 U | <0.250 U | 200.18 | 4.44 | <0.250 U | 42.44 | 2.73 |  | <0.250 U | <0.250 U | <0.250 U |
| 203495 | 271507 | BROWN, SCOTT | 0.440 J | <0.100 U | 205.94 | 0.62 | <0.100 U | 42.76 | 0.91 | 11.86 | <0.100 U | <0.100 U | <0.100 U |
| 203579 | 179072 | LORANGER BILL | <0.250 U | <0.250 U | 126.35 | 3.7 | <0.250 U | 15.59 | 2.83 |  | <0.250 U | <0.250 U | <0.250 U |
| 203425 | 5412 | RILEY WESLEY & LEONA | <0.100 U | <0.100 U | 686.91 | 0.55 | <0.100 U | 0.400 J | <0.100 U | 11.62 | <0.100 U | <0.100 U | <0.100 U |
| 203412 | 153591 | LOEHR JOANN AND JAMIE | 0.72 | <0.100 U | 129.75 | <0.100 U | <0.100 U | 1.04 | 7.04 | 4.92 | <0.100 U | <0.100 U | <0.100 U |
| 203413 | 153591 | LOEHR JOANN AND JAMIE | <0.250 U | <0.250 U | 135.32 | 3.93 | <0.250 U | 0.920 J | 14 |  | <0.250 U | <0.250 U | <0.250 U |
| 203461 | 156248 | HANSEN, DEBORAH | 0.850 J | <0.250 U | 188.98 | 2.85 | <0.250 U | 2.4 | 10.68 |  | <0.250 U | <0.250 U | <0.250 U |
| 205157 | 156249 | WAYMIRE, EDWARD | <0.250 U | <0.250 U | 137.04 | 2.06 | <0.250 U | 1.070 J | 13.5 | 4.920 J | <0.250 U | <0.250 U | <0.250 U |
| 205156 | 156249 | WAYMIRE, EDWARD | 0.430 J | <0.100 U | 128.76 | <0.100 U | <0.100 U | 1.01 | 8.45 | 6.52 | <0.100 U | <0.100 U | <0.100 U |
| 205271 | 158808 | DINSDALE JEFFERY E & JULIE M | 0.440 J | <0.100 U | 142.47 | 0.65 | <0.100 U | 1.42 | 4.13 | 16.85 | <0.100 U | <0.100 U | <0.100 U |
| 205258 | 158808 | DINSDALE JEFFERY E & JULIE M | 0.580 J | <0.250 U | 148.29 | 3.17 | <0.250 U | 1.46 | 9.75 | 17.23 | <0.250 U | <0.250 U | <0.250 U |
| 205259 | 158808 | DINSDALE JEFFERY E & JULIE M | <0.250 U | <0.250 U | 5.4 | 3.23 | <0.250 U | <0.250 U | 4.31 | 14.57 | <0.250 U | <0.250 U | <0.250 U |
| 205155 | 259949 | GESSELE, EDWIN C JR | <0.250 U | <0.250 U | 119.43 | 15.81 | <0.250 U | 1.5 | 12.88 | 6.42 | 0.840 J | 0.720 J | <0.250 U |
| 205153 | 259949 | GESSELE, EDWIN C JR | <0.250 U | <0.250 U | 120.41 | 20.2 | <0.250 U | 1.5 | 13.18 | 5.94 | 1.140 J | 0.840 J | <0.250 U |
| 205152 | 259949 | GESSELE, EDWIN C JR | 0.350 J | <0.100 U | 111.78 | <0.100 U | <0.100 U | 1.4 | 7.9 | 7.44 | <0.100 U | <0.100 U | <0.100 U |
| 205154 | 259949 | GESSELE, EDWIN C JR | 0.390 J | <0.100 U | 112.54 | <0.100 U | <0.100 U | 1.42 | 7.97 | 4.93 | <0.100 U | <0.100 U | <0.100 U |
| 205359 | 153592 | CHARLENE STOCK JONES | <0.250 U | <0.250 U | 128.75 | 1.64 | <0.250 U | 1.160 J | 9.51 | 10.55 | <0.250 U | <0.250 U | <0.250 U |
| 205358 | 153592 | CHARLENE STOCK JONES | <0.250 U | <0.250 U | 128.78 | 1.82 | <0.250 U | 1.140 J | 9.49 | 11.11 | <0.250 U | <0.250 U | <0.250 U |
| 205374 | 153592 | CHARLENE STOCK JONES | 0.410 J | <0.100 U | 120.97 | <0.100 U | <0.100 U | 1.04 | 8.83 | 8.29 | <0.100 U | <0.100 U | <0.100 U |
| 205373 | 153592 | CHARLENE STOCK JONES | 0.420 J | <0.100 U | 120.4 | <0.100 U | <0.100 U | 1.06 | 8.8 | 9.26 | <0.100 U | <0.100 U | <0.100 U |
| 203420 | 152683 | HELSPER WILLIAM F & LISA A | 4.6 | <0.100 U | 455.31 | 4.85 | <0.100 U | 4.5 | 4.19 | 31.37 | <0.100 U | <0.100 U | <0.100 U |
| 203414 | 152683 | HELSPER WILLIAM F & LISA A | 3.85 | <0.250 U | 432.23 | 7.69 | <0.250 U | 3.85 | 8.25 |  | <0.250 U | <0.250 U | <0.250 U |
| 203422 | 148956 | ADAMS ARLO AND JERYL | 4 | <0.100 U | 277.46 | 0.300 J | <0.100 U | 1.6 | 4.55 | 2.83 | <0.100 U | <0.100 U | <0.100 U |
| 205014 | 53591 | RUEGAMER, ANTHONY | 2.59 | <0.250 U | 149.92 | 1.95 | <0.250 U | 1.47 | 12.47 | 6.18 | <0.250 U | <0.250 U | <0.250 U |
| 205029 | 53591 | RUEGAMER, ANTHONY | 2.73 | <0.100 U | 139.2 | 0.240 J | <0.100 U | 1.17 | 11.07 | 3.98 | <0.100 U | <0.100 U | <0.100 U |
| 205032 | 153593 | ARENTZ, IVAN EUGENE | 0.97 | <0.100 U | 129.33 | <0.100 U | <0.100 U | 0.77 | 5.47 | 6.21 | <0.100 U | <0.100 U | <0.100 U |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Se (ug/l) | Sn (ug/l) | Sr (ug/l) | Ti (ug/l) | Tl (ug/l) | U (ug/l) | V (ug/l) | Zn (ug/l) | Zr (ug/l) | Ce (ug/l) | Cs (ug/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 205018 | 153593 | ARENTZ, IVAN EUGENE | 0.690 J | <0.250 U | 136.62 | 1.96 | <0.250 U | 0.960 J | 7.75 | 8.79 | <0.250 U | <0.250 U | <0.250 U |
| 205031 | 250294 | MCQUEARY CAM | 1.1 | <0.100 U | 173.51 | 0.310 J | <0.100 U | 1.13 | 9.05 | 8.04 | <0.100 U | <0.100 U | <0.100 U |
| 205017 | 250294 | MCQUEARY CAM | 1.71 | <0.250 U | 191.04 | 2.69 | <0.250 U | 1.41 | 10.65 | 8.84 | <0.250 U | <0.250 U | <0.250 U |
| 205260 | 266861 | PIERCE, COLT | 1.66 | <0.250 U | 217.96 | 3.21 | <0.250 U | 2.03 | 15.32 | 17.98 | <0.250 U | <0.250 U | <0.250 U |
| 205272 | 266861 | PIERCE, COLT | 1.56 | <0.100 U | 210.16 | 0.62 | <0.100 U | 1.96 | 7.78 | 15.95 | <0.100 U | <0.100 U | <0.100 U |
| 203555 | 271663 | GRANT, PAM & PAUL | <0.250 U | <0.250 U | 86.8 | 0.650 J | <0.250 U | 0.570 J | 3.1 |  | <0.250 U | <0.250 U | <0.250 U |
| 204793 | 274502 | WILLIAMS, LEAH | <0.250 U | <0.250 U | 95.08 | 2.55 | <0.250 U | 2.1 | 1.69 | 2.430 J | <0.250 U | <0.250 U | <0.250 U |

Appendix E
ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Ga (ug/l) | La (ug/l) | Nb (ug/l) | Nd (ug/l) | Pd (ug/l) | Pr (ug/l) | Rb (ug/l) | Th (ug/l) | W (ug/l) | NO2-N (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 205360 | 256874 | SHYBA, LORI | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 14 | <0.250 U | 4.21 | |
| 205375 | 256874 | SHYBA, LORI | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 0.410 J | <0.100 U | 13.44 | <0.100 U | 3.83 | <0.010 U |
| 205362 | 256874 | SHYBA, LORI | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.82 | <0.250 U | <0.250 U | |
| 205363 | 256874 | SHYBA, LORI | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 2.28 | <0.250 U | <0.250 U | |
| 205357 | 198928 | RANKIN, KEITH AND JEAN | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.45 | <0.250 U | <0.250 U | |
| 205372 | 198928 | RANKIN, KEITH AND JEAN | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 1.07 | <0.100 U | <0.100 U | <0.010 U |
| 205002 | 252623 | MACCIOLI JOE & PATTI | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 3.23 | <0.250 U | 118.2 | |
| 205026 | 252623 | MACCIOLI JOE & PATTI | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 2.59 | <0.250 U | 106.93 | <0.010 U |
| 205019 | 252623 | MACCIOLI JOE & PATTI | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203621 | 271935 | YATES, KEN AND SHARON | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203817 | 194331 | HARWOOD, LARRY E AND BARBARA | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203936 | 273576 | WILLEY, DARLENE AND MICHAEL | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.810 J | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 204684 | 274411 | KAIN, DONALD | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.650 J | <0.250 U | 0.510 J | <0.250 U | <0.250 U | |
| 204094 | 273801 | VAUTHIER, THOMAS | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 204685 | 51068 | OLSON, ROGER | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203622 | 51094 | COLWELL, DUANE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203707 | 51079 | CHRISTIAN, GREGORY AND MICHELLE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203435 | 271373 | KOPP, ROSE & KEN | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203575 | 194334 | GARCIA, RICARDO AND RUTH L | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203576 | 271684 | DAVIS, JEREMY | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205201 | 137932 | PAMIN, JEFF & BECKY * 2013 PAMIN | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203369 | 271338 | KRUMM, JENNY AND TIM | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 204240 | 274025 | RICE, CLARK (CORKY) * 117 RICE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.690 J | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 204242 | 274028 | RICE, CLARK (CORKY) * 109 RICE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 204241 | 274027 | RICE, CLARK (CORKY) * 111 RICE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 204226 | 274006 | RICE, CLARK (CORKY) * 303 ERICKSON | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.630 J | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203267 | 235579 | CLARK LEE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205142 | 120711 | PATTERSON, NATHAN & SHERRIE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203577 | 271686 | BLANK, DORIS | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203351 | 271248 | MORSE, DEDE & RICK | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205141 | 275057 | EVANS, ALBERT | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203371 | 195486 | DOYLE, DUANE R. AND JEANETTE I. | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205257 | 275248 | REDD, GINNY & STEVE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203665 | 227965 | NEWELL, JOHN | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203664 | 272001 | RAASAKKA, DARYL | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203666 | 230073 | HENDRICKSON, MICHAEL | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.49 | 1.030 J | <0.250 U | |
| 205538 | 51134 | FRANCISCO, JOHN * WELL #1 | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.230 J | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203370 | 174769 | HUESTIS, MIKE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205351 | 51144 | DYE, DIXIE * HOUSE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205254 | 137922 | WENGER, GARY * WENGER | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205354 | 275360 | ALOYSIUS, AL AND LOUISE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205352 | 251784 | DYE, DIXIE * SHOP | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Ga (ug/l) | La (ug/l) | Nb (ug/l) | Nd (ug/l) | Pd (ug/l) | Pr (ug/l) | Rb (ug/l) | Th (ug/l) | W (ug/l) | NO2-N (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 203433 | 271435 | MYERS, NANCY & SERGE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203434 | 153529 | MYERS, SERGE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205441 | 275639 | MCKNIGHT, SCOTT AND MICHELLE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205356 | 51140 | MCGILLEN, LINDA & PAUL | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205377 | 51140 | MCGILLEN, LINDA & PAUL | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203816 | 170884 | PETERS, TAMMY | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205416 | 275482 | CLARK, HERB | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.100 J | <0.250 U | 19.55 | |
| 203554 | 271660 | KELSEY, BARBARA | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 2.26 | |
| 205442 | 275671 | MICKELBRRY, DALTON | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 204350 | 274200 | WILLENE POND GUEST HOUSE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.660 J | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 204348 | 274199 | WILLENE POND | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.570 J | |
| 205602 | 276397 | VAUTHIER, GARY | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203726 | 272210 | SILZLY, ROSEMARIE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.520 J | <0.250 U | 1.67 | |
| 205355 | 51182 | KETO, DIXIE/WEST, DIANE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203432 | 51222 | MYERS, NANCY & SERGE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205255 | 275243 | FISCHER, FRED & RUBY * ANGELA BORGEN | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205256 | 275244 | FISCHER, FRED & RUBY * LINDA BARNEY | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203814 | 272246 | O'BRIEN, MICHAEL AND LALONNIE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203813 | 272245 | SILZLY, ROSEMARIE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203243 | 269888 | EGGEN, LINDA | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205463 | 275869 | POFFENBERGER, DON | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 204681 | 274374 | GREY, JACK | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.730 J | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 204299 | 274104 | SILZLY, ROSEMARIE * 116 HAUSER | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.250 J | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 204682 | 274418 | CRISLER, MARY ELLEN & FRANCIS | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203725 | 153530 | MANN, LEONARD | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203815 | 272253 | PETERS, JUDY | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203442 | 271449 | JOHNSTON, DEBORAH | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203443 | 271449 | JOHNSTON, DEBORAH | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 204683 | 274377 | NICHOLSON, JUDY | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205601 | 276396 | MICKEY, GAIL AND TOM | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203430 | 264545 | VARELIA, HELEN | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.010 U |
| 203418 | 264545 | VARELIA, HELEN | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 204678 | 274346 | RUSTAD, HOWARD | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 204686 | 274363 | RAYMOND JOHNSON | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203706 | 163966 | HILMO, TIM | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203342 | 242287 | KITTLESON, JANET | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.510 J | <0.250 U | <0.250 U | |
| 203932 | 273569 | SCHAFER, DALE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203340 | 270198 | KITTLESON 311-C | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203341 | 270197 | KITTLESON 311-B | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203429 | 264544 | SWANSON, RON | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 2.27 | <0.010 U |
| 203417 | 264544 | SWANSON, RON | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 2.75 | |
| 204679 | 104978 | SAFFLE, KAREN & BOB | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.29 | |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Ga (ug/l) | La (ug/l) | Nb (ug/l) | Nd (ug/l) | Pd (ug/l) | Pr (ug/l) | Rb (ug/l) | Th (ug/l) | W (ug/l) | NO2-N (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 203441 | 271441 | JOHNSON, SYLVIA & HAROLD | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203663 | 51243 | COONEY, FRANKLIN AND VICKI | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 3.26 | |
| 204680 | 274358 | COX, CARL | <0.250 U | 0.340 J | <0.250 U | 0.620 J | 1.190 J | <0.250 U | 0.740 J | <0.250 U | 6.42 | |
| 203578 | 271689 | MCCARTHY, JIM | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203427 | 197463 | MCKAY, ROBERT | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.010 U |
| 203428 | 197463 | MCKAY, ROBERT | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.010 U |
| 203426 | 197463 | MCKAY, ROBERT | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.010 U |
| 203416 | 197463 | MCKAY, ROBERT | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203620 | 251790 | PHILLIPS, ROB | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.860 J | |
| 204243 | 202080 | DANIELS, LOYD | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.770 J | <0.250 U | 8.95 | <0.250 U | 6.88 | |
| 203266 | 51318 | DANIELS, LLOYD | <0.500 U | <0.500 U | <0.500 U | <0.500 U | 0.890 J | <0.500 U | 10.51 | <0.500 U | 3.81 | |
| 203491 | 271503 | HOGGE, VERNAN AND MARJORIE | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 0.320 J | <0.100 U | 9.12 | <0.100 U | 1.49 | <0.010 U |
| 203485 | 271503 | HOGGE, VERNAN AND MARJORIE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 7.5 | <0.250 U | 1.080 J | |
| 205023 | 51333 | FRESH, JEAN AND ELDEN | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 1.27 | <0.100 U | 192.68 | <0.010 U |
| 204987 | 51333 | FRESH, JEAN AND ELDEN | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.67 | <0.250 U | 217.75 | |
| 204988 | 51333 | FRESH, JEAN AND ELDEN | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205144 | 276484 | SWANSON, MARK | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 8.39 | <0.100 U | 67.99 | <0.010 U |
| 205145 | 276484 | SWANSON, MARK | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 9.6 | <0.250 U | 75.04 | |
| 204905 | 221430 | KEELE, DON - SHOP | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 0.270 J | <0.100 U | 8.31 | <0.100 U | 51.22 | <0.010 U |
| 204896 | 221430 | KEELE, DON - SHOP | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 9.35 | <0.250 U | 48.25 | |
| 204897 | 254433 | BAILEY, DON & DEBRAH | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 2.95 | <0.100 U | 6.71 | <0.010 U |
| 204881 | 254433 | BAILEY, DON & DEBRAH | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.070 J | <0.250 U | 3.09 | <0.250 U | 6.58 | |
| 204901 | 226130 | SCHERMAN, RUSS | <0.100 U | <0.100 U | 0.330 J | <0.100 U | <0.100 U | <0.100 U | 5.96 | <0.100 U | 226.74 | <0.010 U |
| 204890 | 226130 | SCHERMAN, RUSS | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 6.11 | <0.250 U | 205.17 | |
| 205015 | 226130 | SCHERMAN, RUSS | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.980 J | |
| 204888 | 51327 | FAUGHT, STANLEY | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 12.87 | <0.250 U | 16.4 | |
| 204900 | 51327 | FAUGHT, STANLEY | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 0.220 J | <0.100 U | 12.61 | <0.100 U | 16.78 | <0.010 U |
| 204898 | 252926 | WYBENGA, TRACY | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 6.18 | <0.100 U | 21.38 | <0.010 U |
| 204884 | 252926 | WYBENGA, TRACY | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.770 J | <0.250 U | 6.23 | <0.250 U | 20.75 | |
| 204902 | 51328 | SCHERMAN, RUSS- RENTAL | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 7.4 | <0.100 U | 27.76 | <0.010 U |
| 204891 | 51328 | SCHERMAN, RUSS- RENTAL | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.74 | <0.250 U | 7.48 | <0.250 U | 26.8 | |
| 203483 | 181457 | WHITAKER, RAY | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 5.52 | <0.250 U | 21.69 | |
| 203482 | 181457 | WHITAKER, RAY | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 4.93 | <0.100 U | 21.78 | <0.010 U |
| 204057 | 51334 | MCDOWELL, HAROLD | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 2.12 | <0.100 U | <0.100 U | <0.010 U |
| 204052 | 51334 | MCDOWELL, HAROLD | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 2.25 | <0.100 U | <0.100 U | <0.010 U |
| 204055 | 51334 | MCDOWELL, HAROLD | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.680 J | <0.250 U | 2.38 | <0.250 U | <0.250 U | |
| 204056 | 51334 | MCDOWELL, HAROLD | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 2.39 | <0.250 U | <0.250 U | |
| 204053 | 254941 | MIKES SALES AND PAWN | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 1.76 | <0.100 U | <0.100 U | <0.010 U |
| 204054 | 254941 | MIKES SALES AND PAWN | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 2.12 | <0.250 U | <0.250 U | |
| 205539 | 275908 | JEAN, HARMON | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.82 | <0.250 U | <0.250 U | |
| 205540 | 275922 | WIGERT, JANICE & GARY | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.830 J | <0.250 U | <0.250 U | |
| 205541 | 173110 | WIGERT, ROXANNE & HOWARD | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.640 J | <0.250 U | <0.250 U | |

Appendix E
ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Ga (ug/l) | La (ug/l) | Nb (ug/l) | Nd (ug/l) | Pd (ug/l) | Pr (ug/l) | Rb (ug/l) | Th (ug/l) | W (ug/l) | NO2-N (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 205464 | 51378 | PECUKONIS, DAVE & LAURIE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205462 | 51363 | GARRELS, DR L. | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 3.06 | <0.250 U | <0.250 U | |
| 205461 | 123812 | GERVAIS, LESLIE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.930 J | <0.250 U | 7.04 | <0.250 U | <0.250 U | |
| 204765 | 197464 | WACKERBARTH, DANA & BART | <0.250 U | 6.28 | <0.250 U | 5.2 | <0.250 U | 1.35 | 3.28 | 0.360 J | 7.66 | |
| 205199 | 275101 | PETERSON, DONNA | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 2.18 | <0.250 U | <0.250 U | |
| 205240 | 275180 | ROBINSON, RON & STORMIE * CREEK | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.130 J | <0.250 U | 18.32 | <0.250 U | <0.250 U | |
| 204049 | 237374 | DICKERSON, PHILIP | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.750 J | <0.250 U | 1.060 J | <0.250 U | <0.250 U | |
| 204345 | 214966 | VANMEEL, MIKE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.550 J | <0.250 U | 1.160 J | <0.250 U | 1.010 J | |
| 205242 | 163148 | WEBB, DAVE & BARBARA | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205192 | 275096 | ROBINSON, RON AND STORMIE * SPRING | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.660 J | <0.250 U | <0.250 U | |
| 205151 | 174778 | CATALENELLO, MARK | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205150 | 174778 | CATALENELLO, MARK | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 0.390 J | <0.100 U | <0.100 U | <0.010 U |
| 203290 | 269999 | BLAKESLEE, RONALD | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.320 J | <0.250 U | <0.250 U | |
| 204227 | 163968 | KEISTER, RODNEY AND ELAINE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 204768 | 274553 | MILLER, GREG | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.760 J | <0.250 U | <0.250 U | |
| 204296 | 274103 | SHEFFIELD, REGINA AND DAVID | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.300 J | <0.250 U | 0.550 J | <0.250 U | <0.250 U | |
| 204767 | 274501 | SCHRANZ, PETER | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.660 J | |
| 204766 | 274500 | SCHRANZ, JOAN AND PETER | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.080 J | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 204295 | 274102 | FISH, SUSAN * SPRING | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.750 J | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205236 | 194340 | WEBB, DAVID * CABIN | <0.250 U | 2 | <0.250 U | 1.4 | <0.250 U | <0.250 U | 4.29 | <0.250 U | 1.030 J | |
| 205415 | 51735 | HEGGELUND, TOM | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.800 J | <0.250 U | 0.730 J | |
| 204998 | 238047 | BLOM LORIN | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 4.85 | <0.250 U | <0.250 U | |
| 205025 | 238047 | BLOM LORIN | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 3.97 | <0.100 U | <0.100 U | <0.010 U |
| 205149 | 260549 | MITCHELL, HAROLD | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205148 | 260549 | MITCHELL, HAROLD | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 0.460 J | <0.100 U | <0.100 U | <0.010 U |
| 205028 | 256447 | SMITH MONTY & JULIE | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 8.69 | <0.100 U | <0.100 U | <0.010 U |
| 205013 | 256447 | SMITH MONTY & JULIE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 11.51 | <0.250 U | <0.250 U | |
| 204990 | 256622 | STEWART JOHN & PHYLLIS | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.140 J | <0.250 U | 5.63 | <0.250 U | <0.250 U | |
| 205024 | 256622 | STEWART JOHN & PHYLLIS | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 4.55 | <0.100 U | 0.340 J | <0.010 U |
| 205147 | 241972 | FLACHMEYER DAN | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.160 J | <0.250 U | 6.69 | <0.250 U | <0.250 U | |
| 205146 | 241972 | FLACHMEYER DAN | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 6.11 | <0.100 U | <0.100 U | <0.010 U |
| 203423 | 51744 | JETTE, ARTHUR & JESSIE | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 5.09 | <0.100 U | <0.100 U | <0.010 U |
| 203381 | 271369 | KELLY, JOHN | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 2.45 | <0.250 U | <0.250 U | |
| 203382 | 271369 | KELLY, JOHN | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 2.42 | <0.250 U | <0.250 U | |
| 203424 | 250642 | NELSON, JASON | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 3.98 | <0.100 U | <0.100 U | <0.010 U |
| 203415 | 250642 | NELSON, JASON | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 4.64 | <0.250 U | <0.250 U | |
| 204095 | 51751 | KIEWATT, CHARLES (MEL) | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203492 | 229026 | SEVEYKA, PAUL | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 0.240 J | <0.100 U | <0.100 U | <0.010 U |
| 204047 | 273745 | KITTLESON, JANET (RENTAL) | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.37 | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203240 | 218249 | CRISP, SHARON & DOUG | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.010 J | <0.250 U | 2.4 | <0.250 U | <0.250 U | |
| 203241 | 218249 | CRISP, SHARON & DOUG | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.980 J | <0.250 U | 2.55 | <0.250 U | <0.250 U | |
| 205353 | 51724 | DELONG, DARCY * WELL #1 | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |

Appendix E
ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Ga (ug/l) | La (ug/l) | Nb (ug/l) | Nd (ug/l) | Pd (ug/l) | Pr (ug/l) | Rb (ug/l) | Th (ug/l) | W (ug/l) | NO2-N (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 203383 | 195488 | CHIRICO, KIMBERLY | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203384 | 51762 | CHIRICO, KIMBERLY | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 205600 | 276366 | MANZ, TOM | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.8 | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203587 | 5376 | UELAND RANCHES | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 0.460 J | <0.100 U | 0.76 | <0.100 U | 0.64 | <0.010 U |
| 203590 | 5376 | UELAND RANCHES | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.510 J | <0.250 U | <0.250 U | |
| 205010 | 5377 | GALLE CLIFF JR | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.030 J | <0.250 U | <0.250 U | |
| 205027 | 5377 | GALLE CLIFF JR | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 0.84 | <0.100 U | 0.280 J | <0.010 U |
| 204984 | 51790 | GALLE, TYKE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.500 J | <0.250 U | 1.88 | <0.250 U | <0.250 U | |
| 205022 | 51790 | GALLE, TYKE | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 1.53 | <0.100 U | 0.320 J | <0.010 U |
| 204342 | 257526 | RICE CLARK | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.230 J | <0.250 U | <0.250 U | |
| 203928 | 166679 | JOHNSON, WADE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203930 | 183266 | PETERSON, RON | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 3.16 | <0.250 U | <0.250 U | |
| 203372 | 196333 | HEFFERNAN, DAVE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 3 | <0.250 U | <0.250 U | |
| 204174 | 273926 | GREGORICH, TERENCE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 5.71 | <0.250 U | 0.650 J | |
| 203349 | 271244 | JOHNSON, CLAUDIA | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.54 | <0.250 U | 0.390 J | |
| 204221 | 178947 | SLOCUM, JAY | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.550 J | <0.250 U | 3.27 | <0.250 U | 1.090 J | |
| 203350 | 271245 | JOHNSON, CLAUDIA (RENTAL) | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.940 J | <0.250 U | <0.250 U | |
| 205021 | 230299 | GALLE JEFF AND ANGELLA | <0.100 U | <0.100 U | 0.430 J | <0.100 U | 0.260 J | <0.100 U | 10.59 | <0.100 U | <0.100 U | <0.010 U |
| 204981 | 230299 | GALLE JEFF AND ANGELLA | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 2.07 | <0.250 U | 13.28 | <0.250 U | <0.250 U | |
| 204222 | 273982 | RASMUSSEN, KATHY | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 2.91 | <0.250 U | <0.250 U | |
| 204343 | 160171 | GRAFF, STEVE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.37 | <0.250 U | 2.78 | <0.250 U | <0.250 U | |
| 204173 | 273924 | BAKER, CLIFF | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.760 J | <0.250 U | 2.66 | <0.250 U | <0.250 U | |
| 203431 | 184525 | KLEMANN, RUSS | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 3.28 | <0.100 U | <0.100 U | <0.010 U |
| 203419 | 184525 | KLEMANN, RUSS | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 4.07 | <0.250 U | <0.250 U | |
| 204581 | 274241 | MCCURDY, CHARLIE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 3.17 | <0.250 U | <0.250 U | |
| 204580 | 274241 | MCCURDY, CHARLIE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 3.26 | <0.250 U | <0.250 U | |
| 203934 | 273573 | HARVEY, DONALD D. | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 2.94 | <0.250 U | <0.250 U | |
| 205020 | 246960 | CONNORS, KEN | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 1.06 | <0.100 U | 8.69 | <0.100 U | 4.26 | <0.010 U |
| 204961 | 246960 | CONNORS, KEN | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.28 | <0.250 U | 10.78 | <0.250 U | 4.78 | |
| 204587 | 274336 | BOYER, JOE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.32 | <0.250 U | <0.250 U | |
| 204792 | 196668 | SMITH, SEAN | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.54 | <0.250 U | 2.52 | <0.250 U | 0.380 J | |
| 204899 | 258964 | SALLE, RON | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.570 J | <0.250 U | 34.25 | <0.250 U | 6.13 | <0.010 U |
| 204886 | 258964 | SALLE, RON | <0.500 U | <0.500 U | <0.500 U | <0.500 U | <0.500 U | <0.500 U | 34.41 | <0.500 U | 6.55 | |
| 204904 | 244470 | LUSSY, JERRY | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 1.23 | <0.100 U | 16.28 | <0.100 U | 4.74 | <0.010 U |
| 204895 | 244470 | LUSSY, JERRY | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.110 J | <0.250 U | 17.23 | <0.250 U | 4.7 | |
| 204903 | 51874 | WALTER, RICHARD | <0.100 U | <0.100 U | 0.200 J | <0.100 U | 1.27 | <0.100 U | 15.86 | <0.100 U | 4.66 | <0.010 U |
| 204892 | 51874 | WALTER, RICHARD | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.170 J | <0.250 U | 16.57 | <0.250 U | 4.59 | |
| 205030 | 122659 | NORTON, LOU | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 0.58 | <0.100 U | 1 | <0.100 U | <0.100 U | <0.010 U |
| 205016 | 122659 | NORTON, LOU | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.660 J | <0.250 U | 1.25 | <0.250 U | <0.250 U | |
| 204586 | 274330 | KOHUT, MARGARET & TRISTAN | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.930 J | <0.250 U | <0.250 U | |
| 205598 | 52055 | VUCKOVICH, MARK | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.62 | <0.250 U | <0.250 U | |
| 205599 | 52055 | VUCKOVICH, MARK | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.64 | <0.250 U | <0.250 U | |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Ga (ug/l) | La (ug/l) | Nb (ug/l) | Nd (ug/l) | Pd (ug/l) | Pr (ug/l) | Rb (ug/l) | Th (ug/l) | W (ug/l) | NO2-N (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 205595 | 276320 | RUEGAMER, LANE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.840 J | <0.250 U | 1.62 | <0.250 U | <0.250 U | |
| 205596 | 276320 | RUEGAMER, LANE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.63 | <0.250 U | <0.250 U | |
| 203242 | 269881 | DODGE, CATHY AND WARREN | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.48 | <0.250 U | <0.250 U | |
| 204796 | 52036 | SMITH, TERI | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 2.31 | <0.250 U | <0.250 U | |
| 204795 | 153771 | CAUGHLIN, BOBBY | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.64 | <0.250 U | 2.67 | <0.250 U | 0.390 J | |
| 203574 | 52042 | HANCOCK, ARLOW JR. | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.42 | <0.250 U | <0.250 U | |
| 204842 | 274718 | KONICEK, SUE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.71 | <0.250 U | <0.250 U | |
| 204338 | 274162 | BENSON, ZALE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 2.38 | <0.250 U | 0.510 J | |
| 204579 | 52046 | KEETCH, CRAIG * WELL 1 | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.7 | <0.250 U | <0.250 U | |
| 204588 | 274338 | JONES, BOYD | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.53 | <0.250 U | <0.250 U | |
| 204582 | 274263 | STAUDOHAR, CONNIE & JOE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.63 | <0.250 U | <0.250 U | |
| 203343 | 52086 | CASQUILHO, LAUREN | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 1.57 | <0.250 U | <0.250 U | |
| 204593 | 266770 | BLOTKAMP, MARY | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 3.76 | <0.100 U | 0.270 J | <0.010 U |
| 204594 | 267423 | PENTILLA, MIKE AND APRIL | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 2.74 | <0.100 U | 0.300 J | <0.010 U |
| 204584 | 267423 | PENTILLA, MIKE AND APRIL | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 2.8 | <0.250 U | <0.250 U | |
| 204583 | 266770 | BLOTKAMP, MARY | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 3.86 | <0.250 U | <0.250 U | |
| 203484 | 271507 | BROWN, SCOTT | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 203495 | 271507 | BROWN, SCOTT | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.010 U |
| 203579 | 179072 | LORANGER BILL | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.610 J | <0.250 U | <0.250 U | |
| 203425 | 5412 | RILEY WESLEY & LEONA | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 0.340 J | <0.100 U | 1.71 | <0.100 U | <0.100 U | <0.010 U |
| 203412 | 153591 | LOEHR JOANN AND JAMIE | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 3.58 | <0.100 U | 0.170 J | <0.010 U |
| 203413 | 153591 | LOEHR JOANN AND JAMIE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 4.5 | <0.250 U | <0.250 U | |
| 203461 | 156248 | HANSEN, DEBORAH | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 4.75 | <0.250 U | <0.250 U | |
| 205157 | 156249 | WAYMIRE, EDWARD | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 6.39 | <0.250 U | <0.250 U | |
| 205156 | 156249 | WAYMIRE, EDWARD | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 6.02 | <0.100 U | <0.100 U | <0.010 U |
| 205271 | 158808 | DINSDALE JEFFERY E & JULIE M | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 5.24 | <0.100 U | <0.100 U | <0.010 U |
| 205258 | 158808 | DINSDALE JEFFERY E & JULIE M | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 5.87 | <0.250 U | <0.250 U | |
| 205259 | 158808 | DINSDALE JEFFERY E & JULIE M | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.670 J | <0.250 U | <0.250 U | |
| 205155 | 259949 | GESSELE, EDWIN C JR | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 6.74 | <0.250 U | <0.250 U | |
| 205153 | 259949 | GESSELE, EDWIN C JR | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 7.02 | <0.250 U | <0.250 U | |
| 205152 | 259949 | GESSELE, EDWIN C JR | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 5.7 | <0.100 U | <0.100 U | <0.010 U |
| 205154 | 259949 | GESSELE, EDWIN C JR | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 5.79 | <0.100 U | <0.100 U | <0.010 U |
| 205359 | 153592 | CHARLENE STOCK JONES | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 6.38 | <0.250 U | <0.250 U | |
| 205358 | 153592 | CHARLENE STOCK JONES | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 6.4 | <0.250 U | <0.250 U | |
| 205374 | 153592 | CHARLENE STOCK JONES | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 6.24 | <0.100 U | <0.100 U | <0.010 U |
| 205373 | 153592 | CHARLENE STOCK JONES | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 6.24 | <0.100 U | <0.100 U | <0.010 U |
| 203420 | 152683 | HELSPER WILLIAM F & LISA A | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 0.220 J | <0.100 U | 4.02 | <0.100 U | <0.100 U | <0.010 U |
| 203414 | 152683 | HELSPER WILLIAM F & LISA A | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 4.53 | <0.250 U | <0.250 U | |
| 203422 | 148956 | ADAMS ARLO AND JERYL | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 3.72 | <0.100 U | <0.100 U | <0.010 U |
| 205014 | 53591 | RUEGAMER, ANTHONY | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 6.95 | <0.250 U | 1.140 J | |
| 205029 | 53591 | RUEGAMER, ANTHONY | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 5.54 | <0.100 U | 1.01 | <0.010 U |
| 205032 | 153593 | ARENTZ, IVAN EUGENE | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 5.05 | <0.100 U | <0.100 U | <0.010 U |

Appendix E
ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Ga (ug/l) | La (ug/l) | Nb (ug/l) | Nd (ug/l) | Pd (ug/l) | Pr (ug/l) | Rb (ug/l) | Th (ug/l) | W (ug/l) | NO2-N (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 205018 | 153593 | ARENTZ, IVAN EUGENE | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.990 J | <0.250 U | 6.33 | <0.250 U | <0.250 U | |
| 205031 | 250294 | MCQUEARY CAM | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 5.71 | <0.100 U | 1.27 | <0.010 U |
| 205017 | 250294 | MCQUEARY CAM | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 7.38 | <0.250 U | 1.51 | |
| 205260 | 266861 | PIERCE, COLT | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.940 J | <0.250 U | 4.63 | <0.250 U | 1.050 J | |
| 205272 | 266861 | PIERCE, COLT | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | <0.100 U | 4.1 | <0.100 U | 1.11 | <0.010 U |
| 203555 | 271663 | GRANT, PAM & PAUL | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | <0.250 U | |
| 204793 | 274502 | WILLIAMS, LEAH | <0.250 U | <0.250 U | <0.250 U | <0.250 U | 0.630 J | <0.250 U | 2.35 | <0.250 U | <0.250 U | |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | NO3+NO2-N (mg/l) | Total N as N (mg/l) | Dis. Org. Carbon (mg/l) | Total Dis. Solids (mg/l) |
|---|---|---|---|---|---|---|
| 205360 | 256874 | SHYBA, LORI | | | | 0.029 |
| 205375 | 256874 | SHYBA, LORI | | | | 400.1018 |
| 205362 | 256874 | SHYBA, LORI | | | | 0.006 |
| 205363 | 256874 | SHYBA, LORI | | | | 0.007 |
| 205357 | 198928 | RANKIN, KEITH AND JEAN | | | | 0.578 |
| 205372 | 198928 | RANKIN, KEITH AND JEAN | | | | 71.7364 |
| 205002 | 252623 | MACCIOLI JOE & PATTI | | | | 0.048 |
| 205026 | 252623 | MACCIOLI JOE & PATTI | | | | 689.6961 |
| 205019 | 252623 | MACCIOLI JOE & PATTI | | | | 0 |
| 203621 | 271935 | YATES, KEN AND SHARON | | | | 2.057 |
| 203817 | 194331 | HARWOOD, LARRY E AND BARBARA | | | | 0 |
| 203936 | 273576 | WILLEY, DARLENE AND MICHAEL | | | | 0.016 |
| 204684 | 274411 | KAIN, DONALD | | | | 0 |
| 204094 | 273801 | VAUTHIER, THOMAS | | | | 0 |
| 204685 | 51068 | OLSON, ROGER | | | | 0 |
| 203622 | 51094 | COLWELL, DUANE | | | | 0.02 |
| 203707 | 51079 | CHRISTIAN, GREGORY AND MICHELLE | | | | 0.031 |
| 203435 | 271373 | KOPP, ROSE & KEN | | | | 0 |
| 203575 | 194334 | GARCIA, RICARDO AND RUTH L | | | | 0 |
| 203576 | 271684 | DAVIS, JEREMY | | | | 0.052 |
| 205201 | 137932 | PAMIN, JEFF & BECKY * 2013 PAMIN | | | | 0.013 |
| 203369 | 271338 | KRUMM, JENNY AND TIM | | | | 0.007 |
| 204240 | 274025 | RICE, CLARK (CORKY) * 117 RICE | | | | 0.007 |
| 204242 | 274028 | RICE, CLARK (CORKY) * 109 RICE | | | | 0.01 |
| 204241 | 274027 | RICE, CLARK (CORKY) * 111 RICE | | | | 0.018 |
| 204226 | 274006 | RICE, CLARK (CORKY) * 303 ERICKSON | | | | 0.027 |
| 203267 | 235579 | CLARK LEE | | | | 1.567 |
| 205142 | 120711 | PATTERSON, NATHAN & SHERRIE | | | | 0.011 |
| 203577 | 271686 | BLANK, DORIS | | | | 0 |
| 203351 | 271248 | MORSE, DEDE & RICK | | | | 0.207 |
| 205141 | 275057 | EVANS, ALBERT | | | | 0.48 |
| 203371 | 195486 | DOYLE, DUANE R. AND JEANETTE I. | | | | 0.027 |
| 205257 | 275248 | REDD, GINNY & STEVE | | | | 0.009 |
| 203665 | 227965 | NEWELL, JOHN | | | | 3.035 |
| 203664 | 272001 | RAASAKKA, DARYL | | | | 0 |
| 203666 | 230073 | HENDRICKSON, MICHAEL | | | | 1.552 |
| 205538 | 51134 | FRANCISCO, JOHN * WELL #1 | | | | 0 |
| 203370 | 174769 | HUESTIS, MIKE | | | | 0.014 |
| 205351 | 51144 | DYE, DIXIE * HOUSE | | | | 0.014 |
| 205254 | 137922 | WENGER, GARY * WENGER | | | | 0.023 |
| 205354 | 275360 | ALOYSIUS, AL AND LOUISE | | | | 0.008 |
| 205352 | 251784 | DYE, DIXIE * SHOP | | | | 0 |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | NO3+NO2-N (mg/l) | Total N as N (mg/l) | Dis. Org. Carbon (mg/l) | Total Dis. Solids (mg/l) |
|---|---|---|---|---|---|---|
| 203433 | 271435 | MYERS, NANCY & SERGE | | | | 0 |
| 203434 | 153529 | MYERS, SERGE | | | | 0.005 |
| 205441 | 275639 | MCKNIGHT, SCOTT AND MICHELLE | | | | 0.007 |
| 205356 | 51140 | MCGILLEN, LINDA & PAUL | | | | 0.07 |
| 205377 | 51140 | MCGILLEN, LINDA & PAUL | | | | 1.088 |
| 203816 | 170884 | PETERS, TAMMY | | | | 0.026 |
| 205416 | 275482 | CLARK, HERB | | | | 36.176 |
| 203554 | 271660 | KELSEY, BARBARA | | | | 0 |
| 205442 | 275671 | MICKELBRRY, DALTON | | | | 0 |
| 204350 | 274200 | WILLENE POND GUEST HOUSE | | | | 0.02 |
| 204348 | 274199 | WILLENE POND | | | | 0 |
| 205602 | 276397 | VAUTHIER, GARY | | | | 0.016 |
| 203726 | 272210 | SILZLY, ROSEMARIE | | | | 0.005 |
| 205355 | 51182 | KETO, DIXIE/WEST, DIANE | | | | 0 |
| 203432 | 51222 | MYERS, NANCY & SERGE | | | | 0.03 |
| 205255 | 275243 | FISCHER, FRED & RUBY * ANGELA BORGEN | | | | 0.019 |
| 205256 | 275244 | FISCHER, FRED & RUBY * LINDA BARNEY | | | | 0.008 |
| 203814 | 272246 | O'BRIEN, MICHAEL AND LALONNIE | | | | 0.024 |
| 203813 | 272245 | SILZLY, ROSEMARIE | | | | 0.054 |
| 203243 | 269888 | EGGEN, LINDA | | | | 1.012 |
| 205463 | 275869 | POFFENBERGER, DON | | | | 0 |
| 204681 | 274374 | GREY, JACK | | | | 0.02 |
| 204299 | 274104 | SILZLY, ROSEMARIE * 116 HAUSER | | | | 0 |
| 204682 | 274418 | CRISLER, MARY ELLEN & FRANCIS | | | | 0 |
| 203725 | 153530 | MANN, LEONARD | | | | 0 |
| 203815 | 272253 | PETERS, JUDY | | | | 0 |
| 203442 | 271449 | JOHNSTON, DEBORAH | | | | 0 |
| 203443 | 271449 | JOHNSTON, DEBORAH | | | | 0 |
| 204683 | 274377 | NICHOLSON, JUDY | | | | 0 |
| 205601 | 276396 | MICKEY, GAIL AND TOM | | | | 0 |
| 203430 | 264545 | VARELIA, HELEN | 0.66 | <1.000 U | 0.41 | 190.3125 |
| 203418 | 264545 | VARELIA, HELEN | | | | 59.32 |
| 204678 | 274346 | RUSTAD, HOWARD | | | | 0 |
| 204686 | 274363 | RAYMOND JOHNSON | | | | 0.008 |
| 203706 | 163966 | HILMO, TIM | | | | 0.013 |
| 203342 | 242287 | KITTLESON, JANET | | | | 0.858 |
| 203932 | 273569 | SCHAFER, DALE | | | | 0 |
| 203340 | 270198 | KITTLESON 311-C | | | | 4.654 |
| 203341 | 270197 | KITTLESON 311-B | | | | 1.131 |
| 203429 | 264544 | SWANSON, RON | 0.28 | <1.000 U | <0.250 U | 178.6055 |
| 203417 | 264544 | SWANSON, RON | | | | 54.867 |
| 204679 | 104978 | SAFFLE, KAREN & BOB | | | | 0.049 |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | NO3+NO2-N (mg/l) | Total N as N (mg/l) | Dis. Org. Carbon (mg/l) | Total Dis. Solids (mg/l) |
|---|---|---|---|---|---|---|
| 203441 | 271441 | JOHNSON, SYLVIA & HAROLD | | | | 0 |
| 203663 | 51243 | COONEY, FRANKLIN AND VICKI | | | | 1.03 |
| 204680 | 274358 | COX, CARL | | | | 1.388 |
| 203578 | 271689 | MCCARTHY, JIM | | | | 0.011 |
| 203427 | 197463 | MCKAY, ROBERT | <0.200 U | <1.000 U | 1.24 | 189.4754 |
| 203428 | 197463 | MCKAY, ROBERT | <0.200 U | <1.000 U | 1.23 | 187.5254 |
| 203426 | 197463 | MCKAY, ROBERT | <0.200 U | <1.000 U | 1.37 | 189.2964 |
| 203416 | 197463 | MCKAY, ROBERT | | | | 56.787 |
| 203620 | 251790 | PHILLIPS, ROB | | | | 0.019 |
| 204243 | 202080 | DANIELS, LOYD | | | | 0.019 |
| 203266 | 51318 | DANIELS, LLOYD | | | | 1.075 |
| 203491 | 271503 | HOGGE, VERNAN AND MARJORIE | 3.99 | 4.66 | 1.5 | 617.6187 |
| 203485 | 271503 | HOGGE, VERNAN AND MARJORIE | | | | 182.009 |
| 205023 | 51333 | FRESH, JEAN AND ELDEN | | | | 552.9264 |
| 204987 | 51333 | FRESH, JEAN AND ELDEN | | | | 0.021 |
| 204988 | 51333 | FRESH, JEAN AND ELDEN | | | | 0.014 |
| 205144 | 276484 | SWANSON, MARK | | | | 370.9017 |
| 205145 | 276484 | SWANSON, MARK | | | | 0.007 |
| 204905 | 221430 | KEELE, DON - SHOP | | | | 439.8437 |
| 204896 | 221430 | KEELE, DON - SHOP | | | | 2.199 |
| 204897 | 254433 | BAILEY, DON & DEBRAH | | | | 285.8212 |
| 204881 | 254433 | BAILEY, DON & DEBRAH | | | | 0.017 |
| 204901 | 226130 | SCHERMAN, RUSS | | | | 378.4722 |
| 204890 | 226130 | SCHERMAN, RUSS | | | | 2.007 |
| 205015 | 226130 | SCHERMAN, RUSS | | | | 0 |
| 204888 | 51327 | FAUGHT, STANLEY | | | | 0 |
| 204900 | 51327 | FAUGHT, STANLEY | | | | 396.4381 |
| 204898 | 252926 | WYBENGA, TRACY | | | | 381.1886 |
| 204884 | 252926 | WYBENGA, TRACY | | | | 0.006 |
| 204902 | 51328 | SCHERMAN, RUSS- RENTAL | | | | 337.1913 |
| 204891 | 51328 | SCHERMAN, RUSS- RENTAL | | | | 0 |
| 203483 | 181457 | WHITAKER, RAY | | | | 113.3 |
| 203482 | 181457 | WHITAKER, RAY | | | | 350.7714 |
| 204057 | 51334 | MCDOWELL, HAROLD | | | | 248.9809 |
| 204052 | 51334 | MCDOWELL, HAROLD | | | | 250.4483 |
| 204055 | 51334 | MCDOWELL, HAROLD | | | | 0 |
| 204056 | 51334 | MCDOWELL, HAROLD | | | | 0 |
| 204053 | 254941 | MIKES SALES AND PAWN | | | | 235.4465 |
| 204054 | 254941 | MIKES SALES AND PAWN | | | | 0 |
| 205539 | 275908 | JEAN, HARMON | | | | 0.037 |
| 205540 | 275922 | WIGERT, JANICE & GARY | | | | 0.049 |
| 205541 | 173110 | WIGERT, ROXANNE & HOWARD | | | | 0.011 |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | NO3+NO2-N (mg/l) | Total N as N (mg/l) | Dis. Org. Carbon (mg/l) | Total Dis. Solids (mg/l) |
|---|---|---|---|---|---|---|
| 205464 | 51378 | PECUKONIS, DAVE & LAURIE | | | | 0.161 |
| 205462 | 51363 | GARRELS, DR L. | | | | 1.787 |
| 205461 | 123812 | GERVAIS, LESLIE | | | | 0.027 |
| 204765 | 197464 | WACKERBARTH, DANA & BART | | | | 1.651 |
| 205199 | 275101 | PETERSON, DONNA | | | | 0.035 |
| 205240 | 275180 | ROBINSON, RON & STORMIE * CREEK | | | | 0.126 |
| 204049 | 237374 | DICKERSON, PHILIP | | | | 0.044 |
| 204345 | 214966 | VANMEEL, MIKE | | | | 0.022 |
| 205242 | 163148 | WEBB, DAVE & BARBARA | | | | 0.01 |
| 205192 | 275096 | ROBINSON, RON AND STORMIE * SPRING | | | | 0.027 |
| 205151 | 174778 | CATALENELLO, MARK | | | | 0.02 |
| 205150 | 174778 | CATALENELLO, MARK | | | | 112.0385 |
| 203290 | 269999 | BLAKESLEE, RONALD | | | | 1.427 |
| 204227 | 163968 | KEISTER, RODNEY AND ELAINE | | | | 0.006 |
| 204768 | 274553 | MILLER, GREG | | | | 0.038 |
| 204296 | 274103 | SHEFFIELD, REGINA AND DAVID | | | | 0.021 |
| 204767 | 274501 | SCHRANZ, PETER | | | | 0.013 |
| 204766 | 274500 | SCHRANZ, JOAN AND PETER | | | | 0.025 |
| 204295 | 274102 | FISH, SUSAN * SPRING | | | | 0.054 |
| 205236 | 194340 | WEBB, DAVID * CABIN | | | | 2.075 |
| 205415 | 51735 | HEGGELUND, TOM | | | | 0 |
| 204998 | 238047 | BLOM LORIN | | | | 0.018 |
| 205025 | 238047 | BLOM LORIN | | | | 244.9789 |
| 205149 | 260549 | MITCHELL, HAROLD | | | | 0 |
| 205148 | 260549 | MITCHELL, HAROLD | | | | 249.8954 |
| 205028 | 256447 | SMITH MONTY & JULIE | | | | 460.0406 |
| 205013 | 256447 | SMITH MONTY & JULIE | | | | 0.189 |
| 204990 | 256622 | STEWART JOHN & PHYLLIS | | | | 0.006 |
| 205024 | 256622 | STEWART JOHN & PHYLLIS | | | | 280.5926 |
| 205147 | 241972 | FLACHMEYER DAN | | | | 0 |
| 205146 | 241972 | FLACHMEYER DAN | | | | 255.3856 |
| 203423 | 51744 | JETTE, ARTHUR & JESSIE | 0.84 | <1.000 U | <0.250 U | 219.7077 |
| 203381 | 271369 | KELLY, JOHN | | | | 0.047 |
| 203382 | 271369 | KELLY, JOHN | | | | 0.055 |
| 203424 | 250642 | NELSON, JASON | 0.48 | <1.000 U | <0.250 U | 234.1212 |
| 203415 | 250642 | NELSON, JASON | | | | 81.853 |
| 204095 | 51751 | KIEWATT, CHARLES (MEL) | | | | 0.028 |
| 203492 | 229026 | SEVEYKA, PAUL | 0.82 | <1.000 U | 0.62 | 367.5437 |
| 204047 | 273745 | KITTLESON, JANET (RENTAL) | | | | 0 |
| 203240 | 218249 | CRISP, SHARON & DOUG | | | | 0.145 |
| 203241 | 218249 | CRISP, SHARON & DOUG | | | | 0.162 |
| 205353 | 51724 | DELONG, DARCY * WELL #1 | | | | 0.006 |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | NO3+NO2-N (mg/l) | Total N as N (mg/l) | Dis. Org. Carbon (mg/l) | Total Dis. Solids (mg/l) |
|---|---|---|---|---|---|---|
| 203383 | 195488 | CHIRICO, KIMBERLY | | | | 0 |
| 203384 | 51762 | CHIRICO, KIMBERLY | | | | 0.032 |
| 205600 | 276366 | MANZ, TOM | | | | 0.028 |
| 203587 | 5376 | UELAND RANCHES | 1.18 | 1.18 | | 225.2825 |
| 203590 | 5376 | UELAND RANCHES | | | | 0 |
| 205010 | 5377 | GALLE CLIFF JR | | | | 0 |
| 205027 | 5377 | GALLE CLIFF JR | | | | 191.4988 |
| 204984 | 51790 | GALLE, TYKE | | | | 0 |
| 205022 | 51790 | GALLE, TYKE | | | | 169.1659 |
| 204342 | 257526 | RICE CLARK | | | | 0.005 |
| 203928 | 166679 | JOHNSON, WADE | | | | 0.031 |
| 203930 | 183266 | PETERSON, RON | | | | 0.07 |
| 203372 | 196333 | HEFFERNAN, DAVE | | | | 0.019 |
| 204174 | 273926 | GREGORICH, TERENCE | | | | 0.348 |
| 203349 | 271244 | JOHNSON, CLAUDIA | | | | 0.503 |
| 204221 | 178947 | SLOCUM, JAY | | | | 1.017 |
| 203350 | 271245 | JOHNSON, CLAUDIA (RENTAL) | | | | 0.341 |
| 205021 | 230299 | GALLE JEFF AND ANGELLA | | | | 215.5983 |
| 204981 | 230299 | GALLE JEFF AND ANGELLA | | | | 0.005 |
| 204222 | 273982 | RASMUSSEN, KATHY | | | | 0.013 |
| 204343 | 160171 | GRAFF, STEVE | | | | 0.007 |
| 204173 | 273924 | BAKER, CLIFF | | | | 0 |
| 203431 | 184525 | KLEMANN, RUSS | <0.200 U | <1.000 U | <0.250 U | 228.4117 |
| 203419 | 184525 | KLEMANN, RUSS | | | | 75.96 |
| 204581 | 274241 | MCCURDY, CHARLIE | | | | 1.014 |
| 204580 | 274241 | MCCURDY, CHARLIE | | | | 1.021 |
| 203934 | 273573 | HARVEY, DONALD D. | | | | 0.008 |
| 205020 | 246960 | CONNORS, KEN | | | | 411.4712 |
| 204961 | 246960 | CONNORS, KEN | | | | 0 |
| 204587 | 274336 | BOYER, JOE | | | | 0 |
| 204792 | 196668 | SMITH, SEAN | | | | 0.005 |
| 204899 | 258964 | SALLE, RON | | | | 689.3563 |
| 204886 | 258964 | SALLE, RON | | | | 1 |
| 204904 | 244470 | LUSSY, JERRY | | | | 485.1588 |
| 204895 | 244470 | LUSSY, JERRY | | | | 1.058 |
| 204903 | 51874 | WALTER, RICHARD | | | | 502.8027 |
| 204892 | 51874 | WALTER, RICHARD | | | | 1.058 |
| 205030 | 122659 | NORTON, LOU | | | | 477.9468 |
| 205016 | 122659 | NORTON, LOU | | | | 0.069 |
| 204586 | 274330 | KOHUT, MARGARET & TRISTAN | | | | 0 |
| 205598 | 52055 | VUCKOVICH, MARK | | | | 0 |
| 205599 | 52055 | VUCKOVICH, MARK | | | | 0 |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | NO3+NO2-N (mg/l) | Total N as N (mg/l) | Dis. Org. Carbon (mg/l) | Total Dis. Solids (mg/l) |
|---|---|---|---|---|---|---|
| 205595 | 276320 | RUEGAMER, LANE | | | | 0.016 |
| 205596 | 276320 | RUEGAMER, LANE | | | | 0.008 |
| 203242 | 269881 | DODGE, CATHY AND WARREN | | | | 0.015 |
| 204796 | 52036 | SMITH, TERI | | | | 0.017 |
| 204795 | 153771 | CAUGHLIN, BOBBY | | | | 0 |
| 203574 | 52042 | HANCOCK, ARLOW JR. | | | | 0 |
| 204842 | 274718 | KONICEK, SUE | | | | 0 |
| 204338 | 274162 | BENSON, ZALE | | | | 0 |
| 204579 | 52046 | KEETCH, CRAIG * WELL 1 | | | | 0.018 |
| 204588 | 274338 | JONES, BOYD | | | | 0.025 |
| 204582 | 274263 | STAUDOHAR, CONNIE & JOE | | | | 0 |
| 203343 | 52086 | CASQUILHO, LAUREN | | | | 0.517 |
| 204593 | 266770 | BLOTKAMP, MARY | | | | 296.3017 |
| 204594 | 267423 | PENTILLA, MIKE AND APRIL | | | | 210.9468 |
| 204584 | 267423 | PENTILLA, MIKE AND APRIL | | | | 0.014 |
| 204583 | 266770 | BLOTKAMP, MARY | | | | 2.115 |
| 203484 | 271507 | BROWN, SCOTT | | | | 122.55 |
| 203495 | 271507 | BROWN, SCOTT | 0.54 | <1.000 U | <0.250 U | 369.5209 |
| 203579 | 179072 | LORANGER BILL | | | | 1.013 |
| 203425 | 5412 | RILEY WESLEY & LEONA | <0.200 U | <1.000 U | <0.250 U | 276.6973 |
| 203412 | 153591 | LOEHR JOANN AND JAMIE | | | | 230.6775 |
| 203413 | 153591 | LOEHR JOANN AND JAMIE | | | | 0.032 |
| 203461 | 156248 | HANSEN, DEBORAH | | | | 0.01 |
| 205157 | 156249 | WAYMIRE, EDWARD | | | | 0 |
| 205156 | 156249 | WAYMIRE, EDWARD | | | | 220.4938 |
| 205271 | 158808 | DINSDALE JEFFERY E & JULIE M | | | | 227.0451 |
| 205258 | 158808 | DINSDALE JEFFERY E & JULIE M | | | | 0.017 |
| 205259 | 158808 | DINSDALE JEFFERY E & JULIE M | | | | 0.015 |
| 205155 | 259949 | GESSELE, EDWIN C JR | | | | 0.315 |
| 205153 | 259949 | GESSELE, EDWIN C JR | | | | 0.425 |
| 205152 | 259949 | GESSELE, EDWIN C JR | | | | 213.8777 |
| 205154 | 259949 | GESSELE, EDWIN C JR | | | | 212.6457 |
| 205359 | 153592 | CHARLENE STOCK JONES | | | | 0.011 |
| 205358 | 153592 | CHARLENE STOCK JONES | | | | 0.011 |
| 205374 | 153592 | CHARLENE STOCK JONES | | | | 219.4853 |
| 205373 | 153592 | CHARLENE STOCK JONES | | | | 220.3237 |
| 203420 | 152683 | HELSPER WILLIAM F & LISA A | 1.22 | 4.870 J | 2.2 | 792.5252 |
| 203414 | 152683 | HELSPER WILLIAM F & LISA A | | | | 213.97 |
| 203422 | 148956 | ADAMS ARLO AND JERYL | 1.85 | 2.05 | 0.26 | 314.1985 |
| 205014 | 53591 | RUEGAMER, ANTHONY | | | | 0.006 |
| 205029 | 53591 | RUEGAMER, ANTHONY | | | | 338.0682 |
| 205032 | 153593 | ARENTZ, IVAN EUGENE | | | | 242.5859 |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | NO3+NO2-N (mg/l) | Total N as N (mg/l) | Dis. Org. Carbon (mg/l) | Total Dis. Solids (mg/l) |
|---|---|---|---|---|---|---|
| 205018 | 153593 | ARENTZ, IVAN EUGENE | | | | 2.009 |
| 205031 | 250294 | MCQUEARY CAM | | | | 358.9062 |
| 205017 | 250294 | MCQUEARY CAM | | | | 0.035 |
| 205260 | 266861 | PIERCE, COLT | | | | 0.047 |
| 205272 | 266861 | PIERCE, COLT | | | | 286.8142 |
| 203555 | 271663 | GRANT, PAM & PAUL | | | | 2.029 |
| 204793 | 274502 | WILLIAMS, LEAH | | | | 0 |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Sum Dis. Constituents (mg/l) | Hardness (mg/l) | Alkalinity | SAR | Procedure |
|---|---|---|---|---|---|---|---|
| 205360 | 256874 | SHYBA, LORI | 0.029 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205375 | 256874 | SHYBA, LORI | 474.688 | 208.3173 | 120.5651 | 1.1155 | DISSOLVED |
| 205362 | 256874 | SHYBA, LORI | 0.006 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205363 | 256874 | SHYBA, LORI | 0.007 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205357 | 198928 | RANKIN, KEITH AND JEAN | 0.578 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205372 | 198928 | RANKIN, KEITH AND JEAN | 92.032 | 21.4518 | 32.8068 | 0.3758 | DISSOLVED |
| 205002 | 252623 | MACCIOLI JOE & PATTI | 0.048 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205026 | 252623 | MACCIOLI JOE & PATTI | 900.77 | 195.8904 | 341.1911 | 5.2854 | DISSOLVED |
| 205019 | 252623 | MACCIOLI JOE & PATTI | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203621 | 271935 | YATES, KEN AND SHARON | 2.057 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203817 | 194331 | HARWOOD, LARRY E AND BARBARA | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203936 | 273576 | WILLEY, DARLENE AND MICHAEL | 0.016 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204684 | 274411 | KAIN, DONALD | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204094 | 273801 | VAUTHIER, THOMAS | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204685 | 51068 | OLSON, ROGER | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203622 | 51094 | COLWELL, DUANE | 0.02 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203707 | 51079 | CHRISTIAN, GREGORY AND MICHELLE | 0.031 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203435 | 271373 | KOPP, ROSE & KEN | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203575 | 194334 | GARCIA, RICARDO AND RUTH L | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203576 | 271684 | DAVIS, JEREMY | 0.052 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205201 | 137932 | PAMIN, JEFF & BECKY * 2013 PAMIN | 0.013 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203369 | 271338 | KRUMM, JENNY AND TIM | 0.007 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204240 | 274025 | RICE, CLARK (CORKY) * 117 RICE | 0.007 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204242 | 274028 | RICE, CLARK (CORKY) * 109 RICE | 0.01 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204241 | 274027 | RICE, CLARK (CORKY) * 111 RICE | 0.018 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204226 | 274006 | RICE, CLARK (CORKY) * 303 ERICKSON | 0.027 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203267 | 235579 | CLARK LEE | 1.567 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205142 | 120711 | PATTERSON, NATHAN & SHERRIE | 0.011 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203577 | 271686 | BLANK, DORIS | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203351 | 271248 | MORSE, DEDE & RICK | 0.207 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205141 | 275057 | EVANS, ALBERT | 0.48 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203371 | 195486 | DOYLE, DUANE R. AND JEANETTE I. | 0.027 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205257 | 275248 | REDD, GINNY & STEVE | 0.009 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203665 | 227965 | NEWELL, JOHN | 3.035 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203664 | 272001 | RAASAKKA, DARYL | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203666 | 230073 | HENDRICKSON, MICHAEL | 1.552 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205538 | 51134 | FRANCISCO, JOHN * WELL #1 | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203370 | 174769 | HUESTIS, MIKE | 0.014 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205351 | 51144 | DYE, DIXIE * HOUSE | 0.014 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205254 | 137922 | WENGER, GARY * WENGER | 0.023 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205354 | 275360 | ALOYSIUS, AL AND LOUISE | 0.008 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205352 | 251784 | DYE, DIXIE * SHOP | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Sum Dis. Constituents (mg/l) | Hardness (mg/l) | Alkalinity | SAR | Procedure |
|---|---|---|---|---|---|---|---|
| 203433 | 271435 | MYERS, NANCY & SERGE | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203434 | 153529 | MYERS, SERGE | 0.005 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205441 | 275639 | MCKNIGHT, SCOTT AND MICHELLE | 0.007 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205356 | 51140 | MCGILLEN, LINDA & PAUL | 0.07 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205377 | 51140 | MCGILLEN, LINDA & PAUL | 1.088 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203816 | 170884 | PETERS, TAMMY | 0.026 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205416 | 275482 | CLARK, HERB | 36.176 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203554 | 271660 | KELSEY, BARBARA | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205442 | 275671 | MICKELBRRY, DALTON | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204350 | 274200 | WILLENE POND GUEST HOUSE | 0.02 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204348 | 274199 | WILLENE POND | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205602 | 276397 | VAUTHIER, GARY | 0.016 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203726 | 272210 | SILZLY, ROSEMARIE | 0.005 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205355 | 51182 | KETO, DIXIE/WEST, DIANE | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203432 | 51222 | MYERS, NANCY & SERGE | 0.03 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205255 | 275243 | FISCHER, FRED & RUBY * ANGELA BORGEN | 0.019 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205256 | 275244 | FISCHER, FRED & RUBY * LINDA BARNEY | 0.008 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203814 | 272246 | O'BRIEN, MICHAEL AND LALONNIE | 0.024 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203813 | 272245 | SILZLY, ROSEMARIE | 0.054 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203243 | 269888 | EGGEN, LINDA | 1.012 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205463 | 275869 | POFFENBERGER, DON | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204681 | 274374 | GREY, JACK | 0.02 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204299 | 274104 | SILZLY, ROSEMARIE * 116 HAUSER | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204682 | 274418 | CRISLER, MARY ELLEN & FRANCIS | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203725 | 153530 | MANN, LEONARD | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203815 | 272253 | PETERS, JUDY | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203442 | 271449 | JOHNSTON, DEBORAH | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203443 | 271449 | JOHNSTON, DEBORAH | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204683 | 274377 | NICHOLSON, JUDY | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205601 | 276396 | MICKEY, GAIL AND TOM | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203430 | 264545 | VARELIA, HELEN | 270.48 | 146.7269 | 129.587 | 0.2874 | DISSOLVED |
| 203418 | 264545 | VARELIA, HELEN | 59.32 | 142.062 | 0 | 0.3286 | TOTAL RECOVERABLE |
| 204678 | 274346 | RUSTAD, HOWARD | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204686 | 274363 | RAYMOND JOHNSON | 0.008 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203706 | 163966 | HILMO, TIM | 0.013 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203342 | 242287 | KITTLESON, JANET | 0.858 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203932 | 273569 | SCHAFER, DALE | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203340 | 270198 | KITTLESON 311-C | 4.654 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203341 | 270197 | KITTLESON 311-B | 1.131 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203429 | 264544 | SWANSON, RON | 249.64 | 131.0635 | 114.8239 | 0.2661 | DISSOLVED |
| 203417 | 264544 | SWANSON, RON | 54.867 | 130.0109 | 0 | 0.3053 | TOTAL RECOVERABLE |
| 204679 | 104978 | SAFFLE, KAREN & BOB | 0.049 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Sum Dis. Constituents (mg/l) | Hardness (mg/l) | Alkalinity | SAR | Procedure |
|---|---|---|---|---|---|---|---|
| 203441 | 271441 | JOHNSON, SYLVIA & HAROLD | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203663 | 51243 | COONEY, FRANKLIN AND VICKI | 1.03 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204680 | 274358 | COX, CARL | 1.388 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203578 | 271689 | MCCARTHY, JIM | 0.011 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203427 | 197463 | MCKAY, ROBERT | 243.766 | 121.5084 | 87.7583 | 0.3948 | DISSOLVED |
| 203428 | 197463 | MCKAY, ROBERT | 241.816 | 116.0078 | 87.7583 | 0.3636 | DISSOLVED |
| 203426 | 197463 | MCKAY, ROBERT | 243.587 | 120.9618 | 87.7583 | 0.3957 | DISSOLVED |
| 203416 | 197463 | MCKAY, ROBERT | 56.787 | 122.5533 | 0 | 0.4324 | TOTAL RECOVERABLE |
| 203620 | 251790 | PHILLIPS, ROB | 0.019 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204243 | 202080 | DANIELS, LOYD | 0.019 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203266 | 51318 | DANIELS, LLOYD | 1.075 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203491 | 271503 | HOGGE, VERNAN AND MARJORIE | 783.535 | 339.4567 | 268.1959 | 1.5588 | DISSOLVED |
| 203485 | 271503 | HOGGE, VERNAN AND MARJORIE | 182.009 | 322.8053 | 0 | 1.4047 | TOTAL RECOVERABLE |
| 205023 | 51333 | FRESH, JEAN AND ELDEN | 673.685 | 111.7651 | 195.2007 | 5.639 | DISSOLVED |
| 204987 | 51333 | FRESH, JEAN AND ELDEN | 0.021 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204988 | 51333 | FRESH, JEAN AND ELDEN | 0.014 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205144 | 276484 | SWANSON, MARK | 488.616 | 112.8208 | 190.2797 | 3.1135 | DISSOLVED |
| 205145 | 276484 | SWANSON, MARK | 0.007 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204905 | 221430 | KEELE, DON - SHOP | 594.09 | 165.3728 | 249.332 | 2.8085 | DISSOLVED |
| 204896 | 221430 | KEELE, DON - SHOP | 2.199 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204897 | 254433 | BAILEY, DON & DEBRAH | 389.836 | 102.4505 | 168.1351 | 2.1925 | DISSOLVED |
| 204881 | 254433 | BAILEY, DON & DEBRAH | 0.017 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204901 | 226130 | SCHERMAN, RUSS | 473.354 | 48.2447 | 153.372 | 6.4528 | DISSOLVED |
| 204890 | 226130 | SCHERMAN, RUSS | 2.007 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205015 | 226130 | SCHERMAN, RUSS | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204888 | 51327 | FAUGHT, STANLEY | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204900 | 51327 | FAUGHT, STANLEY | 559.31 | 202.9451 | 263.2749 | 1.5884 | DISSOLVED |
| 204898 | 252926 | WYBENGA, TRACY | 514.632 | 146.9706 | 215.705 | 2.3331 | DISSOLVED |
| 204884 | 252926 | WYBENGA, TRACY | 0.006 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204902 | 51328 | SCHERMAN, RUSS- RENTAL | 455.413 | 62.6766 | 191.0998 | 4.8369 | DISSOLVED |
| 204891 | 51328 | SCHERMAN, RUSS- RENTAL | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203483 | 181457 | WHITAKER, RAY | 113.3 | 155.8607 | 0 | 1.8125 | TOTAL RECOVERABLE |
| 203482 | 181457 | WHITAKER, RAY | 471.53 | 153.7114 | 195.2007 | 1.8602 | DISSOLVED |
| 204057 | 51334 | MCDOWELL, HAROLD | 356.04 | 209.3609 | 173.0561 | 0.2105 | DISSOLVED |
| 204052 | 51334 | MCDOWELL, HAROLD | 357 | 214.7893 | 172.2359 | 0.2078 | DISSOLVED |
| 204055 | 51334 | MCDOWELL, HAROLD | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204056 | 51334 | MCDOWELL, HAROLD | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204053 | 254941 | MIKES SALES AND PAWN | 343.013 | 192.3936 | 173.8763 | 0.1882 | DISSOLVED |
| 204054 | 254941 | MIKES SALES AND PAWN | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205539 | 275908 | JEAN, HARMON | 0.037 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205540 | 275922 | WIGERT, JANICE & GARY | 0.049 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205541 | 173110 | WIGERT, ROXANNE & HOWARD | 0.011 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Sum Dis. Constituents (mg/l) | Hardness (mg/l) | Alkalinity | SAR | Procedure |
|---|---|---|---|---|---|---|---|
| 205464 | 51378 | PECUKONIS, DAVE & LAURIE | 0.161 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205462 | 51363 | GARRELS, DR L. | 1.787 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205461 | 123812 | GERVAIS, LESLIE | 0.027 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204765 | 197464 | WACKERBARTH, DANA & BART | 1.651 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205199 | 275101 | PETERSON, DONNA | 0.035 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205240 | 275180 | ROBINSON, RON & STORMIE * CREEK | 0.126 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204049 | 237374 | DICKERSON, PHILIP | 0.044 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204345 | 214966 | VANMEEL, MIKE | 0.022 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205242 | 163148 | WEBB, DAVE & BARBARA | 0.01 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205192 | 275096 | ROBINSON, RON AND STORMIE * SPRING | 0.027 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205151 | 174778 | CATALENELLO, MARK | 0.02 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205150 | 174778 | CATALENELLO, MARK | 164.807 | 78.7379 | 85.2978 | 0.3433 | DISSOLVED |
| 203290 | 269999 | BLAKESLEE, RONALD | 1.427 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204227 | 163968 | KEISTER, RODNEY AND ELAINE | 0.006 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204768 | 274553 | MILLER, GREG | 0.038 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204296 | 274103 | SHEFFIELD, REGINA AND DAVID | 0.021 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204767 | 274501 | SCHRANZ, PETER | 0.013 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204766 | 274500 | SCHRANZ, JOAN AND PETER | 0.025 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204295 | 274102 | FISH, SUSAN * SPRING | 0.054 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205236 | 194340 | WEBB, DAVID * CABIN | 2.075 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205415 | 51735 | HEGGELUND, TOM | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204998 | 238047 | BLOM LORIN | 0.018 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205025 | 238047 | BLOM LORIN | 333.772 | 141.625 | 143.5299 | 0.4388 | DISSOLVED |
| 205149 | 260549 | MITCHELL, HAROLD | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205148 | 260549 | MITCHELL, HAROLD | 334.122 | 0.2997 | 136.1484 | 64.39 | DISSOLVED |
| 205028 | 256447 | SMITH MONTY & JULIE | 542.745 | 139.9113 | 133.6879 | 2.8696 | DISSOLVED |
| 205013 | 256447 | SMITH MONTY & JULIE | 0.189 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204990 | 256622 | STEWART JOHN & PHYLLIS | 0.006 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205024 | 256622 | STEWART JOHN & PHYLLIS | 365.834 | 149.6396 | 137.7887 | 0.747 | DISSOLVED |
| 205147 | 241972 | FLACHMEYER DAN | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205146 | 241972 | FLACHMEYER DAN | 338.09 | 141.3208 | 133.6879 | 0.5491 | DISSOLVED |
| 203423 | 51744 | JETTE, ARTHUR & JESSIE | 300.89 | 124.107 | 131.2274 | 0.5078 | DISSOLVED |
| 203381 | 271369 | KELLY, JOHN | 0.047 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203382 | 271369 | KELLY, JOHN | 0.055 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203424 | 250642 | NELSON, JASON | 326.466 | 132.4671 | 149.2711 | 0.5671 | DISSOLVED |
| 203415 | 250642 | NELSON, JASON | 81.853 | 124.7579 | 0 | 0.5454 | TOTAL RECOVERABLE |
| 204095 | 51751 | KIEWATT, CHARLES (MEL) | 0.028 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203492 | 229026 | SEVEYKA, PAUL | 521.79 | 158.489 | 249.332 | 2.696 | DISSOLVED |
| 204047 | 273745 | KITTLESON, JANET (RENTAL) | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203240 | 218249 | CRISP, SHARON & DOUG | 0.145 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203241 | 218249 | CRISP, SHARON & DOUG | 0.162 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205353 | 51724 | DELONG, DARCY * WELL #1 | 0.006 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Sum Dis. Constituents (mg/l) | Hardness (mg/l) | Alkalinity | SAR | Procedure |
|---|---|---|---|---|---|---|---|
| 203383 | 195488 | CHIRICO, KIMBERLY | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203384 | 51762 | CHIRICO, KIMBERLY | 0.032 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205600 | 276366 | MANZ, TOM | 0.028 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203587 | 5376 | UELAND RANCHES | 332.849 | 163.2092 | 173.8763 | 0.6812 | DISSOLVED |
| 203590 | 5376 | UELAND RANCHES | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205010 | 5377 | GALLE CLIFF JR | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205027 | 5377 | GALLE CLIFF JR | 293.484 | 168.8027 | 164.8544 | 0.1005 | DISSOLVED |
| 204984 | 51790 | GALLE, TYKE | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205022 | 51790 | GALLE, TYKE | 260.496 | 140.9721 | 147.6308 | 0.11 | DISSOLVED |
| 204342 | 257526 | RICE CLARK | 0.005 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203928 | 166679 | JOHNSON, WADE | 0.031 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203930 | 183266 | PETERSON, RON | 0.07 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203372 | 196333 | HEFFERNAN, DAVE | 0.019 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204174 | 273926 | GREGORICH, TERENCE | 0.348 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203349 | 271244 | JOHNSON, CLAUDIA | 0.503 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204221 | 178947 | SLOCUM, JAY | 1.017 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203350 | 271245 | JOHNSON, CLAUDIA (RENTAL) | 0.341 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205021 | 230299 | GALLE JEFF AND ANGELLA | 303.884 | 169.5349 | 142.7098 | 0.2339 | DISSOLVED |
| 204981 | 230299 | GALLE JEFF AND ANGELLA | 0.005 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204222 | 273982 | RASMUSSEN, KATHY | 0.013 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204343 | 160171 | GRAFF, STEVE | 0.007 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204173 | 273924 | BAKER, CLIFF | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203431 | 184525 | KLEMANN, RUSS | 327.86 | 172.7665 | 160.7535 | 0.3311 | DISSOLVED |
| 203419 | 184525 | KLEMANN, RUSS | 75.96 | 177.481 | 0 | 0.3593 | TOTAL RECOVERABLE |
| 204581 | 274241 | MCCURDY, CHARLIE | 1.014 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204580 | 274241 | MCCURDY, CHARLIE | 1.021 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203934 | 273573 | HARVEY, DONALD D. | 0.008 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205020 | 246960 | CONNORS, KEN | 570.284 | 235.4084 | 256.7135 | 1.4748 | DISSOLVED |
| 204961 | 246960 | CONNORS, KEN | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204587 | 274336 | BOYER, JOE | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204792 | 196668 | SMITH, SEAN | 0.005 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204899 | 258964 | SALLE, RON | 1038.44 | 375.4643 | 564.2776 | 2.2681 | DISSOLVED |
| 204886 | 258964 | SALLE, RON | 1 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204904 | 244470 | LUSSY, JERRY | 708.41 | 268.4456 | 360.8752 | 1.806 | DISSOLVED |
| 204895 | 244470 | LUSSY, JERRY | 1.058 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204903 | 51874 | WALTER, RICHARD | 732.65 | 286.3096 | 371.5375 | 1.903 | DISSOLVED |
| 204892 | 51874 | WALTER, RICHARD | 1.058 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205030 | 122659 | NORTON, LOU | 609.868 | 314.5088 | 213.2445 | 0.9324 | DISSOLVED |
| 205016 | 122659 | NORTON, LOU | 0.069 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204586 | 274330 | KOHUT, MARGARET & TRISTAN | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205598 | 52055 | VUCKOVICH, MARK | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205599 | 52055 | VUCKOVICH, MARK | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Sum Dis. Constituents (mg/l) | Hardness (mg/l) | Alkalinity | SAR | Procedure |
|---|---|---|---|---|---|---|---|
| 205595 | 276320 | RUEGAMER, LANE | 0.016 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205596 | 276320 | RUEGAMER, LANE | 0.008 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203242 | 269881 | DODGE, CATHY AND WARREN | 0.015 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204796 | 52036 | SMITH, TERI | 0.017 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204795 | 153771 | CAUGHLIN, BOBBY | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203574 | 52042 | HANCOCK, ARLOW JR. | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204842 | 274718 | KONICEK, SUE | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204338 | 274162 | BENSON, ZALE | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204579 | 52046 | KEETCH, CRAIG * WELL 1 | 0.018 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204588 | 274338 | JONES, BOYD | 0.025 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204582 | 274263 | STAUDOHAR, CONNIE & JOE | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203343 | 52086 | CASQUILHO, LAUREN | 0.517 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204593 | 266770 | BLOTKAMP, MARY | 393.213 | 214.7452 | 156.6527 | 0.4454 | DISSOLVED |
| 204594 | 267423 | PENTILLA, MIKE AND APRIL | 306.336 | 166.976 | 154.1921 | 0.2694 | DISSOLVED |
| 204584 | 267423 | PENTILLA, MIKE AND APRIL | 0.014 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204583 | 266770 | BLOTKAMP, MARY | 2.115 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203484 | 271507 | BROWN, SCOTT | 122.55 | 209.3964 | 0 | 1.4133 | TOTAL RECOVERABLE |
| 203495 | 271507 | BROWN, SCOTT | 524.782 | 209.3592 | 250.9723 | 1.5638 | DISSOLVED |
| 203579 | 179072 | LORANGER BILL | 1.013 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203425 | 5412 | RILEY WESLEY & LEONA | 404.052 | 156.5241 | 205.8629 | 1.4955 | DISSOLVED |
| 203412 | 153591 | LOEHR JOANN AND JAMIE | 310.845 | 91.0069 | 129.587 | 1.1404 | DISSOLVED |
| 203413 | 153591 | LOEHR JOANN AND JAMIE | 0.032 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 203461 | 156248 | HANSEN, DEBORAH | 0.01 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205157 | 156249 | WAYMIRE, EDWARD | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205156 | 156249 | WAYMIRE, EDWARD | 297.617 | 94.4875 | 124.666 | 0.9849 | DISSOLVED |
| 205271 | 158808 | DINSDALE JEFFERY E & JULIE M | 298.587 | 102.7043 | 115.6441 | 0.9017 | DISSOLVED |
| 205258 | 158808 | DINSDALE JEFFERY E & JULIE M | 0.017 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205259 | 158808 | DINSDALE JEFFERY E & JULIE M | 0.015 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205155 | 259949 | GESSELE, EDWIN C JR | 0.315 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205153 | 259949 | GESSELE, EDWIN C JR | 0.425 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205152 | 259949 | GESSELE, EDWIN C JR | 285.927 | 84.4641 | 116.4643 | 1.089 | DISSOLVED |
| 205154 | 259949 | GESSELE, EDWIN C JR | 284.695 | 83.906 | 116.4643 | 1.0926 | DISSOLVED |
| 205359 | 153592 | CHARLENE STOCK JONES | 0.011 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205358 | 153592 | CHARLENE STOCK JONES | 0.011 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205374 | 153592 | CHARLENE STOCK JONES | 298.638 | 91.8138 | 127.9467 | 0.9537 | DISSOLVED |
| 205373 | 153592 | CHARLENE STOCK JONES | 298.969 | 95.232 | 127.1265 | 0.9364 | DISSOLVED |
| 203420 | 152683 | HELSPER WILLIAM F & LISA A | 857.471 | 513.1542 | 104.9819 | 0.6147 | DISSOLVED |
| 203414 | 152683 | HELSPER WILLIAM F & LISA A | 213.97 | 483.0117 | 0 | 0.5346 | TOTAL RECOVERABLE |
| 203422 | 148956 | ADAMS ARLO AND JERYL | 385.233 | 194.2618 | 114.8239 | 0.4995 | DISSOLVED |
| 205014 | 53591 | RUEGAMER, ANTHONY | 0.006 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205029 | 53591 | RUEGAMER, ANTHONY | 414.684 | 103.7723 | 123.8458 | 2.4776 | DISSOLVED |
| 205032 | 153593 | ARENTZ, IVAN EUGENE | 322.246 | 86.0726 | 128.7668 | 1.5948 | DISSOLVED |

Appendix E

ARWWS 2013 Domestic Well Water Quality Results (Cont.)

| Sample | Gwic Id | Site Name | Sum Dis. Constituents (mg/l) | Hardness (mg/l) | Alkalinity | SAR | Procedure |
|---|---|---|---|---|---|---|---|
| 205018 | 153593 | ARENTZ, IVAN EUGENE | 2.009 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205031 | 250294 | MCQUEARY CAM | 442.118 | 114.6846 | 134.508 | 2.1942 | DISSOLVED |
| 205017 | 250294 | MCQUEARY CAM | 0.035 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205260 | 266861 | PIERCE, COLT | 0.047 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 205272 | 266861 | PIERCE, COLT | 370.026 | 111.6427 | 134.508 | 1.6885 | DISSOLVED |
| 203555 | 271663 | GRANT, PAM & PAUL | 2.029 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |
| 204793 | 274502 | WILLIAMS, LEAH | 0 | 0.0001 | 0 | 0 | TOTAL RECOVERABLE |

**Appendix F.** Domestic Well Confirmation Water Sample Results, 2013

Ground-Water Information Center Water Quality Report **Site Name:** WHITAKER, RAY

**Report Date:** 9/4/2014

**Location Information**

| | | | |
|---|---|---|---|
| Sample Id/Site Id: | 203482 / 181457 | Sample Date: | 3/11/2013 2:45:00 PM |
| Location (TRS): | 04N 10W 36 BAD | Agency/Sampler: | MBMG / SMITH, M. GARRETT |
| Latitude/Longitude: | 46° 3' 39" N 112° 47' 23" W | Field Number: | WHITAKER CONFIRM |
| Datum: | NAD83 | Lab Date: | 5/2/2013 2:15:13 PM |
| Altitude: | 5060 | Lab/Analyst: | MBMG / MCGRATH, STEVE |
| County/State: | DEER LODGE / MT | Sample Method/Handling: | PUMPED / ru:1 ra:0 fu:1 fa:1 |
| Site Type: | WELL | Procedure Type: | DISSOLVED |
| Geology: | 120SDMS | Total Depth (ft): | 115 |
| USGS 7.5' Quad: | ANACONDA NORTH | SWL-MP (ft): | 70.55 |
| PWS Id: | | Depth Water Enters (ft): | 115 |
| Project: | ARWWS-DOM, ARWWS-ARSENICSTUDY | | |

**Major Ion Results**

| | mg/L | meq/L | | mg/L | meq/L |
|---|---|---|---|---|---|
| Calcium (Ca) | 43.690 | 2.180 | Bicarbonate (HCO3) | 238.270 | 3.905 |
| Magnesium (Mg) | 10.840 | 0.892 | Carbonate (CO3) | 0.000 | 0.000 |
| Sodium (Na) | 52.580 | 2.287 | Chloride (Cl) | 12.360 | 0.349 |
| Potassium (K) | 5.430 | 0.139 | Sulfate (SO4) | 61.920 | 1.290 |
| Iron (Fe) | <0.015 U | 0.000 | Nitrate (as N) | 3.190 | 0.228 |
| Manganese (Mn) | <0.002 U | 0.000 | Fluoride (F) | 1.490 | 0.078 |
| Silica (SiO2) | 43.340 | | Orthophosphate (as P) | 0.020 J | 0.000 |
| | **Total Cations** | 5.512 | | **Total Anions** | 5.850 |

**Trace Element Results (µg/L)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Aluminum (Al): | <0.400 U | Cesium (Cs): | 5.450 | Molybdenum (Mo): | 4.630 | Strontium (Sr): | 334.540 |
| Antimony (Sb): | <0.100 U | Chromium (Cr): | <0.100 U | Nickel (Ni): | 0.540 | Thallium (Tl): | <0.100 U |
| Arsenic (As): | 10.880 | Cobalt (Co): | 0.560 | Niobium (Nb): | <0.100 U | Thorium (Th): | <0.100 U |
| Barium (Ba): | 39.990 | Copper (Cu): | 0.550 J | Neodymium (Nd): | <0.100 U | Tin (Sn): | <0.100 U |
| Beryllium (Be): | <0.100 U | Gallium (Ga): | <0.100 U | Palladium (Pd): | <0.100 U | Titanium (Ti): | 0.510 |
| Boron (B): | 61.230 | Lanthanum (La): | <0.100 U | Praseodymium (Pr): | <0.100 U | Tungsten (W): | 21.780 |
| Bromide (Br): | 93.000 | Lead (Pb): | <0.060 U | Rubidium (Rb): | 4.930 | Uranium (U): | 22.880 |
| Cadmium (Cd): | <0.100 U | Lithium (Li): | 40.250 | Silver (Ag): | <0.100 U | Vanadium (V): | 6.640 |
| Cerium (Ce): | <0.100 U | Mercury (Hg): | NR | Selenium (Se): | 0.950 | Zinc (Zn): | 1.180 J |
| | | | | | | Zirconium (Zr): | <0.100 U |

**Field Chemistry and Other Analytical Results**

| | | | | | |
|---|---|---|---|---|---|
| **Total Dissolved Solids (mg/L): | 350.77 | Field Hardness as CaCO3 (mg/L): | NR | Ammonia (mg/L): | NR |
| **Sum of Diss. Constituents (mg/L): | 471.53 | Hardness as CaCO3: | 153.71 | T.P. Hydrocarbons (µg/L): | NR |
| Field Conductivity (µmhos): | 525.9 | Field Alkalinity as CaCO3 (mg/L): | 216 | PCP (µg/L): | NR |
| Lab Conductivity (µmhos): | 593.3 | Alkalinity as CaCO3 (mg/L): | 195.2 | Phosphate, TD (mg/L as P): | 0.060 J |
| Field pH: | 7.35 | Ryznar Stability Index: | 7.788 | Field Nitrate (mg/L): | NR |
| Lab pH: | 7.35 | Sodium Adsorption Ratio: | 1.8602 | Field Dissolved O2 (mg/L): | 9.530 |
| Water Temp (°C): | 9.9 | Langlier Saturation Index: | -0.219 | Field Chloride (mg/L): | NR |
| Air Temp (°C): | NR | Nitrite (mg/L as N): | <0.010 U | Field Redox (mV): | 331 |
| Nitrate + Nitrite (mg/L as N) | NR | Hydroxide (mg/L as OH): | 0.000 | Lab, Dissolved Organic Carbon (mg/L): | NR |
| Total Kjeldahl Nitrogen (mg/L as N) | NR | Lab, Dissolved Inorganic Carbon (mg/L): | NR | Lab, Total Organic Carbon (mg/L): | NR |
| Total Nitrogen (mg/L as N) | NR | Acidity to 4.5 (mg/L CaCO3) | NR | Acidity to 8.3 (mg/L CaCO3) | NR |
| As(III) (ug/L) | NR | As(V) (ug/L) | NR | Total Susp Solids (mg/L) | NR |

**Notes**

Sample Condition:CLEAR- CONFIRMATION, DISSOLVED

Field Remarks:PURGED > 3 BORE VOLUMES AND ATTAINED STABLE PARAMETERS PRIOR TO SAMPLING

Lab Remarks:

Explanation: **mg/L** = milligrams per Liter; **µg/L** = micrograms per Liter; **ft** = feet; **NR** = No Reading in GWIC

Qualifiers: **A** = Hydride atomic absorption; **E** = Estimated due to interference; **H** = Exceeded holding time; **J** = Estimated quantity above detection limit but below reporting limit; **K** = Na+K combined; **N** = Spiked sample recovery not within control limits; **P** = Preserved sample; **S** = Method of standard additions; **U** = Undetected quantity below detection limit; ***** = Duplicate analysis not within control limits; ****** = Sum of Dissolved Constituents is the sum of major cations (Na, Ca, K, Mg, Mn, Fe) and anions (HCO3, CO3, SO4, Cl, SiO2, NO3, F) in mg/L. Total Dissolved Solids is reported as equivalent weight of evaporation residue.

Ground-Water Information Center Water Quality Report **Site Name:** LOEHR, JOANN AND JAMIE

**Report Date:** 9/4/2014

**Location Information**

| | | | |
|---|---|---|---|
| Sample Id/Site Id: | 203413 / 153591 | Sample Date: | 3/1/2013 12:35:00 PM |
| Location (TRS): | 06N 10W 33 CACB | Agency/Sampler: | MBMG / SMITH, M. GARRETT |
| Latitude/Longitude: | 46° 13' 43" N 112° 51' 54" W | Field Number: | LOEHR CONFIRMATION |
| Datum: | NAD83 | Lab Date: | 4/11/2013 1:23:21 PM |
| Altitude: | 5130 | Lab/Analyst: | MBMG / MCGRATH, STEVE |
| County/State: | DEER LODGE / MT | Sample Method/Handling: | PUMPED / ru:0 ra:1 fu:0 fa:0 |
| Site Type: | WELL | Procedure Type: | TOTAL RECOVERABLE |
| Geology: | 120SDMS | Total Depth (ft): | 320 |
| USGS 7.5' Quad: | WARM SPRINGS | SWL-MP (ft): | 178.08 |
| PWS Id: | | Depth Water Enters (ft): | NR |
| Project: | ARWWS-DOM, ARWWS-ARSENICSTUDY | | |

**Major Ion Results**

| | mg/L | meq/L | | mg/L | meq/L |
|---|---|---|---|---|---|
| Calcium (Ca) | NR | 0.000 | Bicarbonate (HCO3) | NR | 0.000 |
| Magnesium (Mg) | NR | 0.000 | Carbonate (CO3) | NR | 0.000 |
| Sodium (Na) | NR | 0.000 | Chloride (Cl) | NR | 0.000 |
| Potassium (K) | NR | 0.000 | Sulfate (SO4) | NR | 0.000 |
| Iron (Fe) | 0.198 | 0.007 | Nitrate (as N) | NR | 0.000 |
| Manganese (Mn) | <0.005 U | 0.000 | Fluoride (F) | NR | 0.000 |
| Silica (SiO2) | NR | | Orthophosphate (as P) | NR | 0.000 |
| | **Total Cations** | 0.017 | | **Total Anions** | 0.000 |

**Trace Element Results (µg/L)**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Aluminum (Al): | 31.840 | Cesium (Cs): | <0.250 U | Molybdenum (Mo): | 3.450 | Strontium (Sr): | 135.320 |
| Antimony (Sb): | <0.250 U | Chromium (Cr): | 0.650 J | Nickel (Ni): | <0.250 U | Thallium (Tl): | <0.250 U |
| Arsenic (As): | 14.160 | Cobalt (Co): | <0.250 U | Niobium (Nb): | <0.250 U | Thorium (Th): | <0.250 U |
| Barium (Ba): | 47.680 | Copper (Cu): | <0.100 U | Neodymium (Nd): | <0.250 U | Tin (Sn): | <0.250 U |
| Beryllium (Be): | <0.250 U | Gallium (Ga): | <0.250 U | Palladium (Pd): | <0.250 U | Titanium (Ti): | 3.930 |
| Boron (B): | 30.220 | Lanthanum (La): | <0.250 U | Praseodymium (Pr): | <0.250 U | Tungsten (W): | <0.250 U |
| Bromide (Br): | NR | Lead (Pb): | <0.150 U | Rubidium (Rb): | 4.500 | Uranium (U): | 0.920 J |
| Cadmium (Cd): | <0.250 U | Lithium (Li): | 14.890 J | Silver (Ag): | NR | Vanadium (V): | 14.000 |
| Cerium (Ce): | <0.250 U | Mercury (Hg): | NR | Selenium (Se): | <0.250 U | Zinc (Zn): | NR |
| | | | | | | Zirconium (Zr): | <0.250 U |

**Field Chemistry and Other Analytical Results**

| | | | | | |
|---|---|---|---|---|---|
| **Total Dissolved Solids (mg/L): | NR | Field Hardness as CaCO3 (mg/L): | NR | Ammonia (mg/L): | NR |
| **Sum of Diss. Constituents (mg/L): | NR | Hardness as CaCO3: | NR | T.P. Hydrocarbons (µg/L): | NR |
| Field Conductivity (µmhos): | 284.3 | Field Alkalinity as CaCO3 (mg/L): | 122 | PCP (µg/L): | NR |
| Lab Conductivity (µmhos): | NR | Alkalinity as CaCO3 (mg/L): | NR | Phosphate, TD (mg/L as P): | NR |
| Field pH: | 7.68 | Ryznar Stability Index: | NR | Field Nitrate (mg/L): | NR |
| Lab pH: | NR | Sodium Adsorption Ratio: | 0 | Field Dissolved O2 (mg/L): | 9.720 |
| Water Temp (°C): | 13.31 | Langlier Saturation Index: | NR | Field Chloride (mg/L): | NR |
| Air Temp (°C): | NR | Nitrite (mg/L as N): | NR | Field Redox (mV): | 333 |
| Nitrate + Nitrite (mg/L as N) | NR | Hydroxide (mg/L as OH): | NR | Lab, Dissolved Organic Carbon (mg/L): | NR |
| Total Kjeldahl Nitrogen (mg/L as N) | NR | Lab, Dissolved Inorganic Carbon (mg/L): | NR | Lab, Total Organic Carbon (mg/L): | NR |
| Total Nitrogen (mg/L as N) | NR | Acidity to 4.5 (mg/L CaCO3) | NR | Acidity to 8.3 (mg/L CaCO3) | NR |
| As(III) (ug/L) | NR | As(V) (ug/L) | NR | Total Susp Solids (mg/L) | NR |

**Notes**

Sample Condition:CLEAR

Field Remarks:PURGED > 3 BORE VOLUMES AND ATTAINED STABLE PARAMETERS PRIOR TO SAMPLING

Lab Remarks:ZN NOT REPORTED BECAUSE OF CONTAMINATION IN DIGEST BLANK.

Explanation: **mg/L** = milligrams per Liter; **µg/L** = micrograms per Liter; **ft** = feet; **NR** = No Reading in GWIC

Qualifiers: **A** = Hydride atomic absorption; **E** = Estimated due to interference; **H** = Exceeded holding time; **J** = Estimated quantity above detection limit but below reporting limit; **K** = Na+K combined; **N** = Spiked sample recovery not within control limits; **P** = Preserved sample; **S** = Method of standard additions; **U** = Undetected quantity below detection limit; ***** = Duplicate analysis not within control limits; ****** = Sum of Dissolved Constituents is the sum of major cations (Na, Ca, K, Mg, Mn, Fe) and anions (HCO3, CO3, SO4, Cl, SiO2, NO3, F) in mg/L. Total Dissolved Solids is reported as equivalent weight of evaporation residue.

Plate1

# Anaconda Regional Water, Waste, and Soils
# Non 5 Year Review Monitoring Sites, 2010

MW-26
MW-26M
NW-1-OPd
NW-1-OPs
MW-214
MW-82
MW-82M
NW-2-OPs
NW-2-OPd
MW-85
MW-85M
NW-3-OPs
NW-3-OPd
MW-251
MW-252
MW-209
MW-242
MW-90
MW-90M
MW-241
MW-208
MW-255
MW-212
NW-4-OPs
NW-4-OPd
MW-31
MW-31M
IW-01
MW-213
MW-206
MW-206D
MW-204
MW-240
MW-207
MW-256
MW-216
MW-5S
NW-6S
LTW-4-SOD
LTW-4-SOS
MW-9
LTW-1-SOS
LTW-1-SOD
LTW-3-SOD
LTW-3-SOS

## Legend

### Monitoring wells

- Point of compliance
- Potential point of compliance
- Monitoring well

0 0.25 0.5 0.75 1 Miles

N
W E
S

Air photo base: NAIP, 2005
Roads: ITSD Transportation Geodatabase, 2008

D:\stuff\Tedl\non-5-yr-wells_mural.mxd

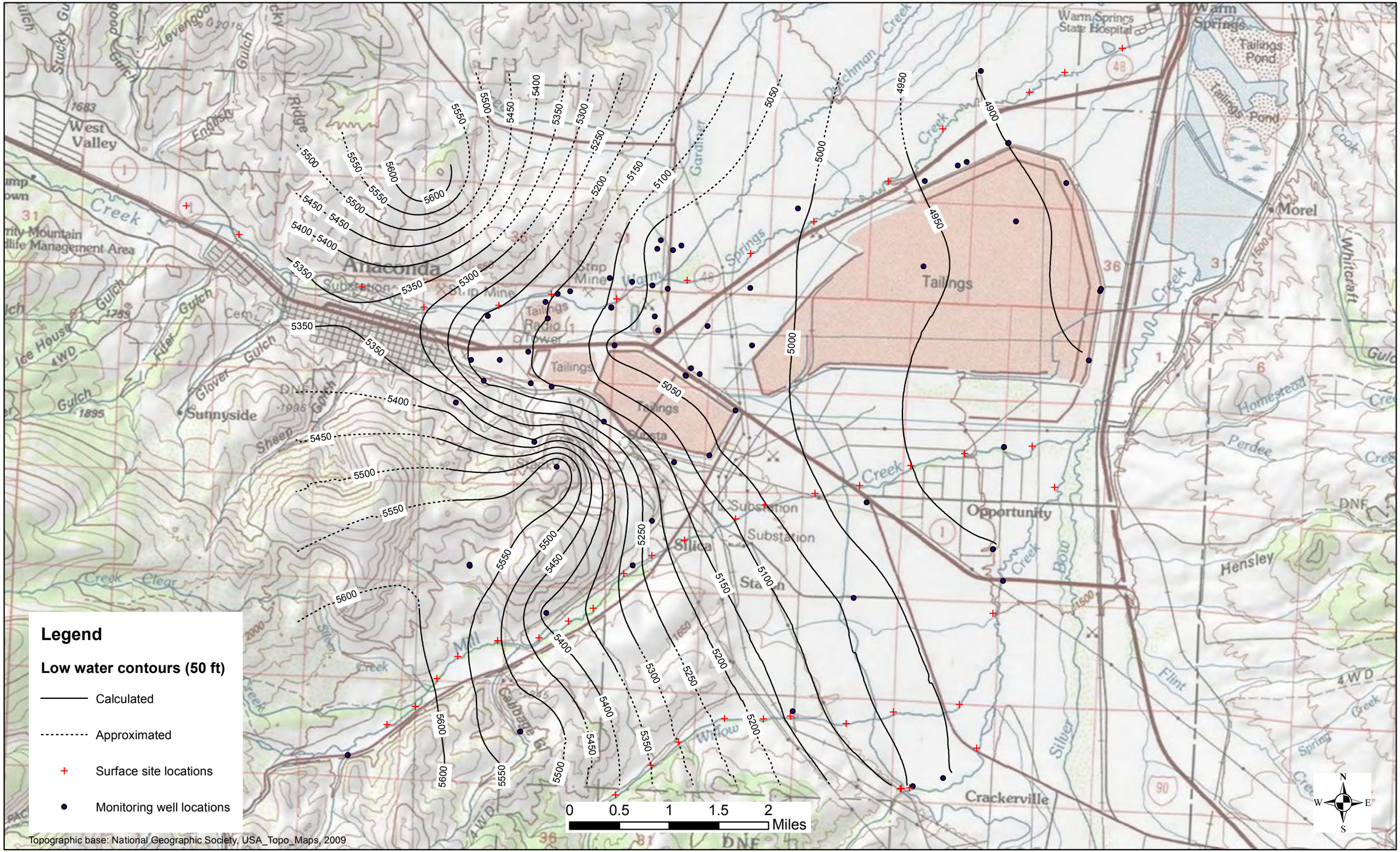


Plate 2. ARWWS low-water potentiometric map, 2009.

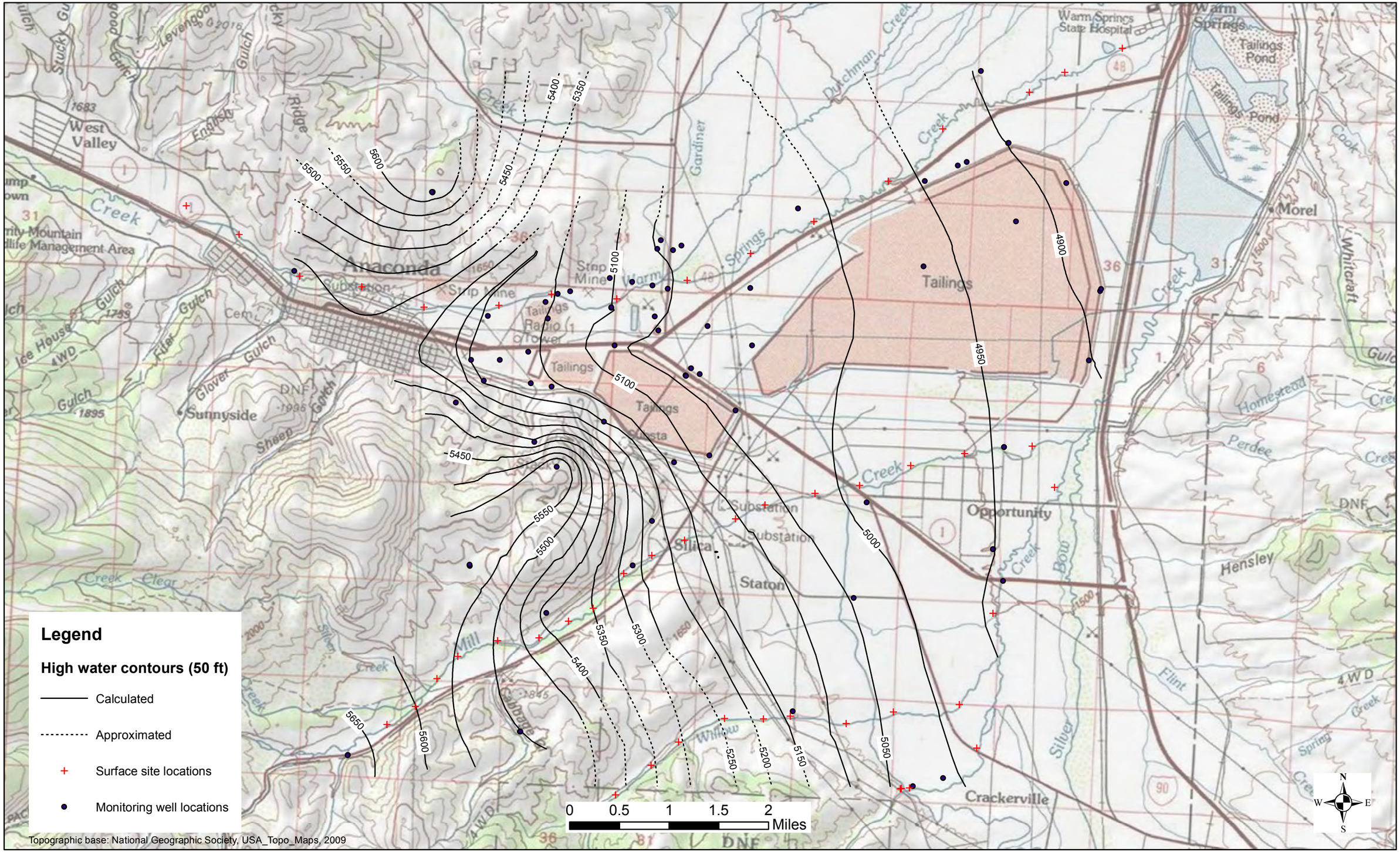


Plate 3. ARWWS high-water potentiometric map, 2009.