

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

2012 GROUNDWATER MONITORING PROGRAM

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



May 2013

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

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

TABLE OF CONTENTS

LIST OF FIGURES	iv
LIST OF TABLES	vi
LIST OF ACRONYMS	vii
ABSTRACT	viii
ANACONDA SMELTER NPL SITE	1
1.0 Introduction.....	1
2.0 Historical Background	5
3.0 Description of Long-Term Groundwater Monitoring Program	11
4.0 Monitoring Program—2012 Non-5-Year Review.....	12
4.1 Smelter Hill/Opportunity Ponds Waste Management Area	13
4.1.1 Smelter Hill/Opportunity Ponds Well Water-Quality Results.....	13
4.1.2 Smelter Hill/Opportunity Ponds Groundwater-Level Observations	24
4.2 Old Works Waste Management Area	28
4.2.1 Old Works Wells Water-Quality Results	28
4.2.2 Old Works Groundwater Levels	35
4.2.3 Event-Driven Monitoring	37
4.3 South Opportunity/Yellow Ditch Area of Concern	42
4.3.1 South Opportunity/Yellow Ditch Area of Concern Water Quality	42
4.3.2 South Opportunity/Yellow Ditch Water-Level Observations	49
4.4 Water-Quality Trends in Point of Compliance Monitoring Wells.....	53
4.5 Smelter Hill Repository Complex.....	63
5.0 Domestic Well Monitoring Program.....	66
5.1 Description of the Sampling Area.....	66
5.2 New Domestic Well Sampling	66
5.3 Previous Sampling Activities	68
5.4 Reverse Osmosis Units.....	70
5.5 Domestic Well Status and 2013 Sampling Plans	70
ACKNOWLEDGMENTS	72
REFERENCES	73
APPENDICES.....	75
Appendix A. Smelter Hill/Opportunity Ponds WMA, Water-Quality Data.....	76
Appendix B. Anaconda Regional Water, Waste, and Soils Old Works WMA, Old Works WMA Water-Quality Data.....	93
Appendix C. Anaconda Regional Water, Waste, and Soil South/Opportunity Yellow Ditch AOC, Water-Quality Data	110
Appendix D. Anaconda Regional Water, Waste, and Soil Smelter Hill Repository Complex, Water-Quality Data.....	123
Appendix E. Anaconda Regional Water, Waste, and Soils Domestic Well Water-Quality Results	132
Appendix F. Domestic Well Confirmation Water Sample Results, 2012.....	161

ILLUSTRATIONS

- Plate 1. ARWWS Non-5-Year Monitoring Sites, 2012
Plate 2. ARWWS Low-Water Potentiometric Map, 2009
Plate 3. ARWWS High-Water Potentiometric Map, 2009

LIST OF FIGURES

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.	6
Figure 2.0-2. General layout of the Washoe Smelter facilities. Modified with permission from Shovers and others, 1991.	7
Figure 2.0-3. View looking south toward the Washoe Smelter and associated facilities, circa 1950s. Photo courtesy of the World Museum of Mining.	8
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.	9
Figure 4.1-1. Location map for Smelter Hill/Opportunity Ponds WMA.	14
Figure 4.1-2 Arsenic concentrations over time for wells MW-212 and MW-256, located in the Opportunity Ponds.	19
Figure 4.1-3. Arsenic concentrations over time for well MW-214, located in the Opportunity Ponds.	20
Figure 4.1-4. Arsenic concentrations over time for nested wells MW-26 and MW-26M, located in the Opportunity Ponds.	21
Figure 4.1-5. Arsenic concentrations over time for wells MW-85 and MW-90, located in the Opportunity Ponds.	22
Figure 4.1-6. Arsenic concentrations over time for wells MW-82 and MW-216, located in the Opportunity Ponds.	23
Figure 4.1-7. Arsenic concentrations over time for wells MW-31 and MW-31M, located in the Opportunity Ponds.	23
Figure 4.1-8. Water-level hydrograph for well NW-6S (MW-258) based upon semi-annual water-level measurements, 2009–2012.	26
Figure 4.1-9. Water-level hydrographs for wells MW-212 and MW-256, located upgradient of the Opportunity Ponds.	27
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.	27
Figure 4.2-1. Location map for Old Works Waste Management Area monitoring sites.	29
Figure 4.2-2. Arsenic concentrations over time for well MW-207.	33
Figure 4.2-3. Arsenic concentrations over time for well MW-251.	34
Figure 4.2-4. Arsenic concentrations over time for wells MW-252 and MW-255.	35
Figure 4.2-5. Water-level hydrographs for wells MW-207 and MW-255, located in the southeast corner of the Old Works WMA.	36
Figure 4.2-6. Water-level hydrographs for wells MW-251 and MW-252, located in the northeast portion of the Old Works WMA.	36
Figure 4.2-7. Telemetry system installed at well MW-213.	38
Figure 4.2-8. Water-level hydrograph for MW-213 based upon transducer data.	39
Figure 4.3-1. Location map for South Opportunity/Yellow Ditch Area of Concern monitoring sites.	43
Figure 4.3-2. Arsenic concentrations over time for nested wells LTW-1-SOS (MW-264) and LTW-1-SOD (MW-263).	47
Figure 4.3-3. Arsenic concentrations over time for nested wells LTW-3-SOS (MW-262) and LTW-3-SOD (MW-261).	47
Figure 4.3-4. Arsenic concentrations over time for nested wells LTW-4-SOS (MW-259) and LTW-4-SOD (MW-260).	48
Figure 4.3-5. Arsenic concentrations over time for well MW-9.	48
Figure 4.3-6. Water-level hydrograph for nested wells LTW-1-SOS (MW-264) and LTW-1-SOD (MW-263).	50
Figure 4.3-7. Water-level hydrograph for nested wells LTW-3-SOS (MW-262) and LTW-3-SOD (MW-261).	50

Figure 4.3-8. Water-level hydrograph for nested wells LTW-4-SOS (MW-259) and LTW-4-SOD (MW-260).....	51
Figure 4.3-9. Water-level hydrograph for well MW-9.....	51
Figure 4.3-10. Daily average water-level hydrograph for nested wells LTW-1-SOS (MW-264) and LTW-1-SOD (MW-263).....	52
Figure 4.3-11. Daily average water-level hydrograph for nested wells LTW-3-SOS (MW-MW-262) and LTW-3-SOD (MW-261).....	52
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).	53
Figure 4.4-1 ARWWS Points of Compliance Monitoring Well Locations.....	55
Figure 4.5-1. Location map for Smelter Hill Complex monitoring wells.....	64
Figure 5.1-1. Domestic well sampling boundary for 2012 activities with the 2009 and 2010 boundaries for reference. All wells sampled in 2012 are shown as dots, with the color indicating arsenic concentrations.	67

LIST OF TABLES

Table 1.0-1. Summary of monitoring sites, sample frequency, and location.	2
Table 4.0-1. Breakdown of monitoring wells and springs by geographic area sampled in 2012.	13
Table 4.1.1. Smelter Hill/Opportunity Ponds Waste Management Area monitoring wells.	16
Table 4.1-2. Smelter Hill/Opportunity Ponds Waste Management Area monitoring well summary.	17
Table 4.1-3. Smelter Hill/Opportunity Ponds WMA 2012 monitoring well summary and net water-level change.	25
Table 4.2-1. Old Works Waste Management Area monitoring wells, 2012.....	31
Table 4.2-2. Old Works Waste Management Area water-quality summary.	32
Table 4.2-3. Net water-level changes for Old Works monitoring wells, 2012.....	37
Table 4.2-4. Cadmium concentrations for event-driven monitoring wells.	40
Table 4.3-1. South Opportunity/Yellow Ditch Area of Concern water-quality COC.....	45
Table 4.3-2. South Opportunity/Yellow Ditch Area of Concern water-quality summary.....	46
Table 4.3-3. Net water-level changes for wells in the South Opportunity/ Yellow Ditch AOC.....	49
Table 4.4-1 Point of compliance monitoring wells.....	54
Table 4.4-3. Cadmium trend analysis.	59
Table 4.4-4. Copper trend analysis.....	60
Table 4.4-5. Lead trend analysis.....	61
Table 4.4-6. Zinc trend analysis.	62
Table 4.5-1. Smelter Hill Complex monitoring well summary.	64
Table 5.2-1. New sites with arsenic concentrations greater than 5 µg/L and less 10 µg/L.	66
Table 5.2-2. New sites with arsenic concentrations greater than 10 µg/L and dissolved confirmation samples.....	68
Table 5.3-1. Summary of sites with previous arsenic concentrations greater than 5 µg/L including arsenic concentrations from all years sampled.	69

LIST OF ACRONYMS

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
DO	Dissolved Oxygen
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
RA	Remedial Action
RD	Remedial Design
RDU	Remedial Design Unit
RDWP	Remedial Design Work Plan
RI	Remedial Investigation
RO	Reverse Osmosis
ROD	Record of Decision
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 2012 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 2012 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 2012 program. Listed below are the seven geographical areas within the OU and the number of wells and COC exceedances during the 2012 sampling:

ARWWS Geographical Areas	No. Wells	No. Arsenic Exceedances	No. Other Exceedances
Stucky Ridge/Lost Creek	No 2012 samples	—	—
Mount Haggin/Smelter Hill	No 2012 samples	—	—
Smelter Hill/Opportunity Ponds	24	2	10
Old Works	14	0	8
South Opportunity/Yellow Ditch	7	0	0
Blue Lagoon	No 2012 samples	—	—
Dutchman Creek	No 2012 samples	—	—
Totals	45	2	18

The two arsenic exceedances occurred within the Opportunity Ponds; the other COC exceedances (cadmium, copper, and zinc) were within the Red Sands area of the Old Works. The highest arsenic and cadmium concentrations in the monitoring wells were 179 and 10.82 µg/L, respectively.

Twenty-five 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: 9 of the POC and 15 PPOC wells were sampled twice during 2012; one PPOC well was dry during low water sampling. No COC exceedances were observed in the POC wells while one exceedance (zinc) was observed in a PPOC

well (NW-1-OPd, MW-265). A confirmation water sample was collected from the PPOC well with the exceedance, and the zinc concentration was below the maximum contaminant level. This is a flowing well that was installed with galvanized piping and valves to allow shut in of the water. It is possible the elevated zinc concentration in the high water sample was due to piping and was not representative of groundwater conditions; the follow-up confirmation sample did not show the presence of elevated zinc. Based upon the 2012 water-quality results, there are no indications that the area of historic contamination is spreading, or that contaminants are leaving the site.

The domestic well area boundary was changed in 2011 back to a previous boundary, which was smaller than the 2010 boundary under which sampling started in 2011. Some of the wells sampled in 2011 were outside the final 2011 boundary. Wells outside the final boundary were sampled prior to learning of the new boundary or because contact had been made with the homeowners prior to the boundary change.

The goal of sampling 120 new domestic wells in 2012 was achieved, with 120 new wells sampled. Arsenic concentrations exceeded 5 µg/L in 6 of the new wells sampled, but 2 of these wells were outside the final 2011 boundary. Arsenic concentrations exceeded 10 µg/L in 11 wells, but 4 of these wells were outside the final 2011 boundary. Confirmation samples (total recoverable and dissolved) were collected from 10 wells with concentrations greater than 10 µg/L collected in 2010 or 2011. In addition to the new well and confirmation samples, 22 wells were resampled based on previous arsenic samples greater than 5 or 10 µg/L.

Thirteen reverse osmosis (RO) units were installed in 12 homes (one home had an apartment). The home receiving two RO units was the only location within the current boundary. Two homes were in the Crackerville area, which is outside the current boundary, but this area has been historically sampled by the Montana Bureau of Mines and Geology and others as part of domestic well sampling. The remaining 9 homes were outside the final 2011 boundary, and RO units were installed at those homes with the understanding that the homeowner would be responsible for further upkeep on the units. Nine RO systems were sampled in 2011; all had arsenic concentrations less than 0.8 µg/L.

No replacement domestic wells were drilled during 2012. Following the failed replacement well in 2009 and a greater number of deep domestic wells identified with elevated arsenic, a review of existing data and geologic conditions was undertaken. Bottled water was provided to all residences with arsenic concentrations above 10 µg/L.

ANACONDA SMELTER NPL SITE

1.0 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:

1. Assess current groundwater quality in areas where water quality must comply with the appropriate standards as specified in the ROD;
2. Assess current groundwater quality in plumes in areas of concern (AOC) identified in the ROD;
3. Monitor effectiveness of Remedial Actions, including reclamation and natural attenuation;
4. Evaluate changes in hydrologic conditions since the remedial investigation (RI) that may affect design of a long-term groundwater monitoring plan; and
5. 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:

1. Modify the current monitoring well network (AERL, Short-Term Program, 2000) to be more consistent with the anticipated LTGWMP well network;
2. Add monitoring of domestic wells to the network;
3. Add installation of new monitoring wells anticipated in the LTGWMP, so that monitoring can begin in 2009; and
4. 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 coincides with the EPA 5-year site review (Table 1.0-1). (EPA issued a ROD amendment in 2011 changing two wells in the South Opportunity/Yellow Ditch Area to point of compliance (POC) wells, one well in the Opportunity Ponds was changed from a POC well to a 5-year well; 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 2012 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.

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
MWV-248d		250004	Well	5-year Review		2 seasons each 5 years	Stucky Ridge
MWV-248e		250031	Well	5-year Review		2 seasons each 5 years	Stucky Ridge
MWV-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
MWV-233		138016	Well	5-year Review		2 seasons each 5 years	Smelter Hill – Mill Creek
MWV-245d		249966	Well	5-year Review		2 seasons each 5 years	Weather Hill - Lost Horse Cr
MWV-245e		250050	Well	5-year Review		2 seasons each 5 years	Weather Hill - Lost Horse Cr
MWV-245s		250003	Well	5-year Review		2 seasons each 5 years	Weather Hill - Lost Horse Cr
MWV-249d		250008	Well	5-year Review		2 seasons each 5 years	Mill Creek - Cabbage Gulch
MWV-249s		250009	Well	5-year Review		2 seasons each 5 years	Mill Creek - Cabbage Gulch
MWV-250d		249958	Well	5-year Review		2 seasons each 5 years	Mill Creek - Joyner Gulch
MWV-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.

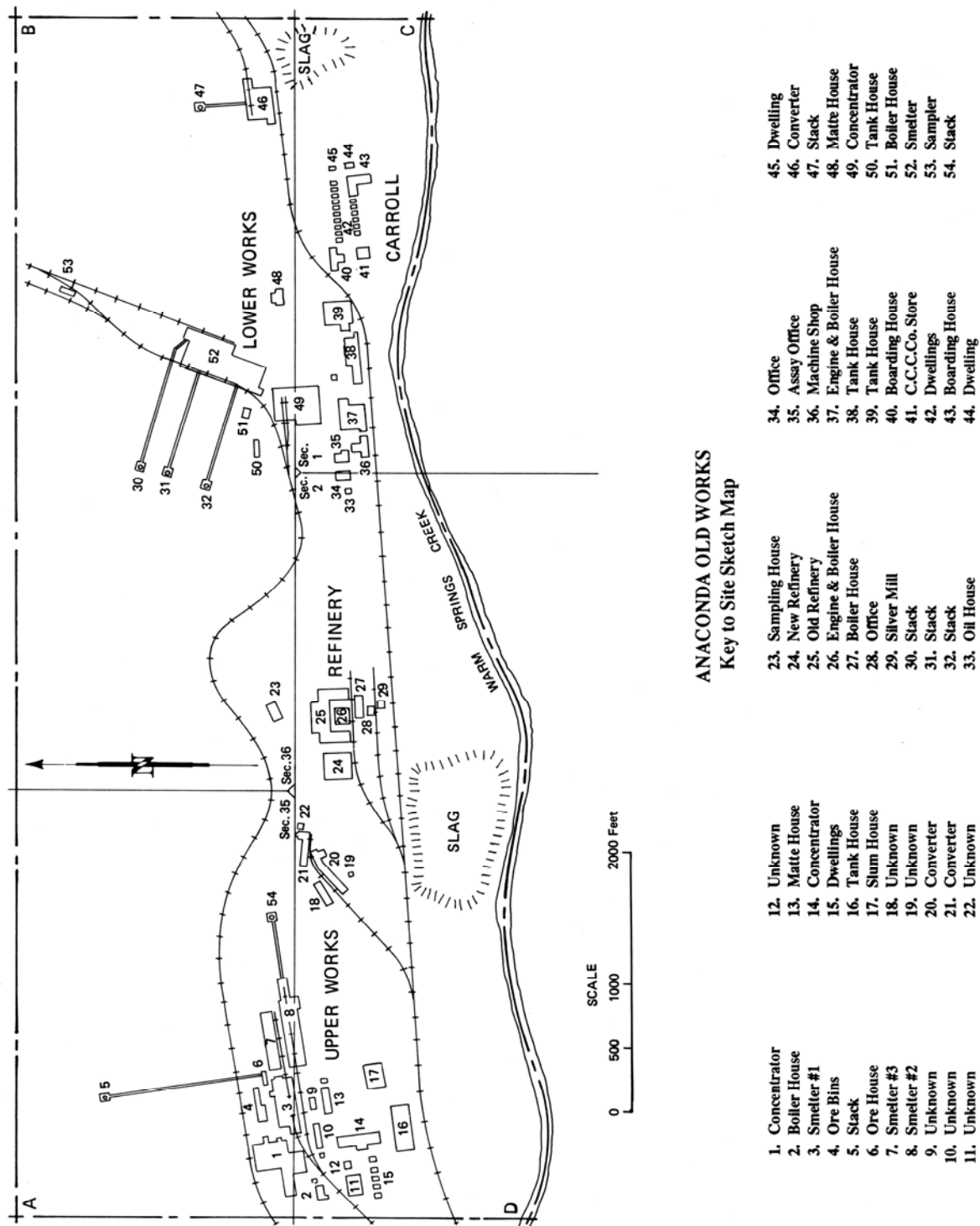


Figure 2.0-1. Location of Upper Works and Lower Works facilities that make up the Old Works Smelter Complex. Modified with permission from Shovers and others, 1991.

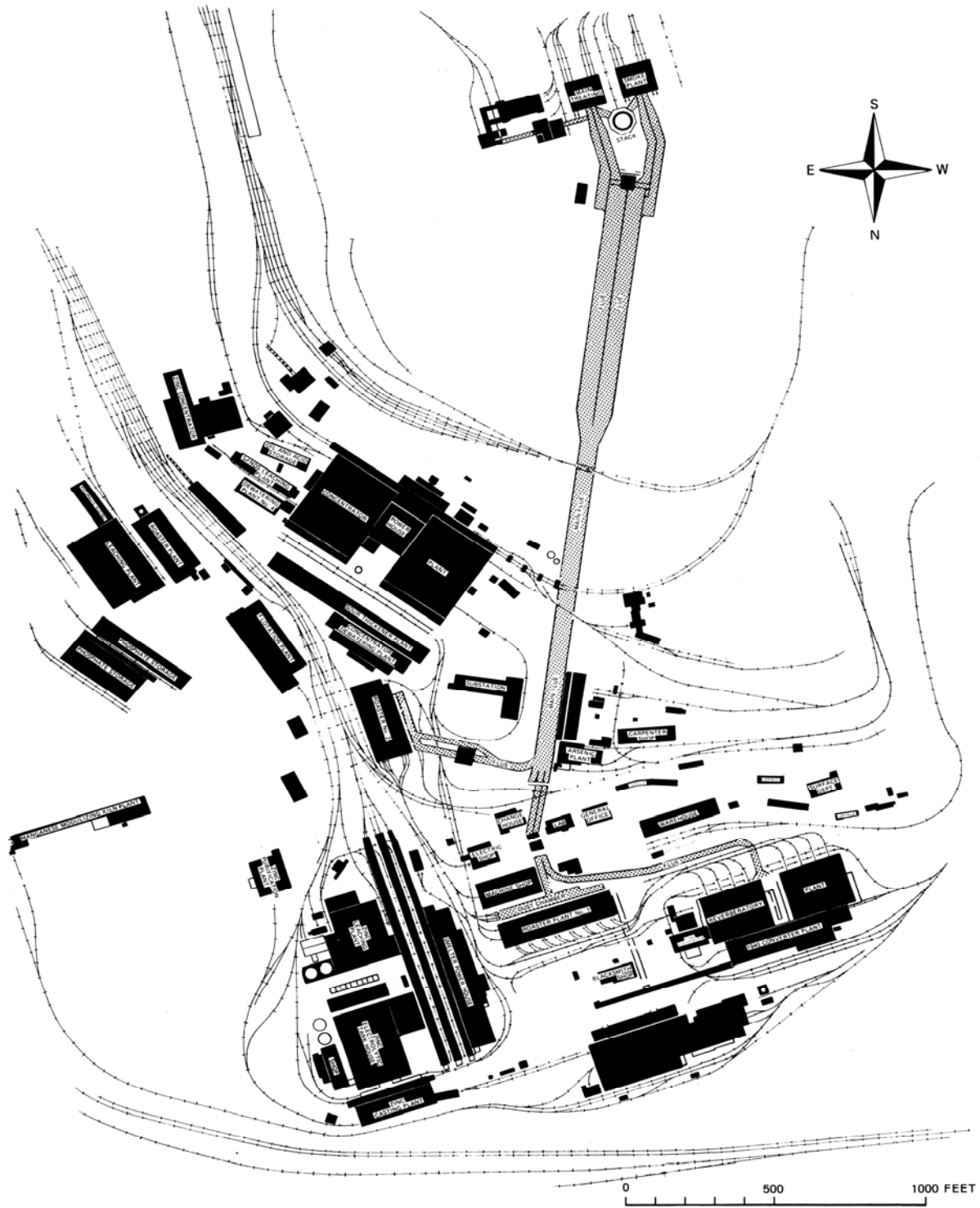


Figure 2.0-2. General layout of the Washoe Smelter facilities. Modified with permission from Shovers and others, 1991.



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

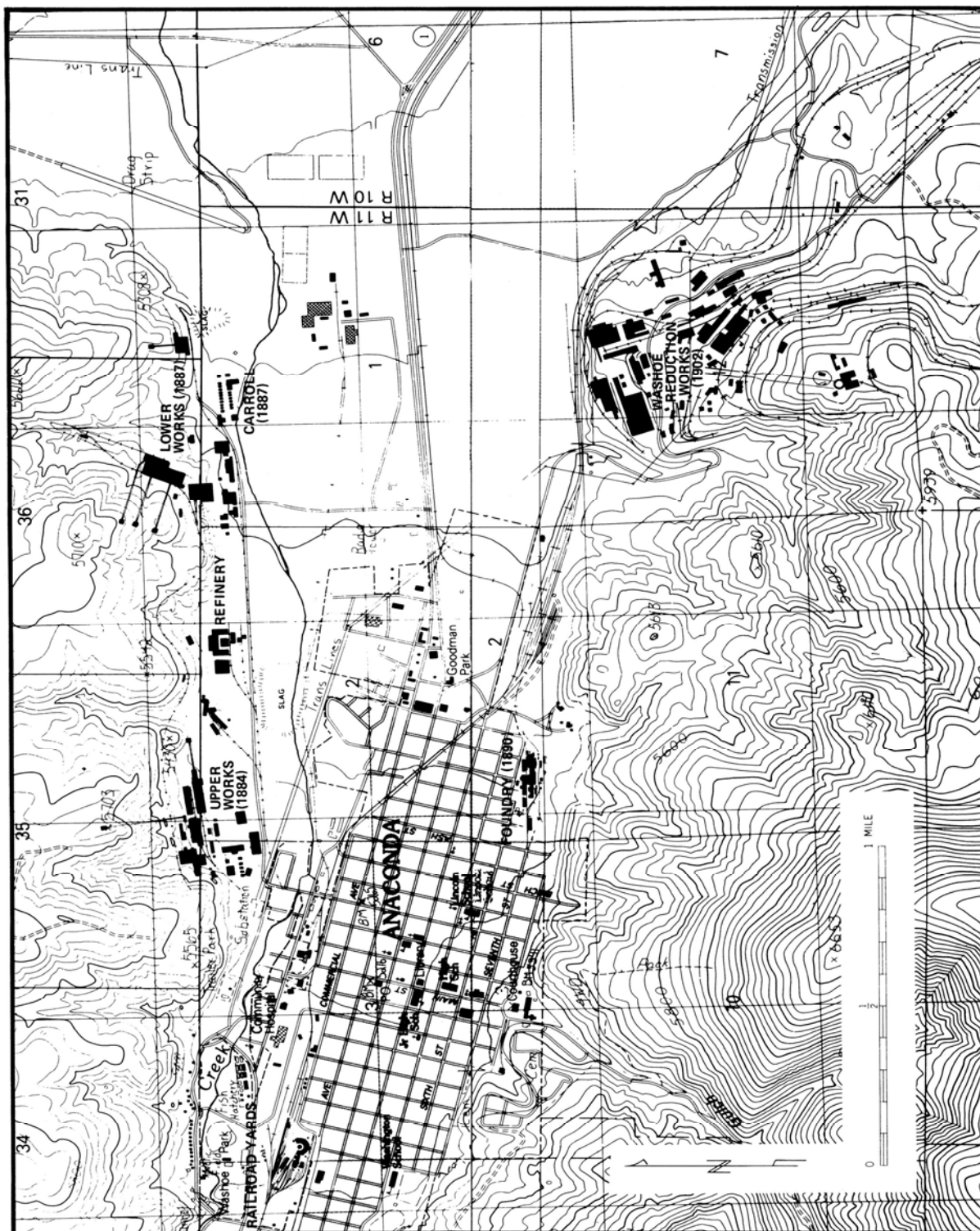


Figure 2.0-4. Locations of Upper Works, Lower Works, and Washoe Smelter in relation to the town of Anaconda. Modified with permission from Shovers and others, 1991.

Areas around the Washoe Reduction Works and other historic smelting facilities were placed on the U.S. Environmental Protection Agency's (EPA) 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

¹Cadmium, copper, lead, and zinc concentrations are calculated at a hardness of 100 mg/L CaCO₃ equivalent.

3.0 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:

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

Table 1.0-1 contains the 2012 groundwater monitoring wells and their sampling frequency. Plate 1 shows the locations of the 2012 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 2012 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:

1. water level;
2. pH;
3. specific conductance (SC);
4. temperature;
5. oxidation-reduction potential (ORP); and
6. dissolved oxygen (DO).

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 2012 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 2012 events.

The 2012 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.

4.0 Monitoring Program—2012 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 comprised the 5-year sample cycle; therefore, the 2012 monitoring program consisted of the semi-annual, semi-annual for 5 years after cover established, and event-driven sites. The 2012 sites are contained within only three of the seven geographical areas; the number of wells and springs in each area sampled during 2012 is shown in Table 4.0-1. The geographic areas correspond to RDU's, 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 2012.

Geographic Area	No. of Wells	No. of Springs
Opportunity Ponds/Smelter Hill WMA	24	0
Old Works WMA	14	0
South Opportunity/ Yellow Ditch AOC	7	0
Total number	45	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 2012 monitoring program (fig. 4.1-1). All but one of the 2012 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, 2012 arsenic concentrations, and general water-quality conditions for wells in this WMA; appendix A contains water-quality results from 2012 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 2012 sampling program, samples were collected from all 24 wells. Arsenic exceeded DEQ-7 standards in 2 wells.

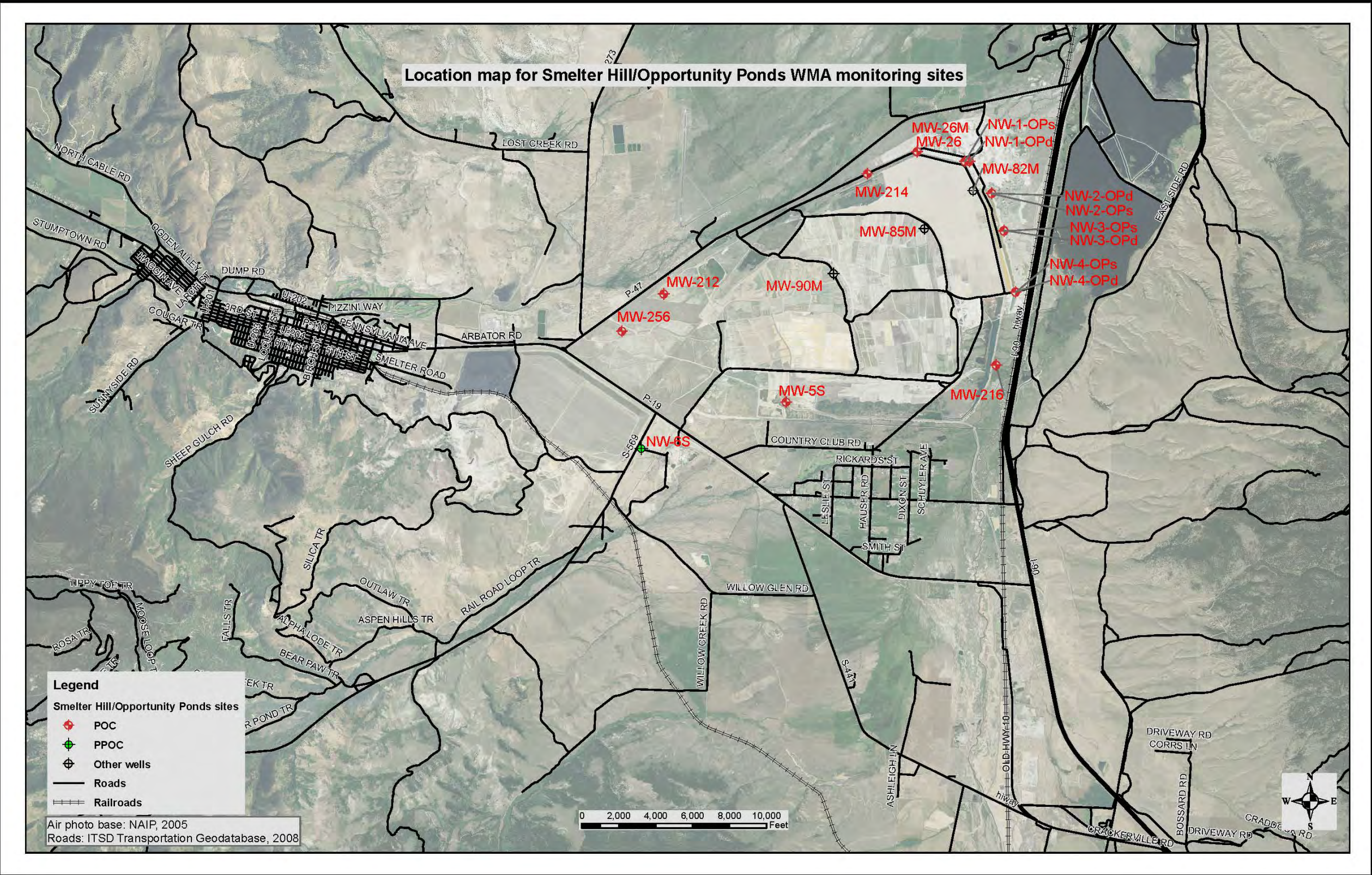


Figure 4.1-1. Location map for Smelter Hill/Opportunity Ponds WMA.

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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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	2012 Low-Water Arsenic (µg/L)	2012 High-Water Arsenic (µg/L)	Long-Term Average Arsenic (µg/L)	Comment
Smelter Hill Site							
NW-6S	MW-258	78–98	Ca-HCO ₃	0.74	0.73	0.69	Well installed spring 2009—No DEQ-7 exceedances.
Opportunity Ponds Sites							
MW-212		39.3–53.7	Ca-HCO ₃	0.60	0.56	1.07	No COC exceedances; slight As decline over time.
MW-214		5.6–15	Ca-SO ₄	1.08	1.02	1.46	No COC exceedances; slight As decline over time.
MW-216		5–14.3	Ca-SO ₄	2.27	1.85	3.49	No COC exceedances.
MW-256		75–94.7	Ca-HCO ₃	0.63	0.25	0.78	No COC exceedances; slight As decline over time.
MW-26		5–15	Ca-SO ₄	0.59	0.39	1.20	Slight As decrease over time; no seasonal trend.
MW-26M		60.5–70.5	Ca-SO ₄	1.01	0.52	1.11	Highest As concentrations usually during high-water sampling events.
MW-31		5–15	Ca-SO ₄	5.20	3.74	2.52	No COC exceedances or seasonal trends.
MW-31M		78–88	Ca-SO ₄	1.87	1.65	1.77	No COC exceedances. Long-term As concentration decreasing, no seasonal trend.
MW-82		40-50	Ca-SO ₄	1.29	0.73	2.43	
MW-82M		100-110	Ca-SO ₄	1.83	<0.50	1.42	Limited data.
MW-85		45–55	Ca-SO ₄	64.49	60.86	64.4	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	2012 Low-Water Arsenic (µg/L)	2012 High-Water Arsenic (µg/L)	Long-Term Average Arsenic (µg/L)	Comment
MW-85M		136-146	Ca-SO ₄	0.68	0.68	0.65	Limited data.
MW-90		56-66	Ca-SO ₄	170	182	229	As exceeds DEQ-7 standard. Slight As decrease over time; no seasonal trend.
MW-90M		125-135	Ca-SO ₄	0.56	0.39	0.45	Limited data.
NW-1-OPs	MW-265	9-19	Ca-SO ₄	2.22	2.31	2.26	Limited data.
NW-1-OPd	MW-266	67-77	Ca-SO ₄	1.61	0.55	1.19	Limited data. Zn exceeded MCL in 2012 high water sample; resample result well below MCL.
NW-2-OPs	MW-268	8-18	Ca-SO ₄	0.81	0.39	0.58	Limited data.
NW-2-OPd	MW-267	64-74	Ca-SO ₄	1.51	1.39	1.26	Limited data.
NW-3-OPs	MW-270	12-22	Ca-SO ₄	1.09	0.65	1.32	Limited data.
NW-3-OPd	MW-269	62.5-72.5	Ca-SO ₄	1.48	1.26	1.30	Limited data.
NW-4-OPs	MW-272	10.5-20.5	Ca-SO ₄	0.82	0.65	0.74	Limited data.
NW-4-OPd	MW-271	71.5-81.5	Ca-SO ₄	1.59	1.39	1.50	Limited data.
MW-5s	MW-273	5-15	Ca-HCO ₃	0.36	0.42	0.45	Limited data.

Note. MCL, maximum contaminant level.

Well NW-6S (MW-258) was installed during 2009 and is located to the east (downgradient) of the East Anaconda Tailings Pond. 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 2012 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 2012.

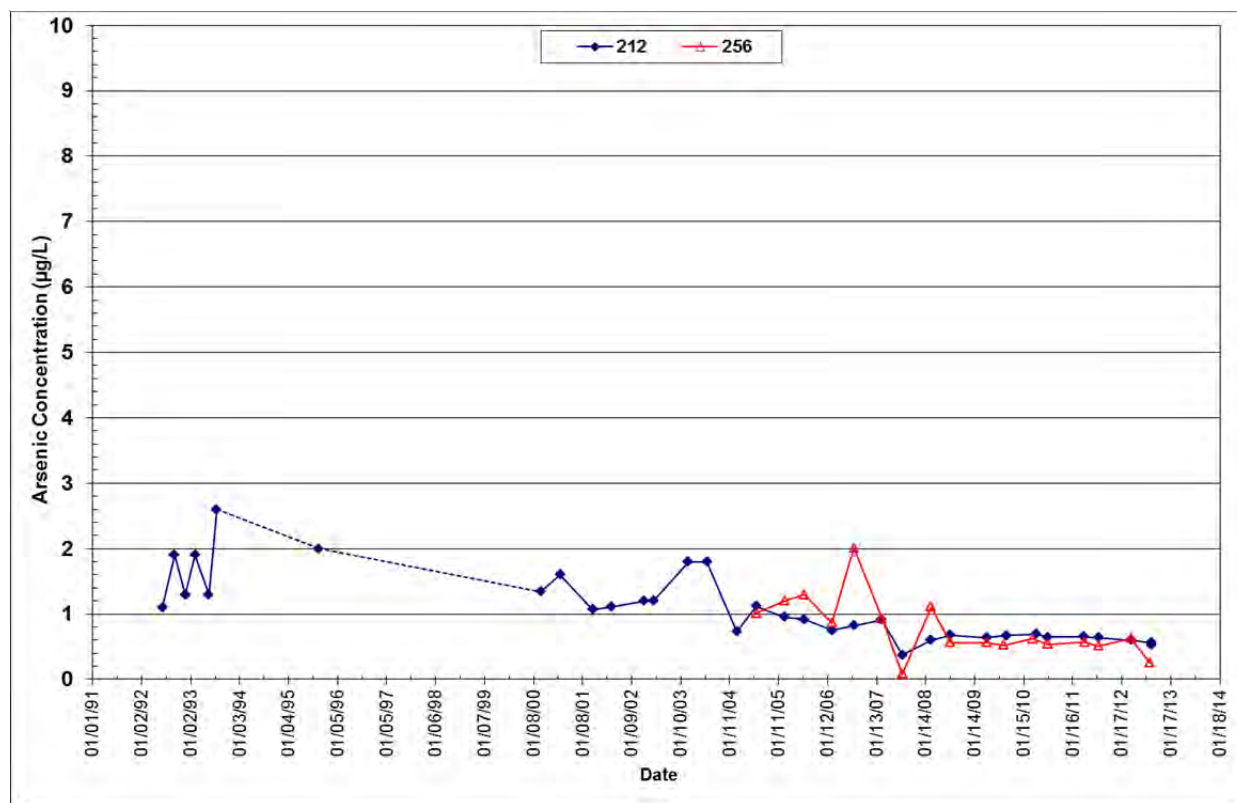


Figure 4.1-2 Arsenic concentrations over time for wells MW-212 and MW-256, located in the Opportunity Ponds.

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).

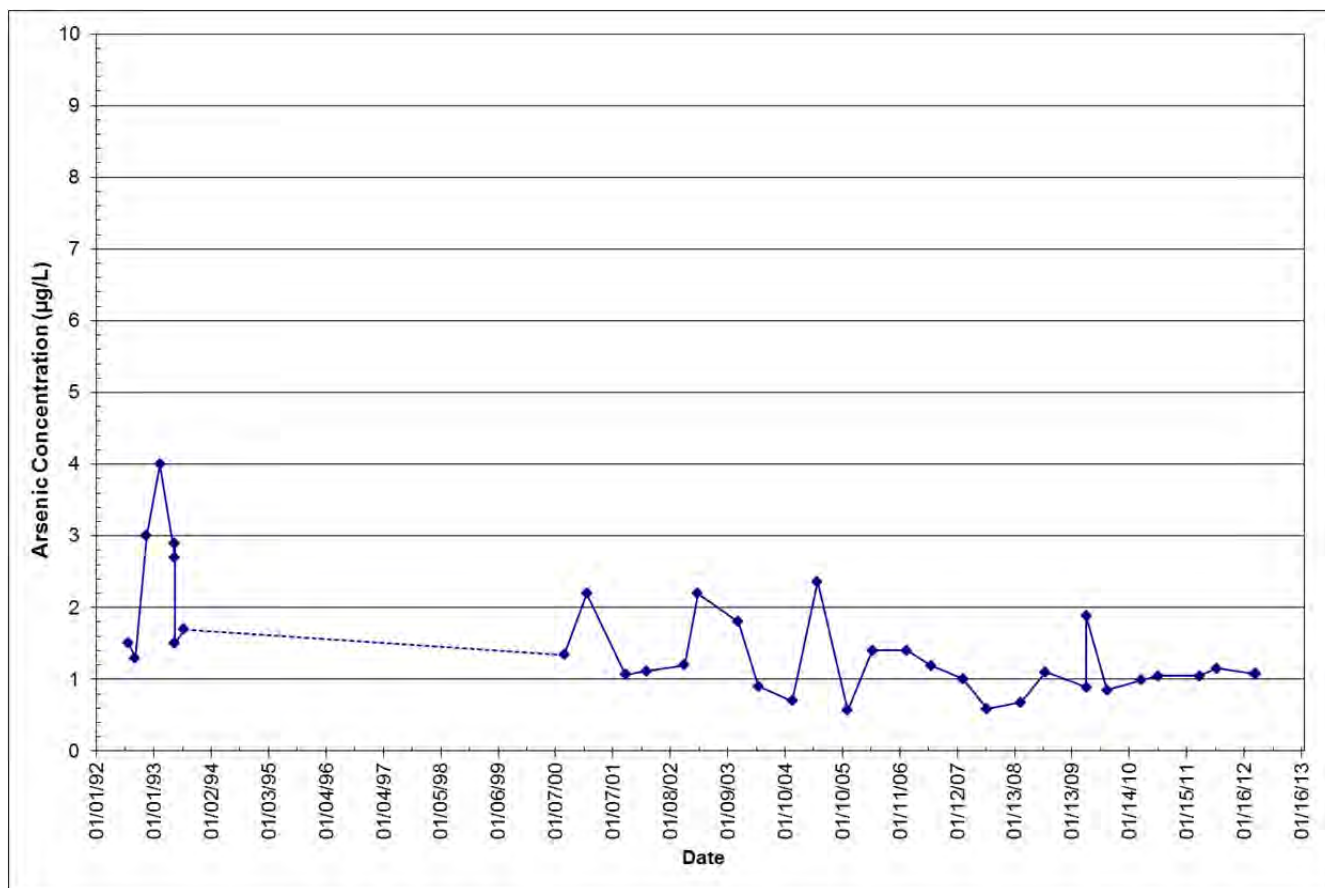


Figure 4.1-3. Arsenic concentrations over time for well MW-214, located in the Opportunity Ponds.

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-SO₄), with arsenic concentrations below DEQ-7 standards (fig. 4.1-4). Groundwater samples were first collected in 1985 (twice) and semi-annually from 2000 to 2012 in well MW-26; the first samples were collected in 1995 (twice) from well MW-26M, followed by semi-annual samples since 2000.

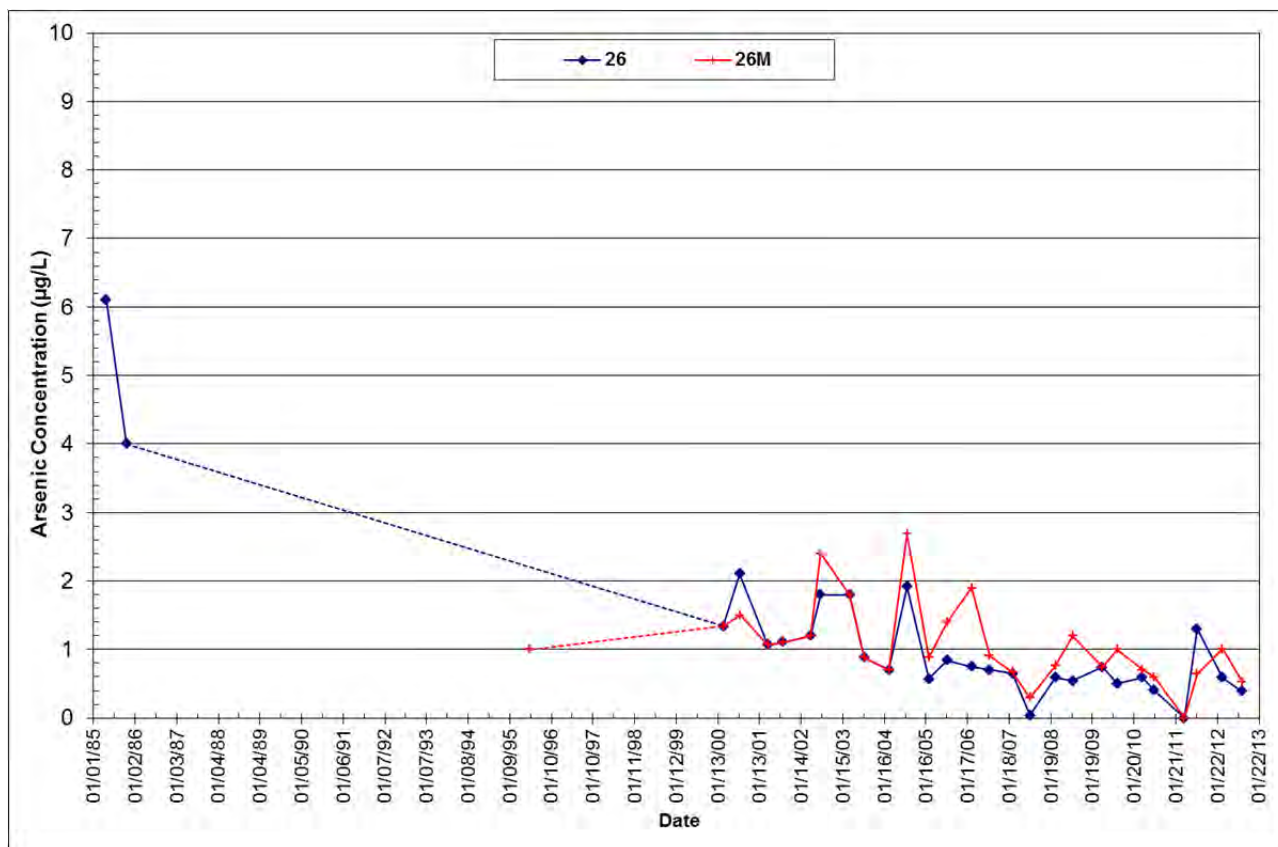


Figure 4.1-4. Arsenic concentrations over time for nested wells MW-26 and MW-26M, located in the Opportunity Ponds.

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-SO₄; 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 there are too few samples from well MW-85 to determine a trend (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 2012.

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 2012 sample results (table 4.1-2).

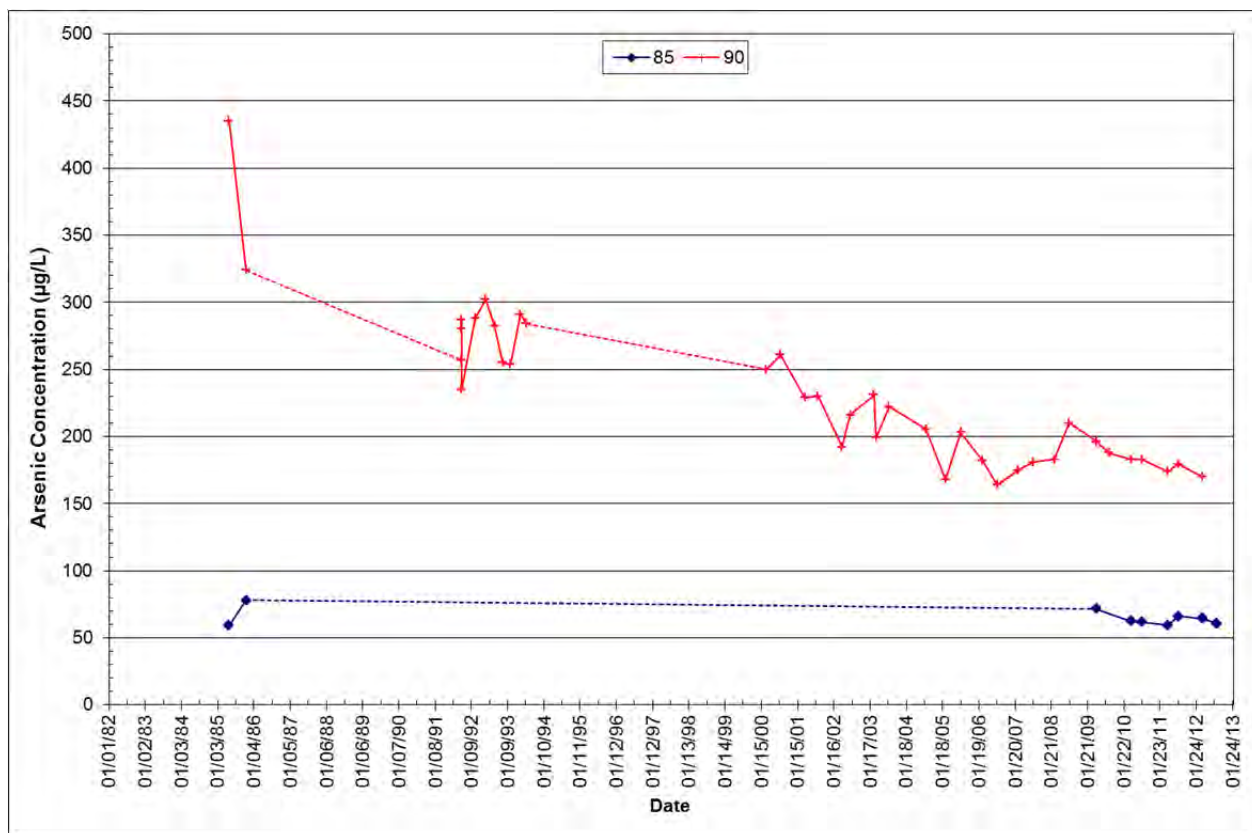


Figure 4.1-5. Arsenic concentrations over time for wells MW-85 and MW-90, located in the Opportunity Ponds.

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-SO₄. None of the COCs were exceeded in the 2012 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; however, 2012 high-water concentration was below 5 µg/L. 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 2012, while well MW-216 had three samples collected in 1992, two in 1993, and twice yearly from 2000 to 2012.

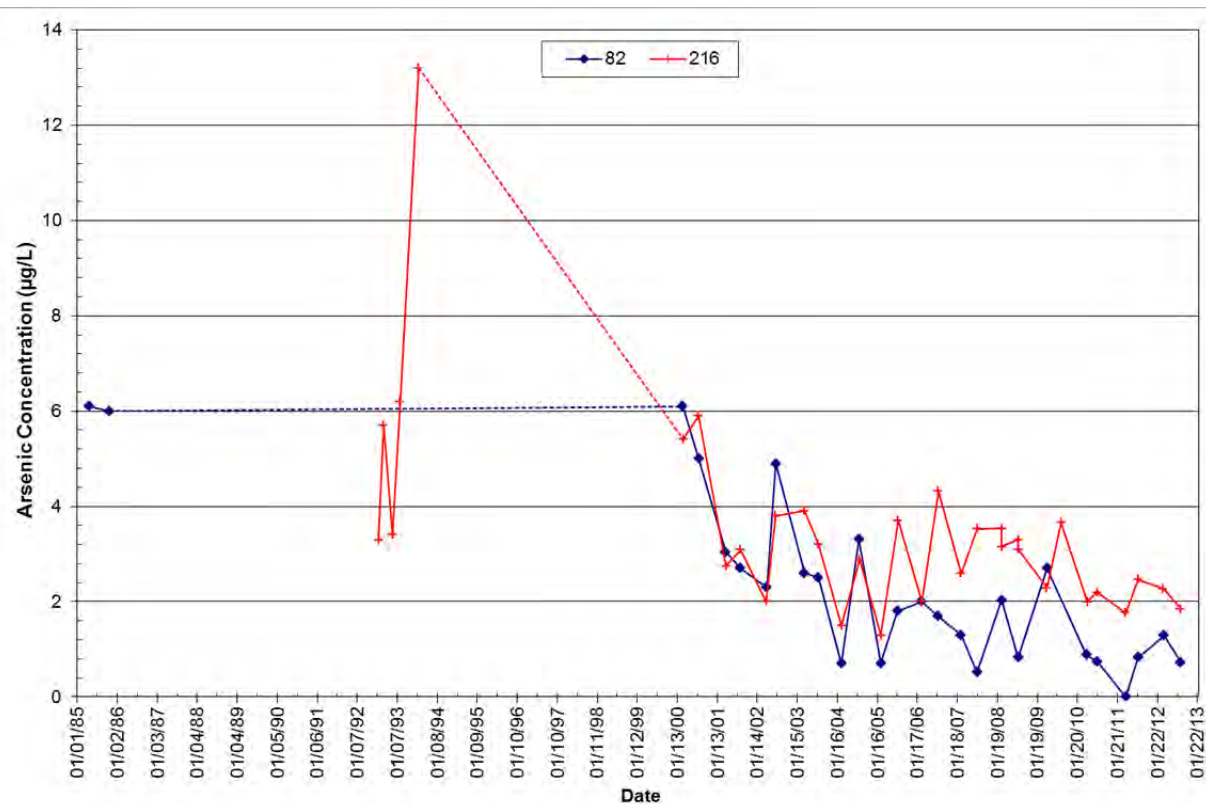


Figure 4.1-6. Arsenic concentrations over time for wells MW-82 and MW-216, located in the Opportunity Ponds.

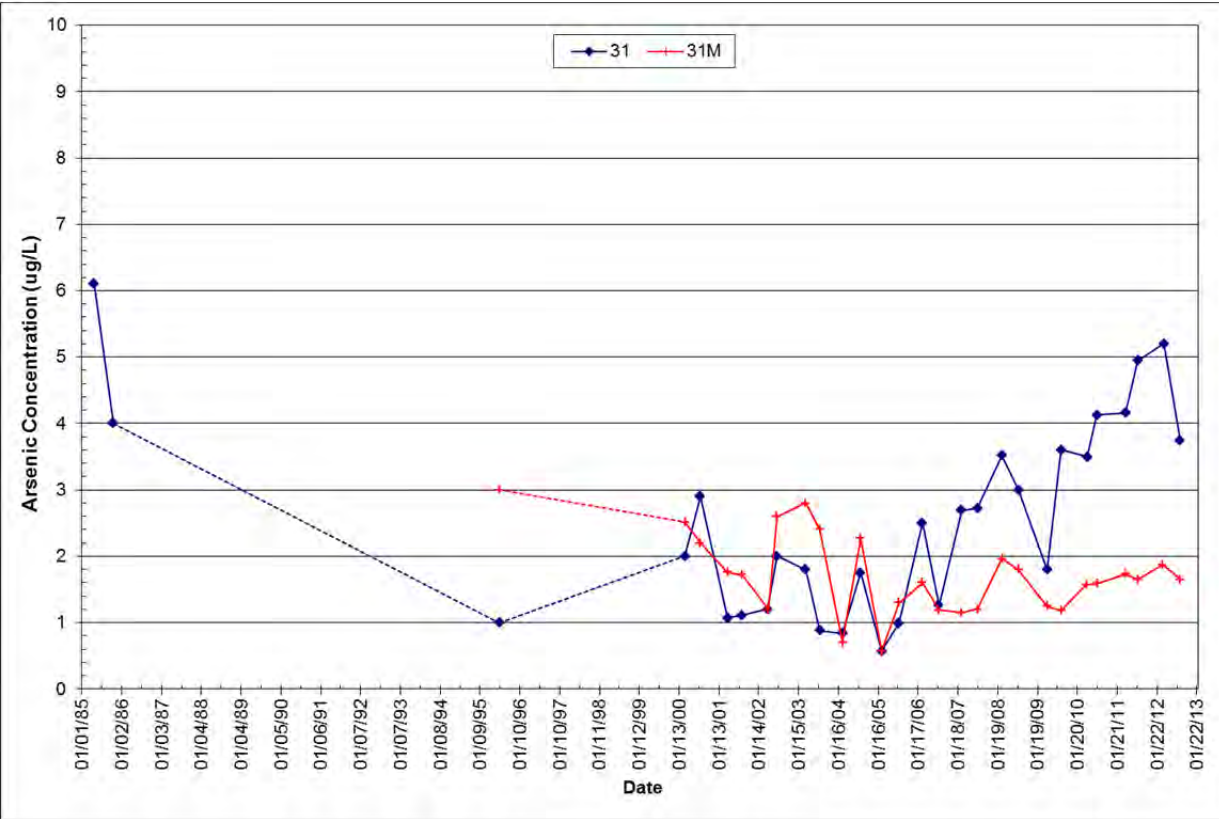


Figure 4.1-7. Arsenic concentrations over time for wells MW-31 and MW-31M, located in the Opportunity Ponds.

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 2012 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. Changes range from a rise of 1.84 ft in the Smelter Hill well (NW-6S, MW-258), to a decline of 4.4 ft, to a rise of 10.9 ft in the Opportunity Ponds wells.

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 2012 monitoring well summary and net water-level change.

Smelter Hill Sites					
Well ID	New ID	Total Depth (ft)	Screen Interval (ft)	Aquifer	Net Water-Level Change (ft)
NW-6S	MW-258	98	78–98	Valley-fill coarse	1.84
Opportunity Pond Sites					
MW-212		62	39.3–53.7	Valley-fill coarse	10.25
MW-214		15	5.6–15	Valley-fill coarse	-1.50
MW-216		15	5–14.3	Valley-fill coarse	-2.00
MW-256		95	75–94.7	Valley-fill med-fine	10.94
MW-26		15	5–15	Valley-fill coarse	-4.42
MW-26M		71	60.5–70.5	Valley-fill med-fine	-1.05
MW-31		15	5–15	Valley-fill coarse	-3.80
MW-31M		88.5	78–88	Valley-fill med-fine	-0.66
MW-82		50	40–50	Valley-fill coarse	-3.3
MW-82M		110	100–110	Valley-fill coarse	0.55
MW-85		56	45–55	Valley-fill coarse	-1.82
MW-85M		155	136–146	Valley-fill coarse	-0.36
MW-90		66	56–66	Valley-fill coarse	-0.74
MW-90M		135	125–135	Valley-fill coarse	-1.01
NW-1-OPs	MW-265	20	9–19	Valley-fill coarse	-0.61
NW-1-OPd	MW-266	77	67–77	Valley-fill coarse	flowing
NW-2-OPs	MW-268	20	8–18	Valley-fill coarse	-0.14
NW-2-OPd	MW-267	74.5	64–74	Valley-fill coarse	-0.68
NW-3-OPs	MW-270	25	12–22	Valley-fill med-fine	-0.56
NW-3-OPd	MW-269	76	62.5–72.5	Valley-fill medium	-0.49
NW-4-OPs	MW-272	21	10.5–20.5	Valley-fill med-coarse	-0.26
NW-4-OPd	MW-271	81.5	71.5–81.5	Valley-fill med-coarse	-0.39
MW-5s	MW-273	18	5–15	Valley-fill coarse	-1.79

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 4 ft over time (fig. 4.1-10). This may be reflective of ongoing reclamation and capping activities in this portion of the site.

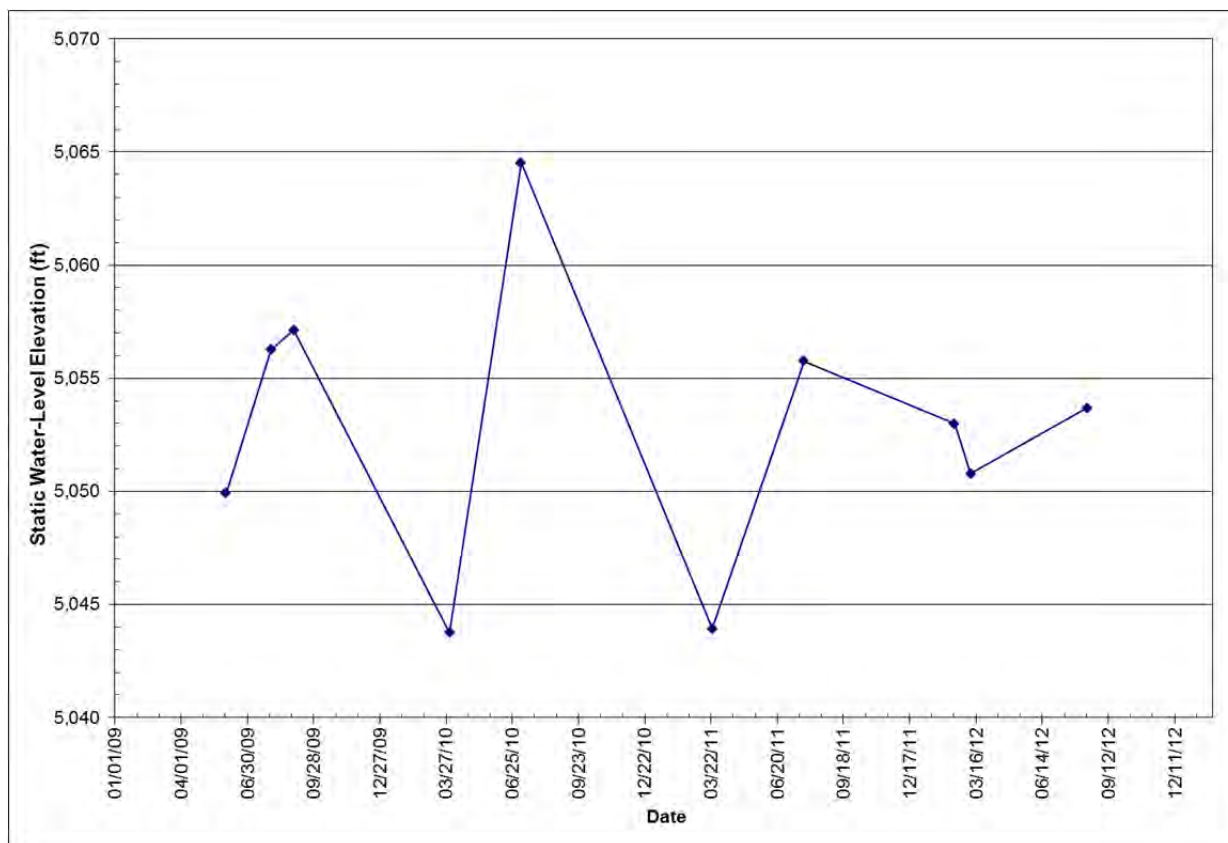


Figure 4.1-8. Water-level hydrograph for well NW-6S (MW-258) based upon semi-annual water-level measurements, 2009–2012.

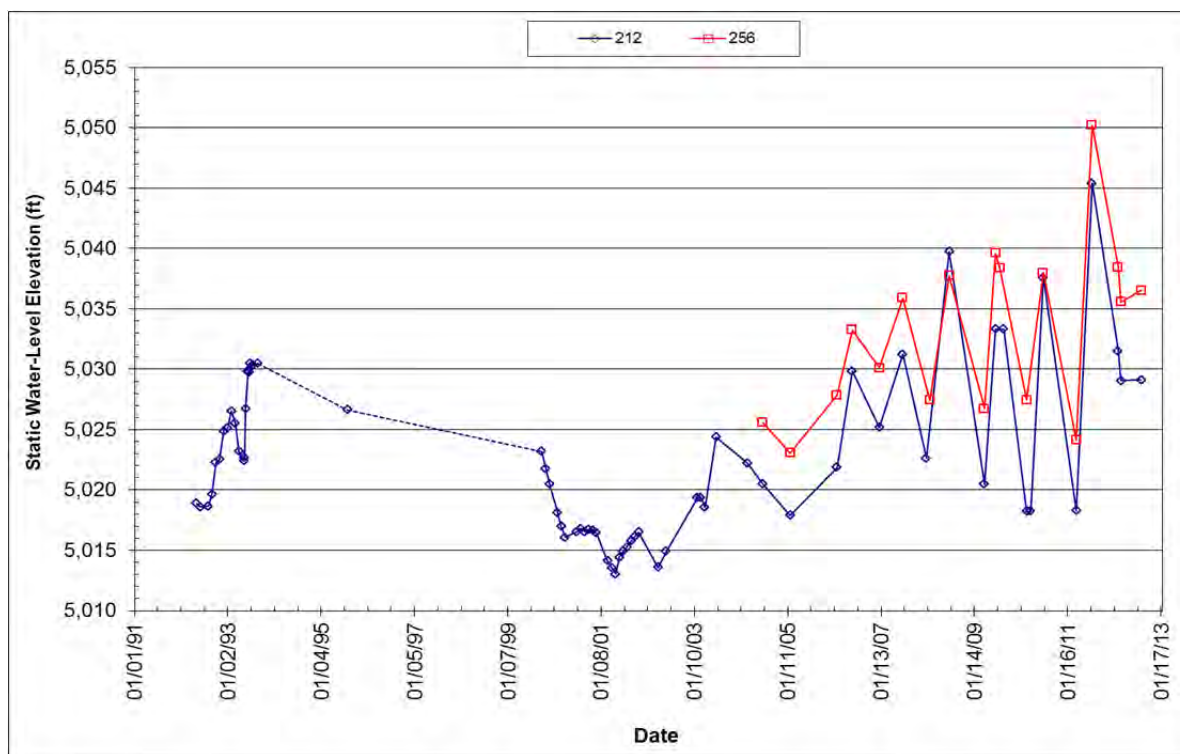


Figure 4.1-9. Water-level hydrographs for wells MW-212 and MW-256, located upgradient of the Opportunity Ponds.

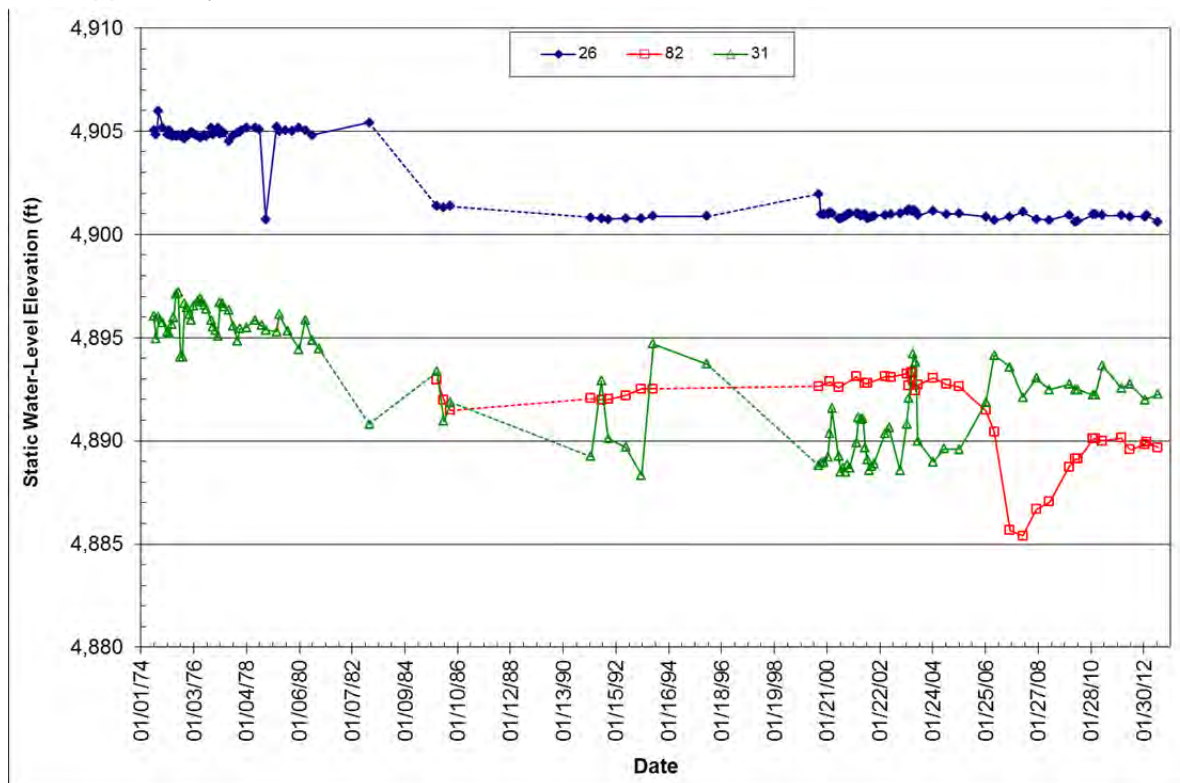


Figure 4.1-10. Water-level hydrographs for wells MW-26, MW-82, and MW-31, located along the northeast toe of the Opportunity Ponds.

4.2 Old Works Waste Management Area

The Old Works WMA contains 20 wells, 14 of which were monitored in 2012 (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 2012, along with well completion details and a listing of COCs for this group of wells. Four wells (POCs) were sampled during both 2012 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 2012 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 2012 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 2012 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.

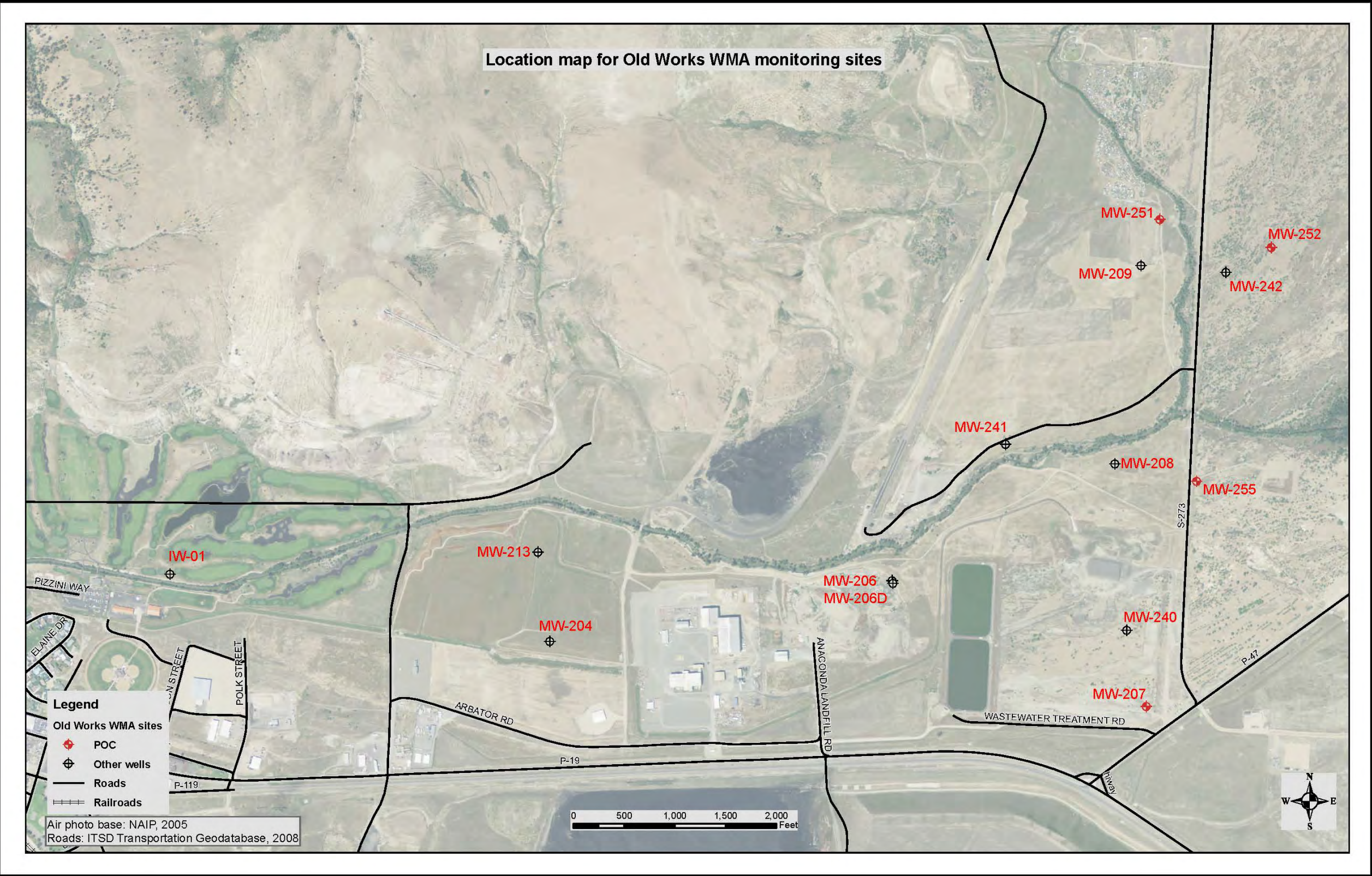


Figure 4.2-1. Location map for Old Works Waste Management Area monitoring sites.

Table 4.2-1. Old Works Waste Management Area monitoring wells, 2012.

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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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 , CO ₃ , 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	2012 Low-Water Arsenic (µg/L)	2012 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 2012. Long-term Cu average exceeds DEQ-7 standard.
MW-204 ^(EDW)	250041	32–42	Ca-HCO ₃	—	—	1.23	No event-triggered sampling in 2012.
MW-206 ^(EDW)	250042	28–43	Ca-HCO ₃	—	—	1.31	No event-triggered sampling in 2012. Long-term Cd average exceeds DEQ-7 standard.
MW-206d ^(EDW)	254054	53–73	Ca-HCO ₃	—	—	1.02	No event-triggered sampling in 2012. Long-term Cd average exceeds DEQ-7 standard.
MW-207 ^(POC)	250043	77–92	Ca-HCO ₃	0.89	0.70	1.16	
MW-208 ^(EDW)	250044	47–67	Ca-HCO ₃	—	—	1.32	No event-triggered sampling in 2012.
MW-209 ^(EDW)	250045	49–69	Ca-HCO ₃	—	—	1.10	No event-triggered sampling in 2012. Long-term Cd average exceeds DEQ-7 standard.
MW-213 ^(EDW)	138022	31–41	Ca-SO ₄	—	—	1.00	No event-triggered sampling in 2012. 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 2012.
MW-241 ^(EDW)	250048	50–60	Ca-HCO ₃	—	—	0.82	No event-triggered sampling in 2012.
MW-242 ^(EDW)	250049	57–67	Ca-HCO ₃	—	—	0.83	No event-triggered sampling in 2012.
MW-251 ^(POC)	250014	55–75	Ca-SO ₄	0.54	0.45	0.77	
MW-252 ^(POC)	249797	55–75	Ca-HCO ₃	0.47	0.38	0.68	
MW-255 ^(POC)	250055	75–95	Ca-HCO ₃	0.75	0.74	0.76	

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 2012 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 $\mu\text{g/L}$ (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.

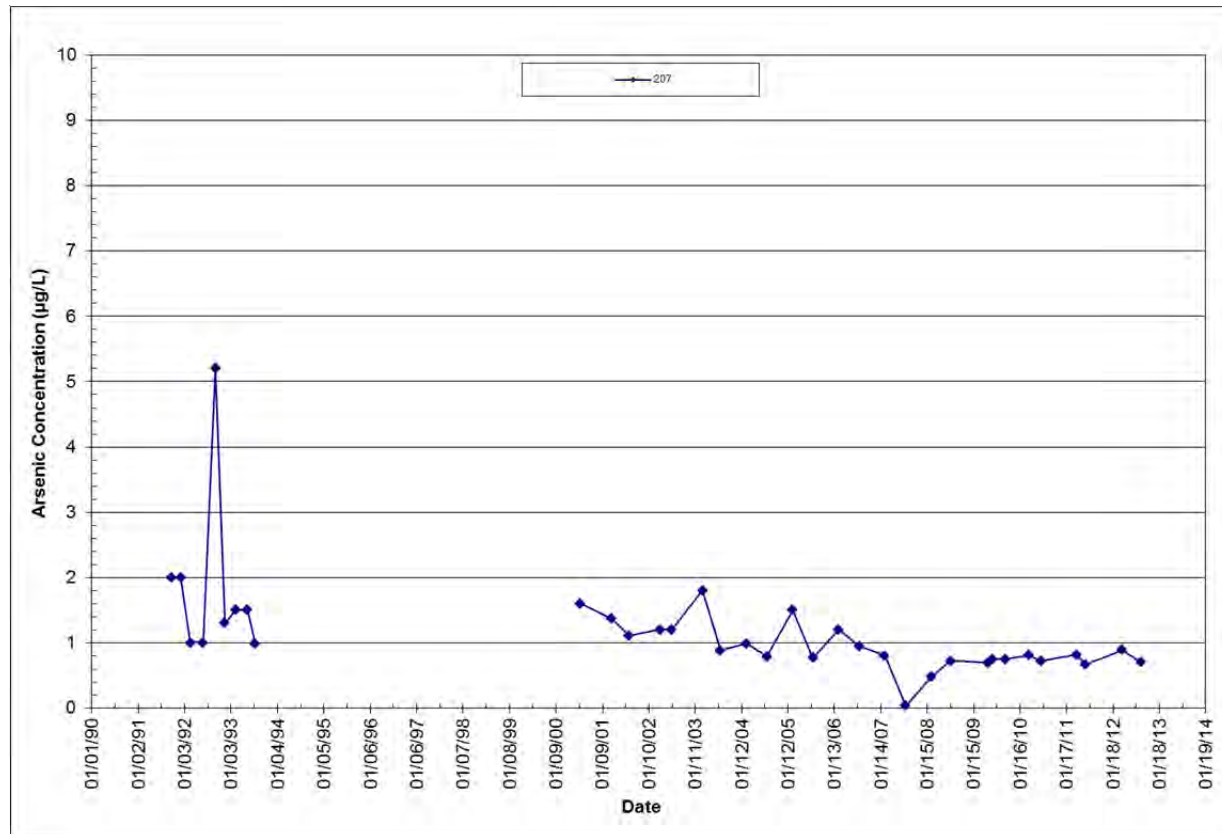


Figure 4.2-2. Arsenic concentrations over time for well MW-207.

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.

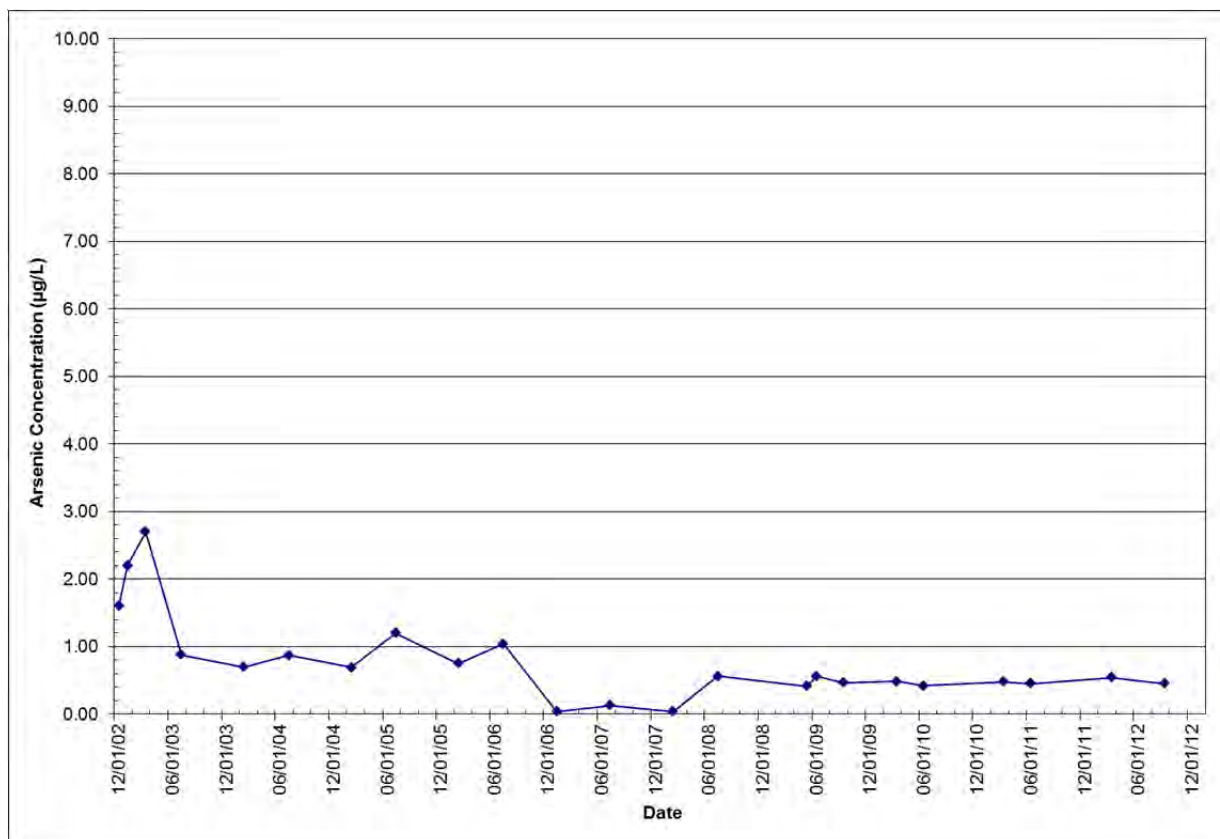


Figure 4.2-3. Arsenic concentrations over time for well MW-251.

Wells MW-252 and MW-255 are located on the far east 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-HCO₃ 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 2012, while well MW-255 has been sampled semi-annually from 2004 to 2012.

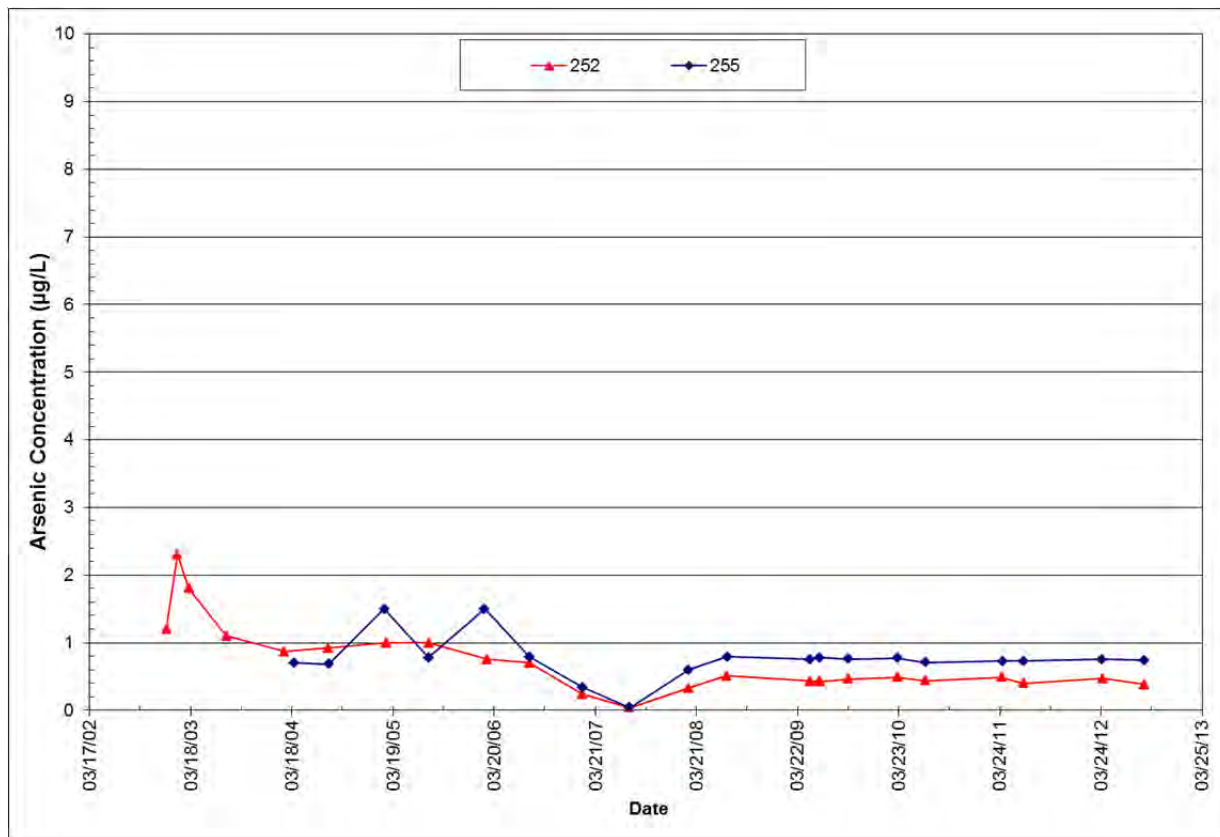


Figure 4.2-4. Arsenic concentrations over time for wells MW-252 and MW-255.

Arsenic concentrations in the Old Works WMA POC wells were well below DEQ-7 standards, with the maximum 2012 concentration being 0.89 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 3 ft to an increase of more than 14 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 2 to 7 ft during 2012. These seasonal fluctuations are considerably less than those seen the past 3 to 4 years.

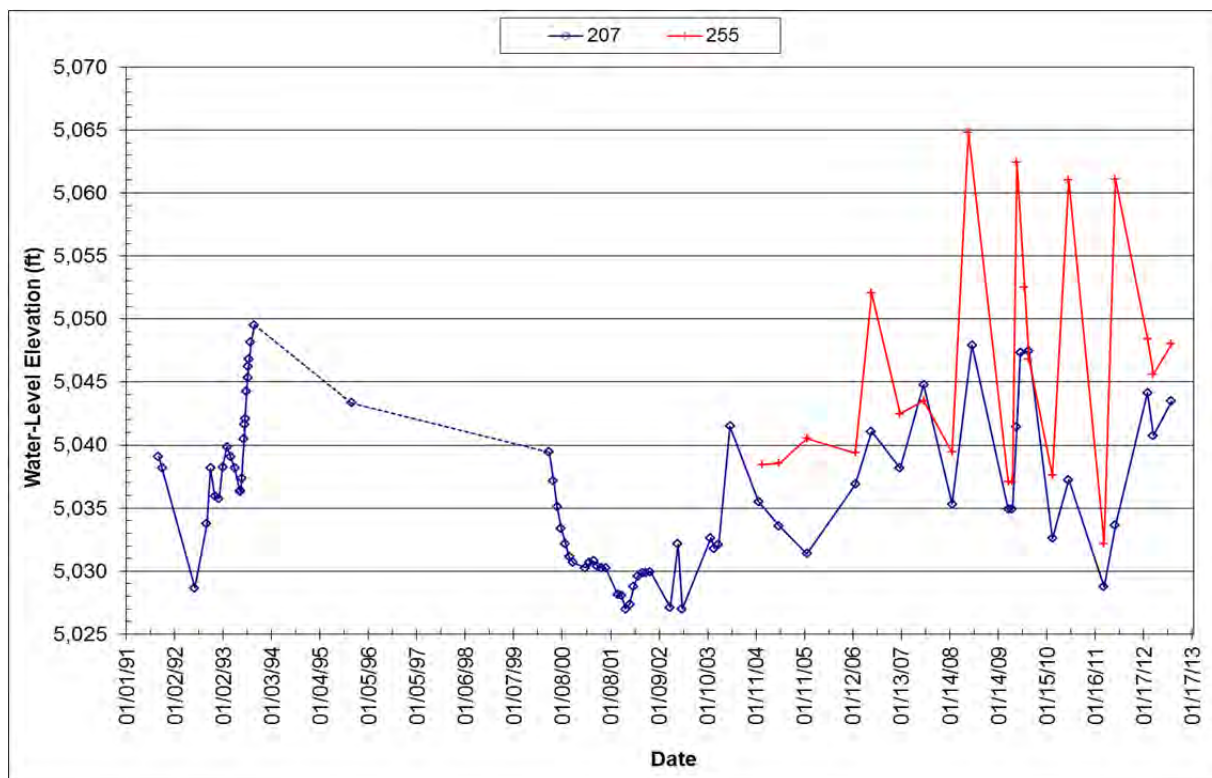


Figure 4.2-5. Water-level hydrographs for wells MW-207 and MW-255, located in the southeast corner of the Old Works WMA.

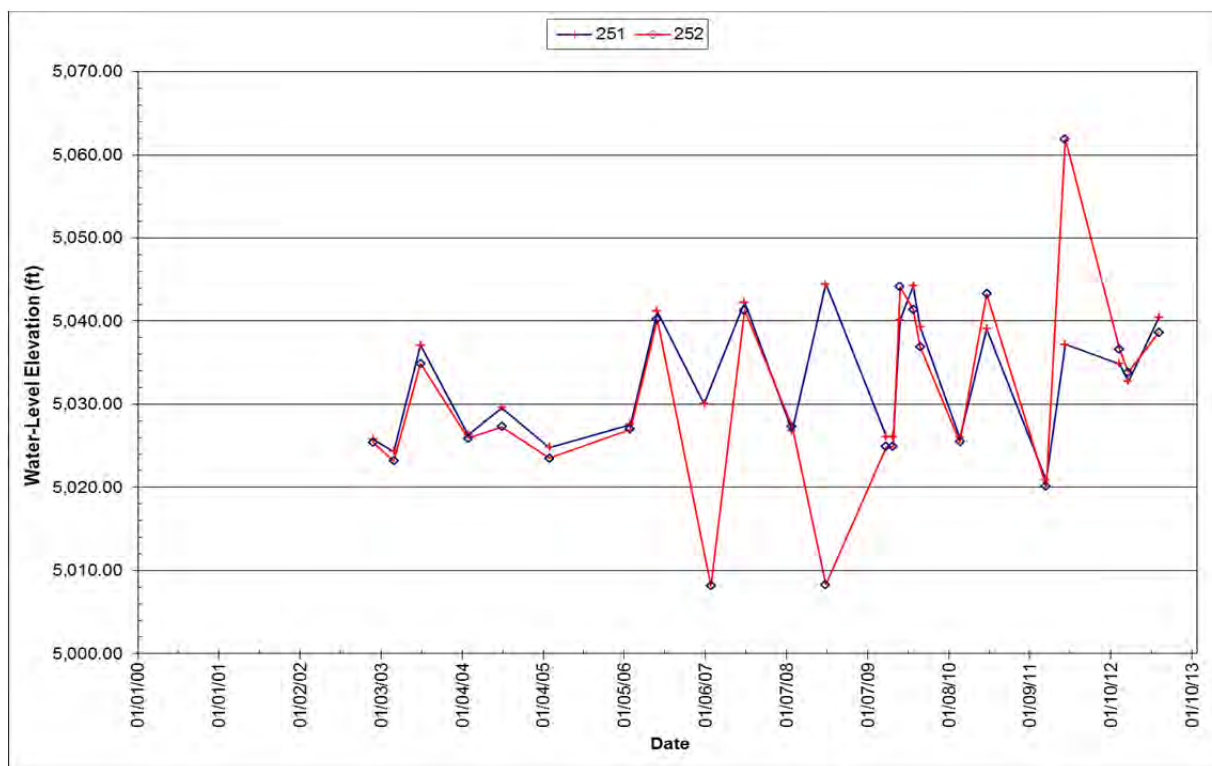


Figure 4.2-6. Water-level hydrographs for wells MW-251 and MW-252, located in the northeast portion of the Old Works WMA.

Table 4.2-3. Net water-level changes for Old Works monitoring wells, 2012.

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	4.38
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	14.62
MW-252 (POC)	76	55–75	Valley-fill coarse	13.23
MW-255 (POC)	95	75–95	Valley-fill coarse	9.57

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 2012 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.

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 2012. Water levels failed to exceed the trigger elevation during 2012; 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.

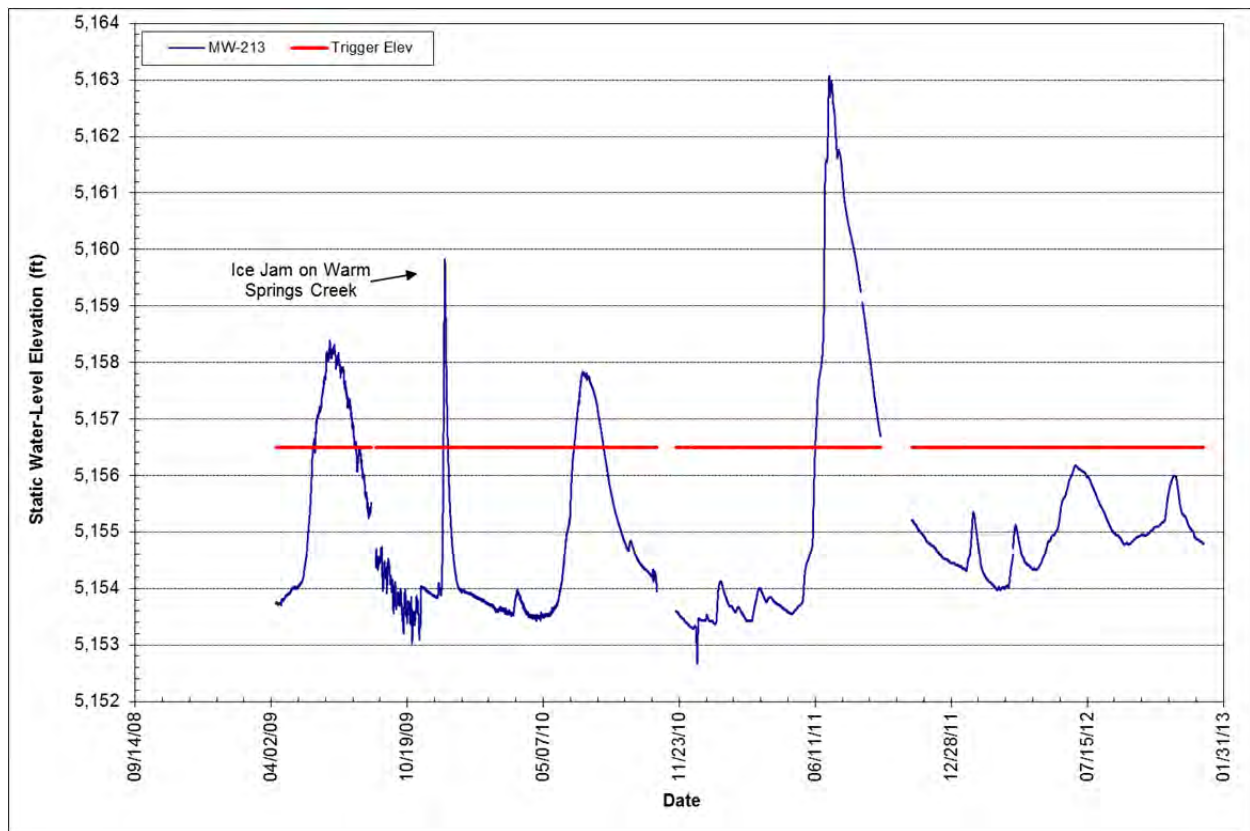


Figure 4.2-8. Water-level hydrograph for MW-213 based upon transducer data.

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

Old Works						
Well ID	Screen Interval (ft)	Water Type	2012 Low-Water Cadmium (µg/L)	2012 Event-Driven Cadmium (µg/L)	2012 High-Water Cadmium (µg/L)	Comment
IW-01 ^(EDW)	22–42	Ca-SO ₄	—	—		No event-driven sampling in 2012.
MW-204 ^(EDW)	32–42	Ca-HCO ₃	—	—	—	No event-driven sampling in 2012.
MW-206 ^(EDW)	28–43	Ca-HCO ₃	—	—	—	No event-driven sampling in 2012.
MW-206d ^(EDW)	53–73	Ca-HCO ₃	—	—	—	No event-driven sampling in 2012.
MW-207 ^(POC-EDW)	77–92	Ca-HCO ₃	<0.10	—	<0.10	No event-driven sampling in 2012.
MW-208 ^(EDW)	47–67	Ca-HCO ₃	—	—	—	No event-driven sampling in 2012.
MW-209 ^(EDW)	49–69	Ca-HCO ₃	—	—	—	No event-driven sampling in 2012.
MW-213 ^(EDW)	31–41	Ca-SO ₄	—	—	--	No event-driven sampling in 2012.
MW-240 ^(EDW)	77–87	Ca-HCO ₃	—	—	—	No event-driven sampling in 2012.
MW-241 ^(EDW)	50–60	Ca-HCO ₃	—	—	—	No event-driven sampling in 2012.
MW-242 ^(EDW)	57–67	Ca-HCO ₃	—	—	—	No event-driven sampling in 2012.
MW-251 ^(POC-EDW)	55–75	Ca-SO ₄	0.33	—	1.07	No event-driven sampling in 2012.
MW-252 ^(POC-EDW)	55–75	Ca-HCO ₃	1.65	—	1.50	No event-driven sampling in 2012.
MW-255 ^(POC-EDW)	75–95	Ca-HCO ₃	<0.20	—	<0.50	No event-driven sampling in 2012.
Domestic Wells						
East End Town Pump	55–600	Na-HCO ₃	—	—	—	No event-driven sampling in 2012.
Mike's Sales and Pawn	—	—	—	—	—	No event-driven sampling in 2012.

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 2012 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 of 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 2012 samples, plus the long-term arsenic average. Appendix C contains water-quality data from 2012 samples.

4.3.1 South Opportunity/Yellow Ditch Area of Concern Water Quality

Arsenic concentrations in the 2012 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 4 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. 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 group of wells and had very low arsenic concentrations in 2012 samples (fig. 4.3-5). Water-quality data only exists for 2009 and 2012 monitoring events; therefore, the long-term average is based on only eight samples.

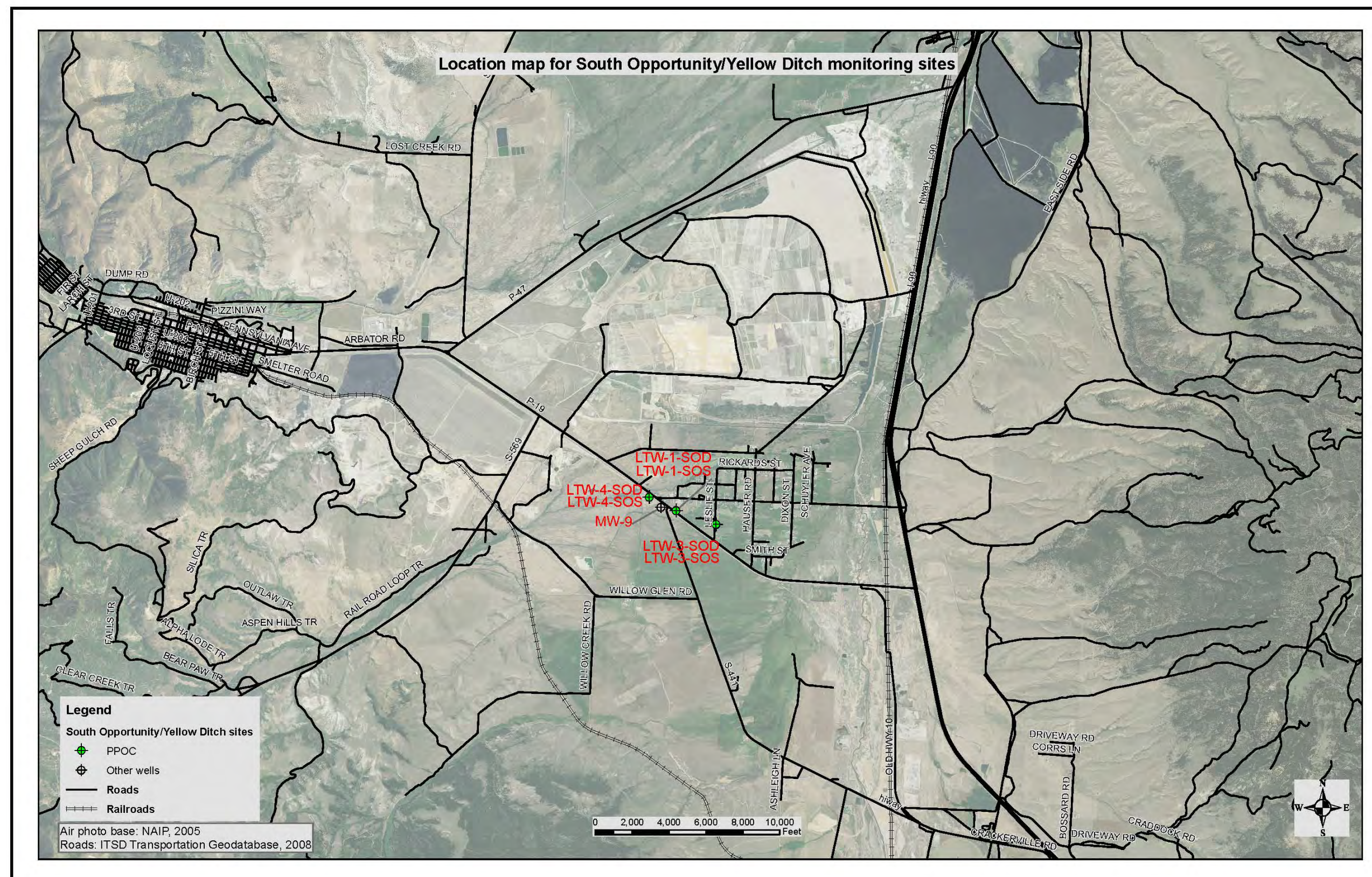


Figure 4.3-1. Location map for South Opportunity/Yellow Ditch Area of Concern monitoring sites.

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 , CO ₃ , Cl, SO ₄ , pH, SC, TDS, Hardness
LTW-1-SOD	MW-263	40	30–40	As, Fe, Ca, Mg, Na, K, HCO ₃ , CO ₃ , Cl, SO ₄ , pH, SC, TDS, Hardness
LTW-3-SOS	MW-262	19	9–19	As, Fe, Ca, Mg, Na, K, HCO ₃ , CO ₃ , Cl, SO ₄ , pH, SC, TDS, Hardness
LTW-3-SOD	MW-261	40	30–40	As, Fe, Ca, Mg, Na, K, HCO ₃ , CO ₃ , Cl, SO ₄ , pH, SC, TDS, Hardness
MW-9 (lab)		55	41–46	As, Fe, Ca, Mg, Na, K, HCO ₃ , CO ₃ , Cl, SO ₄ , pH, SC, TDS, Hardness
LTW-4-SOS	MW-259	22	7.5–17.5	As, Fe, Ca, Mg, Na, K, HCO ₃ , CO ₃ , Cl, SO ₄ , pH, SC, TDS, Hardness
LTW-4-SOS-R	MW-274	27	7–27	As, Fe, Ca, Mg, Na, K, HCO ₃ , CO ₃ , Cl, SO ₄ , pH, SC, TDS, Hardness
LTW-4-SOD	MW-260	38	28–38	As, Fe, Ca, Mg, Na, K, HCO ₃ , CO ₃ , 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	2012 Low-Water Arsenic (µg/L)	2012 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	3.56	Well installed spring 2009; only seven samples
LTW-1-SOD	MW-263	249936	30–40	Ca-HCO ₃	0.44	0.39	0.44	Well installed spring 2009; only seven samples
LTW-3-SOS	MW-262	249939	9–19	Ca-HCO ₃	1.99	3.20	2.46	Well installed spring 2009; only seven samples
LTW-3-SOD	MW-261	249938	30–40	Ca-HCO ₃	0.39	0.36	0.38	Well installed spring 2009; only seven samples
MW-9 (lab)		249898	41–46	Ca-HCO ₃	0.26	0.21	0.25	
LTW-4-SOS	MW-259	249941	7.5–17.5	Ca-HCO ₃	—	0.55	0.54	Well installed spring 2009; no low-water sample 2012; well dry, only four samples
LTW-4-SOS-R	MW-274	264393	7–27	Ca-HCO ₃	—	0.55	0.55	Well installed 2011 as replacement for MW-259; no low-water sample 2012-well dry, only one sample
LTW-4-SOD	MW-260	249940	28–38	Ca-HCO ₃	0.47	0.25	0.46	Well installed spring 2009; only seven samples

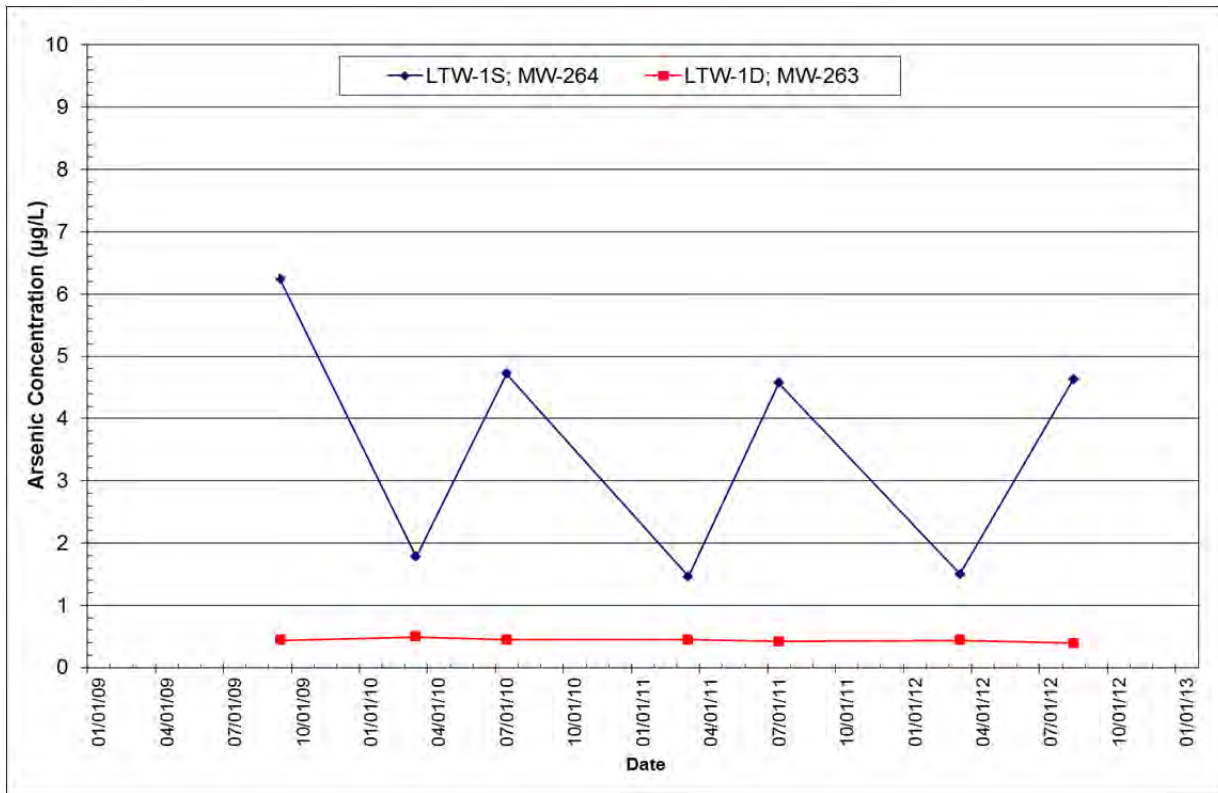


Figure 4.3-2. Arsenic concentrations over time for nested wells LTW-1-SOS (MW-264) and LTW-1-SOD (MW-263).

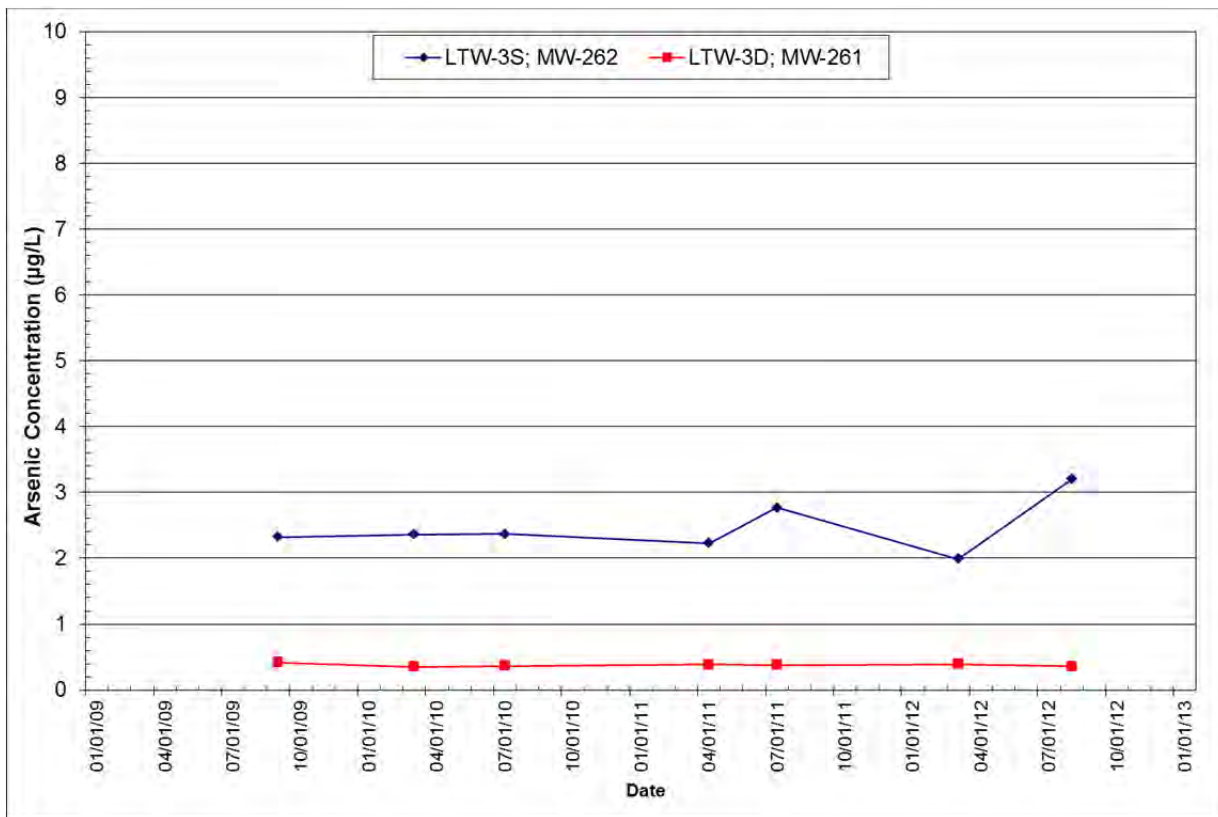


Figure 4.3-3. Arsenic concentrations over time for nested wells LTW-3-SOS (MW-262) and LTW-3-SOD (MW-261).

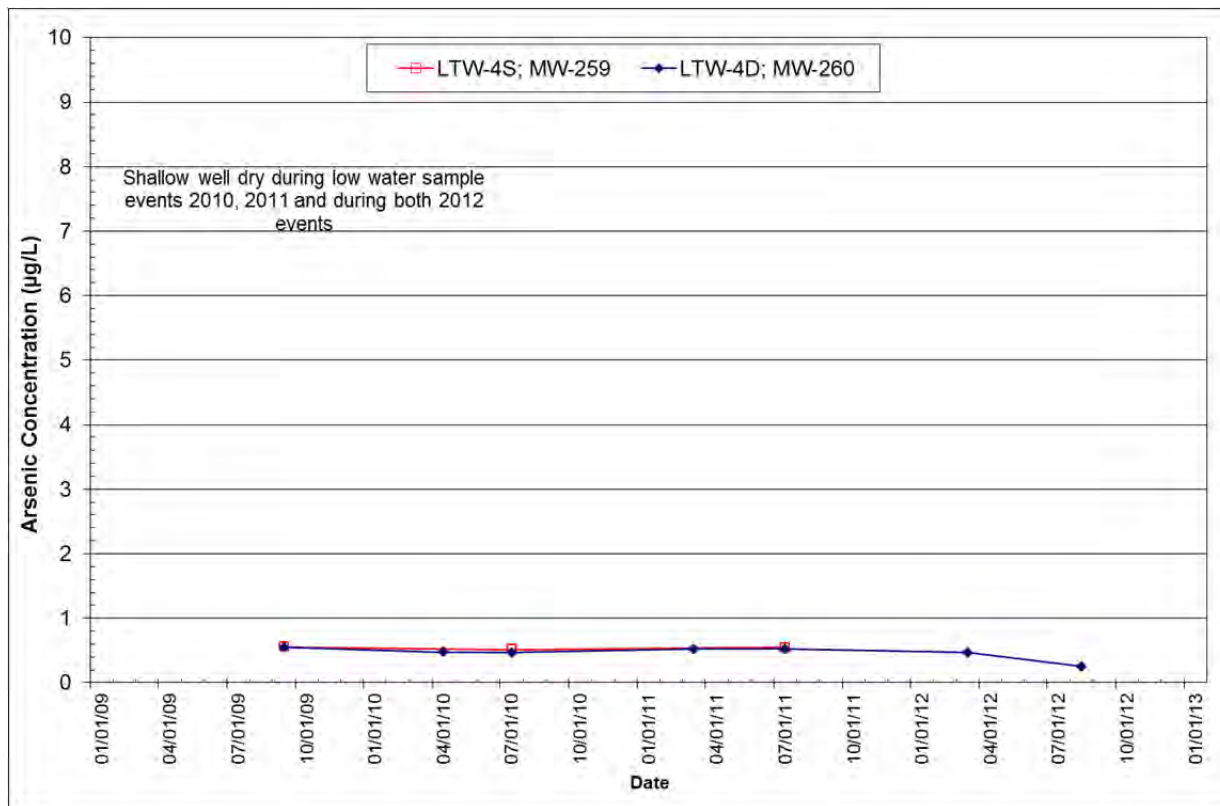


Figure 4.3-4. Arsenic concentrations over time for nested wells LTW-4-SOS (MW259) and LTW-4-SOD (MW-260).

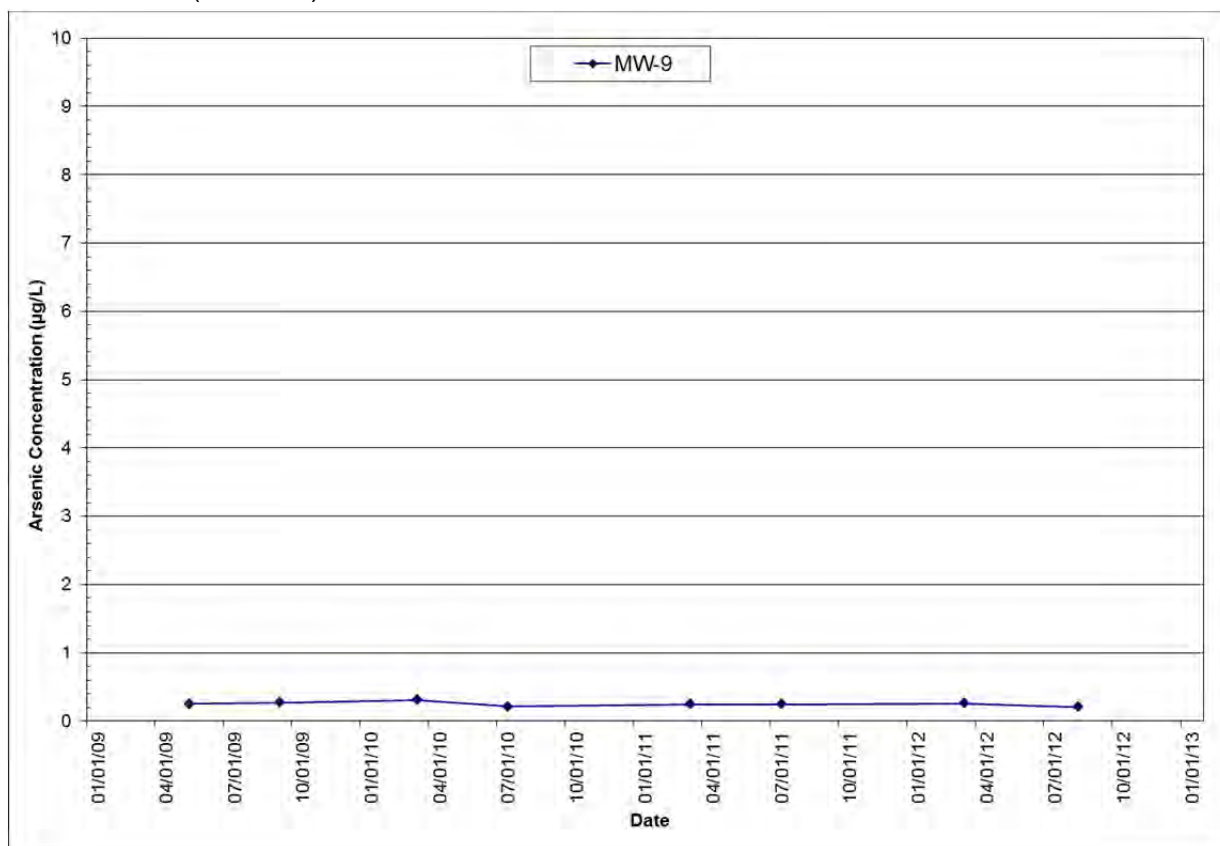


Figure 4.3-5. Arsenic concentrations over time for well MW-9.

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 very 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 2012, 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. Water levels responded 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. Water levels were recorded in this well through late 2012 before dropping below the bottom of the well. The water levels for this well are shown in green in figure 4.3-12.

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	-6.42
LTW-1-SOD	MW-263	249936	40	30–40	Valley-fill coarse	-7.43
LTW-3-SOS	MW-262	249939	19	9–19	Valley-fill coarse	-0.77
LTW-3-SOD	MW-261	249938	40	30–40	Valley-fill coarse	-0.87
MW-9 (lab)		249898	55	41–46	NR	4.31
LTW-4-SOS	MW-259	249941	22	7.5–17.5	Valley-fill coarse	-15.73
LTW-4-SOS-R	MW-274	264393	27	7–27	Valley-fill coarse	NR
LTW-4-SOD	MW-260	249940	38	28–38	Valley-fill coarse	-16.10

Note. NR, not reported.

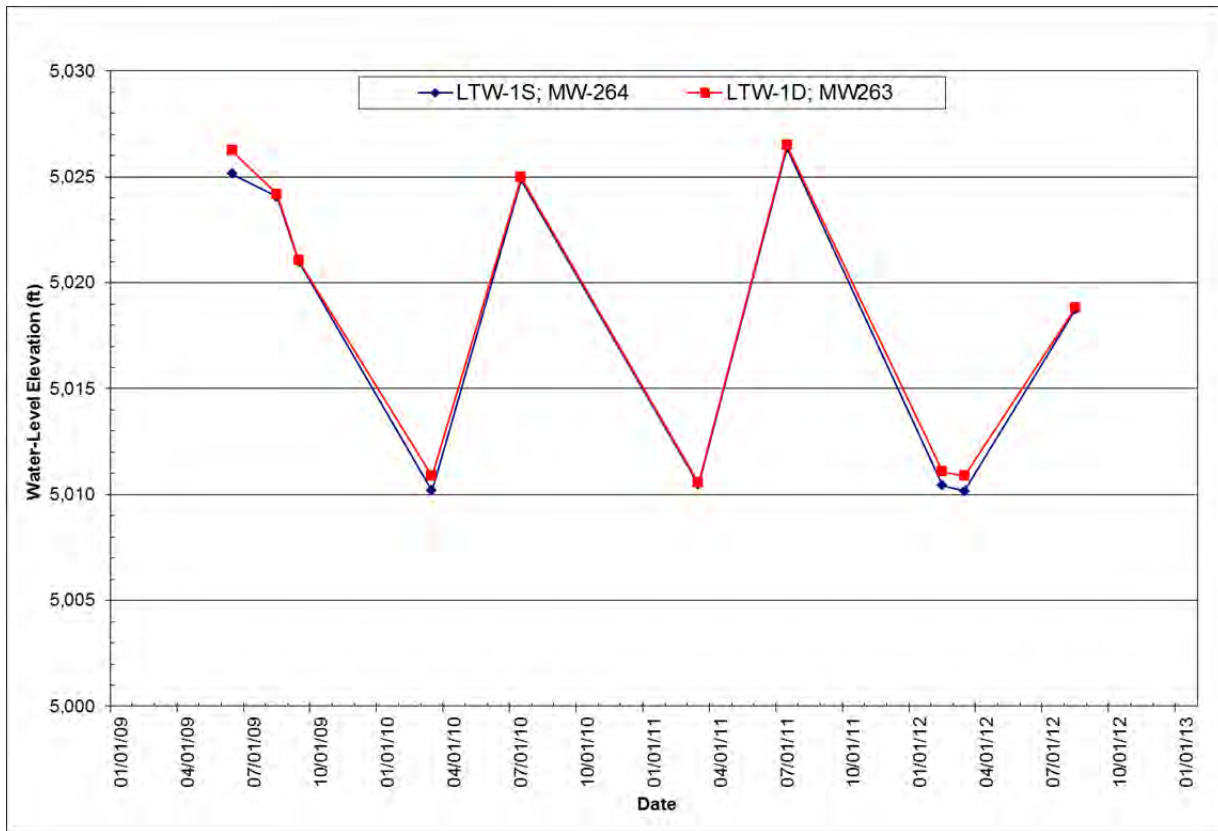


Figure 4.3-6. Water-level hydrograph for nested wells LTW-1-SOS (MW-264) and LTW-1-SOD (MW-263).

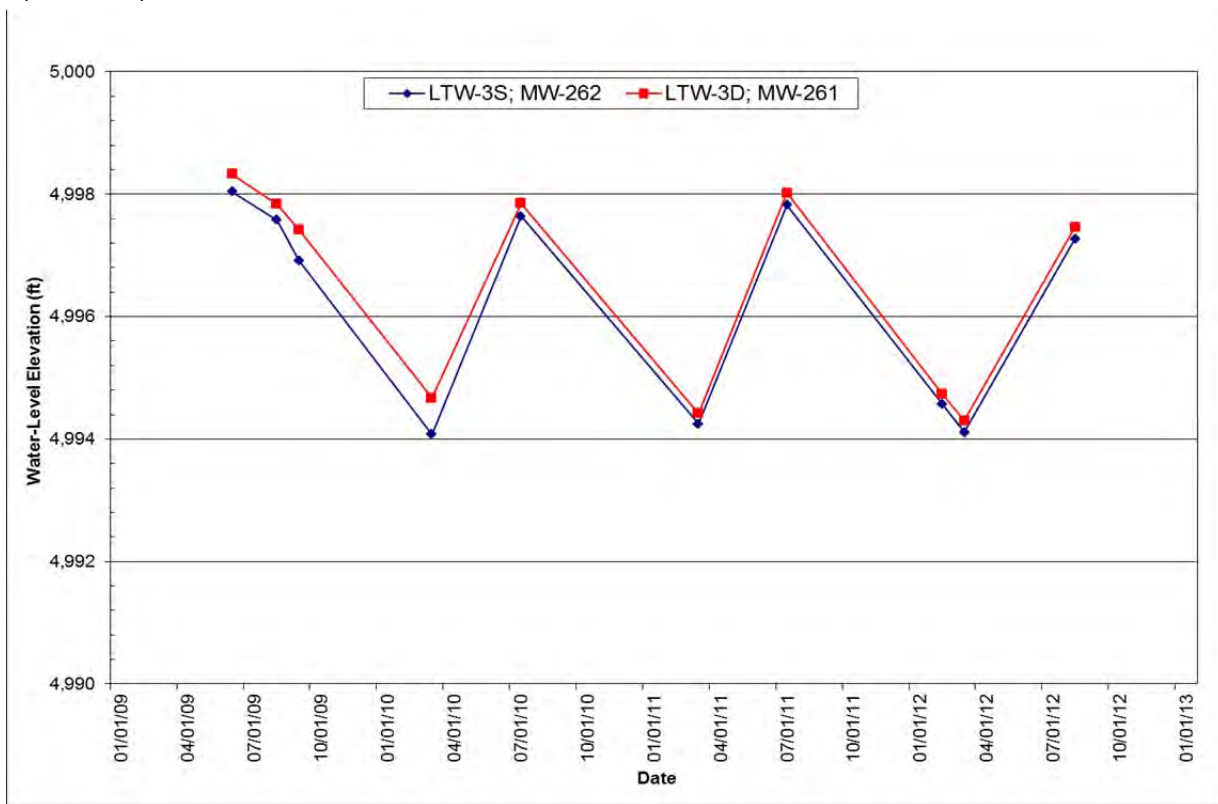


Figure 4.3-7. Water-level hydrograph for nested wells LTW-3-SOS (MW-MW-262) and LTW-3-SOD (MW-261).

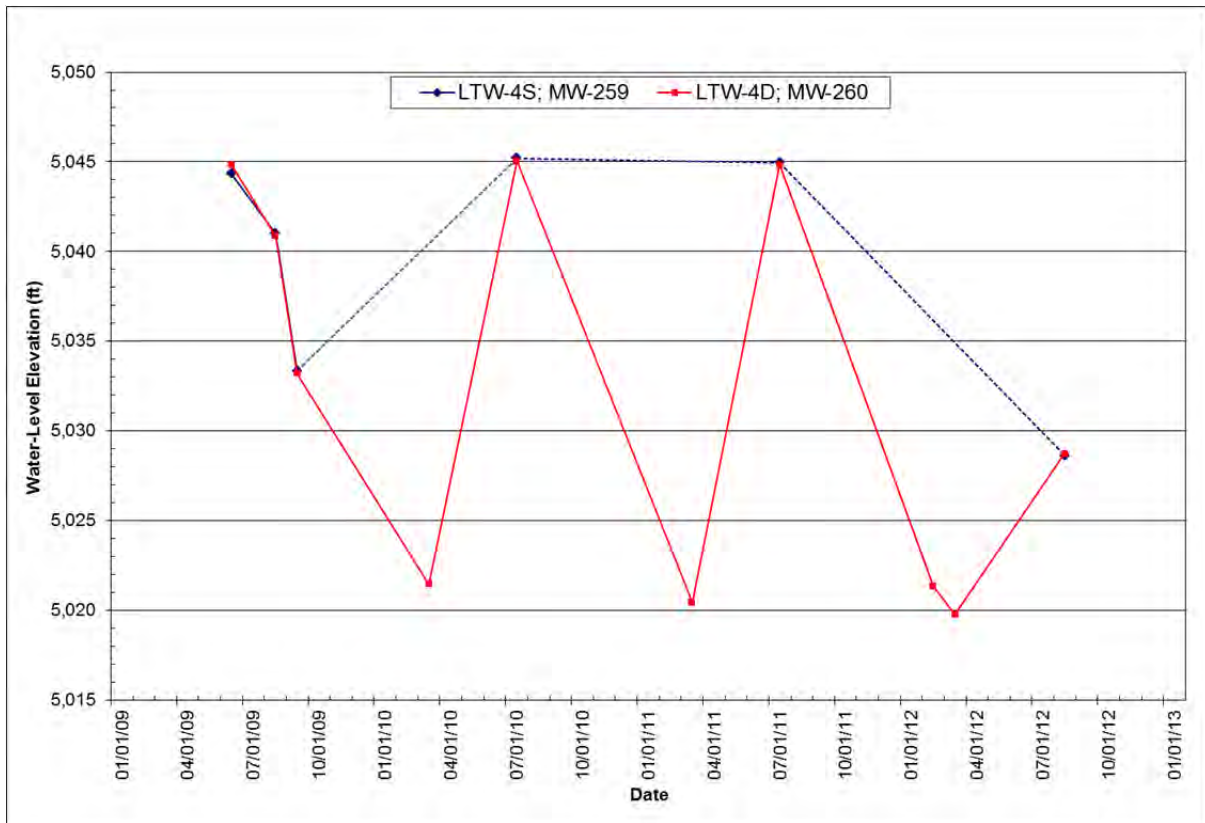


Figure 4.3-8. Water-level hydrograph for nested wells LTW-4-SOS (MW-259) and LTW-4-SOD (MW-260).

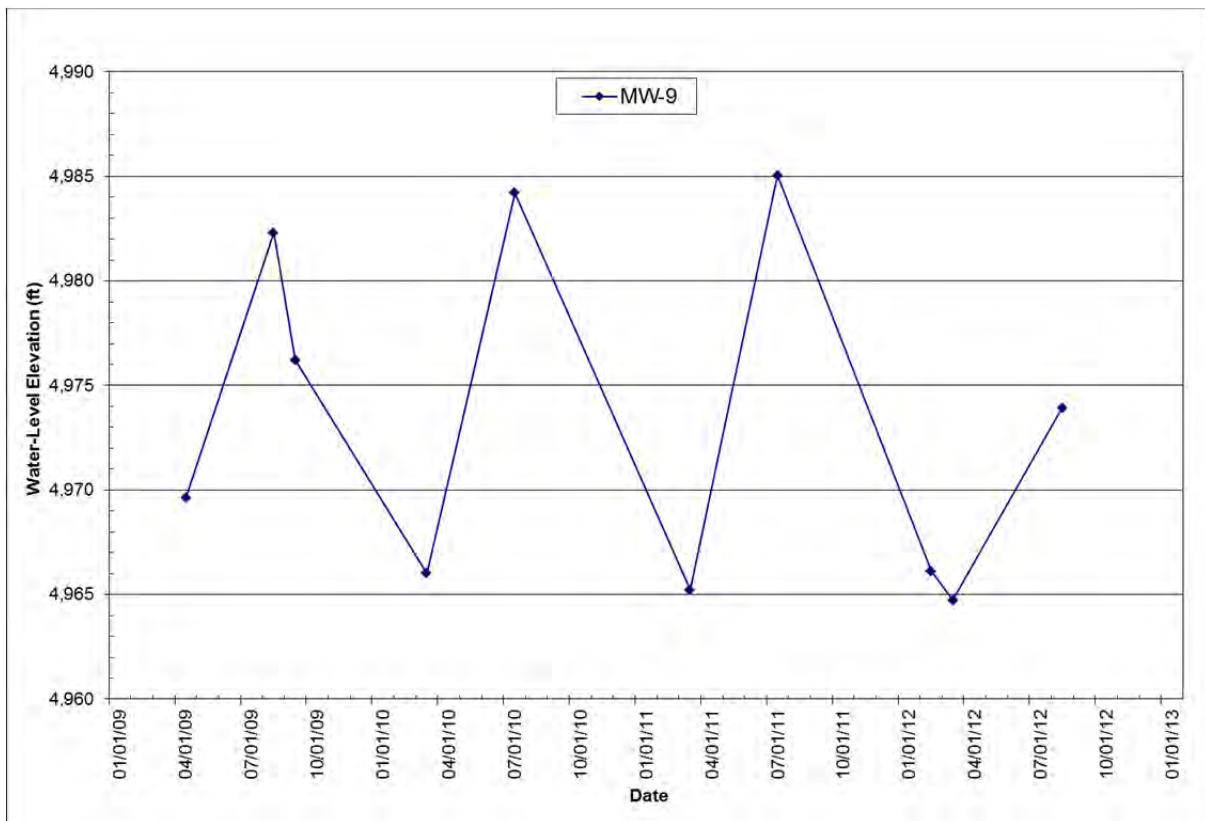


Figure 4.3-9. Water-level hydrograph for well MW-9.

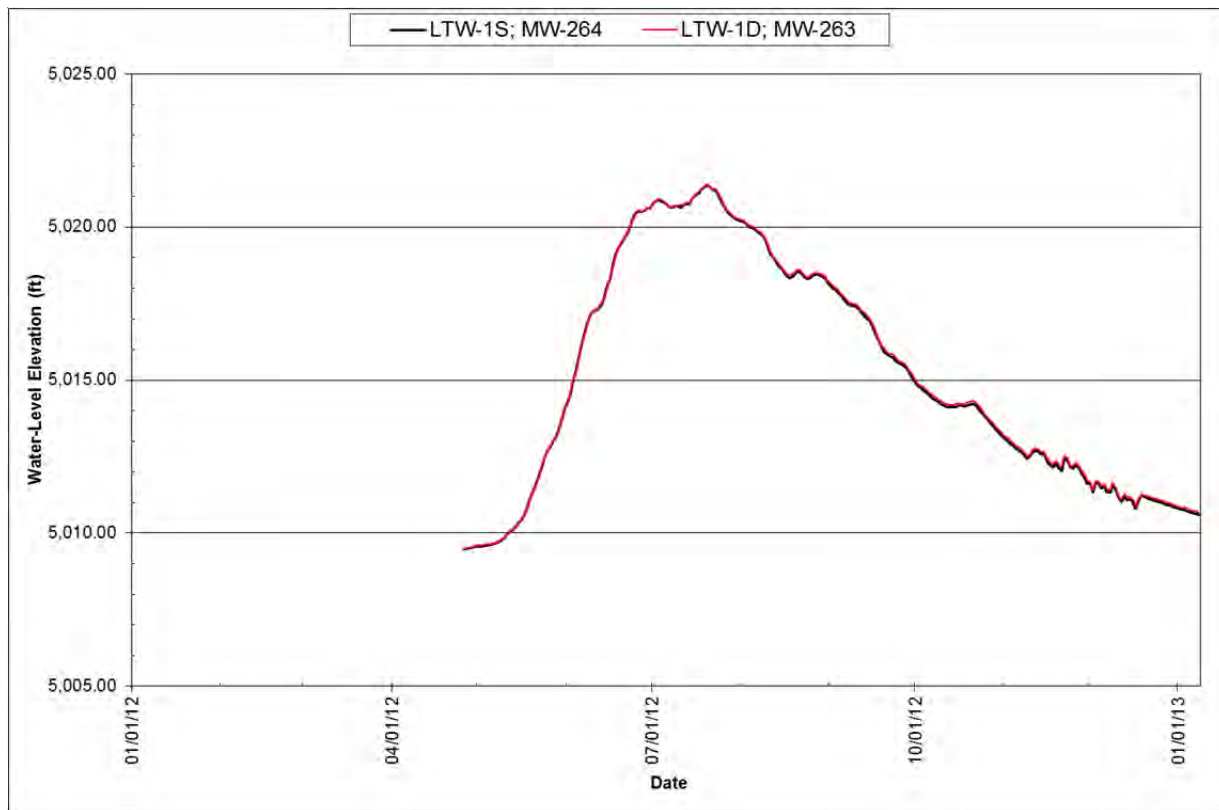


Figure 4.3-10. Daily average water-level hydrograph for nested wells LTW-1-SOS (MW-264) and LTW-1-SOD (MW-263).

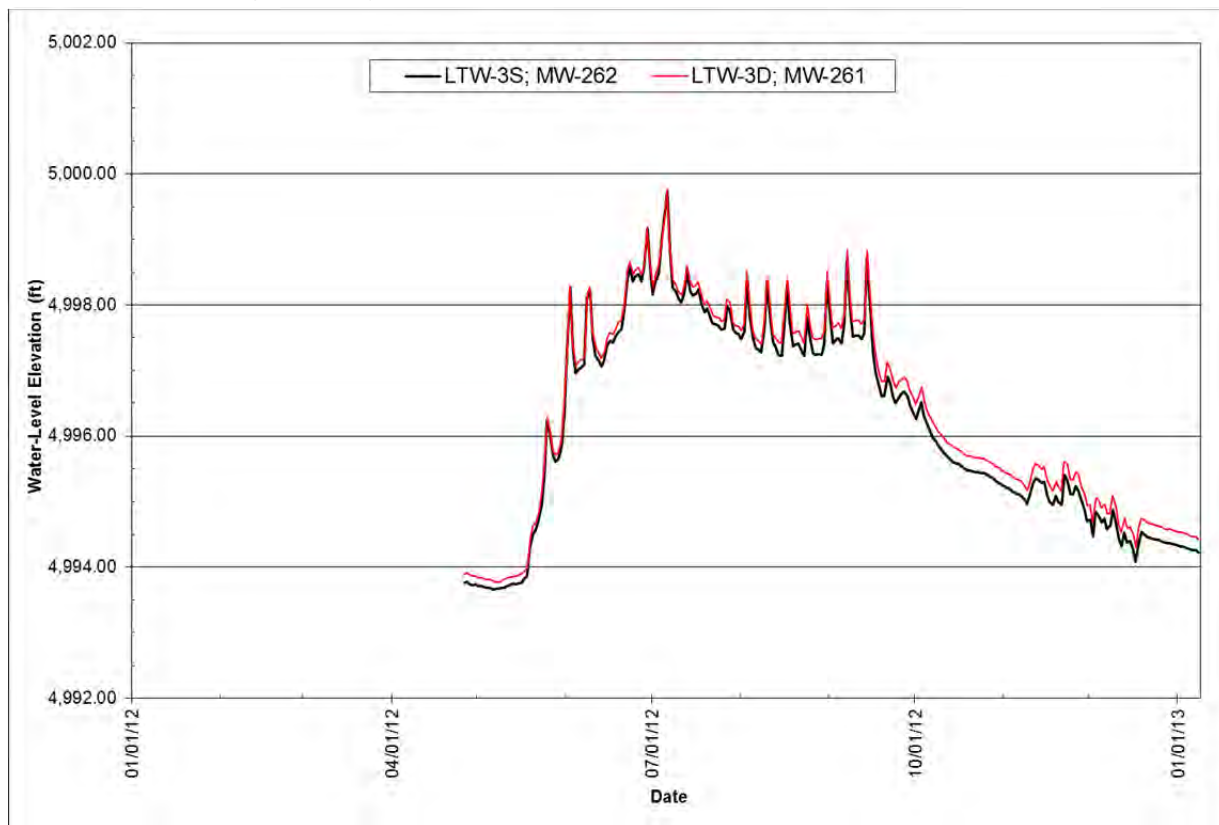


Figure 4.3-11. Daily average water-level hydrograph for nested wells LTW-3-SOS (MW-262) and LTW-3-SOD (MW-261).

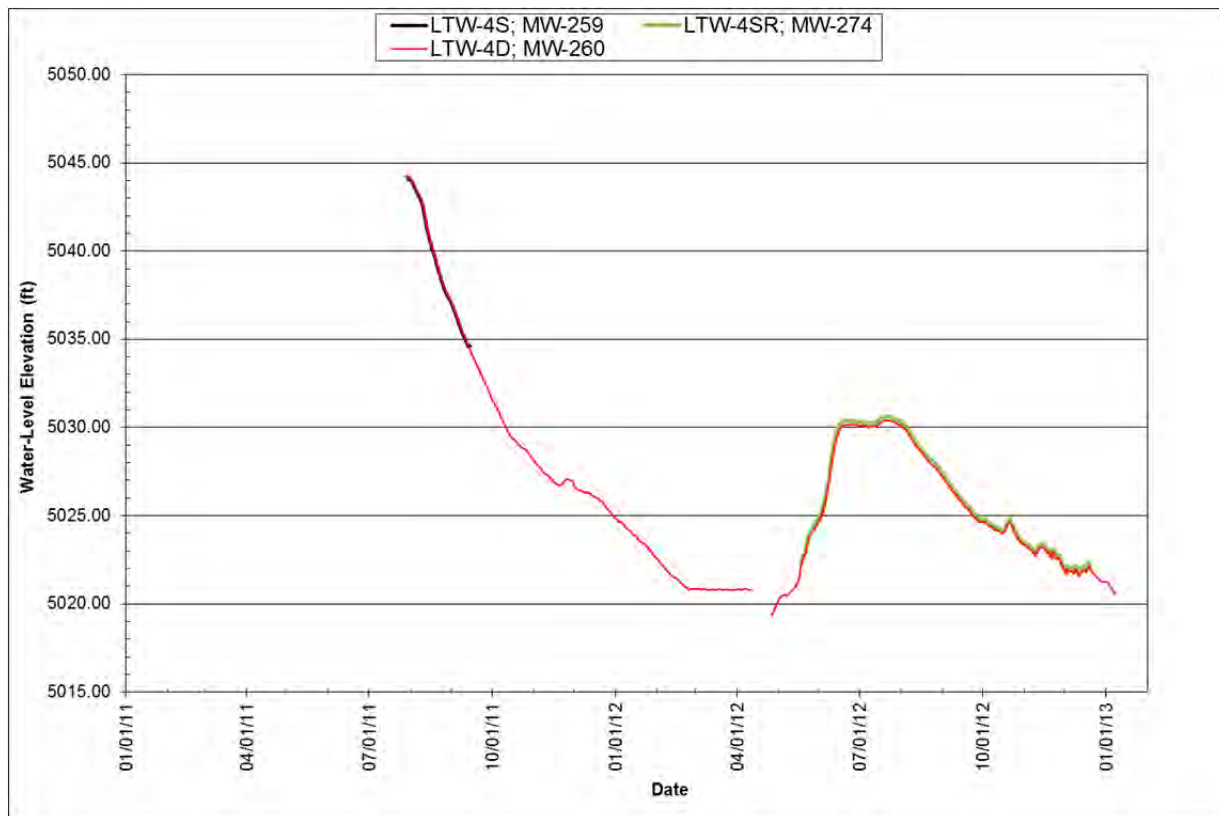


Figure 4.3-12. Daily average water-level hydrograph for nested wells LTW-4-SOS (MW-260), LTW-4-SOSR (MW-274), and LTW-4-SOD (MW-259).

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 25 POC/potential points of compliance (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 of the 25 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; therefore, no statistical evaluation was performed for those 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

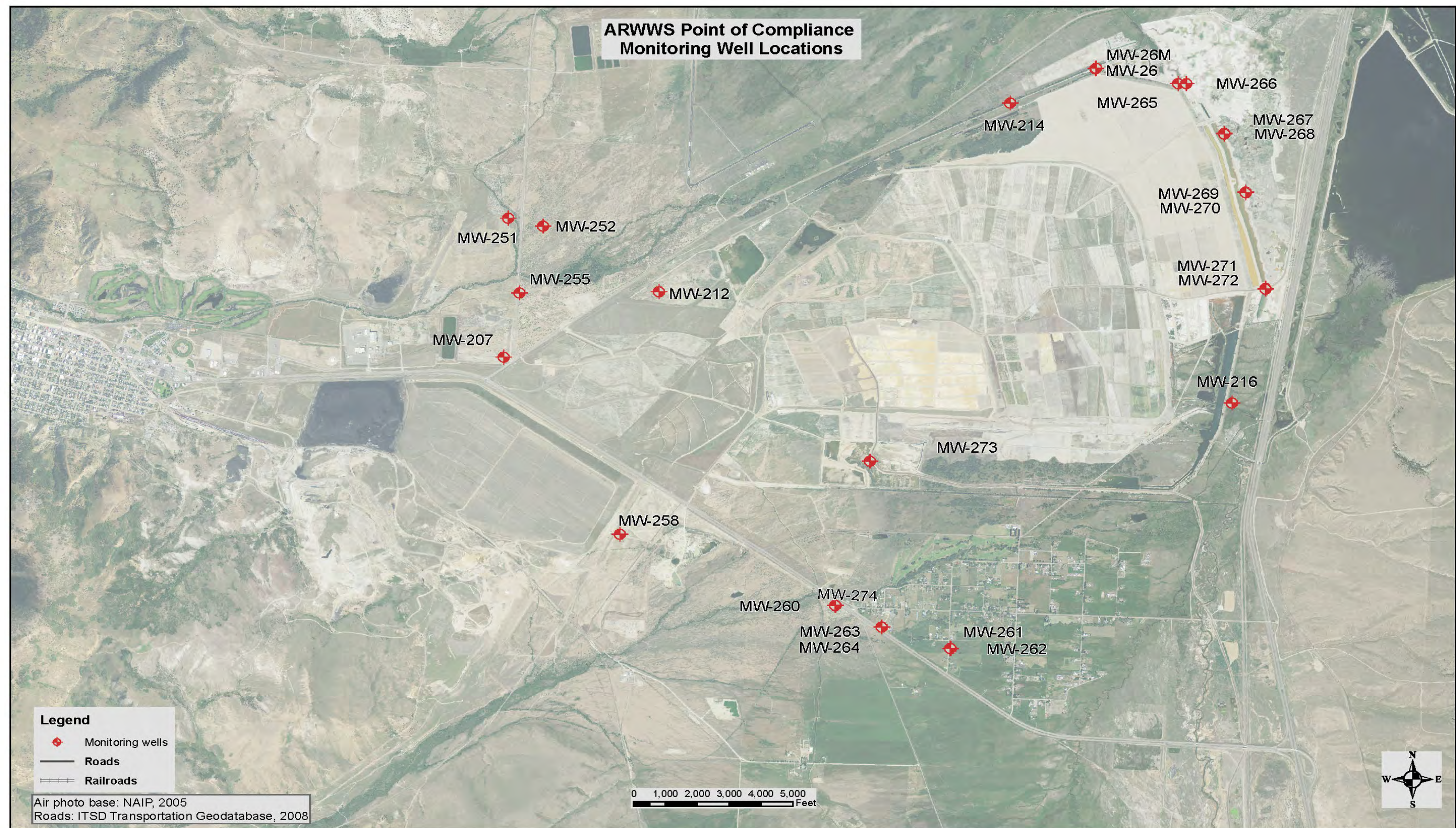


Figure 4.4-1 ARWWS points of compliance monitoring well locations.

The final statistical evaluation plan (SEP) may require an evaluation only when water-quality concentrations in one of the most recent eight sample results exceeds one-half the performance standard or maximum contaminant level (MCL). None of the POC/PPOC wells had concentrations that meet this requirement; therefore, no evaluation was necessary. The SEP evaluation was performed anyway to identify current water-quality conditions. Table 4.4-2 contains the results of the MAROS statistical evaluation for arsenic. The 4-year trends varied from steady to decreasing in a majority of wells in the Smelter Hill/Opportunity Ponds WMA, with one well showing a probably increasing (PI) trend (MW-258). This well was installed in 2009 and therefore has a shorter period of record. While it identified as having a PI trend, the arsenic concentrations only varied between 0.63 and 0.74 µg/L.

The 4-year trends varied from steady to decreasing in a majority of wells in the Old Works WMA. One well had no trend in the 4-year analysis.

More variability was seen in the trends in the wells within the South Opportunity/Yellow Ditch AOC, which may be a function once again of the limited number of samples for these wells. All six wells were installed in 2009 and therefore only have the minimum number of samples for analysis. Trends in the four analyses vary from no trend to steady or decreasing.

Results of the MAROS statistical evaluation for cadmium are shown in Table 4.4-3. The 4-year trends varied from no trend to decreasing in a number of wells in the Smelter Hill/Opportunity Ponds WMA. The majority of wells had no trends determined as all of the sample results were less than detection concentration (ND).

The 4-year trends varied from probably increasing to decreasing in two wells in the Old Works WMA. The other two wells were ND in the 4-year analysis. While well MW-251 is shown to have a trend that is probably increasing in the 4-year analysis, the concentrations of cadmium are typically an order of magnitude below the MCL.

Five of the six POC wells within the South Opportunity/Yellow Ditch AOC had ND in the 4-year analysis. The other well had too few samples to determine a trend.

Table 4.4-2. Arsenic trend analysis.

ARSENIC				
Well ID	New Well ID	GWIC ID	MAROS (2009 - 2012)	
OPPORTUNITY PONDS/SMELTER HILL WMA			Mann-Kendall	Linear Regression
MW-212		138007	D	D
MW-214		138065	NT	D
MW-216		137957	S	S
MW-256		249851	S	PD
NW-6s	MW-258	249909	PI	PI
MW-26		249793	S	NT
MW-26M		249790	NT	NT
NW-1-OPd	MW-266	249900	NA	NA
NW-1-OPs	MW-265	249901	NA	NA
NW-2-OPd	MW-267	249903	NA	NA
NW-2-OPs	MW-268	249904	NA	NA
NW-3-OPd	MW-269	249905	NA	NA
NW-3-OPs	MW-270	249906	NA	NA
NW-4-OPd	MW-271	249907	NA	NA
NW-4-OPs	MW-272	249908	NA	NA
NW-5s	MW-273	249942	NA	NA
Well ID	New Well ID	GWIC ID		
OLD WORKS WMA				
MW-207		250043	NT	NT
MW-251		250014	S	NT
MW-252		249797	S	S
MW-255		250055	S	PD
SOUTH OPPORTUNITY/YELLOW DITCH AREA OF CONCERN				
LTW-1-SOd	MW-263	249936	PD	D
LTW-1-SOs	MW-264	249937	S	S
LTW-3-SOd	MW-261	249938	S	S
LTW-3-SOs	MW-262	249939	NT	NT
LTW-4-SOd	MW-260	249940	S	PD
LTW-4-SOs-R	MW-274	249941	NA	NA

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (NA)—due to insufficient data (<4 sampling events); No Detectable Concentration (ND).

Table 4.4-3. Cadmium trend analysis.

CADMIUM				
Well ID	New Well ID	GWIC ID	MAROS (2009–2012)	
OPPORTUNITY PONDS/SMELTER HILL WMA			Mann-Kendall	Linear Regression
MW-212		138007	ND	ND
MW-214		138065	ND	ND
MW-216		137957	ND	ND
MW-256		249851	ND	ND
NW-6s	MW-258	249909	ND	ND
MW-26		249793	NT	NT
MW-26M		249790	NT	NT
NW-1-OPd	MW-266	249900	NA	NA
NW-1-OPs	MW-265	249901	ND	ND
NW-2-OPd	MW-267	249903	ND	ND
NW-2-OPs	MW-268	249904	ND	ND
NW-3-OPd	MW-269	249905	ND	ND
NW-3-OPs	MW-270	249906	ND	ND
NW-4-OPd	MW-271	249907	ND	ND
NW-4-OPs	MW-272	249908	ND	ND
NW-5s	MW-273	249942	ND	ND
Well ID	New Well ID	GWIC ID		
OLD WORKS WMA				
MW-207		250043	ND	ND
MW-251		250014	PI	I
MW-252		249797	S	S
MW-255		250055	ND	ND
SOUTH OPPORTUNITY/YELLOW DITCH AREA OF CONCERN				
LTW-1-SOd	MW-263	249936	ND	ND
LTW-1-SOs	MW-264	249937	ND	ND
LTW-3-SOd	MW-261	249938	ND	ND
LTW-3-SOs	MW-262	249939	ND	ND
LTW-4-SOd	MW-260	249940	ND	ND
LTW-4-SOs-R	MW-274	249941	NA	NA

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (NA)—due to insufficient data (<4 sampling events); No Detectable Concentration (ND).

Table 4.4-4 contains the results of the MAROS statistical evaluation for copper. The 4-year trends varied from no trend to decreasing in a majority of wells in the Smelter Hill/Opportunity Ponds WMA, with one well showing a PI trend (MW-26M). The average long-term copper concentration is less than 5 µg/L, well below the MCL of 1,000 µg/L.

The 4-year trends varied from steady to decreasing in a majority of wells in the Old Works WMA. One well had no trend in the 4-year analysis.

Four of six wells within the South Opportunity/Yellow Ditch AOC showed decreasing trends in the 4-year analysis. One well (MW-262) had a steady trend in the Mann-Kendall analysis. The other well had too few samples to determine a trend.

Table 4.4-4. Copper trend analysis.

COPPER				
Well ID	New Well ID	GWIC ID	MAROS (2009–2012)	
OPPORTUNITY PONDS/SMELTER HILL WMA			Mann-Kendall	Linear Regression
MW-212		138007	PD	D
MW-214		138065	D	D
MW-216		137957	D	D
MW-256		249851	NT	NT
NW-6s	MW-258	249909	PD	D
MW-26		249793	NT	NT
MW-26M		249790	PI	NT
NW-1-OPd	MW-266	249900	NA	NA
NW-1-OPs	MW-265	249901	NA	NA
NW-2-OPd	MW-267	249903	NA	NA
NW-2-OPs	MW-268	249904	NA	NA
NW-3-OPd	MW-269	249905	NA	NA
NW-3-OPs	MW-270	249906	NA	NA
NW-4-OPd	MW-271	249907	NA	NA
NW-4-OPs	MW-272	249908	NA	NA
NW-5s	MW-273	249942	NA	NA
Well ID	New Well ID	GWIC ID		
OLD WORKS WMA				
MW-207		250043	S	PD
MW-251		250014	NT	NT
MW-252		249797	S	S
MW-255		250055	S	S
SOUTH OPPORTUNITY/YELLOW DITCH AREA OF CONCERN				
LTW-1-SOd	MW-263	249936	D	D
LTW-1-SOs	MW-264	249937	D	D
LTW-3-SOd	MW-261	249938	D	D
LTW-3-SOs	MW-262	249939	S	PD
LTW-4-SOd	MW-260	249940	D	D
LTW-4-SOs-R	MW-274	249941	NA	NA

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (NA)—due to insufficient data (<4 sampling events); No Detectable Concentration (ND).

Table 4.4-5 contains the results of the MAROS statistical evaluation for lead. The 4-year trends in the Smelter Hill/Opportunity Ponds WMA were varied, with a majority of the sites having ND in the samples.

The 4-year trends were no detectable concentrations to decreasing in a majority of wells in the Old Works WMA, respectively. One well had a steady trend in the 4-year analysis.

Table 4.4-5. Lead trend analysis.

LEAD				
Well ID	New Well ID	GWIC ID	MAROS (2009 - 2012)	
OPPORTUNITY PONDS/SMELTER HILL WMA			Mann-Kendall	Linear Regression
MW-212		138007	ND	ND
MW-214		138065	ND	ND
MW-216		137957	ND	ND
MW-256		249851	PD	D
NW-6s	MW-258	249909	ND	ND
MW-26		249793	NT	PD
MW-26M		249790	ND	ND
NW-1-OPd	MW-266	249900	ND	ND
NW-1-OPs	MW-265	249901	NA	NA
NW-2-OPd	MW-267	249903	NA	NA
NW-2-OPs	MW-268	249904	ND	ND
NW-3-OPd	MW-269	249905	ND	ND
NW-3-OPs	MW-270	249906	NA	NA
NW-4-OPd	MW-271	249907	ND	ND
NW-4-OPs	MW-272	249908	ND	ND
NW-5s	MW-273	249942	ND	ND
Well ID	New Well ID	GWIC ID		
OLD WORKS WMA				
MW-207		250043	S	D
MW-251		250014	ND	ND
MW-252		249797	ND	ND
MW-255		250055	ND	ND
SOUTH OPPORTUNITY/YELLOW DITCH AREA OF CONCERN				
LTW-1-SOd	MW-263	249936	ND	ND
LTW-1-SOs	MW-264	249937	ND	ND
LTW-3-SOd	MW-261	249938	ND	ND
LTW-3-SOs	MW-262	249939	ND	ND
LTW-4-SOd	MW-260	249940	ND	ND
LTW-4-SOs-R	MW-274	249941	NA	NA

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (NA)—due to insufficient data (<4 sampling events); No Detectable Concentration (ND).

Five of the six wells within the South Opportunity/Yellow Ditch AOC showed no detectable concentrations in the samples for the 4-year and long-term trend analysis. The other well had too few samples to determine a trend.

Table 4.4-6 contains the results of the MAROS statistical evaluation for zinc. The 4-year trends in the Smelter Hill/Opportunity Ponds WMA were mainly decreasing.

Table 4.4-6. Zinc trend analysis.

ZINC				
Well ID	New Well ID	GWIC ID	MAROS (2009 - 2012)	
OPPORTUNITY PONDS/SMELTER HILL WMA			Mann-Kendall	Linear Regression
MW-212		138007	D	D
MW-214		138065	D	D
MW-216		137957	D	D
MW-256		249851	NT	I
NW-6s	MW-258	249909	D	D
MW-26		249793	PD	PD
MW-26M		249790	NT	NT
NW-1-OPd	MW-266	249900	NA	NA
NW-1-OPs	MW-265	249901	NA	NA
NW-2-OPd	MW-267	249903	NA	NA
NW-2-OPs	MW-268	249904	NA	NA
NW-3-OPd	MW-269	249905	NA	NA
NW-3-OPs	MW-270	249906	NA	NA
NW-4-OPd	MW-271	249907	NA	NA
NW-4-OPs	MW-272	249908	NA	NA
NW-5s	MW-273	249942	NA	NA
Well ID	New Well ID	GWIC ID		
OLD WORKS WMA				
MW-207		250043	D	D
MW-251		250014	PI	I
MW-252		249797	S	S
MW-255		250055	D	D
SOUTH OPPORTUNITY/YELLOW DITCH AREA OF CONCERN				
LTW-1-SOd	MW-263	249936	D	D
LTW-1-SOs	MW-264	249937	D	D
LTW-3-SOd	MW-261	249938	ND	ND
LTW-3-SOs	MW-262	249939	D	D
LTW-4-SOd	MW-260	249940	NT	NT
LTW-4-SOs-R	MW-274	249941	NA	NA

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (NA)—due to insufficient data (<4 sampling events); No Detectable Concentration (ND).

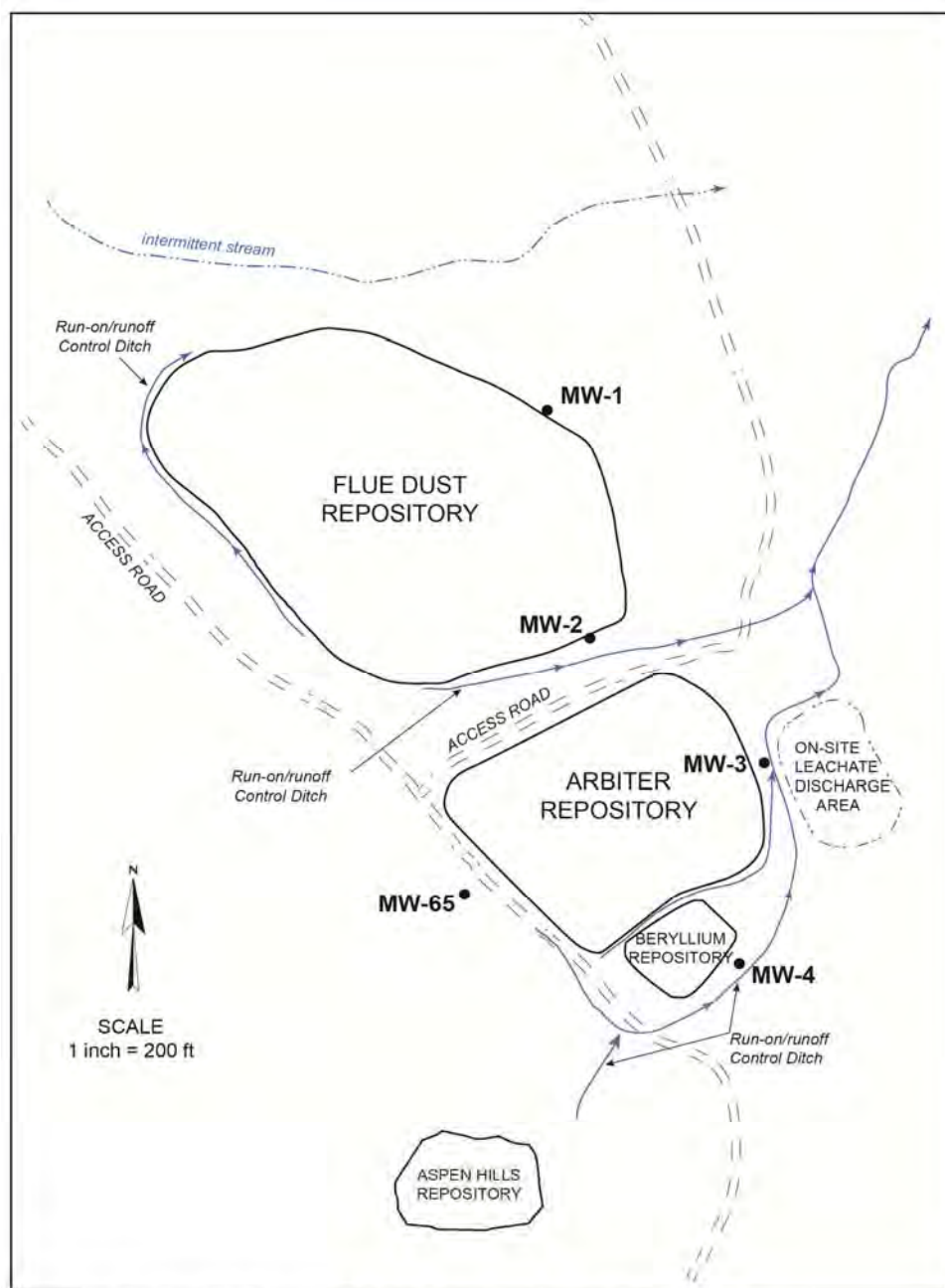
The 4-year trends were decreasing in two of the four wells in the Old Works WMA. Zinc trends in wells MW-251 and MW-252 were similar to those seen for cadmium in those wells.

Three of the six wells within the South Opportunity/Yellow Ditch AOC showed decreasing trends for the 4-year analysis. Two other wells had either no trend or no detectable concentrations. The other well had too few samples to determine a trend.

Four wells, two within the Smelter Hill/Opportunity Ponds WMA and two within the Old Works WMA, were identified as having PI or increasing trends for select COCs in the statistical analysis evaluation. Concentrations for the identified analytes were all considerably below actual performance standards (MCL limits), with no exceedances occurring at any POC site.

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 includes beryllium due to the presence of beryllium waste. Table 4.5-1 contains well completion information for these wells.



Smelter Hill Repository, Long-Term Goundwater Monitoring 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.

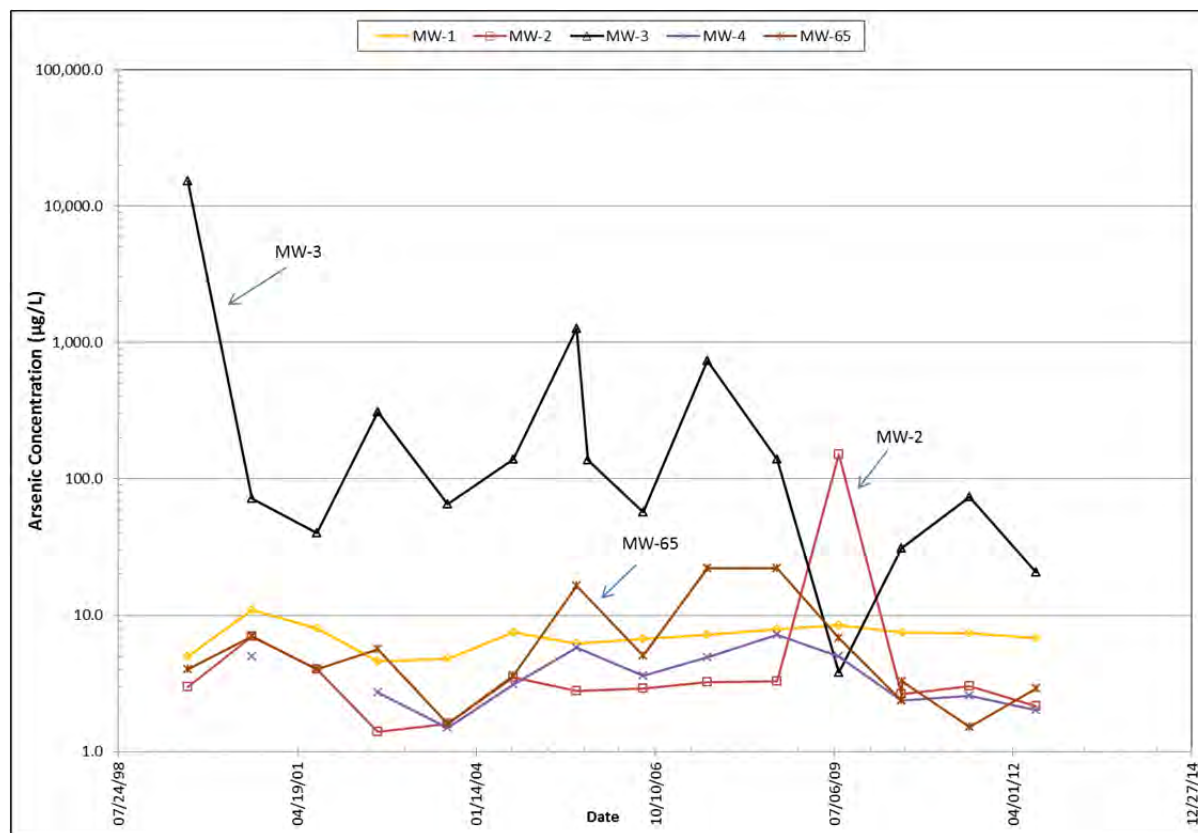


Figure 4.5-2. Arsenic concentrations in Smelter Hill Complex monitoring wells.

5.0 Domestic Well Monitoring Program

5.1 Description of the Sampling Area

The 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 (fig. 5.1-1). The boundary was reduced early in 2011 to one of the 2009 boundaries and the resulting 2011 boundary reduced the total number of domestic wells in the sampling area. A goal of sampling 120 new wells in 2012 was determined based on a previous estimate of the total number of domestic wells using GWIC records. A list of potential wells was also 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 and filtered to remove parcels served by community water and sewer. The remaining parcels with dwellings were used to estimate the number of wells in the sampling area. There were 734 properties identified in 2012 as potentially having a domestic well (see section 5.5 for further discussion).

5.2 New Domestic Well Sampling

Postcards requesting permission to sample new domestic wells were sent to approximately 284 property owners, and approximately 108 phone call attempts were made to property owners. At least 15 home owners declined sampling in 2012. A total of 112 new domestic wells were sampled in 2012 (fig. 5.1-1). Arsenic concentrations were less than 5 µg/L in 100 of these samples. Arsenic concentrations were greater than 5 µg/L and less than 10 µg/L in 8 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 and English Gulch areas. Two of the wells were in the Mill Creek area south of Smelter Hill. Two wells were within the town of Opportunity, which is the first time any of the MBMG domestic well samples from Opportunity have been above 5 µg/L. Finally, two wells were in the Washoe Park area. Confirmation samples were collected from the Powell Vista area well (9.98 µg As/L), because this concentration was near 10 µg/L and nearby wells often have concentrations above 10 µg/L.

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

Owner	GWIC ID	As (µg/L)	Area
Dinsdale, Jeff & Julie	158808	9.98	Powell Vista
Norton, Lou	122659	6.10	English Gulch
Blotkamp, Bob & Mary	266770	5.24	Washoe Park
Pentilla, Mike & April	267423	8.32	Washoe Park
Swanson, Ron	264544	7.85	Opportunity
Varelia, Helen	264545	7.14	Opportunity
Catalanello, Mark & Vickie	174778	5.83	Mill Creek
Williams, John*	217906	9.45	Mill Creek

*Property has since been sold to the Catalanellos.

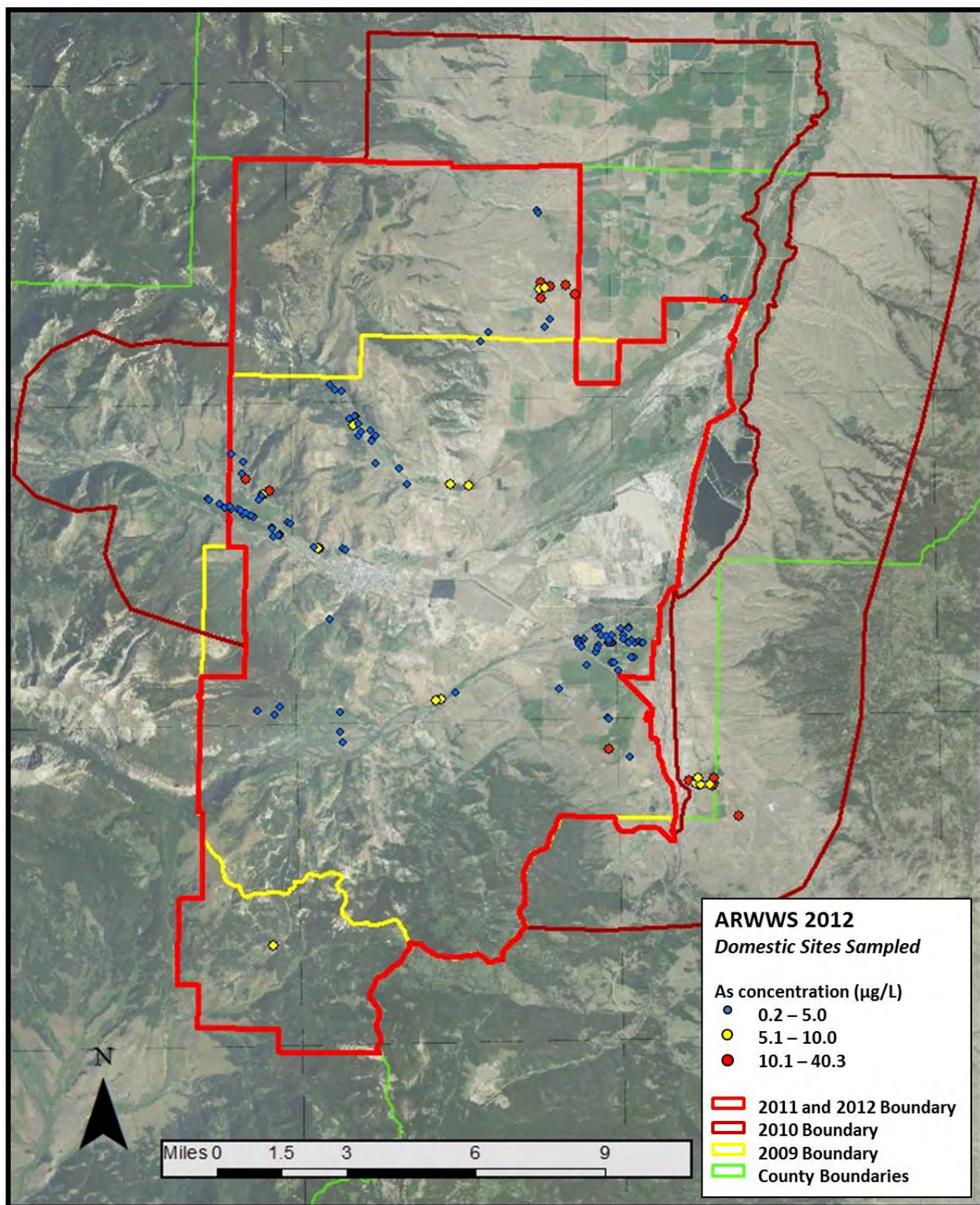


Figure 5.1-1. Domestic well sampling boundary for 2012 activities with the 2009 and 2010 boundaries for reference. All wells sampled in 2012 are shown as dots, with the color indicating arsenic concentrations.

Arsenic concentrations were greater than 10 µg/L in 4 new domestic wells (table 5.2-2). One of these wells was an unused well in a new subdivision near English Gulch (240664), and a confirmation sample was not collected from this well. Two of the new greater than 10 µg/L wells were in the Powell Vista area and one was in the Crackerville area (within the current monitoring boundary). There were two wells (254433 and 181457) in the Crackerville area that had previous arsenic concentrations greater than 5 µg/L and less than 10 µg/L, but the 2012 resample arsenic concentrations were greater than 10 µg/L. Both of these wells were outside the current ARWWS Domestic Well Monitoring boundary.

Confirmation samples (dissolved) were collected from five wells with arsenic concentrations greater than 10 µg/L in 2012. In addition, a confirmation sample was collected from well 158808, because the initial arsenic concentration was 9.98 µg/L. Arsenic concentrations greater than 10 µg/L were confirmed in all five wells with arsenic concentrations greater than 10 µg/L. The confirmation sample collected from well 158808 was confirmed to be below 10 µg/L. Water delivery was initiated to all primary residences with arsenic concentrations above 10 µg/L. Water delivery was offered to the two part-time residences (197463 and 254433), but the owners declined water delivery.

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
Haffey, Dan	240664	16.44		English Gulch
Pierce, Colt	266861	10.77	10.03	Powell Vista
Loehr, Jamie & Joann	153591	13.67	13.14*	Powell Vista
McKay, Bob & Lorraine	197463	14.31	10.67	Crackerville
Bailey, Don and Debrah**	254433	16.11	10.20	Crackerville
Whitaker, Ray**	181457	10.49	10.88	Crackerville
Dinsdale, Jeff & Julie***	158808	9.98	9.58	Powell Vista

*Confirmation sample collected in 2013.

**Previously below 5 µg/L.

***Below 10 µg/L.

5.3 Previous Sampling Activities

In addition to the new well and confirmation samples, 30 wells were resampled based on previous samples greater than 5 or 10 µg/L arsenic (table 5.3-1). Fifteen wells with prior concentrations between 5 and 10 µg/L were resampled in 2012 (table 5.3-1), and two of these samples (Bailey–254433; Whitaker–181457) had arsenic concentrations greater than 10 µg/L in 2012. The other 13 sites continued to have arsenic concentrations (total recoverable and/or dissolved) between 5 and 10 µg/L.

Fifteen wells with previous arsenic concentrations greater than 10 µg/L were resampled in 2012. All of these 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). There are seven wells in the Crackerville area with arsenic concentrations greater than 10 µg/L. Most of the Crackerville wells are between 90 and 250 ft deep, with the higher arsenic concentrations often occurring in the deeper wells. A deep (525 ft) replacement well (Fresh) drilled in 2009 had higher arsenic concentrations than

Table 5.3-1. Summary of sites with previous arsenic concentrations greater than 5 µg/L including arsenic concentrations from all years sampled.

Well Owner	GWIC ID	2012 Arsenic (µg/L)	2011 Arsenic (µg/L)	2010 Arsenic (µg/L)	2009 Arsenic (µg/L)	Area
Faught, Stanley	51327	7.59	7.5	6.85	6.26	Crackerville
Swanson, Mark	5330	8.4	7.79	8.28	5.54	Crackerville
Jenrich, Troy & Tracy	252926	9.44	8.74	9.31	6.64	Crackerville
Whitaker, Ray	181457	10.49	9.33			Crackerville
Fresh, Elden & Jean	51333	13.33		11.6	11.8	Crackerville
Maccioli, Joe & Patti	252623	13.41	13.22	14.2	12.3	Crackerville
Keele, Don	221430	15.52	12	7.97	6.74	Crackerville
Scherman, Russ, Rental	51328	15.68	12.52	14.5	7.22	Crackerville
Scherman, Rental New*	263138	9.41/10.12	8.7			Crackerville
Bailey, Don	254433	16.11	8.37	10.10*	2.26	Crackerville
Scherman, Russ	226130	29.7	28.73	30.4	23.9	Crackerville
Scherman, Russ New*	264405	9.57				Crackerville
Lussy, Jerry	244470	13	15.58	13.3	9.38	English Gulch
Connors, Ken	246960	14.14	12.9	6.68		English Gulch
Walter, Richard	51874	40.34	32.38	13.2	5.73	English Gulch
Salle, Ron	258964	8.8**	8.3	8.45	10.6	English Gulch
Shyba, Lori	256874	29.92	30.61	28.3		Fairmont
Galle, Tyke	51790	7.27	4.45	6.49		Lost Creek
Galle, Cliff Jr.	5377	7.53	6.51	5.43		Lost Creek
Galle, Jeff & Angela	230299	7.86	7.15	2.55	6.68	Lost Creek
Rankin, Kieth and Jean	198928	5.81	5.38			Mill Creek
Mitchell, Harold	260549	5.21	5.23			Powell Vista
Blom, Lorin	238047	6.15	5.4	5.43		Powell Vista
Stewart, John & Phyllis	256622	6.25	5.62	6.48		Powell Vista
Flachmeyer, Dan	241972	6.38	8.83			Powell Vista
Stock-Jones, Charlene	153592	7.77	8.04	8.22	7.35	Powell Vista
Arentz, Ivan	155393	11.34**	13.3			Powell Vista
Ruegamer, Anthony	53591	12.06	11.4	13.2		Powell Vista
McQueary, Cam	250294	12.47	10.4			Powell Vista
Gessele, Edwin	259949	13.23	12.4			Powell Vista
Waymire, Edward	156249	13.91	12.3			Powell Vista
Smith, Monty & Julie	256447	20.6	19.2**	19.9	18.6	Powell Vista

*Replacement well not currently in use.

**Dissolved concentration.

the original shallow well (98 ft). There are three domestic wells in the English Gulch area that exceeded 10 µg/L and are currently used by the home owners (table 5.3-1). The deeper wells (>300 ft) in English Gulch also have higher arsenic concentrations than the shallower wells. Shallow wells (<150 ft) in the English Gulch area all have arsenic concentrations less than 10 µg/L. In the Powell Vista area, including Obsidian Lane, six wells had arsenic concentrations that exceeded 10 µg/L. Wells in the Powell Vista area range from about 180 to 400 ft deep; however, there does not appear to be a clear relationship between depth and arsenic concentration in this area. One well (100 ft deep) near Fairmont Hotsprings also exceeds 10 µg/L.

5.4 Reverse Osmosis Units

Five samples were collected from reverse osmosis (RO) units in 2012. All of the arsenic concentrations from the RO units were below 0.35 µg/L (table 5.4-1). All of the RO systems sampled were point-of-use units installed under the kitchen sink. Three of these RO units were installed by the home owner (Faught, Dinsdale, and Capshaw). The other two RO units (Ankelman and Choquette) were installed as part of this project and were the last two units installed in the 2010 expansion area of the ARWWS domestic well sampling area. Similar to the 2011 data, the RO units sampled in 2012 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
Faught, Stanley	51327	7.87	7.59	<0.250 U	Crackerville
Ankelman, Patrick	226131		18.42	0.210 J	Fairmont
Choquette, Walter	263447	15.25		0.240 J	Fairmont
Capshaw, Bill	268170	0.63	1.160 J	<0.250 U	Lost Creek
Dinsdale, Jeffery	158808	9.58	8.62	0.330 J	Powell Vista

5.5 Domestic Well Status and 2013 Sampling Plans

2013 will be the fifth year the MBMG has been collecting samples for the ARWWS Domestic Well Monitoring project (started collecting samples May 2009). The goal for the first 5 years of domestic well sampling has been to sample 20 percent of the previously unsampled wells in the area each year. After the first 5 years all of the domestic wells in the area were to have been sampled. Wells with arsenic concentrations less than 5 µg/L were to be sampled once every 5 years, so the wells sampled in year 1 would be sampled again in year 6. However, this sampling schedule was highly dependent on the estimated number of wells in the area. The estimated number of domestic wells in the sampling area has changed multiple times as a result of changes in the monitoring area and the method used to estimate the number of wells.

The most logical approach for estimating the number of domestic wells seemed to be extracting all the domestic wells in the area from the GWIC database. Based on the GWIC records it was estimated that there approximately 620 domestic wells in the 2009 project area (very similar to the 2012 project area). However, this approach failed primarily because it was discovered that there were many more wells on the ground than there were in the GWIC database, and also because many of the GWIC records were outdated. Starting in 2010 we

began using the Montana Cadastral Database along with aerial photos to identify rural properties with structures, which were classified as potential domestic well sites. The cadastral-based estimates were first completed in 2010 for the expanded 2010 monitoring area and included over 1,300 potential domestic well sites. As a result of the monitoring area reduction in 2011, a new cadastral-based estimate of 763 potential domestic well sites was generated in 2012. Because the estimate is largely based on structures visible on aerial photos, not all of these properties will have a occupied residences or even wells, so this is an over-estimate that will likely be reduced as the properties are visited. Already 29 properties have been removed from the list because there was no well on the property. The current estimated number of sites with potential domestic wells is 734, but owners of 19 properties have declined sampling, leaving 715 potential wells to sample.

Between May 2009 and the end of 2012, a total of 478 new sites had been sampled for the ARWWS Domestic Well Monitoring project. Based on the initial estimate of 620 domestic wells, we would be on track to sample all the domestic wells within the first 5 years. However, 92 of the domestic wells sampled are outside the current monitoring area. There are also 14 wells that are in the Crackerville area, which are outside the current boundary. The Crackerville area has been historically sampled for this project (prior to MBMG involvement) and the MBMG will continue to consider these wells to be part of the active monitoring area until otherwise notified. As of the end of 2012, 372 wells (386 wells including Crackerville) within the current monitoring area have been sampled. This leaves 347 potential domestic well sites remaining to sample, although this number will likely decrease due to properties with no wells, homes (wells) not in use, and owners denying access.

At least one attempt has been made to contact each of the owners within the current monitoring area. These attempts have included phone calls and site visits, but the primary contact method has been to send postcards by mail based on a list of owners generated from the cadastral database. At least two postcards have been sent to most of the unsampled sites. However, many of the addresses in the area were changed in 2011, possibly resulting in undelivered postcards, and there have been ownership changes since the cadastral data were initially downloaded.

In 2013 the cadastral database will be updated and incorporated into an interactive ArcMap data management tool. The data management tool will include all of the cadastral parcels (potential domestic well sites) and the locations of existing GWIC domestic wells overlaid on an aerial photo. The potential domestic well sites in the ArcMap tool will be color-coded to keep track of the properties visited, properties that declined sampling, and target properties not yet visited. Targeted properties will receive site visits to request permission to sample with postcards left on site when residents are not present and/or new postcards by mail. After three attempts to contact the owners, we will assume that access is denied. We will not visit properties clearly marked with “no trespassing” or “beware of dog” signs. We will also allocate more sampling personnel time for the domestic well sampling in 2013. The goal for new domestic wells sampled in 2013 is at least 200 wells.

Also in 2013, the MBMG will conclude the arsenic study examining the sources of arsenic in three areas (Powell Vista, English Gulch, and Crackerville) that appear to have naturally occurring arsenic. We are examining the mineralogy and elemental composition of the sediments and rocks in these areas. Additionally, the water chemistry of samples from other sites suspected to contain anthropomorphically derived As and naturally occurring As are being examined in detail, including the determination of sulfur isotopes, oxygen isotopes, hydrogen isotopes, and arsenic speciation along with the typical water-quality analysis performed by the MBMG. The initial report for the arsenic study is due September 30th, 2013.

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, Jamie Veis, Matt Berzel, Garrett Smith, Mark Wolfram, Zach Bury, Dave Butler, Ken Sandau, Paul Thale, and Peggy Delaney. Report edited by Susan Barth. Errors and omissions remain the responsibility of the authors.

REFERENCES

- AERL, 2000, Anaconda Smelter NPL Site, Anaconda Regional Water, Waste, and Soils Operable Unit, Short-Term Groundwater Monitoring Sampling and Analysis Plan (SAP).
- Atlantic Richfield Company, 1996, Anaconda Regional Water and Waste Operable Unit Final Remedial Investigation Report.
- Atlantic Richfield Company, 2002 (March), Anaconda Smelter NPL Site, Anaconda Regional Water, Waste and Soils Operable Unit, Draft Final Long-Term Groundwater Monitoring and Sampling Program (LTGWMP).
- Atlantic Richfield Company, 2009a (January), Anaconda Smelter NPL Site, Anaconda Regional Water, Waste and Soils Operable Unit, Draft Final 2008 Short-Term Groundwater Monitoring, Low-Water Table Event Data Summary Report (DSR).
- Atlantic Richfield Company, 2009b (March), Anaconda Smelter NPL Site, Anaconda Regional Water, Waste and Soils Operable Unit, Final Short-Term Groundwater Monitoring Sampling and Analysis Plan (SAP), Addendum 1.
- Atlantic Richfield Company, 2010, Anaconda Smelter NPL Site, Anaconda Regional Water, Waste and Soils Operable Unit, Draft 2008 Short-Term Groundwater Data Analysis Report.
- Montana Department of Environmental Quality (DEQ), 2012 (October), Circular DEQ-7, Montana Numeric Water-Quality Standards.
- Duaime, T.E., and Icopini, G.A., 2011, Anaconda Smelter NPL site, Anaconda regional water, waste, and soils operable unit—2009 Groundwater Monitoring Programs—5 year review sampling: Montana Bureau of Mines and Geology Open-File Report 605, 225 p., scale 1:24,000.
- Morris, Patrick F., 1997, Anaconda, Montana, Copper Smelting Boom Town on the Western Frontier: Bethesda, Md., Swann Publishing, 327 p.
- Shovers, B., Fiege, M., Martin, D., and Quivik, F., 1991, Butte and Anaconda Revisited, An Overview of Early-Day Mining and Smelting in Montana: Montana Bureau of Mines and Geology Special Publication 99, 64 p.
- U.S. Environmental Protection Agency, 1984, Region VIII, Helena, MT, Administrative Order on Consent, Anaconda Smelter Site, Remedial Investigation/Feasibility Study, Docket No. CERCLA VIII-84-08.
- U.S. Environmental Protection Agency, 1986, Region VIII, Helena, MT, Administrative Order on Consent, Anaconda Smelter Site, Remedial Investigation/Feasibility Study, Docket No. CERCLA VIII-86-XX.
- U.S. Environmental Protection Agency and Montana Department of Environmental Quality, 1998 (September), Record of Decision, Anaconda Regional Water, Waste, and Soils Operable Unit, Anaconda Smelter Site, Anaconda, Montana.

U.S. Environmental Protection Agency and Montana Department of Environmental Quality,
2011 (September), Record of Decision Amendment, Anaconda Regional Water, Waste, and
Soils Operable Unit, Anaconda Smelter Site, Anaconda, Montana.

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
Jon 5-Yr Samples**

5-Yr Samples			PHYSICAL PARAMETERS											
Site ID	GWIC ID	Sample Type	DATE (MM/DD/YR)	TIME (HRS)	SWL (FT)	FLOW (GPM)	FIELD			REDOX (mv)	LAB pH	SC (UMHOS)	HARDNESS (MG/L)	ALKALINITY (MG/L)
							pH	SC (UMHOS)	TEMP (C)					
NW-6S MW-256	249909	DISSOLVED	09/11/09	14:45	68.83	8.0	7.43	276	9.68	308	7.60	288	134	76
		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
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	19.01	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	7.4	253	140	127
MW-214 DUP	138065	DISSOLVED	04/13/09	14:50	9.74	3.5	6.94	772	6.13	364	7.28	850	498	236
		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	1,082	11.56	274	7.23	1,048	634	220
		DISSOLVED	03/30/10	12:59	10.35	2.5	6.73	1,160	6.35	387	7.92	1,195	676	281
		DISSOLVED	07/16/10	12:28	9.90	2.5	6.68	703	10.91	358	7.77	770	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	10.94	2.0	7.51	940	11.01	356	7.05	870	508	249
		DISSOLVED	03/26/12	14:46	10.72	1.0	6.81	825	7.09	393	7.11	945	418	213
		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	1,002	13.12	387	6.97	917	505	226
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	375	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	5.79	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

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 MW-256	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
		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
		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
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
MW-214 DUP	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
		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
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	16.3	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

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 MW-256	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
		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
		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
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
MW-214 DUP	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
		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		3.80	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	0.49	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
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 U	0.20	<0.100	0.32		21.31	3.27	1.80	<0.040	0.38	598	6.27	0.52

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**

5-Yr Samples				Additional Trace Metals														
Site ID	GWIC ID	Sample Type	DATE (MM/DD/YR)	Cerium	Cesium	Gallium	Lanthanum	Niobium	Neodymium	Palladium	Praseodymium	Rubidium	Thallium	Thorium	Tin	Titanium	Tungsten	
				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)	
NW-65 MW-256	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	
		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	0.29		
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	1.32	<0.100	<0.100	<0.100	<0.100	0.14		
MW-214 DUP	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	
		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	0.91	<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	0.55	<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	
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	

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

5-Yr Samples			PHYSICAL PARAMETERS													
Site ID	GWIC ID	Sample Type	DATE (MM/DD/YR)	TIME (HRS)	SWL (FT)	FLOW (GPM)	FIELD		TEMP (C)	REDOX (mv)	LAB					
							pH	SC (UMHOS)			pH	SC (UMHOS)	HARDNESS (MG/L)	ALKALINITY (MG/L)		
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		
MW-26	249793	DISSOLVED	04/13/09	17:20	9.31	3.5	6.64	1,736	5.46		6.80	1,841	1,301	318		
		DISSOLVED	08/25/09	13:44	9.54	2.7	6.31	1,953	9.89	176	7.34	1,883	1,250	372		
		DISSOLVED	08/25/09	13:49	9.54	2.7	6.31	1,953	9.89	176	7.44	1,944	1,365	372		
		DISSOLVED	04/01/10	14:22	9.21	2.5	6.57	2,000	6.10	197	7.12	1,834	1,171	266		
		DISSOLVED	07/16/10	13:02	9.32	2.5	6.47	1,960	9.96	199	7.22	2,070	1,207	331		
		DISSOLVED	04/06/11	14:51	9.25	2.5	6.74	1,860	5.95	66	6.73	1,668	1,287	309		
		DISSOLVED	07/26/11	13:50	9.31	2.0	5.85	2,074	9.12	231	6.61	1,667	1,272	323		
		DISSOLVED	03/07/12	14:17	9.26	2.0	6.00	1,879	5.86	237	6.55	1,946	1,040	301		
MW-26M	249790	DISSOLVED	08/27/12	13:17	9.54	2.5	6.29	1,957	10.64	182	6.59	1,698	1,111	296		
		DISSOLVED	04/14/09	10:15	12.05	2.0	6.51	1,543	6.98		6.86	1,571	1,099	290		
		DISSOLVED	08/25/09	13:50	14.48	3.0	6.64	1,680	8.06	321	7.14	1,685	1,031	258		
		DISSOLVED	04/01/10	13:41	13.65	2.5	6.60	1,830	7.95	381	7.90	1,817	1,031	278		
		DISSOLVED	07/16/10	13:47	13.81	2.5	6.65	1,790	9.34	283	7.07	1,818	1,014	282		
		DISSOLVED	04/06/11	15:47	13.07	2.5	6.74	1,760	7.62	290	6.80	1,626	1,080	300		
		DISSOLVED	07/26/11	15:21	14.12	2.0	6.37	1,966	8.60	305	6.64	1,590	1,886	307		
		DISSOLVED	03/07/12	15:55	13.52	2.0	6.32	1,817	7.07	371	6.67	1,888	975	289		
MW-31	249794	DISSOLVED	08/27/12	14:20	14.21	2.0	6.41	1,792	8.72	329	6.65	1,578	1,013	274		
		DISSOLVED	04/20/09	15:30	6.81	3.5	7.21	1,305	9.86	379	7.73	1,419	944	152		
		DISSOLVED	08/24/09	14:23	7.07	3.0	6.79	1,710	16.17	226	7.39	1,724	1,084	112		
		DISSOLVED	04/20/10	11:36	7.34	2.5	6.71	1,140	5.15	227	7.79	1,112	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		
MW-31M	249785	DISSOLVED	08/21/12	12:34	7.56	2.0	2.07	1,030	16.19	194	7.35	977	523	98		
		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	13:49	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		

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-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
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	429.0	43.4	10.1	6.96	2.720	15.300	21.5	454	0.0	6.5	1,011	<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
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
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
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

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-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		8.27	1.99	1.73	<0.040	1.70	302	1.82	2.22
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	1.9	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
MW-26M	249790	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	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
MW-31	249794	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	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	2.43	<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
MW-31M	249785	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	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	<0.100	0.26	1.61		18.19	3.15	1.05	<0.040	0.20	457	19.78	1.79

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**

Jon 5-Yr Samples			Additional Trace Metals														
Site ID	GWIC ID	Sample Type	DATE	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-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	0.99	<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
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		
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
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
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	<0.100	0.22	<0.100	1.11	<0.100	<0.100	<0.100	1.75

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

5-Yr Samples			PHYSICAL PARAMETERS													
Site ID	GWIC ID	Sample Type	DATE (MM/DD/YR)	TIME (HRS)	SWL (FT)	FIELD				TEMP (C)	REDOX (mv)	LAB				
						FLOW (GPM)	pH	SC (UMHOS)	SC (UMHOS)			HARDNESS (MG/L)	ALKALINITY (MG/L)			
MW-82	249840	DISSOLVED	04/20/09	13:00	42.38	1.5	6.33	1,610	12.41	210	6.68	1,670	1,151	263		
		DISSOLVED	04/15/10	12:23	41.17	2.5	6.42	1,780	10.30	218	6.56	1,796	1,086	268		
		DISSOLVED	07/21/10	9:46	41.39	2.5	6.31	1,750	9.59	227	7.65	1,819	1,160	254		
		DISSOLVED	04/07/11	14:56	41.13	2.0	6.87	1,660	8.96	243	6.77	1,544	1,089	235		
		DISSOLVED	07/28/11	15:03	41.69	2.0	5.04	1,778	10.32	263	6.69	1,430	969	247		
		DISSOLVED	03/22/12	14:11	41.31	1.5	6.38	1,755	10.14	279	6.70	1,866	957	235		
DISSOLVED	08/23/12	15:20	41.54	1.5	6.49	1,808	10.25	226	6.87	1,638	1,013	230				
MW-82M	249896	DISSOLVED	09/27/11	15:43	35.88	2.0	5.98	2,461	10.69	339	7.12	2,500	1,470	276		
		DISSOLVED	03/22/12	13:09	35.40	2.0	6.76	2,450	9.73	338	7.16	2,547	1,529	254		
		DISSOLVED	08/23/12	14:24	36.02	1.5	6.75	2,539	9.20	267	7.27	2,219	1,644	253		
MW-85	249843	DISSOLVED	04/20/09	12:10	38.21	8.0	6.69	1,626	9.37	195	6.58	1,632	1,067	206		
		DISSOLVED	04/06/10	15:20	38.18	2.5	6.57	1,730	8.38	150	6.65	1,696	1,020	213		
		DISSOLVED	07/21/10	10:22	38.31	2.5	6.40	1,690	9.62	160	7.94	1,625	1,020	199		
		DISSOLVED	04/13/11	12:49	38.08	2.0	7.00	1,620	8.97	170	6.78	1,524	979	209		
		DISSOLVED	07/28/11	13:40	38.20	2.0	5.76	1,731	10.22	187	6.69	1,398	380	227		
		DISSOLVED	03/27/12	14:50	37.88	2.0	6.16	1,706	9.03	272	6.69	1,650	897	211		
		DISSOLVED	08/16/12	16:16	37.91	2.0	6.57	1,722	10.99	168	6.71	1,569	933	211		
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	7.4	761	404	196		
MW-90	249844	DISSOLVED	04/23/09	11:05	55.01	3.5	6.86	1,046	9.05	169	6.95	1,058	617	221		
		DISSOLVED	08/24/09	16:10	53.62	3.0	6.84	1,148	9.90	144	7.71	1,148	620	217		
		DISSOLVED	04/06/10	14:09	55.05	2.5	6.56	1,160	9.13	136	7.22	1,065	595	218		
		DISSOLVED	07/21/10	11:11	54.70	2.5	6.60	1,135	11.37	131	0.00	1,132	600	226		
		DISSOLVED	04/13/11	13:30	55.34	2.0	7.11	1,086	9.71	146	6.90	947	544	218		
		DISSOLVED	07/27/11	15:50	54.39	2.0	5.47	1,137	11.33	169	6.83	946	564	233		
		DISSOLVED	03/28/12	14:30	53.22	2.0	6.45	1,129	9.78	281	6.75	1,120	558	217		
		DISSOLVED	08/15/12	14:57	53.92	1.5	6.72	1,262	11.31	163	6.8	1,173	641	214		
MW-90M	249899	DISSOLVED	09/27/11	12:52	55.06	2.0	5.46	1,229	11.70	376	6.43	1,262	570	183		
		DISSOLVED	03/22/12	17:01	55.37	2.0	6.39	1,198	10.19	376	6.53	1,325	628	171		
		DISSOLVED	08/15/12	16:08	56.07	2.0	6.44	1,218	11.27	360	6.54	1,150	612	173		

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-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
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	1,333	<0.01	0.50
		DISSOLVED	03/22/12	445.4	101.2	19.5	4.53	0.228	0.074	22.6	310	0.0	6.4	1,318	<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	1,354	<0.010	0.47
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	9.330	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
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
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	2.770	17.5	266	0.0	7.4	409	<0.05	4.52
		DISSOLVED	07/27/11	191.7	20.7	14.4	7.18	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
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

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	Al	Ag	As	B	Ba	Be	Cd	Co	Cr	Cu	Hg	Li	Mo	Ni	Pb	Se	Sr	U	Zn
			(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)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
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
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	1,269	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	1,227	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	1,317	62.05	<0.100
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	53.5
		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	32.9
		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	32.6
		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	38.0
		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	41.8
		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	42.9
		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	44.1
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
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	11.9
		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	10.6
		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	11.6
		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	8.2
		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	8.6
		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	11.2
		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	10.1
		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	13.2
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

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**

Jon 5-Yr Samples				Additional Trace Metals													
Site ID	GWIC ID	Sample Type	DATE (MM/DD/YR)	Cerium	Cesium	Gallium	Lanthanum	Niobium	Neodymium	Palladium	Praseodymium	Rubidium	Thallium	Thorium	Tin	Titanium	Tungsten
				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)
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	0.96	<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	<0.250	0.66	<0.250	<0.250	<0.250	4.22	<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
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	<0.250	0.78	<0.250	<0.250	<0.250	7.81	<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
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	<0.250	1.08	<0.250	<0.250	<0.250	4.68	<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

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

n 5-Yr Samples			PHYSICAL PARAMETERS													
Site ID	GWIC ID	Sample Type	DATE (MM/DD/YR)	TIME (HRS)	SWL (FT)	FIELD				TEMP (C)	REDOX (mv)	LAB				
						FLOW (GPM)	pH	SC (UMHOS)	SC (UMHOS)			HARDNESS (MG/L)	ALKALINITY (MG/L)			
NW-5S- MW-273	249942	DISSOLVED	10/25/11	15:28	9.13	0.5	7.62	311	15.14	344	6.68	363	132	80		
		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		
NW-1S-OP MW-266	249901	DISSOLVED	09/28/11	13:26	4.69	1.0	6.33	2,058	14.47	334	6.62	2,130	1,141	304		
		DISSOLVED	03/09/12	12:45	3.25	0.5	6.42	1,787	6.18	366	6.55	1,732	991	283		
		DISSOLVED	08/23/12	11:45	5.10	0.5	6.5	1,858	14.12	298	6.8	1,689	1,058	279		
NW-1D-OP MW-265	249900	DISSOLVED	No sample													
		DISSOLVED	03/05/12	14:24	NR	0.6	7.01	1,276	7.96	454	7.26	1,280	703	218		
		DISSOLVED	08/23/12	12:30		0.6	7.45	1,325	9.79	424	7.48	1,244	752	217		
NW-2S-OP MW-268	249904	DISSOLVED	09/28/11	16:11	8.02	1.0	5.31	2,182	16.75	603	7.12	2,250	1,221	116		
		DISSOLVED	03/09/12	13:59	7.34	0.5	7.09	1,999	3.70	448	7.14	1,946	1,135	207		
		DISSOLVED	08/22/12	16:28	8.18	0.5	7.18	2,412	19.55	505	7.22	2,079	1,425	104		
NW-2D-OP MW-267	249903	DISSOLVED	09/28/11	15:05	15.22	1.5	4.99	944	10.04	549	7.32	976	461	231		
		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	1,000	9.23	370	7.43	945	519	211		
NW-3S-OP MW-270	249906	DISSOLVED	09/29/11	14:24	7.23	1.0	5.52	2,334	10.52	576	6.92	2,430	1,499	221		
		DISSOLVED	03/09/12	16:02	6.75	1.0	6.73	2,104	8.67	442	6.89	2,177	1,309	194		
		DISSOLVED	08/22/12	14:42	7.70	0.5	6.83	2,336	12.69	490	7.04	2,048	1,385	184		
NW-3D-OP MW-269	249905	DISSOLVED	09/29/11	13:31	13.19	1.5	6.92	950	10.10	401	7.38	936	477	191		
		DISSOLVED	03/12/12	14:46	12.94	1.5	6.87	989	8.36	413	7.21	1,059	463	175		
		DISSOLVED	08/22/12	15:31	13.76	1.5	7.21	1,054	9.92	462	7.4	1,008	515	173		
NW-4S-OP MW-272	249908	DISSOLVED	09/29/11	2:36	5.58	1.0	4.38	2,252	14.12	610	6.98	2,110	1,337	172		
		DISSOLVED	03/12/12	15:32	4.72	1.0	6.82	1,758	5.59	435	7.12	1,706	969	144		
		DISSOLVED	08/22/12	13:06	5.71	1.0	6.82	1,888	14.43	412	7.12	1,696	1,055	135		
NW-4D-OP MW-271	249907	DISSOLVED	09/29/11	15:45	12.88	1.5	4.29	728	11.34	560	7.46	751	348	217		
		DISSOLVED	03/12/12	16:31	12.80	1.5	7.06	1,300	9.02	341	7.31	1,300	645	166		
		DISSOLVED	08/22/12	12:10	13.28	1.5	6.99	1,334	10.14	270	7.33	1,259	682	166		

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- MW-273	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
		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
NW-1S-OP MW-266	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
		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	357.9	39.9	13.4	9.20	0.359	12.130	25.1	340	0.0	5.8	788	<0.010	1.51
NW-1D-OP MW-265	249900	DISSOLVED	No sample													
		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
NW-2S-OP MW-268	249904	DISSOLVED	09/28/11	376.8	68.1	17.0	12.79	0.011	0.004	15.8	141	0.0	7.7	1,239	0.11	3.48
		DISSOLVED	03/09/12	353.7	61.2	16.6	7.23	<0.013	0.007	14.3	252	0.0	6.2	1,008	<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	1,366	<0.010	3.45
NW-2D-OP MW-267	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
		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
NW-3S-OP MW-270	249906	DISSOLVED	09/29/11	432.1	102.0	18.5	9.51	3.932	0.373	46.0	269	0.0	7.3	1,316	0.20	0.34
		DISSOLVED	03/09/12	372.9	91.9	18.5	8.01	0.017	0.010	25.1	236	0.0	6.8	1,157	<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	1,243	<0.010	0.29
NW-3D-OP MW-269	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
		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
NW-4S-OP MW-272	249908	DISSOLVED	09/29/11	392.9	86.4	19.6	8.50	0.114	0.012	28.2	210	0.0	9.3	1,210	0.14	0.55
		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
NW-4D-OP MW-271	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
		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

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- MW-273	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
		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
NW-1S-OP MW-266	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
		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
NW-1D-OP MW-265	249900	DISSOLVED	No sample																			
		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	52.3
		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	2,292
NW-2S-OP MW-268	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
		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
NW-2D-OP MW-267	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
		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
NW-3S-OP MW-270	249906	DISSOLVED	09/29/11	5,048	<0.25	2.22	17.64	81.1	0.4	<0.25	2.99	2.95	35.97		19.44	1.89	3.80	6.51	0.60	1,238	26.26	21.58
		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	1,162	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	1,136	13.34	0.52
NW-3D-OP MW-269	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
		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
NW-4S-OP MW-272	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	1,447	11.46	2.84
		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		1,048	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	1,148	7.61	0.59
NW-4D-OP MW-271	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
		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	1,019	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	1,020	24.07	<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**

Ion 5-Yr Samples				Additional Trace Metals														
Site ID	GWIC ID	Sample Type	DATE	Ce (µg/L)	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-5S MW-273	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	
		DISSOLVED	03/26/12	<0.100	<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	<0.100	0.20	<0.100	<0.100	<0.100	1.11	<0.100
NW-1S-OP MW-266	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	
		DISSOLVED	03/09/12	0.51	<0.250	<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	<0.250	0.47	<0.250	<0.250	<0.250	3.95	<0.250
NW-1D-OP MW-265	249900	DISSOLVED	No sample															
		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	<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	<0.250	0.58	<0.250	<0.250	<0.250	<0.250	2.43
NW-2S-OP MW-268	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	
		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	<0.250	13.93	<0.250
		DISSOLVED	08/22/12	<0.250	<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
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	<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	<0.250	0.67	<0.250	<0.250	<0.250	4.11	2.43
NW-3S-OP MW-270	249906	DISSOLVED	09/29/11	22.15	1.25	1.66	14.12	<0.25	9.34	<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	<0.250	17.20	0.48
		DISSOLVED	08/22/12	<0.250	<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
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	<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	<0.250	4.73	0.86
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	<0.250	12.46	0.36
		DISSOLVED	08/22/12	<0.250	<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
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	<0.250	7.64	1.81
		DISSOLVED	08/22/12	<0.250	<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

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**

Site ID	GWIC ID	Sample Type	DATE (MM/DD/YR)	TIME (HRS)	SWL (FT)	FLOW (GPM)	PHYSICAL PARAMETERS				LAB pH	SC (UMHOS)	HARDNESS (MG/L)	ALKALINITY (MG/L)
							FIELD		TEMP (C)	REDOX (mv)				
							pH	SC (UMHOS)						
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 ₃ (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	1,411
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	9.93	<0.10	0.09	115.00		7.88	3.02	1.03	<0.15	1.94	208	<0.02	1,606
		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	1,532
		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	1,692
		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	1,782
		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	1,685
		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	1,142
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**

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)	
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	2.03	<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	

**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)	TIME (HRS)	SWL (FT)	PHYSICAL PARAMETERS					LAB			
						FLOW (GPM)	FIELD pH	SC (UMHOS)	TEMP (C)	REDOX (mv)	LAB 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	7.5	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
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 ₃ (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
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	0.103	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
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	1,168
		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	12,780
		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	3,873
		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	3,212
		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	3,391
		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	2,029
		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	1,948
		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	1,351

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)	Additional Trace Metals														
				Cerium	Cesium	Gallium	Lanthanum	Niobium	Neodymium	Palladium	Praseodymium	Rubidium	Thallium	Thorium	Tin	Titanium	Tungsten	
				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)	
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	
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**

Site ID	GWIC ID	Sample Type	DATE (MM/DD/YR)	TIME (HRS)	PHYSICAL PARAMETERS							LAB			
					SWL (FT)	FLOW (GPM)	FIELD		SC (UMHOS)	TEMP (C)	REDOX (mv)	pH	SC (UMHOS)	HARDNESS (MG/L)	ALKALINITY (MG/L)
							pH								
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	

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 ₃ (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	0.192	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	<0.00	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	<0.000	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	<0.00	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	<0.02	14.0	198	0.0	2.5	66	0.36	0.82

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	1,004
		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	1,949
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	1,974
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	81.8
		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	10.5
		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	10.5
		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	23.2
		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	20.2
		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	40.3
		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

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)	Additional Trace Metals														
				Cerium	Cesium	Gallium	Lanthanum	Niobium	Neodymium	Palladium	Praseodymium	Rubidium	Thallium	Thorium	Tin	Titanium	Tungsten	
				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)	
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	

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)	TIME (HRS)	SWL (FT)	FLOW (GPM)	PHYSICAL PARAMETERS				LAB		SC (UMHOS)	HARDNESS (MG/L)	ALKALINITY (MG/L)	
							FIELD				TEMP (C)	REDOX (mv)				pH
							pH	SC (UMHOS)								
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		
	Dup	DISSOLVED	03/18/10	13:34	60.89	1.0	6.51	400	8.74	407	7.74	425	185	166		
		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		
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	256	133	116		

**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 ₃ (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
	Dup	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
		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	
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	0.260	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

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	98.2	
		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	45.1	
		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	41.1	
		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	
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	0.10	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	

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)	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)	
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	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		
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		

**Appendix C. Anaconda Regional Water, Waste, and Soil 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**

Site ID	GWIC ID	Sample Type	PHYSICAL PARAMETERS											SC (UMHOS)	HARDNESS (MG/L)	ALKALINITY (MG/L)
			DATE (MM/DD/YR)	TIME (HRS)	SWL (FT)	FLOW (GPM)	FIELD		SC (UMHOS)	TEMP (C)	REDOX (mv)	LAB pH				
							pH									
LTW-1D MW-263	249936	DISSOLVED	09/11/09	18:05	12.34	3.0	6.96	180	8.80	301	6.91	190	78	80		
		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				
LTW-1S MW-264	249937	DISSOLVED	09/11/09	17:25	12.40	3.0	7.23	170	10.19	288	6.73	195	73	62		
		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				
LTW-3D MW-261	249938	DISSOLVED	09/15/09	14:38	5.58	8.0	6.80	245	8.86	382	6.89	275	124	112		
		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				

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-1D MW-263	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
		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
LTW-1S MW-264	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
		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
LTW-3D MW-261	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
		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

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 MW-263	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
		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 U	<0.100 U	<0.100 U	<0.100 U	<0.100 U		3.24	0.75	0.29	<0.040	0.35	107	1.50	<0.200
LTW-1S MW-264	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
		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
LTW-3D MW-261	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
		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

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)	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)	
LTW-1D MW-263	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	
		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	
LTW-1S MW-264	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	
		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	
LTW-3D MW-261	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	
		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	

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)	TIME (HRS)	PHYSICAL PARAMETERS		FIELD pH	SC (UMHOS)	TEMP (C)	REDOX (mv)	LAB pH	SC (UMHOS)	HARDNESS (MG/L)	ALKALINITY (MG/L)
					SWL (FT)	FLOW (GPM)								
LTW-3S MW-262	249939	DISSOLVED	09/15/09	14:40	6.35	8.0	6.54	265	9.37	368	6.76	270	125	111
		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
LTW-4D MW-260	249940	DISSOLVED	09/11/09	16:20	15.64	8.0	7.25	120	9.45	303	6.95	135	50	56
		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
LTW-4S MW-259	249941	DISSOLVED	09/11/09	15:40	15.17	3.0	7.29	125	11.74	300	6.88	150	56	62
		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	
LTW-4SR MW-274	264393	DISSOLVED	08/23/12	10:00	21.41	3.4	6.18	160	9.33	349	6.77	135	70	66

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-3S MW-262	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
		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
LTW-4D MW-260	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
		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
LTW-4S MW-259	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
		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							
LTW-4SR MW-274	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

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-3S MW-262	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
		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
LTW-4D MW-260	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
		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	1.090	1		7.46	1.88	0.59	<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
LTW-4S MW-259	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
		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	52.80
		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
LTW-4SR MW-274	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

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)	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)	
LTW-3S MW-262	249939	DISSOLVED	09/15/09	<0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10	0.17	<0.10	<0.10	<0.10	<0.30	<0.10
		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			
LTW-4D MW-260	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	
		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	0.26	<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	<0.100	0.28	<0.100	<0.100	<0.100	<0.100	<0.100		
LTW-4S MW-259	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	
		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	
LTW-4SR MW-274	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	

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)	TIME (HRS)	PHYSICAL PARAMETERS		FIELD pH	SC (UMHOS)	TEMP (C)	REDOX (mv)	LAB pH	SC (UMHOS)	HARDNESS (MG/L)	ALKALINITY (MG/L)
					SWL (FT)	FLOW (GPM)								
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

**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)
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

**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)
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

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)	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)
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

NA-not applicable
NR-not reported

Appendix D. Anaconda Regional Water, Waste, and Soil 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
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
	08/03/11				4.52	891	12.7		7.46	854	382	114
	08/09/12				6.91	896	13.8		7.25	834	360	104
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

**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													
	07/15/10	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
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
	08/03/11	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	6.39	0.67
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

**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	<0.1			<1.6					<0.1				<9.6
	07/28/05			6.20			<0.1	<0.1			<1.6					<0.1				<6.6
	08/04/06			6.70			<0.03	2.16			2.16					0.20				3.65
	07/31/07			7.19			0.14	1.21			1.21					<0.045				<15.4
	08/20/08			7.90			0.06	1.90			1.90									
	07/31/09			8.50			0.06	3.00			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	1,914.00	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	1,890.14	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	1,955.90	1.160 J	1.850 J
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	<0.1			<1.6					<0.10				<9.6
	07/28/05			2.80			0.12	2.00			2.00					<0.10				<6.6
	08/04/06			2.92			<0.03	1.36			1.36					<0.123				0.33
	07/31/07			3.25			0.16	1.12			1.12					<0.045				<15.4
	08/20/08			3.30				1.40			1.40									
	07/31/09			1.50				2.30			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	1,373.00	1.71	2.75
	08/03/11	<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	1,358.96	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	1,333.26	1.38	11.16
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	<0.10			<1.6					<0.10				<9.6
	07/28/05			1,260			<0.10	2.70			2.70					<0.10				<6.6
	09/29/05			137			<0.10	3.60			3.60					<0.10				<6.6
	08/04/06			57.2			<0.03	1.86			1.86					0.15				3.73
	07/31/07			730			0.12	1.26			1.26					<0.045				<15.4
	08/20/08			140				1.60			1.60									
	07/31/09			3.80				2.10			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	1,355.00	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	1,459.87	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	1,304.24	1.27	3.96

**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-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	33.50	<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
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
	08/03/11	<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	2.68	<0,100 U	0.420 J
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

**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
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	388	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

**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
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	135.2	11.7	30.1	2.16	0.030 J	0.002 J	19.3	101	0.0	123.50	170	6.46	0.40

**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			<0.06	<0.03												<0.59
	08/06/03			1.50			<0.05	<0.08									<0.66			
	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	1,378.00	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	1,382.37	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	1,439.15	1.140 J	<0.500 U
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			5.60			<0.06	<0.03												<0.59
	08/06/03			1.60			<0.05	<0.08									<0.66			
	08/10/04			3.60				<0.10			<1.6						<0.10			<9.6
	07/28/05			16.40				<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	0.29	1.26		9.99	2.10	6.85	<0.2	4.27	857.00	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	823.07	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	907.31	0.90	7.46

**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
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	4.28	<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	1.90	<0.100 U	0.180 J

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

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

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)
200125	238047	BLOM LORIN	5/24/2011 11:50	BLOM- RESAMPLE	12.0	7.16	326			40.56	6.09
200124	238047	BLOM LORIN	5/24/2011 11:50	BLOM- RESAMPLE	12.0	7.16	326	7.68	342	42.27	6.37
2011Q0980	219266	BAKER, LINDA	2/11/2011 14:36	BAKER-219266	13.6	7.23	287			21.00	4.02
200924	246960	CONNORS KEN	10/12/2011	CONNORS CONFIRM.	13.2	7.01	636			60.23	16.49
200018	259577	JETTE, JOE	4/27/2011 13:18	JETTE - 259777	5.8	7.66	348			58.23	7.44
200925	246960	CONNORS KEN	10/12/2011 13:30	CONNORS CONFIRM.	13.2	7.01	636	7.51	648	65.07	16.37
2011Q1127	250294	MCQUEARY CAM	4/21/2011 13:56	MCQUEARY-250294	11.5	8.07	405			37.50	5.14
200019	259577	JETTE, JOE	4/27/2011 13:18	JETTE - 259777	5.8	7.66	348	7.30	405	59.21	7.91
2011Q0978	158784	BOITNOTT, STEVE	2/11/2011 13:37	BOITNOTT-158784	17.3	7.18	311			20.70	5.28
2011Q0979	219266	BAKER, LINDA	2/11/2011 14:36	BAKER-219266	13.6	7.23	287	7.20	302	21.00	4.09
2011Q1130	250294	MCQUEARY CAM	4/21/2011 13:56	MCQUEARY-250294	11.5	8.07	405	7.85	382	42.70	5.56
200016	259580	JONES, BRENT	4/25/2011 13:42	JONES - 259580	8.4	7.78	546			67.51	28.12
200017	259580	JONES, BRENT	4/25/2011 13:42	JONES - 259580	8.4	7.78	546	7.42	553	67.53	29.35
2011Q1125	156249	WAYMIRE, EDWARD	4/21/2011 12:45	WAYMIRE-156249	13.5	8.14	278			29.10	3.32
2011Q1126	259949	GESSELE, EDWIN C JR	4/21/2011 13:20	GESSELE-259949	11.6	8.27	258			26.70	2.90
2011Q0974	122351	CHOQUETTE, WALTER	2/7/2011 14:57	CHOQUETTE-122351	10.9	6.91	445			38.90	12.90
2011Q0977	158784	BOITNOTT, STEVE	2/11/2011 13:37	BOITNOTT-158784	17.3	7.18	311	7.26	335	21.50	5.64
2011Q1129	259949	GESSELE, EDWIN C JR	4/21/2011 13:20	GESSELE-259949	11.6	8.27	258	7.91	304	29.60	3.05
2011Q1128	156249	WAYMIRE, EDWARD	4/21/2011 12:45	WAYMIRE-156249	13.5	8.14	278	7.86	277	27.20	2.87
2011Q0973	122351	CHOQUETTE, WALTER	2/7/2011 14:57	CHOQUETTE-122351	10.9	6.91	445	7.48	463	35.30	11.90
201170	173106	WOLFE, FRANK	12/27/2011 11:48	WOLFE-173106	9.4	6.77	192			22.40	6.07
201132	152577	KINNEY, GREGG	12/20/2011 16:00	KINNEY	9.8	7.31	394			42.26	10.25
201173	52670	WHITE RUSSELL & PAT	12/27/2011 12:39	WHITE-52670-DUP	8.8	7.63	195			23.60	6.44
201137	263916	PAMENTER, RUTH	12/9/2011 11:59	PAMENTER-263916						27.84	7.78
200262	251739	TOWN PUMP ANACONDA	6/28/2011 14:50	251739	12.5	9.42	383	9.28	369	2.73	0.27
200263	254941	KITTLESON JANET	6/28/2011 15:26	254941	9.9	7.57	493	7.39	470	68.68	14.60
200264	254941	KITTLESON JANET	6/28/2011 15:26	254941	9.9	7.57	493			68.32	15.24
200261	251739	TOWN PUMP ANACONDA	6/28/2011 14:50	251739	12.5	9.42	383			2.80	0.34
2011Q0929	257616	DEMERS SHAWN	1/28/2011 14:36	DEMERS-257616	10.0	7.23	826			105.00	24.40
2011Q0921	144735	MEHRENS, JOE	1/5/2011 13:10	MURNS-91567	5.0	7.40	305			<0.038	<0.105
2011Q0923	209945	CHLADEK DAN	1/6/2011 13:56	CHLADEK-209945	8.8	7.27	635			50.00	4.58
2011Q0999	259954	PUNOHU, LAVONE	2/28/2011 13:49	PUNOHU-259954	7.0	7.10	276			40.20	10.20
2011Q1124	53538	WOOLSEY, JOHN	3/25/2011 13:29	WOOLSEY-53538	6.4	6.89	291			34.00	7.55
2011Q1121	219268	BYRNE, PAT	3/23/2011 12:16	BYRNE-219268	7.3	7.05	278			39.70	10.20
2011Q0997	189213	DODD DARYL	2/28/2011 12:51	DODD-189213	6.7	6.94	246			36.40	8.84
2011Q0925	213082	MAGNESS MARY ALICE	1/24/2011 12:52	MAGNESS-213082	7.9	6.88	237			32.60	8.97
200677	51365	MARTELLI, ISABELLE	8/31/2011 15:30	MARTELLI-51365	7.3	5.93	98			9.90	2.02
200667	183288	WOOD KENNETH	8/26/2011 11:50	KENNETH WOOD	12.2	6.95	452			56.21	16.87
200106	261318	WOOLSEY, JOHN	3/25/2011 14:02	WOOLSEY-261318	9.1	7.03	280			33.53	7.94
200434	52041	SENN, HANK	8/3/2011 12:02	52041-SENN2	8.5	6.84	213			31.87	7.04
2011Q0936	259996	JACOBSON, EDNA	1/26/2011 13:02	JACOBSON-259996	9.2	7.07	590			70.90	14.60
201136	263931	KLEESE, CLAIRE & MENCEL, MARK	12/20/2011 14:56	KLEESE-263931	7.2	7.18	260			33.57	8.71
200557	229026	SEVEYKA, PAUL	8/9/2011 13:10	SEVEYKA	9.1	7.07	585			38.48	12.29
200815	216789	CROMWELL, ANDREW	9/22/2011 12:10	CROMWELL, MEGHAN + ANDREW	7.5	6.21	282			31.09	9.38
200105	261316	SESTRICH, PEG	3/25/2011 12:14	SESTRICH-261316	5.5	6.72	302			41.73	9.92
2011Q0926	185843	JOHNS LORI	1/26/2011 13:40	JOHNS-185843	10.7	7.44	517			56.60	8.89
201140	51206	PATTERSON, GERALD AND PEG	11/30/2011 14:10	PATTERSON-51206	7.1	7.93	351			46.57	11.06
200743	262855	WALTER, RICHARD	9/12/2011 12:10	WALTER #2	10.0	7.05	603			63.26	13.82
2011Q0993	179119	KING, DALE	2/18/2011 14:39	KING-179119	12.8	6.80	196			<0.065	<0.049
200987	263246	HANSEN, RONALD * HANSEN SPRING	10/12/2011 14:40	HANSEN - 263246	8.7	6.61	607			77.39	16.50
200700	201943	POLAND, DEBBIE	8/29/2011 12:43	POLAND - 201943	7.4	6.87	550			83.20	14.51
200301	262072	BROWN, DEAN	7/7/2011 12:00	DEAN BROWN	7.3	5.66	36			3.46	0.700
2011Q1122	178972	MAHKUK CHRISTINE	3/23/2011 13:40	MAHKUK-178972	6.4	7.22	488			59.40	28.20
200433	52147	GARRITY BROS. #1	8/3/2011	52147-SENN	8.6	7.48	319			47.14	10.65
200985	5412	RILEY WESLEY & LEONA	10/5/2011 12:46	RILEY - 5412	8.0	6.93	493			32.13	18.67
200854	198927	RANKIN, KEITH AND JEAN	9/14/2011 13:31	RANKIN - 198927	5.2	5.20	69			6.13	1.02

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	Na (mg/l)	K (mg/l)	Fe (mg/l)	Mn (mg/l)	SiO2 (mg/l)	HCO3 (mg/l)	CO3 (mg/l)
BLOM LORIN	5/24/2011 11:50 BLOM-RESAMPLE		11.55	8.81	0.351	0.005	49.1		
BLOM LORIN	5/24/2011 11:50 BLOM-RESAMPLE		12.31	9.08	<2.00 U	0.002	54.7	159.0	0.0
BAKER, LINDA	7/11/2011 14:36 BAKER-219266		28.20	3.61	0.073	<0.003	58.6		
CONNORS KEN	10/12/2011 CONNORS CONFIRM.		51.11	2.88	0.289	0.015			
JETTE, JOE	4/27/2011 13:18 JETTE-259777		9.55	1.48	0.039	0.2800 U	13.5		
CONNORS KEN	10/12/2011 13:30 CONNORS CONFIRM.		50.57	3.12	0.233	0.014	8.1	303.4	0.0
MCQUEARY CAM	4/21/2011 13:56 MCQUEARY-250294		35.00	10.40	0.198	0.007			
JETTE, JOE	4/27/2011 13:18 JETTE-259777		10.42	1.23	<0.002 U	<0.001 U	14.0	212.1	0.0
BOITNOTT, STEVE	2/11/2011 13:37 BOITNOTT-158784		31.10	5.12	0.059	<0.003	69.1		
BAKER, LINDA	2/11/2011 14:36 BAKER-219266		28.60	3.61	<0.002	<0.001	56.3	111.6	0.0
MCQUEARY CAM	4/21/2011 13:56 MCQUEARY-250294		38.30	11.10	0.021	0.003	59.2	155.4	0.0
JONES, BRENT	4/25/2011 13:42 JONES-259580		16.79	1.16	0.044	0.000			
JONES, BRENT	4/25/2011 13:42 JONES-259580		17.99	1.07	<0.002 U	<0.001 U	45.1	289.6	0.0
WAYMIRE, EDWARD	4/21/2011 12:45 WAYMIRE-156249		22.40	9.50	0.090	<0.003			
GESSELE, EDWIN C JR	4/21/2011 13:20 GESSELE-259949		23.30	8.90	0.067	<0.003			
CHOQUETTE, WALTER	2/7/2011 14:57 CHOQUETTE-122351		26.20	6.49	0.050	<0.003	49.1		
BOITNOTT, STEVE	2/11/2011 13:37 BOITNOTT-158784		32.40	5.28	<0.002	<0.001	68.1	120.2	0.0
GESSELE, EDWIN C JR	4/21/2011 13:20 GESSELE-259949		24.60	9.21	<0.002	<0.001	53.7	133.7	0.0
WAYMIRE, EDWARD	4/21/2011 12:45 WAYMIRE-156249		19.30	8.17	<0.002	<0.001	47.7	144.1	0.0
CHOQUETTE, WALTER	2/7/2011 14:57 CHOQUETTE-122351		25.00	5.76	<0.002	<0.001	50.8	118.5	0.0
WOLFE, FRANK	12/27/2011 11:48 WOLFE-173106		5.77	0.97	0.037	<0.003 U			
KINNEY, GREGG	12/20/2011 16:00 KINNEY		26.82	0.230 U	0.043	<0.003 U			
WHITE RUSSELL & PAI	12/27/2011 12:39 WHITE-52670-DUP		5.60	0.99	0.035	<0.003 U			
PAMENTER, RUTH	12/9/2011 11:59 PAMENTER-263916		5.63	0.95	0.051	<0.003 U			
TOWN PUMP ANACONDA	6/28/2011 14:50 251739		81.01	0.13	<0.004 U	<0.002 U	10.5	135.8	24.2
KIT TLESON JANET	6/28/2011 15:26 254941		6.32	1.85	<0.004 U	<0.002 U	11.5	203.0	0.0
KIT TLESON JANET	6/28/2011 15:26 254941		6.84	2.070 U	0.048	<0.010 U			
TOWN PUMP ANACONDA	6/28/2011 14:50 251739		93.92	0.18	0.041	<0.004 U			
DEMERS SHAWN	1/7/2011 14:36 DEMERS-257616		43.10	2.33	0.345	<0.003			
MURFINS, JOE	1/5/2011 13:10 MURFINS-91567		64.30	0.06	0.055	<0.003			
CHLADEK DAN	1/6/2011 13:56 CHLADEK-209945		80.50	1.30	0.108	<0.003			
PUNCHU, LAVONE	7/28/2011 13:49 PUNCHU-259954		1.88	1.22	<0.047	<0.061			
WOOLSEY, JOHN	3/25/2011 13:29 WOOLSEY-53538		10.30	2.44	0.410	0.004			
BYRNE, PAI	3/23/2011 12:16 BYRNE-219268		1.88	1.19	0.053	<0.003			
DODD DARYL	7/28/2011 12:51 DODD-189213		2.20	1.15	0.049	<0.003			
MAGNESS MARY ALICE	1/24/2011 12:52 MAGNESS-213082		2.46	1.04	0.121	<0.003			
MARTELLI, ISABELLE	8/31/2011 15:30 MARTELLI-51365		5.53	1.13	0.020	<0.001 U			
WOOD KENNETH	8/26/2011 11:50 KENNETH WOOD		12.30	1.56	0.018	<0.001 U			
WOOLSEY, JOHN	3/25/2011 14:02 WOOLSEY-261318		10.91	3.73	1.869	0.008			
SENN, HANK	8/3/2011 12:02 52041-SENN2		3.59	1.18	0.059	<0.001 U			
JACOBSON, EDNA	1/26/2011 13:02 JACOBSON-259996		39.50	3.77	0.478	0.003			
KLEESE, CLAIRE & MENDEL, MARK	12/20/2011 14:56 KLEESE-263931		7.98	0.93	4.090	0.036			
SEVEYKA, PAUL	8/9/2011 13:10 SEVEYKA		69.91	1.43	0.045	<0.001 U			
CROMWELL, ANDREW	9/22/2011 12:10 CROMWELL, MEGHAN + ANDREW		19.02	1.36	<0.005 U	0.063			
SESTRICH, PEG	3/25/2011 12:14 SESTRICH-261316		1.95	1.33	0.023	<3.75 U			
JOHNS LORI	1/26/2011 13:40 JOHNS-185843		48.00	1.96	0.049	<0.003			
PATTERSON, GERALD AND PEG	11/30/2011 14:10 PATTERSON-51206		8.62	0.88	0.325	0.007 U			
WALTER, RICHARD	9/12/2011 12:10 WALTER #2		49.25	3.24	13.058	0.206			
KING, DALE	7/18/2011 14:39 KING-179119		48.30	0.10	0.038	<0.003			
HANSEN, RONALD * HANSEN SPRING	10/12/2011 14:40 HANSEN-263246		20.99	2.35	0.057	<0.003 U			
POLAND, DEBBIE	8/29/2011 12:43 POLAND-201943		5.61	1.79	0.012 U	<0.003 U			
BROWN, DEAN	7/7/2011 12:00 DEAN BROWN		2.440 U	<2.500 U	0.224	0.002 U			
MAHKUK CHRISTINE	3/23/2011 13:40 MAHKUK-178972		1.92	1.27	0.055	<0.003			
GARRITY BROS. #1	8/3/2011 52147 SENN		2.78	1.97	0.060	<0.001 U			
RILEY WESLEY & LEONA	10/5/2011 12:46 RILEY-5412		45.05	2.35	0.128	<0.003 U			
RANKIN, KEITH AND JEAN	9/14/2011 13:31 RANKIN-198927		5.92	1.62	0.077	<0.003 U			

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	SO ₄ (mg/l)	Cl (mg/l)	NO ₃ -N (mg/l)	F (mg/l)	OPO ₄ -P (mg/l)	Ag (ug/l)	Al (ug/l)
BLOM LORIN	5/24/2011 11:50 BLOM - RESAMPLE							<1.00 U	22.93
BLOM LORIN	5/24/2011 11:50 BLOM - RESAMPLE		16.6	8.40	1.11	0.19	<0.10 U	<0.50 U	1.5700 U
BAKER, LINDA	2/11/2011 14:36 BAKER-219266							<0.5	26.70
CONNORS KEN	10/12/2011 CONNORS CONFIRM.							<0.250 U	26.15
JETTE, JOE	4/27/2011 13:18 JETTE -259777							<0.50	31.22
CONNORS KEN	10/12/2011 13:30 CONNORS CONFIRM.		91.6	4.96	<0.010 U	2.52	<0.020 U	<0.100 U	18.20
MCQUEARY CAM	4/21/2011 13:56 MCQUEARY 250294							<0.5	72.00
JETTE, JOE	4/27/2011 13:18 JETTE -259777		13.6	0.97	0.44	0.46	<0.10 U	<0.50 U	<2.00 U
BOITNOTT, STEVE	2/11/2011 13:37 BOITNOTT-158784							<0.5	17.90
BAKER, LINDA	2/11/2011 14:36 BAKER 219266		17.1	11.97	1.78	0.55	<0.1	<0.2	<2.0
MCQUEARY CAM	4/21/2011 13:56 MCQUEARY 250294		38.8	23.38	1.31	0.36	<0.1	<0.2	<2.0
JONES, BRENT	4/25/2011 13:42 JONES -259580							<0.50 U	9.43
JONES, BRENT	4/25/2011 13:42 JONES -259580		62.4	2.39	1.81	0.76	<0.10 U	<0.50 U	<2.00 U
WAYMIRE, EDWARD	4/21/2011 12:45 WAYMIRE-156249							<0.5	11.80
GESSELE, EDWIN C JR	4/21/2011 13:20 GESSELE 259949							<0.5	19.50
CHOQUETTE, WALTER	2/7/2011 14:57 CHOQUETTE-122351							<0.5	9.21
BOITNOTT, STEVE	2/11/2011 13:37 BOITNOTT-158784		28.7	8.98	1.27	0.54	<0.1	<0.2	<2.0
GESSELE, EDWIN C JR	4/21/2011 13:20 GESSELE 259949		13.8	6.35	0.78	0.42	<0.1	<0.2	<2.0
WAYMIRE, EDWARD	4/21/2011 12:45 WAYMIRE-156249		15.5	6.22	0.96	0.28	<0.1	<0.2	<2.0
CHOQUETTE, WALTER	2/7/2011 14:57 CHOQUETTE-122351		52.9	34.76	2.24	0.40	<0.1	<0.2	<2.0
WOLFE, FRANK	12/27/2011 11:48 WOLFE 173106							<0.250 U	1.890 U
KINNEY, GREGG	12/20/2011 16:00 KINNEY							<0.250 U	10.52
WHITE (RUSSELL & PAI	12/27/2011 12:39 WHITE-52670-DUP							<0.250 U	4.860 U
PAMENTER, RUTH	12/9/2011 11:59 PAMENTER 263916							<0.250 U	4.440 U
TOWN PUMP ANACONDA	6/28/2011 14:50 251739		29.4	4.20	0.06	0.50	<0.100 U	<0.500 U	3.47
KIT ILESON JANET	6/28/2011 15:26 254941		56.1	12.90	2.46	0.30	<0.100 U	<0.500 U	18.35
KIT ILESON JANET	6/28/2011 15:26 254941							<2.000 U	5.300 U
TOWN PUMP ANACONDA	6/28/2011 14:50 251739							<1.250 U	9.76
DEMERS SHAWN	1/28/2011 14:36 DEMERS-257616							<0.5	14.70
MEHRINS, JOE	1/5/2011 13:10 MURNS-91567							<0.5	<5.0
CHLADEK DAN	1/6/2011 13:56 CHLADEK-209945							<0.5	5.95
PUNOHU, LAVONE	2/28/2011 13:49 PUNOHU-259954							<0.5	5.01
WOOLSEY, JOHN	3/25/2011 13:29 WOOLSEY-53538							<0.5	<5.0
BYRNE, PAI	3/23/2011 12:16 BYRNE-219268							<0.5	5.55
DODD DARYL	2/28/2011 12:51 DODD-189213							<0.5	5.31
MAGNESS MARY ALICE	1/24/2011 12:52 MAGNESS-213082							<0.5	7.39
MARTILLI, ISABELLE	8/31/2011 15:30 MARTILLI-51365							0.151 U	77.89
WOOD KENNETH I	8/26/2011 11:50 KENNETH WOOD							<0.250 U	21.06
WOOLSEY, JOHN	3/25/2011 14:02 WOOLSEY-261318							<1.25 U	94.96
SENN, HANK	8/3/2011 12:02 52041-SENN2							<0.250 U	25.39
JACOBSON, EDNA	1/26/2011 13:02 JACOBSON-259996							<0.5	5.32
KLEESE, CLAIRE & MENCEL, MARK	12/20/2011 14:56 KLEESE 263931							<0.250 U	95.07
SEVEYKA, PAUL	8/9/2011 13:10 SEVEYKA							<0.250 U	14.11
CROMWELL, ANDREW	9/22/2011 12:10 CROMWELL, MEGHAN + ANDREW							<0.250 U	4.480 U
SESTRICH, PEG	3/25/2011 12:14 SESTRICH 261316							<1.25 U	26.81
JOHNS LORI	1/26/2011 13:40 JOHNS-185843							<0.5	8.27
PATTERSON, GERALD AND PEG	11/30/2011 14:10 PATTERSON-51206							<0.250 U	15.58
WALTER, RICHARD	9/12/2011 12:10 WALTER #2							<0.250 U	35.98
KING, DALE	2/18/2011 14:39 KING-179119							<0.5	<5.0
HANSEN, RONALD * HANSEN SPRING	10/12/2011 14:40 HANSEN -263246							<0.250 U	3.760 U
POLAND, DEBBIE	8/29/2011 12:43 POLAND -201943							<0.250 U	27.35
BROWN, DEAN	7/7/2011 12:00 DEAN BROWN							<1.250 U	526.13
MAHKUK CHRISTINE	3/23/2011 13:40 MAHKUK 178972							<0.5	5.10
GARRITY BROS. #1	8/3/2011 52147 SENN							<0.250 U	31.74
RILEY WESLEY & LEONA	10/5/2011 12:46 RILEY -5412							<0.250 U	6.00
RANKIN, KEITH AND JEAN	9/14/2011 13:31 RANKIN -198927							<0.250 U	64.62

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	As (ug/l)	B (ug/l)	Ba (ug/l)	Be (ug/l)	Br (ug/l)	Cd (ug/l)	Co (ug/l)	Cr (ug/l)	Cu (ug/l)
BLOM LORIN	5/24/2011 11:50 BLOM -RESAMPLE		5.40		95.45	<0.02 U		<1.00 U	<1.00 U	<1.00 U	3.0800 J
BLOM LORIN	5/24/2011 11:50 BLOM -RESAMPLE		6.62	25.24	106.41	<0.50 U	80.00	<0.50 U	<0.50 U	<0.50 U	0.76
BAKER, LINDA	2/11/2011 14:36 BAKER-219266		8.18	36.70	64.80	<0.5		<0.5	<0.5	<0.5	6.50
CONNORS KEN	10/12/2011 CONNORS CONFIRM.		8.49		26.28	<0.250 U		<0.250 U	<0.250 U	0.250 J	0.590 J
JETTE, JOE	4/27/2011 13:18 JETTE -259777		8.55	4.04	41.66	<0.50 U		<0.50 U	<0.50 U	<0.50 U	1.65
CONNORS KEN	10/12/2011 13:30 CONNORS CONFIRM.		8.67	47.06	25.03	0.160 J	<10.000 U	<0.100 U	<0.100 U	0.150 J	<0.100 U
MCQUEARY CAM	4/21/2011 13:56 MCQUEARY 250294		9.21	39.70	39.80	<0.5		<0.5	<0.5	0.53	<1.3
JETTE, JOE	4/27/2011 13:18 JETTE -259777		10.09	3.62	29.28	<0.50 U	<50.00 U	<0.50 U	<0.50 U	<0.50 U	3.15
BOITNOTT, STEVE	2/11/2011 13:37 BOITNOTT-158784		10.10	48.00	32.50	<0.5		<0.5	<0.5	7.53	2.42
BAKER, LINDA	2/11/2011 14:36 BAKER 219266		10.20	31.80	63.80	<0.2	115.00	<0.2	<0.2	<0.2	1.90
MCQUEARY CAM	4/21/2011 13:56 MCQUEARY 250294		10.20	27.20	35.70	<0.2	226.00	<0.2	<0.2	<0.2	0.57
JONES, BRENT	4/25/2011 13:42 JONES -259580		10.28	131.78	139.96	<0.50 U		<0.50 U	<0.50 U	<0.50 U	6.61
JONES, BRENT	4/25/2011 13:42 JONES -259580		11.64	131.34	97.60	<0.50 U	<50.00 U	<0.50 U	<0.50 U	<0.50 U	2.93
WAYMIRE, EDWARD	4/21/2011 12:45 WAYMIRE-156249		11.70	33.40	78.40	<0.5		<0.5	<0.5	<0.5	<1.3
GESSELE, EDWIN C JR	4/21/2011 13:20 GESSELE 259949		12.00	41.60	41.20	<0.5		<0.5	<0.5	<0.5	<1.3
CHOQUETTE, WALTER	2/7/2011 14:57 CHOQUETTE-122351		12.10	33.50	71.60	<0.5		<0.5	<0.5	0.57	<1.3
BOITNOTT, STEVE	2/11/2011 13:37 BOITNOTT-158784		12.20	39.50	31.20	<0.2	99.00	<0.2	<0.2	6.00	1.23
GESSELE, EDWIN C JR	4/21/2011 13:20 GESSELE 259949		13.10	28.40	35.50	<0.2	75.00	<0.2	<0.2	<0.2	<0.5
WAYMIRE, EDWARD	4/21/2011 12:45 WAYMIRE-156249		13.60	24.00	66.60	<0.2	71.00	<0.2	<0.2	<0.2	<0.5
CHOQUETTE, WALTER	2/7/2011 14:57 CHOQUETTE-122351		15.00	28.90	62.90	<0.2	286.00	<0.2	<0.2	0.46	4.53
WOLFE, FRANK	12/27/2011 11:48 WOLFE-173106		0.270 J		30.56	<0.250 U		<0.250 U	<0.250 U	<0.250 U	2.06
KINNEY, GREGG	12/20/2011 16:00 KINNEY		0.290 J		13.48	<0.250 U		<0.250 U	<0.250 U	<0.250 U	0.700 J
WHITE RUSSELL & PAI	12/27/2011 12:39 WHITE-52670-DUP		0.300 J		21.67	<0.250 U		<0.250 U	<0.250 U	<0.250 U	5.86
PAMENTER, RUTH	12/9/2011 11:59 PAMENTER 263916		0.440 J		46.14	<0.250 U		<0.250 U	<0.250 U	<0.250 U	6.41
TOWN PUMP ANACONDA	6/28/2011 14:50 251739		0.78	80.60	0.68	<0.500 U	<50.000 U	<0.500 U	<0.500 U	<0.500 U	1.24
KITTLESON JANET	6/28/2011 15:26 254941		2.16	20.15	44.77	<0.500 U	<50.000 U	<0.500 U	0.140 J	<0.500 U	4.78
KITTLESON JANET	6/28/2011 15:26 254941		2.22		48.36	<2.000 U		<2.000 U	<2.000 U	0.430 J	30.72
TOWN PUMP ANACONDA	6/28/2011 14:50 251739		0.870 J		0.960 J	<1.250 U		<1.250 U	<1.250 U	0.380 J	3.65
DEMERS SHAWN	1/28/2011 14:36 DEMERS-257616		0.50	18.90	77.70	<0.5		<0.5	<0.5	0.62	4.57
MCHIRENS, JOE	1/5/2011 13:10 MURNS-91567		0.80	<5.0		<0.5		<0.5	<0.5	<0.5	5.71
CHLADEK DAN	1/6/2011 13:56 CHLADEK-209945		0.82	199.00	45.60	<0.5		<0.5	<0.5	<0.5	1.78
PUNOHU, LAVONE	2/28/2011 13:49 PUNOHU-259954		0.85	<5.0	23.70	<0.5		<0.5	<0.5	<0.5	11.60
WOOLSEY, JOE IN	3/25/2011 13:29 WOOLSEY-53538		0.88	10.10	131.00	<0.5		<0.5	<0.5	<0.5	4.87
BYRNE, PAI	3/23/2011 12:16 BYRNE-219268		0.95	<5.0	24.90	<0.5		<0.5	<0.5	<0.5	1.71
DODD DARYL	2/28/2011 12:51 DODD-189213		1.00	<5.0	73.80	<0.5		<0.5	<0.5	<0.5	<1.3
MAGNESS MARY ALICE	1/24/2011 12:52 MAGNESS-213082		1.07	<5.0	70.30	<0.5		<0.5	<0.5	<0.5	11.10
MARTINI, ISABELLE	8/31/2011 15:30 MARTINI-51365		1.10		64.72	<0.100 U		<0.100 U	<0.100 U	0.270 J	8.66
WOOD KENNETH I	8/26/2011 11:50 KENNETH WOOD		1.30		154.45	<0.250 U		<0.250 U	<0.250 U	0.360 J	7.82
WOOLSEY, JOE IN	3/25/2011 14:02 WOOLSEY-261318		1.30		171.82	<1.25 U		<1.25 U	<1.25 U	1.47	1.1100 J
SENN, HANK	8/3/2011 12:02 52041-SENN2		1.31		19.88	<0.250 U		<0.250 U	<0.250 U	<0.250 U	2.58
JACOBSON, EDNA	1/26/2011 13:02 JACOBSON-259996		1.32	65.00	105.00	<0.5		<0.5	<0.5	<0.5	15.00
KLEESE, CLAIRE & MENDEL MARK	12/20/2011 14:56 KLEESE 263931		1.38		47.50	<0.250 U		<0.250 U	<0.250 U	0.290 J	0.340 J
SEVEYKA, PAUL	8/9/2011 13:10 SEVEYKA		1.40		69.55	<0.250 U		<0.250 U	<0.250 U	<0.250 U	1.220 J
CROMWELL, ANDREW	9/22/2011 12:10 CROMWELL, MEGHAN + ANDREW		1.48		48.77	<0.250 U		<0.250 U	<0.250 U	0.360 J	21.13
SESTRICH, PEG	3/25/2011 12:14 SESTRICH 261316		1.49		20.30	<1.25 U		<1.25 U	<1.25 U	<1.25 U	1.37
JOHNS LORI	1/26/2011 13:40 JOHNS-185843		1.53	92.60	113.00	<0.5		<0.5	<0.5	<0.5	10.40
PATTERSON, GERALD AND PEG	11/30/2011 14:10 PATTERSON-51206		1.61		22.29	<0.250 U		<0.250 U	<0.250 U	0.360 J	4.89
WALTER, RICHARD	9/12/2011 12:10 WALTER #2		1.68		97.18	<0.250 U		<0.250 U	0.280 J	0.300 J	0.420 J
KING, DALE	2/18/2011 14:39 KING-179119		1.71	9.52	<0.5	<0.5		<0.5	<0.5	<0.5	18.80
HANSEN, RONALD * HANSEN SPRING	10/12/2011 14:40 HANSEN -263246		1.80		62.43	<0.250 U		<0.250 U	<0.250 U	<0.250 U	2.10
POLAND, DEBBIE	8/29/2011 12:43 POLAND -201943		1.98		46.78	<0.250 U		<0.250 U	<0.250 U	0.310 J	1.61
BROWN, DEAN	7/7/2011 12:00 DEAN BROWN		1.99		4.67	<5.000 U		0.460 J	0.370 J	0.610 J	3.18
MAHKUK CHRISTINE	3/23/2011 13:40 MAHKUK 178972		2.29	7.17	20.40	<0.5		<0.5	<0.5	<0.5	5.29
GARRITY BROS. #1	8/3/2011 52147-SENN		2.32		36.49	<0.250 U		<0.250 U	<0.250 U	0.300 J	10.48
RILEY WESLEY & LEONA	10/5/2011 12:46 RILEY -5412		2.37		125.58	<0.250 U		<0.250 U	<0.250 U	<0.250 U	1.150 J
RANKIN, KEITH AND JEAN	9/14/2011 13:31 RANKIN -198927		2.62		1.98	<0.250 U		<0.250 U	<0.250 U	0.560 J	14.45

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	Li (ug/l)	Mo (ug/l)	Ni (ug/l)	Pb (ug/l)	Sb (ug/l)	Se (ug/l)	Sn (ug/l)	Sr (ug/l)	Ti (ug/l)
BLOM LORIN	5/24/2011 11:50 BLOM RESAMPLE		11.55	1.43	0.6600 J	<1.00 U	<1.00 U	0.7700 J	<1.00 U	194.77	0.6600 J
BLOM LORIN	5/24/2011 11:50 BLOM RESAMPLE		13.53	1.29	<0.50 U	0.0600 J	<0.50 U	0.82	<0.50 U	203.62	0.1100 J
BAKER, LINDA	2/11/2011 14:36 BAKER-219266		<5.0	2.64	<0.5	0.89	<0.5	<0.5	<1.3	189.00	1.68
CONNORS KEN	10/12/2011 CONNORS CONFIRM.		107.59	4.03	<0.250 U	<0.100 U	<0.250 U	0.290 J	<0.250 U	2744.74	1.110 J
JETTE, JOE	4/27/2011 13:18 JETTE 259777		3.69	2.25	<0.50 U	0.1800 J	0.53	0.3200 J	<0.50 U	256.57	0.3700 J
CONNORS KEN	10/12/2011 13:30 CONNORS CONFIRM.		108.89	4.16	<0.100 U	<0.040 U	0.210 J	<0.100 U	<0.100 U	2611.78	0.70
MCQUEARY CAM	4/21/2011 13:56 MCQUEARY 250294		12.90	4.12	0.58	<0.5	<0.5	1.41	<1.3	176.00	3.72
JETTE, JOE	4/27/2011 13:18 JETTE 259777		1.0500 J	2.06	<0.50 U	<0.20 U	0.4100 J	0.2900 J	<0.50 U	255.63	0.1200 J
BOITNOTT, STEVE	2/11/2011 13:37 BOITNOTT-158784		13.50	7.09	<0.5	<0.5	<0.5	<0.5	<1.3	207.00	1.03
BAKER, LINDA	2/11/2011 14:36 BAKER 219266		2.07	2.57	<0.2	0.44	<0.2	0.69	<0.5	183.00	0.21
MCQUEARY CAM	4/21/2011 13:56 MCQUEARY 250294		5.90	3.62	<0.2	<0.2	<0.2	1.36	<0.5	165.00	0.42
JONES, BRENT	4/25/2011 13:42 JONES 259580		24.29	5.53	<0.50 U	0.41	0.1000 J	0.90	0.2600 J	802.30	0.56
JONES, BRENT	4/25/2011 13:42 JONES 259580		13.32	5.08	<0.50 U	0.21	0.1300 J	0.94	<0.50 U	783.05	0.4000 J
WAYMIRE, EDWARD	4/21/2011 12:45 WAYMIRE-156249		11.40	2.23	0.56	<0.5	<0.5	<0.5	<1.3	132.00	0.65
GESSELE, EDWIN C JR	4/21/2011 13:20 GESSELE 259949		7.16	3.79	<0.5	<0.5	<0.5	<0.5	<1.3	119.00	1.27
CHOQUETTE, WALTER	2/7/2011 14:57 CHOQUETTE 122351		<5.0	2.19	<0.5	<0.5	<0.5	1.44	<1.3	367.00	0.97
BOITNOTT, STEVE	2/11/2011 13:37 BOITNOTT-158784		11.10	6.65	<0.2	0.26	<0.2	0.58	<0.5	199.00	0.29
GESSELE, EDWIN C JR	4/21/2011 13:20 GESSELE 259949		2.43	3.10	<0.2	<0.2	<0.2	0.31	<0.5	111.00	<0.2
WAYMIRE, EDWARD	4/21/2011 12:45 WAYMIRE-156249		5.06	1.91	<0.2	<0.2	<0.2	0.48	<0.5	118.00	<0.2
CHOQUETTE, WALTER	2/7/2011 14:57 CHOQUETTE 122351		4.47	2.05	0.19	<0.2	<0.2	2.27	<0.5	352.00	0.67
WOLFE, FRANK	12/27/2011 11:48 WOLFE 173106		2.860 J	0.890 J	<0.250 U	<0.100 U	<0.250 U	0.790 J	<0.250 U	113.21	<0.250 U
KINNEY, GREGG	12/20/2011 16:00 KINNEY		16.66	3.70	<0.250 U	<0.100 U	<0.250 U	<0.250 U	<0.250 U	1266.09	1.50
WHITE RUSSELL & PAI	12/27/2011 12:39 WHITE-52670-DUP		<1.000 U	1.61	<0.250 U	1.02	<0.250 U	<0.250 U	<0.250 U	122.82	<0.250 U
PAMENTER, RUTH	12/9/2011 11:59 PAMENTER 263916		2.540 J	4.03	1.33	1.20	<0.250 U	<0.250 U	<0.250 U	133.07	<0.250 U
TOWN PUMP ANACONDA	6/28/2011 14:50 251739		38.00	2.84	<0.500 U	<0.500 U	<0.500 U	<0.500 U	<0.500 U	6.70	0.67
KITTLESON JANET	6/28/2011 15:26 254941		5.42	2.56	0.120 J	0.060 J	0.340 J	0.94	<0.500 U	184.05	0.99
KITTLESON JANET	6/28/2011 15:26 254941		3.470 J	2.83	2.30	1.140 J	<2.000 U	0.780 J	<2.000 U	202.66	1.380 J
TOWN PUMP ANACONDA	6/28/2011 14:50 251739		20.61	3.19	0.310 J	<1.250 U	<1.250 U	<1.250 U	<1.250 U	7.71	0.830 J
DEMERS SHAWN	1/28/2011 14:36 DEMERS-257616		<5.0	3.17	<0.5	<0.5	<0.5	1.17	<1.3	333.00	2.52
MEHRENS, JOE	1/5/2011 13:10 MURNS-91567		<5.0	1.58	<0.5	<0.5	<0.5	<0.5	<1.3	<0.5	<0.5
CHLADEK DAN	1/6/2011 13:56 CHLADEK-209945		11.50	4.27	<0.5	<0.5	<0.5	0.98	<1.3	233.00	1.23
PUNOHU, LAVONE	2/28/2011 13:49 PUNOHU-259954		<5.0	2.57	<0.5	0.58	<0.5	<0.5	<0.5	86.50	<0.5
WOOLSEY, JOHIN	3/25/2011 13:29 WOOLSEY-53538		6.27	3.08	0.51	0.60	<0.5	<0.5	<1.3	489.00	0.53
BYRNE, PAI	3/23/2011 12:16 BYRNE-219268		<5.0	2.17	<0.5	<0.5	<0.5	<0.5	<0.5	84.60	<0.5
DODD DARVL	2/28/2011 12:51 DODD-189213		<5.0	3.13	<0.5	<0.5	<0.5	2.39	<0.5	513.00	182.00
MAGNESS MARY ALICE	1/24/2011 12:52 MAGNESS-213082		<5.0	2.24	<0.5	0.69	<0.5	<0.5	<1.3	86.50	<0.5
MARTELLI, ISABELLE	8/31/2011 15:30 MARTELLI-51365		1.970 J	<0.100 U	0.61	0.33	<0.100 U	<0.100 U	0.120 J	86.99	1.70
WOOD KENNETH I	8/26/2011 11:50 KENNETH WOOD		8.40	1.93	0.350 J	<0.100 U	<0.250 U	1.100 J	<0.250 U	290.14	0.510 J
WOOLSEY, JOHIN	3/25/2011 14:02 WOOLSEY-261318		1.6700 J	4.85	<1.25 U	0.5700 J	<1.25 U	0.2600 J	<1.25 U	461.77	8.29
SENN, IANK	8/3/2011 12:02 52041-SENN2		3.410 J	3.46	0.630 J	<0.100 U	<0.250 U	<0.250 U	<0.250 U	54.15	<0.250 U
JACOBSON, EDNA	1/26/2011 13:02 JACOBSON-259996		13.00	2.67	0.58	1.53	<0.5	<0.5	<1.3	450.00	<0.5
KLEESE, CLAIRE & MENCEL, MARK	12/20/2011 14:56 KLEESE 263931		3.560 J	1.32	<0.250 U	<0.100 U	<0.250 U	<0.250 U	<0.250 U	394.85	4.14
SEVEYKA, PAUL	8/9/2011 13:10 SEVEYKA		6.32	<0.250 U	<0.250 U	<0.100 U	<0.250 U	0.440 J	<0.250 U	170.00	0.650 J
CROMWELL, ANDREW	9/22/2011 12:10 CROMWELL, MEGHAN + ANDREW		3.170 J	0.360 J	4.30	0.130 J	<0.250 U	0.400 J	<0.250 U	94.10	0.400 J
SESTRICH, PEG	3/25/2011 12:14 SESTRICH 261316		<5.00 U	2.11	<1.25 U	0.4100 J	<1.25 U	<1.25 U	<1.25 U	79.54	<1.25 U
JOHNS LORI	1/26/2011 13:40 JOHNS-185843		11.00	5.81	<0.5	<0.5	<0.5	<0.5	<1.3	407.00	<0.5
PATTERSON, GERALD AND PEG	11/30/2011 14:10 PATTERSON-51206		8.72	1.38	<0.250 U	0.190 J	<0.250 U	<0.250 U	<0.250 U	236.22	<0.250 U
WALTER, RICHARD	9/12/2011 12:10 WALTER #2		55.01	1.090 J	0.930 J	<0.100 U	<0.250 U	0.550 J	<0.250 U	1759.06	1.92
KING, DALE	2/18/2011 14:39 KING-179119		<5.0	0.83	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HANSEN, RONALD * HANSEN SPRING	10/12/2011 14:40 HANSEN 263246		17.60	0.840 J	0.290 J	<0.100 U	<0.250 U	0.680 J	<0.250 U	1155.29	1.39
POLAND, DEBBIE	8/29/2011 12:43 POLAND 201943		11.22	3.02	0.880 J	<0.100 U	0.670 J	1.050 J	<0.250 U	190.91	1.090 J
BROWN, DEAN	7/7/2011 12:00 DEAN BROWN		0.15	2.31	0.530 J	0.620 J	0.420 J	0.370 J	6.45	22.32	4.35
MAHKUK CHRISTINE	3/23/2011 13:40 MAHKUK 178972		<5.0	<0.5	0.46	<0.5	<0.5	<0.5	<0.5	29.70	<0.5
GARRITY BROS. #1	8/3/2011 52147 SENN		1.850 J	2.88	1.100 J	<0.100 U	<0.250 U	<0.250 U	<0.250 U	88.69	<0.250 U
RILEY WESLEY & LEONA	10/5/2011 12:46 RILEY 5412		11.17	1.58	0.600 J	<0.100 U	<0.250 U	<0.250 U	<0.250 U	787.68	0.480 J
RANKIN, KEITH AND JEAN	9/14/2011 13:31 RANKIN 198927		<1.000 U	<0.250 U	0.510 J	1.97	<0.250 U	<0.250 U	<0.250 U	15.06	2.11

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	Tl (ug/l)	U (ug/l)	V (ug/l)	Zn (ug/l)	Zr (ug/l)	Ce (ug/l)	Cs (ug/l)	Ga (ug/l)	La (ug/l)
BLOM LORIN	5/24/2011 11:50 BLOM -RESAMPLE		<1.00 U	1.8800 I	3.62	4.10	<1.00 U	<1.00 U	<1.00 U	<1.00 U	<4.00 U
BLOM LORIN	5/24/2011 11:50 BLOM -RESAMPLE		0.1600 I	1.97	3.83	10.36	<2.00 U	<0.50 U	<0.50 U	<2.00 U	<0.50 U
BAKER, LINDA	2/11/2011 14:36 BAKER-219266		<0.5	1.25	25.00	15.30	<0.2	<0.5	<1.3	<0.5	<0.5
CONNORS KEN	10/12/2011 CONNORS CONFIRM.		<0.250 U	0.640 I	<0.250 U	<0.500 U	<0.250 U	<0.250 U	2.94	<0.250 U	<0.250 U
JETTE, JOE	4/27/2011 13:18 JETTE -259777		<0.50 U	9.08	2.03	<1.00 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U
CONNORS KEN	10/12/2011 13:30 CONNORS CONFIRM.		<0.100 U	0.56	<0.100 U	0.860 I	<0.100 U	<0.100 U	2.80	<0.100 U	<0.100 U
MCQUEARY CAM	4/21/2011 13:56 MCQUEARY 250294		<0.5	1.51	9.57	14.00	<0.5	<0.5	<1.3	<0.5	<0.5
JETTE, JOE	4/27/2011 13:18 JETTE -259777		<0.50 U	7.54	1.33	0.9900 I	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U
BOITNOTT, STEVE	2/11/2011 13:37 BOITNOTT-158784		<0.5	3.89	11.40	87.90	<0.5	<0.5	<1.3	<0.5	<1.3
BAKER, LINDA	2/11/2011 14:36 BAKER 219266		<0.2	1.29	20.20	21.60	<0.2	<0.2	<0.5	<0.2	<0.2
MCQUEARY CAM	4/21/2011 13:56 MCQUEARY 250294		<0.2	1.23	6.23	14.70	<0.2	<0.2	<0.5	<0.2	<0.2
JONES, BRENT	4/25/2011 13:42 JONES -259580		<0.50 U	18.42	43.82	8.39	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U
JONES, BRENT	4/25/2011 13:42 JONES -259580		<0.50 U	16.64	33.33	4.11	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U
WAYMIRE, EDWARD	4/21/2011 12:45 WAYMIRE-156249		<0.5	1.09	12.20	3.78	<0.5	<0.5	<1.3	<0.5	<0.5
GESSELE, EDWIN C JR	4/21/2011 13:20 GESSELE 259949		<0.5	1.61	12.60	8.00	<0.5	<0.5	<1.3	<0.5	<0.5
CHOQUETTE, WALTER	2/7/2011 14:57 CHOQUETTE-122351		<0.5	2.00	15.10	2.35	<0.5	<0.5	<1.3	<0.5	<0.5
BOITNOTT, STEVE	2/11/2011 13:37 BOITNOTT-158784		<0.2	3.94	8.83	104.00	<0.2	<0.2	<0.5	<0.2	<0.2
GESSELE, EDWIN C JR	4/21/2011 13:20 GESSELE 259949		<0.2	1.26	7.88	7.49	<0.2	<0.2	<0.5	<0.2	<0.2
WAYMIRE, EDWARD	4/21/2011 12:45 WAYMIRE-156249		<0.2	0.86	7.71	4.68	<0.2	<0.2	<0.5	<0.2	<0.2
CHOQUETTE, WALTER	2/7/2011 14:57 CHOQUETTE-122351		<0.2	1.92	11.80	3.14	<0.2	<0.2	<0.5	<0.2	<0.2
WOLFE, FRANK	12/27/2011 11:48 WOLFE-173106		<0.250 U	1.090 I	0.480 I	21.15	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
KINNEY, GREGG	12/20/2011 16:00 KINNEY		<0.250 U	7.77	<0.250 U	5.60	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
WHITE RUSSELL & PAI	12/27/2011 12:39 WHITE-52670-DUP		<0.250 U	0.870 I	0.650 I	3.00	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
PAMENTER, RUTH	12/9/2011 11:59 PAMENTER 263916		<0.250 U	5.87	0.680 I	6.28	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
TOWN PUMP ANACONDA	6/28/2011 14:50 251739		0.110 I	0.140 I	<0.500 U	6.72	<0.500 U	<0.500 U	<0.500 U	<0.500 U	<0.500 U
KITLESON JANET	6/28/2011 15:26 254941		0.210 I	2.67	0.56	<1.000 U	<0.500 U	<0.500 U	<0.500 U	<0.500 U	<0.500 U
KITLESON JANET	6/28/2011 15:26 254941		<2.000 U	2.68	0.770 I	17.81	<2.000 U	<2.000 U	<2.000 U	<2.000 U	<2.000 U
TOWN PUMP ANACONDA	6/28/2011 14:50 251739		<1.250 U	<1.250 U	<1.250 U	12.20	<1.250 U	<1.250 U	<1.250 U	<1.250 U	<1.250 U
DEMERS SHAWN	1/28/2011 14:36 DEMERS-257616		<0.5	131.00	0.94	7.31	<0.5	<0.5	<1.3	<0.5	<0.5
MCHIRENS, JOE	1/5/2011 13:10 MCHIRENS-91567		<0.5	1.40	<0.5	2.31	<0.5	<0.5	<1.3	<0.5	<0.5
CHLADEK DAN	1/6/2011 13:56 CHLADEK-209945		<0.5	41.40	1.22	5.23	<0.5	<0.5	<1.3	<0.5	<0.5
PUNJOH, LAVONE	2/28/2011 13:49 PUNJOH-259954		<0.5	1.68	0.78	12.10	<0.5	<0.5	<1.3	35.70	<0.5
WOOLSEY, JOHN	3/25/2011 13:29 WOOLSEY-53538		<0.5	3.42	1.44	31.80	<0.5	<0.5	<1.3	<0.5	<0.5
BYRNE, PAI	3/23/2011 12:16 BYRNE-219268		<0.5	1.35	0.69	5.02	<0.5	<0.5	<1.3	35.20	<0.5
DODD DARYL	2/28/2011 12:51 DODD-189213		<0.5	8.30	21.60	41.50	3.11	<0.5	<1.3	30.90	<0.5
MAGNESS MARY ALICE	1/24/2011 12:52 MAGNESS-213082		<0.5	1.86	0.58	15.80	<0.5	<0.5	<1.3	<0.5	<0.5
MARTILLI, ISABELLE	8/31/2011 15:30 MARTILLI-51365		<0.100 U	<0.100 U	0.270 I	63.72	<0.100 U	0.100 I	<0.100 U	<0.100 U	0.140 I
WOOD KENNETH I	8/26/2011 11:50 KENNETH I WOOD		<0.250 U	5.78	2.09	3.34	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
WOOLSEY, JOHN	3/25/2011 14:02 WOOLSEY-261318		<1.25 U	3.44	2.19	77.33	<1.25 U	0.4900 I	<1.25 U	<1.25 U	0.3000 I
SENN, HANK	8/3/2011 12:02 52041-SENN2		<0.250 U	0.860 I	0.430 I	6.35	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
JACOBSON, EDNA	1/26/2011 13:02 JACOBSON-259996		<0.5	79.20	2.43	43.70	<0.5	<0.5	<1.3	<0.5	<0.5
KLEESE, CLAIRE & MENDEL MARK	12/20/2011 14:56 KLEESE 263931		<0.250 U	7.12	2.98	<0.500 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.270 I
SEVEYKA, PAUL	8/9/2011 13:10 SEVEYKA		<0.250 U	2.14	1.32	0.900 I	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
CROMWELL, ANDREW	9/22/2011 12:10 CROMWELL, MEGHAN + ANDREW		0.410 I	0.360 I	<0.250 U	24.06	<0.250 U	<0.250 U	0.830 I	<0.250 U	<0.250 U
SESTRICH, PEG	3/25/2011 12:14 SESTRICH 261316		<1.25 U	1.1900 I	0.8400 I	52.95	<1.25 U	<1.25 U	<1.25 U	<1.25 U	<1.25 U
JOHNS LORI	1/26/2011 13:40 JOHNS-185843		<0.5	31.90	2.05	5.00	<0.5	<0.5	<1.3	<0.5	<0.5
PATTERSON, GERALD AND PEG	11/30/2011 14:10 PATTERSON-51206		<0.250 U	12.62	2.64	4.50	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
WALTER, RICHARD	9/12/2011 12:10 WALTER #2		<0.250 U	<0.250 U	<0.250 U	32.90	<0.250 U	<0.250 U	2.85	<0.250 U	<0.250 U
KING, DALE	2/18/2011 14:39 KING-179119		<0.5	<0.5	3.69	3.01	<0.5	<0.5	<1.3	<0.5	<0.5
HANSEN, RONALD * HANSEN SPRING	10/12/2011 14:40 HANSEN -263246		<0.250 U	0.890 I	<0.250 U	0.830 I	<0.250 U	<0.250 U	0.460 I	<0.250 U	<0.250 U
POLAND, DEBBIE	8/29/2011 12:43 POLAND -201943		<0.250 U	3.23	0.780 I	11.35	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
BROWN, DEAN	7/7/2011 12:00 DEAN BROWN		0.360 I	1.60	0.740 I	1.210 I	<1.250 U	1.56	<1.250 U	<1.250 U	<5.000 I
MAHKUK CHRISTINE	3/23/2011 13:40 MAHKUK 178972		<0.5	<0.5	0.84	2.83	<0.5	<0.5	<1.3	51.20	<0.5
GARRITY BROS. #1	8/3/2011 52147-SENN		<0.250 U	1.39	0.480 I	37.73	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
RILEY WESLEY & LEONA	10/5/2011 12:46 RILEY -5412		<0.250 U	0.470 I	<0.250 U	1.660 I	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
RANKIN, KEITH AND JEAN	9/14/2011 13:31 RANKIN -198927		<0.250 U	<0.250 U	0.960 I	29.02	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	Nb (ug/l)	Nd (ug/l)	Pd (ug/l)	Pr (ug/l)	Rb (ug/l)	Th (ug/l)	W (ug/l)	Procedure
BLOM LORIN	5/24/2011 11:50 BLOM RESAMPLE		<1.00 U	<1.00 U	<1.00 U	<1.00 U	4.65	<1.00 U	<1.00 U	TOTAL RECOVERABLE
BLOM LORIN	5/24/2011 11:50 BLOM RESAMPLE		<2.00 U	<2.00 U	<0.50 U	<0.50 U	4.70	<0.50 U	<0.50 U	DISSOLVED
BAKER, LINDA	2/11/2011 14:36 BAKER-219266		<1.3	<0.5	<1.3	<0.5	5.56	<0.5	3.71	TOTAL RECOVERABLE
CONNORS KEN	10/12/2011 CONNORS CONFIRM.		<0.250 U	<0.250 U	1.51	<0.250 U	8.96	<0.250 U	4.28	TOTAL RECOVERABLE
JETTE, JOE	4/27/2011 13:18 JETTE -259777		<0.50 U	<0.50 U	<0.50 U	<0.50 U	0.4200 J	<0.50 U	<0.50 U	TOTAL RECOVERABLE
CONNORS KEN	10/12/2011 13:30 CONNORS CONFIRM.		<0.100 U	<0.100 U	0.75	<0.100 U	8.65	<0.100 U	3.93	DISSOLVED
MCQUEARY CAM	4/21/2011 13:56 MCQUEARY 250294		<1.3	<0.5	<1.3	<0.5	7.32	<0.5	1.33	TOTAL RECOVERABLE
JETTE, JOE	4/27/2011 13:18 JETTE -259777		<0.50 U	<0.50 U	0.1200 J	<0.50 U	0.3400 J	<0.50 U	<0.50 U	DISSOLVED
BOITNOTT, STEVE	2/11/2011 13:37 BOITNOTT-158784		<1.3	<0.5	<1.3	<0.5	10.80	<0.5	5.35	TOTAL RECOVERABLE
BAKER, LINDA	2/11/2011 14:36 BAKER 219266		<0.5	<0.2	<0.5	<0.2	5.12	<0.2	3.49	DISSOLVED
MCQUEARY CAM	4/21/2011 13:56 MCQUEARY 250294		<0.5	<0.2	<0.5	<0.2	6.21	<0.2	0.95	DISSOLVED
JONES, BRENT	4/25/2011 13:42 JONES 259580		<0.50 U	<0.50 U	0.4000 J	<0.50 U	0.1400 J	<0.50 U	0.4200 J	TOTAL RECOVERABLE
JONES, BRENT	4/25/2011 13:42 JONES 259580		<0.50 U	<0.50 U	0.3600 J	<0.50 U	<0.50 U	<0.50 U	0.2500 J	DISSOLVED
WAYMIRE, EDWARD	4/21/2011 12:45 WAYMIRE-156249		<1.3	<0.5	<1.3	<0.5	6.60	<0.5	<0.5	TOTAL RECOVERABLE
GESSELE, EDWIN C JR	4/21/2011 13:20 GESSELE 259949		<1.3	<0.5	<1.3	<0.5	6.57	<0.5	<0.5	TOTAL RECOVERABLE
CHOQUETTE, WALTER	2/7/2011 14:57 CHOQUETTE-122351		<1.3	<0.5	<1.3	<0.5	10.50	<0.5	1.03	TOTAL RECOVERABLE
BOITNOTT, STEVE	2/11/2011 13:37 BOITNOTT-158784		<0.5	<0.2	<0.5	<0.2	9.97	<0.2	4.79	DISSOLVED
GESSELE, EDWIN C JR	4/21/2011 13:20 GESSELE 259949		<0.5	<0.2	<0.5	<0.2	5.30	<0.2	<0.2	DISSOLVED
WAYMIRE, EDWARD	4/21/2011 12:45 WAYMIRE-156249		<0.5	<0.2	<0.5	<0.2	5.11	<0.2	<0.2	DISSOLVED
CHOQUETTE, WALTER	2/7/2011 14:57 CHOQUETTE-122351		<0.5	<0.2	<0.5	<0.2	8.85	<0.2	0.95	DISSOLVED
WOLFE, FRANK	12/27/2011 11:48 WOLFE-173106		<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.350 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE
KINNEY, GREGG	12/20/2011 16:00 KINNEY		<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.980 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE
WHITE RUSSELL & PAI	12/21/2011 12:39 WHITE-52670-DUP		<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
PAMENTER, RUTH	12/9/2011 11:59 PAMENTER 263916		<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.380 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE
TOWN PUMP ANACONDA	6/28/2011 14:50 251739		<0.500 U	<0.500 U	<0.500 U	<0.500 U	0.420 J	<0.500 U	0.240 J	DISSOLVED
KITTLESON JANET	6/28/2011 15:26 254941		<0.500 U	<0.500 U	<0.500 U	<0.500 U	2.21	<0.500 U	0.160 J	DISSOLVED
KITTLESON JANET	6/28/2011 15:26 254941		<2.000 U	<2.000 U	<2.000 U	<2.000 U	2.47	<2.000 U	<2.000 U	TOTAL RECOVERABLE
TOWN PUMP ANACONDA	6/28/2011 14:50 251739		<1.250 U	<1.250 U	<1.250 U	<1.250 U	0.510 J	<1.250 U	0.250 J	TOTAL RECOVERABLE
DEMERS SHAWN	1/28/2011 14:36 DEMERS-257616		<1.3	<0.5	<1.3	<0.5	<1.3	<0.5	<0.5	TOTAL RECOVERABLE
MCHIRENS, JOE	1/5/2011 13:10 MURNS-91567		<1.3	<0.5	<1.3	<0.5	<1.3	<0.5	<0.5	TOTAL RECOVERABLE
CHLADEK DAN	1/6/2011 13:56 CHLADEK-209945		<1.3	<0.5	<1.3	<0.5	<1.3	<0.5	<0.5	TOTAL RECOVERABLE
PUNJOH, LAVONE	2/28/2011 13:49 PUNJOH-259954		<0.5	<0.5	<1.3	<0.5	1.76	<0.5	<0.5	TOTAL RECOVERABLE
WOOLSEY, JOHIN	3/25/2011 13:29 WOOLSEY-53538		<1.3	<0.5	<1.3	<0.5	<1.3	<0.5	<0.5	TOTAL RECOVERABLE
BYRNE, PAI	3/23/2011 12:16 BYRNE-219268		<1.3	<0.5	<1.3	<0.5	1.77	<0.5	<0.5	TOTAL RECOVERABLE
DODD DARYL	2/28/2011 12:51 DODD-189213		<1.3	<0.5	<1.3	<0.5	1.36	1.39	<0.5	TOTAL RECOVERABLE
MAGNESS MARY ALICE	1/24/2011 12:52 MAGNESS-213082		<1.3	<0.5	<1.3	<0.5	1.68	<0.5	0.78	TOTAL RECOVERABLE
MARTILLI, ISABELLE	8/31/2011 15:30 MARTILLI-51365		<0.100 U	0.160 J	<0.100 U	<0.100 U	0.360 J	<0.100 U	<0.100 U	TOTAL RECOVERABLE
WOOD KENNETH I	8/26/2011 11:50 KENNETH I WOOD		<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
WOOLSEY, JOHIN	3/25/2011 14:02 WOOLSEY-261318		<1.25 U	<1.25 U	<1.25 U	<1.25 U	3.59	<1.25 U	<1.25 U	TOTAL RECOVERABLE
SENN, HANK	8/3/2011 12:02 52041-SENN2		<0.250 U	<0.250 U	<0.250 U	<0.250 U	1.31	<0.250 U	0.260 J	TOTAL RECOVERABLE
JACOBSON, EDNA	1/26/2011 13:02 JACOBSON-259996		<1.3	<0.5	<1.3	<0.5	5.50	<0.5	<0.5	TOTAL RECOVERABLE
KLEESE, CLAIRE & MENDEL MARK	12/20/2011 14:56 KLEESE 263931		<0.250 U	0.350 J	<0.250 U	<0.250 U	0.400 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE
SEVEYKA, PAUL	8/9/2011 13:10 SEVEYKA		<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
CROMWELL, ANDREW	9/22/2011 12:10 CROMWELL, MEGHAN + ANDREW		<0.250 U	<0.250 U	<0.250 U	<0.250 U	4.94	<0.250 U	<0.250 U	TOTAL RECOVERABLE
SESTRICH, PEG	3/25/2011 12:14 SESTRICH 261316		<1.25 U	<1.25 U	<1.25 U	<1.25 U	1.36	<1.25 U	0.2800 J	TOTAL RECOVERABLE
JOHNS LORI	1/26/2011 13:40 JOHNS-185843		<1.3	<0.5	<1.3	<0.5	2.61	<0.5	<0.5	TOTAL RECOVERABLE
PATTERSON, GERALD AND PEG	11/30/2011 14:10 PATTERSON-51206		<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	5.03	TOTAL RECOVERABLE
WALTER, RICHARD	9/12/2011 12:10 WALTER #2		<0.250 U	<0.250 U	1.000 J	<0.250 U	6.87	<0.250 U	0.610 J	TOTAL RECOVERABLE
KING, DALE	2/18/2011 14:39 KING-179119		<1.3	<0.5	<1.3	<0.5	<1.3	<0.5	<0.5	TOTAL RECOVERABLE
HANSEN, RONALD * HANSEN SPRING	10/12/2011 14:40 HANSEN 263246		<0.250 U	<0.250 U	0.560 J	<0.250 U	1.65	<0.250 U	<0.250 U	TOTAL RECOVERABLE
POLAND, DEBBIE	8/29/2011 12:43 POLAND -201943		<0.250 U	<0.250 U	<0.250 U	<0.250 U	2.43	<0.250 U	<0.250 U	TOTAL RECOVERABLE
BROWN, DEAN	7/7/2011 12:00 DEAN BROWN		<1.250 U	1.14	<1.250 U	0.250 J	0.650 J	<1.250 U	0.710 J	TOTAL RECOVERABLE
MAHKUK CHRISTINE	3/23/2011 13:40 MAHKUK 178972		<1.3	<0.5	<1.3	<0.5	1.34	<0.5	<0.5	TOTAL RECOVERABLE
GARRITY BROS. #1	8/3/2011 52147 SENN		<0.250 U	<0.250 U	<0.250 U	<0.250 U	1.33	<0.250 U	<0.250 U	TOTAL RECOVERABLE
RILEY WESLEY & LEONA	10/5/2011 12:46 RILEY 5412		<0.250 U	<0.250 U	0.390 J	<0.250 U	2.14	<0.250 U	<0.250 U	TOTAL RECOVERABLE
RANKIN, KEITH AND JEAN	9/14/2011 13:31 RANKIN 198927		<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.300 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Sample	Gwic id	Site Name	Sample Date	Field Number	Water Temp	Field pH	Field SC	Lab pH	Lab SC	Ca (mg/l)	Mg (mg/l)
200341	257556	IAMISON, SHERRI * WELL #3	7/12/2011 13:37 WELL #3		11.4	6.09	411			56.39	7.48
2011Q0930	258950	MAYNARD, DAVE	1/24/2011 13:45 MAYNARD		8.7	7.00	710			93.20	18.20
2011Q0990	260552	CLAWSON, CINDY	2/9/2011 14:18 CLAWSON-260552		11.0	7.23	538			34.30	8.83
200375	145972	MCNEIL SCOTT	7/20/2011 11:32 145972 MCNEIL		6.7	7.36	455			66.83	12.39
200850	262782	BAILEY, DIANA	8/24/2011 14:15 BAILEY - 262782		10.9	6.83	340			42.50	6.50
200855	51744	JETTE, ARTHUR & JESSIE	9/26/2011 12:18 JETTE - 51744		11.8	7.39	312			41.57	5.52
200665	51380	MILLER, GARY	8/26/2011 10:45 MILLER, GARY		7.1	5.32	88			8.84	2.46
2011Q1010	223085	PETERSON, HENRY	3/17/2011 15:15 PETERSON HOUSE 223085 "1R"		12.8	7.21	269			30.40	7.48
2011Q0991	260549	MITCHELL, HAROLD	2/16/2011 13:48 MITCHELL-260549		10.9	7.27	347			46.70	6.51
200853	198928	RANKIN, KEITH AND JEAN	9/14/2011 12:42 RANKIN - 198928		5.4	5.12	59			5.90	1.14
200705	126679	FARRELL, LARRY D & MICHELLE R.	9/7/2011 14:54 FARRELL - 126679		11.6	6.98	342			26.12	3.13
200558	241972	FLACHMEYER DAN	8/10/2011 FLACHMEYER		11.7	7.10	382			46.94	7.67
2011Q1123	181457	WHITAKER, RAY	3/23/2011 14:57 WHITAKER-181457		9.6	7.36	552			41.80	11.00
200020	196975	GRAVES RUSSEL	4/27/2011 14:31 GRAVES - 196975		14.1	8.30	288			27.91	7.88
2011Q0922	250294	MCQUEARY CAM	1/6/2011 12:12 MCQUEARY-250294		11.6	7.24	472			40.80	5.82
200993	122350	DENNIS KEVIN	10/26/2011 12:58 DENNIS - 122350		11.4	8.05	733			66.18	24.52
2011Q0902	156249	WAYMIRE, EDWARD	1/6/2011 13:02 WAYMIRE-156249		13.7	7.59	308			30.60	3.54
2011Q0931	259949	GESSELE, EDWIN C JR	1/11/2011 13:15 GESSELE 259949		11.2	7.01	285			30.20	3.10
200996	153593	ARENIZ, MAN EUGENE	10/24/2011 14:20 ARENIZ		11.7	7.22	407			36.36	3.75
2011Q0996	260551	UPRIGHI, KELLY	2/23/2011 15:14 UPRIGHI-260551		12.3	7.23	680			40.90	21.60
200447	226131	ANKELMAN, PATRICK AND LYNELLA	8/3/2011 15:30 ANKELMAN		14.2	8.22	406			10.20	2.28
2011Q1013	163204	THOMPSON, DAN & TAMMY	3/24/2011 14:53 THOMPSON		7.8	6.58	399			44.20	11.40
200344	257557	IAMISON SHERRI * WELL #4	7/12/2011 16:00 WELL #4		11.2	5.54	1,058			133.35	16.36
201038	51358	SWARTZ, JAMES AND SHIRLEY	11/7/2011 14:30 SWARTZ		8.7	7.53	1,040			156.35	26.45
201139	51372	CARTER, ADENA	11/30/2011 13:01 CARTER-51372		6.3	7.27	133			13.52	3.89
200432	53483	MATTICE, BRADLY S	8/2/2011 53483-MATTICE		8.9	6.61	350			52.28	9.13
201063	164821	NELSON, JAMES A AND PAMELA L	10/31/2011 12:10 MASTANDREA 164821		8.3	7.32	221			20.10	6.99
201061	170885	SCHLOSSER, DAVE	10/28/2011 12:55 SCHLOSSER 170885		8.0	7.09	219			27.48	7.49
200706	170887	LANES, BUTCH	9/1/2011 14:30 LANES		8.0	6.30	102			10.91	2.56
201064	190777	BRONSON, LINDA AND PAUL	10/31/2011 13:58 BRONSON - 190777		7.5	6.56	76			9.77	2.04
200560	206167	LOGAN, SCOTT W.	8/11/2011 14:45 LOGAN		17.1	7.06	693			82.08	18.92
200555	227190	METCALF, BOB	8/8/2011 13:25 METCALF		10.3	6.65	449			39.89	15.13
201066	237622	HOLAYTER BILL AND MARLENE	11/7/2011 HOLAYTER - 237622		4.7	6.40	118			12.44	1.60
200702	246833	KACHINSKY, DAN AND LORNA	8/31/2011 12:36 KACHINSKY - 246833		8.0	6.28	142			18.32	3.73
201065	250979	PRETT, JOSEPH	11/2/2011 12:34 PRETT - 250979		5.7	6.06	105			12.57	1.13
200852	262839	SILZLY, ROSEMARIE	9/9/2011 14:04 SILZLY - 262839		9.9	5.69	175			20.05	5.93
200851	262840	MICHEL, KEITH	9/9/2011 12:59 SILZLY 262840		8.1	5.65	165			17.08	5.05
200922	263378	STANDISH, NANCY	10/11/2011 15:20 STANDISH		6.1	5.50	102			9.66	2.68
201074	263724	RUSINSKI, JOHN	11/7/2011 RUSINSKI-263724		7.9	6.20	274			34.87	9.66
201075	263725	VIOLETTE, ESTHER	11/16/2011 12:08 VIOLETTE 263725		9.7	7.02	207			24.44	6.56
201131	263908	SVENDSEN, JAMES	12/15/2011 12:55 SVENDSEN		8.5	6.13	288			37.87	10.71
2011Q1001	53497	ELMOSE, MORRIS & MARY ANNE	3/3/2011 14:12 ELMOSE-53497		6.8	6.95	257			41.80	5.21
2011Q0995	53514	GEM BAR AND STORE INC	2/23/2011 13:03 MCGHEE-53514		7.7	6.79	311			48.30	6.32
2011Q0924	185841	EDGE, KEITH	1/6/2011 14:39 EDGE-185841		6.4	6.63	150			16.10	2.99
2011Q1000	186594	PROBERT RAYMOND J AND CHARLOTTE D	3/3/2011 12:56 PROBERT-186594		5.0	6.88	394			62.10	7.99
2011Q0998	195506	DUNCAN RICK	2/23/2011 14:02 DUNCAN-195506		7.4	6.96	298			46.70	6.14
2011Q0901	221439	KIESER, FRANK	1/5/2011 14:15 KIESER 221439		6.2	6.80	200			28.00	4.78
2011Q0937	259998	KELLEY, JAMES	1/28/2011 13:10 KELLEY 259998		8.6	6.90	279			37.30	6.93
2011Q0994	260033	SHAFFORD, LAURA	2/18/2011 12:41 STAFFORD-260033		8.9	6.93	284			35.50	9.42
2011Q0992	260550	HANSON, ROGER	2/18/2011 13:34 HANSON 260550		9.7	6.76	194			25.30	5.92
2011Q0989	260555	CLAWSON, CINDY	2/9/2011 13:36 CLAWSON-260555		10.1	6.91	281			34.60	7.35
200988	263360	SEVALSTAD, MICHAEL	10/17/2011 13:03 SEVALSTED 263360		8.1	6.14	209			23.71	6.78
200610	178942	MOORE ROBERT & TAMI	8/12/2011 13:12 MOORE		12.9	5.70	461			49.21	10.25
201172	52670	WHITE RUSSELL & PAT	12/27/2011 12:39 WHITE-52670		8.8	7.63	195			23.77	6.51
201133	152577	KINNEY, GREGG	12/20/2011 16:10 KINNEY #2		9.8	7.31	394			42.40	10.31
201171	173106	WOLFE, FRANK	12/27/2011 11:48 WOLFE-173106-DUP		9.4	6.77	192			22.61	6.14

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	Na (mg/l)	K (mg/l)	Fe (mg/l)	Mn (mg/l)	SiO2 (mg/l)	HCO3 (mg/l)	CO3 (mg/l)
JAMISON, SHERRI * WELL #3	7/12/2011 13:37 WELL #3		15.88	<2.500 U	0.052	<0.005 U			
MAYNARD, DAVE	1/24/2011 13:45 MAYNARD		40.90	3.09	0.080	<0.003			
CLAWSON, CINDY	2/9/2011 14:18 CLAWSON-260552		13.90	5.93	0.072	0.003			
MCNEIL SCOTT	7/20/2011 11:32 145972 MCNEIL		7.68	2.22	0.118	<0.006 U			
BAILEY, DIANA	8/24/2011 14:15 BAILEY 262782		13.52	6.90	0.029	<0.003 U			
JETTE, ARTHUR & JESSIE	9/26/2011 12:18 JETTE 51744		12.53	5.90	0.029	<0.003 U			
MILLER, GARY	8/26/2011 10:45 MILLER, GARY		4.40	1.34	0.479	0.004 U			
PETERSON, HENRY	3/17/2011 15:15 PETERSON HOUSE 223085 "FH"		15.30	5.25	0.121	0.004			
MITCHELL, HAROLD	2/16/2011 13:48 MITCHELL-260549		11.50	8.41	4.360	0.047			
RANKIN, KEITH AND JEAN	9/14/2011 12:42 RANKIN - 198928		3.57	1.85	0.102	<0.003 U			
FARRELL, LARRY D & MICHELLE R	9/7/2011 14:54 FARRELL - 126679		27.75	7.42	0.009 U	<0.003 U			
FLACIMLYER DAN	8/10/2011 FLACIMLYER		16.47	9.58	0.422	0.011			
WHITAKER, RAY	3/23/2011 14:57 WHITAKER-181457		59.00	5.56	0.146	<0.003			
GRAVES RUSSEL	4/27/2011 14:31 GRAVES 196975		21.39	5.02	0.279	0.001	45.3		
MCQUEARY CAM	1/6/2011 12:12 MCQUEARY-250294		35.40	10.60	0.884	0.019			
DENNIS KEVIN	10/26/2011 12:38 DENNIS - 122350		39.89	7.73	0.047	<0.003 U			
WAYMIRE, EDWARD	1/6/2011 13:02 WAYMIRE-156249		21.60	9.88	0.097	<0.003			
GESSELE, EDWIN C JR	1/11/2011 13:15 GESSELE 259949		20.90	8.96	0.180	0.003			
ARENIZ, IVAN EUGENE	10/24/2011 14:20 ARENIZ		36.28	10.81	0.112	0.004 U			
UPRIGHI, KELLY	2/23/2011 15:14 UPRIGHI-260551		75.20	6.30	2.410	0.050			
ANKELMAN, PATRICK AND LYNELLA	8/3/2011 15:30 ANKELMAN		76.22	4.38	0.058	<0.001 U			
THOMPSON, DAN & TAMMY	3/24/2011 14:53 THOMPSON		23.50	3.23	0.053	<0.003			
JAMISON SHERRI * WELL #4	7/12/2011 16:00 WELL #4		74.36	2.53	0.286	0.010			
SWARTZ, JAMES AND SHIRLEY	11/7/2011 14:30 SWARTZ		34.13	2.98	0.052	<0.003 U			
CARTER, ADENA	11/30/2011 13:01 CARTER-51377		5.69	0.98	0.056	0.009 U			
MATTICE, BRADLY S	8/2/2011 53483 MATICE		5.32	1.29	0.066	<0.001 U			
NELSON, JAMES A AND PAMELA L	10/31/2011 12:10 MASTANDREA 164821		6.20	0.95	0.067	<0.003 U			
SCHLOSSER, DAVE	10/28/2011 12:55 SCHLOSSER 170885		6.09	1.04	0.167	<0.003 U			
LANES, BUI CH	9/7/2011 14:30 LANES		6.50	0.68	0.153	<0.003 U			
BRONSON, LINDA AND PAUL	10/31/2011 13:58 BRONSON - 190777		2.72	0.58	<5.000 U	<0.003 U			
LOGAN, SCOTT W.	8/11/2011 14:45 LOGAN		48.65	3.50	0.158	0.011			
METCALF, BOB	8/8/2011 13:25 METCALF		32.86	1.42	0.062	<0.001 U			
HOLAYTER BILL AND MARLENE	11/7/2011 HOLAYTER - 237622		9.58	0.84	1.143	0.047			
KACHINSKY, DAN AND LORNA	8/31/2011 12:36 KACHINSKY - 246833		4.13	0.80	0.194	<0.003 U			
PRETE, JOSEPH	11/2/2011 12:34 PRETE - 250979		5.50	0.98	0.237	0.009 U			
SILZLY, ROSEMARIE	9/9/2011 14:04 SILZLY - 262839		6.24	1.51	0.043	<0.003 U			
MICHEL, KEITH	9/9/2011 12:59 SILZLY 262840		5.95	1.52	2.751	0.021			
STANDISH, NANCY	10/11/2011 15:20 STANDISH		6.09	0.44	0.082	<0.003 U			
RUSINSKI, JOHN	11/7/2011 RUSINSKI-263724		6.89	1.12	0.910	<0.003 U			
VIOLETTE, ESTHER	11/16/2011 12:08 VIOLETTE 263725		6.41	0.92	0.045	<0.003 U			
SVENDSEN, JAMES	12/15/2011 12:55 SVENDSEN		8.99	1.19	0.049	<0.003 U			
ELMOSE, MORRIS & MARY ANNE	3/3/2011 14:17 ELMOSE-53497		4.74	1.89	0.096	<0.003			
GEM BAR AND STORE INC	2/23/2011 13:03 MCGHEE-53514		7.53	2.21	0.441	<0.003			
EDGE KEITH	1/6/2011 14:39 EDGE-185841		2.89	0.51	0.105	<0.003			
PROBERT RAYMOND J AND CHARLOTTE D	3/3/2011 12:56 PROBERT-186594		5.15	3.48	0.784	0.015			
DUNCAN RICK	2/23/2011 14:02 DUNCAN-195506		6.48	1.16	0.056	<0.003			
KIESER, FRANK	1/5/2011 14:15 KIESER 221439		3.32	0.59	0.173	<0.003			
KELLEY, JAMES	1/28/2011 13:10 KELLEY 259998		10.40	1.14	0.069	<0.003			
SHAFFORD, LAURA	2/18/2011 12:41 STAFFORD 260033		8.89	0.84	0.083	<0.003			
HANSON, ROGER	2/18/2011 13:34 HANSON 260550		4.97	1.83	0.050	<0.003			
CLAWSON, CINDY	2/9/2011 13:36 CLAWSON-260555		11.30	3.35	<0.005	<0.003			
SEVALSTAD, MICHAEL	10/17/2011 13:03 SEVALSTED 263360		5.94	0.89	0.085	<0.003 U			
MOORE ROBERT & TAMI	8/12/2011 13:12 MOORE		44.78	1.56	0.053	0.022			
WHITE RUSSELL & PAT	12/27/2011 12:39 WHITE-52670		5.56	1.07	0.037	<0.003 U			
KINNEY, GREGG	12/20/2011 16:10 KINNEY #2		27.21	0.230 U	0.045	<0.003 U			
WOLFE, FRANK	12/27/2011 11:48 WOLFE-173106-DUP		5.78	0.95	0.052	<0.003 U			

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	SO4 (mg/l)	Cl (mg/l)	NO3-N (mg/l)	F (mg/l)	OPO4-P (mg/l)	Ag (ug/l)	Al (ug/l)
JAMISON, SHERRI* WELL #3	7/12/2011 13:37 WELL #3							<1.250 U	28.03
MAYNARD, DAVE	1/24/2011 13:45 MAYNARD							<0.5	<5.0
CLAWSON, CINDY	2/9/2011 14:18 CLAWSON-260552							<0.5	<5.0
MCNEIL SCOTT	7/20/2011 11:32 145972 MCNEIL							<1.250 U	30.84
BAILEY, DIANA	8/24/2011 14:15 BAILEY 262782							<0.250 U	10.37
JETTE, ARTIUR & JESSIE	9/26/2011 12:18 JETTE - 51744							<0.250 U	4.980 J
MILLER, GARY	8/26/2011 10:45 MILLER, GARY							<0.250 U	958.54
PETERSON, HENRY	3/17/2011 15:15 PETERSON HOUSE 223085 "TR"							<0.5	<5.0
MITCHELL, HAROLD	2/16/2011 13:48 MITCHELL 260549							<0.5	385.00
RANKIN, KEITH AND JEAN	9/14/2011 12:42 RANKIN 198928							<0.250 U	189.49
FARRELL, LARRY D & MICHELLE R	9/7/2011 14:54 FARRELL 126679							<0.250 U	16.53
FLACHMEYER DAN	8/10/2011 FLACHMEYER							<0.250 U	613.86
WHITAKER, RAY	3/23/2011 14:57 WHITAKER 181457							<0.5	<5.0
GRAVES RUSSEL	4/21/2011 14:31 GRAVES - 196975							<0.50 U	2.37
MCQUEARY CAM	1/6/2011 12:12 MCQUEARY 250294							<0.5	448.00
DENNIS KEVIN	10/26/2011 12:38 DENNIS 122350							<0.250 U	43.53
WAYMIRE, EDWARD	1/6/2011 13:02 WAYMIRE-156249							<0.5	114.00
GESSELE, EDWIN C JR	1/11/2011 13:15 GESSELE 259949							<0.5	353.00
ARENTZ, IVAN EUGENE	10/24/2011 14:20 ARENTZ							<0.250 U	19.88
UPRIGHT, KELLY	2/23/2011 15:14 UPRIGHT-260551							<0.5	3306.00
ANKELMAN, PATRICK AND LYNELLA	8/3/2011 15:30 ANKELMAN							<0.250 U	6.43
THOMPSON, DAN & TAMMY	3/24/2011 14:53 THOMPSON							<0.5	<5.0
JAMISON SHERRI* WELL #4	1/12/2011 16:00 WELL #4							<1.250 U	71.78
SWARTZ, JAMES AND SHIRLEY	11/7/2011 14:30 SWARTZ							<0.250 U	58.58
CARTER, ADENA	11/30/2011 13:01 CARTER-51372							<0.250 U	12.68
MAITICE, BRADLY S	8/2/2011 53483-MAITICE							<0.250 U	34.34
NELSON, JAMES A AND PAMELA L	10/31/2011 12:10 MASTANDREA - 164821							<0.250 U	4.670 J
SCHLOSSER, DAVE	10/28/2011 12:55 SCHLOSSER - 170885							<0.250 U	24.15
JANES, BUTCH	9/17/2011 14:30 JANES							<0.250 U	5.71
BRONSON, LINDA AND PAUL	10/31/2011 13:58 BRONSON - 190777							<0.250 U	5.08
LOGAN, SCOTT W.	8/11/2011 14:45 LOGAN							<0.250 U	3.530 J
METCALF, BOB	8/8/2011 13:25 METCALF							<0.250 U	23.36
HOLAYTER BILL AND MARLENE	11/7/2011 HOLAYTER - 237622							<0.250 U	10.92
KACHINSKY, DAN AND LOHNA	8/31/2011 12:36 KACHINSKY - 246833							<0.250 U	5.87
PRETTE, JOSEPH	11/2/2011 12:34 PRETTE - 250979							<0.250 U	28.55
SILZIV, ROSEMARIE	9/9/2011 14:04 SILZIV - 262839							<0.250 U	3.150 J
MICHEL, KEITH	9/9/2011 12:59 SILZIV - 262840							<0.250 U	4.650 J
STANDISH, NANCY	10/11/2011 15:20 STANDISH							<0.250 U	14.77
RUSINSKI, JOHN	11/7/2011 RUSINSKI-263724							<0.250 U	6.72
VIOLETTE, ESTHER	11/16/2011 12:08 VIOLETTE-263725							<0.250 U	5.98
SVENDSEN, JAMES	12/15/2011 12:55 SVENDSEN							<0.250 U	16.12
ELMOSE, MORRIS & MARY ANNE	3/3/2011 14:12 ELMOSE 53497							<0.5	17.70
GEM BAR AND STORE INC	2/23/2011 13:03 MCGHEE-53514							<0.5	5.02
EDGE KEITH	1/6/2011 14:39 EDGE-185841							<0.5	10.90
PROBERT RAYMOND J AND CHARLOTTE D	3/3/2011 12:56 PROBERT 186594							<0.5	12.10
DUNCAN RICK	2/23/2011 14:02 DUNCAN-195506							<0.5	<5.0
KIESER, FRANK	1/5/2011 14:15 KIESER-221439							<0.5	<5.0
KELLEY, JAMES	1/28/2011 13:10 KELLEY 259998							<0.5	5.68
STAFFORD, LAURA	2/18/2011 12:41 STAFFORD-260033							<0.5	9.94
HANSON, ROGER	2/18/2011 13:34 HANSON 260550							<0.5	5.31
CLAWSON, CINDY	2/9/2011 13:36 CLAWSON 260555							<0.5	<5.0
SEVALSTAD, MICHAEL	10/17/2011 13:03 SEVALSTED - 263360							<0.250 U	3.670 J
MOORE ROBERT & TAMM	8/12/2011 13:12 MOORE							<0.250 U	6.57
WHITE RUSSELL & PAT	12/27/2011 12:39 WHITE 52670							<0.250 U	4.970 J
KINNEY, GREGG	12/20/2011 16:10 KINNEY #2							<0.250 U	25.66
WOLFE, FRANK	12/27/2011 11:48 WOLFE 173106 DUP							<0.250 U	2.040 J

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	As (ug/l)	B (ug/l)	Ba (ug/l)	Be (ug/l)	Br (ug/l)	Cd (ug/l)	Co (ug/l)	Cr (ug/l)	Cu (ug/l)
JAMISON, SHERRI* WELL #3	7/12/2011 13:37 WELL #3		2.70		12.46	<5.000 U		<1.250 U	<1.250 U	0.470 I	1.62
MAYNARD, DAVE	1/24/2011 13:45 MAYNARD		2.73	32.30	79.50	<0.5		<0.5	<0.5	<0.5	15.40
CLAWSON, CINDY	2/9/2011 14:18 CLAWSON-260552		3.10	14.10	38.80	<0.5		<0.5	<0.5	<0.5	7.15
MCNEIL SCOTT	7/20/2011 11:32 145972 MCNEIL		3.31		126.08	<1.250 U		<1.250 U	<1.250 U	<1.250 U	2.28
BAILEY, DIANA	8/24/2011 14:15 BAILEY 262782		3.89		112.70	<0.250 U		<0.250 U	<0.250 U	0.340 I	1.26
JETTE, ARTHUR & JESSIE	9/26/2011 12:18 JETTE - 51744		3.90		106.25	<0.250 U		<0.250 U	<0.250 U	0.300 I	0.930 I
MILLER, GARY	8/26/2011 10:45 MILLER, GARY		4.33		51.72	<0.250 U		<0.250 U	<0.250 U	0.550 I	49.59
PETERSON, HENRY	3/17/2011 15:15 PETERSON HOUSE 223085 "TR"		4.39	28.30	36.60	<0.5		<0.5	<0.5	1.11	<1.3
MITCHELL, HAROLD	2/16/2011 13:48 MITCHELL 260549		5.23	20.70	122.00	<0.5		<0.5	<0.5	0.76	2.90
RANKIN, KEITH AND JEAN	9/14/2011 12:42 RANKIN 198928		5.38		2.23	<0.250 U		<0.250 U	<0.250 U	0.530 I	3.49
FARRELL, LARRY D & MICHELLE R	9/7/2011 14:54 FARRELL 126679		8.25		39.46	<0.250 U		<0.250 U	<0.250 U	0.310 I	4.11
FLACHMEYER DAN	8/10/2011 FLACHMEYER		8.83		125.73	<0.250 U		<0.250 U	<0.250 U	0.500 I	3.99
WHITAKER, RAY	3/23/2011 14:57 WHITAKER 181457		9.33	78.00	43.10	<0.5		<0.5	0.95	<0.5	2.99
GRAVES RUSSEL	4/27/2011 14:31 GRAVES - 196975		10.15	19.97	31.83	<0.50 U		<0.50 U	<0.50 U	0.3000 I	11.04
MCQUEARY CAM	1/6/2011 12:12 MCQUEARY 250294		10.40	51.10	44.20	<0.5		<0.5	<0.5	0.52	2.26
DENNIS KEVIN	10/26/2011 12:38 DENNIS 122350		11.21		110.15	<0.250 U		<0.250 U	<0.250 U	0.410 I	1.98
WAYMIRE, EDWARD	1/6/2011 13:02 WAYMIRE-156249		12.30	31.50	79.50	<0.5		<0.5	<0.5	<0.5	<1.3
GESSELE, EDWIN C JR	1/11/2011 13:15 GESSELE 259949		12.40	39.10	40.90	<0.5		<0.5	<0.5	0.63	<1.3
ARENTZ, IVAN EUGENE	10/24/2011 14:20 ARENTZ		13.30		78.66	<0.250 U		<0.250 U	<0.250 U	0.350 I	0.420 I
UPRIGHT, KELLY	2/23/2011 15:14 UPRIGHT-260551		16.50	28.00	118.00	<0.5		<0.5	1.10	12.20	11.30
ANKELMAN, PATRICK AND LYNELLA	8/3/2011 15:30 ANKELMAN		18.42	83.90	39.04	<0.250 U		<0.250 U	<0.250 U	<0.250 U	0.500 I
THOMPSON, DAN & TAMMY	3/24/2011 14:53 THOMPSON		30.90	25.60	78.40	<0.5		<0.5	<0.5	<0.5	4.16
JAMISON SHERRI* WELL #4	1/12/2011 16:00 WELL #4		54.05		12.52	<5.000 U		<1.250 U	0.270 I	0.310 I	0.750 I
SWARTZ, JAMES AND SHIRLEY	11/7/2011 14:30 SWARTZ		<0.250 U		14.27	<0.250 U		<0.250 U	<0.250 U	0.430 I	16.00
CARTER, ADENA	11/30/2011 13:01 CARTER-51372		<0.250 U		225.11	<0.250 U		<0.250 U	<0.250 U	<0.250 U	77.02
MAITICE, BRADLY S	8/2/2011 53483-MAITICE		<0.250 U		53.85	<0.250 U		<0.250 U	<0.250 U	<0.250 U	4.02
NELSON, JAMES A AND PAMELA L	10/31/2011 12:10 MASTANDREA - 164821		<0.250 U		12.62	<0.250 U		<0.250 U	<0.250 U	<0.250 U	3.22
SCHLOSSER, DAVE	10/28/2011 12:55 SCHLOSSER - 170885		<0.250 U		23.92	<0.250 U		<0.250 U	<0.250 U	0.260 I	5.60
IANES, BUTCH	9/17/2011 14:30 IANES		<0.250 U		3.71	<0.250 U		<0.250 U	<0.250 U	0.540 I	6.89
BRONSON, LINDA AND PAUL	10/31/2011 13:58 BRONSON - 190777		<0.250 U		12.49	<0.250 U		<0.250 U	<0.250 U	<0.250 U	11.69
LOGAN, SCOTT W.	8/11/2011 14:45 LOGAN		<0.250 U		98.03	<0.250 U		<0.250 U	<0.250 U	<0.250 U	4.14
METCALF, BOB	8/8/2011 13:25 METCALF		<0.250 U		31.00	<0.250 U		<0.250 U	<0.250 U	0.280 I	1.57
HOLAYTER BILL AND MARLENE	11/7/2011 HOLAYTER - 237622		<0.250 U		115.46	<0.250 U		<0.250 U	<0.250 U	<0.250 U	8.79
KACHINSKY, DAN AND LOHNA	8/31/2011 12:36 KACHINSKY - 246833		<0.250 U		16.42	<0.250 U		<0.250 U	<0.250 U	0.280 I	0.390 I
PRETE, JOSEPH	11/2/2011 12:34 PRETE - 250979		<0.250 U		73.96	<0.250 U		<0.250 U	<0.250 U	0.380 I	1.92
SILZIV, ROSEMARIE	9/9/2011 14:04 SILZIV - 262839		<0.250 U		24.35	<0.250 U		<0.250 U	<0.250 U	<0.250 U	24.46
MICHELLS, KEITH	9/9/2011 12:59 SILZIV - 262840		<0.250 U		35.53	<0.250 U		<0.250 U	<0.250 U	<0.250 U	0.580 I
STANDISH, NANCY	10/11/2011 15:20 STANDISH		<0.250 U		30.49	<0.250 U		<0.250 U	<0.250 U	0.370 I	3.56
RUSINSKI, JOHN	11/7/2011 RUSINSKI-263724		<0.250 U		22.40	<0.250 U		<0.250 U	<0.250 U	<0.250 U	6.15
VIOLLETTE, ESTHER	11/16/2011 12:08 VIOLLETTE-263725		<0.250 U		50.32	<0.250 U		<0.250 U	<0.250 U	<0.250 U	14.10
SVENDSEN, JAMES	12/15/2011 12:55 SVENDSEN		<0.250 U		76.10	<0.250 U		<0.250 U	<0.250 U	<0.250 U	5.04
ELMOSE, MORRIS & MARY ANNE	3/3/2011 14:12 ELMOSE 53497		<0.5	<5.0	92.40	<0.5		<0.5	<0.5	<0.5	<1.3
GEMBAR AND STORE INC	2/23/2011 13:03 MCGIFFE-53514		<0.5	<5.0	152.00	<0.5		<0.5	<0.5	<0.5	4.68
EDGE KEITH	1/6/2011 14:39 EDGE-185841		<0.5	<5.0	30.00	<0.5		<0.5	<0.5	<0.5	2.72
PROBERT RAYMOND J AND CHARLOTTE D	3/3/2011 12:56 PROBERT 186594		<0.5	<5.0	220.00	<0.5		<0.5	<0.5	<0.5	1.98
DUNCAN RICK	2/23/2011 14:02 DUNCAN-195506		<0.5	7.57	45.20	<0.5		<0.5	<0.5	<0.5	<1.3
KIESER, FRANK	1/5/2011 14:15 KIESER-221439		<0.5	<5.0	29.80	<0.5		<0.5	<0.5	<0.5	2.52
KELLEY, JAMES	1/28/2011 13:10 KELLEY 259998		<0.5	14.50	29.30	<0.5		<0.5	<0.5	<0.5	4.01
STAFFORD, LAURA	2/18/2011 12:41 STAFFORD-260033		<0.5	11.70	17.10	<0.5		<0.5	<0.5	<0.5	15.60
HANSON, ROGER	2/18/2011 13:34 HANSON 260550		<0.5	13.00	33.60	<0.5		<0.5	<0.5	<0.5	29.10
CLAWSON, CINDY	2/9/2011 13:36 CLAWSON 260555		<0.5	<5.0	<0.5	<0.5		<0.5	<0.5	<0.5	<1.3
SEVALSTAD, MICHAEL	10/17/2011 13:03 SEVALSTED - 263360		0.250 I		30.79	<0.250 U		<0.250 U	<0.250 U	0.260 I	1.55
MOORE ROBERT & TAMI	8/12/2011 13:12 MOORE		0.280 I		96.61	<0.250 U		<0.250 U	<0.250 U	<0.250 U	0.890 I
WHITE RUSSELL & PAT	12/27/2011 12:39 WHITE 52670		0.300 I		22.12	<0.250 U		<0.250 U	<0.250 U	<0.250 U	1.38
KINNEY, GREGG	12/20/2011 16:10 KINNEY #2		0.300 I		13.42	<0.250 U		<0.250 U	<0.250 U	<0.250 U	0.330 I
WOLFE, FRANK	12/27/2011 11:48 WOLFE 173106 DUP		0.300 I		30.44	<0.250 U		<0.250 U	<0.250 U	<0.250 U	2.00

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	Li (ug/l)	Mo (ug/l)	Ni (ug/l)	Pb (ug/l)	Sb (ug/l)	Se (ug/l)	Sn (ug/l)	Sr (ug/l)	Ti (ug/l)
JAMISON, SHERRI* WELL #3	7/12/2011 13:37 WELL #3		7.41	0.32	0.990 J	<1.250 U	<1.250 U	<1.250 U	5.68	696.87	1.82
MAYNARD, DAVE	1/24/2011 13:45 MAYNARD		18.80	0.95	<0.5	<0.5	<0.5	<0.5	<1.3	1188.00	1.16
CLAWSON, CINDY	2/9/2011 14:18 CLAWSON-260552		<5.0	3.23	1.18	<0.5	<0.5	<0.5		288.00	<0.5
MCNEIL SCOTT	7/20/2011 11:32 145972 MCNEIL		2.810 J	1.130 J	1.220 J	<0.500 U	<1.250 U	<1.250 U	4.89	244.42	1.38
BAILEY, DIANA	8/24/2011 14:15 BAILEY 262782		10.26	0.740 J	<0.250 U	0.280 J	<0.250 U	0.630 J	<0.250 U	213.75	0.540 J
JETTE, ARTHUR & JESSIE	9/26/2011 12:18 JETTE - 51744		4.100 J	1.050 J	<0.250 U	<0.100 U	<0.250 U	0.650 J	<0.250 U	168.66	<0.250 U
MILLER, GARY	8/26/2011 10:45 MILLER, GARY		1.700 J	<0.250 U	1.110 J	0.51	<0.250 U	<0.250 U	<0.250 U	76.55	15.68
PETERSON, HENRY	3/17/2011 15:15 PETERSON HOUSE 223085 "TR"		6.61	1.20	<0.5	<0.5	<0.5	<0.5		221.00	<0.5
MITCHELL, HAROLD	2/16/2011 13:48 MITCHELL 260549		8.49	1.11	0.71	4.13	<0.5	0.75		226.00	21.60
RANKIN, KEITH AND JEAN	9/14/2011 12:42 RANKIN 198928		<1.000 U	<0.250 U	0.430 J	0.310 J	<0.250 U	<0.250 U	<0.250 U	15.76	5.99
FARRELL, LARRY D & MICHELLE R	9/7/2011 14:54 FARRELL 126679		12.18	1.58	<0.250 U	0.240 J	<0.250 U	1.140 J	<0.250 U	151.81	1.060 J
FLACHMEYER DAN	8/10/2011 FLACHMEYER		16.05	1.26	0.490 J	1.25	<0.250 U	1.69	<0.250 U	194.79	20.20
WHITAKER, RAY	3/23/2011 14:57 WHITAKER 181457		48.60	6.76	<0.5	<0.5	<0.5	0.64	<1.3	370.00	1.01
GRAVES RUSSEL	4/27/2011 14:31 GRAVES - 196975		12.47	2.29	<0.50 U	6.54	<0.50 U	0.71	0.4800 J	253.21	0.3500 J
MCQUEARY CAM	1/6/2011 12:12 MCQUEARY 250294		8.58	4.18	<0.5	0.97	<0.5	1.55	<1.3	195.00	18.10
DENNIS KEVIN	10/26/2011 12:38 DENNIS 122350		9.55	2.49	<0.250 U	<0.100 U	<0.250 U	1.58	<0.250 U	687.30	0.960 J
WAYMIRE, EDWARD	1/6/2011 13:02 WAYMIRE-156249		<5.0	2.17	<0.5	<0.5	<0.5	<0.5	<1.3	139.00	4.58
GESSELE, EDWIN C JR	1/11/2011 13:15 GESSELE 259949		<5.0	3.57	<0.5	<0.5	<0.5	<0.5	<1.3	127.00	9.04
ARENTZ, IVAN EUGENE	10/24/2011 14:20 ARENTZ		21.91	3.14	<0.250 U	<0.100 U	<0.250 U	1.50	<0.250 U	140.14	<0.250 U
UPRIGHT, KELLY	2/23/2011 15:14 UPRIGHT-260551		21.40	2.02	6.48	6.15	<0.5	2.39		513.00	182.00
ANKELMAN, PATRICK AND LYNELLA	8/3/2011 15:30 ANKELMAN		5.87	3.33	<0.250 U	<0.100 U	<0.250 U	0.820 J	<0.250 U	85.97	1.48
THOMPSON, DAN & TAMMY	3/24/2011 14:53 THOMPSON		8.72	2.98	<0.5	<0.5	<0.5	<0.5		422.00	0.74
JAMISON SHERRI* WELL #4	1/12/2011 16:00 WELL #4		96.89	1.40	2.12	1.040 J	5.03	<1.250 U	4.22	5244.83	10.55
SWARTZ, JAMES AND SHIRLEY	11/7/2011 14:30 SWARTZ		39.06	<0.250 U	<0.250 U	<0.100 U	<0.250 U	0.650 J	<0.250 U	2699.94	3.56
CARTER, ADENA	11/30/2011 13:01 CARTER-51372		<1.000 U	<0.250 U	1.37	0.59	<0.250 U	<0.250 U	<0.250 U	62.70	<0.250 U
MAITICE, BRADLY S	8/2/2011 53483-MAITICE		2.740 J	4.17	0.990 J	0.80	<0.250 U	<0.250 U	<0.250 U	264.92	<0.250 U
NELSON, JAMES A AND PAMELA L	10/31/2011 12:10 MASTLANDREA - 164821		2.070 J	2.04	<0.250 U	<0.100 U	<0.250 U	<0.250 U	<0.250 U	206.06	<0.250 U
SCHLOSSER, DAVE	10/28/2011 12:55 SCHLOSSER - 170885		2.190 J	1.40	<0.250 U	<0.100 U	<0.250 U	<0.250 U	<0.250 U	141.92	<0.250 U
LANES, BUTCH	9/17/2011 14:30 LANES		2.260 J	<0.250 U	<0.250 U	<0.100 U	<0.250 U	<0.250 U	<0.250 U	60.90	<0.250 U
BROWNSON, LINDA AND PAUL	10/31/2011 13:58 BROWNSON - 190777		1.200 J	0.880 J	<0.250 U	<0.100 U	<0.250 U	<0.250 U	<0.250 U	61.39	<0.250 U
LOGAN, SCOTT W.	8/11/2011 14:45 LOGAN		27.14	1.210 J	<0.250 U	0.120 J	<0.250 U	<0.250 U	<0.250 U	983.53	0.290 J
METCALF, BOB	8/8/2011 13:25 METCALF		11.12	2.19	<0.250 U	<0.100 U	<0.250 U	0.920 J	<0.250 U	790.45	0.290 J
HOLAYTER BILL AND MARLENE	11/7/2011 HOLAYTER - 237622		<1.000 U	<0.250 U	<0.250 U	<0.100 U	<0.250 U	<0.250 U	<0.250 U	347.30	<0.250 U
KACHINSKY, DAN AND LOHNA	8/31/2011 12:36 KACHINSKY - 246833		4.480 J	2.12	<0.250 U	0.240 J	<0.250 U	<0.250 U	<0.250 U	113.14	<0.250 U
PRETTE, JOSEPH	11/2/2011 12:34 PRETTE - 250979		1.720 J	<0.250 U	<0.250 U	<0.100 U	<0.250 U	<0.250 U	<0.250 U	91.03	0.690 J
SILZIV, ROSEMARIE	9/9/2011 14:04 SILZIV - 262839		3.560 J	0.780 J	<0.250 U	2.58	<0.250 U	0.280 J	<0.250 U	98.68	<0.250 U
MICHELIS, KEITH	9/9/2011 12:59 SILZIV - 262840		2.890 J	0.460 J	1.090 J	0.81	<0.250 U	0.260 J	<0.250 U	89.30	<0.250 U
STANDISH, NANCY	10/11/2011 15:20 STANDISH		<1.000 U	<0.250 U	<0.250 U	0.130 J	<0.250 U	<0.250 U	<0.250 U	140.71	0.730 J
RUSINSKI, JOHN	11/7/2011 RUSINSKI-263724		2.600 J	1.47	0.960 J	2.71	<0.250 U	<0.250 U	<0.250 U	187.93	<0.250 U
VIOLETTE, ESTHER	11/16/2011 12:08 VIOLETTE-263725		1.840 J	1.77	<0.250 U	<0.100 U	<0.250 U	<0.250 U	<0.250 U	116.80	<0.250 U
SVENDSEN, JAMES	12/15/2011 12:55 SVENDSEN		3.670 J	1.180 J	<0.250 U	<0.100 U	<0.250 U	<0.250 U	<0.250 U	209.44	<0.250 U
ELMOSE, MORRIS & MARY ANNE	3/3/2011 14:12 ELMOSE 53497		<5.0	0.90	<0.5	<0.5	<0.5	<0.5		181.00	0.99
GEMBAR AND STORE INC	2/23/2011 13:03 MCGIFFE-53514		<5.0	1.60	<0.5	<0.5	<0.5	<0.5		235.00	<0.5
EDGE KEITH	1/6/2011 14:39 FDGF-185841		<5.0	3.04	<0.5	<0.5	<0.5	<0.5	<1.3	134.00	<0.5
PROBERT RAYMOND J AND CHARLOTTE D	3/3/2011 12:56 PROBERT 186594		<5.0	2.01	<0.5	<0.5	<0.5	<0.5		323.00	1.07
DUNCAN RICK	2/23/2011 14:02 DUNCAN-195506		<5.0	1.08	<0.5	<0.5	<0.5	<0.5		221.00	<0.5
KIESER, FRANK	1/5/2011 14:15 KIESER-221439		<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<1.3	47.80	<0.5
KELLEY, JAMES	1/28/2011 13:10 KELLEY 259998		<5.0	5.89	<0.5	<0.5	<0.5	<0.5	<1.3	214.00	<0.5
STAFFORD, LAURA	2/18/2011 12:41 STAFFORD-260033		<5.0	9.47	<0.5	1.82	<0.5	<0.5		173.00	0.83
HANSON, ROGER	2/18/2011 13:34 HANSON 260550		<5.0	0.51	<0.5	0.82	<0.5	<0.5		209.00	<0.5
CLAWSON, CINDY	2/9/2011 13:36 CLAWSON 260555		<5.0	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5
SEVALSTAD, MICHAEL	10/17/2011 13:03 SEVALSTED - 263360		<1.000 U	0.890 J	<0.250 U	<0.100 U	<0.250 U	0.370 J	<0.250 U	124.13	<0.250 U
MOORE ROBERT & TAMI	8/12/2011 13:12 MOORE		20.64	0.480 J	0.290 J	0.240 J	<0.250 U	<0.250 U	<0.250 U	779.53	0.760 J
WHITE RUSSELL & PAT	12/27/2011 12:39 WHITE 52670		3.550 J	1.62	<0.250 U	<0.100 U	<0.250 U	<0.250 U	<0.250 U	124.89	<0.250 U
KINNEY, GREGG	12/20/2011 16:10 KINNEY #2		16.08	3.77	<0.250 U	<0.100 U	<0.250 U	<0.250 U	<0.250 U	1280.51	1.180 J
WOLFE, FRANK	12/27/2011 11:48 WOLFE 173306 DUP		3.000 J	0.900 J	<0.250 U	<0.100 U	<0.250 U	0.490 J	<0.250 U	114.70	<0.250 U

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	Tl (ug/l)	U (ug/l)	V (ug/l)	Zn (ug/l)	Zr (ug/l)	Ce (ug/l)	Cs (ug/l)	Ga (ug/l)	La (ug/l)
JAMISON, SHERRI* WELL #3	7/12/2011 13:37 WELL #3		<1.250 U	3.59	4.64	<1.250 U	<1.250 U	<0.020 U	<1.250 U	<1.250 U	<5.000 U
MAYNARD, DAVE	1/24/2011 13:45 MAYNARD		<0.5	1.55	0.75	3.04	<0.5	<0.5	<1.3	<0.5	<0.5
CLAWSON, CINDY	2/9/2011 14:18 CLAWSON-260552		<0.5	4.08	6.72	51.80	<0.5	<0.5	<1.3	23.70	<0.5
MCNEIL SCOTT	7/20/2011 11:32 145972 MCNEIL		<1.250 U	2.82	1.95	2.010 I	<1.250 U	<1.250 U	<1.250 U	<1.250 U	<1.250 U
BAILEY, DIANA	8/24/2011 14:15 BAILEY 262782		<0.250 U	2.39	1.73	9.59	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
JETTE, ARTIUR & JESSIE	9/26/2011 12:18 JETTE - 51744		<0.250 U	1.77	2.43	1.930 I	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
MILLER, GARY	8/26/2011 10:45 MILLER, GARY		<0.250 U	0.320 I	0.980 I	2.420 I	0.930 I	1.60	0.720 I	0.260 I	0.890 I
PETERSON, HENRY	3/17/2011 15:15 PETERSON HOUSE 223085 "TR"		<0.5	1.73	5.47	2.14	<0.5	<0.5	<1.3	24.90	<0.5
MITCHELL, HAROLD	2/16/2011 13:48 MITCHELL 260549		<0.5	1.94	3.64	50.10	1.32	0.93	<1.3	33.70	0.53
RANKIN, KEITH AND JEAN	9/14/2011 12:42 RANKIN 198928		<0.250 U	<0.250 U	1.090 I	12.89	<0.250 U	0.270 I	<0.250 U	<0.250 U	<0.250 U
FARRELL, LARRY D & MICHELLE R	9/7/2011 14:54 FARRELL 126679		<0.250 U	2.44	9.93	6.23	<0.250 U	<0.250 U	0.430 I	<0.250 U	<0.250 U
FLACHMEYER DAN	8/10/2011 FLACHMEYER		<0.250 U	1.87	4.63	<0.500 U	0.340 I	2.13	<0.250 U	<0.250 U	1.26
WHITAKER, RAY	3/23/2011 14:57 WHITAKER 181457		<0.5	16.60	11.90	1.37	<0.5	<0.5	7.60	<0.5	<0.5
GRAVES RUSSEL	4/27/2011 14:31 GRAVES - 196975		0.1400 I	1.47	13.74	<1.00 U	0.1600 I	<0.50 U	0.2300 I	<0.50 U	<0.50 U
MCQUEARY CAM	1/6/2011 12:12 MCQUEARY 250294		<0.5	1.45	9.10	18.90	1.04	1.95	<1.3	<0.5	1.24
DENNIS KEVIN	10/26/2011 12:38 DENNIS 122350		<0.250 U	11.77	23.38	10.15	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
WAYMIRE, EDWARD	1/6/2011 13:02 WAYMIRE-156249		<0.5	1.06	11.90	4.94	<0.5	<0.5	<1.3	<0.5	<0.5
GESSELE, EDWIN C JR	1/11/2011 13:15 GESSELE 259949		<0.5	1.54	11.00	7.53	0.62	<0.5	<1.3	<0.5	<0.5
ARENTZ, IVAN EUGENE	10/24/2011 14:20 ARENTZ		<0.250 U	0.950 I	14.50	4.36	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
UPRIGHT, KELLY	2/23/2011 15:14 UPRIGHT-260551		<0.5	8.30	21.60	41.50	3.11	5.71	15.90	28.70	3.16
ANKELMAN, PATRICK AND LYNELLA	8/3/2011 15:30 ANKELMAN		<0.250 U	<0.250 U	1.100 I	4.65	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
THOMPSON, DAN & TAMMY	3/24/2011 14:53 THOMPSON		<0.5	4.66	4.16	9.34	<0.5	<0.5	18.10	35.40	<0.5
JAMISON SHERRI* WELL #4	1/12/2011 16:00 WELL #4		<1.250 U	0.610 I	<1.250 U	<1.250 U	0.520 I	<0.020 U	1.94	<1.250 U	<5.000 U
SWARTZ, JAMES AND SHIRLEY	11/7/2011 14:30 SWARTZ		<0.250 U	0.610 I	<0.250 U	37.23	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
CARTER, ADENA	11/30/2011 13:01 CARTER-51372		<0.250 U	<0.250 U	<0.250 U	29.88	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
MAITICE, BRADLY S	8/2/2011 53483-MAITICE		<0.250 U	14.60	0.340 I	21.54	0.560 I	<0.250 U	<0.250 U	<0.250 U	<0.250 U
NELSON, JAMES A AND PAMELA L	10/31/2011 12:10 MAST/ANDREA - 164821		<0.250 U	5.51	0.750 I	4.36	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
SCHLOSSER, DAVE	10/28/2011 12:55 SCHLOSSER - 170885		<0.250 U	3.03	0.570 I	20.99	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
IANES, BUTCH	9/17/2011 14:30 IANES		<0.250 U	<0.250 U	0.950 I	3.11	<0.250 U	<0.250 U	0.330 I	<0.250 U	<0.250 U
BRONSON, LINDA AND PAUL	10/31/2011 13:58 BRONSON - 190777		<0.250 U	0.450 I	0.760 I	1.320 I	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
LOGAN, SCOTT W.	8/11/2011 14:45 LOGAN		<0.250 U	1.69	<0.250 U	15.06	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
METCALF, BOB	8/8/2011 13:25 METCALF		<0.250 U	6.01	0.610 I	15.88	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
HOLAYTER BILL AND MARLENE	11/7/2011 HOLAYTER - 237622		<0.250 U	0.380 I	<0.250 U	19.80	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
KACHINSKY, DAN AND LOHNA	8/31/2011 12:36 KACHINSKY - 246833		<0.250 U	1.27	1.70	4.53	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
PRETE, JOSEPH	11/2/2011 12:34 PRETE - 250979		<0.250 U	<0.250 U	0.700 I	18.54	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
SILZIV, ROSEMARIE	9/9/2011 14:04 SILZIV - 262839		<0.250 U	1.130 I	0.580 I	20.88	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
MICHELIS, KEITH	9/9/2011 12:59 SILZIV - 262840		<0.250 U	0.420 I	<0.250 U	24.89	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
STANDISH, NANCY	10/11/2011 15:20 STANDISH		<0.250 U	<0.250 U	0.760 I	2.87	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
RUSINSKI, JOHN	11/7/2011 RUSINSKI-263724		<0.250 U	4.98	0.970 I	141.05	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
VIOLLETTE, ESTHER	11/16/2011 12:08 VIOLLETTE-263725		<0.250 U	5.75	0.440 I	6.21	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
SVENDSEN, JAMES	12/15/2011 12:55 SVENDSEN		<0.250 U	5.34	0.820 I	4.26	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
ELMOSE, MORRIS & MARY ANNE	3/3/2011 14:12 ELMOSE 53497		<0.5	3.50	0.84	<1.3	<0.5	<0.5	<1.3	34.10	<0.5
GEMBAR AND STORE INC	2/23/2011 13:03 MCGIFFE-53514		<0.5	1.92	0.81	2.86	<0.5	<0.5	<1.3	38.60	<0.5
EDGE KEITH	1/6/2011 14:39 EDGE-185841		<0.5	13.60	<0.5	10.50	<0.5	<0.5	<1.3	<0.5	<0.5
PROBERT RAYMOND J AND CHARLOTTE D	3/3/2011 12:56 PROBERT 186594		<0.5	4.32	0.78	5.00	<0.5	<0.5	<1.3	50.20	<0.5
DUNCAN RICK	2/23/2011 14:02 DUNCAN-195506		<0.5	7.26	0.84	<1.3	<0.5	<0.5	<1.3	39.40	<0.5
KIESER, FRANK	1/5/2011 14:15 KIESER-221439		<0.5	<0.5	<0.5	<1.3	<0.5	<0.5	<1.3	<0.5	<0.5
KELLEY, JAMES	1/28/2011 13:10 KELLEY 259998		<0.5	19.80	0.58	7.48	<0.5	<0.5	<1.3	<0.5	<0.5
STAFFORD, LAURA	2/18/2011 12:41 STAFFORD-260033		<0.5	85.70	1.14	<1.3	<0.5	<0.5	<1.3	30.40	<0.5
HANSON, ROGER	2/18/2011 13:34 HANSON 260550		<0.5	9.15	1.41	1.32	<0.5	<0.5	<1.3	21.10	<0.5
CLAWSON, CINDY	2/9/2011 13:36 CLAWSON 260555		<0.5	<0.5	<0.5	<1.3	<0.5	<0.5	<1.3	<0.5	<0.5
SEVALSTAD, MICHAEL	10/17/2011 13:03 SEVALSTED - 263360		<0.250 U	2.16	0.630 I	0.580 I	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
MOORE ROBERT & TAMM	8/12/2011 13:12 MOORE		<0.250 U	0.720 I	<0.250 U	25.81	<0.250 U	<0.250 U	0.670 I	<0.250 U	<0.250 U
WHITE RUSSELL & PAT	12/27/2011 12:39 WHITE 52670		<0.250 U	1.77	0.660 I	<0.500 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
KINNEY, GREGG	12/20/2011 16:10 KINNEY #2		<0.250 U	7.86	<0.250 U	4.91	0.250 I	<0.250 U	<0.250 U	<0.250 U	<0.250 U
WOLFE, FRANK	12/27/2011 11:48 WOLFE 173106 DUP		<0.250 U	1.120 I	0.490 I	28.27	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	Nb (ug/l)	Nd (ug/l)	Pd (ug/l)	Pr (ug/l)	Rb (ug/l)	Th (ug/l)	W (ug/l)	Procedure
JAMISON, SHERRI* WELL #3	7/12/2011 13:37 WELL #3		<1.250 U	<0.050 U	0.270 J	<1.250 U	0.410 J	<1.250 U	<1.250 U	TOTAL RECOVERABLE
MAYNARD, DAVE	1/24/2011 13:45 MAYNARD		<1.3	<0.5	<1.3	<0.5	<1.3	<0.5	<0.5	TOTAL RECOVERABLE
CLAWSON, CINDY	2/9/2011 14:18 CLAWSON-260552		<1.3	<0.5	<1.3	<0.5	2.85	<0.5	<0.5	TOTAL RECOVERABLE
MCNEIL SCOTT	7/20/2011 11:32 145972 MCNEIL		<1.250 U	<1.250 U	<1.250 U	<1.250 U	<1.250 U	<1.250 U	<1.250 U	TOTAL RECOVERABLE
BAILEY, DIANA	8/24/2011 14:15 BAILEY 262782		<0.250 U	<0.250 U	<0.250 U	<0.250 U	5.66	<0.250 U	<0.250 U	TOTAL RECOVERABLE
JETTE, ARTHUR & JESSIE	9/26/2011 12:18 JETTE - 51744		<0.250 U	<0.250 U	<0.250 U	<0.250 U	6.48	<0.250 U	<0.250 U	TOTAL RECOVERABLE
MILLER, GARY	8/26/2011 10:45 MILLER, GARY		<0.250 U	0.910 J	<0.250 U	<0.250 U	2.32	0.280 J	<0.250 U	TOTAL RECOVERABLE
PETERSON, HENRY	3/17/2011 15:15 PETERSON HOUSE 223085 "TR"		<1.3	<0.5	<1.3	<0.5	13.50	<0.5	2.24	TOTAL RECOVERABLE
MITCHELL, HAROLD	2/16/2011 13:48 MITCHELL 260549		<1.3	0.54	<1.3	<0.5	5.59	<0.5	<0.5	TOTAL RECOVERABLE
RANKIN, KEITH AND JEAN	9/14/2011 12:42 RANKIN 198928		<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.990 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE
FARRELL, LARRY D & MICHELLE R	9/7/2011 14:54 FARRELL 126679		<0.250 U	<0.250 U	<0.250 U	<0.250 U	15.26	<0.250 U	0.570 J	TOTAL RECOVERABLE
FLACHMEYER DAN	8/10/2011 FLACHMEYER		<0.250 U	1.35	<0.250 U	0.270 J	6.78	0.360 J	<0.250 U	TOTAL RECOVERABLE
WHITAKER, RAY	3/23/2011 14:57 WHITAKER 181457		<1.3	<0.5	<1.3	<0.5	7.43	<0.5	26.50	TOTAL RECOVERABLE
GRAVES RUSSEL	4/27/2011 14:31 GRAVES - 196975		<0.50 U	<0.50 U	<0.50 U	<0.50 U	10.16	<0.50 U	3.68	TOTAL RECOVERABLE
MCQUEARY CAM	1/6/2011 12:12 MCQUEARY 250294		<1.3	<0.5	<1.3	0.74	8.37	<0.5	1.26	TOTAL RECOVERABLE
DENNIS KEVIN	10/26/2011 12:38 DENNIS 122350		<0.250 U	<0.250 U	<0.250 U	<0.250 U	7.10	<0.250 U	0.380 J	TOTAL RECOVERABLE
WAYMIRE, EDWARD	1/6/2011 13:02 WAYMIRE-156249		<1.3	<0.5	<1.3	<0.5	6.73	<0.5	<0.5	TOTAL RECOVERABLE
GESSELE, EDWIN C JR	1/11/2011 13:15 GESSELE 259949		<1.3	<0.5	<1.3	<0.5	6.53	<0.5	<0.5	TOTAL RECOVERABLE
ARENITZ, IVAN EUGENE	10/24/2011 14:20 ARENITZ		<0.250 U	<0.250 U	<0.250 U	<0.250 U	5.89	<0.250 U	<0.250 U	TOTAL RECOVERABLE
UPRIGHT, KELLY	2/23/2011 15:14 UPRIGHT-260551		<1.3	2.65	<1.3	0.68	32.20	1.39	<0.5	TOTAL RECOVERABLE
ANKELMAN, PATRICK AND LYNELLA	8/3/2011 15:30 ANKELMAN		<0.250 U	<0.250 U	<0.250 U	<0.250 U	3.35	<0.250 U	<0.250 U	TOTAL RECOVERABLE
THOMPSON, DAN & TAMMY	3/24/2011 14:53 THOMPSON		<1.3	<0.5	<1.3	<0.5	14.40	<0.5	<0.5	TOTAL RECOVERABLE
JAMISON SHERRI* WELL #4	1/12/2011 16:00 WELL #4		<1.250 U	<0.050 U	3.98	<1.250 U	4.26	<1.250 U	<1.250 U	TOTAL RECOVERABLE
SWARTZ, JAMES AND SHIRLEY	11/7/2011 14:30 SWARTZ		<0.250 U	<0.250 U	0.450 J	<0.250 U	4.14	<0.250 U	<0.250 U	TOTAL RECOVERABLE
CARTER, ADENA	11/30/2011 13:01 CARTER-51372		<0.250 U	<0.250 U	<0.250 U	<0.250 U	1.26	<0.250 U	<0.250 U	TOTAL RECOVERABLE
MAITKE, BRADLY S	8/2/2011 53483-MAITKE		<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.310 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE
NELSON, JAMES A AND PAMELA L	10/31/2011 12:10 MASTANDREA - 164821		<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
SCHLOSSER, DAVE	10/28/2011 12:55 SCHLOSSER - 170885		<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
JANES, BUTCH	9/17/2011 14:30 JANES		<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.850 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE
BRONSON, LINDA AND PAUL	10/31/2011 13:58 BRONSON - 190777		<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
LOGAN, SCOTT W.	8/11/2011 14:45 LOGAN		<0.250 U	<0.250 U	<0.250 U	<0.250 U	10.67	<0.250 U	<0.250 U	TOTAL RECOVERABLE
METCALF, BOB	8/8/2011 13:25 METCALF		<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
HOLAYTER BILL AND MARITNE	11/7/2011 HOLAYTER - 237622		<0.250 U	<0.250 U	<0.250 U	<0.250 U	1.74	<0.250 U	<0.250 U	TOTAL RECOVERABLE
KACHINSKY, DAN AND LOHNA	8/31/2011 12:36 KACHINSKY - 246833		<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
PRETE, JOSEPH	11/2/2011 12:34 PRETE - 250979		<0.250 U	<0.250 U	<0.250 U	<0.250 U	4.93	<0.250 U	<0.250 U	TOTAL RECOVERABLE
SILZLY, ROSEMARIE	9/9/2011 14:04 SILZLY - 262839		<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.450 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE
MICHAELS, KEITH	9/9/2011 12:59 SILZLY - 262840		<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
STANDISH, NANCY	10/11/2011 15:20 STANDISH		<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.530 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE
RUSINSKI, JOHN	11/7/2011 RUSINSKI-263724		<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
VIOLLETTE, ESTHER	11/16/2011 12:08 VIOLLETTE-263725		<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
SVENDSEN, JAMES	12/15/2011 12:55 SVENDSEN		<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
ELMOSE, MORRIS & MARY ANNE	3/3/2011 14:12 ELMOSE 53497		<1.3	<0.5	<1.3	<0.5	2.28	<0.5	<0.5	TOTAL RECOVERABLE
GEM BAR AND STORE INC.	2/23/2011 13:03 MCGHEE-53514		<1.3	<0.5	<1.3	<0.5	3.28	<0.5	<0.5	TOTAL RECOVERABLE
EDGE KEITH	1/6/2011 14:39 EDGE-185841		<1.3	<0.5	<1.3	<0.5	<1.3	<0.5	<0.5	TOTAL RECOVERABLE
PROBERT RAYMOND J AND CHARLOTTE D	3/3/2011 12:56 PROBERT 186594		<1.3	<0.5	<1.3	<0.5	4.78	<0.5	<0.5	TOTAL RECOVERABLE
DUNCAN RICK	2/23/2011 14:02 DUNCAN-195506		<1.3	<0.5	<1.3	<0.5	<1.3	<0.5	<0.5	TOTAL RECOVERABLE
KIESER, FRANK	1/5/2011 14:15 KIESER-221439		<1.3	<0.5	<1.3	<0.5	<1.3	<0.5	<0.5	TOTAL RECOVERABLE
KELLEY, JAMES	1/28/2011 13:10 KELLEY 259998		<1.3	<0.5	<1.3	<0.5	<1.3	<0.5	<0.5	TOTAL RECOVERABLE
STAFFORD, LAURA	2/18/2011 12:41 STAFFORD-260033		<1.3	<0.5	<1.3	<0.5	<1.3	<0.5	<0.5	TOTAL RECOVERABLE
HANSON, ROGER	2/18/2011 13:34 HANSON 260550		<1.3	<0.5	<1.3	<0.5	<1.3	<0.5	<0.5	TOTAL RECOVERABLE
CLAWSON, CINDY	2/9/2011 13:36 CLAWSON 260555		<1.3	<0.5	<1.3	<0.5	<1.3	<0.5	<0.5	TOTAL RECOVERABLE
SEVALSTAD, MICHAEL	10/17/2011 13:03 SEVALSTED - 263360		<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.260 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE
MOORE ROBERT & TAMI	8/12/2011 13:12 MOORE		<0.250 U	<0.250 U	<0.250 U	<0.250 U	7.08	<0.250 U	<0.250 U	TOTAL RECOVERABLE
WHITE RUSSELL & PAT	12/27/2011 12:39 WHITE 52670		<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
KINNEY, GREGG	12/20/2011 16:10 KINNEY #2		<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.970 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE
WOLFE, FRANK	12/27/2011 11:48 WOLFE 173106 DUP		<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.340 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

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)
200703	238242	CAKA MARK	8/31/2011 13:27	CAKA - 238242	8.9	6.65	331			43.45	8.78
201062	96383	CORTRIGHT, DALE	10/28/2011 13:29	CORTRIGHT 96383	9.0	6.91	208			24.99	6.79
200337	262012	DEAS, GRIZ	7/13/2011 12:25	GRIZ DEAS	7.2	7.42	295			40.64	8.34
200559	217794	BARDWELL, BARBARA A.	8/10/2011 15:15	BARDWELL	13.8	8.04	419			4.42	3.31
201014	173111	RITZMAN, ROBERT	11/3/2011 14:25	RITZMAN	8.3	8.02	479			65.39	16.62
200160	261629	CHISHOLM, DAVID AND SALLY ANN	6/10/2011 13:00	CHISHOLM	5.2	7.30	193			32.07	4.65
200737	204282	UELAND RYAN AND TINA	9/7/2011 14:15	UELAND	10.9	5.54	307			45.46	9.02
201135	51090	RICE, CAROL	12/21/2011 12:20	RICE 51090	7.5	6.38	167			19.92	5.53
200678	183265	DEATON LINDA	9/1/2011 15:30	DEATON	10.4	7.29	512			58.23	16.41
200923	263376	HURLEY, ROBERT	10/11/2011 16:20	HURLEY	7.4	6.72	123			13.63	2.98
201138	263916	PAMENTER, RUTH	12/19/2011 11:59	PAMENTER 263916	8.7	7.19	218			27.51	7.69
201134	263947	RICE, CAROL	12/21/2011 11:50	RICE 263947	7.3	6.26	170			20.75	5.79
200616	51775	ARWWS * JOHNSON RONALD * MW 61	8/19/2011 11:20	JOHNSON	8.9	6.89	985			146.34	31.56
200997	51370	NELSON, DAVE	10/24/2011 11:30	D NELSON	8.5	5.06	67			6.15	1.45
200163	53568	JIM NICHOLS	6/9/2011 11:55	NICHOLS	8.5	7.02	344			44.91	12.54
200704	51827	MCDOWELL HAROLD	9/7/2011 13:49	MCDOWELL 51827	7.7	7.18	269			37.93	8.39
200646	262533	GALLIK, RAY	8/23/2011 12:15	GALLIK SPRING - 262533	9.1	7.66	366			38.16	20.97
200818	51377	JOHNSON, RONALD	9/22/2011 13:20	JOHNSON 51377	8.0	5.71	81			8.81	1.90
200992	150258	KESSLER, DAVID	10/24/2011 13:42	KESSLER - 150258	9.2	7.93	506			63.07	15.47
200701	201477	CURRIAN, JANET	8/29/2011 13:25	CURRIAN - 201477	8.6	6.67	523			78.68	12.48
200989	263394	SIMON, STEVE	10/21/2011 10:29	SIMON 263394	8.4	6.87	252			33.03	8.19
200986	51851	HANSEN, RON	10/12/2011 15:00	HANSEN - 51851	9.5	8.85	480			3.58	1.11
200611	184523	HILL, STEPHEN	8/12/2011 14:10	HILL	13.2	5.81	397			45.69	8.09
200644	150254	GALLIK RAY	8/23/2011 11:55	GALLIK 150254	8.8	7.08	457			46.74	21.81
200376	156183	MULCAHY, PAI	7/20/2011 12:37	156183-MULCAHY	10.2	6.74	605			74.34	16.47
200614	207694	GRIFFIS HAROLD P	8/15/2011 15:20	GRIFFIS H.	9.9	7.16	422			45.09	11.19
200990	51755	RILEY, WESLEY & SHEILA	10/21/2011 12:18	RILEY - 51755	9.3	7.18	449			51.23	22.93
200861	51241	FIELD, WILLIAM AND CHRIS	9/28/2011 12:57	FIELD - 51241	8.8	7.03	257			32.87	8.32
200561	127075	LOGAN, SCOTT W.	8/11/2011 16:00	LOGAN 2	9.9	6.97	496			51.97	21.35
200645	216793	GALLIK RAYMOND D & BIGGS-GALLIK LORRAINE C	8/23/2011 13:00	GALLIK - 216793	8.4	7.16	512			58.58	21.62
200431	52149	GREEN, DELMER	8/2/2011 11:40	52149-GREEN	7.8	7.31	280			39.37	9.84
200991	263476	RILEY, BRIAN	10/24/2011 12:53	RILEY - 263476	9.1	7.78	444			23.15	4.31
200554	200065	BROTHERS KRISTI	8/8/2011 11:45	BROTHERS	10.8	6.92	495			69.83	17.31
200745	262838	POLAND, DAN AND ANOLA	9/15/2011 10:40	POLAND - 262838	10.2	6.29	246			30.30	6.48
201076	51240	SORUM KEVIN	11/16/2011 12:59	SORUM-51240	7.6	7.77	297			39.44	9.17
200556	226847	GRAHAM RANDY	8/9/2011 13:55	GRAHAM	9.7	6.87	543			65.36	19.48
200161	53568	JIM NICHOLS	6/9/2011 11:55	NICHOLS	8.5	7.02	344	7.55	308	47.42	12.34
200741	262855	WALTER, RICHARD	9/12/2011 12:10	WALTER #2	10.0	7.05	603	7.42	688	63.08	14.11
200302	262072	BROWN, DEAN	7/7/2011 12:00	DEAN BROWN	7.3	5.66	36	6.13	34	3.61	0.68
200995	263246	HANSEN, RONALD * HANSEN SPRING	10/12/2011 14:40	HANSEN - 263246	8.7	6.61	607	6.89	579	81.47	16.11
200340	257556	JAMISON, SHERRI * WELL #3	7/12/2011 13:37	WELL #3	11.4	6.09	411	7.69	502	61.09	7.31
2011Q1009	223085	PETERSON, HENRY	3/17/2011 15:15	PETERSON HOUSE 223085	12.8	7.21	269	7.60	277	27.10	7.05
200342	257557	JAMISON SHERRI * WELL #4	7/12/2011 16:00	WELL #4	11.2	5.54	1,058	7.29	1,147	142.04	15.80
200994	51851	HANSEN, RON	10/12/2011 15:00	HANSEN - 51851	9.5	8.85	480	9.32	460	3.56	1.04
200856	262840	MICHEL, KEITH	9/14/2011 14:32	SILZLY 262840	8.2	6.41	164	6.47	171	17.17	5.00
200159	261629	CHISHOLM, DAVID AND SALLY ANN	6/10/2011 13:00	CHISHOLM	5.2	7.30	193	7.72	170	34.68	4.61
200339	262012	DEAS, GRIZ	7/13/2011 12:25	GRIZ DEAS	7.2	7.42	295	7.70	325	48.68	8.78
200208	261937	WALTER, RICHARD	6/22/2011 15:00	WALTER DITCH	11.4	7.93	414	7.48	463	58.33	11.99
200742	262859	WALTER, RICHARD	9/14/2011 15:00	WALTER - 98	14.5	7.32	702	7.82	833	65.62	13.44
200863	263138	JONES, EVERETTE J	9/30/2011 11:35	SCHERMAN 263138	9.8	6.01	615	6.97	602	40.74	12.50
200862	263138	JONES, EVERETTE J	9/30/2011 11:35	SCHERMAN 263138	9.8	6.01	615			44.53	13.34
200744	262859	WALTER, RICHARD	9/14/2011 15:00	WALTER - 98	14.5	7.32	702			70.61	14.95
200979	263447	CHOQUETTE, WALTER	10/20/2011 15:10	CHOQUETTE	12.4	7.76	386			33.03	11.13
200978	263447	CHOQUETTE, WALTER	10/20/2011 15:10	CHOQUETTE	12.4	7.76	386	7.64	379	32.57	11.40
201070	263447	CHOQUETTE, WALTER	11/14/2011 12:36	CHOQUETTE - 263447	11.1	8.31	391	7.91	370	35.07	10.98
200115	51861	ANDREOZZI, BOB	5/27/2011 10:59	51861 ANDREOZZI	7.4	7.35	533	7.09	436	67.60	14.26

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	Na (mg/l)	K (mg/l)	Fe (mg/l)	Mn (mg/l)	SiO ₂ (mg/l)	HCO ₃ (mg/l)	CO ₃ (mg/l)
CAKA MARK	8/31/2011 13:27	CAKA - 238242	11.54	1.11	0.209	0.004 I			
CORTRIGHT, DALE	10/28/2011 13:29	CORTRIGHT 96383	6.42	0.98	0.047	<0.003 U			
DEAS, GRIZ	7/13/2011 12:25	GRIZ DEAS	12.96	0.860 I	0.371	0.038			
BARDWELL, BARBARA A.	8/10/2011 15:15	BARDWELL	92.12	1.59	0.047	0.004 I			
RITZMAN, ROBERT	11/3/2011 14:25	RITZMAN	13.73	2.62	0.220	0.006 I			
CHISHOLM, DAVID AND SALLY ANN	6/10/2011 13:00	CHISHOLM	1.25	0.59	0.031	0.6500 I			
UELAND RYAN AND TINA	9/7/2011 14:15	UELAND	4.38	1.36	0.022 I	<0.003 U			
RICE, CAROL	12/21/2011 12:20	RICE - 51090	5.24	0.84	0.144	<0.003 U			
DEATON LINDA	9/1/2011 15:30	DEATON	26.75	1.26	<0.002 U	<0.001 U			
HURLEY, ROBERT	10/11/2011 16:20	HURLEY	7.48	0.39	0.751	0.004 I			
PAMENTER, RUTH	12/19/2011 11:59	PAMENTER 263916	5.38	0.86	0.050	<0.003 U			
RICE, CAROL	12/21/2011 11:50	RICE - 263947	6.06	0.78	0.050	<0.003 U			
ARWWS * JOHNSON RONALD * MW 61	8/19/2011 11:20	JOHNSON	6.88	2.41	0.212	0.003 I			
NELSON, DAVE	10/24/2011 11:30	D NELSON	4.61	1.27	0.080	<0.003 U			
JIM NICHOLAS	6/9/2011 11:55	NICHOLAS	10.47	1.14	0.039	<3.00 U			
MCDOWELL HAROLD	9/7/2011 13:49	MCDOWELL - 51827	2.54	1.46	<0.005 U	<0.003 U			
GALLIK, RAY	8/23/2011 12:15	GALLIK SPRING- 262533	5.56	1.30	0.011	0.001 I			
JOHNSON, RONALD	9/22/2011 13:20	JOHNSON 51377	5.49	1.57	0.039	<0.003 U			
KESSLER, DAVID	10/24/2011 13:42	KESSLER - 150258	22.80	2.03	0.051	<0.003 U			
CURIVAN, JANET	8/29/2011 13:25	CURIVAN - 201477	7.83	1.83	0.021 I	<0.003 U			
SIMON, STEVE	10/21/2011 10:29	SIMON - 263394	6.62	1.11	0.042	<0.003 U			
HANSEN, RON	10/12/2011 15:00	HANSEN - 51851	100.10	1.74	6.698	0.039			
HILL, STEPHEN	8/12/2011 14:10	HILL	28.65	1.15	0.058	<0.001 U			
GALLIK RAY	8/23/2011 11:55	GALLIK - 150254	11.52	1.89	0.062	<0.001 U			
MULCAHY, PAT	7/20/2011 12:37	156183-MULCAHY	22.47	4.64	0.050	0.001 I			
GRIFFIS HAROLD P	8/15/2011 15:20	GRIFFIS H.	26.77	1.31	0.052	<0.001 U			
RILEY, WESLEY & SHEILA	10/21/2011 12:18	RILEY - 51755	8.22	1.42	2.218	0.012 I			
FELD, WILLIAM AND CHRIS	9/28/2011 12:57	FELD - 51241	7.34	1.40	0.100	<0.003 U			
LOGAN, SCOTT W.	8/11/2011 16:00	LOGAN ?	21.58	1.53	0.056	<0.001 U			
GALLIK RAYMOND D & BIGGS-GALLIK LORRAINE C	8/23/2011 13:00	GALLIK - 216793	17.07	1.56	0.054	0.002 I			
GREEN, DELMER	8/2/2011 11:40	52149-GREEN	1.94	1.24	0.118	<0.001 U			
RILEY, BRIAN	10/24/2011 12:53	RILEY - 263476	72.71	1.29	0.059	<0.003 U			
BROTHERS KRISTI	8/8/2011 11:45	BROTHERS	11.88	1.50	0.062	<0.001 U			
POLAND, DAN AND ANOLA	9/15/2011 10:40	POLAND- 262838	11.29	1.08	0.021 I	<0.003 U			
SORUM KEVIN	11/16/2011 12:59	SORUM-51240	7.63	0.90	0.097	<0.003 U			
GRAHAM RANDY	8/9/2011 13:55	GRAHAM	18.74	1.46	0.283	0.007			
JIM NICHOLLS	6/9/2011 11:55	NICHOLLS	9.99	1.13	<0.50 U	<0.30 U	13.6	185.4	0.0
WALTER, RICHARD	9/12/2011 12:10	WALTER #2	51.56	3.29	4.675	0.190	6.0	229.1	0.0
BROWN, DEAN	7/7/2011 12:00	DEAN BROWN	3.66	0.49	0.101	0.002 I	19.8	13.4	0.0
HANSEN, RONALD * HANSEN SPRING	10/12/2011 14:40	HANSEN - 263246	19.96	2.44	0.006 I	<0.001 U	14.4	192.9	0.0
JAMISON, SHERRI * WELL #3	7/12/2011 13:37	WELL #3	15.77	0.31	<0.002 U	<0.001 U	17.4	155.7	0.0
PETERSON, HENRY	3/17/2011 15:15	PETERSON HOUSE 223085	14.50	4.95	<0.002	<0.001	37.3	123.0	0.0
JAMISON SHERRI * WELL #4	7/12/2011 16:00	WELL #4	24.09	2.80	0.170	0.011	11.8	211.6	0.0
HANSEN, RON	10/12/2011 15:00	HANSEN - 51851	98.72	1.79	0.066	0.005 I	0.5	70.9	66.6
MICHEL, KEITH	9/14/2011 14:32	SILZY - 262840	5.65	0.91	2.458	0.016	15.1	76.6	0.0
CHISHOLM, DAVID AND SALLY ANN	6/10/2011 13:00	CHISHOLM	0.78	0.67	<0.50 U	0.1700 I	11.5	115.4	0.0
DEAS, GRIZ	7/13/2011 12:25	GRIZ DEAS	14.04	0.58	0.004	0.025	16.3	147.6	0.0
WALTER, RICHARD	6/22/2011 15:00	WALTER DITCH	17.79	4.70	0.003	0.011	15.6	150.5	0.0
WALTER, RICHARD	9/14/2011 15:00	WALTER- 98	86.37	8.15	1.961	0.359	7.2	240.2	0.0
JONES, EVERETTE J	9/30/2011 11:35	SCHERMAN - 263138	68.21	7.36	1.275	0.119	52.5	285.1	0.0
JONES, EVERETTE J	9/30/2011 11:35	SCHERMAN - 263138	70.94	7.91	1.778	0.136			
WALTER, RICHARD	9/14/2011 15:00	WALTER- 98	82.32	10.77	48.235	0.671			
CHOQUETTE, WALTER	10/20/2011 15:10	CHOQUETTE	24.24	5.45	0.059	0.007 I			
CHOQUETTE, WALTER	10/20/2011 15:10	CHOQUETTE	24.45	5.83	<0.002 U	0.006	50.6	135.7	0.0
CHOQUETTE, WALTER	11/14/2011 12:36	CHOQUETTE - 263447	23.86	5.62	0.020	0.001 I	49.1	134.6	0.0
ANDREOZZI, BOB	5/27/2011 10:59	51861 ANDREOZZI	29.72	2.45	0.013	0.002	14.7	192.7	0.0

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	SO4 (mg/l)	Cl (mg/l)	NO3-N (mg/l)	F (mg/l)	OPO4-P (mg/l)	Ag (ug/l)	Al (ug/l)
CAKA MARK	8/31/2011 13:27	CAKA - 238242						<0.250 U	4.880 J
CORTRIGHT, DALE	10/28/2011 13:29	CORTRIGHT 96383						<0.250 U	4.090 J
DEAS, GRIZ	7/13/2011 12:25	GRIZ DEAS						<1.250 U	90.51
BARDWELL, BARBARA A.	8/10/2011 15:15	BARDWELL						<0.250 U	17.73
RITZMAN, ROBERT	11/3/2011 14:25	RITZMAN						<0.250 U	52.61
CHISHOLM, DAVID AND SALLY ANN	6/10/2011 13:00	CHISHOLM						<1.00 U	15.90
UELAND RYAN AND TINA	9/7/2011 14:15	UELAND						<0.250 U	18.91
RICE, CAROL	12/21/2011 12:20	RICE - 51090						<0.250 U	3.550 J
DEATON LINDA	9/1/2011 15:30	DEATON						<0.100 U	23.66
HURLEY, ROBERT	10/11/2011 16:20	HURLEY						<0.250 U	7.86
PAMENTER, RUTH	12/19/2011 11:59	PAMENTER-263916						<0.250 U	4.470 J
RICE, CAROL	12/21/2011 11:50	RICE - 263947						<0.250 U	3.600 J
ARWWS * JOHNSON RONALD * MW 61	8/19/2011 11:20	JOHNSON						<0.250 U	42.99
NELSON, DAVE	10/24/2011 11:30	D NELSON						<0.250 U	78.52
JIM NICHOLS	6/9/2011 11:55	NICHOLS						<1.00 U	19.96
MCDOWELL HAROLD	9/7/2011 13:49	MCDOWELL - 51827						<0.250 U	5.75
GALLIK, RAY	8/23/2011 12:15	GALLIK SPRING- 262533						<0.250 U	32.38
JOHNSON, RONALD	9/22/2011 13:20	JOHNSON 51377						<0.250 U	129.91
KESSLER, DAVID	10/24/2011 13:42	KESSLER - 150258						<0.250 U	34.79
CURRIAN, JANET	8/29/2011 13:25	CURRIAN - 201477						<0.250 U	26.81
SIMON, STEVE	10/21/2011 10:29	SIMON - 263394						<0.250 U	4.870 J
HANSEN, RON	10/12/2011 15:00	HANSEN - 51851						<0.250 U	28.15
HILL, STEPHEN	8/12/2011 14:10	HILL						<0.250 U	17.98
GALLIK RAY	8/23/2011 11:55	GALLIK 150254						<0.250 U	19.11
MULCAHY, PAT	7/20/2011 12:37	156183-MULCAHY						<1.250 U	35.00
GRIFFIS HAROLD P	8/15/2011 15:20	GRIFFIS H.						<0.250 U	<1.000 U
RILEY, WESLEY & SHEILA	10/21/2011 12:18	RILEY - 51755						<0.250 U	29.31
FELD, WILLIAM AND CHRIS	9/28/2011 12:57	FELD - 51241						<0.250 U	4.550 J
LOGAN, SCOTT W.	8/11/2011 16:00	LOGAN ?						<0.250 U	20.48
GALLIK RAYMOND D & BIGGS-GALLIK LORRAINE C	8/23/2011 13:00	GALLIK- 216793						<0.250 U	7.56
GREEN, DELMER	8/2/2011 11:40	52149-GREEN						<0.250 U	12.13
RILEY, BRIAN	10/24/2011 12:53	RILEY - 263476						<0.250 U	20.33
BROTHERS KRISTI	8/8/2011 11:45	BROTHERS						0.445 J	41.49
POLAND, DAN AND ANOLA	9/15/2011 10:40	POLAND- 262838						<0.250 U	8.33
SORUM KEVIN	11/16/2011 12:59	SORUM-51240						<0.250 U	15.04
GRAHAM RANDY	8/9/2011 13:55	GRAHAM						<0.250 U	124.53
JIM NICHOLS	6/9/2011 11:55	NICHOLS	12.9	2.26	3.75	0.66	<0.10 U	<0.50 U	1.0300 J
WALTER, RICHARD	9/12/2011 12:10	WALTER #2	131.4	12.18	<0.010 U	0.69	<0.020 U	<0.100 U	19.80
BROWN, DEAN	7/7/2011 12:00	DEAN BROWN	5.8	0.51	<0.050 U	0.26	<0.100 U	<0.500 U	318.76
HANSEN, RONALD * HANSEN SPRING	10/12/2011 14:40	HANSEN - 263246	147.6	6.53	0.09	0.22	<0.020 U	<0.100 U	34.21
JAMISON, SHERRI * WELL #3	7/12/2011 13:37	WELL #3	69.3	3.15	2.80	0.07	<0.100 U	<0.500 U	19.21
PETERSON, HENRY	3/17/2011 15:15	PETERSON HOUSE 223085	18.8	6.97	1.37	0.39	<0.1	<0.2	<2.0
JAMISON SHERRI * WELL #4	7/12/2011 16:00	WELL #4	383.9	13.43	<0.050 U	1.11	<0.100 U	<1.250 U	47.36
HANSEN, RON	10/12/2011 15:00	HANSEN - 51851	86.7	5.73	<0.010 U	0.34	<0.020 U	<0.100 U	0.982 J
MICHEL, KEITH	9/14/2011 14:32	SILZLY 262840	14.0	1.41	0.23	0.24	<0.020 U	<0.100 U	1.030 J
CHISHOLM, DAVID AND SALLY ANN	6/10/2011 13:00	CHISHOLM	8.9	<0.50 U	0.19	0.70	<0.10 U	<0.50 U	19.91
DEAS, GRIZ	7/13/2011 12:25	GRIZ DEAS	9.2	34.66	0.05	2.48	<0.100 U	<0.500 U	3.43
WALTER, RICHARD	6/22/2011 15:00	WALTER DITCH	95.5	6.00	<0.050 U	0.17	<0.100 U	<0.500 U	2.36
WALTER, RICHARD	9/14/2011 15:00	WALTER- 98	211.6	8.00	0.07	1.45	<0.020 U	<0.100 U	218.15
JONES, EVERETTE J	9/30/2011 11:35	SCHERMAN - 263138	53.7	12.81	3.42	2.38	<0.020 U	<0.100 U	1616.02
JONES, EVERETTE J	9/30/2011 11:35	SCHERMAN - 263138						<0.250 U	2372.17
WALTER, RICHARD	9/14/2011 15:00	WALTER- 98						<0.250 U	5421.63
CHOQUETTE, WALTER	10/20/2011 15:10	CHOQUETTE						<0.250 U	25.46
CHOQUETTE, WALTER	10/20/2011 15:10	CHOQUETTE	45.9	21.71	2.05	0.53	<0.020 U	<0.100 U	0.716 J
CHOQUETTE, WALTER	11/14/2011 12:36	CHOQUETTE - 263447	44.4	21.37	2.01	0.48	<0.020 U	<0.100 U	22.99
ANDREOZZI, BOB	5/27/2011 10:59	51861 ANDREOZZI	97.5	6.76	1.75	0.81	<0.10 U	<0.50 U	0.4033 J

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	As (ug/l)	B (ug/l)	Ba (ug/l)	Be (ug/l)	Br (ug/l)	Cd (ug/l)	Co (ug/l)	Cr (ug/l)	Cu (ug/l)
CAKA MARK	8/31/2011 13:27	CAKA - 238242	0.300 J		16.97	<0.250 U		<0.250 U	<0.250 U	<0.250 U	17.45
CORTRIGHT, DALE	10/28/2011 13:29	CORTRIGHT 96383	0.330 J		27.73	<0.250 U		<0.250 U	<0.250 U	0.490 J	5.49
DEAS, GRIZ	7/13/2011 12:25	GRIZ DEAS	0.330 J		21.62	<5.000 U		0.670 J	<1.250 U	0.720 J	11.77
BARDWELL, BARBARA A.	8/10/2011 15:15	BARDWELL	0.350 J		38.85	<0.250 U		<0.250 U	<0.250 U	<0.250 U	0.600 J
RITZMAN, ROBERT	11/3/2011 14:25	RITZMAN	0.360 J		46.42	<0.250 U		<0.250 U	<0.250 U	0.280 J	1.98
CHISHOLM, DAVID AND SALLY ANN	6/10/2011 13:00	CHISHOLM	0.3900 J		5.46	<1.00 U		<1.00 U	<1.00 U	<1.00 U	2.78
UELAND RYAN AND TINA	9/7/2011 14:15	UELAND	0.400 J		16.09	<0.250 U		<0.250 U	<0.250 U	0.440 J	<0.250 U
RICE, CAROL	12/21/2011 12:20	RICE 51090	0.410 J		40.34	<0.250 U		<0.250 U	<0.250 U	<0.250 U	27.05
DEATON LINDA	9/1/2011 15:30	DEATON	0.420 J		60.84	<0.100 U		<0.100 U	<0.100 U	0.280 J	1.93
HURLEY, ROBERT	10/11/2011 16:20	HURLEY	0.420 J		75.34	<0.250 U		<0.250 U	<0.250 U	0.470 J	3.34
PAMENTER, RUTH	12/19/2011 11:59	PAMENTER 263916	0.430 J		46.14	<0.250 U		<0.250 U	<0.250 U	<0.250 U	6.01
RICE, CAROL	12/21/2011 11:50	RICE 263947	0.440 J		39.04	<0.250 U		<0.250 U	<0.250 U	<0.250 U	42.35
ARWWS * JOHNSON RONALD * MW 61	8/19/2011 11:20	JOHNSON	0.460 J		44.14	<0.250 U		<0.250 U	<0.250 U	<0.250 U	2.17
NELSON, DAVE	10/24/2011 11:30	D NELSON	0.500 J		16.60	<0.250 U		<0.250 U	<0.250 U	0.290 J	28.26
JIM NICHOLAS	6/9/2011 11:55	NICHOLAS	0.5000 J		39.09	<1.00 U		<1.00 U	<1.00 U	<1.00 U	2.85
MCDOWELL HAROLD	9/7/2011 13:49	MCDOWELL 51827	0.550 J		43.26	<0.250 U		<0.250 U	<0.250 U	0.320 J	0.370 J
GALLIK, RAY	8/23/2011 12:15	GALLIK SPRING- 262533	0.550 J		142.07	<0.250 U		<0.250 U	<0.250 U	0.450 J	<0.250 U
JOHNSON, RONALD	9/22/2011 13:20	JOHNSON 51377	0.580 J		43.10	<0.250 U		<0.250 U	<0.250 U	0.320 J	5.89
KESSLER, DAVID	10/24/2011 13:42	KESSLER - 150258	0.590 J		41.37	<0.250 U		<0.250 U	<0.250 U	0.470 J	2.80
CURRIAN, JANET	8/29/2011 13:25	CURRIAN - 201477	0.630 J		51.66	<0.250 U		<0.250 U	<0.250 U	0.280 J	0.380 J
SIMON, STEVE	10/21/2011 10:29	SIMON 263394	0.650 J		26.16	<0.250 U		<0.250 U	<0.250 U	0.460 J	3.05
HANSEN, RON	10/12/2011 15:00	HANSEN - 51851	0.700 J		8.28	<0.250 U		<0.250 U	<0.250 U	0.270 J	0.690 J
HILL, STEPHEN	8/12/2011 14:10	HILL	0.750 J		126.51	<0.250 U		<0.250 U	<0.250 U	0.340 J	1.44
GALLIK RAY	8/23/2011 11:55	GALLIK 150254	0.790 J		110.85	<0.250 U		<0.250 U	<0.250 U	<0.250 U	5.62
MULCAHY, PAT	7/20/2011 12:37	156183-MULCAHY	0.790 J		80.00	<1.250 U		<1.250 U	<1.250 U	<1.250 U	4.08
GRIFFIS HAROLD P	8/15/2011 15:20	GRIFFIS H.	0.840 J		89.26	<0.250 U		<0.250 U	<0.250 U	0.420 J	1.010 J
RILEY, WESLEY & SHEILA	10/21/2011 12:18	RILEY - 51755	0.900 J		136.45	<0.250 U		<0.250 U	<0.250 U	0.530 J	59.76
FELD, WILLIAM AND CHRIS	9/28/2011 12:57	FELD - 51241	0.910 J		24.95	<0.250 U		<0.250 U	<0.250 U	0.430 J	2.41
LOGAN, SCOTT W.	8/11/2011 16:00	LOGAN ?	0.970 J		101.07	<0.250 U		<0.250 U	<0.250 U	<0.250 U	1.28
GALLIK RAYMOND D & BIGGS-GALLIK LORRAINE C	8/23/2011 13:00	GALLIK - 216793	1.010 J		97.08	<0.250 U		<0.250 U	<0.250 U	0.280 J	2.87
GREEN, DELMER	8/2/2011 11:40	52149-GREEN	1.140 J		25.85	<0.250 U		<0.250 U	<0.250 U	<0.250 U	0.970 J
RILEY, BRIAN	10/24/2011 12:53	RILEY - 263476	1.150 J		65.86	<0.250 U		<0.250 U	<0.250 U	0.380 J	4.24
BROTHERS KRISTI	8/8/2011 11:45	BROTHERS	1.170 J		169.45	<0.250 U		<0.250 U	<0.250 U	<0.250 U	0.940 J
POLAND, DAN AND ANOLA	9/15/2011 10:40	POLAND- 262838	1.190 J		29.42	<0.250 U		<0.250 U	<0.250 U	<0.250 U	81.29
SORUM KEVIN	11/16/2011 12:59	SORUM-51240	1.230 J		19.47	<0.250 U		<0.250 U	<0.250 U	0.420 J	1.90
GRAHAM RANDY	8/9/2011 13:55	GRAHAM	1.240 J		147.47	<0.250 U		<0.250 U	<0.250 U	1.190 J	4.71
JIM NICHOLLS	6/9/2011 11:55	NICHOLLS	0.55	27.80	38.90	<0.50 U	<50.00 U	<0.50 U	<0.50 U	<0.50 U	0.51
WALTER, RICHARD	9/12/2011 12:10	WALTER #2	1.05	26.43	87.59	<0.100 U	109.00	<0.100 U	0.180 J	0.160 J	0.420 J
BROWN, DEAN	7/7/2011 12:00	DEAN BROWN	1.85	2.02	7.29	0.380 J	<50.000 U	0.120 J	0.260 J	0.160 J	3.60
HANSEN, RONALD * HANSEN SPRING	10/12/2011 14:40	HANSEN - 263246	2.01	5.53	60.47	<0.100 U	<10.000 U	<0.100 U	<0.100 U	0.160 J	1.88
JAMISON, SHERRI * WELL #3	7/12/2011 13:37	WELL #3	2.83	14.98	12.59	<0.500 U	<50.000 U	<0.500 U	0.150 J	0.460 J	0.60
PETERSON, HENRY	3/17/2011 15:15	PETERSON HOUSE 223085	5.14	22.20	37.10	<0.2	64.00	<0.2	<0.2	1.27	0.69
JAMISON SHERRI * WELL #4	7/12/2011 16:00	WELL #4	53.75	31.27	11.73	<1.250 U	91.00	<1.250 U	0.280 J	0.390 J	2.38
HANSEN, RON	10/12/2011 15:00	HANSEN - 51851	0.340 J	33.68	6.46	<0.100 U	<10.000 U	<0.100 U	<0.100 U	0.200 J	<0.100 U
MICHEL, KEITH	9/14/2011 14:32	SILZLY 262840	0.340 J	3.93	32.57	<0.100 U	<10.000 U	<0.100 U	0.140 J	0.150 J	0.140 J
CHISHOLM, DAVID AND SALLY ANN	6/10/2011 13:00	CHISHOLM	0.3400 J	0.7900 J	5.85	<0.50 U	<50.00 U	<0.50 U	<0.50 U	<0.50 U	32.85
DEAS, GRIZ	7/13/2011 12:25	GRIZ DEAS	0.350 J	0.580 J	26.73	<0.500 U	5660.00	<0.500 U	<0.500 U	0.63	10.15
WALTER, RICHARD	6/22/2011 15:00	WALTER DITCH	24.59	18.05	56.70	<0.500 U	<50.000 U	<0.500 U	0.310 J	<0.500 U	6.30
WALTER, RICHARD	9/14/2011 15:00	WALTER- 98	2.06	57.60	135.74	<0.100 U	81.00	<0.100 U	2.11	0.490 J	1.14
JONES, EVERETTE J	9/30/2011 11:35	SCHERMAN - 263138	6.91	73.97	80.73	<0.100 U	109.00	<0.100 U	0.93	0.80	2.22
JONES, EVERETTE J	9/30/2011 11:35	SCHERMAN - 263138	8.70		89.97	<0.250 U		<0.250 U	1.200 J	1.35	3.46
WALTER, RICHARD	9/14/2011 15:00	WALTER- 98	10.81		306.44	0.910 J		<0.250 U	10.22	12.21	23.63
CHOQUETTE, WALTER	10/20/2011 15:10	CHOQUETTE	13.87		58.90	<0.250 U		<0.250 U	<0.250 U	0.520 J	0.920 J
CHOQUETTE, WALTER	10/20/2011 15:10	CHOQUETTE	14.67	39.47	56.97	<0.100 U	196.00	<0.100 U	<0.100 U	0.370 J	0.430 J
CHOQUETTE, WALTER	11/14/2011 12:36	CHOQUETTE - 263447	17.61	37.11	55.73	<0.100 U	193.00	<0.100 U	<0.100 U	0.52	7.19
ANDREOZZI, BOB	5/27/2011 10:59	51861 ANDREOZZI	3.01	21.13	51.77	<0.50 U	<50.00 U	<0.50 U	<0.50 U	0.1488 J	10.52

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	Li (ug/l)	Mo (ug/l)	Ni (ug/l)	Pb (ug/l)	Sb (ug/l)	Se (ug/l)	Sn (ug/l)	Sr (ug/l)	Ti (ug/l)
CAKA MARK	8/31/2011 13:27	CAKA - 238242	9.67	2.76	<0.250 U	0.460 I	<0.250 U	<0.250 U	<0.250 U	308.39	0.480 I
CORTRIGHT, DALE	10/28/2011 13:29	CORTRIGHT - 96383	2.050 I	0.870 I	<0.250 U	<0.100 U	<0.250 U	0.500 I	<0.250 U	116.44	<0.250 U
DEAS, GRIZ	7/13/2011 12:25	GRIZ DEAS	12.48	499.96	1.41	6.21	<1.250 U	<1.250 U	6.00	296.27	3.70
BARDWELL, BARBARA A.	8/10/2011 15:15	BARDWELL	50.29	7.54	<0.250 U	0.130 I	<0.250 U	<0.250 U	<0.250 U	599.66	2.05
RITZMAN, ROBERT	11/3/2011 14:25	RITZMAN	4.970 I	1.55	<0.250 U	<0.100 U	<0.250 U	<0.250 U	<0.250 U	366.01	1.74
CHISHOLM, DAVID AND SALLY ANN	6/10/2011 13:00	CHISHOLM	<4.00 U	5.75	<1.00 U	0.5000 I	<1.00 U	<1.00 U	<1.00 U	24.25	0.5800 I
UELAND RYAN AND TINA	9/7/2011 14:15	UELAND	6.56	2.66	0.290 I	<0.100 U	<0.250 U	<0.250 U	<0.250 U	83.82	<0.250 U
RICE, CAROL	12/21/2011 12:20	RICE - 51090	1.940 I	1.76	<0.250 U	<0.100 U	0.360 I	<0.250 U	<0.250 U	97.30	<0.250 U
DEATON LINDA	9/1/2011 15:30	DEATON	8.77	2.62	0.270 I	0.060 I	<0.100 U	1.12	0.120 I	723.31	0.76
HURLEY, ROBERT	10/11/2011 16:20	HURLEY	<1.000 U	<0.250 U	<0.250 U	0.290 I	<0.250 U	<0.250 U	<0.250 U	106.96	<0.250 U
PAMENTER, RUTH	12/19/2011 11:59	PAMENTER - 263916	1.950 I	3.98	2.22	1.39	<0.250 U	<0.250 U	<0.250 U	130.74	<0.250 U
RICE, CAROL	12/21/2011 11:50	RICE - 263947	2.160 I	1.96	<0.250 U	<0.100 U	0.280 I	<0.250 U	<0.250 U	99.54	<0.250 U
ARWWS * JOHNSON RONALD * MW 61	8/19/2011 11:20	JOHNSON	4.560 I	3.53	<0.250 U	0.300 I	<0.250 U	<0.250 U	<0.250 U	525.42	4.15
NELSON, DAVE	10/24/2011 11:30	D NELSON	<1.000 U	<0.250 U	0.460 I	<0.100 U	<0.250 U	<0.250 U	<0.250 U	63.10	1.50
JIM NICHOLAS	6/9/2011 11:55	NICHOLAS	<4.00 U	8.44	<1.00 U	<1.00 U	<1.00 U	0.2200 I	<1.00 U	236.41	0.3100 I
MCDOWELL HAROLD	9/7/2011 13:49	MCDOWELL - 51827	5.95	2.90	<0.250 U	<0.100 U	<0.250 U	<0.250 U	<0.250 U	89.65	<0.250 U
GALLIK, RAY	8/23/2011 12:15	GALLIK SPRING- 262533	10.50	4.18	0.410 I	<0.100 U	<0.250 U	<0.250 U	<0.250 U	191.19	1.100 I
JOHNSON, RONALD	9/22/2011 13:20	JOHNSON - 51377	<1.000 U	<0.250 U	0.580 I	0.210 I	<0.250 U	<0.250 U	<0.250 U	83.60	2.38
KESSLER, DAVID	10/24/2011 13:42	KESSLER - 150258	8.03	4.24	<0.250 U	<0.100 U	<0.250 U	0.740 I	<0.250 U	294.36	0.600 I
CURRIAN, JANET	8/29/2011 13:25	CURRIAN - 201477	10.96	2.33	0.420 I	<0.100 U	0.480 I	0.710 I	<0.250 U	176.04	1.010 I
SIMON, STEVE	10/21/2011 10:29	SIMON - 263394	5.62	1.42	<0.250 U	1.70	<0.250 U	<0.250 U	<0.250 U	170.67	<0.250 U
HANSEN, RON	10/12/2011 15:00	HANSEN - 51851	84.12	0.720 I	0.640 I	1.05	<0.250 U	<0.250 U	<0.250 U	177.89	1.240 I
HILL, STEPHEN	8/12/2011 14:10	HILL	5.08	2.72	<0.250 U	0.68	<0.250 U	0.920 I	<0.250 U	542.90	1.37
GALLIK RAY	8/23/2011 11:55	GALLIK - 150254	10.16	5.14	0.440 I	0.72	0.290 I	<0.250 U	<0.250 U	284.19	0.260 I
MULCAHY, PAT	7/20/2011 12:37	156183-MULCAHY	9.35	2.22	1.240 I	<0.500 U	<1.250 U	0.380 I	4.53	622.66	3.78
GRIFFIS HAROLD P	8/15/2011 15:20	GRIFFIS H.	5.35	2.96	<0.250 U	<0.100 U	<0.250 U	0.730 I	<0.250 U	530.00	0.250 I
RILEY, WESLEY & SHEILA	10/21/2011 12:18	RILEY - 51755	6.39	5.42	0.810 I	7.11	<0.250 U	0.710 I	2.11	295.09	1.45
FELD, WILLIAM AND CHRIS	9/28/2011 12:57	FELD - 51241	6.25	1.52	<0.250 U	<0.100 U	<0.250 U	<0.250 U	<0.250 U	177.75	0.370 I
LOGAN, SCOTT W.	8/11/2011 16:00	LOGAN ?	8.39	2.31	<0.250 U	0.59	<0.250 U	0.270 I	<0.250 U	256.92	<0.250 U
GALLIK RAYMOND D & BIGGS-GALLIK LORRAINE C	8/23/2011 13:00	GALLIK - 216793	11.41	2.53	0.350 I	0.220 I	<0.250 U	0.420 I	<0.250 U	267.08	0.510 I
GREEN, DELMER	8/2/2011 11:40	52149-GREEN	2.620 I	2.63	0.870 I	1.88	<0.250 U	<0.250 U	<0.250 U	78.77	<0.250 U
RILEY, BRIAN	10/24/2011 12:53	RILEY - 263476	32.42	3.56	<0.250 U	0.62	<0.250 U	0.290 I	<0.250 U	749.35	0.340 I
BROTHERS KRISTI	8/8/2011 11:45	BROTHERS	5.63	1.89	1.060 I	<0.100 U	<0.250 U	0.320 I	<0.250 U	340.34	1.25
POLAND, DAN AND ANOLA	9/15/2011 10:40	POLAND - 262838	15.79	0.250 I	0.330 I	0.160 I	<0.250 U	<0.250 U	<0.250 U	395.22	0.600 I
SORUM KEVIN	11/16/2011 12:59	SORUM - 51240	7.56	1.44	<0.250 U	1.73	<0.250 U	<0.250 U	0.360 I	198.82	0.850 I
GRAHAM RANDY	8/9/2011 13:55	GRAHAM	8.01	0.310 I	0.450 I	1.08	<0.250 U	0.520 I	<0.250 U	264.68	6.25
JIM NICHOLLS	6/9/2011 11:55	NICHOLLS	<2.00 U	8.31	<0.50 U	<0.20 U	<0.50 U	0.1300 I	<0.50 U	235.79	<0.50 U
WALTER, RICHARD	9/12/2011 12:10	WALTER #2	45.60	0.90	0.51	<0.040 U	<0.100 U	0.63	<0.100 U	1699.81	1.35
BROWN, DEAN	7/7/2011 12:00	DEAN BROWN	<2.000 U	2.18	0.220 I	0.27	0.260 I	<0.500 U	<0.500 U	28.72	4.88
HANSEN, RONALD * HANSEN SPRING	10/12/2011 14:40	HANSEN - 263246	17.74	0.94	<0.100 U	<0.040 U	0.240 I	0.77	<0.100 U	1103.32	1.18
JAMISON, SHERRI * WELL #3	7/12/2011 13:37	WELL #3	3.69	0.130 I	0.360 I	<0.200 U	<0.500 U	0.340 I	<0.500 U	677.43	1.37
PETERSON, HENRY	3/17/2011 15:15	PETERSON HOUSE 223085	4.29	1.22	<0.2	<0.2	<0.2	0.43	<0.5	204.00	0.26
JAMISON SHERRI * WELL #4	7/12/2011 16:00	WELL #4	60.27	0.690 I	0.820 I	<0.500 U	5.17	<1.250 U	<1.250 U	5079.02	7.92
HANSEN, RON	10/12/2011 15:00	HANSEN - 51851	84.06	0.76	<0.100 U	<0.040 U	<0.100 U	0.450 I	<0.100 U	162.04	0.78
MICHELIS, KEITH	9/14/2011 14:32	SILZLY - 262840	0.410 I	0.190 I	0.91	0.120 I	<0.100 U	0.80	<0.100 U	83.19	<0.100 U
CHISHOLM, DAVID AND SALLY ANN	6/10/2011 13:00	CHISHOLM	<2.00 U	5.98	0.1300 I	0.31	<0.50 U	<0.50 U	<0.50 U	24.64	<0.50 U
DEAS, GRIZ	7/13/2011 12:25	GRIZ DEAS	17.45	567.70	0.450 I	0.180 I	<0.500 U	<0.500 U	<0.500 U	341.50	0.130 I
WALTER, RICHARD	6/22/2011 15:00	WALTER DITCH	13.19	1.38	0.80	<0.200 U	0.77	0.82	<0.500 U	766.88	1.54
WALTER, RICHARD	9/14/2011 15:00	WALTER - 98	195.94	9.83	4.86	0.51	0.86	0.360 I	0.81	3032.79	5.62
JONES, EVERETTE J	9/30/2011 11:35	SCHERMAN - 263138	80.25	5.79	2.22	0.94	0.400 I	0.64	<0.100 U	380.23	51.36
JONES, EVERETTE J	9/30/2011 11:35	SCHERMAN - 263138	83.90	7.66	2.93	1.01	0.480 I	0.680 I	<0.250 U	410.52	84.56
WALTER, RICHARD	9/14/2011 15:00	WALTER - 98	204.16	13.62	16.47	15.19	0.940 I	0.340 I	0.440 I	3188.71	88.69
CHOQUETTE, WALTER	10/20/2011 15:10	CHOQUETTE	8.05	2.67	0.300 I	<0.100 U	<0.250 U	1.46	<0.250 U	349.25	2.70
CHOQUETTE, WALTER	10/20/2011 15:10	CHOQUETTE	9.36	2.93	0.120 I	<0.040 U	<0.100 U	1.21	<0.100 U	344.41	0.140 I
CHOQUETTE, WALTER	11/14/2011 12:36	CHOQUETTE - 263447	8.01	2.55	<0.100 U	1.14	<0.100 U	1.29	<0.100 U	338.55	0.390 I
ANDREOZZI, BOB	5/27/2011 10:59	51861 ANDREOZZI	40.27	1.69	<0.50 U	<0.50 U	0.3267 I	0.76	<0.50 U	950.10	1.30

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	Tl (ug/l)	U (ug/l)	V (ug/l)	Zn (ug/l)	Zr (ug/l)	Ce (ug/l)	Cs (ug/l)	Ga (ug/l)	La (ug/l)
CAKA MARK	8/31/2011 13:27	CAKA - 238242	<0.250 U	4.28	2.28	3.42	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
CORTRIGHT, DALE	10/28/2011 13:29	CORTRIGHT 96383	<0.250 U	1.26	0.400 I	2.66	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
DEAS, GRIZ	7/13/2011 12:25	GRIZ DEAS	<1.250 U	35.29	<1.250 U	35.72	<1.250 U	0.47	0.890 I	<1.250 U	<1.250 U
BARDWELL, BARBARA A.	8/10/2011 15:15	BARDWELL	<0.250 U	<0.250 U	<0.250 U	<0.500 U	<0.250 U	<0.250 U	0.500 I	<0.250 U	<0.250 U
RITZMAN, ROBERT	11/3/2011 14:25	RITZMAN	<0.250 U	12.59	2.51	5.33	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
CHISHOLM, DAVID AND SALLY ANN	6/10/2011 13:00	CHISHOLM	<1.00 U	1.06	0.6400 I	2.50	<1.00 U	<1.00 U	<1.00 U	<1.00 U	<1.00 U
UELAND RYAN AND TINA	9/7/2011 14:15	UELAND	<0.250 U	4.25	0.970 I	6.94	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
RICE, CAROL	12/21/2011 12:20	RICE - 51090	<0.250 U	3.08	0.490 I	3.83	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
DEATON LINDA	9/1/2011 15:30	DEATON	<0.100 U	9.44	0.87	4.08	<0.100 U	<0.100 U	<0.100 U	<0.100 U	<0.100 U
HURLEY, ROBERT	10/11/2011 16:20	HURLEY	<0.250 U	<0.250 U	0.970 I	3.78	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
PAMENTER, RUTH	12/19/2011 11:59	PAMENTER 263916	<0.250 U	5.88	0.680 I	6.77	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
RICE, CAROL	12/21/2011 11:50	RICE - 263947	<0.250 U	3.11	0.590 I	<0.500 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
ARWWS * JOHNSON RONALD * MW 61	8/19/2011 11:20	JOHNSON	<0.250 U	18.53	0.770 I	0.560 I	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
NELSON, DAVE	10/24/2011 11:30	D NELSON	<0.250 U	<0.250 U	0.380 I	10.92	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
JIM NICHOLAS	6/9/2011 11:55	NICHOLAS	<1.00 U	69.40	1.12	31.54	<1.00 U	<1.00 U	<1.00 U	<1.00 U	<1.00 U
MCDOWELL HAROLD	9/7/2011 13:49	MCDOWELL - 51827	<0.250 U	3.69	0.620 I	5.44	<0.250 U	<0.250 U	0.340 I	<0.250 U	<0.250 U
GALLIK, RAY	8/23/2011 12:15	GALLIK SPRING- 262533	<0.250 U	8.13	0.520 I	0.910 I	<0.250 U	<0.250 U	0.340 I	<0.250 U	<0.250 U
JOHNSON, RONALD	9/22/2011 13:20	JOHNSON 51377	<0.250 U	<0.250 U	0.390 I	1.000 I	<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.260 I
KESSLER, DAVID	10/24/2011 13:42	KESSLER - 150258	<0.250 U	7.61	0.820 I	1.180 I	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
CURIVAN, JANET	8/29/2011 13:25	CURIVAN - 201477	<0.250 U	0.800 I	0.550 I	5.15	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
SIMON, STEVE	10/21/2011 10:29	SIMON - 263394	<0.250 U	6.58	2.18	7.19	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
HANSEN, RON	10/12/2011 15:00	HANSEN - 51851	<0.250 U	<0.250 U	<0.250 U	<0.500 U	<0.250 U	<0.250 U	0.890 I	<0.250 U	<0.250 U
HILL, STEPHEN	8/12/2011 14:10	HILL	<0.250 U	8.83	2.38	69.20	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
GALLIK RAY	8/23/2011 11:55	GALLIK - 150254	<0.250 U	8.53	0.360 I	2.63	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
MULCAHY, PAT	7/20/2011 12:37	156183-MULCAHY	<1.250 U	17.47	3.45	9.33	<1.250 U	<1.250 U	<1.250 U	<1.250 U	<1.250 U
GRIFFIS HAROLD P	8/15/2011 15:20	GRIFFIS H.	<0.250 U	9.80	1.85	<0.500 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
RILEY, WESLEY & SHEILA	10/21/2011 12:18	RILEY - 51755	<0.250 U	13.85	2.05	52.82	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
FELD, WILLIAM AND CHRIS	9/28/2011 12:57	FELD - 51241	<0.250 U	6.35	2.85	2.120 I	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
LOGAN, SCOTT W.	8/11/2011 16:00	LOGAN ?	<0.250 U	7.59	0.900 I	16.58	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
GALLIK RAYMOND D & BIGGS-GALLIK LORRAINE C	8/23/2011 13:00	GALLIK - 216793	<0.250 U	8.18	1.170 I	5.72	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
GREEN, DELMER	8/2/2011 11:40	52149-GREEN	<0.250 U	1.130 I	0.410 I	14.09	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
RILEY, BRIAN	10/24/2011 12:53	RILEY - 263476	<0.250 U	8.04	1.38	10.89	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
BROTHERS KRISTI	8/8/2011 11:45	BROTHERS	<0.250 U	9.73	1.47	0.550 I	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
POLAND, DAN AND ANOLA	9/15/2011 10:40	POLAND- 262838	<0.250 U	<0.250 U	0.380 I	2.96	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
SORUM KEVIN	11/16/2011 12:59	SORUM-51240	<0.250 U	8.22	2.66	6.87	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
GRAHAM RANDY	8/9/2011 13:55	GRAHAM	<0.250 U	7.78	1.50	0.810 I	<0.250 U	0.280 I	<0.250 U	<0.250 U	<0.250 U
JIM NICHOLLS	6/9/2011 11:55	NICHOLLS	<0.50 U	67.57	0.3800 I	12.23	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U
WALTER, RICHARD	9/12/2011 12:10	WALTER #2	<0.100 U	<0.100 U	<0.100 U	0.670 I	<0.100 U	<0.100 U	2.67	<0.100 U	<0.100 U
BROWN, DEAN	7/7/2011 12:00	DEAN BROWN	<0.500 U	1.29	0.260 I	3.50	0.240 I	1.08	<0.500 U	0.130 I	0.87
HANSEN, RONALD * HANSEN SPRING	10/12/2011 14:40	HANSEN - 263246	<0.100 U	0.94	<0.100 U	1.20	<0.100 U	<0.100 U	0.50	<0.100 U	<0.100 U
JAMISON, SHERRI * WELL #3	7/12/2011 13:37	WELL #3	<0.500 U	3.17	4.52	0.340 I	<0.500 U	<0.500 U	<0.500 U	<0.500 U	<0.500 U
PETERSON, HENRY	3/17/2011 15:15	PETERSON HOUSE 223085	<0.2	1.67	5.30	3.07	<0.2	<0.2	<0.5	<0.2	<0.2
JAMISON SHERRI * WELL #4	7/12/2011 16:00	WELL #4	<1.250 U	0.520 I	<1.250 U	1.670 I	<1.250 U	<1.250 U	1.79	<1.250 U	<1.250 U
HANSEN, RON	10/12/2011 15:00	HANSEN - 51851	<0.100 U	<0.100 U	<0.100 U	<0.200 U	<0.100 U	<0.100 U	0.77	<0.100 U	<0.100 U
MICHEL, KEITH	9/14/2011 14:32	SILZY - 262840	<0.100 U	0.350 I	<0.100 U	20.14	<0.100 U	<0.100 U	<0.100 U	<0.100 U	<0.100 U
CHISHOLM, DAVID AND SALLY ANN	6/10/2011 13:00	CHISHOLM	<0.50 U	1.00	0.1400 I	8.00	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U
DEAS, GRIZ	7/13/2011 12:25	GRIZ DEAS	<0.500 U	35.13	<0.500 U	39.19	<0.250 U	<0.500 U	1.00	<0.500 U	<0.500 U
WALTER, RICHARD	6/22/2011 15:00	WALTER DITCH	0.120 I	0.490 I	0.250 I	4.11	<0.500 U	<0.500 U	<0.500 U	<0.500 U	<0.500 U
WALTER, RICHARD	9/14/2011 15:00	WALTER- 98	<0.100 U	1.55	0.430 I	1.62	0.200 I	1.16	1.84	<0.100 U	0.53
JONES, EVERETTE J	9/30/2011 11:35	SCHERMAN - 263138	<0.100 U	6.90	8.21	4.01	2.36	3.97	2.19	0.480 I	2.09
JONES, EVERETTE J	9/30/2011 11:35	SCHERMAN - 263138	<0.250 U	7.86	10.96	5.19	3.73	4.50	2.91	0.790 I	2.43
WALTER, RICHARD	9/14/2011 15:00	WALTER- 98	<0.250 U	2.00	10.71	30.65	2.10	31.43	24.02	2.12	14.45
CHOQUETTE, WALTER	10/20/2011 15:10	CHOQUETTE	<0.250 U	2.04	16.38	<0.500 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
CHOQUETTE, WALTER	10/20/2011 15:10	CHOQUETTE	<0.100 U	1.86	14.23	1.55	<0.100 U	<0.100 U	<0.100 U	<0.100 U	<0.100 U
CHOQUETTE, WALTER	11/14/2011 12:36	CHOQUETTE - 263447	<0.100 U	1.87	15.30	68.67	<0.100 U	<0.100 U	<0.100 U	<0.100 U	<0.100 U
ANDREOZZI, BOB	5/27/2011 10:59	51861 ANDREOZZI	<0.50 U	0.65	0.2153 I	15.92	<0.50 U	<0.50 U	0.2414 I	<0.50 U	<0.50 U

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	Nb (ug/l)	Nd (ug/l)	Pd (ug/l)	Pr (ug/l)	Rb (ug/l)	Th (ug/l)	W (ug/l)	Procedure
CAKA MARK	8/31/2011 13:27	CAKA - 238242	<0.250 U	<0.250 U	<0.250 U	<0.250 U	1.35	<0.250 U	<0.250 U	TOTAL RECOVERABLE
CORTRIGHT, DALE	10/28/2011 13:29	CORTRIGHT 96383	<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.280 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE
DEAS, GRIZ	7/13/2011 12:25	GRIZ DEAS	<1.250 U	0.27	<1.250 U	<1.250 U	5.41	<1.250 U	2.55	TOTAL RECOVERABLE
BARDWELL, BARBARA A.	8/10/2011 15:15	BARDWELL	<0.250 U	<0.250 U	<0.250 U	<0.250 U	1.66	<0.250 U	<0.250 U	TOTAL RECOVERABLE
RITZMAN, ROBERT	11/3/2011 14:25	RITZMAN	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
CHISHOLM, DAVID AND SALLY ANN	6/10/2011 13:00	CHISHOLM	<1.00 U	<1.00 U	<1.00 U	<1.00 U	1.68	<1.00 U	0.3600 J	TOTAL RECOVERABLE
UELAND RYAN AND TINA	9/7/2011 14:15	UELAND	<0.250 U	<0.250 U	<0.250 U	<0.250 U	1.71	<0.250 U	<0.250 U	TOTAL RECOVERABLE
RICE, CAROL	12/21/2011 12:20	RICE - 51090	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
DEATON LINDA	9/1/2011 15:30	DEATON	<0.100 U	<0.100 U	0.400 J	<0.100 U	1.68	<0.100 U	<0.100 U	TOTAL RECOVERABLE
HURLEY, ROBERT	10/11/2011 16:20	HURLEY	<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.590 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE
PAMENTER, RUTH	12/19/2011 11:59	PAMENTER-263916	<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.360 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE
RICE, CAROL	12/21/2011 11:50	RICE - 263947	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
ARWWS * JOHNSON RONALD * MW 61	8/19/2011 11:20	JOHNSON	<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.630 J	<0.250 U	0.660 J	TOTAL RECOVERABLE
NELSON, DAVE	10/24/2011 11:30	D NELSON	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
JIM NICHOLS	6/9/2011 11:55	NICHOLS	<1.00 U	<1.00 U	<1.00 U	<1.00 U	<1.00 U	<1.00 U	<1.00 U	TOTAL RECOVERABLE
MCDOWELL HAROLD	9/7/2011 13:49	MCDOWELL - 51827	<0.250 U	<0.250 U	<0.250 U	<0.250 U	2.31	<0.250 U	0.510 J	TOTAL RECOVERABLE
GALLIK, RAY	8/23/2011 12:15	GALLIK SPRING- 262533	<0.250 U	<0.250 U	<0.250 U	<0.250 U	3.13	<0.250 U	<0.250 U	TOTAL RECOVERABLE
JOHNSON, RONALD	9/22/2011 13:20	JOHNSON 51377	<0.250 U	0.290 J	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
KESSLER, DAVID	10/24/2011 13:42	KESSLER - 150258	<0.250 U	<0.250 U	<0.250 U	<0.250 U	1.090 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE
CURRIAN, JANET	8/29/2011 13:25	CURRIAN - 201477	<0.250 U	<0.250 U	<0.250 U	<0.250 U	2.66	<0.250 U	<0.250 U	TOTAL RECOVERABLE
SIMON, STEVE	10/21/2011 10:29	SIMON - 263394	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	1.95	TOTAL RECOVERABLE
HANSEN, RON	10/12/2011 15:00	HANSEN - 51851	<0.250 U	<0.250 U	<0.250 U	<0.250 U	3.40	<0.250 U	<0.250 U	TOTAL RECOVERABLE
HILL, STEPHEN	8/12/2011 14:10	HILL	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
GALLIK RAY	8/23/2011 11:55	GALLIK - 150254	<0.250 U	<0.250 U	<0.250 U	<0.250 U	1.010 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE
MULCAHY, PAT	7/20/2011 12:37	156183-MULCAHY	<1.250 U	<1.250 U	<1.250 U	<1.250 U	<1.250 U	<1.250 U	0.960 J	TOTAL RECOVERABLE
GRIFFIS HAROLD P	8/15/2011 15:20	GRIFFIS H.	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
RILEY, WESLEY & SHEILA	10/21/2011 12:18	RILEY - 51755	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
FELD, WILLIAM AND CHRIS	9/28/2011 12:57	FELD - 51241	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	3.22	TOTAL RECOVERABLE
LOGAN, SCOTT W.	8/11/2011 16:00	LOGAN ?	<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.630 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE
GALLIK RAYMOND D & BIGGS-GALLIK LORRAINE C	8/23/2011 13:00	GALLIK - 216793	<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.840 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE
GREEN, DELMER	8/2/2011 11:40	52149-GREEN	<0.250 U	<0.250 U	<0.250 U	<0.250 U	1.30	<0.250 U	<0.250 U	TOTAL RECOVERABLE
RILEY, BRIAN	10/24/2011 12:53	RILEY - 263476	<0.250 U	<0.250 U	0.380 J	<0.250 U	0.310 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE
BROTHERS KRISTI	8/8/2011 11:45	BROTHERS	<0.250 U	<0.250 U	0.740 J	<0.250 U	<0.250 U	<0.250 U	<0.250 U	TOTAL RECOVERABLE
POLAND, DAN AND ANOLA	9/15/2011 10:40	POLAND- 262838	<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.330 J	<0.250 U	<0.250 U	TOTAL RECOVERABLE
SORUM KEVIN	11/16/2011 12:59	SORUM-51240	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U	4.47	TOTAL RECOVERABLE
GRAHAM RANDY	8/9/2011 13:55	GRAHAM	<0.250 U	<0.250 U	<0.250 U	<0.250 U	0.590 J	<0.250 U	1.45	TOTAL RECOVERABLE
JIM NICHOLS	6/9/2011 11:55	NICHOLS	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	DISSOLVED
WALTER, RICHARD	9/12/2011 12:10	WALTER #2	<0.100 U	<0.100 U	0.99	<0.100 U	6.17	<0.100 U	<0.100 U	DISSOLVED
BROWN, DEAN	7/7/2011 12:00	DEAN BROWN	<0.500 U	0.95	<0.500 U	0.240 J	0.50	0.150 J	0.72	DISSOLVED
HANSEN, RONALD * HANSEN SPRING	10/12/2011 14:40	HANSEN - 263246	<0.100 U	<0.100 U	0.190 J	<0.100 U	1.70	<0.100 U	<0.100 U	DISSOLVED
JAMISON, SHERRI * WELL #3	7/12/2011 13:37	WELL #3	<0.500 U	<0.500 U	0.180 J	<0.500 U	0.400 J	<0.500 U	0.100 J	DISSOLVED
PETERSON, HENRY	3/17/2011 15:15	PETERSON HOUSE 223085	<0.5	<0.2	<0.5	<0.2	12.10	<0.2	2.66	DISSOLVED
JAMISON SHERRI * WELL #4	7/12/2011 16:00	WELL #4	<1.250 U	<1.250 U	1.29	<1.250 U	4.12	<1.250 U	<1.250 U	DISSOLVED
HANSEN, RON	10/12/2011 15:00	HANSEN - 51851	<0.100 U	<0.100 U	<0.100 U	<0.100 U	3.36	<0.100 U	<0.100 U	DISSOLVED
MICHELLS, KEITH	9/14/2011 14:32	SILZLY 262840	<0.100 U	<0.100 U	<0.100 U	<0.100 U	0.220 J	<0.100 U	<0.100 U	DISSOLVED
CHISHOLM, DAVID AND SALLY ANN	6/10/2011 13:00	CHISHOLM	<0.50 U	<0.50 U	<0.50 U	<0.50 U	1.66	<0.50 U	0.2600 J	DISSOLVED
DEAS, GRIZ	7/13/2011 12:25	GRIZ DEAS	<0.500 U	<0.500 U	<0.500 U	<0.500 U	4.58	<0.500 U	3.50	DISSOLVED
WALTER, RICHARD	6/22/2011 15:00	WALTER DITCH	<0.500 U	<0.500 U	<0.500 U	<0.500 U	0.64	<0.500 U	<0.500 U	DISSOLVED
WALTER, RICHARD	9/14/2011 15:00	WALTER- 98	<0.100 U	0.61	0.87	0.130 J	7.68	0.190 J	0.59	DISSOLVED
JONES, EVERETTE J	9/30/2011 11:35	SCHERMAN - 263138	<0.100 U	1.80	<0.100 U	0.410 J	7.78	1.07	19.34	DISSOLVED
JONES, EVERETTE J	9/30/2011 11:35	SCHERMAN - 263138	0.290 J	1.93	<0.250 U	0.460 J	10.03	1.050 J	28.77	TOTAL RECOVERABLE
WALTER, RICHARD	9/14/2011 15:00	WALTER- 98	0.530 J	15.87	1.90	3.63	29.03	4.85	5.74	TOTAL RECOVERABLE
CHOQUETTE, WALTER	10/20/2011 15:10	CHOQUETTE	<0.250 U	<0.250 U	<0.250 U	<0.250 U	7.56	<0.250 U	1.190 J	TOTAL RECOVERABLE
CHOQUETTE, WALTER	10/20/2011 15:10	CHOQUETTE	<0.100 U	<0.100 U	<0.100 U	<0.100 U	7.93	<0.100 U	1.06	DISSOLVED
CHOQUETTE, WALTER	11/14/2011 12:36	CHOQUETTE - 263447	<0.100 U	<0.100 U	<0.100 U	<0.100 U	8.06	<0.100 U	0.97	DISSOLVED
ANDREOZZI, BOB	5/27/2011 10:59	51861 ANDREOZZI	<0.50 U	<0.50 U	0.4597 J	<0.50 U	1.14	<0.50 U	<0.50 U	DISSOLVED

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Sample	Gwic Id	Site Name	Sample Date	Field Number	Water Temp	Field pH	Field SC	Lab pH	Lab SC	Ca (mg/l)	Mg (mg/l)
200114	51861 ANDREOZZI, BOB		5/24/2011 10:59 51861-ANDREOZZI		7.4	7.35	533			62.58	14.24
200123	51790 GALLE TYKE		5/24/2011 15:25 TYKE GALLE-RESAMPLE		8.9	6.76	226			30.92	6.67
200122	51790 GALLE TYKE		5/24/2011 15:25 TYKE GALLE-RESAMPLE		8.9	6.76	226	7.33	239	35.89	7.16
200080	256622 STEWART JOHN & PHYLLIS		5/18/2011 14:22 STEWART-RESAMPLE		13.4	7.21	389			42.56	6.16
200118	5377 GALLE CLIFF JR.		5/24/2011 14:55 CLIFF GALLE-RESAMPLE		7.7	6.89	246	7.48	263	42.34	6.62
200081	256622 STEWART JOHN & PHYLLIS		5/18/2011 14:22 STEWART-RESAMPLE		13.4	7.21	389	7.66	337	43.97	6.30
200120	230299 GALLE JEFF AND ANGELLA		5/24/2011 16:30 JEFF GALLE-RESAMPLE		10.3	7.03	378	7.48	362	56.31	12.68
200119	5377 GALLE CLIFF JR.		5/24/2011 14:55 CLIFF GALLE-RESAMPLE		7.7	6.89	246			37.60	6.23
200121	230299 GALLE JEFF AND ANGELLA		5/24/2011 16:30 JEFF GALLE-RESAMPLE		10.3	7.03	378			53.00	12.58
200074	51327 FAUGHT, STANLEY		5/18/2011 11:48 FAUGHT 51327		9.9	7.69	608			54.62	15.76
200075	51327 FAUGHT, STANLEY		5/18/2011 11:48 FAUGHT 51327		9.9	7.69	608	7.59	519	51.74	14.95
200300	5330 SWANSON, MARK		7/7/2011 10:20 5330-SWANSON		10.5	6.83	573	7.15	581	28.42	8.32
200299	5330 SWANSON, MARK		7/7/2011 10:20 5330-SWANSON		10.5	6.83	573			29.12	8.58
200448	153592 CHARLENE STOCK JONES		8/3/2011 13:55 STOCK JONES-RESAMPLE		14.3	7.21	300			33.45	3.47
200449	153592 CHARLENE STOCK JONES		8/3/2011 13:55 STOCK JONES-RESAMPLE		14.3	7.21	300	7.77	312	32.64	3.27
200112	258964 SALLE, RON		5/24/2011 11:42 SALLE-258964		13.9	6.77	1,062			102.63	30.30
200073	252926 JENRICH, TROY AND TRACY		5/18/2011 12:42 JENRICH-252926		9.7	7.05	589	6.92	509	31.04	8.94
200113	258964 SALLE, RON		5/24/2011 11:42 SALLE-258964		13.9	6.77	1,062	6.67	976	108.55	29.89
200077	254433 BAILEY, DON & DEBRAH		5/19/2011 10:24 BAILEY-254433		9.5	7.20	455			27.67	8.27
200072	252926 JENRICH, TROY AND TRACY		5/18/2011 12:42 JENRICH-252926		9.7	7.05	589			39.89	11.39
200078	254433 BAILEY, DON & DEBRAH		5/19/2011 10:24 BAILEY-254433		9.5	7.20	455	7.11	434	28.49	8.46
200137	221430 KEELE, DON - SHOP		6/1/2011 10:40 DON KEELE-RESAMPLE		10.3	6.81	672	7.33	701	44.44	14.22
200206	51874 WALTER RICHARD		6/22/2011 14:45 WALTER-RESAMPLE		13.0	7.37	773	7.04	812	77.82	20.39
2011Q0976	53591 RUEGAMER, ANTHONY		2/9/2011 15:27 RUEGAMER-53591		11.0	7.23	538			29.90	4.26
200138	221430 KEELE, DON - SHOP		6/1/2011 10:40 DON KEELE-RESAMPLE		10.3	6.81	672			41.12	14.51
200140	51328 SCHERMAN, RUSS- RENTAL		6/1/2011 11:52 SCHERMAN RENTAL-RESAMPLE		11.6	7.09	504			16.67	3.98001
200295	246960 CONNORS KEN		7/1/2011 11:45 CONNORS-RESAMPLE		13.3	7.19	638			66.65	17.25
200079	252623 MACCIOLI JOE & PATTI		5/19/2011 14:50 MACCIOLI-RESAMPLE		11.2	7.13	1,025	7.62	916	53.55	17.60
200076	252623 MACCIOLI JOE & PATTI		5/19/2011 14:50 MACCIOLI-RESAMPLE		11.2	7.13	1,025			53.77	17.51
2011Q0975	53591 RUEGAMER, ANTHONY		2/9/2011 15:27 RUEGAMER-53591		11.0	7.23	538	7.51	563	30.80	4.46
200296	246960 CONNORS KEN		7/1/2011 11:45 CONNORS-RESAMPLE		13.3	7.19	638	7.46	594	60.17	16.80
200139	51328 SCHERMAN, RUSS- RENTAL		6/1/2011 11:52 SCHERMAN RENTAL-RESAMPLE		11.6	7.09	504	7.36	530	17.48	4.25
200298	244470 LUSSY JERRY		7/1/2011 10:30 LUSSY-RESAMPLE		13.6	6.96	768	7.14	755	72.72	21.03
200297	244470 LUSSY JERRY		7/1/2011 10:30 LUSSY-RESAMPLE		13.6	6.96	768			76.20	20.44
201073	256447 SMITH MONTY & JULIE		11/18/2011 11:40 MONTE SMITH 256447		13.8	7.42	689	7.74	674	49.10	3.62
200083	226130 SCHERMAN, RUSS		5/19/2011 11:40 SCHERMAN-RESAMPLE		11.6	7.30	589	7.78	560	14.31	3.20
200082	226130 SCHERMAN, RUSS		5/19/2011 11:40 SCHERMAN-RESAMPLE		11.6	7.30	589			14.45	3.26
200450	256874 SHYBA, LORI		8/2/2011 11:25 SHYBA-RESAMPLE		15.8	7.03	786			99.10	18.90
200207	51874 WALTER RICHARD		6/22/2011 14:45 WALTER-RESAMPLE		13.0	7.37	773			79.83	21.47
200451	256874 SHYBA, LORI		8/2/2011 11:25 SHYBA-RESAMPLE		15.8	7.03	786	7.14	763	93.70	17.42
200374	51333 FRESH, JEAN AND ELDEN		7/18/2011 10:56 51333-FRESH		20.2	6.95	157	6.99	143	1.61	0.46
200674	260551 UPRIGHT, KELLY		8/31/2011 8:15 UPRIGHT RO		21.4	5.08	238	6.46	174	2.77	1.17
200648	158784 BOITNOTT, STEVE		8/10/2011 11:10 158784-BOITNOTT		20.4	6.39	100	6.74	18	0.67	0.25
200676	163204 THOMPSON, DAN & TAMMY		8/31/2011 14:30 THOMPSON RO		21.0	4.94	130	6.21	21	0.19	0.11
200673	196975 GRAVES RUSSEL		8/29/2011 16:30 GRAVES RO		21.4	5.59	55	6.91	25	0.36	0.38
200675	259577 JETTE, JOE		8/31/2011 11:15 JETTE RO		19.3	5.06	85	5.82	31	4.16	0.46
200647	258258 BRACKETT, JOSH		8/9/2011 10:25 258258-BRACKETT		21.7	6.09	22	6.60	16	0.41	0.24
201067	256874 SHYBA, LORI		11/14/2011 10:35 SHYBA-256874 RO		15.3	6.61	56	6.24	51	2.72	0.42
200615	252623 MACCIOLI JOE & PATTI		8/17/2011 15:22 MACCIOLI-RO		21.4	5.77	94	6.47	74	1.67	0.54
201069	256874 SHYBA, LORI		11/14/2011 11:06 SHYBA-256874		15.1	7.42	706	7.17	665	83.69	15.58
2011Q1011	144729 PETERSON, HENRY (HANK)		3/18/2011 15:15 FAIRMONT RANCH 144729		9.6	6.72	396	7.78	432	36.70	10.00
2011Q1012	144730 PETERSON, HENRY (HANK)		3/17/2011 13:15 PETERSON STOCK 144730		9.7	6.69	726	7.31	825	86.50	19.60

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	Na (mg/l)	K (mg/l)	Fe (mg/l)	Mn (mg/l)	SiO2 (mg/l)	HCO3 (mg/l)	CO3 (mg/l)
ANDREOZZI, BOB	5/24/2011 10:59	51861 ANDREOZZI	30.07	2.3400 U	0.306	2.1800 U			
GALLE TYKE	5/24/2011 15:25	TYKE GALLE- RESAMPLE	3.18	1.33	0.034	<3.00 U			
GALLF TYKE	5/24/2011 15:25	TYKE GALLF- RESAMPLE	3.81	1.38	<2.00 U	<0.30 U	11.0	125.9	0.0
STEWART JOHN & PHYLLIS	5/18/2011 14:22	STEWART RESAMPLE	20.47	10.07	0.073	<3.75 U			
GALLE CLIFF JR	5/24/2011 14:55	CLIFF GALLE RESAMPLE	2.55	1.27	<2.00 U	<0.30 U	10.1	138.5	0.0
STEWART JOHN & PHYLLIS	5/18/2011 14:22	STEWART-RESAMPLE	21.85	10.39	<10.00 U	<1.50 U	52.5	157.1	0.0
GALLE JEFF AND ANGELLA	5/24/2011 16:30	JEFF GALLE- RESAMPLE	8.99	2.47	0.221	0.051	7.3	163.4	0.0
GALLE CLIFF JR	5/24/2011 14:55	CLIFF GALLE- RESAMPLE	2.87	1.13	0.076	<3.75 U			
GALLE JEFF AND ANGELLA	5/24/2011 16:30	JEFF GALLE- RESAMPLE	9.71	2.52	0.490	0.054			
FAUGHT, STANLEY	5/18/2011 11:48	FAUGHT 51327	56.70	6.33	0.093	<3.75 U			
FAUGHT, STANLEY	5/18/2011 11:48	FAUGHT 51327	54.17	5.77	<2.00 U	<1.50 U	44.8	276.4	0.0
SWANSON, MARK	7/7/2011 10:20	5330 SWANSON	76.62	5.21	<0.004 U	<0.002 U	44.0	228.0	0.0
SWANSON, MARK	7/7/2011 10:20	5330 SWANSON	79.31	5.49	0.079	<0.005 U			
CHARLENE STOCK JONES	8/3/2011 13:55	STOCK JONES RESAMPLE	20.72	9.21	0.082	<0.001 U			
CHARLENE STOCK JONES	8/3/2011 13:55	STOCK JONES RESAMPLE	19.60	8.82	<0.000 U	<0.001 U	56.0	137.9	0.0
SALLE, RON	5/24/2011 11:42	SALLE 258964	113.55	6.58	0.643	0.014			
JENRICH, TROY AND TRACY	5/18/2011 12:42	JENRICH-252926	53.97	5.29	<2.00 U	0.3700 U	36.7	243.3	0.0
SALLE, RON	5/24/2011 11:42	SALLE 258964	112.00	6.02	0.501	0.016	41.1	640.4	0.0
BAILEY, DON & DEBRAH	5/19/2011 10:24	BAILEY-254433	55.10	6.17	0.110	<3.75 U			
JENRICH, TROY AND TRACY	5/18/2011 12:42	JENRICH-252926	70.57	6.70	0.084	<3.75 U			
BAILEY, DON & DEBRAH	5/19/2011 10:24	BAILEY 254433	56.67	6.44	<2.00 U	<1.50 U	40.6	191.7	0.0
KEELE, DON - SILOP	6/1/2011 10:40	DON KEELE-RESAMPLE	86.94	5.87	0.263	0.010	41.3	276.1	0.0
WALTER RICHARD	6/22/2011 14:45	WALTER RESAMPLE	70.88	4.03	0.657	0.022	16.0	413.6	0.0
RUEGAMER, ANTHONY	2/9/2011 15:27	RUEGAMER 53591	60.20	8.70	0.117	<0.003	56.7		
KEELE, DON - SILOP	6/1/2011 10:40	DON KEELE- RESAMPLE	86.42	6.12	4.505	0.036			
SCHERMAN, RUSS- RENTAL	6/1/2011 11:52	SCHERMAN RENTAL- RESAMPLE	87.41	5.60	0.413	0.029			
CONNORS KEN	7/1/2011 11:45	CONNORS RESAMPLE	55.56	3.17	0.339	0.017			
MACCIOLI JOE & PATTI	5/19/2011 14:50	MACCIOLI-RESAMPLE	168.68	6.79	0.013	0.002	26.9	413.4	0.0
MACCIOLI JOE & PATTI	5/19/2011 14:50	MACCIOLI-RESAMPLE	166.97	6.75	0.067	1.1800 U			
RUEGAMER, ANTHONY	2/9/2011 15:27	RUEGAMER-53591	63.60	8.85	0.002	<0.001	55.2	137.2	0.0
CONNORS KEN	7/1/2011 11:45	CONNORS RESAMPLE	51.97	2.89	0.297	0.014	7.9	283.9	0.0
SCHERMAN, RUSS- RENTAL	6/1/2011 11:52	SCHERMAN RENTAL- RESAMPLE	92.05	5.94	0.050	0.035	37.2	213.3	0.0
LUSSY JERRY	7/1/2011 10:30	LUSSY RESAMPLE	69.76	3.82	0.457	0.015	15.3	395.8	0.0
LUSSY JERRY	7/1/2011 10:30	LUSSY RESAMPLE	71.51	3.86	0.474	0.016			
SMITH MONTY & JULIE	11/18/2011 11:40	MONTY SMITH 256447	77.77	17.14	0.020	<0.001 U	56.3	160.6	0.0
SCHERMAN, RUSS	5/19/2011 11:40	SCHERMAN-RESAMPLE	113.85	5.26	0.086	0.004	31.0	172.4	0.0
SCHERMAN, RUSS	5/19/2011 11:40	SCHERMAN-RESAMPLE	115.43	5.28	0.747	3.0800 U			
SHYBA, LORI	8/2/2011 11:25	SHYBA RESAMPLE	40.53	3.24	0.059	0.001 U	43.8		
WALTER RICHARD	6/22/2011 14:45	WALTER RESAMPLE	74.75	4.19	2.943	0.029			
SHYBA, LORI	8/2/2011 11:25	SHYBA RESAMPLE	37.54	2.94	0.001 U	0.001 U	41.3	150.4	0.0
FRESLI, IFAN AND ELDEN	7/18/2011 10:56	51333-FRESLI	29.35	1.09	<0.002 U	0.001 U	7.6	35.7	0.0
UPRIGHT, KELLY	8/31/2011 8:15	UPRIGHT RO	22.19	2.06	0.014	0.003 U	7.2	28.6	0.0
BOITNOTT, STEVE	8/10/2011 11:10	158784- BOITNOTT	2.34	0.43	0.008	0.001 U	4.7	11.0	0.0
THOMPSON, DAN & TAMMY	8/31/2011 14:30	THOMPSON RO	11.07	0.220 U	0.003 U	0.002 U	4.7	30.7	0.0
GRAVES RUSSEL	8/29/2011 16:30	GRAVES RO	4.82	0.67	<0.002 U	<0.001 U	3.6	18.6	0.0
JETTE, JOE	8/31/2011 11:15	JETTE RO	1.84	0.48	0.005 U	<0.001 U	1.7	19.1	0.0
BRACKETT, JOSH	8/9/2011 10:25	258258- BRACKETT	2.12	0.54	<0.002 U	0.002 U	5.2	10.1	0.0
SHYBA, LORI	11/14/2011 10:35	SHYBA 256874- RO	7.70	0.85	<0.002 U	0.002 U	2.7	20.4	0.0
MACCIOLI JOE & PATTI	8/17/2011 15:22	MACCIOLI- RO	13.32	0.48	0.010	0.003	2.0	26.9	0.0
SHYBA, LORI	11/14/2011 11:06	SHYBA 256874	35.18	2.72	<0.002 U	0.001 U	40.1	158.2	0.0
PETERSON, HENRY (HANK)	3/18/2011 15:15	FAIRMONT RANCH 144729	28.90	5.33	<0.002	<0.001	47.7	165.7	0.0
PETERSON, HENRY (HANK)	3/17/2011 13:15	PETERSON STOCK 144730	33.10	7.77	0.004	0.003	50.5	237.8	0.0

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	SO4 (mg/l)	Cl (mg/l)	NO3-N (mg/l)	F (mg/l)	OPO4-P (mg/l)	Ag (ug/l)	Al (ug/l)
ANDREOZZI, BOB	5/24/2011 10:59	51861 ANDREOZZI						<1.25 U	3.04
GALLE TYKE	5/24/2011 15:25	TYKE GALLE- RESAMPLE						<1.00 U	6.19
GALLE TYKE	5/24/2011 15:25	TYKE GALLE- RESAMPLE	10.7	0.94	0.10	0.27	<0.10 U	<0.50 U	17.78
STEWART JOHN & PHYLLIS	5/18/2011 14:22	STEWART RESAMPLE						<1.25 U	30.39
GALLE CLIFF JR	5/24/2011 14:55	CLIFF GALLE- RESAMPLE	11.1	0.93	0.16	0.34	<0.10 U	<0.50 U	20.49
STEWART JOHN & PHYLLIS	5/18/2011 14:22	STEWART-RESAMPLE	24.6	18.29	2.34	0.21	<0.10 U	<2.50 U	<10.00 U
GALLE JEFF AND ANGELLA	5/24/2011 16:30	JEFF GALLE- RESAMPLE	49.6	1.20	<0.05 U	3.28	<0.10 U	<0.50 U	18.23
GALLE CLIFF JR	5/24/2011 14:55	CLIFF GALLE- RESAMPLE						<1.25 U	9.16
GALLE JEFF AND ANGELLA	5/24/2011 16:30	JEFF GALLE- RESAMPLE						<1.25 U	60.85
FAUGHT, STANLEY	5/18/2011 11:48	FAUGHT 51327						<1.25 U	9.33
FAUGHT, STANLEY	5/18/2011 11:48	FAUGHT 51327	47.4	7.96	4.64	0.79	<0.10 U	<0.50 U	<2.00 U
SWANSON, MARK	7/7/2011 10:20	5330 SWANSON	57.1	18.76	1.67	3.62	<0.100 U	<0.500 U	1.590 U
SWANSON, MARK	7/7/2011 10:20	5330 SWANSON						<1.250 U	7.64
CHARLENE STOCK JONES	8/3/2011 13:55	STOCK JONES RESAMPLE						<0.250 U	30.82
CHARLENE STOCK JONES	8/3/2011 13:55	STOCK JONES RESAMPLE	18.7	6.48	0.86	0.33	<0.020 U	<0.100 U	<0.400 U
SALLE, RON	5/24/2011 11:42	SALLE 258964						<1.25 U	14.40
JENRICH, TROY AND TRACY	5/18/2011 12:42	JENRICH-252926	56.2	13.76	2.04	2.00	<0.10 U	<0.50 U	<2.00 U
SALLE, RON	5/24/2011 11:42	SALLE 258964	57.5	4.46	<0.05 U	2.42	<0.10 U	<0.50 U	0.9641 U
BAILEY, DON & DEBRAH	5/19/2011 10:24	BAILEY 254433						<1.25 U	6.64
JENRICH, TROY AND TRACY	5/18/2011 12:42	JENRICH-252926						<1.25 U	7.23
BAILEY, DON & DEBRAH	5/19/2011 10:24	BAILEY 254433	39.8	10.28	0.88	2.23	<0.10 U	<0.50 U	<2.00 U
KEELE, DON - SHOP	6/1/2011 10:40	DON KEELE-RESAMPLE	71.1	21.65	3.17	2.03	<0.10 U	<0.50 U	4.17
WALTER RICHARD	6/22/2011 14:45	WALTER RESAMPLE	67.8	5.02	<0.050 U	2.14	<0.100 U	<0.500 U	19.48
RUEGAMER, ANTHONY	2/9/2011 15:27	RUEGAMER-53591						<0.5	27.70
KEELE, DON - SHOP	6/1/2011 10:40	DON KEELE- RESAMPLE						<1.00 U	1540.90
SCHERMAN, RUSS- RENTAL	6/1/2011 11:52	SCHERMAN RENTAL- RESAMPLE						<2.00 U	25.92
CONNORS KEN	7/1/2011 11:45	CONNORS RESAMPLE						<1.250 U	25.79
MACCIOLI JOE & PATTI	5/19/2011 14:50	MACCIOLI-RESAMPLE	126.1	34.86	2.64	4.44	<0.10 U	<2.50 U	<10.00 U
MACCIOLI JOE & PATTI	5/19/2011 14:50	MACCIOLI-RESAMPLE						<1.25 U	9.56
RUEGAMER, ANTHONY	2/9/2011 15:27	RUEGAMER-53591	44.1	53.52	2.14	0.52	<0.1	<0.2	<2.0
CONNORS KEN	7/1/2011 11:45	CONNORS RESAMPLE	96.3	4.84	<0.050 U	2.15	<0.100 U	<0.500 U	21.19
SCHERMAN, RUSS- RENTAL	6/1/2011 11:52	SCHERMAN RENTAL- RESAMPLE	47.4	15.66	0.56	2.48	<0.10 U	<0.50 U	0.7800 U
LUSSY JERRY	7/1/2011 10:30	LUSSY RESAMPLE	73.7	5.02	<0.050 U	2.07	<0.100 U	<0.500 U	25.89
LUSSY JERRY	7/1/2011 10:30	LUSSY RESAMPLE						<1.250 U	28.36
SMITH MONTY & JULIE	11/18/2011 11:40	MONTY SMITH 256447	84.2	72.60	2.04	0.46	<0.010 U	<0.100 U	56.09
SCHERMAN, RUSS	5/19/2011 11:40	SCHERMAN-RESAMPLE	100.2	16.28	0.27	8.41	<0.10 U	<2.50 U	<10.00 U
SCHERMAN, RUSS	5/19/2011 11:40	SCHERMAN-RESAMPLE						<1.25 U	8.91
SHYBA, LORI	8/2/2011 11:25	SHYBA RESAMPLE						<0.180 U	42.35
WALTER RICHARD	6/22/2011 14:45	WALTER RESAMPLE						<1.250 U	394.54
SHYBA, LORI	8/2/2011 11:25	SHYBA RESAMPLE	181.7	53.96	1.02	0.45	0.21	<0.100 U	19.95
FRESH, IFAN AND ELDEN	7/18/2011 10:56	51333-FRESH	5.3	18.87	2.25	1.02	<0.100 U	<0.500 U	<2.000 U
UPRIGHT, KELLY	8/31/2011 8:15	UPRIGHT RO	<0.500 U	27.77	0.17	0.09	<0.020 U	<0.100 U	<0.400 U
BOITNOTT, STEVE	8/10/2011 11:10	158784- BOITNOTT	<0.500 U	0.72	0.09	0.06	<0.020 U	<0.100 U	0.488 U
THOMPSON, DAN & TAMMY	8/31/2011 14:30	THOMPSON RO	<0.500 U	0.74	<0.010 U	0.09	<0.020 U	<0.100 U	<0.400 U
GRAVES RUSSEL	8/29/2011 16:30	GRAVES RO	<0.500 U	0.58	<0.010 U	0.07	<0.020 U	<0.100 U	1.010 U
JETTE, JOE	8/31/2011 11:15	JETTE RO	<0.500 U	<0.100 U	0.15	0.10	<0.020 U	<0.100 U	0.488 U
BRACKETT, JOSHI	8/9/2011 10:25	258258- BRACKETT	<0.500 U	0.52	0.19	0.08	<0.020 U	<0.100 U	1.370 U
SHYBA, LORI	11/14/2011 10:35	SHYBA 256874- RO	<0.500 U	5.50	0.10	0.08	0.11	<0.100 U	0.871 U
MACCIOLI JOE & PATTI	8/17/2011 15:22	MACCIOLI- RO	4.2	4.35	0.83	0.33	<0.020 U	<0.100 U	0.838 U
SHYBA, LORI	11/14/2011 11:06	SHYBA 256874	151.4	48.69	0.80	0.41	0.23	<0.100 U	24.95
PETERSON, HENRY (HANK)	3/18/2011 15:15	FAIRMONT RANCH 144729	37.0	10.02	3.12	0.47	<0.1	<0.2	<2.0
PETERSON, HENRY (HANK)	3/17/2011 13:15	PETERSON STOCK 144730	111.6	35.68	3.07	0.28	<0.1	<0.2	<2.0

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	As (ug/l)	B (ug/l)	Ba (ug/l)	Be (ug/l)	Br (ug/l)	Cd (ug/l)	Co (ug/l)	Cr (ug/l)	Cu (ug/l)
ANDREOZZI, BOB	5/24/2011 10:59	51861 ANDREOZZI	3.40		51.11	<5.00 U		<1.25 U	<1.25 U	<1.25 U	4.64
GALLE TYKE	5/24/2011 15:25	TYKE GALLE- RESAMPLE	4.45		4.47	<1.00 U		<1.00 U	<1.00 U	<1.00 U	2.23
GALLE TYKE	5/24/2011 15:25	TYKE GALLE- RESAMPLE	5.02	1.2900 J	4.16	<0.50 U	<50.00 U	<0.50 U	<0.50 U	<0.50 U	2.92
STEWART JOHN & PHYLLIS	5/18/2011 14:22	STEWART RESAMPLE	5.62		78.35	<1.25 U		<1.25 U	<1.25 U	<1.25 U	<1.25 U
GALLE CLIFF JR	5/24/2011 14:55	CLIFF GALLE RESAMPLE	5.72	1.3000 J	12.37	<0.50 U	<50.00 U	<0.50 U	<0.50 U	<0.50 U	1.51
STEWART JOHN & PHYLLIS	5/18/2011 14:22	STEWART-RESAMPLE	6.17	32.01	77.35	<2.50 U	154.00	<2.50 U	<2.50 U	<2.50 U	2.75
GALLE JEFF AND ANGELLA	5/24/2011 16:30	JEFF GALLE- RESAMPLE	6.21	20.40	28.66	<0.50 U	<50.00 U	<0.50 U	<0.50 U	<0.50 U	0.1500 J
GALLE CLIFF JR	5/24/2011 14:55	CLIFF GALLE- RESAMPLE	6.51		11.62	<1.25 U		<1.25 U	<1.25 U	0.2500 J	0.6300 J
GALLE JEFF AND ANGELLA	5/24/2011 16:30	JEFF GALLE- RESAMPLE	7.15		29.48	<1.25 U		<1.25 U	<1.25 U	<1.25 U	<1.25 U
FAUGHT, STANLEY	5/18/2011 11:48	FAUGHT 51327	7.50		71.16	<1.25 U		<1.25 U	1.82	<1.25 U	0.8700 J
FAUGHT, STANLEY	5/18/2011 11:48	FAUGHT 51327	7.51	70.63	65.88	<0.50 U	<50.00 U	<0.50 U	1.44	<0.50 U	1.09
SWANSON, MARK	7/7/2011 10:20	5330 SWANSON	7.59	103.56	33.25	<0.500 U	112.00	<0.500 U	<0.500 U	<0.500 U	3.52
SWANSON, MARK	7/7/2011 10:20	5330 SWANSON	7.79		26.17	<5.000 U		<1.250 U	0.250 J	0.400 J	2.82
CHARLENE STOCK JONES	8/3/2011 13:55	STOCK JONES RESAMPLE	8.04	40.96	81.03	<0.250 U		<0.250 U	<0.250 U	<0.250 U	2.22
CHARLENE STOCK JONES	8/3/2011 13:55	STOCK JONES RESAMPLE	8.18	35.81	75.96	<0.100 U	86.00	<0.100 U	<0.100 U	0.180 J	1.52
SALLE, RON	5/24/2011 11:42	SALLE 258964	8.30		54.19	<5.00 U		<1.25 U	<1.25 U	<1.25 U	<1.25 U
JENRICH, TROY AND TRACY	5/18/2011 12:42	JENRICH-252926	8.34	51.90	46.48	<0.50 U	98.00	<0.50 U	<0.50 U	<0.50 U	2.88
SALLE, RON	5/24/2011 11:42	SALLE 258964	8.35	82.45	51.34	1.06	<50.00 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U
BAILEY, DON & DEBRAH	5/19/2011 10:24	BAILEY 254433	8.37		41.86	<1.25 U		<1.25 U	1.49	<1.25 U	3.41
JENRICH, TROY AND TRACY	5/18/2011 12:42	JENRICH-252926	8.74		57.12	<1.25 U		<1.25 U	<1.25 U	<1.25 U	1.72
BAILEY, DON & DEBRAH	5/19/2011 10:24	BAILEY 254433	9.83	42.31	44.38	<0.50 U	73.00	<0.50 U	0.65	<0.50 U	1.16
KEELE, DON - SHOP	6/1/2011 10:40	DON KEELE-RESAMPLE	10.13	112.07	53.76	<0.50 U	124.00	<0.50 U	1.30	<0.50 U	1.48
WALTER RICHARD	6/22/2011 14:45	WALTER RESAMPLE	11.20	63.35	34.73	0.160 J	<50.000 U	<0.500 U	<0.500 U	<0.500 U	<0.500 U
RUEGAMER, ANTHONY	2/9/2011 15:27	RUEGAMER-53591	11.40	54.80	21.40	<0.5		<0.5	<0.5	<0.5	3.27
KEELE, DON - SHOP	6/1/2011 10:40	DON KEELE- RESAMPLE	12.00		70.71	<1.00 U		<1.00 U	1.71	0.6500 J	3.23
SCHERMAN, RUSS- RENTAL	6/1/2011 11:52	SCHERMAN RENTAL- RESAMPLE	12.52		5.48	<1.00 U		<0.02 U	<1.00 U	<1.00 U	<1.00 U
CONNORS KEN	7/1/2011 11:45	CONNORS RESAMPLE	12.90		29.53	<5.000 U		<1.250 U	<1.250 U	0.360 J	1.34
MACCIOLI JOE & PATTI	5/19/2011 14:50	MACCIOLI-RESAMPLE	12.99	218.85	40.93	<2.50 U	228.00	<2.50 U	<2.50 U	<2.50 U	2.4100 J
MACCIOLI JOE & PATTI	5/19/2011 14:50	MACCIOLI-RESAMPLE	13.22		56.93	<1.25 U		<1.25 U	<1.25 U	<1.25 U	<1.25 U
RUEGAMER, ANTHONY	2/9/2011 15:27	RUEGAMER-53591	14.30	45.50	70.30	<0.2	516.00	<0.2	<0.2	<0.2	0.56
CONNORS KEN	7/1/2011 11:45	CONNORS RESAMPLE	14.49	46.06	27.11	<0.500 U	<50.000 U	<0.500 U	<0.500 U	<0.500 U	0.420 J
SCHERMAN, RUSS- RENTAL	6/1/2011 11:52	SCHERMAN RENTAL- RESAMPLE	14.74	115.75	5.09	<0.50 U	101.00	<0.50 U	<0.50 U	<0.50 U	0.54
LUSSY JERRY	7/1/2011 10:30	LUSSY RESAMPLE	14.90	54.78	34.72	0.300 J	<50.000 U	<0.500 U	<0.500 U	<0.500 U	0.220 J
LUSSY JERRY	7/1/2011 10:30	LUSSY RESAMPLE	15.58		36.92	<5.000 U		<1.250 U	<1.250 U	0.320 J	1.34
SMITH MONTY & JULIE	11/18/2011 11:40	MONTY SMITH 256447	19.20	39.04	30.13	<0.100 U	650.00	<0.100 U	<0.100 U	0.320 J	0.390 J
SCHERMAN, RUSS	5/19/2011 11:40	SCHERMAN-RESAMPLE	26.88	215.42	1.3700 J	<2.50 U	88.00	<2.50 U	<2.50 U	<2.50 U	0.7300 J
SCHERMAN, RUSS	5/19/2011 11:40	SCHERMAN-RESAMPLE	28.73		2.96	<1.25 U		<1.25 U	<1.25 U	<1.25 U	<1.25 U
SHYBA, LORI	8/2/2011 11:25	SHYBA RESAMPLE	30.61	22.88	34.61	<0.180 U		<0.180 U	<0.180 U	<0.180 U	5.62
WALTER RICHARD	6/22/2011 14:45	WALTER RESAMPLE	32.38		41.20	0.790 J		<1.250 U	0.590 J	4.37	<1.250 U
SHYBA, LORI	8/2/2011 11:25	SHYBA RESAMPLE	37.65	27.41	30.67	<0.100 U	229.00	<0.100 U	0.120 J	0.150 J	2.86
FRESI, IFAN AND ELDEN	7/18/2011 10:56	51333-FRESI	0.61	237.71	1.44	<0.500 U	180.00	<0.500 U	<0.500 U	1.52	0.60
UPRIGHT, KELLY	8/31/2011 8:15	UPRIGHT RO	0.77	13.87	6.76	<0.100 U	240.00	<0.100 U	0.450 J	0.160 J	0.55
BOITNOTT, STEVE	8/10/2011 11:10	158784-BOITNOTT	<0.100 U	15.09	0.66	<0.100 U	<10.000 U	<0.100 U	<0.100 U	0.160 J	<0.100 U
THOMPSON, DAN & TAMMY	8/31/2011 14:30	THOMPSON RO	<0.100 U	10.94	0.370 J	<0.100 U	<10.000 U	<0.100 U	0.220 J	0.150 J	0.95
GRAVES RUSSEL	8/29/2011 16:30	GRAVES RO	<0.100 U	2.82	0.260 J	<0.100 U	<10.000 U	<0.100 U	<0.100 U	0.160 J	0.95
JETTE, JOE	8/31/2011 11:15	JETTE RO	<0.100 U	2.31	3.41	<0.100 U	<10.000 U	<0.100 U	<0.100 U	0.160 J	3.98
BRACKETT, JOSHI	8/9/2011 10:25	258258-BRACKETT	0.120 J	34.81	0.390 J	<0.100 U	<10.000 U	<0.100 U	0.64	0.160 J	0.77
SHYBA, LORI	11/14/2011 10:35	SHYBA 256874- RO	0.410 J	6.59	1.72	<0.100 U	<10.000 U	<0.100 U	<0.100 U	0.150 J	1.51
MACCIOLI JOE & PATTI	8/17/2011 15:22	MACCIOLI- RO	0.420 J	178.75	1.98	<0.100 U	<10.000 U	<0.100 U	0.180 J	0.200 J	0.72
SHYBA, LORI	11/14/2011 11:06	SHYBA 256874	29.74	22.60	26.53	<0.100 U	204.00	<0.100 U	<0.100 U	0.150 J	3.24
PETERSON, HENRY (HANK)	3/18/2011 15:15	FAIRMONT RANCH 144729	13.80	18.20	51.90	<0.2	64.00	<0.2	0.28	0.38	1.15
PETERSON, HENRY (HANK)	3/17/2011 13:15	PETERSON STOCK 144730	3.52	28.80	181.00	<0.2	149.00	<0.2	0.29	<0.2	0.90

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	Li (ug/l)	Mo (ug/l)	Ni (ug/l)	Pb (ug/l)	Sb (ug/l)	Se (ug/l)	Sn (ug/l)	Sr (ug/l)	Ti (ug/l)
ANDREOZZI, BOB	5/24/2011 10:59	51861 ANDREOZZI	22.34	1.69	<1.25 U	0.3500 J	0.3400 J	0.7100 J	<1.25 U	915.51	0.7700 J
GALLE TYKE	5/24/2011 15:25	TYKE GALLE - RESAMPLE	<4.00 U	1.72	<1.00 U	<1.00 U	0.3700 J	<1.00 U	<1.00 U	65.27	0.3000 J
GALLI TYKE	5/24/2011 15:25	TYKE GALLI - RESAMPLE	0.8000 J	1.66	<0.50 U	<0.20 U	0.3600 J	<0.50 U	<0.50 U	69.46	<0.50 U
STEWART JOHN & PHYLLIS	5/18/2011 14:22	STEWART RESAMPLE	12.39	1.73	<1.25 U	0.2500 J	<1.25 U	1.38	<1.25 U	198.83	1.0600 J
GALLE CLIFF JR	5/24/2011 14:55	CLIFF GALLE RESAMPLE	0.4900 J	2.09	0.1000 J	<0.20 U	0.61	<0.50 U	<0.50 U	74.70	<0.50 U
STEWART JOHN & PHYLLIS	5/18/2011 14:22	STEWART-RESAMPLE	15.70	1.5400 J	<2.50 U	<1.00 U	<2.50 U	1.5600 J	<2.50 U	104.26	<2.50 U
GALLE JEFF AND ANGELLA	5/24/2011 16:30	JEFF GALLE - RESAMPLE	34.46	23.40	<0.50 U	<0.20 U	<0.50 U	<0.50 U	<0.50 U	523.56	0.88
GALLE CLIFF JR	5/24/2011 14:55	CLIFF GALLE - RESAMPLE	1.2800 J	2.12	<1.25 U	<1.25 U	0.6000 J	<1.25 U	<1.25 U	69.02	0.2600 J
GALLE JEFF AND ANGELLA	5/24/2011 16:30	JEFF GALLE - RESAMPLE	35.16	25.19	<1.25 U	<1.25 U	<1.25 U	<1.25 U	<1.25 U	544.15	0.48
FAUGHT, STANLEY	5/18/2011 11:48	FAUGHT 51327	28.69	4.47	<1.25 U	<1.25 U	<1.25 U	0.7000 J	0.2800 J	493.27	0.4400 J
FAUGHT, STANLEY	5/18/2011 11:48	FAUGHT 51327	32.63	3.84	<0.50 U	<0.50 U	<0.50 U	0.62	<0.50 U	439.19	0.3200 J
SWANSON, MARK	7/7/2011 10:20	5330 SWANSON	180.98	11.75	<0.500 U	0.050 J	0.470 J	0.430 J	<0.500 U	276.58	0.85
SWANSON, MARK	7/7/2011 10:20	5330 SWANSON	182.41	11.62	0.530 J	<1.250 U	0.580 J	0.730 J	4.50	307.59	1.090 J
CHARLENE STOCK JONES	8/3/2011 13:55	STOCK JONES RESAMPLE	8.04	2.09	0.630 J	0.100 J	<0.250 U	0.390 J	<0.250 U	131.46	<0.250 U
CHARLENE STOCK JONES	8/3/2011 13:55	STOCK JONES RESAMPLE	7.70	2.16	<0.100 U	0.040 J	<0.100 U	0.430 J	<0.100 U	129.20	0.160 J
SALLE, RON	5/24/2011 11:42	SALLE 258964	207.51	8.32	<1.25 U	<1.25 U	0.4700 J	<1.25 U	<1.25 U	1419.85	0.5400 J
JENRICH, TROY AND TRACY	5/18/2011 12:42	JENRICH-252926	74.78	6.15	<0.50 U	<0.50 U	0.3300 J	0.55	<0.50 U	290.50	0.4200 J
SALLE, RON	5/24/2011 11:42	SALLE 258964	187.84	7.94	<0.50 U	0.1153 J	0.4526 J	<0.50 U	<0.50 U	1356.60	0.87
BAILEY, DON & DEBRAH	5/19/2011 10:24	BAILEY-254433	39.45	15.44	0.4400 J	0.3300 J	0.3500 J	0.4400 J	<1.25 U	228.99	0.3300 J
JENRICH, TROY AND TRACY	5/18/2011 12:42	JENRICH-252926	94.61	7.32	<1.25 U	<1.25 U	0.3600 J	0.5800 J	<1.25 U	373.30	0.52
BAILEY, DON & DEBRAH	5/19/2011 10:24	BAILEY 254433	26.66	16.28	<0.50 U	0.33	0.3500 J	0.56	<0.50 U	233.17	0.28
KEELE, DON - SIOP	6/1/2011 10:40	DON KEELE-RESAMPLE	141.69	5.85	0.3100 J	<0.20 U	0.3500 J	1.29	<0.50 U	544.58	1.04
WALTER RICHARD	6/22/2011 14:45	WALTER RESAMPLE	143.50	3.80	0.340 J	<0.200 U	<0.500 U	<0.500 U	<0.500 U	2434.12	1.04
RUEGAMER, ANTHONY	2/9/2011 15:27	RUEGAMER-53591	7.52	7.23	<0.5	<0.5	<0.5	2.77	<1.3	148.00	1.64
KEELE, DON - SIOP	6/1/2011 10:40	DON KEELE - RESAMPLE	139.04	5.69	1.72	0.5900 J	0.4200 J	1.13	<1.00 U	552.15	44.11
SCHERMAN, RUSS- RENTAL	6/1/2011 11:52	SCHERMAN RENTAL - RESAMPLE	85.12	9.52	0.17	<1.00 U	<1.00 U	0.6600 J	0.3800 J	91.39	1.67
CONNORS KEN	7/1/2011 11:45	CONNORS RESAMPLE	60.26	4.79	0.750 J	<1.250 U	<1.250 U	<1.250 U	<1.250 U	2925.32	2.10
MACCIOLI JOE & PATTI	5/19/2011 14:50	MACCIOLI-RESAMPLE	478.63	11.70	<2.50 U	<1.00 U	<2.50 U	1.4800 J	<2.50 U	621.69	0.9500 J
MACCIOLI JOE & PATTI	5/19/2011 14:50	MACCIOLI-RESAMPLE	497.63	13.13	<1.25 U	<1.25 U	<1.25 U	1.66	<1.25 U	668.26	1.1700 J
RUEGAMER, ANTHONY	2/9/2011 15:27	RUEGAMER-53591	6.46	7.03	<0.2	<0.2	<0.2	4.13	<0.5	142.00	0.48
CONNORS KEN	7/1/2011 11:45	CONNORS RESAMPLE	110.09	4.30	0.150 J	<0.200 U	0.160 J	<0.500 U	<0.500 U	2580.16	1.47
SCHERMAN, RUSS- RENTAL	6/1/2011 11:52	SCHERMAN RENTAL - RESAMPLE	91.50	9.92	<0.50 U	<0.20 U	<0.50 U	0.62	<0.50 U	94.01	0.2900 J
LUSSY JERRY	7/1/2011 10:30	LUSSY RESAMPLE	140.46	4.25	<0.500 U	0.130 J	0.350 J	<0.500 U	<0.500 U	2501.15	1.06
LUSSY JERRY	7/1/2011 10:30	LUSSY RESAMPLE	75.60	4.65	0.790 J	<1.250 U	0.370 J	<1.250 U	<1.250 U	2676.93	1.62
SMITH MONTE & JULIE	11/18/2011 11:40	MONTE SMITH 256447	53.46	5.77	<0.100 U	<0.040 U	<0.100 U	8.21	<0.100 U	166.96	1.88
SCHERMAN, RUSS	5/19/2011 11:40	SCHERMAN-RESAMPLE	257.83	22.61	<2.50 U	<1.00 U	<2.50 U	<2.50 U	<2.50 U	79.80	1.2700 J
SCHERMAN, RUSS	5/19/2011 11:40	SCHERMAN-RESAMPLE	284.03	24.37	<1.25 U	<1.25 U	<1.25 U	0.4500 J	<1.25 U	82.11	1.75
SHYBA, LORI	8/2/2011 11:25	SHYBA RESAMPLE	38.42	0.720 J	7.12	0.150 J	0.670 J	1.80	<0.180 U	1424.71	4.60
WALTER RICHARD	6/22/2011 14:45	WALTER RESAMPLE	141.58	4.24	1.37	1.45	0.650 J	<1.250 U	<1.250 U	2492.22	7.37
SHYBA, LORI	8/2/2011 11:25	SHYBA RESAMPLE	35.38	0.67	5.52	0.22	0.83	2.51	0.250 J	1204.31	1.91
FRESLI, IFAN AND ELDEN	7/18/2011 10:56	51333-FRESLI	113.28	0.160 J	<0.500 U	<0.200 U	0.440 J	0.58	<0.500 U	14.99	0.120 J
UPRIGHT, KELLY	8/31/2011 8:15	UPRIGHT RO	7.75	<0.100 U	0.89	0.050 J	<0.100 U	0.77	<0.100 U	26.01	<0.100 U
BOITNOTT, STEVE	8/10/2011 11:10	158784-BOITNOTT	2.20	<0.100 U	<0.100 U	<0.040 U	<0.100 U	<0.100 U	<0.100 U	5.29	<0.100 U
THOMPSON, DAN & TAMMY	8/31/2011 14:30	THOMPSON RO	<0.400 U	<0.100 U	<0.100 U	<0.040 U	0.140 J	<0.100 U	<0.100 U	1.42	<0.100 U
GRAVES RUSSEL	8/29/2011 16:30	GRAVES RO	0.440 J	<0.100 U	<0.100 U	<0.040 U	0.170 J	<0.100 U	<0.100 U	2.77	<0.100 U
JETTE, JOE	8/31/2011 11:15	JETTE RO	<0.400 U	<0.100 U	<0.100 U	0.26	<0.100 U	<0.100 U	<0.100 U	16.22	<0.100 U
BRACKETT, JOSH	8/9/2011 10:25	258258-BRACKETT	3.13	<0.100 U	<0.100 U	<0.040 U	<0.100 U	<0.100 U	<0.100 U	3.86	<0.100 U
SHYBA, LORI	11/14/2011 10:35	SHYBA 256874 RO	5.82	<0.100 U	0.100 J	<0.040 U	<0.100 U	<0.100 U	<0.100 U	32.70	<0.100 U
MACCIOLI JOE & PATTI	8/17/2011 15:22	MACCIOLI - RO	43.16	<0.100 U	0.53	0.070 J	0.480 J	<0.100 U	<0.100 U	16.63	<0.100 U
SHYBA, LORI	11/14/2011 11:06	SHYBA 256874	32.82	0.58	4.36	<0.040 U	0.84	1.79	<0.100 U	1131.47	1.19
PETERSON, HENRY (HANK)	3/18/2011 15:15	FAIRMONT RANCH 144729	7.57	0.89	0.31	<0.2	<0.2	0.45	<0.5	287.00	0.44
PETERSON, HENRY (HANK)	3/17/2011 13:15	PETERSON STOCK 144730	11.00	2.10	0.22	<0.2	<0.2	0.77	<0.5	732.00	1.15

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	Tl (ug/l)	U (ug/l)	V (ug/l)	Zn (ug/l)	Zr (ug/l)	Ce (ug/l)	Cs (ug/l)	Ga (ug/l)	La (ug/l)
ANDREOZZI, BOB	5/24/2011 10:59	51861 ANDREOZZI	<1.25 U	0.6600 I	0.5500 I	15.21	<1.25 U	<0.02 U	0.2600 I	<1.25 U	<5.00 U
GALLE TYKE	5/24/2011 15:25	TYKE GALLE- RESAMPLE	<1.00 U	1.07	1.16	2.94	<1.00 U	<1.00 U	<1.00 U	<1.00 U	<1.00 U
GALLF TYKE	5/24/2011 15:25	TYKE GALLF- RESAMPLE	<0.50 U	1.08	0.4300 I	4.74	<2.00 U	<0.50 U	<0.50 U	<2.00 U	<0.50 U
STEWART JOHN & PHYLLIS	5/18/2011 14:22	STEWART RESAMPLE	<1.25 U	2.14	5.60	2.1500 I	<1.25 U	<1.25 U	<1.25 U	<1.25 U	<1.25 U
GALLE CLIFF JR	5/24/2011 14:55	CLIFF GALLE RESAMPLE	<0.50 U	1.43	0.4400 I	2.26	<2.00 U	<0.50 U	<0.50 U	<2.00 U	<0.50 U
STEWART JOHN & PHYLLIS	5/18/2011 14:22	STEWART-RESAMPLE	<2.50 U	1.8300 I	4.62	4.9400 I	<2.50 U	<2.50 U	<2.50 U	<2.50 U	<2.50 U
GALLE JEFF AND ANGELLA	5/24/2011 16:30	JEFF GALLE- RESAMPLE	<0.50 U	1.63	<0.50 U	14.71	<2.00 U	<0.50 U	2.84	<2.00 U	<0.50 U
GALLE CLIFF JR	5/24/2011 14:55	CLIFF GALLE- RESAMPLE	<1.25 U	1.39	1.31	28.30	<1.25 U	<1.25 U	<1.25 U	<1.25 U	<1.25 U
GALLE JEFF AND ANGELLA	5/24/2011 16:30	JEFF GALLE- RESAMPLE	<1.25 U	1.76	0.44	13.41	<1.25 U	<1.25 U	3.05	<1.25 U	<0.25 U
FAUGHT, STANLEY	5/18/2011 11:48	FAUGHT 51327	<1.25 U	19.52	13.18	1.01	<1.25 U	<1.25 U	5.41	<1.25 U	<1.25 U
FAUGHT, STANLEY	5/18/2011 11:48	FAUGHT 51327	<0.50 U	16.10	10.27	1.31	<0.50 U	<0.50 U	4.50	<0.50 U	<0.50 U
SWANSON, MARK	7/7/2011 10:20	5330 SWANSON	<0.500 U	2.85	6.59	7.11	<0.500 U	<0.500 U	8.30	<0.500 U	<0.500 U
SWANSON, MARK	7/7/2011 10:20	5330 SWANSON	<1.250 U	2.95	7.55	4.62	<1.250 U	0.000 I	8.34	<1.250 U	<5.000 U
CHARLENE STOCK JONES	8/3/2011 13:55	STOCK JONES RESAMPLE	<0.250 U	0.910 I	7.68	7.51	<0.250 U	<0.250 U	<0.250 U	<0.250 U	<0.250 U
CHARLENE STOCK JONES	8/3/2011 13:55	STOCK JONES RESAMPLE	<0.100 U	1.22	7.53	6.15	<0.100 U	<0.100 U	<0.100 U	<0.100 U	<0.100 U
SALLE, RON	5/24/2011 11:42	SALLE 258964	<1.25 U	1.33	0.4400 I	<1.25 U	<1.25 U	<0.02 U	17.04	<1.25 U	<5.00 U
JENRICH, TROY AND TRACY	5/18/2011 12:42	JENRICH-252926	<0.50 U	3.80	8.90	15.39	<0.50 U	<0.50 U	1.77	<0.50 U	<0.50 U
SALLE, RON	5/24/2011 11:42	SALLE 258964	0.1049 I	0.65	<0.50 U	<1.00 U	<0.50 U	<0.50 U	15.68	<0.50 U	<0.50 U
BAILEY, DON & DEBRAH	5/19/2011 10:24	BAILEY-254433	<1.25 U	2.97	8.16	1.82	<1.25 U	<1.25 U	3.50	<1.25 U	<1.25 U
JENRICH, TROY AND TRACY	5/18/2011 12:42	JENRICH-252926	<1.25 U	4.91	12.22	11.49	<1.25 U	<1.25 U	2.27	<1.25 U	<1.25 U
BAILEY, DON & DEBRAH	5/19/2011 10:24	BAILEY 254433	<0.50 U	2.99	7.53	2.44	<0.50 U	<0.50 U	3.68	<0.50 U	<0.50 U
KEELE, DON - SHOP	6/1/2011 10:40	DON KEELE-RESAMPLE	0.2400 I	12.03	10.46	2.40	<2.00 U	<0.50 U	2.41	<2.00 U	<0.50 U
WALTER RICHARD	6/22/2011 14:45	WALTER RESAMPLE	<0.500 U	0.51	<0.500 U	1.05	<0.500 U	<0.500 U	5.11	<0.500 U	<0.500 U
RUEGAMER, ANTHONY	2/9/2011 15:27	RUEGAMER-53591	<0.5	1.38	11.40	1.55	<0.5	<0.5	<1.3	<0.5	<0.5
KEELE, DON - SHOP	6/1/2011 10:40	DON KEELE- RESAMPLE	0.3900 I	12.11	17.05	1.6500 I	3.19	2.74	3.71	<1.00 U	1.71
SCHERMAN, RUSS- RENTAL	6/1/2011 11:52	SCHERMAN RENTAL- RESAMPLE	0.2900 I	4.19	10.30	2.27	<1.00 U	<1.00 U	<1.00 U	<4.00 U	<0.10 U
CONNORS KEN	7/1/2011 11:45	CONNORS RESAMPLE	<1.250 U	0.570 I	<1.250 U	1.37	<1.250 U	<0.020 U	3.30	<1.250 U	<5.000 U
MACCIOLI JOE & PATTI	5/19/2011 14:50	MACCIOLI-RESAMPLE	<2.50 U	25.39	10.54	13.69	<2.50 U	<2.50 U	<2.50 U	<2.50 U	<2.50 U
MACCIOLI JOE & PATTI	5/19/2011 14:50	MACCIOLI-RESAMPLE	0.4500 I	30.11	12.55	9.71	<1.25 U	<1.25 U	<1.25 U	<1.25 U	<1.25 U
RUEGAMER, ANTHONY	2/9/2011 15:27	RUEGAMER-53591	<0.2	1.40	9.06	2.00	<0.2	<0.2	<0.5	<0.2	<0.2
CONNORS KEN	7/1/2011 11:45	CONNORS RESAMPLE	<0.500 U	0.56	<0.500 U	1.24	<0.500 U	<0.500 U	3.11	<0.500 U	<0.500 U
SCHERMAN, RUSS- RENTAL	6/1/2011 11:52	SCHERMAN RENTAL- RESAMPLE	0.2000 I	4.18	9.51	2.63	<2.00 U	<0.50 U	0.1500 I	<2.00 U	<0.50 U
LUSSY JERRY	7/1/2011 10:30	LUSSY RESAMPLE	<0.500 U	0.80	<0.500 U	1.41	<0.500 U	<0.500 U	5.89	<0.500 U	<0.500 U
LUSSY JERRY	7/1/2011 10:30	LUSSY RESAMPLE	<1.250 U	0.770 I	<1.250 U	0.340 I	<1.250 U	<0.020 U	5.90	<1.250 U	<5.000 U
SMITH MONTY & JULIE	11/18/2011 11:40	MONTY SMITH 256447	<0.100 U	1.33	6.32	7.61	<0.100 U	<0.100 U	<0.100 U	<0.100 U	<0.100 U
SCHERMAN, RUSS	5/19/2011 11:40	SCHERMAN-RESAMPLE	<2.50 U	2.80	9.79	6.14	<2.50 U	<2.50 U	<2.50 U	<2.50 U	<2.50 U
SCHERMAN, RUSS	5/19/2011 11:40	SCHERMAN-RESAMPLE	<1.25 U	3.08	12.94	3.58	<1.25 U	<1.25 U	<1.25 U	<1.25 U	<1.25 U
SHYBA, LORI	8/2/2011 11:25	SHYBA RESAMPLE	0.500 I	8.50	5.41	48.91	0.240 I	<0.180 U	38.62	<0.180 U	<0.180 U
WALTER RICHARD	6/22/2011 14:45	WALTER RESAMPLE	<1.250 U	0.550 I	1.39	<2.500 U	<1.250 U	1.210 I	7.68	<1.250 U	0.520 I
SHYBA, LORI	8/2/2011 11:25	SHYBA RESAMPLE	0.65	10.47	5.90	37.38	<0.100 U	<0.100 U	44.42	<0.100 U	<0.100 U
FRESLI, JEAN AND ELDEN	7/18/2011 10:56	51333-FRESLI	<0.500 U	<0.500 U	<0.500 U	1.57	<0.500 U	<0.500 U	<0.500 U	<0.500 U	<0.500 U
UPRIGHT, KELLY	8/31/2011 8:15	UPRIGHT RO	<0.100 U	<0.100 U	0.400 I	6.20	<0.100 U	<0.100 U	3.82	<0.100 U	<0.100 U
BOITNOTT, STEVE	8/10/2011 11:10	158784-BOITNOTT	<0.100 U	<0.100 U	<0.100 U	0.930 I	<0.100 U	<0.100 U	0.100 I	<0.100 U	<0.100 U
THOMPSON, DAN & TAMMY	8/31/2011 14:30	THOMPSON RO	<0.100 U	<0.100 U	<0.100 U	0.860 I	<0.100 U	<0.100 U	0.50	<0.100 U	<0.100 U
GRAVES RUSSEL	8/29/2011 16:30	GRAVES RO	<0.100 U	<0.100 U	<0.100 U	<0.200 U	<0.100 U	<0.100 U	0.350 I	<0.100 U	<0.100 U
JETTE, JOE	8/31/2011 11:15	JETTE RO	<0.100 U	<0.100 U	<0.100 U	4.23	<0.100 U	<0.100 U	<0.100 U	<0.100 U	<0.100 U
BRACKETT, JOSH	8/9/2011 10:25	258258-BRACKETT	<0.100 U	<0.100 U	<0.100 U	1.82	<0.100 U	<0.100 U	0.150 I	<0.100 U	<0.100 U
SHYBA, LORI	11/14/2011 10:35	SHYBA 256874 RO	<0.100 U	<0.100 U	<0.100 U	3.88	<0.100 U	<0.100 U	11.24	<0.100 U	<0.100 U
MACCIOLI JOE & PATTI	8/17/2011 15:22	MACCIOLI RO	<0.100 U	<0.100 U	<0.100 U	3.56	<0.100 U	<0.100 U	<0.100 U	<0.100 U	<0.100 U
SHYBA, LORI	11/14/2011 11:06	SHYBA 256874	0.62	9.57	5.16	54.57	<0.100 U	<0.100 U	41.23	<0.100 U	<0.100 U
PETERSON, HENRY (HANK)	3/18/2011 15:15	FAIRMONT RANCH 144729	<0.2	3.92	8.30	3.00	<0.2	<0.2	<0.5	<0.2	<0.2
PETERSON, HENRY (HANK)	3/17/2011 13:15	PETERSON STOCK 144730	<0.2	24.20	3.98	3.06	<0.2	<0.2	<0.5	<0.2	<0.2

Montana Bureau of Mines and Geology
Anaconda regional Water, Waste, and Soils
2011 Domestic Well Water Quality Results
Appendix E

Site Name	Sample Date	Field Number	Nb (ug/l)	Nd (ug/l)	Pd (ug/l)	Pr (ug/l)	Rb (ug/l)	Th (ug/l)	W (ug/l)	Procedure
ANDREOZZI, BOB	5/24/2011 10:59	51861 ANDREOZZI	<1.25 U	<1.25 U	0.4600 I	<1.25 U	11.600 I	<1.25 U	<1.25 U	TOTAL RECOVERABLE
GALLE TYKE	5/24/2011 15:25	TYKE GALLE- RESAMPLE	<1.00 U	<1.00 U	<1.00 U	<1.00 U	1.48	<1.00 U	<1.00 U	TOTAL RECOVERABLE
GALLF TYKE	5/24/2011 15:25	TYKE GALLF- RESAMPLE	<2.00 U	<2.00 U	<0.50 U	<0.50 U	1.50	<0.50 U	<0.50 U	DISSOLVED
STEWART JOHN & PHYLLIS	5/18/2011 14:22	STEWART RESAMPLE	<1.25 U	<1.25 U	<1.25 U	<1.25 U	5.54	<1.25 U	<1.25 U	TOTAL RECOVERABLE
GALLE CLIFF JR	5/24/2011 14:55	CLIFF GALLE- RESAMPLE	<2.00 U	<2.00 U	<0.50 U	<0.50 U	0.71	<0.50 U	0.2000 I	DISSOLVED
STEWART JOHN & PHYLLIS	5/18/2011 14:22	STEWART-RESAMPLE	<2.50 U	<2.50 U	<2.50 U	<2.50 U	5.00	<2.50 U	<2.50 U	DISSOLVED
GALLE JEFF AND ANGELLA	5/24/2011 16:30	JEFF GALLE- RESAMPLE	<2.00 U	<2.00 U	<0.50 U	<0.50 U	12.69	<0.50 U	<0.50 U	DISSOLVED
GALLE CLIFF JR	5/24/2011 14:55	CLIFF GALLE- RESAMPLE	<1.25 U	<1.25 U	<1.25 U	<1.25 U	0.6900 I	<1.25 U	<1.25 U	TOTAL RECOVERABLE
GALLE JEFF AND ANGELLA	5/24/2011 16:30	JEFF GALLE- RESAMPLE	<1.25 U	<1.25 U	0.28	<1.25 U	13.74	<1.25 U	<1.25 U	TOTAL RECOVERABLE
FAUGHT, STANLEY	5/18/2011 11:48	FAUGHT 51327	<1.25 U	<1.25 U	0.2600 I	<1.25 U	12.88	<1.25 U	16.62	TOTAL RECOVERABLE
FAUGHT, STANLEY	5/18/2011 11:48	FAUGHT 51327	<0.50 U	<0.50 U	<0.50 U	<0.50 U	10.90	<0.50 U	15.89	DISSOLVED
SWANSON, MARK	7/7/2011 10:20	5330 SWANSON	<0.500 U	<0.500 U	<0.500 U	<0.500 U	8.58	<0.500 U	63.86	DISSOLVED
SWANSON, MARK	7/7/2011 10:20	5330 SWANSON	<1.250 U	<0.050 U	<1.250 U	<1.250 U	9.06	<1.250 U	54.78	TOTAL RECOVERABLE
CHARLENE STOCK JONES	8/3/2011 13:55	STOCK JONES RESAMPLE	<0.250 U	<0.250 U	<0.250 U	<0.250 U	5.20	<0.250 U	<0.250 U	TOTAL RECOVERABLE
CHARLENE STOCK JONES	8/3/2011 13:55	STOCK JONES RESAMPLE	<0.100 U	<0.100 U	<0.100 U	<0.100 U	6.08	<0.100 U	<0.100 U	DISSOLVED
SALLE, RON	5/24/2011 11:42	SALLE 258964	<1.25 U	<1.25 U	0.72	<1.25 U	34.09	<1.25 U	5.81	TOTAL RECOVERABLE
JENRICH, TROY AND TRACY	5/18/2011 12:42	JENRICH-252926	<0.50 U	<0.50 U	0.1600 I	<0.50 U	5.16	<0.50 U	18.87	DISSOLVED
SALLE, RON	5/24/2011 11:42	SALLE 258964	<0.50 U	<0.50 U	0.67	<0.50 U	32.14	<0.10 U	5.54	DISSOLVED
BAILEY, DON & DEBRAH	5/19/2011 10:24	BAILEY 254433	<1.25 U	<1.25 U	<1.25 U	<1.25 U	2.82	<1.25 U	5.19	TOTAL RECOVERABLE
JENRICH, TROY AND TRACY	5/18/2011 12:42	JENRICH-252926	<1.25 U	<1.25 U	<1.25 U	<1.25 U	6.67	<1.25 U	19.29	TOTAL RECOVERABLE
BAILEY, DON & DEBRAH	5/19/2011 10:24	BAILEY 254433	<0.50 U	<0.50 U	<0.50 U	<0.50 U	2.95	<0.50 U	5.98	DISSOLVED
KEELE, DON - SHOP	6/1/2011 10:40	DON KEELE-RESAMPLE	<2.00 U	<2.00 U	<0.50 U	<0.50 U	7.78	<0.50 U	47.12	DISSOLVED
WALTER RICHARD	6/22/2011 14:45	WALTER RESAMPLE	<0.500 U	<0.500 U	0.70	<0.500 U	13.45	<0.500 U	3.94	DISSOLVED
RUEGAMER, ANTHONY	2/9/2011 15:27	RUEGAMER 53591	<1.3	<0.5	<1.3	<0.5	6.51	<0.5	1.21	TOTAL RECOVERABLE
KEELE, DON - SHOP	6/1/2011 10:40	DON KEELE- RESAMPLE	<1.00 U	1.36	0.3000 I	0.3200 I	11.09	1.07	44.40	TOTAL RECOVERABLE
SCHERMAN, RUSS- RENTAL	6/1/2011 11:52	SCHERMAN RENTAL- RESAMPLE	<1.00 U	<1.00 U	<1.00 U	<1.00 U	6.84	<1.00 U	28.85	TOTAL RECOVERABLE
CONNORS KEN	7/1/2011 11:45	CONNORS RESAMPLE	<1.250 U	<0.050 U	1.54	<1.250 U	10.94	<1.250 U	3.99	TOTAL RECOVERABLE
MACCIOLI JOE & PATTI	5/19/2011 14:50	MACCIOLI-RESAMPLE	<2.50 U	<2.50 U	<2.50 U	<2.50 U	2.2900 I	<2.50 U	86.73	DISSOLVED
MACCIOLI JOE & PATTI	5/19/2011 14:50	MACCIOLI-RESAMPLE	<1.25 U	<1.25 U	<1.25 U	<1.25 U	2.57	<1.25 U	88.10	TOTAL RECOVERABLE
RUEGAMER, ANTHONY	2/9/2011 15:27	RUEGAMER-53591	<0.5	<0.2	<0.5	<0.2	5.99	<0.2	0.92	DISSOLVED
CONNORS KEN	7/1/2011 11:45	CONNORS RESAMPLE	<0.500 U	<0.500 U	1.53	<0.500 U	9.09	<0.500 U	4.21	DISSOLVED
SCHERMAN, RUSS- RENTAL	6/1/2011 11:52	SCHERMAN RENTAL- RESAMPLE	<2.00 U	<2.00 U	<0.50 U	<0.50 U	7.07	<0.50 U	31.85	DISSOLVED
LUSSY JERRY	7/1/2011 10:30	LUSSY RESAMPLE	<0.500 U	<0.500 U	1.46	<0.500 U	14.08	<0.500 U	4.29	DISSOLVED
LUSSY JERRY	7/1/2011 10:30	LUSSY RESAMPLE	<1.250 U	<0.050 U	0.720 I	<1.250 U	16.08	<1.250 U	3.76	TOTAL RECOVERABLE
SMITH MONTY & JULIE	11/18/2011 11:40	MONTY SMITH 256447	<0.100 U	<0.100 U	<0.100 U	<0.100 U	9.18	<0.100 U	<0.100 U	DISSOLVED
SCHERMAN, RUSS	5/19/2011 11:40	SCHERMAN-RESAMPLE	<2.50 U	<2.50 U	<2.50 U	<2.50 U	5.72	<2.50 U	230.15	DISSOLVED
SCHERMAN, RUSS	5/19/2011 11:40	SCHERMAN-RESAMPLE	<1.25 U	<1.25 U	<1.25 U	<1.25 U	6.37	<1.25 U	196.12	TOTAL RECOVERABLE
SHYBA, LORI	8/2/2011 11:25	SHYBA RESAMPLE	<0.180 U	<0.180 U	1.07	<0.180 U	13.58	<0.180 U	1.53	TOTAL RECOVERABLE
WALTER RICHARD	6/22/2011 14:45	WALTER RESAMPLE	<1.250 U	<1.250 U	1.41	<1.250 U	14.93	<1.250 U	5.03	TOTAL RECOVERABLE
SHYBA, LORI	8/2/2011 11:25	SHYBA RESAMPLE	<0.100 U	<0.100 U	0.61	<0.100 U	14.89	<0.100 U	1.88	DISSOLVED
FRESLI, IFAN AND ELDEN	7/18/2011 10:56	51333-FRESLI	<0.500 U	<0.500 U	<0.500 U	<0.500 U	0.59	<0.500 U	1.94	DISSOLVED
UPRIGHT, KELLY	8/31/2011 8:15	UPRIGHT RO	<0.100 U	<0.100 U	<0.100 U	<0.100 U	6.80	<0.100 U	<0.100 U	DISSOLVED
BOITNOTT, STEVE	8/10/2011 11:10	158784- BOITNOTT	<0.100 U	<0.100 U	<0.100 U	<0.100 U	1.88	<0.100 U	<0.100 U	DISSOLVED
THOMPSON, DAN & TAMMY	8/31/2011 14:30	THOMPSON RO	<0.100 U	<0.100 U	<0.100 U	<0.100 U	1.33	<0.100 U	<0.100 U	DISSOLVED
GRAVES RUSSEL	8/29/2011 16:30	GRAVES RO	<0.100 U	<0.100 U	<0.100 U	<0.100 U	5.83	<0.100 U	<0.100 U	DISSOLVED
JETTE, JOE	8/31/2011 11:15	JETTE RO	<0.100 U	<0.100 U	<0.100 U	<0.100 U	0.190 I	<0.100 U	<0.100 U	DISSOLVED
BRACKETT, JOSHI	8/9/2011 10:25	258258- BRACKETT	<0.100 U	<0.100 U	<0.100 U	<0.100 U	2.35	<0.100 U	<0.100 U	DISSOLVED
SHYBA, LORI	11/14/2011 10:35	SHYBA 256874 RO	<0.100 U	<0.100 U	<0.100 U	<0.100 U	3.96	<0.100 U	<0.100 U	DISSOLVED
MACCIOLI JOE & PATTI	8/17/2011 15:22	MACCIOLI RO	<0.100 U	<0.100 U	<0.100 U	<0.100 U	0.290 I	<0.100 U	0.200 I	DISSOLVED
SHYBA, LORI	11/14/2011 11:06	SHYBA 256874	<0.100 U	<0.100 U	<0.170 I	<0.100 U	13.10	<0.100 U	1.56	DISSOLVED
PETERSON, HENRY (HANK)	3/18/2011 15:15	FAIRMONT RANCH 144729	<0.5	<0.2	<0.5	<0.2	13.20	<0.2	5.76	DISSOLVED
PETERSON, HENRY (HANK)	3/17/2011 13:15	PETERSON STOCK 144730	<0.5	<0.2	<0.5	<0.2	9.96	<0.2	1.03	DISSOLVED

Appendix F. Domestic Well Confirmation Water Sample Results, 2012

Location Information

Sample Id/Site Id:	201357 / 153593	Sample Date:	2/8/2012 1:10:00 PM
Location (TRS):	06N 10W 33 DCB	Agency/Sampler:	MBMG / VEIS, JAMIE
Latitude/Longitude:	46° 13' 33" N 112° 51' 30" W	Field Number:	ARENTZ - 153593
Datum:	NAD83	Lab Date:	4/17/2012 7:07:57 AM
Altitude:	5086	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):	241
USGS 7.5' Quad:		SWL-MP (ft):	NR
PWS Id:		Depth Water Enters (ft):	200
Project:	ARWWS-DOM		

Major Ion Results

	mg/L	meq/L		mg/L	meq/L
Calcium (Ca)	32.250	1.609	Bicarbonate (HCO ₃)	135.170	2.215
Magnesium (Mg)	3.390	0.279	Carbonate (CO ₃)	0.000	0.000
Sodium (Na)	34.440	1.498	Chloride (Cl)	25.500	0.719
Potassium (K)	10.330	0.264	Sulfate (SO ₄)	21.910	0.456
Iron (Fe)	0.019 J	0.000	Nitrate (as N)	0.940	0.067
Manganese (Mn)	0.009 J	0.000	Fluoride (F)	0.430	0.023
Silica (SiO ₂)	48.250		Orthophosphate (as P)	<0.020 U	0.000
Total Cations		3.658	Total Anions		3.481

Trace Element Results (µg/L)

Aluminum (Al):	<0.400 U	Cesium (Cs):	<0.100 U	Molybdenum (Mo):	2.840	Strontium (Sr):	131.820
Antimony (Sb):	<0.100 U	Chromium (Cr):	0.110 J	Nickel (Ni):	<0.100 U	Thallium (Tl):	<0.100 U
Arsenic (As):	11.340	Cobalt (Co):	<0.100 U	Niobium (Nb):	<0.100 U	Thorium (Th):	<0.100 U
Barium (Ba):	62.660	Copper (Cu):	0.390 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):	<0.100 U
Boron (B):	43.990	Lanthanum (La):	<0.100 U	Praseodymium (Pr):	<0.100 U	Tungsten (W):	0.170 J
Bromide (Br):	244.000	Lead (Pb):	<0.040 U	Rubidium (Rb):	5.040	Uranium (U):	0.750
Cadmium (Cd):	<0.100 U	Lithium (Li):	23.050	Silver (Ag):	<0.100 U	Vanadium (V):	8.740
Cerium (Ce):	<0.100 U	Mercury (Hg):	NR	Selenium (Se):	1.820	Zinc (Zn):	8.050
						Zirconium (Zr):	<0.100 U

Field Chemistry and Other Analytical Results

**Total Dissolved Solids (mg/L):	243.15	Field Hardness as CaCO ₃ (mg/L):	NR	Ammonia (mg/L):	NR
**Sum of Diss. Constituents (mg/L):	311.65	Hardness as CaCO ₃ :	94.48	T.P. Hydrocarbons (µg/L):	NR
Field Conductivity (µmhos):	387	Field Alkalinity as CaCO ₃ (mg/L):	NR	PCP (µg/L):	NR
Lab Conductivity (µmhos):	408.2	Alkalinity as CaCO ₃ (mg/L):	110.72	Phosphate, TD (mg/L as P):	<0.030 U
Field pH:	8.54	Ryznar Stability Index:	8.114	Field Nitrate (mg/L):	NR
Lab pH:	7.78	Sodium Adsorption Ratio:	1.5221	Field Dissolved O ₂ (mg/L):	4.880
Water Temp (°C):	10.82	Langlier Saturation Index:	-0.167	Field Chloride (mg/L):	NR
Air Temp (°C):	NR	Nitrite (mg/L as N):	<0.010 U	Field Redox (mV):	270
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 CaCO ₃)	NR	Acidity to 8.3 (mg/L CaCO ₃)	NR
As(III) (ug/L)	NR	As(V) (ug/L)	NR	Total Susp Solids (mg/L)	NR

Notes

Sample Condition: CLEAR
 Field Remarks:
 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.

Report Date: 8/30/2013

Site Name: PIERCE, COLT

[Compare to Water Quality Standards](#)

Location Information

Sample Id/Site Id:	202145 / 266861	Sample Date:	7/24/2012 12:04:00 PM
Location (TRS):	06N 10W 33 DDD	Agency/Sampler:	MBMG / BUTLER, DAVE
Latitude/Longitude:	46° 13' 25" N 112° 51' 1" W	Field Number:	PIERCE-266861
Datum:	NAD83	Lab Date:	8/14/2012 12:12:47 PM
Altitude:	5053	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:		Total Depth (ft):	NR
USGS 7.5' Quad:		SWL-MP (ft):	96.19
PWS Id:		Depth Water Enters (ft):	NR
Project:	ARWWS-DOM		

Major Ion Results

	mg/L	meq/L		mg/L	meq/L
Calcium (Ca)	37.460	1.869	Bicarbonate (HCO ₃)	158.300	2.595
Magnesium (Mg)	8.250	0.679	Carbonate (CO ₃)	0.000	0.000
Sodium (Na)	42.790	1.861	Chloride (Cl)	31.380	0.885
Potassium (K)	7.790	0.199	Sulfate (SO ₄)	48.620	1.013
Iron (Fe)	<0.015 U	0.000	Nitrate (as N)	1.720	0.123
Manganese (Mn)	<0.002 U	0.000	Fluoride (F)	0.410	0.022
Silica (SiO ₂)	53.100		Orthophosphate (as P)	<0.020 U	0.000
Total Cations		4.622	Total Anions		4.637

Trace Element Results (µg/L)

Aluminum (Al):	18.790	Cesium (Cs):	<0.100 U	Molybdenum (Mo):	5.990	Strontium (Sr):	218.220
Antimony (Sb):	0.110 J	Chromium (Cr):	0.190 J	Nickel (Ni):	0.590	Thallium (Tl):	<0.100 U
Arsenic (As):	10.030	Cobalt (Co):	<0.100 U	Niobium (Nb):	<0.100 U	Thorium (Th):	<0.100 U
Barium (Ba):	61.530	Copper (Cu):	0.780	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):	0.900
Boron (B):	59.650	Lanthanum (La):	<0.100 U	Praseodymium (Pr):	<0.100 U	Tungsten (W):	0.950
Bromide (Br):	257.000	Lead (Pb):	0.200 J	Rubidium (Rb):	4.610	Uranium (U):	2.300
Cadmium (Cd):	<0.100 U	Lithium (Li):	14.400	Silver (Ag):	<0.100 U	Vanadium (V):	10.530
Cerium (Ce):	<0.100 U	Mercury (Hg):	NR	Selenium (Se):	1.490	Zinc (Zn):	29.070
						Zirconium (Zr):	<0.100 U

Field Chemistry and Other Analytical Results

**Total Dissolved Solids (mg/L):	309.59	Field Hardness as CaCO ₃ (mg/L):	NR	Ammonia (mg/L):	NR
**Sum of Diss. Constituents (mg/L):	389.76	Hardness as CaCO ₃ :	127.49	T.P. Hydrocarbons (µg/L):	NR
Field Conductivity (µmhos):	466	Field Alkalinity as CaCO ₃ (mg/L):	NR	PCP (µg/L):	NR
Lab Conductivity (µmhos):	453.7	Alkalinity as CaCO ₃ (mg/L):	129.59	Phosphate, TD (mg/L as P):	<0.030 U
Field pH:	7.65	Ryznar Stability Index:	7.998	Field Nitrate (mg/L):	NR
Lab pH:	7.63	Sodium Adsorption Ratio:	1.6571	Field Dissolved O ₂ (mg/L):	6.830
Water Temp (°C):	11.54	Langlier Saturation Index:	-0.184	Field Chloride (mg/L):	NR
Air Temp (°C):	NR	Nitrite (mg/L as N):	<0.010 U	Field Redox (mV):	389
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 CaCO ₃)	NR	Acidity to 8.3 (mg/L CaCO ₃)	NR
As(III) (ug/L)	NR	As(V) (ug/L)	NR	Total Susp Solids (mg/L)	NR

Notes

Sample Condition: CLEAR WITH SAND SETTLING OUT
 Field Remarks: DISSOLVED METALS
 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.

Report Date: 8/30/2013

[Compare to Water Quality Standards](#)

Location Information

Sample Id/Site Id:	202797 / 158808	Sample Date:	9/27/2012 1:05:00 PM
Location (TRS):	06N 10W 33 CCAC	Agency/Sampler:	MBMG / WOLFRAM, MARK
Latitude/Longitude:	46° 13' 30" N 112° 52' 4" W	Field Number:	DINS DALE RESAMPLE
Datum:	NAD83	Lab Date:	1/23/2013 1:03:00 PM
Altitude:	5160	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):	415
USGS 7.5' Quad:	WARM SPRINGS	SWL-MP (ft):	NR
PWS Id:		Depth Water Enters (ft):	225
Project:	ARWWS-DOM		

Major Ion Results

	mg/L	meq/L		mg/L	meq/L
Calcium (Ca)	33.020	1.648	Bicarbonate (HCO ₃)	138.030	2.262
Magnesium (Mg)	3.740	0.308	Carbonate (CO ₃)	0.000	0.000
Sodium (Na)	20.970	0.912	Chloride (Cl)	8.720	0.246
Potassium (K)	8.060	0.206	Sulfate (SO ₄)	20.680	0.431
Iron (Fe)	0.123	0.004	Nitrate (as N)	0.970	0.069
Manganese (Mn)	<0.002 U	0.000	Fluoride (F)	0.310	0.016
Silica (SiO ₂)	56.920		Orthophosphate (as P)	<0.020 U	0.000
Total Cations		3.086	Total Anions		3.025

Trace Element Results (µg/L)

Aluminum (Al):	<0.400 U	Cesium (Cs):	<0.100 U	Molybdenum (Mo):	2.410	Strontium (Sr):	138.160
Antimony (Sb):	<0.100 U	Chromium (Cr):	<0.100 U	Nickel (Ni):	0.390 J	Thallium (Tl):	<0.100 U
Arsenic (As):	9.580	Cobalt (Co):	<0.100 U	Niobium (Nb):	<0.100 U	Thorium (Th):	<0.100 U
Barium (Ba):	53.100	Copper (Cu):	0.670	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):	<0.100 U
Boron (B):	44.470	Lanthanum (La):	<0.100 U	Praseodymium (Pr):	<0.100 U	Tungsten (W):	<0.100 U
Bromide (Br):	99.000	Lead (Pb):	0.230	Rubidium (Rb):	5.030	Uranium (U):	1.410
Cadmium (Cd):	<0.100 U	Lithium (Li):	5.130	Silver (Ag):	<0.100 U	Vanadium (V):	5.410
Cerium (Ce):	<0.100 U	Mercury (Hg):	NR	Selenium (Se):	0.580	Zinc (Zn):	17.200
						Zirconium (Zr):	<0.100 U

Field Chemistry and Other Analytical Results

**Total Dissolved Solids (mg/L):	221.76	Field Hardness as CaCO ₃ (mg/L):	NR	Ammonia (mg/L):	NR
**Sum of Diss. Constituents (mg/L):	291.78	Hardness as CaCO ₃ :	97.84	T.P. Hydrocarbons (µg/L):	NR
Field Conductivity (µmhos):	0	Field Alkalinity as CaCO ₃ (mg/L):	NR	PCP (µg/L):	NR
Lab Conductivity (µmhos):	315.7	Alkalinity as CaCO ₃ (mg/L):	113.18	Phosphate, TD (mg/L as P):	<0.030 U
Field pH:	0	Ryznar Stability Index:	8.155	Field Nitrate (mg/L):	NR
Lab pH:	7.7	Sodium Adsorption Ratio:	0.9238	Field Dissolved O ₂ (mg/L):	0.000
Water Temp (°C):	0	Langlier Saturation Index:	-0.227	Field Chloride (mg/L):	NR
Air Temp (°C):	NR	Nitrite (mg/L as N):	<0.010 U	Field Redox (mV):	0
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 CaCO ₃)	NR	Acidity to 8.3 (mg/L CaCO ₃)	NR
As(III) (ug/L)	NR	As(V) (ug/L)	NR	Total Susp Solids (mg/L)	NR

Notes

Sample Condition: CLEAR

Field Remarks:

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.

Report Date: 8/30/2013

[Compare to Water Quality Standards](#)

Location Information

Sample Id/Site Id:	202854 / 254433	Sample Date:	10/3/2012 11:50:00 AM
Location (TRS):	04N 10W 36 AADD	Agency/Sampler:	MBMG / WOLFRAM, MARK
Latitude/Longitude:	46° 3' 34" N 112° 46' 41" W	Field Number:	BAILEY RESAMPLE
Datum:	NAD83	Lab Date:	1/23/2013 1:03:17 PM
Altitude:		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:	112SNGR	Total Depth (ft):	NR
USGS 7.5' Quad:	OPPORTUNITY	SWL-MP (ft):	NR
PWS Id:		Depth Water Enters (ft):	NR
Project:	ARWWS-DOM		

Major Ion Results

	mg/L	meq/L		mg/L	meq/L
Calcium (Ca)	26.620	1.328	Bicarbonate (HCO ₃)	191.110	3.132
Magnesium (Mg)	7.310	0.602	Carbonate (CO ₃)	0.000	0.000
Sodium (Na)	48.680	2.118	Chloride (Cl)	10.040	0.283
Potassium (K)	5.700	0.146	Sulfate (SO ₄)	35.840	0.747
Iron (Fe)	<0.015 U	0.000	Nitrate (as N)	0.860	0.061
Manganese (Mn)	<0.002 U	0.000	Fluoride (F)	2.420	0.127
Silica (SiO ₂)	38.090		Orthophosphate (as P)	0.100	0.003
Total Cations		4.204	Total Anions		4.354

Trace Element Results (µg/L)

Aluminum (Al):	<0.400 U	Cesium (Cs):	3.540	Molybdenum (Mo):	16.190	Strontium (Sr):	220.220
Antimony (Sb):	0.200 J	Chromium (Cr):	<0.100 U	Nickel (Ni):	0.420 J	Thallium (Tl):	<0.100 U
Arsenic (As):	10.200	Cobalt (Co):	1.090	Niobium (Nb):	<0.100 U	Thorium (Th):	<0.100 U
Barium (Ba):	39.750	Copper (Cu):	1.990	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):	0.310 J
Boron (B):	56.230	Lanthanum (La):	<0.100 U	Praseodymium (Pr):	<0.100 U	Tungsten (W):	5.980
Bromide (Br):	81.000	Lead (Pb):	<0.040 U	Rubidium (Rb):	2.730	Uranium (U):	2.850
Cadmium (Cd):	<0.100 U	Lithium (Li):	34.800	Silver (Ag):	<0.100 U	Vanadium (V):	7.850
Cerium (Ce):	<0.100 U	Mercury (Hg):	NR	Selenium (Se):	0.530	Zinc (Zn):	2.260
						Zirconium (Zr):	<0.100 U

Field Chemistry and Other Analytical Results

**Total Dissolved Solids (mg/L):	270.02	Field Hardness as CaCO ₃ (mg/L):	NR	Ammonia (mg/L):	NR
**Sum of Diss. Constituents (mg/L):	366.93	Hardness as CaCO ₃ :	96.56	T.P. Hydrocarbons (µg/L):	NR
Field Conductivity (µmhos):	431	Field Alkalinity as CaCO ₃ (mg/L):	NR	PCP (µg/L):	NR
Lab Conductivity (µmhos):	462	Alkalinity as CaCO ₃ (mg/L):	156.65	Phosphate, TD (mg/L as P):	0.090 J
Field pH:	6.71	Ryznar Stability Index:	8.670	Field Nitrate (mg/L):	NR
Lab pH:	6.99	Sodium Adsorption Ratio:	2.1699	Field Dissolved O ₂ (mg/L):	2.100
Water Temp (°C):	8.95	Langlier Saturation Index:	-0.840	Field Chloride (mg/L):	NR
Air Temp (°C):	NR	Nitrite (mg/L as N):	<0.010 U	Field Redox (mV):	250
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 CaCO ₃)	NR	Acidity to 8.3 (mg/L CaCO ₃)	NR
As(III) (ug/L)	NR	As(V) (ug/L)	NR	Total Susp Solids (mg/L)	NR

Notes

Sample Condition: CLEAR

Field Remarks:

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.

Location Information

Sample Id/Site Id:	203014 / 197463	Sample Date:	11/1/2012 1:30:00 PM
Location (TRS):	04N 10W 27 ACCC	Agency/Sampler:	MBMG / WOLFRAM, MARK
Latitude/Longitude:	46° 4' 15" N 112° 49' 45" W	Field Number:	MCKAY CONFIRMATION
Datum:	NAD83	Lab Date:	2/14/2013 12:49:49 PM
Altitude:		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):	166
USGS 7.5' Quad:	OPPORTUNITY	SWL-MP (ft):	18.3
PWS Id:		Depth Water Enters (ft):	158
Project:	ARWWS-DOM, ARWWS-ARSENICSTUDY		

Major Ion Results

	mg/L	meq/L		mg/L	meq/L
Calcium (Ca)	35.750	1.784	Bicarbonate (HCO3)	104.590	1.714
Magnesium (Mg)	7.380	0.607	Carbonate (CO3)	0.000	0.000
Sodium (Na)	10.080	0.438	Chloride (Cl)	2.100	0.059
Potassium (K)	1.990	0.051	Sulfate (SO4)	52.510	1.094
Iron (Fe)	0.143	0.005	Nitrate (as N)	0.200	0.014
Manganese (Mn)	0.179	0.007	Fluoride (F)	0.180	0.009
Silica (SiO2)	21.790		Orthophosphate (as P)	0.060 J	0.000
Total Cations		2.901	Total Anions		2.891

Trace Element Results (µg/L)

Aluminum (Al):	<0.400 U	Cesium (Cs):	<0.100 U	Molybdenum (Mo):	6.650	Strontium (Sr):	331.450
Antimony (Sb):	<0.100 U	Chromium (Cr):	<0.100 U	Nickel (Ni):	1.490	Thallium (Tl):	<0.100 U
Arsenic (As):	10.670	Cobalt (Co):	0.200 J	Niobium (Nb):	<0.100 U	Thorium (Th):	<0.100 U
Barium (Ba):	84.000	Copper (Cu):	0.580	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):	0.530
Boron (B):	5.550	Lanthanum (La):	<0.100 U	Praseodymium (Pr):	<0.100 U	Tungsten (W):	<0.100 U
Bromide (Br):	<10.000 U	Lead (Pb):	<0.040 U	Rubidium (Rb):	<0.100 U	Uranium (U):	8.490
Cadmium (Cd):	<0.100 U	Lithium (Li):	<0.400 U	Silver (Ag):	<0.100 U	Vanadium (V):	2.290
Cerium (Ce):	<0.100 U	Mercury (Hg):	NR	Selenium (Se):	0.200 J	Zinc (Zn):	7.810
						Zirconium (Zr):	<0.100 U

Field Chemistry and Other Analytical Results

**Total Dissolved Solids (mg/L):	183.86	Field Hardness as CaCO3 (mg/L):	NR	Ammonia (mg/L):	NR
**Sum of Diss. Constituents (mg/L):	237.14	Hardness as CaCO3:	119.64	T.P. Hydrocarbons (µg/L):	NR
Field Conductivity (µmhos):	299	Field Alkalinity as CaCO3 (mg/L):	NR	PCP (µg/L):	NR
Lab Conductivity (µmhos):	236.4	Alkalinity as CaCO3 (mg/L):	86.12	Phosphate, TD (mg/L as P):	0.070 J
Field pH:	7.07	Ryznar Stability Index:	8.923	Field Nitrate (mg/L):	NR
Lab pH:	7.1	Sodium Adsorption Ratio:	0.3978	Field Dissolved O2 (mg/L):	0.370
Water Temp (°C):	8.56	Langlier Saturation Index:	-0.912	Field Chloride (mg/L):	NR
Air Temp (°C):	NR	Nitrite (mg/L as N):	<0.010 U	Field Redox (mV):	267
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
 Field Remarks:
 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.

Location Information

Sample Id/Site Id:	203134 / 153591	Sample Date:	11/27/2012 1:10:00 PM
Location (TRS):	06N 10W 33 CACB	Agency/Sampler:	MBMG / WOLFRAM, MARK
Latitude/Longitude:	46° 13' 43" N 112° 51' 54" W	Field Number:	JAMIE LOEHR DUPLICATE
Datum:	NAD83	Lab Date:	2/26/2013 1:31:51 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):	180.5
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)	31.330	1.563	Bicarbonate (HCO ₃)	NR	0.000
Magnesium (Mg)	3.870	0.318	Carbonate (CO ₃)	NR	0.000
Sodium (Na)	25.300	1.101	Chloride (Cl)	NR	0.000
Potassium (K)	9.220	0.236	Sulfate (SO ₄)	NR	0.000
Iron (Fe)	0.204	0.007	Nitrate (as N)	NR	0.000
Manganese (Mn)	<0.005 U	0.000	Fluoride (F)	NR	0.000
Silica (SiO ₂)	NR		Orthophosphate (as P)	NR	0.000
Total Cations		3.236	Total Anions		0.000

Trace Element Results (µg/L)

Aluminum (Al):	42.860	Cesium (Cs):	<0.250 U	Molybdenum (Mo):	3.860	Strontium (Sr):	131.410
Antimony (Sb):	<0.250 U	Chromium (Cr):	0.930 J	Nickel (Ni):	<0.250 U	Thallium (Tl):	<0.250 U
Arsenic (As):	13.910	Cobalt (Co):	<0.250 U	Niobium (Nb):	<0.250 U	Thorium (Th):	<0.250 U
Barium (Ba):	51.750	Copper (Cu):	<0.250 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):	3.550
Boron (B):	31.520	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):	4.680	Uranium (U):	1.040 J
Cadmium (Cd):	<0.250 U	Lithium (Li):	15.480	Silver (Ag):	NR	Vanadium (V):	16.860
Cerium (Ce):	<0.250 U	Mercury (Hg):	NR	Selenium (Se):	<0.250 U	Zinc (Zn):	2.370 J
						Zirconium (Zr):	<0.250 U

Field Chemistry and Other Analytical Results

**Total Dissolved Solids (mg/L):	NR	Field Hardness as CaCO ₃ (mg/L):	NR	Ammonia (mg/L):	NR
**Sum of Diss. Constituents (mg/L):	NR	Hardness as CaCO ₃ :	94.16	T.P. Hydrocarbons (µg/L):	NR
Field Conductivity (µmhos):	334	Field Alkalinity as CaCO ₃ (mg/L):	NR	PCP (µg/L):	NR
Lab Conductivity (µmhos):	NR	Alkalinity as CaCO ₃ (mg/L):	NR	Phosphate, TD (mg/L as P):	<0.030 U
Field pH:	7.75	Ryznar Stability Index:	19.908	Field Nitrate (mg/L):	NR
Lab pH:	NR	Sodium Adsorption Ratio:	1.1211	Field Dissolved O ₂ (mg/L):	13.580
Water Temp (°C):	13.58	Langlier Saturation Index:	-9.954	Field Chloride (mg/L):	NR
Air Temp (°C):	NR	Nitrite (mg/L as N):	NR	Field Redox (mV):	337
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 CaCO ₃)	NR	Acidity to 8.3 (mg/L CaCO ₃)	NR
As(III) (ug/L)	NR	As(V) (ug/L)	NR	Total Susp Solids (mg/L)	NR

Notes

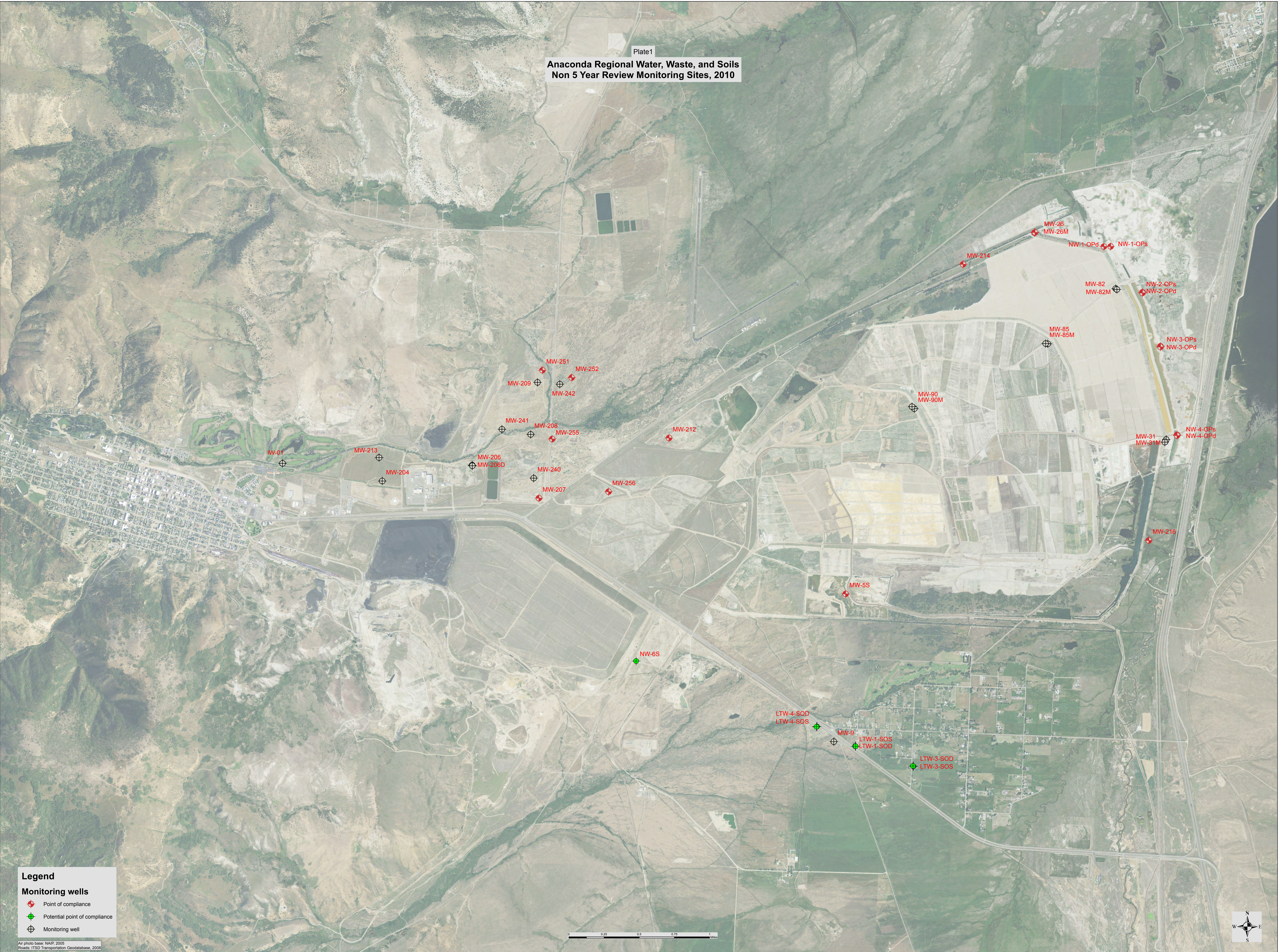
Sample Condition: CLEAR
 Field Remarks:
 Lab Remarks:

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.

Plate1

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



Legend

Monitoring wells

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

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

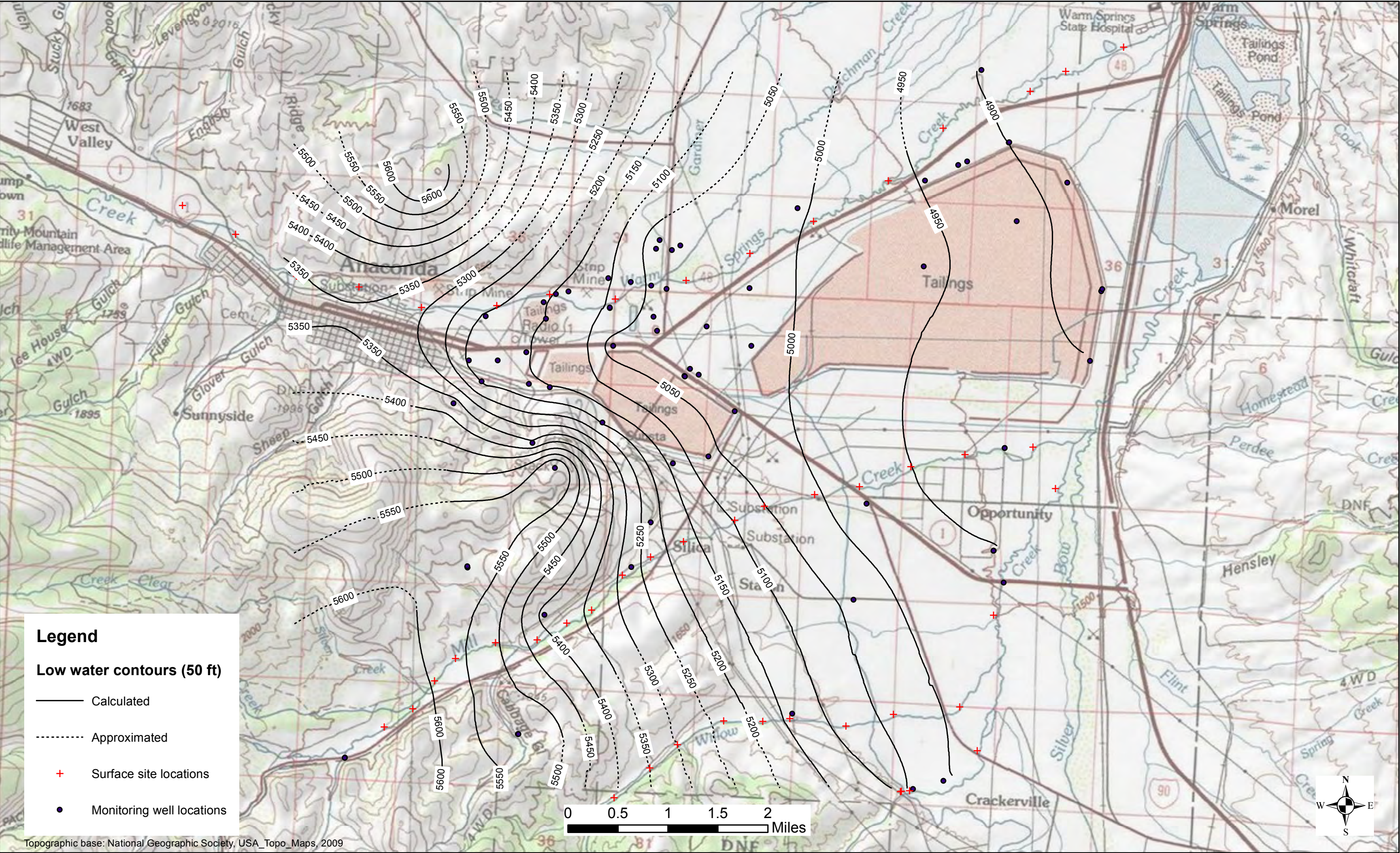


Plate 2. ARWWS low-water potentiometric map, 2009.

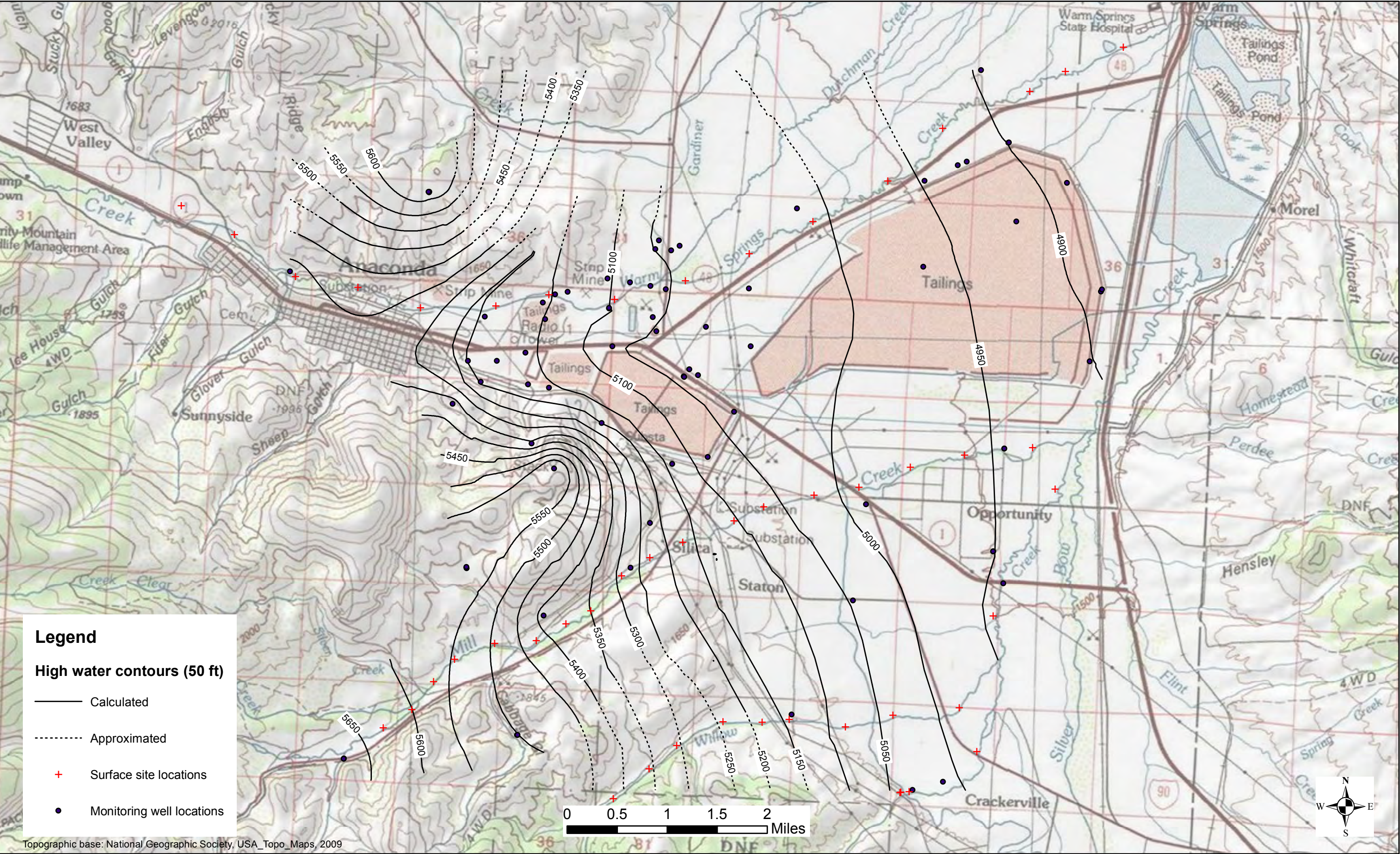


Plate 3. ARWWS high-water potentiometric map, 2009.