ENVIRONMENTAL ASSESSMENT

FRENCH COULEE AMD TREATMENT WETLANDS REMOVAL

ABANDONED MINE RECLAMATION PROJECT

Prepared by:

Montana Department of Environmental Quality
Remediation Division
Abandoned Mine Program
PO Box 2009-1
Helena, MT

In Cooperation with:
United States Department of Interior
Office of Surface Mining Reclamation and Enforcement
Casper, Wyoming Field Office

February 2014

Chapter 1 – Introduction

Site Name and Location:

AMLIS KEY MT 000709 ANACONDA/FRENCH BOG
T19 N R06 E Section 26 SW4, Cascade County
44 – 71 Anaconda Street, Castner's 4th Addition, Town of Belt
West of BNSF ROW and East of Anaconda Street
Latitude 47.3775 Longitude -110.9247

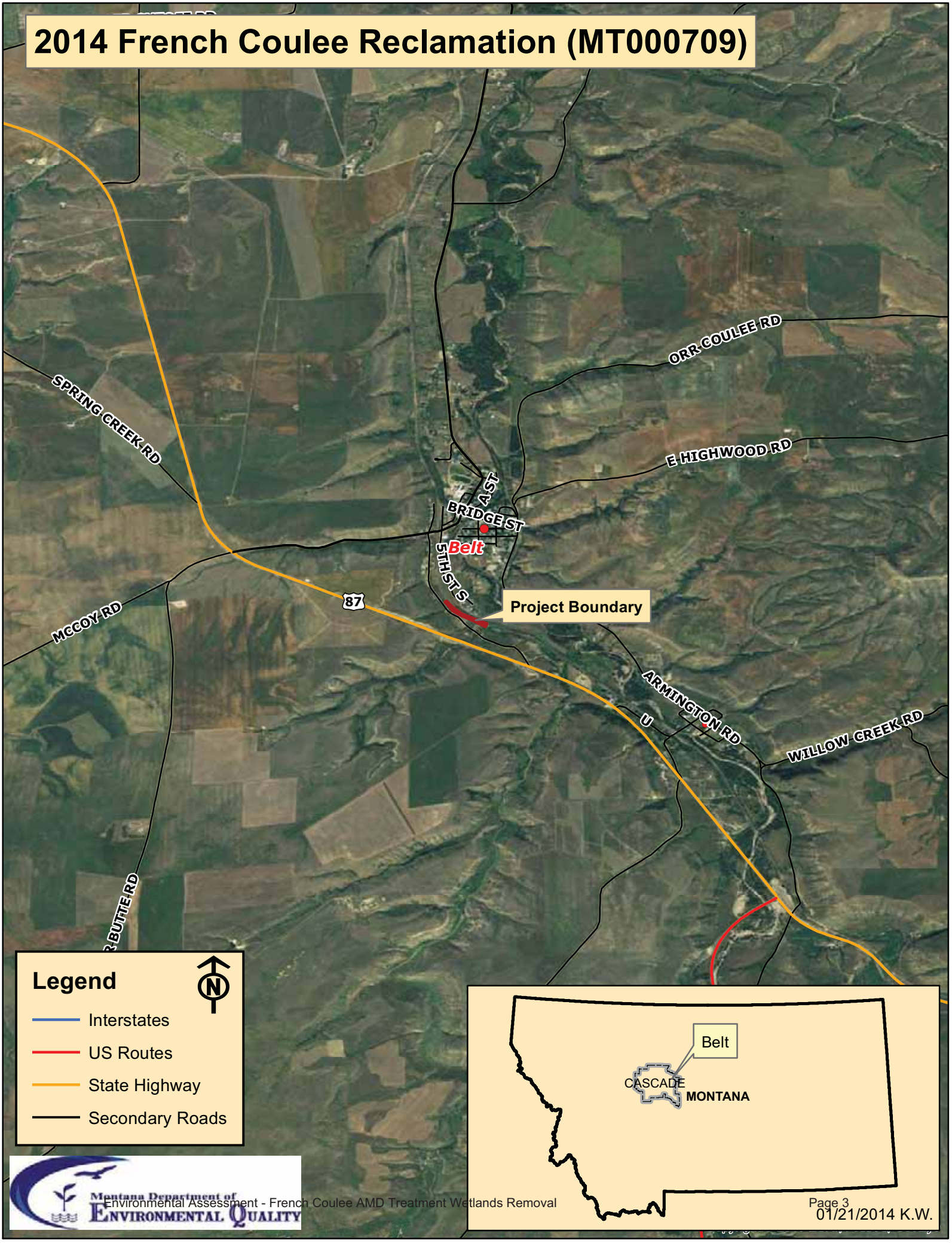
Purpose and Need:

Montana Department of Environmental Quality, Abandoned Mine Program, has determined there is a need to remove a previously constructed wetland treatment system. The system was originally built to treat acid mine drainage from discharges originating from abandoned coal mines located under and adjacent to the Right of Way of US 89. The site is entered into the OSMRE national abandoned mine inventory as AMLIS KEY MT 000709 ANACONDA/FRENCH BOG.

The Anaconda/French Bog site, or French Coulee Wetland, was constructed in the fall of 1990 and Spring of 1991 by Montana Department of State Lands, Abandoned Mine Reclamation Bureau, as an experimental test bed for biological treatment of acid mine drainage (AMD). Montana's abandoned mine program now proposes to remove this no longer operational experimental AMD treatment system as all the data relative to use of this type of system in Montana has been received and analyzed and the treatment system is no longer operational. The unsightly sludge and spent compost beds that remain at the facility were constructed on private property with the consent of owners who were interested in providing a place for testing passive AMD treatment technology. Now that the experiments and system monitoring have ended the landowners have requested that the remnants of the facility be removed and the land restored to a usable condition. Area residents have expressed concerns about the dust that blows off the dry treatment ponds. Montana AML proposes to use AML grant funds to remove the metal saturated compost, pond liners, pipes and flumes, and restore the areas to grass and pasture.

Background/Setting:

The French Coulee treatment system was constructed on private lands located adjacent to the Town of Belt, Cascade County, Montana. The site is situated in a linear swale located between the east side of Anaconda Street and the west side of BN-SF railway right of way. The area where the treatment system is located consists of platted lots in Castner's 4th Addition to the Belt Townsite. Street address for the project is 44 through 71 Anaconda Street. Other than being the site of the treatment system, the property is undeveloped and most recently used as horse pasture. Vegetation consists of common pasture grasses and weedy species such as black sage, curly dock, and spotted knapweed.


2014 French Coulee Reclamation (MT000709)
ORR COULEE RD
SPRING CREEK RD
E HIGHWOOD RD
A ST
BRIDGE ST
Belt
5TH ST S
87
Project Boundary
MCCOY RD
ARMINGTON RD
WILLOW CREEK RD
BUTTE RD
Legend
Interstates
US Routes
State Highway
Secondary Roads
Belt
CASCADE
MONTANA
Montana Department of Environmental Quality

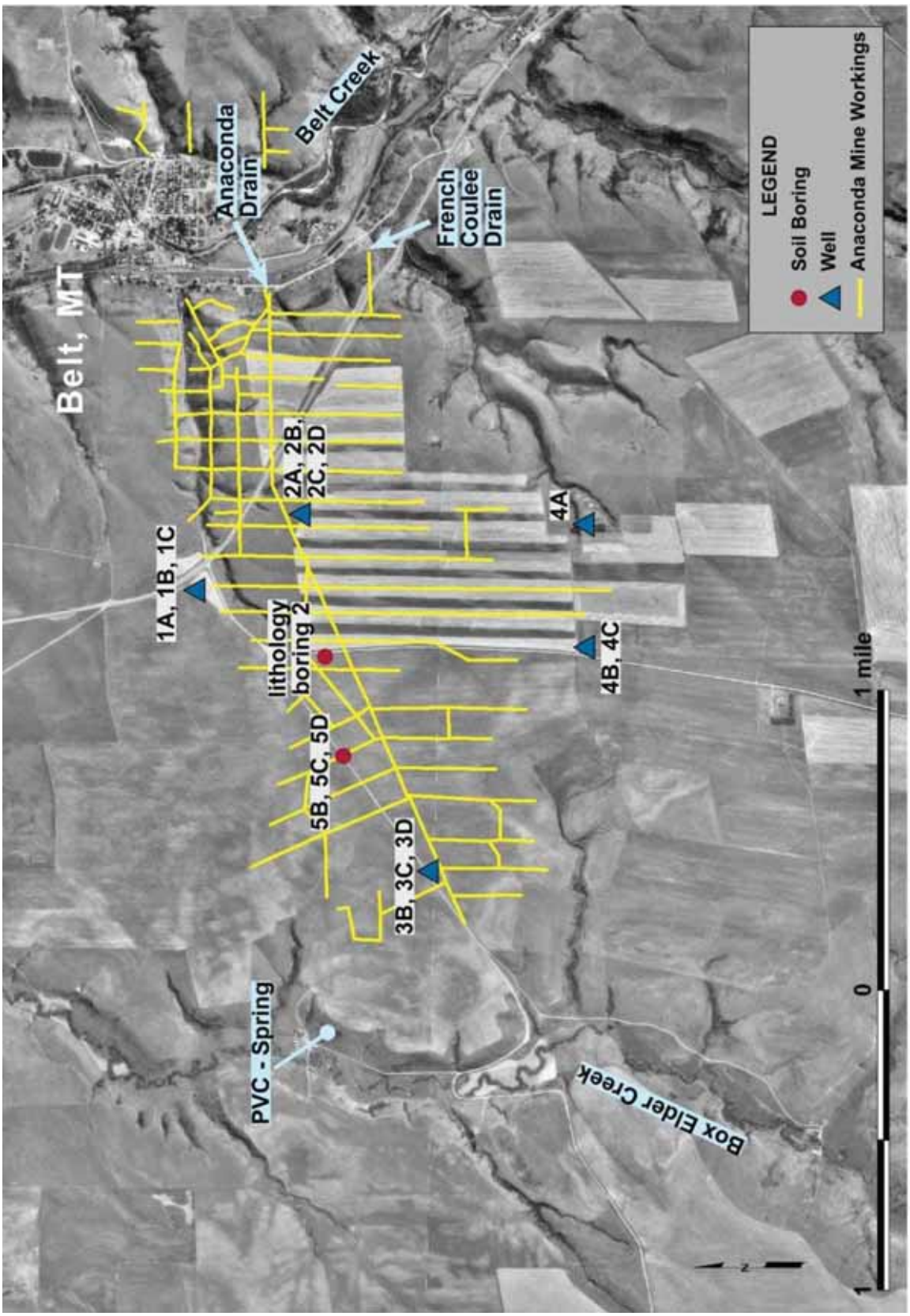


Figure 2. Map showing the extent of the underground workings, main haulage, of the Anaconda Mine, Belt, MT. Also shown are locations of sampling sites and monitoring wells.

French Coulee treatment system was constructed as an attempt at treating acid mine drainage using biological substrates and microbial action to improve water quality without active treatment. The treatment system were designed to capture one of the subsidiary discharges from the Anaconda Coal mine, the French Coulee Drain that discharges through a mine drainage control piping network constructed by Montana Department of Transportation as part of the infrastructure related to the French Coulee highway fill. The treatment system directed French Coulee discharge through a series of three lined cells filled with compost, crushed limestone and sand. The treatment system had a total area of approximately 1.3 acre. The former treatment cells are HDPE lined excavations constructed with a piping system at the bottom of each cell to direct mine effluent through a biologically active substrate. Inflow and outflow analytical parameters were monitored from 1991 – 1994 under various flow and operational regimens.[1] As a treatment system French Coulee Wetlands removed metals such as iron, aluminum and zinc with an efficiency rate of 30 to 40 percent. As the system aged and the compost in the treatment system became saturated, the wetland operated less efficiently and developed a negative efficiency for certain monitored parameters. At no time during its operational life did the treatment system achieve results approaching Montana water quality standards.

No mine drainage has been directed to the French Coulee treatment system since 1994. The French Coulee treatment system was shut down after it was determined that the treatment system effluent was negatively impacting Neel Creek, the surface water tributary to which the treatment effluent was discharged. Prior to construction of the French Coulee treatment system, Neel Creek did not receive discharges of acidic mine water. Treatment system effluent was of sufficiently poor quality to cause Neel Creek to turn orange color during low water flows which prompted landowner/citizen complaints about fish kills and other harm to Neel Creek. Complaints prompted the abandoned mine program to shut off acid mine discharge inflow to the French Coulee treatment system and redirect flow to Belt Creek, which had previously received the acid mine discharges from French Coulee Drain. Shutting off flow to the treatment system allowed the cells to dry up and subsequently metal oxides and salts precipitated on the organic substrates have become sources of fugitive dust.

[1] McCurley, E. and Koerth, J. 1994. Review and Status Report of Four Constructed Wetlands in the Great Falls Coal Field, Cascade County, Montana. Presented at the 16 Annual Conference of National Association of Abandoned Mine Programs, Park City, UT

Chapter 2 – Description of the Alternatives

Alternative 1: No Action

No Action alternative will allow the current situation to persist. Abandoned water treatment system will continue to occupy private lands owned by landowners who no longer wish to cooperate with the abandoned mine program by having this failed treatment system located on their property. Under the No Action alternative, the abandoned water treatment system will continue to prevent landowners from fully accessing and enjoying their property. Metal precipitates and dry compost materials located in the former treatment system ponds will continue to be sources of fugitive dust. Site will continue as a mostly barren area with limited vegetation, mostly consisting of noxious weeds. Acceptance of the No Action alternative will allow site to persist as a point of community contention.

Alternative 2: Remove Treatment System (The Preferred Alternative)

Under this alternative a construction project would be approved and proceed to removal the abandoned treatment system, restore the surface to pasture, and return restored property to landowners for their full use and enjoyment. Implementing the Remove System Alternative would require disposal of approximately 4500 cubic yards of spent mushroom compost that has been saturated with low pH water containing multiple metals. Compost material will be excavated from the treatment and transported to nearby State of Montana owned property where it will be treated and disposed. Pipes, concrete flues and liner materials from the treatment system cells will be either recycled or disposed in a licensed solid waste landfill. Compacted subgrade materials will be ripped to loosen compaction and treatment cell berms graded to match local topography. Cover soil will be imported as necessary to match existing topography. All disturbed area will be vegetated with a tame pasture seed mix. See Appendix F for Plan and Cross Sections for preferred alternative.

A professional engineering firm licensed in Montana will complete the engineering design for the project. Design will be based on the draft design appended to this document. Design work will be contracted for, supervised by, and approved by Montana Department of Environmental Quality staff. Contract bidding and award will be by Department of Environmental Quality staff. After the construction contract is awarded, and construction begins a full-time project representative - constructor inspector will be on-site to ensure quality control during construction.

The proposed time schedule for this alternative is:

Winter 2014 Eligibility determination, landowner consent and preliminary design.

Spring 2014 Finalize design, prepare bid documents, advertise for bids and award contract for reclamation.

Summer 2014 Project Construction Completed.

2014 – 2015 Project Monitoring – weed control

Other Alternatives Considered and Rejected

DEQ considered and rejected the alternative of replacing the French Coulee treatment system with another treatment system designed to treat acidic mine water from the French Coulee Drain.

Currently the French Coulee Drain is an untreated abandoned coal mine discharge to Belt Creek and to local groundwater. Removal of the French Coulee Treatment system will have no impact on treatment of mine discharge as the treatment system has not functioned since 1994. The French Coulee Drain is currently one of four acidic mine discharges to Belt Creek. French Coulee discharges account for 10% of the total discharge flow of acid mine drainage into Belt Creek. While French Coulee accounts for 30% of the iron load and 20% of the sulfate load to Belt Creek it is only one source.[2]

As a standalone action, construction of a replacement treatment system at French Coulee would not result in significant water improvements in Belt Creek because it would result in treatment of only a portion of the discharges to Belt Creek. In order for Belt Creek to achieve in stream water quality standards, treatment will need to be comprehensive and address all the discharges to Belt Creek. Replacing or revamping the French Coulee treatment biological system is not a viable option for water treatment. Replacing the current biological treatment system with a similar system would not meet water quality standards and would consequently negatively impact Neel Creek, the discharge point when the French Coulee Treatment System was operational. Construction of an active treatment system for the French Coulee Drain would not result in comprehensive treatment of discharges to Belt Creek as it would result in treatment of only one discharge point. In order for active treatment to be effective in restoring water quality to Belt Creek, treatment would need to address all the discharges of AMD to Belt Creek.[3] DEQ is evaluating the potential for establishing centralized water treatment for all the mine discharges to Belt Creek, however, if constructed this active water treatment facility would not be located at French Coulee.

[2] Great Falls Coal Field Water Treatment Assessment, March 2012. Prepared for Montana Department of Environmental Quality, Helena MT by Hydrometrics Inc. and TKT Assessment.
[3] Great Falls Coal Field Water Treatment Assessment – loading analysis.

CHAPTER 3 – THE AFFECTED ENVIRONMENT

General Setting

The French Coulee water treatment system is located adjacent to the abandoned Anaconda Coal Mine located in the Great Falls Coalfield. The Great Falls Coalfield lies within a zone transitional between plains and mountain topography. Topography consists of broad gently sloping plateaus traversed by numerous mountain streams. These small valleys cut through and expose the coal, allowing access to the coal beds. Plateau areas between these streams have largely been converted to agriculture uses, particularly small grain production. Valley slopes and incised drainages contain slopes and rocky outcrop areas consisting of non-tillable grazing lands vegetated with residual native plant communities. These native plant communities largely consist of foothill grasslands containing wheatgrass, needle and thread grass, black hawthorn, chokecherry along the valley benches. Streams and undifferentiated river bottom areas are characterized by narrow leaf cottonwood, willows and wild rose.

At the Town of Belt, Belt Creek is entrenched in the sandstone capped plateau. French Coulee is a steeply incised tributary located on the south side of Belt Creek. A small ephemeral flow of water supports an area of cottonwoods and willows at the mouth of French coulee, near the French Coulee treatment system. French Coulee discharges to Neel Creek and ultimately Belt Creek.

Critical Elements

a. Cultural or Historic Resource Values

Montana's AML plan requires cultural resource inventory and evaluation of historic properties over 50 years old. Montana's AML program completed cultural resource inventories on the site and conducted consultation with the State Historic Preservation Office (SHPO) on the French Coulee, Anaconda Bog, and Anaconda/French Bog sites in 1988. This consultation was conducted prior to construction of the abandoned water treatment facility that exists on the site. Consultation covered site numbers 24CA96 French Coulee and 24CA93 Anaconda Copper Mining Company Mine. Sites were not considered to be eligible for listing on the National Register of Historic Places.

The French Coulee water treatment system was constructed in 1990 and operated during the period 1990 – 1994. The French Coulee water treatment system that is being removed is clearly less than 50 years old and as such not subject to National Historic Preservation Act.

b. Hydrology

<u>Surface water:</u>

French Coulee treatment system is an engineered system that connects to French Coulee Drain a mine drainage system constructed to drain discharging mine water out of, and way from, the earthen fill constructed to carry US Highway 89 across French Coulee. The abandoned water treatment system is no longer connected to this source of contaminated mine water. The

French Coulee treatment system does not connect to any other sources of surface water. The intermittent stream that flows through French Coulee flows adjacent to the treatment system near the final and lowest treatment cell.

Passive biological mine drainage treatment systems are something referred to as “artificial wetlands”. With no water supply flowing into its lined ponds, the constructed treatment system has no functions similar to naturally occurring wetlands. There are no naturally occurring wetlands associated with the project area.

Groundwater:

Shallow ground water in the vicinity of the abandoned Anaconda Coal Mine is often contaminated from discharging mine drains, which flow across the surface and infiltrate on their way to discharging to Belt Creek. No groundwater monitoring wells are located at the mouth of French Coulee. Approximately ¼ mile to the north, monitoring wells near the Anaconda Mine Drain have characteristic high aluminum, elevated iron, and low pH. See Appendix A for available groundwater quality data.

Residents along Anaconda Street, near French Coulee treatment system, are served by the Town of Belt municipal water system. Town of Belt obtains water supply from the deep Madison aquifer, separated from the contaminated shallow aquifers by shale and clay layers.

c. Fish and Game

The project area is adjacent to the Town of Belt and is characterized as rural/suburban. Site is located between a county road and railroad tracks and adjacent to residences. While the area is suburban/residential, is it located adjacent to park land, agricultural land, and open space that fronts on the riparian Belt Creek corridor. Consequently the project area is traversed by mule deer and whitetail deer as it provides connections to cover and browse. Human tolerant non-game species such as rabbits, coyotes, skunks, and fox may be transient on the property. The property is not prime wildlife habitat and does not serve as essential habitat for any threatened or endangered species. Consultation with Montana Heritage Program shows that no sensitive species have been recorded as being located at or near the site. See Appendix B for consultation with Natural Heritage Program.

d. Invasive Species - Gastropods

Heath snail - In 2013 Montana Department of Agriculture investigated the discovery of an infestation of the Heath Snail (*Xerolenta obvia)* that is centered on Belt and the surrounding area. The Heath snail is a terrestrial snail species native to Eastern Europe that spreads by attaching to cargo containers or other conveyances used in international shipping. The discovery was unusual as the only other infestations found in North America are at the Port of Detroit, Michigan and in Ontario Canada. The Heath snail can infest a variety of agricultural crops and can be a contaminant of hay and grain. This snail can be a carrier for lung worm diseases in sheep and other livestock and potentially humans.

In June 2012 Montana Department of Agriculture conducted pesticide trials at the French Coulee site which was found to be infested with the Heath snail. Pesticide test plots determined that products containing 4% metaldehyde and iron phosphate appear to be about equally effective in controlling this snail. See Appendix C for additional information on Heath snail.

e. Hazardous Waste

When operational the treatment system was flooded with acid mine drainage from the Anaconda Mine, French Coulee Drain. The compost based biological media in the treatment system because saturated with metal compounds and salts derived from the mine water. Analysis of the materials contained in the wetland shows that these materials exhibit low pH, elevated metals levels, and elevated salt levels. Testing for hazardous waste characteristics indicates that these materials are not classified as RCRA hazardous wastes with all samples passing the Toxicity Characteristic Leaching Procedure analysis. See Appendix D for chemical analysis and leaching test results for biological media currently contained in the treatment system ponds.

f. Air Quality

Air Quality in eastern Cascade County is classified as “Unclassifiable/Attainment or Better than National Standards” for the National Ambient Air Quality Standards for all critical pollutants. See 40 CFR 81.327 http://www.gpo.gov/fdsys/pkg/CFR-2010-title40-vol17/pdf/CFR-2010-title40-vol17-sec81-327.pdf for ambient air standards for Montana.

There have been complaints by local residents who have experienced dusty conditions arising from the wetlands as the metal precipitants on the surface of the wetlands are easily airborne.

g. Topography

The site consists of swale located between Anaconda Street and the BNSF Railway tracks. Both the rail bed and the county road rise above the swale where the treatment system is currently located. Site has a gentle slope that facilitated flow between the three ponds that made up the treatment system.

h. Recreational Resource Values

The site is located entirely on private land. No wilderness areas, National Parks, Wild and Scenic Rivers or other recreational resource areas are contained within the project area. The site is private property where water treatment activities have been conducted in the past with the consent of the private landowners where the treatment facility is located.

i. Noise

The site in situated in a rural/suburban area adjacent to the Town of Belt. Site is located adjacent to Anaconda Street, a county road used for local access and farm to market traffic and

adjacent to the BNSF Billings to Great Falls mainline. Noise on the site consists of automobile and truck traffic, daily train traffic, and noise associated with rural living.

j. Social and Economic Values

Site is currently the location of an abandoned water treatment system. Area is fenced to keep landowner's stock and horses out of the treatment system. Presence of the unused/abandoned treatment system on the property does not allow current economic use of the property. Unused treatment system is located in a rural/suburban area where residents value privacy and enjoy space from their neighbors while still being close to the community of Belt.

k. Conformance with Federal, State, Regional, and/or Local Land Use Plans, Programs and Policies

Construction activities associated with the Preferred Alternative would comply with Montana's Abandoned Mine Reclamation State Plan. The presence of the French Coulee water treatment system is the result of actions taken by Montana's abandoned mine program to eliminate treats to the environment and public health and safety. While the treatment system ultimately was not successful in restoring impacted water quality it did provide useful information on water treatment and the potential for treatment using passive biological methods.

l. Traffic

Anaconda Street and US 89 will be used to transport 4500 cubic yards or spend biological treatment material from the project site to DEQ owned property where the material will be treated and disposed. Transportation of this material will involve approximately 300 truckloads, assuming a 15 cubic yard truck capacity.

m. Environmental Justice

2010 Census data shows that Belt has 750 residents, who are predominantly (98%) native born. English is spoken at home by over 99% of the residents. Occupations are about evenly split between service occupations, natural resources occupations, and sales and office occupations. Medium family income is $55 thousand dollars. Twenty-three percent of families with children under -the age of 18 had incomes below the poverty level. Town of Belt and Cascade County mimics the rest of Montana in being predominantly white with middle to lower incomes. Montana as a whole has an approximate 8% Native American population; Belt has a much lower percentage of Native American citizens. No consideration regarding the selection of this project was made in relation to income or race. See Appendix F for Belt census data.

Chapter 4 ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES

Approval of the Proposed Abandoned Mine Construction Project ("Preferred Alternative")

This alternative will result in the following activities taking place:

Excavate 4500 cubic yards of spent biological treatment substrate.

Remove pipes, flumes, and HDPE synthetic liners from three treatment ponds.

Haul excavated spent biological substrate to adjacent uplands area for disposal.

Grade and cover soil all disturbed areas, plant vegetation, and reestablish fences.

Disapproval of the Proposed Abandoned Mine Construction Project ("No Action Alternative")

This alternative will allow the status quo to continue to exist. The site will continue to be occupied by an abandoned and unused water treatment system consisting of three ponds filled with metal contaminated biological media. Property owners will continue to be deprived of full use and enjoyment of their private property which is occupied by an unused water treatment system. The area will continue to exist as a controversial community eyesore and to be a source of fugitive dust.

Critical Elements

a. Cultural or Historic Resource Values

The project area does not contain historic properties over 50 years old and has previously been considered as not eligible for listing on the National Register of Historic Places. Neither alternative will have any effect on historic or cultural resources.

b. Hydrology

Groundwater and surface water will not be impacted by this project. The preferred alternative may potentially have beneficial effect on groundwater as HDPE liners which currently contain the treatment material could fail over time exposing these materials to the environment.

c. Fish and game

The project will have no impact on federally listed threatened or endangered species or habitat essential for their survival. Area is not prime wildlife habitat. Establishment of grass and pasture species will have a potentially beneficial effect on wildlife species who use the site as part of a migratory corridor.

d. Invasive Species - Gastropods

The project will have positive effect on efforts to control invasive Heath snail and will include pesticide treatments and precautions to ensure that Heath snail is not transported during project construction. Pesticide treatments will be included in project activities and will result in control of Heath snail on project site. Inclusion of control measures in this project will promote and publicize the control of this invasive pest.

e. Hazardous Waste

Biological media currently contained in treatment system cells is contaminated from being saturated with low pH mine drainage containing elevated levels of metals. Material exhibits low pH and elevated metals values but is not considered hazardous waste under RCRA. Approval of the Preferred Alternative will allow removal of this material to an area where it can be treated to neutralize acidity and restore biological activity through a process of composting. No Action Alternative will result in this material staying in its current location where it will remain untreated.

f. Air Quality

The Preferred Alternative will minimize the tendency for fugitive dust emissions from the unused treatment system.

g. Topography

Neither the Preferred Alternative nor the No Action Alternative will have minimal impact on site topography.

h. Recreational Resource Values

Removal of the unused treatment system will have no impact on recreation resources.

i. Noise

The Preferred Alternative will have a slight impact on noise during the construction period. Noise will be the result of heavy equipment operations.

j. Social and Economic Values

The Preferred Alternative will mitigate a community eyesore, remove a source of fugitive dust that has been subject of resident complaints, and restore private property to product use by landowners. Restoration of property to landowners will preserve existing social and economic values. Jobs related to the project will provide a short term boost to the local economy.

k. Conformance with Federal, State, Regional, and/or Local Land Use Plans, Programs and Policies

The Preferred Alternative would be in accord with Montana's Abandoned Mine Reclamation Plan and would not be in conflict with any local or regional plans.

l. Traffic

The Preferred Alternative will increase traffic on Anaconda Street and US 89 during the duration of the project. Material hauling requirements will require approximately 300 round trip truck loads to complete the project. Traffic control plans will be developed using the Uniform Traffic Control Plan and will be subject to approval of MDOT District Engineer review and approval.

m. Environmental Justice

The Preferred Alternative, Removal of the French Coulee treatment system, will have no disproportional effect on any demographic population with regard to either income level or minority status. Montana's Abandoned Mine Program provides the public with full opportunity for meaningful participation by minority or low income populations through a standardized public participation and comment process. Abandoned mine reclamation reports, studies, and work plans are available for public inspection at all time.

APPENDIX A

Groundwater Quality Data

ANALYTICAL SUMMARY REPORT

August 08, 2013

MT DEQ-Abandoned Mines
PO Box 200901
Helena, MT 59620-0901

Workorder No.: H13070011 Quote ID: H677 - Great Falls Coal Field

Project Name: 11033 Coke Oven Flats

Energy Laboratories Inc Helena MT received the following 13 samples for MT DEQ-Abandoned Mines on 7/1/2013 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H13070011-001	COF-1306-200	06/27/13 14:00	07/01/13	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity Anions by Ion Chromatography pH
H13070011-002	COF-1306-201	06/28/13 15:15	07/01/13	Aqueous	Metals by ICP/ICPMS, Dissolved Preparation, Dissolved Filtration
H13070011-003	COF-1306-202	06/27/13 14:45	07/01/13	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity Anions by Ion Chromatography pH
H13070011-004	COF-1306-203	06/27/13 15:05	07/01/13	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity Anions by Ion Chromatography pH Metals Digestion by EPA 200.2
H13070011-005	COF-1306-204	06/27/13 15:15	07/01/13	Aqueous	Same As Above
H13070011-006	COF-1306-205	06/27/13 16:00	07/01/13	Aqueous	Metals by ICP/ICPMS, Dissolved Preparation, Dissolved Filtration
H13070011-007	COF-1306-206	06/27/13 16:20	07/01/13	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity Anions by Ion Chromatography pH
H13070011-008	COF-1306-207	06/28/13 11:30	07/01/13	Aqueous	Same As Above
H13070011-009	COF-1306-208	06/28/13 12:25	07/01/13	Aqueous	Same As Above
H13070011-010	COF-1306-209	06/28/13 14:40	07/01/13	Aqueous	Same As Above
H13070011-011	COF-1306-210	06/28/13 13:30	07/01/13	Aqueous	Same As Above
H13070011-012	COF-1306-211	06/28/13 14:00	07/01/13	Aqueous	Same As Above
H13070011-013	COF-1306-212	06/28/13 14:30	07/01/13	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity Anions by Ion Chromatography pH Preparation, Dissolved Filtration

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

ANALYTICAL SUMMARY REPORT

Report Approved By:

CLIENT: MT DEQ-Abandoned Mines
Project: 11033 Coke Oven Flats
Sample Delivery Group: H13070011

Revised Date: 08/08/13
Report Date: 07/26/13

CASE NARRATIVE

Client requested additional analysis of Dissolved Arsenic, Beryllium & Thallium. Attached is the revised report with the additional parameters. Wj 8/8/13

LA RAT R ANAL TICAL REP RT

Prepared by Helena, MT Branch

Revised Date: 08/08/13
Report Date: 07/26/13
Collectio Date: 06/27/13 14:00
DateReceived: 07/01/13
atri : Aqueous

Clie t: MT DEQ-Abandoned Mines
Project: 11033 Coke Oven Flats
La ID: H13070011-001
Clie t Sample ID COF-1306-200

A alyses	Result	its	uali iers	RL	CL CL	et od	A alysis Date y
P SICAL PR PERTIES							
pH	4.0	s.u.	H	0.1		A4500-H B	07/02/13 09:00 / glj
Conductivity @ 25 C	9590	umhos/cm		1		A2510 B	07/02/13 09:00 / glj
IN RGANICS							
Sulfate	19000	mg/L	D	5		E300.0	07/24/13 11:00 / cmm
ETALS DISS LVED							
Aluminum	1910	mg/L	D	0.09		E200.7	07/09/13 12:49 / sld
Arsenic	0.044	mg/L		0.003		E200.8	07/08/13 22:40 / dck
Beryllium	0.123	mg/L		0.001		E200.8	07/08/13 22:40 / dck
Cadmium	0.043	mg/L	D	0.003		E200.8	07/11/13 11:08 / dck
Chromium	0.220	mg/L		0.001		E200.8	07/03/13 03:03 / dck
Copper	0.159	mg/L		0.0005		E200.8	07/03/13 03:03 / dck
Iron	527	mg/L	D	0.05		E200.7	07/09/13 12:49 / sld
Manganese	8.40	mg/L		0.01		E200.7	07/09/13 12:49 / sld
Nickel	2.63	mg/L	D	0.003		E200.8	07/08/13 22:40 / dck
Thallium	0.002	mg/L		0.001		E200.8	07/03/13 03:03 / dck
Zinc	9.22	mg/L	D	0.02		E200.8	07/08/13 22:40 / dck

Report De i itio s:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LA RAT R ANAL TICAL REP RT

Prepared by Helena, MT Branch

Revised Date: 08/08/13

Clie t: MT DEQ-Abandoned Mines
Report Date: 07/26/13

Project: 11033 Coke Oven Flats
Collectio Date: 06/28/13 15:15

La ID: H13070011-002
DateReceived: 07/01/13

Clie t Sample ID COF-1306-201
atri : Aqueous

A alyses	Result	its	uali iers	RL	CL CL	et od	A alysis Date y
ETALS DISS LVED							
Aluminum	0.35	mg/L		0.03		E200.8	07/08/13 22:54 / dck
Arsenic	ND	mg/L		0.003		E200.8	07/03/13 03:32 / dck
Beryllium	ND	mg/L		0.001		E200.8	07/03/13 03:32 / dck
Cadmium	0.0104	mg/L	D	0.0003		E200.8	07/08/13 22:54 / dck
Chromium	ND	mg/L		0.001		E200.8	07/03/13 03:32 / dck
Copper	0.016	mg/L	D	0.001		E200.8	07/08/13 22:54 / dck
Iron	0.05	mg/L		0.02		E200.8	07/16/13 22:44 / dck
Manganese	16.0	mg/L		0.01		E200.7	07/09/13 12:37 / sld
Nickel	0.225	mg/L		0.0001		E200.8	07/03/13 03:32 / dck
Thallium	ND	mg/L		0.001		E200.8	07/03/13 03:32 / dck
Zinc	0.040	mg/L		0.001		E200.8	07/03/13 03:32 / dck

Report De i itio s:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LA RAT R ANAL TICAL REP RT

Prepared by Helena, MT Branch

Revised Date: 08/08/13
Report Date: 07/26/13
Collectio Date: 06/27/13 14:45
DateReceived: 07/01/13
atri : Aqueous

Clie t: MT DEQ-Abandoned Mines
Project: 11033 Coke Oven Flats
La ID: H13070011-003
Clie t Sample ID COF-1306-202

A alyses	Result	its	uali iers	RL	CL CL	et od	A alysis Date y
P SICAL PR PERTIES							
pH	2.7	s.u.	H	0.1		A4500-H B	07/02/13 09:05 / glj
Conductivity @ 25 C	12700	umhos/cm		1		A2510 B	07/02/13 09:05 / glj
IN RGANICS							
Sulfate	21000	mg/L	D	10		E300.0	07/02/13 23:59 / jaw
ETALS DISS LVED							
Aluminum	2740	mg/L	D	0.09		E200.7	07/09/13 13:03 / sld
Arsenic	0.018	mg/L		0.003		E200.8	07/03/13 03:36 / dck
Beryllium	0.042	mg/L		0.001		E200.8	07/03/13 03:36 / dck
Cadmium	0.049	mg/L	D	0.003		E200.8	07/11/13 11:23 / dck
Chromium	0.047	mg/L		0.001		E200.8	07/03/13 03:36 / dck
Copper	0.0555	mg/L		0.0005		E200.8	07/03/13 03:36 / dck
Iron	145	mg/L	D	0.05		E200.7	07/09/13 13:03 / sld
Manganese	8.46	mg/L		0.01		E200.7	07/09/13 13:03 / sld
Nickel	3.27	mg/L	D	0.003		E200.8	07/08/13 22:59 / dck
Thallium	ND	mg/L		0.001		E200.8	07/03/13 03:36 / dck
Zinc	7.54	mg/L	D	0.02		E200.8	07/08/13 22:59 / dck

Report De i itio s:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LA RAT R ANAL TICAL REP RT

Prepared by Helena, MT Branch

Revised Date: 08/08/13
Report Date: 07/26/13
Collectio Date: 06/27/13 15:05
DateReceived: 07/01/13
atri : Aqueous

Clie t: MT DEQ-Abandoned Mines
Project: 11033 Coke Oven Flats
La ID: H13070011-004
Clie t Sample ID COF-1306-203

A alyses	Result	its	uali iers	RL	CL CL	et od	A alysis Date y
P SICAL PR PERTIES							
pH	3.2	s.u.	H	0.1		A4500-H B	07/02/13 09:07 / glj
Conductivity @ 25 C	18100	umhos/cm		1		A2510 B	07/02/13 09:07 / glj
IN RGANICS							
Sulfate	38000	mg/L	D	10		E300.0	07/03/13 00:11 / jaw
ETALS DISS LVED							
Aluminum	5310	mg/L	D	0.5		E200.8	07/19/13 00:38 / dck
Arsenic	0.079	mg/L		0.003		E200.8	07/15/13 17:15 / dck
Beryllium	0.146	mg/L		0.001		E200.8	07/15/13 17:15 / dck
Cadmium	0.06	mg/L	D	0.01		E200.8	07/18/13 04:36 / dck
Chromium	0.370	mg/L		0.001		E200.8	07/15/13 17:15 / dck
Copper	1.16	mg/L		0.0005		E200.8	07/15/13 17:15 / dck
Iron	696	mg/L		0.02		E200.8	07/15/13 17:15 / dck
Manganese	10.6	mg/L		0.01		E200.8	07/15/13 17:15 / dck
Nickel	4.82	mg/L	D	0.0006		E200.8	07/16/13 22:48 / dck
Thallium	0.002	mg/L		0.001		E200.8	07/15/13 17:15 / dck
Zinc	14.9	mg/L	D	0.2		E200.8	07/18/13 04:36 / dck

Report De i itio s:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LA RAT R ANAL TICAL REP RT

Prepared by Helena, MT Branch

Revised Date: 08/08/13
Report Date: 07/26/13
Collectio Date: 06/27/13 15:15
DateReceived: 07/01/13
atri : Aqueous

Clie t: MT DEQ-Abandoned Mines
Project: 11033 Coke Oven Flats
La ID: H13070011-005
Clie t Sample ID COF-1306-204

A alyses	Result	its	uali iers	RL	CL CL	et od	A alysis Date y
P SICAL PR PERTIES							
pH	3.3	s.u.	H	0.1		A4500-H B	07/02/13 09:10 / glj
Conductivity @ 25 C	17800	umhos/cm		1		A2510 B	07/02/13 09:10 / glj
IN RGANICS							
Sulfate	38000	mg/L	D	10		E300.0	07/03/13 00:24 / jaw
ETALS DISS LVED							
Aluminum	4340	mg/L	D	1		E200.8	07/18/13 04:40 / dck
Arsenic	0.066	mg/L		0.003		E200.8	07/15/13 17:20 / dck
Beryllium	0.128	mg/L		0.001		E200.8	07/15/13 17:20 / dck
Cadmium	0.049	mg/L	D	0.003		E200.8	07/16/13 22:53 / dck
Chromium	0.330	mg/L		0.001		E200.8	07/15/13 17:20 / dck
Copper	1.04	mg/L		0.0005		E200.8	07/15/13 17:20 / dck
Iron	681	mg/L		0.02		E200.8	07/15/13 17:20 / dck
Manganese	9.71	mg/L		0.01		E200.8	07/15/13 17:20 / dck
Nickel	5.28	mg/L	D	0.03		E200.8	07/16/13 22:53 / dck
Thallium	0.002	mg/L		0.001		E200.8	07/15/13 17:20 / dck
Zinc	15.4	mg/L	D	0.2		E200.8	07/16/13 22:53 / dck

Report De i itio s:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LA RAT R ANAL TICAL REP RT

Prepared by Helena, MT Branch

Revised Date: 08/08/13
Report Date: 07/26/13
Collectio Date: 06/27/13 16:00
DateReceived: 07/01/13
atri : Aqueous

Clie t: MT DEQ-Abandoned Mines
Project: 11033 Coke Oven Flats
La ID: H13070011-006
Clie t Sample ID COF-1306-205

A alyses	Result	its	uali iers	RL	CL CL	et od	A alysis Date y
ETALS DISS LVED							
Aluminum	0.25	mg/L		0.03		E200.7	07/09/13 12:41 / sld
Arsenic	ND	mg/L		0.003		E200.8	07/03/13 03:51 / dck
Beryllium	ND	mg/L		0.001		E200.8	07/03/13 03:51 / dck
Cadmium	0.001	mg/L	D	0.001		E200.8	07/08/13 23:41 / dck
Chromium	ND	mg/L		0.001		E200.8	07/03/13 03:51 / dck
Copper	0.020	mg/L	D	0.001		E200.8	07/08/13 23:41 / dck
Iron	0.30	mg/L		0.02		E200.8	07/03/13 03:51 / dck
Manganese	9.15	mg/L		0.01		E200.7	07/09/13 12:41 / sld
Nickel	0.0845	mg/L		0.0001		E200.8	07/03/13 03:51 / dck
Thallium	ND	mg/L		0.001		E200.8	07/03/13 03:51 / dck
Zinc	0.061	mg/L		0.001		E200.8	07/03/13 03:51 / dck

Report De i itio s:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LA RAT R ANAL TICAL REP RT

Prepared by Helena, MT Branch

Revised Date: 08/08/13
Report Date: 07/26/13
Collectio Date: 06/27/13 16:20
DateReceived: 07/01/13
atri : Aqueous

Clie t: MT DEQ-Abandoned Mines
Project: 11033 Coke Oven Flats
La ID: H13070011-007
Clie t Sample ID COF-1306-206

A alyses	Result	its	uali iers	RL	CL CL	et od	A alysis Date y
P SICAL PR PERTIES							
pH	2.4	s.u.	H	0.1		A4500-H B	07/02/13 09:12 / glj
Conductivity @ 25 C	15400	umhos/cm		1		A2510 B	07/02/13 09:12 / glj
IN RGANICS							
Sulfate	31000	mg/L	D	10		E300.0	07/03/13 00:37 / jaw
ETALS DISS LVED							
Aluminum	2410	mg/L	D	0.2		E200.7	07/09/13 13:47 / sld
Arsenic	0.131	mg/L		0.003		E200.8	07/08/13 23:45 / dck
Beryllium	0.194	mg/L		0.001		E200.8	07/08/13 23:45 / dck
Cadmium	0.0570	mg/L	D	0.0003		E200.8	07/08/13 23:45 / dck
Chromium	0.383	mg/L		0.001		E200.8	07/03/13 03:55 / dck
Copper	1.32	mg/L		0.0005		E200.8	07/03/13 03:55 / dck
Iron	2420	mg/L	D	0.09		E200.7	07/09/13 13:47 / sld
Manganese	10.3	mg/L		0.01		E200.7	07/09/13 13:47 / sld
Nickel	1.83	mg/L	D	0.0003		E200.8	07/03/13 03:55 / dck
Thallium	0.002	mg/L		0.001		E200.8	07/03/13 03:55 / dck
Zinc	9.79	mg/L	D	0.02		E200.8	07/08/13 23:45 / dck

Report De i itio s:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LA RAT R ANAL TICAL REP RT

Prepared by Helena, MT Branch

Revised Date: 08/08/13
Report Date: 07/26/13
Collectio Date: 06/28/13 11:30
DateReceived: 07/01/13
atri : Aqueous

Clie t: MT DEQ-Abandoned Mines
Project: 11033 Coke Oven Flats
La ID: H13070011-008
Clie t Sample ID COF-1306-207

A alyses	Result	its	uali iers	RL	CL CL	et od	A alysis Date y
P SICAL PR PERTIES							
pH	4.2	s.u.	H	0.1		A4500-H B	07/02/13 09:15 / glj
Conductivity @ 25 C	5100	umhos/cm		1		A2510 B	07/02/13 09:15 / glj
IN RGANICS							
Sulfate	6600	mg/L	D	2		E300.0	07/03/13 00:49 / jaw
ETALS DISS LVED							
Aluminum	606	mg/L		0.03		E200.7	07/09/13 11:55 / sld
Arsenic	0.007	mg/L		0.003		E200.8	07/03/13 04:20 / dck
Beryllium	0.025	mg/L		0.001		E200.8	07/03/13 04:20 / dck
Cadmium	0.0189	mg/L	D	0.0003		E200.8	07/08/13 23:50 / dck
Chromium	0.006	mg/L		0.001		E200.8	07/03/13 04:20 / dck
Copper	0.0839	mg/L		0.0005		E200.8	07/03/13 04:20 / dck
Iron	67.7	mg/L		0.02		E200.7	07/09/13 11:55 / sld
Manganese	16.0	mg/L		0.01		E200.7	07/09/13 11:55 / sld
Nickel	1.14	mg/L	D	0.003		E200.8	07/08/13 23:50 / dck
Thallium	ND	mg/L		0.001		E200.8	07/03/13 04:20 / dck
Zinc	2.34	mg/L	D	0.02		E200.8	07/08/13 23:50 / dck

Report De i itio s:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LA RAT R ANAL TICAL REP RT

Prepared by Helena, MT Branch

Revised Date: 08/08/13
Report Date: 07/26/13
Collectio Date: 06/28/13 12:25
DateReceived: 07/01/13
atri : Aqueous

Clie t: MT DEQ-Abandoned Mines
Project: 11033 Coke Oven Flats
La ID: H13070011-009
Clie t Sample ID COF-1306-208

A alyses	Result	its	uali iers	RL	CL CL	et od	A alysis Date y
P SICAL PR PERTIES							
pH	5.8	s.u.	H	0.1		A4500-H B	07/02/13 09:17 / glj
Conductivity @ 25 C	2700	umhos/cm		1		A2510 B	07/02/13 09:17 / glj
IN RGANICS							
Sulfate	55	mg/L	D	2		E300.0	07/03/13 17:13 / cmm
ETALS DISS LVED							
Aluminum	2.06	mg/L		0.03		E200.8	07/08/13 23:55 / dck
Arsenic	ND	mg/L		0.003		E200.8	07/03/13 04:25 / dck
Beryllium	ND	mg/L		0.001		E200.8	07/03/13 04:25 / dck
Cadmium	ND	mg/L	D	0.001		E200.8	07/08/13 23:55 / dck
Chromium	ND	mg/L		0.001		E200.8	07/03/13 04:25 / dck
Copper	0.0028	mg/L		0.0005		E200.8	07/03/13 04:25 / dck
Iron	0.41	mg/L		0.02		E200.8	07/03/13 04:25 / dck
Manganese	0.50	mg/L		0.01		E200.7	07/09/13 11:59 / sld
Nickel	0.0420	mg/L		0.0001		E200.8	07/03/13 04:25 / dck
Thallium	ND	mg/L		0.001		E200.8	07/03/13 04:25 / dck
Zinc	0.065	mg/L		0.001		E200.8	07/03/13 04:25 / dck

Report De i itio s:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LA RAT R ANAL TICAL REP RT

Prepared by Helena, MT Branch

Revised Date: 08/08/13
Report Date: 07/26/13
Collectio Date: 06/28/13 14:40
DateReceived: 07/01/13
atri : Aqueous

Clie t: MT DEQ-Abandoned Mines
Project: 11033 Coke Oven Flats
La ID: H13070011-010
Clie t Sample ID COF-1306-209

A alyses	Result	its	uali iers	RL	CL CL	et od	A alysis Date y
P SICAL PR PERTIES							
pH	2.4	s.u.	H	0.1		A4500-H B	07/02/13 09:20 / glj
Conductivity @ 25 C	10700	umhos/cm		1		A2510 B	07/02/13 09:20 / glj
IN RGANICS							
Sulfate	19000	mg/L	D	10		E300.0	07/03/13 17:25 / cmm
ETALS DISS LVED							
Aluminum	1480	mg/L	D	0.09		E200.7	07/09/13 13:51 / sld
Arsenic	0.060	mg/L		0.003		E200.8	07/03/13 04:29 / dck
Beryllium	0.221	mg/L		0.001		E200.8	07/08/13 23:59 / dck
Cadmium	0.038	mg/L	D	0.001		E200.8	07/08/13 23:59 / dck
Chromium	0.252	mg/L		0.001		E200.8	07/03/13 04:29 / dck
Copper	0.540	mg/L		0.0005		E200.8	07/03/13 04:29 / dck
Iron	632	mg/L	D	0.05		E200.7	07/09/13 13:51 / sld
Manganese	3.48	mg/L		0.01		E200.7	07/09/13 13:51 / sld
Nickel	1.62	mg/L	D	0.0003		E200.8	07/03/13 04:29 / dck
Thallium	ND	mg/L		0.001		E200.8	07/03/13 04:29 / dck
Zinc	3.87	mg/L	D	0.02		E200.8	07/08/13 23:59 / dck

Report De i itio s:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LA RAT R ANAL TICAL REP RT

Prepared by Helena, MT Branch

Revised Date: 08/08/13
Report Date: 07/26/13
Collectio Date: 06/28/13 13:30
DateReceived: 07/01/13
atri : Aqueous

Clie t: MT DEQ-Abandoned Mines
Project: 11033 Coke Oven Flats
La ID: H13070011-011
Clie t Sample ID COF-1306-210

A alyses	Result	its	uali iers	RL	CL CL	et od	A alysis Date y
P SICAL PR PERTIES							
pH	2.1	s.u.	H	0.1		A4500-H B	07/02/13 09:22 / glj
Conductivity @ 25 C	12900	umhos/cm		1		A2510 B	07/02/13 09:22 / glj
IN RGANICS							
Sulfate	31000	mg/L	D	20		E300.0	07/03/13 17:38 / cmm
ETALS DISS LVED							
Aluminum	1050	mg/L	D	0.2		E200.7	07/09/13 13:55 / sld
Arsenic	0.457	mg/L		0.003		E200.8	07/03/13 04:49 / dck
Beryllium	0.061	mg/L		0.001		E200.8	07/09/13 00:04 / dck
Cadmium	0.0293	mg/L	D	0.0003		E200.8	07/09/13 00:04 / dck
Chromium	0.256	mg/L		0.001		E200.8	07/03/13 04:49 / dck
Copper	1.07	mg/L		0.0005		E200.8	07/03/13 04:49 / dck
Iron	4440	mg/L	D	0.09		E200.7	07/09/13 13:55 / sld
Manganese	3.67	mg/L		0.01		E200.7	07/09/13 13:55 / sld
Nickel	1.58	mg/L	D	0.0003		E200.8	07/03/13 04:49 / dck
Thallium	ND	mg/L		0.001		E200.8	07/03/13 04:49 / dck
Zinc	6.27	mg/L	D	0.02		E200.8	07/09/13 00:04 / dck

Report De i itio s:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LA RAT R ANAL TICAL REP RT

Prepared by Helena, MT Branch

Revised Date: 08/08/13

Clie t: MT DEQ-Abandoned Mines
Report Date: 07/26/13

Project: 11033 Coke Oven Flats
Collectio Date: 06/28/13 14:00

La ID: H13070011-012
DateReceived: 07/01/13

Clie t Sample ID COF-1306-211
atri : Aqueous

A alyses	Result	its	uali iers	RL	CL CL	et od	A alysis Date y
P SICAL PR PERTIES							
pH	5.5	s.u.	H	0.1		A4500-H B	07/02/13 09:24 / glj
Conductivity @ 25 C	3210	umhos/cm		1		A2510 B	07/02/13 09:24 / glj
IN RGANICS							
Sulfate	2400	mg/L	D	2		E300.0	07/03/13 17:50 / cmm
ETALS DISS LVED							
Aluminum	11.3	mg/L		0.03		E200.8	07/09/13 00:08 / dck
Arsenic	ND	mg/L		0.003		E200.8	07/03/13 04:54 / dck
Beryllium	ND	mg/L		0.001		E200.8	07/09/13 00:08 / dck
Cadmium	0.0020	mg/L	D	0.0003		E200.8	07/09/13 00:08 / dck
Chromium	ND	mg/L		0.001		E200.8	07/03/13 04:54 / dck
Copper	0.0036	mg/L		0.0005		E200.8	07/03/13 04:54 / dck
Iron	0.52	mg/L		0.02		E200.8	07/03/13 04:54 / dck
Manganese	2.12	mg/L		0.01		E200.7	07/09/13 12:11 / sld
Nickel	0.218	mg/L		0.0001		E200.8	07/03/13 04:54 / dck
Thallium	ND	mg/L		0.001		E200.8	07/03/13 04:54 / dck
Zinc	0.290	mg/L		0.001		E200.8	07/03/13 04:54 / dck

Report De i itio s:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LA RAT R ANAL TICAL REP RT

Prepared by Helena, MT Branch

Revised Date: 08/08/13
Report Date: 07/26/13
Collectio Date: 06/28/13 14:30
DateReceived: 07/01/13
atri : Aqueous

Clie t: MT DEQ-Abandoned Mines
Project: 11033 Coke Oven Flats
La ID: H13070011-013
Clie t Sample ID COF-1306-212

A alyses	Result	its	uali iers	RL	CL CL	et od	A alysis Date y
P SICAL PR PERTIES							
pH	3.9	s.u.	H	0.1		A4500-H B	07/02/13 09:29 / glj
Conductivity @ 25 C	11800	umhos/cm		1		A2510 B	07/02/13 09:29 / glj
IN RGANICS							
Sulfate	26000	mg/L	D	10		E300.0	07/03/13 18:03 / cmm
ETALS DISS LVED							
Aluminum	2990	mg/L	D	0.09		E200.7	07/09/13 13:58 / sld
Arsenic	0.031	mg/L		0.003		E200.8	07/03/13 04:58 / dck
Beryllium	0.166	mg/L		0.001		E200.8	07/09/13 00:13 / dck
Cadmium	0.045	mg/L	D	0.003		E200.8	07/11/13 11:37 / dck
Chromium	0.030	mg/L		0.001		E200.8	07/03/13 04:58 / dck
Copper	0.0342	mg/L		0.0005		E200.8	07/03/13 04:58 / dck
Iron	4.28	mg/L	D	0.05		E200.7	07/09/13 13:58 / sld
Manganese	10.6	mg/L		0.01		E200.7	07/09/13 13:58 / sld
Nickel	2.00	mg/L	D	0.003		E200.8	07/09/13 00:13 / dck
Thallium	ND	mg/L		0.001		E200.8	07/03/13 04:58 / dck
Zinc	4.26	mg/L	D	0.02		E200.8	07/09/13 00:13 / dck

Report De i itio s:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

QA/QC Summary Report

Prepared by Helena, MT Branch

Revised Date: 08/08/13
Report Date: 07/26/13
Work Order: H13070011

Client: MT DEQ-Abandoned Mines
Project: 11033 Coke Oven Flats

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2510 B										Batch: R89447
Sample ID: SC 150		Initial Calibration Verification Standard				Run: PHSC_101-H_130702A				07/02/13 08:40
Conductivity @ 25 C		150	umhos/cm	1.0	100	90	110			
Sample ID: SC 5000		Initial Calibration Verification Standard				Run: PHSC_101-H_130702A				07/02/13 08:42
Conductivity @ 25 C		4900	umhos/cm	1.0	99	90	110			
Sample ID: SC 20000		Initial Calibration Verification Standard				Run: PHSC_101-H_130702A				07/02/13 08:44
Conductivity @ 25 C		20000	umhos/cm	1.0	101	90	110			
Sample ID: SC 2ND 717.5		Laboratory Control Sample				Run: PHSC_101-H_130702A				07/02/13 08:47
Conductivity @ 25 C		710	umhos/cm	1.0	98	90	110			
Sample ID: H13070011-001ADUP		Sample Duplicate				Run: PHSC_101-H_130702A				07/02/13 09:03
Conductivity @ 25 C		9590	umhos/cm	1.0				0.1	10	
Sample ID: H13070011-012ADUP		Sample Duplicate				Run: PHSC_101-H_130702A				07/02/13 09:27
Conductivity @ 25 C		3210	umhos/cm	1.0				0.1	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Revised Date: 08/08/13
Report Date: 07/26/13
Work Order: H13070011

Client: MT DEQ-Abandoned Mines
Project: 11033 Coke Oven Flats

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B										Analytical Run: PHSC_101-H_130702A
Sample ID: pH 7		Initial Calibration Verification Standard								07/02/13 08:37
pH		7.0	s.u.	0.1	100	98	102			
Method: A4500-H B										Batch: R89447
Sample ID: H13070011-001ADUP		Sample Duplicate				Run: PHSC_101-H_130702A				07/02/13 09:03
pH		4.0	s.u.	0.1				0.3	3	
Sample ID: H13070011-012ADUP		Sample Duplicate				Run: PHSC_101-H_130702A				07/02/13 09:27
pH		5.5	s.u.	0.1				0.2	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Revised Date: 08/08/13

Client: MT DEQ-Abandoned Mines

Report Date: 07/26/13

Project: 11033 Coke Oven Flats

Work Order: H13070011

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Analytical Run: ICP2-HE_130709A
Sample ID: ICV	3	Initial Calibration Verification Standard								07/09/13 09:18
Aluminum		3.93	mg/L	0.10	98	95	105			
Iron		3.89	mg/L	0.030	97	95	105			
Manganese		3.89	mg/L	0.010	97	95	105			
Sample ID: CCV-1	3	Continuing Calibration Verification Standard								07/09/13 09:21
Aluminum		2.47	mg/L	0.10	99	95	105			
Iron		2.44	mg/L	0.030	98	95	105			
Manganese		2.42	mg/L	0.010	97	95	105			
Sample ID: ICSA	3	Interference Check Sample A								07/09/13 09:32
Aluminum		509	mg/L	0.10	102	80	120			
Iron		187	mg/L	0.030	93	80	120			
Manganese		0.00602	mg/L	0.010		0	0			
Sample ID: ICSAB	3	Interference Check Sample AB								07/09/13 09:37
Aluminum		508	mg/L	0.10	102	80	120			
Iron		184	mg/L	0.030	92	80	120			
Manganese		0.476	mg/L	0.010	95	80	120			
Sample ID: CCV	3	Continuing Calibration Verification Standard								07/09/13 10:52
Aluminum		2.50	mg/L	0.10	100	90	110			
Iron		2.45	mg/L	0.030	98	90	110			
Manganese		2.44	mg/L	0.010	98	90	110			
Sample ID: CCV	3	Continuing Calibration Verification Standard								07/09/13 11:36
Aluminum		2.48	mg/L	0.10	99	90	110			
Iron		2.43	mg/L	0.030	97	90	110			
Manganese		2.41	mg/L	0.010	97	90	110			
Sample ID: CCV	3	Continuing Calibration Verification Standard								07/09/13 12:22
Aluminum		2.50	mg/L	0.10	100	90	110			
Iron		2.45	mg/L	0.030	98	90	110			
Manganese		2.43	mg/L	0.010	97	90	110			
Sample ID: CCV	3	Continuing Calibration Verification Standard								07/09/13 13:33
Aluminum		2.49	mg/L	0.10	100	90	110			
Iron		2.46	mg/L	0.030	98	90	110			
Manganese		2.45	mg/L	0.010	98	90	110			
Method: E200.7										Batch: R89598
Sample ID: ICB	3	Method Blank				Run: ICP2-HE_130709A				07/09/13 09:44
Aluminum		ND	mg/L	0.004						
Iron		ND	mg/L	0.005						
Manganese		ND	mg/L	0.0005						
Sample ID: LFB	3	Laboratory Fortified Blank				Run: ICP2-HE_130709A				07/09/13 09:48
Aluminum		4.89	mg/L	0.10	98	85	115			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Revised Date: 08/08/13

Client: MT DEQ-Abandoned Mines

Report Date: 07/26/13

Project: 11033 Coke Oven Flats

Work Order: H13070011

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Batch: R89598
Sample ID: LFB	3	Laboratory Fortified Blank				Run: ICP2-HE_130709A				07/09/13 09:48
Iron		4.82	mg/L	0.030	96	85	115			
Manganese		4.80	mg/L	0.010	96	85	115			
Sample ID: H13070011-001BMS2	3	Sample Matrix Spike				Run: ICP2-HE_130709A				07/09/13 11:25
Aluminum		1720	mg/L	0.046		70	130			A
Iron		482	mg/L	0.030		70	130			A
Manganese		26.7	mg/L	0.0027	77	70	130			
Sample ID: H13070011-001BMSD2	3	Sample Matrix Spike Duplicate				Run: ICP2-HE_130709A				07/09/13 11:29
Aluminum		1720	mg/L	0.046		70	130	0.0	20	A
Iron		480	mg/L	0.030		70	130	0.4	20	A
Manganese		26.7	mg/L	0.0027	76	70	130	0.1	20	
Sample ID: H13070011-012BMS2	3	Sample Matrix Spike				Run: ICP2-HE_130709A				07/09/13 12:18
Aluminum		21.8	mg/L	0.030	102	70	130			
Iron		10.0	mg/L	0.030	97	70	130			
Manganese		11.8	mg/L	0.0011	96	70	130			
Sample ID: H13070011-012BMSD2	3	Sample Matrix Spike Duplicate				Run: ICP2-HE_130709A				07/09/13 12:29
Aluminum		21.9	mg/L	0.030	103	70	130	0.6	20	
Iron		10.0	mg/L	0.030	97	70	130	0.4	20	
Manganese		11.8	mg/L	0.0011	97	70	130	0.6	20	
Sample ID: H13070011-001BMS2	3	Sample Matrix Spike				Run: ICP2-HE_130709A				07/09/13 12:56
Aluminum		1980	mg/L	0.093		70	130			A
Iron		570	mg/L	0.048		70	130			A
Manganese		51.9	mg/L	0.0054	87	70	130			
Sample ID: H13070011-001BMSD2	3	Sample Matrix Spike Duplicate				Run: ICP2-HE_130709A				07/09/13 13:00
Aluminum		1960	mg/L	0.093		70	130	1.0	20	A
Iron		565	mg/L	0.048		70	130	1.0	20	A
Manganese		51.2	mg/L	0.0054	86	70	130	1.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Helena, MT Branch

Revised Date: 08/08/13

Client: MT DEQ-Abandoned Mines **Report Date:** 07/26/13

Project: 11033 Coke Oven Flats **Work Order:** H13070011

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS204-B_130702B	
Sample ID: ICV STD	8	Initial Calibration Verification Standard							07/02/13 11:56	
Arsenic		0.0603	mg/L	0.0050	100	90	110			
Beryllium		0.0310	mg/L	0.0010	103	90	110			
Chromium		0.0617	mg/L	0.010	103	90	110			
Copper		0.0616	mg/L	0.010	103	90	110			
Iron		0.307	mg/L	0.030	102	90	110			
Nickel		0.0621	mg/L	0.010	104	90	110			
Thallium		0.0618	mg/L	0.10	103	90	110			
Zinc		0.0627	mg/L	0.010	104	90	110			
Sample ID: ICSA	8	Interference Check Sample A							07/02/13 12:00	
Arsenic		0.000367	mg/L	0.0050						
Beryllium		-2.00E-06	mg/L	0.0010						
Chromium		0.00109	mg/L	0.010						
Copper		0.000462	mg/L	0.010						
Iron		95.3	mg/L	0.030	95	70	130			
Nickel		0.000228	mg/L	0.010						
Thallium		6.70E-05	mg/L	0.10						
Zinc		0.00133	mg/L	0.010						
Sample ID: ICSAB	8	Interference Check Sample AB							07/02/13 12:05	
Arsenic		0.0102	mg/L	0.0050	102	70	130			
Beryllium		1.00E-06	mg/L	0.0010		0	0			
Chromium		0.0216	mg/L	0.010	108	70	130			
Copper		0.0202	mg/L	0.010	101	70	130			
Iron		97.2	mg/L	0.030	97	70	130			
Nickel		0.0205	mg/L	0.010	103	70	130			
Thallium		2.50E-05	mg/L	0.10		0	0			
Zinc		0.0111	mg/L	0.010	111	70	130			
Sample ID: ICV STD	8	Initial Calibration Verification Standard							07/02/13 19:32	
Arsenic		0.0598	mg/L	0.0050	100	90	110			
Beryllium		0.0308	mg/L	0.0010	103	90	110			
Chromium		0.0614	mg/L	0.010	102	90	110			
Copper		0.0616	mg/L	0.010	103	90	110			
Iron		0.300	mg/L	0.030	100	90	110			
Nickel		0.0615	mg/L	0.010	103	90	110			
Thallium		0.0608	mg/L	0.10	101	90	110			
Zinc		0.0614	mg/L	0.010	102	90	110			
Sample ID: ICSA	8	Interference Check Sample A							07/02/13 19:37	
Arsenic		0.000260	mg/L	0.0050						
Beryllium		2.00E-06	mg/L	0.0010						
Chromium		0.00119	mg/L	0.010						
Copper		0.000366	mg/L	0.010						
Iron		98.2	mg/L	0.030	98	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Revised Date: 08/08/13
Report Date: 07/26/13
Work Order: H13070011

Client: MT DEQ-Abandoned Mines
Project: 11033 Coke Oven Flats

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS204-B_130702B	
Sample ID: ICSA	8	Interference Check Sample A							07/02/13 19:37	
Nickel		0.000639	mg/L	0.010						
Thallium		5.40E-05	mg/L	0.10						
Zinc		0.00112	mg/L	0.010						
Sample ID: ICSAB	8	Interference Check Sample AB							07/02/13 19:42	
Arsenic		0.0106	mg/L	0.0050	106	70	130			
Beryllium		7.00E-06	mg/L	0.0010		0	0			
Chromium		0.0221	mg/L	0.010	110	70	130			
Copper		0.0202	mg/L	0.010	101	70	130			
Iron		100	mg/L	0.030	100	70	130			
Nickel		0.0213	mg/L	0.010	106	70	130			
Thallium		2.20E-05	mg/L	0.10		0	0			
Zinc		0.0104	mg/L	0.010	104	70	130			
Method: E200.8									Batch: R89517	
Sample ID: ICB	8	Method Blank				Run: ICPMS204-B_130702B			07/02/13 13:58	
Arsenic		ND	mg/L	7E-05						
Beryllium		ND	mg/L	2E-05						
Chromium		ND	mg/L	4E-05						
Copper		ND	mg/L	3E-05						
Iron		0.0008	mg/L	0.0002						
Nickel		ND	mg/L	6E-05						
Thallium		ND	mg/L	1E-05						
Zinc		ND	mg/L	0.0003						
Sample ID: LFB	8	Laboratory Fortified Blank				Run: ICPMS204-B_130702B			07/02/13 14:03	
Arsenic		0.0492	mg/L	0.0050	98	85	115			
Beryllium		0.0503	mg/L	0.0010	101	85	115			
Chromium		0.0504	mg/L	0.010	101	85	115			
Copper		0.0493	mg/L	0.010	99	85	115			
Iron		0.167	mg/L	0.030	111	85	115			
Nickel		0.0498	mg/L	0.010	100	85	115			
Thallium		0.0511	mg/L	0.10	102	85	115			
Zinc		0.0514	mg/L	0.010	103	85	115			
Sample ID: H13070011-001BMS	8	Sample Matrix Spike				Run: ICPMS204-B_130702B			07/03/13 03:08	
Arsenic		0.0738	mg/L	0.0010	106	70	130			
Beryllium		0.0598	mg/L	0.0010	29	70	130			S
Chromium		0.254	mg/L	0.0050		70	130			A
Copper		0.195	mg/L	0.0050	72	70	130			
Iron		500	mg/L	0.030		70	130			A
Nickel		2.10	mg/L	0.0050		70	130			A
Thallium		0.0550	mg/L	0.00050	106	70	130			
Zinc		7.09	mg/L	0.010		70	130			A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Revised Date: 08/08/13

Client: MT DEQ-Abandoned Mines

Report Date: 07/26/13

Project: 11033 Coke Oven Flats

Work Order: H13070011

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R89517
Sample ID: H13070011-001BMSD	8	Sample Matrix Spike Duplicate				Run: ICPMS204-B_130702B				07/03/13 03:12
Arsenic		0.0771	mg/L	0.0010	113	70	130	4.4	20	
Beryllium		0.0579	mg/L	0.0010	26	70	130	3.3	20	S
Chromium		0.256	mg/L	0.0050		70	130	1.0	20	A
Copper		0.200	mg/L	0.0050	81	70	130	2.3	20	
Iron		514	mg/L	0.030		70	130	2.8	20	A
Nickel		2.13	mg/L	0.0050		70	130	1.2	20	A
Thallium		0.0555	mg/L	0.00050	107	70	130	0.9	20	
Zinc		7.18	mg/L	0.010		70	130	1.2	20	A
Sample ID: H13070011-010BMS	7	Sample Matrix Spike				Run: ICPMS204-B_130702B				07/03/13 04:34
Arsenic		0.316	mg/L	0.0010	102	70	130			
Chromium		0.487	mg/L	0.0050	94	70	130			
Copper		0.772	mg/L	0.0050	93	70	130			
Iron		708	mg/L	0.030		70	130			A
Nickel		1.82	mg/L	0.0050		70	130			A
Thallium		0.270	mg/L	0.00050	108	70	130			
Zinc		3.29	mg/L	0.010		70	130			A
Sample ID: H13070011-010BMSD	7	Sample Matrix Spike Duplicate				Run: ICPMS204-B_130702B				07/03/13 04:39
Arsenic		0.329	mg/L	0.0010	107	70	130	4.1	20	
Chromium		0.498	mg/L	0.0050	98	70	130	2.3	20	
Copper		0.779	mg/L	0.0050	96	70	130	0.8	20	
Iron		716	mg/L	0.030		70	130	1.0	20	A
Nickel		1.85	mg/L	0.0050		70	130	1.9	20	A
Thallium		0.271	mg/L	0.00050	108	70	130	0.4	20	
Zinc		3.28	mg/L	0.010		70	130	0.2	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Revised Date: 08/08/13

Client: MT DEQ-Abandoned Mines **Report Date:** 07/26/13

Project: 11033 Coke Oven Flats **Work Order:** H13070011

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS204-B_130708A	
Sample ID: ICV STD	7	Initial Calibration Verification Standard							07/08/13 16:15	
Aluminum		0.299	mg/L	0.10	100	90	110			
Arsenic		0.0598	mg/L	0.0050	100	90	110			
Beryllium		0.0307	mg/L	0.0010	102	90	110			
Cadmium		0.0316	mg/L	0.0010	105	90	110			
Copper		0.0616	mg/L	0.010	103	90	110			
Nickel		0.0610	mg/L	0.010	102	90	110			
Zinc		0.0624	mg/L	0.010	104	90	110			
Sample ID: ICSA	7	Interference Check Sample A							07/08/13 16:20	
Aluminum		39.9	mg/L	0.10	100	70	130			
Arsenic		0.000593	mg/L	0.0050						
Beryllium		ND	mg/L	0.0010						
Cadmium		0.00119	mg/L	0.0010						
Copper		0.000354	mg/L	0.010						
Nickel		0.000675	mg/L	0.010						
Zinc		0.00116	mg/L	0.010						
Sample ID: ICSAB	7	Interference Check Sample AB							07/08/13 16:24	
Aluminum		39.5	mg/L	0.10	99	70	130			
Arsenic		0.0114	mg/L	0.0050	114	70	130			
Beryllium		ND	mg/L	0.0010		0	0			
Cadmium		0.0112	mg/L	0.0010	112	70	130			
Copper		0.0214	mg/L	0.010	107	70	130			
Nickel		0.0219	mg/L	0.010	110	70	130			
Zinc		0.0119	mg/L	0.010	119	70	130			
Sample ID: ICV STD	7	Initial Calibration Verification Standard							07/08/13 18:55	
Aluminum		0.292	mg/L	0.10	97	90	110			
Arsenic		0.0600	mg/L	0.0050	100	90	110			
Beryllium		0.0307	mg/L	0.0010	102	90	110			
Cadmium		0.0321	mg/L	0.0010	107	90	110			
Copper		0.0622	mg/L	0.010	104	90	110			
Nickel		0.0614	mg/L	0.010	102	90	110			
Zinc		0.0623	mg/L	0.010	104	90	110			
Sample ID: ICSA	7	Interference Check Sample A							07/08/13 18:59	
Aluminum		39.2	mg/L	0.10	98	70	130			
Arsenic		0.000579	mg/L	0.0050						
Beryllium		5.00E-06	mg/L	0.0010						
Cadmium		0.00115	mg/L	0.0010						
Copper		0.000378	mg/L	0.010						
Nickel		0.000686	mg/L	0.010						
Zinc		0.00115	mg/L	0.010						
Sample ID: ICSAB	7	Interference Check Sample AB							07/08/13 19:04	
Aluminum		39.8	mg/L	0.10	99	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Revised Date: 08/08/13
Report Date: 07/26/13
Work Order: H13070011

Client: MT DEQ-Abandoned Mines
Project: 11033 Coke Oven Flats

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS204-B_130708A	
Sample ID: ICSAB	7	Interference Check Sample AB							07/08/13 19:04	
Arsenic		0.0114	mg/L	0.0050	114	70	130			
Beryllium		8.00E-06	mg/L	0.0010		0	0			
Cadmium		0.0117	mg/L	0.0010	117	70	130			
Copper		0.0218	mg/L	0.010	109	70	130			
Nickel		0.0226	mg/L	0.010	113	70	130			
Zinc		0.0114	mg/L	0.010	114	70	130			
Method: E200.8									Batch: R89585	
Sample ID: ICB	7	Method Blank				Run: ICPMS204-B_130708A			07/08/13 16:54	
Aluminum		ND	mg/L	0.0001						
Arsenic		ND	mg/L	7E-05						
Beryllium		ND	mg/L	2E-05						
Cadmium		1E-05	mg/L	7E-06						
Copper		ND	mg/L	3E-05						
Nickel		ND	mg/L	6E-05						
Zinc		ND	mg/L	0.0003						
Sample ID: LFB	7	Laboratory Fortified Blank				Run: ICPMS204-B_130708A			07/08/13 16:59	
Aluminum		0.0521	mg/L	0.10	104	85	115			
Arsenic		0.0531	mg/L	0.0050	106	85	115			
Beryllium		0.0534	mg/L	0.0010	107	85	115			
Cadmium		0.0531	mg/L	0.0010	106	85	115			
Copper		0.0533	mg/L	0.010	107	85	115			
Nickel		0.0533	mg/L	0.010	107	85	115			
Zinc		0.0549	mg/L	0.010	110	85	115			
Sample ID: H13070011-003BMS	7	Sample Matrix Spike				Run: ICPMS204-B_130708A			07/08/13 23:04	
Aluminum		2780	mg/L	0.030		70	130			A
Arsenic		2.71	mg/L	0.0033	107	70	130			
Beryllium		2.56	mg/L	0.0010	99	70	130			
Cadmium		1.94	mg/L	0.0010	76	70	130			
Copper		2.88	mg/L	0.0050	111	70	130			
Nickel		5.99	mg/L	0.0050	109	70	130			
Zinc		10.3	mg/L	0.017	110	70	130			
Sample ID: H13070011-003BMSD	7	Sample Matrix Spike Duplicate				Run: ICPMS204-B_130708A			07/08/13 23:08	
Aluminum		2700	mg/L	0.030		70	130	2.9	20	A
Arsenic		2.68	mg/L	0.0033	106	70	130	1.3	20	
Beryllium		2.44	mg/L	0.0010	94	70	130	5.1	20	
Cadmium		1.90	mg/L	0.0010	74	70	130	2.0	20	
Copper		2.82	mg/L	0.0050	109	70	130	2.1	20	
Nickel		5.80	mg/L	0.0050	101	70	130	3.2	20	
Zinc		10.1	mg/L	0.017	101	70	130	2.4	20	
Sample ID: H13070011-013BMS	6	Sample Matrix Spike				Run: ICPMS204-B_130708A			07/09/13 00:37	
Aluminum		2760	mg/L	0.030		70	130			A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Helena, MT Branch

Revised Date: 08/08/13

Client: MT DEQ-Abandoned Mines **Report Date:** 07/26/13

Project: 11033 Coke Oven Flats **Work Order:** H13070011

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R89585
Sample ID: H13070011-013BMS	6	Sample Matrix Spike				Run: ICPMS204-B_130708A				07/09/13 00:37
Arsenic		2.59	mg/L	0.0033	102	70	130			
Beryllium		2.45	mg/L	0.0010	92	70	130			
Cadmium		2.04	mg/L	0.0010	80	70	130			
Nickel		4.50	mg/L	0.0050	100	70	130			
Zinc		6.82	mg/L	0.017	102	70	130			
Sample ID: H13070011-013BMSD	6	Sample Matrix Spike Duplicate				Run: ICPMS204-B_130708A				07/09/13 00:41
Aluminum		2840	mg/L	0.030		70	130	2.8	20	A
Arsenic		2.62	mg/L	0.0033	103	70	130	1.3	20	
Beryllium		2.44	mg/L	0.0010	91	70	130	0.7	20	
Cadmium		2.03	mg/L	0.0010	80	70	130	0.4	20	
Nickel		4.63	mg/L	0.0050	105	70	130	2.8	20	
Zinc		9.80	mg/L	0.017	221	70	130	36	20	SR

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

R - RPD exceeds advisory limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Revised Date: 08/08/13

Client: MT DEQ-Abandoned Mines **Report Date:** 07/26/13

Project: 11033 Coke Oven Flats **Work Order:** H13070011

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS204-B_130711A	
Sample ID: ICV STD		Initial Calibration Verification Standard							07/11/13 09:54	
Cadmium		0.0324	mg/L	0.0010	108	90	110			
Sample ID: ICSA		Interference Check Sample A							07/11/13 09:58	
Cadmium		0.00109	mg/L	0.0010						
Sample ID: ICSAB		Interference Check Sample AB							07/11/13 10:04	
Cadmium		0.0104	mg/L	0.0010	104	70	130			
Sample ID: ICSA		Interference Check Sample A							07/12/13 00:47	
Cadmium		0.000926	mg/L	0.0010						
Sample ID: ICSAB		Interference Check Sample AB							07/12/13 00:52	
Cadmium		0.00991	mg/L	0.0010	99	70	130			
Sample ID: ICV STD		Initial Calibration Verification Standard							07/12/13 09:28	
Cadmium		0.0330	mg/L	0.0010	110	90	110			
Sample ID: ICSA		Interference Check Sample A							07/12/13 09:33	
Cadmium		0.000999	mg/L	0.0010						
Sample ID: ICSAB		Interference Check Sample AB							07/12/13 09:37	
Cadmium		0.0107	mg/L	0.0010	107	70	130			
Method: E200.8									Batch: R89664	
Sample ID: ICB		Method Blank				Run: ICPMS204-B_130711A			07/11/13 10:31	
Cadmium		7E-06	mg/L	7E-06						
Sample ID: LFB		Laboratory Fortified Blank				Run: ICPMS204-B_130711A			07/11/13 10:36	
Cadmium		0.0513	mg/L	0.0010	103	85	115			
Sample ID: H13060325-009BMS		Sample Matrix Spike				Run: ICPMS204-B_130711A			07/11/13 10:50	
Cadmium		0.497	mg/L	0.0010	98	70	130			
Sample ID: H13060325-009BMSD		Sample Matrix Spike Duplicate				Run: ICPMS204-B_130711A			07/11/13 10:55	
Cadmium		0.497	mg/L	0.0010	98	70	130	0.0	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Revised Date: 08/08/13

Client: MT DEQ-Abandoned Mines

Report Date: 07/26/13

Project: 11033 Coke Oven Flats

Work Order: H13070011

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS204-B_130715A	
Sample ID: ICV STD	7	Initial Calibration Verification Standard							07/15/13 11:46	
Arsenic		0.0602	mg/L	0.0050	100	90	110			
Beryllium		0.0312	mg/L	0.0010	104	90	110			
Chromium		0.0618	mg/L	0.010	103	90	110			
Copper		0.0631	mg/L	0.010	105	90	110			
Iron		0.316	mg/L	0.030	105	90	110			
Manganese		0.297	mg/L	0.010	99	90	110			
Thallium		0.0642	mg/L	0.10	107	90	110			
Sample ID: ICSA	7	Interference Check Sample A							07/15/13 11:51	
Arsenic		0.000199	mg/L	0.0050						
Beryllium		-1.00E-06	mg/L	0.0010						
Chromium		0.00131	mg/L	0.010						
Copper		0.000289	mg/L	0.010						
Iron		97.3	mg/L	0.030	97	70	130			
Manganese		0.000470	mg/L	0.010						
Thallium		3.90E-05	mg/L	0.10						
Sample ID: ICSAB	7	Interference Check Sample AB							07/15/13 11:56	
Arsenic		0.0108	mg/L	0.0050	108	70	130			
Beryllium		5.00E-06	mg/L	0.0010		0	0			
Chromium		0.0226	mg/L	0.010	113	70	130			
Copper		0.0210	mg/L	0.010	105	70	130			
Iron		98.1	mg/L	0.030	98	70	130			
Manganese		0.0208	mg/L	0.010	104	70	130			
Thallium		2.40E-05	mg/L	0.10		0	0			
Sample ID: ICV STD	7	Initial Calibration Verification Standard							07/15/13 16:05	
Arsenic		0.0603	mg/L	0.0050	100	90	110			
Beryllium		0.0306	mg/L	0.0010	102	90	110			
Chromium		0.0606	mg/L	0.010	101	90	110			
Copper		0.0620	mg/L	0.010	103	90	110			
Iron		0.313	mg/L	0.030	104	90	110			
Manganese		0.311	mg/L	0.010	104	90	110			
Thallium		0.0604	mg/L	0.10	101	90	110			
Sample ID: ICSA	7	Interference Check Sample A							07/15/13 16:09	
Arsenic		0.000181	mg/L	0.0050						
Beryllium		2.10E-05	mg/L	0.0010						
Chromium		0.00120	mg/L	0.010						
Copper		0.000297	mg/L	0.010						
Iron		100	mg/L	0.030	100	70	130			
Manganese		0.000441	mg/L	0.010						
Thallium		4.80E-05	mg/L	0.10						
Sample ID: ICSAB	7	Interference Check Sample AB							07/15/13 16:14	
Arsenic		0.0109	mg/L	0.0050	109	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Revised Date: 08/08/13

Client: MT DEQ-Abandoned Mines **Report Date:** 07/26/13

Project: 11033 Coke Oven Flats **Work Order:** H13070011

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Analytical Run: ICPMS204-B_130715A
Sample ID: ICSAB	7	Interference Check Sample AB								07/15/13 16:14
Beryllium		2.70E-05	mg/L	0.0010		0	0			
Chromium		0.0226	mg/L	0.010	113	70	130			
Copper		0.0212	mg/L	0.010	106	70	130			
Iron		99.6	mg/L	0.030	100	70	130			
Manganese		0.0220	mg/L	0.010	110	70	130			
Thallium		2.80E-05	mg/L	0.10		0	0			
Sample ID: ICV STD	7	Initial Calibration Verification Standard								07/15/13 21:17
Arsenic		0.0598	mg/L	0.0050	100	90	110			
Beryllium		0.0308	mg/L	0.0010	103	90	110			
Chromium		0.0616	mg/L	0.010	103	90	110			
Copper		0.0625	mg/L	0.010	104	90	110			
Iron		0.304	mg/L	0.030	101	90	110			
Manganese		0.308	mg/L	0.010	103	90	110			
Thallium		0.0603	mg/L	0.10	101	90	110			
Sample ID: ICSA	7	Interference Check Sample A								07/15/13 21:22
Arsenic		0.000297	mg/L	0.0050						
Beryllium		6.00E-06	mg/L	0.0010						
Chromium		0.00123	mg/L	0.010						
Copper		0.000276	mg/L	0.010						
Iron		98.7	mg/L	0.030	99	70	130			
Manganese		0.000570	mg/L	0.010						
Thallium		5.60E-05	mg/L	0.10						
Sample ID: ICSAB	7	Interference Check Sample AB								07/15/13 21:26
Arsenic		0.0106	mg/L	0.0050	106	70	130			
Beryllium		7.00E-06	mg/L	0.0010		0	0			
Chromium		0.0226	mg/L	0.010	113	70	130			
Copper		0.0209	mg/L	0.010	105	70	130			
Iron		96.9	mg/L	0.030	97	70	130			
Manganese		0.0220	mg/L	0.010	110	70	130			
Thallium		3.20E-05	mg/L	0.10		0	0			
Method: E200.8										Batch: R89734
Sample ID: ICB	7	Method Blank				Run: ICPMS204-B_130715A				07/15/13 12:52
Arsenic		ND	mg/L	7E-05						
Beryllium		ND	mg/L	2E-05						
Chromium		ND	mg/L	4E-05						
Copper		3E-05	mg/L	3E-05						
Iron		0.004	mg/L	0.0002						
Manganese		ND	mg/L	8E-05						
Thallium		ND	mg/L	1E-05						
Sample ID: LFB	7	Laboratory Fortified Blank				Run: ICPMS204-B_130715A				07/15/13 12:56
Arsenic		0.0511	mg/L	0.0050	102	85	115			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Revised Date: 08/08/13

Client: MT DEQ-Abandoned Mines **Report Date:** 07/26/13

Project: 11033 Coke Oven Flats **Work Order:** H13070011

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R89734
Sample ID: LFB	7	Laboratory Fortified Blank				Run: ICPMS204-B_130715A				07/15/13 12:56
Beryllium		0.0498	mg/L	0.0010	100	85	115			
Chromium		0.0507	mg/L	0.010	101	85	115			
Copper		0.0510	mg/L	0.010	102	85	115			
Iron		0.166	mg/L	0.030	108	85	115			
Manganese		0.0528	mg/L	0.010	106	85	115			
Thallium		0.0558	mg/L	0.10	112	85	115			
Sample ID: H13070193-001BMS	7	Sample Matrix Spike				Run: ICPMS204-B_130715A				07/15/13 17:44
Arsenic		0.0521	mg/L	0.0010	104	70	130			
Beryllium		0.0485	mg/L	0.0010	97	70	130			
Chromium		0.0507	mg/L	0.0050	101	70	130			
Copper		0.0537	mg/L	0.0050	105	70	130			
Iron		0.212	mg/L	0.030	105	70	130			
Manganese		0.0797	mg/L	0.0010	101	70	130			
Thallium		0.0567	mg/L	0.00050	113	70	130			
Sample ID: H13070193-001BMSD	7	Sample Matrix Spike Duplicate				Run: ICPMS204-B_130715A				07/15/13 17:48
Arsenic		0.0512	mg/L	0.0010	102	70	130	1.7	20	
Beryllium		0.0486	mg/L	0.0010	97	70	130	0.2	20	
Chromium		0.0500	mg/L	0.0050	100	70	130	1.4	20	
Copper		0.0521	mg/L	0.0050	101	70	130	3.0	20	
Iron		0.210	mg/L	0.030	104	70	130	0.5	20	
Manganese		0.0761	mg/L	0.0010	94	70	130	4.6	20	
Thallium		0.0563	mg/L	0.00050	113	70	130	0.7	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Revised Date: 08/08/13

Client: MT DEQ-Abandoned Mines

Report Date: 07/26/13

Project: 11033 Coke Oven Flats

Work Order: H13070011

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS204-B_130716A	
Sample ID: ICV STD	5	Initial Calibration Verification Standard							07/16/13 11:41	
Aluminum		0.291	mg/L	0.10	97	90	110			
Cadmium		0.0318	mg/L	0.0010	106	90	110			
Iron		0.299	mg/L	0.030	100	90	110			
Nickel		0.0606	mg/L	0.010	101	90	110			
Zinc		0.0620	mg/L	0.010	103	90	110			
Sample ID: ICSA	5	Interference Check Sample A							07/16/13 11:45	
Aluminum		36.5	mg/L	0.10	91	70	130			
Cadmium		0.00118	mg/L	0.0010						
Iron		93.4	mg/L	0.030	93	70	130			
Nickel		0.000736	mg/L	0.010						
Zinc		0.00123	mg/L	0.010						
Sample ID: ICSAB	5	Interference Check Sample AB							07/16/13 11:57	
Aluminum		37.0	mg/L	0.10	93	70	130			
Cadmium		0.0103	mg/L	0.0010	103	70	130			
Iron		93.2	mg/L	0.030	93	70	130			
Nickel		0.0208	mg/L	0.010	104	70	130			
Zinc		0.0105	mg/L	0.010	105	70	130			
Sample ID: ICV STD	5	Initial Calibration Verification Standard							07/16/13 17:06	
Aluminum		0.300	mg/L	0.10	100	90	110			
Cadmium		0.0328	mg/L	0.0010	109	90	110			
Iron		0.325	mg/L	0.030	108	90	110			
Nickel		0.0636	mg/L	0.010	106	90	110			
Zinc		0.0646	mg/L	0.010	108	90	110			
Sample ID: ICSA	5	Interference Check Sample A							07/16/13 17:10	
Aluminum		38.1	mg/L	0.10	95	70	130			
Cadmium		0.00116	mg/L	0.0010						
Iron		97.9	mg/L	0.030	98	70	130			
Nickel		0.000686	mg/L	0.010						
Zinc		0.00107	mg/L	0.010						
Sample ID: ICSAB	5	Interference Check Sample AB							07/16/13 17:14	
Aluminum		38.1	mg/L	0.10	95	70	130			
Cadmium		0.0108	mg/L	0.0010	108	70	130			
Iron		99.6	mg/L	0.030	100	70	130			
Nickel		0.0219	mg/L	0.010	109	70	130			
Zinc		0.0107	mg/L	0.010	107	70	130			
Sample ID: ICV STD	5	Initial Calibration Verification Standard							07/17/13 00:59	
Aluminum		0.302	mg/L	0.10	101	90	110			
Cadmium		0.0326	mg/L	0.0010	109	90	110			
Iron		0.314	mg/L	0.030	105	90	110			
Nickel		0.0607	mg/L	0.010	101	90	110			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Revised Date: 08/08/13

Client: MT DEQ-Abandoned Mines

Report Date: 07/26/13

Project: 11033 Coke Oven Flats

Work Order: H13070011

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS204-B_130716A	
Sample ID: ICV STD	5	Initial Calibration Verification Standard							07/17/13 00:59	
Zinc		0.0631	mg/L	0.010	105	90	110			
Sample ID: ICSA	5	Interference Check Sample A							07/17/13 01:03	
Aluminum		37.6	mg/L	0.10	94	70	130			
Cadmium		0.00110	mg/L	0.0010						
Iron		93.3	mg/L	0.030	93	70	130			
Nickel		0.000619	mg/L	0.010						
Zinc		0.000902	mg/L	0.010						
Sample ID: ICSAB	5	Interference Check Sample AB							07/17/13 01:08	
Aluminum		36.9	mg/L	0.10	92	70	130			
Cadmium		0.0107	mg/L	0.0010	107	70	130			
Iron		91.0	mg/L	0.030	91	70	130			
Nickel		0.0212	mg/L	0.010	106	70	130			
Zinc		0.0102	mg/L	0.010	102	70	130			
Sample ID: ICV STD	5	Initial Calibration Verification Standard							07/17/13 09:50	
Aluminum		0.291	mg/L	0.10	97	90	110			
Cadmium		0.0324	mg/L	0.0010	108	90	110			
Iron		0.312	mg/L	0.030	104	90	110			
Nickel		0.0616	mg/L	0.010	103	90	110			
Zinc		0.0631	mg/L	0.010	105	90	110			
Sample ID: ICSA	5	Interference Check Sample A							07/17/13 09:54	
Aluminum		36.9	mg/L	0.10	92	70	130			
Cadmium		0.00116	mg/L	0.0010						
Iron		93.8	mg/L	0.030	94	70	130			
Nickel		0.000713	mg/L	0.010						
Zinc		0.00118	mg/L	0.010						
Sample ID: ICSAB	5	Interference Check Sample AB							07/17/13 09:59	
Aluminum		36.1	mg/L	0.10	90	70	130			
Cadmium		0.0107	mg/L	0.0010	107	70	130			
Iron		95.2	mg/L	0.030	95	70	130			
Nickel		0.0212	mg/L	0.010	106	70	130			
Zinc		0.0108	mg/L	0.010	108	70	130			
Sample ID: ICSA	5	Interference Check Sample A							07/18/13 04:59	
Aluminum		36.2	mg/L	0.10	91	70	130			
Cadmium		0.000928	mg/L	0.0010						
Iron		95.6	mg/L	0.030	96	70	130			
Nickel		0.000750	mg/L	0.010						
Zinc		0.00123	mg/L	0.010						
Sample ID: ICSAB	5	Interference Check Sample AB							07/18/13 05:03	
Aluminum		36.4	mg/L	0.10	91	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Revised Date: 08/08/13
Report Date: 07/26/13
Work Order: H13070011

Client: MT DEQ-Abandoned Mines
Project: 11033 Coke Oven Flats

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS204-B_130716A	
Sample ID: ICSAB	5	Interference Check Sample AB							07/18/13 05:03	
Cadmium		0.0116	mg/L	0.0010	116	70	130			
Iron		94.6	mg/L	0.030	95	70	130			
Nickel		0.0219	mg/L	0.010	109	70	130			
Zinc		0.0107	mg/L	0.010	107	70	130			
Sample ID: ICV STD	5	Initial Calibration Verification Standard							07/18/13 09:04	
Aluminum		0.306	mg/L	0.10	102	90	110			
Cadmium		0.0328	mg/L	0.0010	109	90	110			
Iron		0.318	mg/L	0.030	106	90	110			
Nickel		0.0617	mg/L	0.010	103	90	110			
Zinc		0.0638	mg/L	0.010	106	90	110			
Sample ID: ICSA	5	Interference Check Sample A							07/18/13 09:08	
Aluminum		37.0	mg/L	0.10	92	70	130			
Cadmium		0.00111	mg/L	0.0010						
Iron		92.2	mg/L	0.030	92	70	130			
Nickel		0.000741	mg/L	0.010						
Zinc		0.00103	mg/L	0.010						
Sample ID: ICSAB	5	Interference Check Sample AB							07/18/13 09:13	
Aluminum		37.2	mg/L	0.10	93	70	130			
Cadmium		0.0106	mg/L	0.0010	106	70	130			
Iron		93.6	mg/L	0.030	94	70	130			
Nickel		0.0209	mg/L	0.010	104	70	130			
Zinc		0.0105	mg/L	0.010	105	70	130			
Sample ID: ICV STD	5	Initial Calibration Verification Standard							07/18/13 16:56	
Aluminum		0.296	mg/L	0.10	99	90	110			
Cadmium		0.0323	mg/L	0.0010	108	90	110			
Iron		0.331	mg/L	0.030	110	90	110			
Nickel		0.0616	mg/L	0.010	103	90	110			
Zinc		0.0644	mg/L	0.010	107	90	110			
Sample ID: ICSA	5	Interference Check Sample A							07/18/13 17:00	
Aluminum		37.4	mg/L	0.10	94	70	130			
Cadmium		0.00115	mg/L	0.0010						
Iron		96.7	mg/L	0.030	97	70	130			
Nickel		0.000687	mg/L	0.010						
Zinc		0.00102	mg/L	0.010						
Sample ID: ICSAB	5	Interference Check Sample AB							07/18/13 17:04	
Aluminum		36.3	mg/L	0.10	91	70	130			
Cadmium		0.0106	mg/L	0.0010	106	70	130			
Iron		92.8	mg/L	0.030	93	70	130			
Nickel		0.0202	mg/L	0.010	101	70	130			
Zinc		0.0101	mg/L	0.010	101	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Revised Date: 08/08/13

Client: MT DEQ-Abandoned Mines **Report Date:** 07/26/13

Project: 11033 Coke Oven Flats **Work Order:** H13070011

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R89782
Sample ID: ICB	5	Method Blank				Run: ICPMS204-B_130716A				07/16/13 14:56
Aluminum		0.001	mg/L	0.0001						
Cadmium		ND	mg/L	7E-06						
Iron		0.0006	mg/L	0.0002						
Nickel		ND	mg/L	6E-05						
Zinc		0.0005	mg/L	0.0003						
Sample ID: LFB	5	Laboratory Fortified Blank				Run: ICPMS204-B_130716A				07/16/13 15:01
Aluminum		0.0507	mg/L	0.10	99	85	115			
Cadmium		0.0542	mg/L	0.0010	108	85	115			
Iron		0.167	mg/L	0.030	111	85	115			
Nickel		0.0540	mg/L	0.010	108	85	115			
Zinc		0.0553	mg/L	0.010	109	85	115			
Sample ID: H13070251-001AMS	2	Sample Matrix Spike				Run: ICPMS204-B_130716A				07/16/13 23:55
Aluminum		0.0487	mg/L	0.030	97	70	130			
Cadmium		0.0514	mg/L	0.0010	103	70	130			
Sample ID: H13070251-001AMSD	2	Sample Matrix Spike Duplicate				Run: ICPMS204-B_130716A				07/17/13 00:00
Aluminum		0.0475	mg/L	0.030	95	70	130	2.4	20	
Cadmium		0.0518	mg/L	0.0010	104	70	130	0.7	20	
Sample ID: LFB	5	Laboratory Fortified Blank				Run: ICPMS204-B_130716A				07/17/13 16:05
Aluminum		0.0500	mg/L	0.10	99	85	115			
Cadmium		0.0530	mg/L	0.0010	106	85	115			
Iron		0.150	mg/L	0.030	100	85	115			
Nickel		0.0506	mg/L	0.010	101	85	115			
Zinc		0.0529	mg/L	0.010	102	85	115			
Sample ID: H13070211-008CMS	5	Sample Matrix Spike				Run: ICPMS204-B_130716A				07/18/13 05:40
Aluminum		2.92	mg/L	0.030	96	70	130			
Cadmium		2.59	mg/L	0.0010	101	70	130			
Iron		32.3	mg/L	0.030	104	70	130			
Nickel		3.64	mg/L	0.0050	101	70	130			
Zinc		3.70	mg/L	0.017	99	70	130			
Sample ID: H13070211-008CMSD	5	Sample Matrix Spike Duplicate				Run: ICPMS204-B_130716A				07/18/13 05:44
Aluminum		2.80	mg/L	0.030	92	70	130	4.2	20	
Cadmium		2.50	mg/L	0.0010	98	70	130	3.3	20	
Iron		32.0	mg/L	0.030	100	70	130	1.0	20	
Nickel		3.64	mg/L	0.0050	101	70	130	0.2	20	
Zinc		3.66	mg/L	0.017	97	70	130	1.1	20	
Sample ID: ICB	5	Method Blank				Run: ICPMS204-B_130716A				07/18/13 17:32
Aluminum		0.00199	mg/L	0.030						
Cadmium		ND	mg/L	0.00030						
Iron		0.000762	mg/L	0.020						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Revised Date: 08/08/13

Client: MT DEQ-Abandoned Mines

Report Date: 07/26/13

Project: 11033 Coke Oven Flats

Work Order: H13070011

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R89782
Sample ID: ICB	5	Method Blank				Run: ICPMS204-B_130716A				07/18/13 17:32
Nickel		ND	mg/L	0.00010						
Zinc		0.000927	mg/L	0.0010						
Sample ID: LFB	5	Laboratory Fortified Blank				Run: ICPMS204-B_130716A				07/18/13 17:36
Aluminum		0.0513	mg/L	0.10	99	85	115			
Cadmium		0.0530	mg/L	0.0010	106	85	115			
Iron		0.153	mg/L	0.030	102	85	115			
Nickel		0.0504	mg/L	0.010	101	85	115			
Zinc		0.0538	mg/L	0.010	106	85	115			
Sample ID: H13070185-001BMS	5	Sample Matrix Spike				Run: ICPMS204-B_130716A				07/19/13 00:52
Aluminum		1.01	mg/L	0.030	97	70	130			
Cadmium		0.939	mg/L	0.0010	94	70	130			
Iron		3.10	mg/L	0.030	103	70	130			
Nickel		1.04	mg/L	0.0050	97	70	130			
Zinc		0.939	mg/L	0.010	91	70	130			
Sample ID: H13070185-001BMSD	5	Sample Matrix Spike Duplicate				Run: ICPMS204-B_130716A				07/19/13 00:56
Aluminum		1.01	mg/L	0.030	96	70	130	0.3	20	
Cadmium		0.935	mg/L	0.0010	94	70	130	0.4	20	
Iron		3.15	mg/L	0.030	104	70	130	1.4	20	
Nickel		1.05	mg/L	0.0050	98	70	130	0.9	20	
Zinc		0.949	mg/L	0.010	92	70	130	1.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Revised Date: 08/08/13
Report Date: 07/26/13
Work Order: H13070011

Client: MT DEQ-Abandoned Mines
Project: 11033 Coke Oven Flats

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0									Analytical Run: IC102-H_130702A	
Sample ID: ICV	Initial Calibration Verification Standard								07/02/13 09:42	
Sulfate		400	mg/L	1.0	100	90	110			
Sample ID: CCV070213-5	Continuing Calibration Verification Standard								07/02/13 22:05	
Sulfate		400	mg/L	1.0	100	90	110			
Sample ID: CCV070213-6	Continuing Calibration Verification Standard								07/03/13 01:02	
Sulfate		400	mg/L	1.0	100	90	110			
Method: E300.0									Batch: R89481	
Sample ID: ICB	Method Blank					Run: IC102-H_130702A			07/02/13 09:55	
Sulfate		ND	mg/L	0.08						
Sample ID: LFB	Laboratory Fortified Blank					Run: IC102-H_130702A			07/02/13 10:07	
Sulfate		190	mg/L	1.0	96	90	110			
Sample ID: H13060511-009AMS	Sample Matrix Spike					Run: IC102-H_130702A			07/02/13 23:21	
Sulfate		260	mg/L	1.0	104	90	110			
Sample ID: H13060511-009AMSD	Sample Matrix Spike Duplicate					Run: IC102-H_130702A			07/02/13 23:34	
Sulfate		260	mg/L	1.0	105	90	110	0.9	20	
Method: E300.0									Analytical Run: IC102-H_130703A	
Sample ID: ICV	Initial Calibration Verification Standard								07/03/13 12:23	
Sulfate		410	mg/L	1.0	102	90	110			
Sample ID: CCV070313-2	Continuing Calibration Verification Standard								07/03/13 15:44	
Sulfate		400	mg/L	1.0	100	90	110			
Method: E300.0									Batch: R89526	
Sample ID: ICB	Method Blank					Run: IC102-H_130703A			07/03/13 12:36	
Sulfate		ND	mg/L	0.08						
Sample ID: LFB	Laboratory Fortified Blank					Run: IC102-H_130703A			07/03/13 12:48	
Sulfate		210	mg/L	1.0	106	90	110			
Sample ID: H13070011-013AMS	Sample Matrix Spike					Run: IC102-H_130703A			07/03/13 18:16	
Sulfate		46000	mg/L	11	99	90	110			
Sample ID: H13070011-013AMSD	Sample Matrix Spike Duplicate					Run: IC102-H_130703A			07/03/13 18:28	
Sulfate		45000	mg/L	11	94	90	110	2.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Revised Date: 08/08/13
Report Date: 07/26/13
Work Order: H13070011

Client: MT DEQ-Abandoned Mines
Project: 11033 Coke Oven Flats

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0									Analytical Run: IC102-H_130724A	
Sample ID: ICV		Initial Calibration Verification Standard							07/24/13 09:57	
Sulfate		410	mg/L	1.0	101	90	110			
Sample ID: CCV072413-1		Continuing Calibration Verification Standard							07/24/13 10:35	
Sulfate		400	mg/L	1.0	100	90	110			
Method: E300.0									Batch: R89955	
Sample ID: ICB		Method Blank				Run: IC102-H_130724A			07/24/13 10:09	
Sulfate		ND	mg/L	0.08						
Sample ID: LFB		Laboratory Fortified Blank				Run: IC102-H_130724A			07/24/13 10:22	
Sulfate		210	mg/L	1.0	104	90	110			
Sample ID: H13070181-009AMS		Sample Matrix Spike				Run: IC102-H_130724A			07/24/13 13:06	
Sulfate		200	mg/L	1.0	98	90	110			
Sample ID: H13070181-009AMSD		Sample Matrix Spike Duplicate				Run: IC102-H_130724A			07/24/13 13:18	
Sulfate		200	mg/L	1.0	98	90	110	0.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Standard Reporting Procedures

Lab measurement of analytes considered field parameters that re uire analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are ualified as being analy ed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis as received unless specifically indicated. If moisture corrected, data units are typically noted as dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Workorder Receipt Checklist

MT DEQ-Abandoned Mines H13070011

Login completed by: Tracy L. Lorash
Date Received: 7/1/2013
Reviewed by: BL2000 sdull
Received by: w
Reviewed Date: 7/8/2013
Carrier name: Hand Del

Shipping container/cooler in good condition	es ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container s /cooler s	es ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles	es ☐	No ☐	Not Present ☑
Chain of custody present	es ☑	No ☐	
Chain of custody signed when relin uished and received	es ☑	No ☐	
Chain of custody agrees with sample labels	es ☑	No ☐	
Samples in proper container/bottle	es ☑	No ☐	
Sample containers intact	es ☑	No ☐	
Sufficient sample volume for indicated test	es ☐	No ☑	
All samples received within holding time Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.	es ☑	No ☐	
Temp Blank received in all shipping container s /cooler s	es ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	4.8 C On Ice		
ater - VOA vials have ero headspace	es ☐	No ☐	No VOA vials submitted ☑
ater - pH acceptable upon receipt	es ☐	No ☑	Not Applicable ☐

Contact and Corrective Action Comments:

Received extremely limited sample volume for COF-1306-201 and 205. e are only able to analy e for Dissolved metals.
e were unable to pH sample COF-1306-201 due to sample matrix.
Samples COF-1306-201, 205 and 212 for Dissolved Metals/Hardness were subsampled, filtered, and preserved to pH 2 with 2 mL of Nitric acid per 250 mL in the laboratory. According to 40CFR136, samples for Dissolved Metals should be filtered and preserved within 15 minutes of collection. Tl 7/2/13.
Additional metals - Arsenic, Beryllium, Thallium, added per Tom Henderson. Tl 8/5/13

Hydrometrics, Inc.

3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME
11033	Coke oven Flats

SAMPLERS: *(Signature)*

DATE	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CON-TAINERS	Commons UF / RAW	Nutrients UF / H_2SO_4	Diss. Metal F / HNO_3	CN UF / NaOH	Total Metals UF / HNO_3	Total Recoverable Metals UF / HNO_3	BTEX	TPH	REMARKS
6/27/13	1400		X	COF-1306-200	2	X		X						H13070017
6/28/13	1515			COF-1306-201	1	X		X						Lab Filter
6/27/13	1445			COF-1306-202	2	X		X						
6/27/13	1505			COF-1306-203	2	X		X						
6/27/13	1515			COF-1306-204	2	X		X						
6/27/13	1600			COF-1306-205	1			X						Lab Filter
6/27/13	1620			COF-1306-206	2	X		X						
6/28/13	1130			COF-1306-207	2	X		X						
	1225			COF-1306-208	2	X		X						
	1440			COF-1306-209	2	X		X						
	1330			COF-1306-210	2	X		X						
	1400			COF-1306-211	2	X		X						
	1430			COF-1306-212	2	X		X						Lab Filter

Relinquished *(Signature)*	Date / Time 7/1/13 15:40	Received by *(Signature)*	Lab Energy Lab	P.O. # HLN-1540
Relinquished *(Signature)*	Date / Time	Received by *(Signature)*	Remarks Temp 4.8 TB / On Ice / hand del / cooler	
Relinquished *(Signature)*	Date / Time	Received for Laboratory by *(Signature)*	Date / Time 7-1-13 15:40	

Shipped via: Bus FedEx UPS Other Hand delivered Air Bill # _____

Enclosed: ❑ Parameter sheet w/detection limits ❑ QA / AC standard mixing instructions ❑ Cover letter ❑ Other _____

Split Samples: ❑ Accepted ❑ Declined _____ Signature

Return results & electronic copy to:
QA / QC Dept. at address at top of page

HFORM-1 07/11
TNO 406-443-8550

Hydrometrics, Inc.
consulting scientists and engineers

3020 Bozeman Avenue
Helena, MT 59601
(406) 443-4150
Fax: (406) 443-4155
www.hydrometrics.com

July 1, 2013

Energy Laboratories, Inc
Helena, MT 59601

RE: Great Falls Coal Fields – Coke Oven Flats Groundwater Investigations

Dear Energy Labs:

Enclosed are 13 groundwater samples collected at the Great Falls Coal Field – Coke Oven Flats Area in Belt Montana in June 2013. Samples should be analyzed for common constituents and dissolved metals according to the attached parameter list and chain-of-custody. Three samples (COF-1306-201, COF-1306-205, and COF-1306-212) did not have enough water to filter them in the field; therefore they were left unpreserved in the field. Please filter these samples in the lab if there is sufficient water to do so. If insufficient water to filter and analyze please contact me to discuss.

The data reports for analytical work should be directed to Greg Bryce and Tom Henderson. Invoice for the analyses should be directed to Tom Henderson. If you have any questions about the samples or analysis please call me at 406-443-4150 x155.

Sincerely,

Greg Bryce
Hydrogeologist

Enclosures

K:\project\11033 GFCF\Coke Oven Flats\L1307_EnergyLabCoverLetter-GW.docx

6/20/2013 11:18 AM

Table 1. Groundwater Sample Analytical Parameter List

Parameter	Analytical Method [1]	Project Required Detection Limit (mg/L)
Physical Parameters		
pH	150.2/SM 4500H-B	0.1 s.u.
Specific Conductance	120.1/SM 2510B	1 µmhos/cm
Common Ions		
Sulfate	300	1
Trace Constituents (Dissolved)		
Aluminum (Al)	200.7/200.8	0.03
Cadmium (Cd)	200.8	low level
Chromium (Cr)	200.7/200.8	0.001
Copper (Cu)	200.7/200.8	0.0005
Iron (Fe)	200.7/200.8	0.02
Manganese (Mn)	200.7/200.8	0.01
Nickel (Ni)	200.8	low level
Zinc (Zn)	200.8	low level

Notes:

(1) Analytical methods are from *Standard Methods for the Examination of Water and Wastewater* (SM) or EPA's *Methods for Chemical Analysis of Water and Waste* (1983).

APPENDIX B

Natural Heritage Program Consultation

MONTANA
Natural Heritage
Program

P.O. Box 201800 • 1515 East Sixth Avenue • Helena, MT 59620-1800 • fax 406.444.0266 • tel 406.444.5354 •
http://mtnnp.org

January 14, 2014

John Koerth
MT DEQ
PO Box 200901
Helena, Montana 59620

Dear John,

I am writing in response to your recent request regarding species of concern in the vicinity of the Townsite of Belt, Section 26, T19 N R06 E, in Cascade County.

In checking our database for this area, I found no records of species of special concern. A map is enclosed so you can confirm that the search area is correct.

The results of a data search by the Montana Natural Heritage Program reflect the current status of our data collection efforts. These results are not intended as a final statement on sensitive species within a given area, or as a substitute for on-site surveys, which may be required for environmental assessments. The information is intended for project screening only with respect to species of concern, and not as a determination of environmental impacts, which should be gained in consultation with appropriate agencies and authorities.

Should you have any questions or require additional information, please feel free to contact me at (406) 444-3290 or via my e-mail address below.

Sincerely,

Martin P. Miller
Montana Natural Heritage Program
martinm@mt.gov

Montana Species of Concern
Townsite of Belt
Cascade County

SPECIES OF CONCERN: A polygon feature representing only what is known from direct observation with a defined level of certainty regarding the spatial location of the feature.

NonVascular Plants
- NonVascular Plants

Vascular Plants
- Vascular Plants

Invertebrates
- Invertebrates

Amphibians
- Amphibians

Fish
- Fish

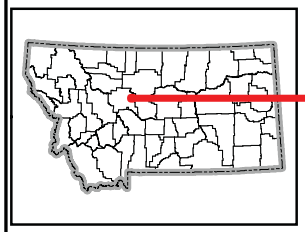
Reptiles
- Reptiles

Birds
- Birds

Mammals
- Mammals

Sites
- Sites

Wetland Types
- Lake
- River
- Freshwater Pond
- Freshwater Emergent Wetland
- Freshwater Scrub-Shrub Wetland
- Freshwater Forested Wetland
- Riparian Emergent
- Riparian Scrub-Shrub
- Riparian Forested



Not all legend items may occur on the map.

Features shown on this map do not imply public access to any lands.

This map displays management status, which may vary from ownership.

Montana Natural Heritage Program

Natural Resource Information System, Montana State Library
1515 East Sixth Ave., Helena, MT 59620-1800

406 444-5354 http://mtnhp.org mtnhp@mt.gov

Belt

Armington

Ory Coulee

Lewis Coulee

Belt Creek

Box Elder Creek

Neil Creek

Armington Coulee

T19N R6E
T19N R7E

T18N R6E
T18N R7E

0 0.5 1 2 3 4 Miles

Map Document: K:\REQUESTS\Requests\14\MT\14mt0045\14mt0045.mxd (1/23/2014)

Environmental Assessment - French Coulee AMD Treatment Wetlands Removal

APPENDIX C

Invasive Gastropods – Heath Snail

Eastern Heath Snail Detected in Cascade County (15 August, 2012)

On August 9th, 2012 the detection of the Eastern Heath Snail (Mollusca: Hygromiidae, *Xerolenta obvia* (Menke)) in Cascade County, Montana was confirmed by the USDA national malacologist. The Eastern Heath Snail is slightly smaller than a dime in diameter and is white with dark brown spiral bands. This snail can be found on a wide range of plants including, alfalfa, clover, lupine, wheat, barley, fruit trees, and weeds as well as on vegetation, under rocks, boards, or attached to other hard surfaces including homes and barns. This species is known for climbing on vegetation, fence posts, and other upright objects to escape high temperatures and will aggregate in enormous numbers in a behavior called massing. The snails were observed during this massing behavior about 15 miles southeast of Great Falls along State Highways 200, 331, and 89. Individual snails numbered in the hundreds of thousands and may actually represent a population in the millions of snails. The snail prefers dry grassy areas and survives long periods of dry conditions by withdrawing into its shell and sealing the opening with a mucous membrane.

Photo by I. Foley

Photo by D. Rise

The Eastern Heath Snail is native to Eastern Europe but has been introduced into eastern North America in Ontario, Canada and Detroit, Michigan. The detection in Montana is the first population reported in

Montana Field Guides

Home - Other Field Guides
Kingdom - Animals - *Animalia*
Phylum - Mollusks - *Mollusca*
Class - Snails / Slugs - *Gastropoda*
Order - Terrestrial Snails / Slugs - *Stylommatophora*
Family - Leaf Snails - *Hygromiidae*
Species - Eastern Heath Snail - *Xerolenta obvia*

Eastern Heath Snail - *Xerolenta obvia*

Eastern Heath Snail, dorsal view

Exotic Species (not native to Montana)

Global Rank: G5
State Rank: SNA

Agency Status
USFWS:
USFS:
BLM:
FWP Conservation Tier:

General Description

The Eastern Heath Snail has white shells marked with dark brown stripes, which attain a maximum height of 16 mm and a diameter of 22 mm, with 5 to 6 whorls. Native species of the same general appearance do not typically climb vegetation and other upright objects or aggregate in large numbers the way this species does.

Distribution Comments

Native to eastern Europe. Recently detected in Montana in southeast Cascade County, the first population reported in western North America.

Summary of Observations Submitted for Montana

Number of Observations: 1

(Click on the following maps and charts to see full sized version) Map Help and Descriptions

Relative Density **Recency**

western North America. The snail readily attaches to hard surfaces such as rail cars, international, shipping containers, stone and granite tile, and other conveyances used in international trade.

This new snail pest has the potential to reduce crop yield and quality, contaminate fruits, vegetables, and hay, and transmit plant and animal diseases.

The Montana Department of Agriculture is working with the United States Department of Agriculture Animal Plant Health Inspection Service (APHIS) to determine the extent of the population and possible local origin of this new to Montana pest. Any sightings of suspect snails should be reported to the Montana Department of Agriculture (406-444-9430 or agr@mt.gov), USDA APHIS (406-449-5210), or your local Montana State University county extension office. Snails and other mollusks are known to transmit a number of human diseases and handling snails should be avoided. If you come into contact with any snails wash your hands and other contacted skin surfaces with warm soapy water. Additional information on the distribution, observed hosts, control measures, and any regulations to prevent the movement of this pest will be communicated to stakeholders when the information is available.

Montana Department of Agriculture
302 North Roberts
Helena, MT 59601
406-444-9430
agr@mt.gov

Additional Info: USDA Temperate Terrestrial Gastropod response guideline:
http://www.aphis.usda.gov/import_export/plants/manuals/emergency/downloads/nprg_temp_terr_gastro.pdf

(Ian Foley. Pest Management Bureau. 444-9454. ifoley@mt.gov)

News

Ag Officials Investigate Invasive Snail

HELENA, Mont. -- Montana Department of Agriculture and U.S. Department of Agriculture officials are investigating the discovery in Montana of a land-dwelling snail species not previously found in the western United States.

USDA's Animal and Plant Health Inspection Service confirmed August 9 that terrestrial snails collected about 20 miles southeast of Great Falls were eastern heath snails (Xerolenta obvia), a species native to eastern Europe that spreads by attaching to cargo containers or other conveyances used in international shipping.

State and federal officials are surveying the surrounding area to determine the extent of the population and what actions might be appropriate.
"We routinely conduct surveys for invasive pests that could damage crops or the environment. This discovery was unusual because the only other known instance of heath snails in the United States is in Michigan," said state agriculture Director Ron de Yong.

Eastern heath snails were found in 2001 in Detroit near a heavily trafficked shipping area adjacent to Ontario, Canada, where a larger population of the snails exists. Xerolenta obvia is one of several snail species identified by USDA planning documents as a potential pest of U.S. agriculture, and control measures are recommended.

Heath snails lay eggs in the soil, infest a wide range of plant species including beans, peas, grapes and weeds, and can contaminate other crops such as grass hay and grain. In eastern Europe, the snails are known to prefer dryland climates. The snails are flat rather than conical, slightly smaller than a dime in diameter, and have white shells with dark brown spiral bands.

Information about the discovery will be updated via Montana State University's Ag Alert network at www.mtagalert.org. Questions about the pest or identification of suspect snails can be addressed to the USDA Plant Protection and Quarantine office in Helena at 406-449-5210 or the Montana Department of Agriculture's Pest Management Bureau at 406-444-9430.

External Links
Montana Ag Alerts

Contacts
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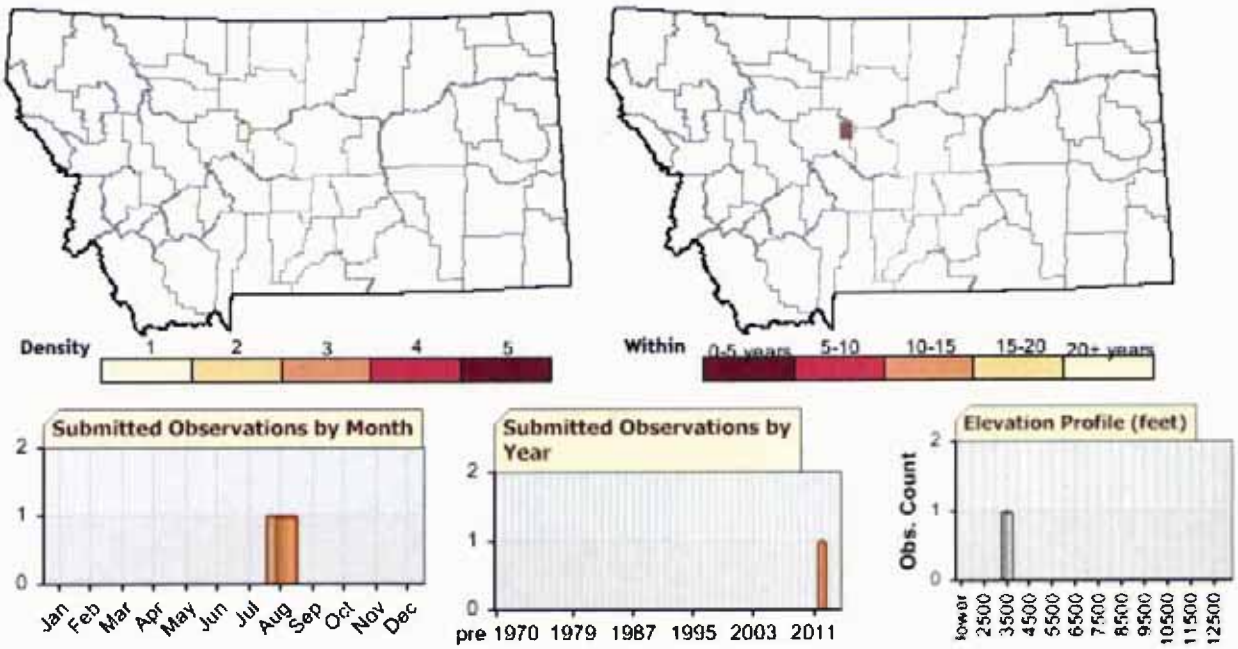

(Records associated with a range of dates are excluded from time charts)

Habitat

The snail prefers dry grassy areas and survives long periods of dry conditions by withdrawing into its shell and sealing the opening with a mucous membrane.

Ecology

This snail feeds on a wide range of plants including, alfalfa, clover, lupine, wheat, barley, fruit trees, and weeds. The snails can be found on vegetation, under rocks, boards, or attached to other hard surfaces including homes and barns. This species is known for climbing on vegetation, fence posts, and other upright objects to escape high temperatures and will aggregate in enormous numbers in a behavior called massing.

Immature growth and activity occur during spring when temperatures are moderate and monthly rainfall exceeds 30 mm (Lazaridou and Chatziioannou, 2004). During hotter, drier times, snails aestivate by climbing on vertical objects, including vegetation, in their environment; during colder periods, they hibernate under vegetation (USDA, 2005, 2010; Lazaridou and Chatziioannou, 2004). Growth happens rapidly during March, depending on available rainfall and moderate temperatures (Lazaridou and Chatziioannou, 2004).

Reproductive Characteristics

Adult X. obvia lay a single clutch of between 17 and 95 eggs, buried at a depth of 2 cm, and up to 1.5 mm in size (Heller, 2001; Lazaridou and Chatziioannou, 2004). Egg-laying activity peaks in October and adults die after laying eggs (Lazaridou and Chatziioannou, 2004). One or two generations may result because some individuals live two years and mature in their second year (Lazaridou and Chatziioannou, 2004).

Management

The species readily attaches to hard surfaces such as rail cars, international, shipping containers, stone and granite tile, and other conveyances used in international trade. The species is regarded as a pest because it has the potential to reduce crop yield and quality, contaminate fruits, vegetables, and hay, and transmit plant and animal diseases. The Montana Department of Agriculture is working with the United States Department of Agriculture Animal Plant Health Inspection Service (APHIS) to determine the extent of the population and possible local origin of this new to Montana pest. Any sightings of suspect snails should be reported to the Montana Department of Agriculture (406-444-9430 or agr@mt.gov), USDA APHIS (406-449-5210), or your local Montana State University county extension office.

APPENDIX D

Analysis of Spend Biological Treatment Media

Chemical Analysis and Leaching Test Results

C S R R P R

May 11, 2012

MT DEQ-Abandoned Mines
PO Box 200901
Helena, MT 59620-0901

orkorder No.: H12040264
Pro ect Name: Belt etland

Energy Laboratories Inc Helena MT received the following 8 samples for MT DEQ-Abandoned Mines on 4/17/2012 for analysis.

Sa ple	Client Sa ple	Collect ate	Recei e ate	atri	est
H12040264-001	B C1A	04/16/12 13:00	04/17/12	Sediment	Metals by ICP/ICPMS, Total Metals by ICP/ICPMS, Total Acid/Base Potential Conductivity, Saturated Paste Extract Mercury, TCLP Mercury in Solid By CVAA Lime Re uirement, SMP Buffer pH, Saturated Paste Digestion, Total Metals Digestion, Mercury by CVAA Digestion, Mercury by CVAA Lime Percentage Saturated Paste Extraction Sulfur Forms TCLP Extraction, Mercury TCLP Extraction, Non-volatiles
H12040264-002	B C1B	04/16/12 13:00	04/17/12	Sediment	Same As Above
H12040264-003	B C2A	04/16/12 13:00	04/17/12	Sediment	Same As Above
H12040264-004	B C2B	04/16/12 13:00	04/17/12	Sediment	Same As Above
H12040264-005	B C3A	04/16/12 13:00	04/17/12	Sediment	Same As Above
H12040264-006	B C3B	04/16/12 13:00	04/17/12	Sediment	Same As Above
H12040264-007	B C1	04/16/12 13:00	04/17/12	A ueous	Metals by ICP/ICPMS, Total Conductivity Mercury, Total pH Metals Digestion by EPA 200.2 Digestion, Mercury by CVAA
H12040264-008	B C3	04/16/12 13:00	04/17/12	A ueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise reported.

Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item s submitted for testing.

If you have any uestions regarding these test results, please call.

Report Approved By:

C MT DEQ-Abandoned Mines
Pro ect Belt etland
Sa ple eli er roup H12040264

Report ate 05/11/12
C S RR

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.

R R C R P R

Prepared by Helena, MT Branch

Client	MT DEQ-Abandoned Mines	Report ate	05/11/12
Pro ect	Belt etland	Collection ate	04/16/12 13:00
a	H12040264-001	ateRecei ed	04/17/12
Client Sa ple	B C1A	atri	Sediment

nal ses	Result	nits	uali iers	R	C C	ethod	nal sis ate
C C C R C RS CS							
pH, SMP Buffer	3.8	Tons/1000T		0.1		ASA12-3	05/03/12 09:17 / sah
Lime Re uirement, SMP buffer	23	Tons/1000T		1		ASA12-3	05/03/12 09:17 / sah
S R P S							
pH, sat. paste	3.5	s.u.		0.1		ASAM10-3.2	04/27/12 07:58 / sah
S R P S R C							
Conductivity, sat. paste	7.0	mmhos/cm		0.1		ASAM10-3	04/27/12 09:57 / sah
C S							
Sulfur, Pyritic	0.32	%		0.01		Sobek Modified	05/03/12 12:57 / rgk
Neutrali ation Potential	0	t/kt				Sobek Modified	05/04/12 07:18 / rgk
Acid Potential	10	t/kt	D	0.3		Sobek Modified	05/04/12 14:57 / rgk
Acid/Base Potential	-10	t/kt				Sobek Modified	05/04/12 14:57 / rgk
Sulfur, Total	1.1	%		0.01		Sobek Modified	05/03/12 12:57 / rgk
Sulfur, Hot ater Extractable	0.42	%		0.01		Sobek Modified	05/03/12 12:57 / rgk
Sulfur, HCl Extractable	0.08	%		0.01		Sobek Modified	05/03/12 12:57 / rgk
Sulfur, HNO3 Extractable	0.32	%		0.01		Sobek Modified	05/03/12 12:57 / rgk
Sulfur, Residual	0.22	%		0.01		Sobek Modified	05/03/12 12:57 / rgk
R C S							
Antimony	ND	mg/kg		1		S 6020	05/01/12 05:10 / dck
Arsenic	ND	mg/kg		1		S 6010B	04/27/12 18:56 / stp
Barium	134	mg/kg		1		S 6010B	04/27/12 18:56 / stp
Beryllium	ND	mg/kg		1		S 6010B	04/27/12 18:56 / stp
Cadmium	ND	mg/kg		1		S 6010B	04/27/12 18:56 / stp
Chromium	8	mg/kg		1		S 6010B	04/27/12 18:56 / stp
Cobalt	ND	mg/kg		1		S 6010B	04/27/12 18:56 / stp
Copper	100	mg/kg		1		S 6010B	04/27/12 18:56 / stp
Iron	1320	mg/kg		5		S 6010B	04/27/12 18:56 / stp
Lead	30	mg/kg	D	2		S 6010B	04/27/12 18:56 / stp
Manganese	8	mg/kg		1		S 6010B	05/02/12 19:34 / stp
Nickel	6	mg/kg		1		S 6010B	04/27/12 18:56 / stp
Strontium	10	mg/kg		1		S 6010B	04/27/12 18:56 / stp
Thallium	ND	mg/kg		1		S 6020	05/01/12 05:10 / dck
Zinc	51	mg/kg		1		S 6010B	04/27/12 18:56 / stp
S							
Mercury	0.88	mg/kg		0.50		S 7471A	04/24/12 13:38 / sbk
S C P R C							
Arsenic	ND	mg/L		0.5	5	S 6020	04/26/12 20:22 / eli-b

Report e initions

RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

R R C R P R

Prepared by Helena, MT Branch

Client	MT DEQ-Abandoned Mines	Report ate	05/11/12
Pro ect	Belt etland	Collection ate	04/16/12 13:00
a	H12040264-001	ateRecei ed	04/17/12
Client Sa ple	B C1A	atri	Sediment

nal ses	Result	nits	uali iers	R	C C	ethod	nal sis ate
S C P R C							
Barium	ND	mg/L		10	100	S 6020	04/26/12 20:22 / eli-b
Cadmium	ND	mg/L		0.1	1	S 6020	04/26/12 20:22 / eli-b
Chromium	ND	mg/L		0.5	5	S 6020	04/26/12 20:22 / eli-b
Lead	ND	mg/L		0.5	5	S 6020	04/26/12 20:22 / eli-b
Mercury	ND	mg/L		0.002	0.2	S 7470A	04/25/12 15:38 / eli-b2
Selenium	ND	mg/L		0.1	1	S 6020	04/26/12 20:22 / eli-b
Silver	ND	mg/L		0.5	5	S 6020	04/26/12 20:22 / eli-b

Report e initions

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ND - Not detected at the reporting limit.

R R C R P R

Prepared by Helena, MT Branch

Client	MT DEQ-Abandoned Mines	Report ate	05/11/12
Pro ect	Belt etland	Collection ate	04/16/12 13:00
a	H12040264-002	ateRecei ed	04/17/12
Client Sa ple	B C1B	atri	Sediment

nal ses	Result	nits	uali iers	R	C C	ethod	nal sis ate
C C C R C RS CS							
pH, SMP Buffer	4.2	Tons/1000T		0.1		ASA12-3	05/03/12 09:17 / sah
Lime Re uirement, SMP buffer	20	Tons/1000T		1		ASA12-3	05/03/12 09:17 / sah
S R P S							
pH, sat. paste	3.8	s.u.		0.1		ASAM10-3.2	04/27/12 07:59 / sah
S R P S R C							
Conductivity, sat. paste	6.9	mmhos/cm		0.1		ASAM10-3	04/27/12 09:58 / sah
C S							
Sulfur, Pyritic	0.24	%		0.01		Sobek Modified	05/03/12 13:10 / rgk
Neutrali ation Potential	3	t/kt				Sobek Modified	05/04/12 07:25 / rgk
Acid Potential	7.6	t/kt	D	0.3		Sobek Modified	05/04/12 14:57 / rgk
Acid/Base Potential	-5	t/kt				Sobek Modified	05/04/12 14:57 / rgk
Sulfur, Total	1.1	%		0.01		Sobek Modified	05/03/12 13:10 / rgk
Sulfur, Hot ater Extractable	0.41	%		0.01		Sobek Modified	05/03/12 13:10 / rgk
Sulfur, HCl Extractable	0.29	%		0.01		Sobek Modified	05/03/12 13:10 / rgk
Sulfur, HNO3 Extractable	0.24	%		0.01		Sobek Modified	05/03/12 13:10 / rgk
Sulfur, Residual	0.17	%		0.01		Sobek Modified	05/03/12 13:10 / rgk
R C S							
Antimony	ND	mg/kg		1		S 6020	05/01/12 05:16 / dck
Arsenic	5	mg/kg		1		S 6020	05/01/12 05:16 / dck
Barium	222	mg/kg		1		S 6020	05/01/12 05:16 / dck
Beryllium	ND	mg/kg		1		S 6020	05/01/12 05:16 / dck
Cadmium	1	mg/kg		1		S 6020	05/01/12 05:16 / dck
Chromium	10	mg/kg		1		S 6010B	05/02/12 19:37 / stp
Cobalt	1	mg/kg		1		S 6010B	05/02/12 19:37 / stp
Copper	138	mg/kg		1		S 6010B	05/02/12 19:37 / stp
Iron	6770	mg/kg	D	8		S 6010B	05/02/12 19:37 / stp
Lead	67	mg/kg		1		S 6020	05/01/12 05:16 / dck
Manganese	8	mg/kg		1		S 6010B	05/02/12 19:37 / stp
Nickel	7	mg/kg		1		S 6010B	05/02/12 19:37 / stp
Strontium	16	mg/kg		1		S 6020	05/01/12 05:16 / dck
Thallium	ND	mg/kg		1		S 6020	05/01/12 05:16 / dck
Zinc	27	mg/kg		1		S 6010B	05/02/12 19:37 / stp
S							
Mercury	0.96	mg/kg		0.50		S 7471A	04/24/12 13:41 / sbk
S C P R C							
Arsenic	ND	mg/L		0.5	5	S 6020	04/26/12 20:26 / eli-b

Report e initions

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R R C R P R

Prepared by Helena, MT Branch

Client	MT DEQ-Abandoned Mines	Report ate	05/11/12
Pro ect	Belt etland	Collection ate	04/16/12 13:00
a	H12040264-002	ateRecei ed	04/17/12
Client Sa ple	B C1B	atri	Sediment

nal ses	Result	nits	uali iers	R	C C	ethod	nal sis ate
S C P R C							
Barium	ND	mg/L		10	100	S 6020	04/26/12 20:26 / eli-b
Cadmium	ND	mg/L		0.1	1	S 6020	04/26/12 20:26 / eli-b
Chromium	ND	mg/L		0.5	5	S 6020	04/26/12 20:26 / eli-b
Lead	ND	mg/L		0.5	5	S 6020	04/26/12 20:26 / eli-b
Mercury	ND	mg/L		0.002	0.2	S 7470A	04/25/12 15:45 / eli-b2
Selenium	ND	mg/L		0.1	1	S 6020	04/26/12 20:26 / eli-b
Silver	ND	mg/L		0.5	5	S 6020	04/26/12 20:26 / eli-b

Report e initions

RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

R R C R P R

Prepared by Helena, MT Branch

Client	MT DEQ-Abandoned Mines	Report ate	05/11/12
Pro ect	Belt etland	Collection ate	04/16/12 13:00
a	H12040264-003	ateRecei ed	04/17/12
Client Sa ple	B C2A	atri	Sediment

nal ses	Result	nits	uali iers	R	C C	ethod	nal sis ate
C C C R C RS CS							
pH, SMP Buffer	3.9	Tons/1000T		0.1		ASA12-3	05/03/12 09:18 / sah
Lime Re uirement, SMP buffer	22	Tons/1000T		1		ASA12-3	05/03/12 09:18 / sah
S R P S							
pH, sat. paste	2.9	s.u.		0.1		ASAM10-3.2	04/27/12 08:00 / sah
S R P S R C							
Conductivity, sat. paste	6.3	mmhos/cm		0.1		ASAM10-3	04/27/12 09:58 / sah
C S							
Sulfur, Pyritic	0.36	%		0.01		Sobek Modified	05/03/12 13:20 / rgk
Neutrali ation Potential	-3	t/kt				Sobek Modified	05/04/12 07:34 / rgk
Acid Potential	11	t/kt	D	0.3		Sobek Modified	05/04/12 14:57 / rgk
Acid/Base Potential	-15	t/kt				Sobek Modified	05/04/12 14:57 / rgk
Sulfur, Total	1.8	%		0.01		Sobek Modified	05/03/12 13:20 / rgk
Sulfur, Hot ater Extractable	0.64	%		0.01		Sobek Modified	05/03/12 13:20 / rgk
Sulfur, HCl Extractable	0.65	%		0.01		Sobek Modified	05/03/12 13:20 / rgk
Sulfur, HNO3 Extractable	0.36	%		0.01		Sobek Modified	05/03/12 13:20 / rgk
Sulfur, Residual	0.12	%		0.01		Sobek Modified	05/03/12 13:20 / rgk
R C S							
Antimony	ND	mg/kg		1		S 6020	05/01/12 05:23 / dck
Arsenic	4	mg/kg		1		S 6020	05/01/12 05:23 / dck
Barium	159	mg/kg		1		S 6010B	04/27/12 19:03 / stp
Beryllium	ND	mg/kg		1		S 6010B	04/27/12 19:03 / stp
Cadmium	ND	mg/kg		1		S 6010B	04/27/12 19:03 / stp
Chromium	6	mg/kg		1		S 6010B	05/02/12 19:40 / stp
Cobalt	ND	mg/kg		1		S 6010B	04/27/12 19:03 / stp
Copper	30	mg/kg		1		S 6010B	04/27/12 19:03 / stp
Iron	12000	mg/kg		5		S 6010B	04/27/12 19:03 / stp
Lead	12	mg/kg		1		S 6020	05/01/12 05:23 / dck
Manganese	12	mg/kg		1		S 6010B	05/02/12 19:40 / stp
Nickel	5	mg/kg		1		S 6010B	04/27/12 19:03 / stp
Strontium	20	mg/kg		1		S 6010B	04/27/12 19:03 / stp
Thallium	ND	mg/kg		1		S 6020	05/01/12 05:23 / dck
Zinc	10	mg/kg		1		S 6010B	04/27/12 19:03 / stp
S							
Mercury	0.86	mg/kg		0.50		S 7471A	04/24/12 13:43 / sbk
S C P R C							
Arsenic	ND	mg/L		0.5	5	S 6020	04/26/12 20:30 / eli-b

Report e initions

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QCL - Quality control limit.
D - RL increased due to sample matrix.
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ND - Not detected at the reporting limit.

R R C R P R

Prepared by Helena, MT Branch

Client	MT DEQ-Abandoned Mines	Report ate	05/11/12
Pro ect	Belt etland	Collection ate	04/16/12 13:00
a	H12040264-003	ateRecei ed	04/17/12
Client Sa ple	B C2A	atri	Sediment

nal ses	Result	nits	uali iers	R	C C	ethod	nal sis ate
S C P R C							
Barium	ND	mg/L		10	100	S 6020	04/26/12 20:30 / eli-b
Cadmium	ND	mg/L		0.1	1	S 6020	04/26/12 20:30 / eli-b
Chromium	ND	mg/L		0.5	5	S 6020	04/26/12 20:30 / eli-b
Lead	ND	mg/L		0.5	5	S 6020	04/26/12 20:30 / eli-b
Mercury	ND	mg/L		0.002	0.2	S 7470A	04/25/12 15:50 / eli-b2
Selenium	ND	mg/L		0.1	1	S 6020	04/26/12 20:30 / eli-b
Silver	ND	mg/L		0.5	5	S 6020	04/26/12 20:30 / eli-b

Report e initions

RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

R R C R P R

Prepared by Helena, MT Branch

Client	MT DEQ-Abandoned Mines	Report ate	05/11/12
Pro ect	Belt etland	Collection ate	04/16/12 13:00
a	H12040264-004	ateRecei ed	04/17/12
Client Sa ple	B C2B	atri	Sediment

nal ses	Result	nits	uali iers	R	C C	ethod	nal sis ate
C C C R C RS CS							
pH, SMP Buffer	3.9	Tons/1000T		0.1		ASA12-3	05/03/12 09:18 / sah
Lime Re uirement, SMP buffer	22	Tons/1000T		1		ASA12-3	05/03/12 09:18 / sah
S R P S							
pH, sat. paste	3.3	s.u.		0.1		ASAM10-3.2	04/27/12 08:00 / sah
S R P S R C							
Conductivity, sat. paste	6.9	mmhos/cm		0.1		ASAM10-3	04/27/12 09:59 / sah
C S							
Sulfur, Pyritic	0.36	%		0.01		Sobek Modified	05/03/12 13:32 / rgk
Neutrali ation Potential	-3	t/kt				Sobek Modified	05/04/12 07:41 / rgk
Acid Potential	11	t/kt	D	0.3		Sobek Modified	05/04/12 14:57 / rgk
Acid/Base Potential	-14	t/kt				Sobek Modified	05/04/12 14:57 / rgk
Sulfur, Total	1.8	%		0.01		Sobek Modified	05/03/12 13:32 / rgk
Sulfur, Hot ater Extractable	0.74	%		0.01		Sobek Modified	05/03/12 13:32 / rgk
Sulfur, HCl Extractable	0.60	%		0.01		Sobek Modified	05/03/12 13:32 / rgk
Sulfur, HNO3 Extractable	0.36	%		0.01		Sobek Modified	05/03/12 13:32 / rgk
Sulfur, Residual	0.09	%		0.01		Sobek Modified	05/03/12 13:32 / rgk
R C S							
Antimony	ND	mg/kg		1		S 6020	05/01/12 05:30 / dck
Arsenic	3	mg/kg		1		S 6020	05/01/12 05:30 / dck
Barium	117	mg/kg		1		S 6010B	04/27/12 19:07 / stp
Beryllium	ND	mg/kg		1		S 6010B	04/27/12 19:07 / stp
Cadmium	ND	mg/kg		1		S 6010B	04/27/12 19:07 / stp
Chromium	12	mg/kg		1		S 6010B	04/27/12 19:07 / stp
Cobalt	2	mg/kg		1		S 6010B	05/02/12 19:44 / stp
Copper	67	mg/kg		1		S 6010B	04/27/12 19:07 / stp
Iron	7940	mg/kg		5		S 6010B	04/27/12 19:07 / stp
Lead	30	mg/kg	D	3		S 6010B	04/27/12 19:07 / stp
Manganese	26	mg/kg		1		S 6010B	05/02/12 19:44 / stp
Nickel	11	mg/kg		1		S 6010B	04/27/12 19:07 / stp
Strontium	16	mg/kg		1		S 6010B	04/27/12 19:07 / stp
Thallium	ND	mg/kg		1		S 6020	05/01/12 05:30 / dck
Zinc	45	mg/kg		1		S 6010B	04/27/12 19:07 / stp
S							
Mercury	0.71	mg/kg		0.50		S 7471A	04/24/12 13:45 / sbk
S C P R C							
Arsenic	ND	mg/L		0.5	5	S 6020	04/26/12 20:35 / eli-b

Report e initions

RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

R R C R P R

Prepared by Helena, MT Branch

Client	MT DEQ-Abandoned Mines	Report ate	05/11/12
Pro ect	Belt etland	Collection ate	04/16/12 13:00
a	H12040264-004	ateRecei ed	04/17/12
Client Sa ple	B C2B	atri	Sediment

nal ses	Result	nits	uali iers	R	C C	ethod	nal sis ate
S C P R C							
Barium	ND	mg/L		10	100	S 6020	04/26/12 20:35 / eli-b
Cadmium	ND	mg/L		0.1	1	S 6020	04/26/12 20:35 / eli-b
Chromium	ND	mg/L		0.5	5	S 6020	04/26/12 20:35 / eli-b
Lead	ND	mg/L		0.5	5	S 6020	04/26/12 20:35 / eli-b
Mercury	ND	mg/L		0.002	0.2	S 7470A	04/25/12 15:59 / eli-b2
Selenium	ND	mg/L		0.1	1	S 6020	04/26/12 20:35 / eli-b
Silver	ND	mg/L		0.5	5	S 6020	04/26/12 20:35 / eli-b

Report e initions

RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

R R C R P R

Prepared by Helena, MT Branch

Client	MT DEQ-Abandoned Mines	Report ate	05/11/12
Pro ect	Belt etland	Collection ate	04/16/12 13:00
a	H12040264-005	ateRecei ed	04/17/12
Client Sa ple	B C3A	atri	Sediment

nal ses	Result	nits	uali iers	R	C C	ethod	nal sis ate
C C C R C RS CS							
pH, SMP Buffer	6.3	Tons/1000T		0.1		ASA12-3	05/03/12 09:19 / sah
Lime Re uirement, SMP buffer	5	Tons/1000T		1		ASA12-3	05/03/12 09:19 / sah
S R P S							
pH, sat. paste	6.2	s.u.		0.1		ASAM10-3.2	04/27/12 08:01 / sah
S R P S R C							
Conductivity, sat. paste	5.6	mmhos/cm		0.1		ASAM10-3	04/27/12 09:59 / sah
C S							
Sulfur, Pyritic	0.25	%		0.01		Sobek Modified	05/03/12 13:45 / rgk
Neutrali ation Potential	34	t/kt				Sobek Modified	05/04/12 07:47 / rgk
Acid Potential	8.0	t/kt	D	0.3		Sobek Modified	05/04/12 14:57 / rgk
Acid/Base Potential	26	t/kt				Sobek Modified	05/04/12 14:57 / rgk
Sulfur, Total	3.3	%		0.01		Sobek Modified	05/03/12 13:45 / rgk
Sulfur, Hot ater Extractable	1.6	%		0.01		Sobek Modified	05/03/12 13:45 / rgk
Sulfur, HCl Extractable	1.4	%		0.01		Sobek Modified	05/03/12 13:45 / rgk
Sulfur, HNO3 Extractable	0.25	%		0.01		Sobek Modified	05/03/12 13:45 / rgk
Sulfur, Residual	0.10	%		0.01		Sobek Modified	05/03/12 13:45 / rgk
R C S							
Antimony	ND	mg/kg		1		S 6020	05/01/12 05:36 / dck
Arsenic	2	mg/kg		1		S 6020	05/01/12 05:36 / dck
Barium	134	mg/kg		1		S 6010B	04/27/12 19:11 / stp
Beryllium	ND	mg/kg		1		S 6010B	04/27/12 19:11 / stp
Cadmium	ND	mg/kg		1		S 6010B	04/27/12 19:11 / stp
Chromium	8	mg/kg		1		S 6010B	04/27/12 19:11 / stp
Cobalt	4	mg/kg		1		S 6010B	05/02/12 19:47 / stp
Copper	80	mg/kg		1		S 6010B	04/27/12 19:11 / stp
Iron	10500	mg/kg		5		S 6010B	04/27/12 19:11 / stp
Lead	31	mg/kg	D	3		S 6010B	04/27/12 19:11 / stp
Manganese	88	mg/kg		1		S 6010B	05/02/12 19:47 / stp
Nickel	11	mg/kg		1		S 6010B	04/27/12 19:11 / stp
Strontium	37	mg/kg		1		S 6010B	04/27/12 19:11 / stp
Thallium	ND	mg/kg		1		S 6020	05/01/12 05:36 / dck
Zinc	115	mg/kg		1		S 6010B	04/27/12 19:11 / stp
S							
Mercury	ND	mg/kg		0.50		S 7471A	04/24/12 13:15 / sbk
S C P R C							
Arsenic	ND	mg/L		0.5	5	S 6020	04/26/12 20:39 / eli-b

Report e initions

RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

R R C R P R

Prepared by Helena, MT Branch

Client	MT DEQ-Abandoned Mines	Report ate	05/11/12
Pro ect	Belt etland	Collection ate	04/16/12 13:00
a	H12040264-005	ateRecei ed	04/17/12
Client Sa ple	B C3A	atri	Sediment

nal ses	Result	nits	uali iers	R	C C	ethod	nal sis ate
S C P R C							
Barium	ND	mg/L		10	100	S 6020	04/26/12 20:39 / eli-b
Cadmium	ND	mg/L		0.1	1	S 6020	04/26/12 20:39 / eli-b
Chromium	ND	mg/L		0.5	5	S 6020	04/26/12 20:39 / eli-b
Lead	ND	mg/L		0.5	5	S 6020	04/26/12 20:39 / eli-b
Mercury	ND	mg/L		0.002	0.2	S 7470A	04/25/12 16:03 / eli-b2
Selenium	ND	mg/L		0.1	1	S 6020	04/26/12 20:39 / eli-b
Silver	ND	mg/L		0.5	5	S 6020	04/26/12 20:39 / eli-b

Report e initions

RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

R R C R P R

Prepared by Helena, MT Branch

Client	MT DEQ-Abandoned Mines	Report ate	05/11/12
Pro ect	Belt etland	Collection ate	04/16/12 13:00
a	H12040264-006	ateRecei ed	04/17/12
Client Sa ple	B C3B	atri	Sediment

nal ses	Result	nits	uali iers	R	C C	ethod	nal sis ate
C C C R C RS CS							
pH, SMP Buffer	5.4	Tons/1000T		0.1		ASA12-3	05/03/12 09:19 / sah
Lime Re uirement, SMP buffer	11	Tons/1000T		1		ASA12-3	05/03/12 09:19 / sah
S R P S							
pH, sat. paste	5.1	s.u.		0.1		ASAM10-3.2	04/27/12 08:01 / sah
S R P S R C							
Conductivity, sat. paste	5.6	mmhos/cm		0.1		ASAM10-3	04/27/12 10:00 / sah
C S							
Sulfur, Pyritic	1.0	%		0.01		Sobek Modified	05/03/12 14:00 / rgk
Neutrali ation Potential	19	t/kt				Sobek Modified	05/04/12 07:54 / rgk
Acid Potential	33	t/kt	D	0.3		Sobek Modified	05/04/12 14:57 / rgk
Acid/Base Potential	-14	t/kt				Sobek Modified	05/04/12 14:57 / rgk
Sulfur, Total	4.5	%		0.01		Sobek Modified	05/03/12 14:00 / rgk
Sulfur, Hot ater Extractable	1.5	%		0.01		Sobek Modified	05/03/12 14:00 / rgk
Sulfur, HCl Extractable	1.6	%		0.01		Sobek Modified	05/03/12 14:00 / rgk
Sulfur, HNO3 Extractable	1.0	%		0.01		Sobek Modified	05/03/12 14:00 / rgk
Sulfur, Residual	0.25	%		0.01		Sobek Modified	05/03/12 14:00 / rgk
R C S							
Antimony	ND	mg/kg		1		S 6020	05/01/12 06:10 / dck
Arsenic	4	mg/kg		1		S 6020	05/01/12 06:10 / dck
Barium	125	mg/kg		1		S 6010B	04/27/12 19:14 / stp
Beryllium	1	mg/kg		1		S 6010B	04/27/12 19:14 / stp
Cadmium	ND	mg/kg		1		S 6010B	04/27/12 19:14 / stp
Chromium	12	mg/kg		1		S 6010B	04/27/12 19:14 / stp
Cobalt	3	mg/kg		1		S 6010B	05/02/12 19:50 / stp
Copper	40	mg/kg		1		S 6010B	04/27/12 19:14 / stp
Iron	76200	mg/kg	D	6		S 6010B	05/09/12 03:18 / sld
Lead	30	mg/kg	D	3		S 6010B	04/27/12 19:14 / stp
Manganese	31	mg/kg		1		S 6010B	05/02/12 19:50 / stp
Nickel	11	mg/kg		1		S 6010B	04/27/12 19:14 / stp
Strontium	70	mg/kg		1		S 6010B	04/27/12 19:14 / stp
Thallium	ND	mg/kg		1		S 6020	05/01/12 06:10 / dck
Zinc	89	mg/kg		1		S 6010B	04/27/12 19:14 / stp
S							
Mercury	ND	mg/kg		0.50		S 7471A	04/24/12 13:17 / sbk
S C P R C							
Arsenic	ND	mg/L		0.5	5	S 6020	04/26/12 21:01 / eli-b

Report e initions

RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

R R C R P R

Prepared by Helena, MT Branch

Client	MT DEQ-Abandoned Mines	Report ate	05/11/12
Pro ect	Belt etland	Collection ate	04/16/12 13:00
a	H12040264-006	ateRecei ed	04/17/12
Client Sa ple	B C3B	atri	Sediment

nal ses	Result	nits	uali iers	R	C C	ethod	nal sis ate
S C P R C							
Barium	ND	mg/L		10	100	S 6020	04/26/12 21:01 / eli-b
Cadmium	ND	mg/L		0.1	1	S 6020	04/26/12 21:01 / eli-b
Chromium	ND	mg/L		0.5	5	S 6020	04/26/12 21:01 / eli-b
Lead	ND	mg/L		0.5	5	S 6020	04/26/12 21:01 / eli-b
Mercury	ND	mg/L		0.002	0.2	S 7470A	04/25/12 16:08 / eli-b2
Selenium	ND	mg/L		0.1	1	S 6020	04/26/12 21:01 / eli-b
Silver	ND	mg/L		0.5	5	S 6020	04/26/12 21:01 / eli-b

Report e initions

RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

R R C R P R

Prepared by Helena, MT Branch

Client	MT DEQ-Abandoned Mines	Report ate	05/11/12
Pro ect	Belt etland	Collection ate	04/16/12 13:00
a	H12040264-007	ateRecei ed	04/17/12
Client Sa ple	B C1	atri	A ueous

nal ses	Result	nits	uali iers	R	C C	ethod	nal sis ate
P S C PR P R S							
pH	3.2	s.u.		0.1		A4500-H B	04/18/12 09:55 / cmm
Conductivity @ 25 C	4540	umhos/cm		1		A2510 B	04/18/12 09:55 / cmm
S							
Antimony	ND	mg/L		0.001		E200.8	04/19/12 19:55 / sld
Arsenic	0.006	mg/L		0.001		E200.8	04/19/12 19:55 / sld
Barium	ND	mg/L		0.05		E200.8	04/19/12 19:55 / sld
Beryllium	0.011	mg/L		0.001		E200.8	04/19/12 19:55 / sld
Cadmium	0.030	mg/L		0.001		E200.8	04/19/12 19:55 / sld
Chromium	0.011	mg/L		0.005		E200.8	04/19/12 19:55 / sld
Cobalt	0.191	mg/L		0.005		E200.8	04/19/12 19:55 / sld
Copper	0.031	mg/L		0.005		E200.8	04/19/12 19:55 / sld
Iron	19.4	mg/L		0.03		E200.8	04/19/12 19:55 / sld
Lead	0.003	mg/L		0.001		E200.8	04/19/12 19:55 / sld
Manganese	3.97	mg/L		0.001		E200.8	04/19/12 19:55 / sld
Nickel	0.253	mg/L		0.005		E200.8	04/19/12 19:55 / sld
Strontium	2.13	mg/L		0.01		E200.8	04/19/12 19:55 / sld
Thallium	0.0052	mg/L		0.0005		E200.8	04/19/12 19:55 / sld
Zinc	11.4	mg/L		0.01		E200.8	04/23/12 19:11 / dck
S							
Mercury	ND	mg/L		0.0001		S 7470A	04/24/12 14:57 / sbk

Report e initions
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

R R C R P R

Prepared by Helena, MT Branch

Client	MT DEQ-Abandoned Mines	Report ate	05/11/12
Pro ect	Belt etland	Collection ate	04/16/12 13:00
a	H12040264-008	ateRecei ed	04/17/12
Client Sa ple	B C3	atri	A ueous

nal ses	Result	nits	uali iers	R	C C	ethod	nal sis ate
P SC PR P R S							
pH	2.6	s.u.		0.1		A4500-H B	04/18/12 10:00 / cmm
Conductivity @ 25 C	4740	umhos/cm		1		A2510 B	04/18/12 10:00 / cmm
S							
Antimony	ND	mg/L		0.001		E200.8	04/19/12 19:59 / sld
Arsenic	0.003	mg/L		0.001		E200.8	04/19/12 19:59 / sld
Barium	ND	mg/L		0.05		E200.8	04/19/12 19:59 / sld
Beryllium	0.009	mg/L		0.001		E200.8	04/19/12 19:59 / sld
Cadmium	0.004	mg/L		0.001		E200.8	04/19/12 19:59 / sld
Chromium	0.009	mg/L		0.005		E200.8	04/19/12 19:59 / sld
Cobalt	0.217	mg/L		0.005		E200.8	04/19/12 19:59 / sld
Copper	0.048	mg/L		0.005		E200.8	04/19/12 19:59 / sld
Iron	178	mg/L		0.03		E200.8	04/23/12 19:15 / dck
Lead	ND	mg/L		0.001		E200.8	04/19/12 19:59 / sld
Manganese	5.06	mg/L		0.001		E200.8	04/19/12 19:59 / sld
Nickel	0.306	mg/L		0.005		E200.8	04/19/12 19:59 / sld
Strontium	0.81	mg/L		0.01		E200.8	04/19/12 19:59 / sld
Thallium	ND	mg/L		0.0005		E200.8	04/19/12 19:59 / sld
Zinc	1.50	mg/L		0.01		E200.8	04/19/12 19:59 / sld
S							
Mercury	ND	mg/L		0.0001		S 7470A	04/24/12 14:59 / sbk

Report e initions
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te	Count	Result	nits	R	R C	o i it	igh i it	RP	RP i it	ual
ethod								Analytical Run: PHSC 101-H 120418A		
Sa ple SC		Initial Calibration erification Standard								04/18/12 09:02
Conductivity @ 25 C		1020	umhos/cm	1.0	102	90	110			
ethod										Batch: R79312
Sa ple SC		Initial Calibration erification Standard				Run: PHSC 101-H 120418A				04/18/12 08:54
Conductivity @ 25 C		148	umhos/cm	1.0	99	90	110			
Sa ple SC		Initial Calibration erification Standard				Run: PHSC 101-H 120418A				04/18/12 08:56
Conductivity @ 25 C		5020	umhos/cm	1.0	100	90	110			
Sa ple SC		Initial Calibration erification Standard				Run: PHSC 101-H 120418A				04/18/12 08:59
Conductivity @ 25 C		20400	umhos/cm	1.0	102	90	110			
Sa ple	P	Sample Duplicate				Run: PHSC 101-H 120418A				04/18/12 09:57
Conductivity @ 25 C		4550	umhos/cm	1.0				0.2	10	

uali iers

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te		Count	Result	nits	R	R C o i it	igh i it	RP	RP i it	ual
ethod								Analytical Run: PHSC 101-H 120418A		
Sa ple	p		Initial Calibration erification Standard						04/18/12 08:51	
pH			6.98	s.u.	0.10	100 98	102			
ethod									Batch: R79312	
Sa ple		P	Sample Duplicate			Run: PHSC 101-H 120418A			04/18/12 09:57	
pH			3.04	s.u.	0.10			3.9	3 R	

uali iers

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.

C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te	Count	Result	nits	R	R C o i it	igh i it	RP	RP i it	ual
ethod S								Batch: 120502 1 PH-S-PASTE	
Sa ple	P 2 Sample Duplicate				Run: MISC SOILS 120503A			05/03/12 09:19	
pH, SMP Buffer		5.40	Tons/1000T	0.10					
Lime Requirement, SMP buffer		11.1	Tons/1000T	1.0			0.9	30	

uali iers

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te	Count	Result	nits	R	R C	o i it	igh i it	RP	RP i it	ual
ethod S									Analytical Run: SOIL EC 120427A	
Sa ple CC		Continuing Calibration erification Standard								04/27/12 09:55
Conductivity, sat. paste		1.49	mmhos/cm	0.10	106	90	110			
Sa ple CC		Continuing Calibration erification Standard								04/27/12 09:56
Conductivity, sat. paste		6.82	mmhos/cm	0.10	102	90	110			
Sa ple C		Initial Calibration erification Standard								04/27/12 09:56
Conductivity, sat. paste		12.2	mmhos/cm	0.10	95	90	110			
ethod S									Batch: 120426 1 COND-S-PASTE	
Sa ple CS		Laboratory Control Sample			Run: SOIL EC 120427A					04/27/12 09:57
Conductivity, sat. paste		4.90	mmhos/cm	0.10	104	80	120			
Sa ple	P	Sample Duplicate			Run: SOIL EC 120427A					04/27/12 10:00
Conductivity, sat. paste		5.44	mmhos/cm	0.10				2.3	20	

uali iers

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te	Count	Result	nits	R	R C	o i it	igh i it	RP	RP i it	ual
ethod S									Analytical Run: SOIL PH METER 120430A	
Sa ple CC		Continuing Calibration erification Standard								04/27/12 07:56
pH, sat. paste		7.00	s.u.	0.10	100	95	105			
Sa ple CC		Continuing Calibration erification Standard								04/27/12 07:57
pH, sat. paste		3.99	s.u.	0.10	100	95	105			
Sa ple C		Initial Calibration erification Standard								04/27/12 07:57
pH, sat. paste		10.0	s.u.	0.10	100	98	102			
ethod S									Batch: 16403	
Sa ple CS		Laboratory Control Sample			Run: SOIL PH METER 120430A					04/27/12 07:58
pH, sat. paste		7.49	s.u.	0.10	99	90	110			
Sa ple	P	Sample Duplicate			Run: SOIL PH METER 120430A					04/27/12 08:02
pH, sat. paste		5.03	s.u.	0.10				0.6	30	

uali iers

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te	Count	Result	nits	R	R C o i it	igh i it	RP RP i it ual
ethod							Analytical Run: ICP1-HE 120502B
Sa ple C	7	Initial Calibration erification Standard					05/02/12 13:49
Chromium		0.806	mg/L	0.010	101	90 110	
Cobalt		0.801	mg/L	0.010	100	90 110	
Copper		0.801	mg/L	0.010	100	90 110	
Iron		4.09	mg/L	0.030	102	90 110	
Manganese		4.08	mg/L	0.010	102	90 110	
Nickel		0.807	mg/L	0.010	101	90 110	
Zinc		0.830	mg/L	0.010	104	90 110	
Sa ple CS	7	Interference Check Sample A					05/02/12 14:01
Chromium		0.00420	mg/L	0.010		0 0	
Cobalt		0.00230	mg/L	0.010		0 0	
Copper		-0.00500	mg/L	0.010		0 0	
Iron		187	mg/L	0.030	94	80 120	
Manganese		0.00190	mg/L	0.010		0 0	
Nickel		0.0285	mg/L	0.010		0 0	
Zinc		-0.0147	mg/L	0.010		0 0	
Sa ple CS	7	Interference Check Sample AB					05/02/12 14:04
Chromium		0.494	mg/L	0.010	99	80 120	
Cobalt		0.496	mg/L	0.010	99	80 120	
Copper		0.506	mg/L	0.010	101	80 120	
Iron		189	mg/L	0.030	95	80 120	
Manganese		0.507	mg/L	0.010	101	80 120	
Nickel		0.994	mg/L	0.010	99	80 120	
Zinc		0.957	mg/L	0.010	96	80 120	

uali iers

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te		Count	Result	nits	R	R C o i it	igh i it	RP RP i it ual
ethod								Analytical Run: ICP2-HE 120427B
Sa ple	C	12	Initial Calibration erification Standard					04/27/12 12:19
Arsenic			0.805	mg/L	0.0074	101	90 110	
Barium			0.785	mg/L	0.10	98	90 110	
Beryllium			0.402	mg/L	0.0010	100	90 110	
Cadmium			0.392	mg/L	0.0010	98	90 110	
Chromium			0.819	mg/L	0.010	102	90 110	
Cobalt			0.777	mg/L	0.010	97	90 110	
Copper			0.809	mg/L	0.010	101	90 110	
Iron			3.95	mg/L	0.030	99	90 110	
Lead			0.813	mg/L	0.013	102	90 110	
Nickel			0.816	mg/L	0.010	102	90 110	
Strontium			0.789	mg/L	0.10	99	90 110	
Zinc			0.810	mg/L	0.010	101	90 110	
Sa ple	CS	12	Interference Check Sample A					04/27/12 12:34
Arsenic			-0.00265	mg/L	0.0074		0 0	
Barium			0.00147	mg/L	0.10		0 0	
Beryllium			7.00E-05	mg/L	0.0010		0 0	
Cadmium			0.000810	mg/L	0.0010		0 0	
Chromium			-0.00432	mg/L	0.011		0 0	
Cobalt			-0.00366	mg/L	0.010		0 0	
Copper			0.00339	mg/L	0.010		0 0	
Iron			189	mg/L	0.030	94	80 120	
Lead			0.0215	mg/L	0.013		0 0	
Nickel			0.00815	mg/L	0.010		0 0	
Strontium			0.0561	mg/L	0.10		0 0	
Zinc			0.00804	mg/L	0.010		0 0	
Sa ple	CS	12	Interference Check Sample AB					04/27/12 12:38
Arsenic			1.07	mg/L	0.0074	107	80 120	
Barium			0.501	mg/L	0.10	100	80 120	
Beryllium			0.491	mg/L	0.0010	98	80 120	
Cadmium			0.924	mg/L	0.0010	92	80 120	
Chromium			0.487	mg/L	0.011	97	80 120	
Cobalt			0.468	mg/L	0.010	94	80 120	
Copper			0.519	mg/L	0.010	104	80 120	
Iron			188	mg/L	0.030	94	80 120	
Lead			1.01	mg/L	0.013	101	80 120	
Nickel			0.958	mg/L	0.010	96	80 120	
Strontium			1.14	mg/L	0.10	114	80 120	
Zinc			1.02	mg/L	0.010	102	80 120	

uali iers

RL - Analyte reporting limit.

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C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te	Count	Result	nits	R	R C o i it	igh i it	RP RP i it ual
ethod							Analytical Run: ICP2-HE 120508B
Sa ple C		Initial Calibration erification Standard					05/08/12 08:48
Iron		4.06	mg/L	0.030	101	90 110	
Sa ple CS		Interference Check Sample A					05/08/12 09:03
Iron		192	mg/L	0.030	96	80 120	
Sa ple CS		Interference Check Sample AB					05/08/12 09:07
Iron		190	mg/L	0.030	95	80 120	

uali iers

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C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Pro ect Belt etland

Report ate 05/11/12
Work rder H12040264

nal te	Count	Result	nits	R	R C o i it	igh i it	RP	RP i it ual
ethod							Analytical Run: ICPMS204-B 120419A	
Sa ple C S	15	Initial Calibration erification Standard						04/19/12 12:55
Antimony		0.0503	mg/L	0.050	101	90 110		
Arsenic		0.0503	mg/L	0.0050	101	90 110		
Barium		0.0506	mg/L	0.10	101	90 110		
Beryllium		0.0251	mg/L	0.0010	101	90 110		
Cadmium		0.0264	mg/L	0.0010	106	90 110		
Chromium		0.0500	mg/L	0.010	100	90 110		
Cobalt		0.0512	mg/L	0.010	102	90 110		
Copper		0.0514	mg/L	0.010	103	90 110		
Iron		0.261	mg/L	0.030	104	90 110		
Lead		0.0501	mg/L	0.010	100	90 110		
Manganese		0.256	mg/L	0.010	103	90 110		
Nickel		0.0509	mg/L	0.010	102	90 110		
Strontium		0.0483	mg/L	0.10	97	90 110		
Thallium		0.0500	mg/L	0.10	100	90 110		
Zinc		0.0525	mg/L	0.010	105	90 110		
Sa ple CS	15	Interference Check Sample A						04/19/12 13:00
Antimony		0.000280	mg/L	0.050				
Arsenic		0.000164	mg/L	0.0050				
Barium		0.000116	mg/L	0.10				
Beryllium		3.60E-05	mg/L	0.0010				
Cadmium		0.00116	mg/L	0.0010				
Chromium		0.00111	mg/L	0.010				
Cobalt		0.000350	mg/L	0.010				
Copper		0.000186	mg/L	0.010				
Iron		100	mg/L	0.030	100	70 130		
Lead		0.000143	mg/L	0.010				
Manganese		0.000197	mg/L	0.010				
Nickel		0.000561	mg/L	0.010				
Strontium		0.000386	mg/L	0.10				
Thallium		6.00E-06	mg/L	0.10				
Zinc		0.00122	mg/L	0.010				
Sa ple CS	15	Interference Check Sample AB						04/19/12 13:05
Antimony		0.000256	mg/L	0.050		0 0		
Arsenic		0.0103	mg/L	0.0050	103	70 130		
Barium		0.000104	mg/L	0.10		0 0		
Beryllium		7.00E-05	mg/L	0.0010		0 0		
Cadmium		0.0106	mg/L	0.0010	106	70 130		
Chromium		0.0206	mg/L	0.010	103	70 130		
Cobalt		0.0204	mg/L	0.010	102	70 130		
Copper		0.0199	mg/L	0.010	100	70 130		
Iron		99.5	mg/L	0.030	100	70 130		
Lead		0.000124	mg/L	0.010		0 0		
Manganese		0.0194	mg/L	0.010	97	70 130		

uali iers

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C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te	Count	Result	nits	R	R C o i it	igh i it	RP	RP i it ual
ethod							Analytical Run: ICPMS204-B 120419A	
Sa ple CS	15	Interference Check Sample AB						04/19/12 13:05
Nickel		0.0205	mg/L	0.010	102	70 130		
Strontium		0.000394	mg/L	0.10		0 0		
Thallium		1.10E-05	mg/L	0.10		0 0		
Zinc		0.0110	mg/L	0.010	110	70 130		
Sa ple C S	15	Initial Calibration erification Standard						04/19/12 23:56
Antimony		0.0512	mg/L	0.050	102	90 110		
Arsenic		0.0498	mg/L	0.0050	100	90 110		
Barium		0.0512	mg/L	0.10	102	90 110		
Beryllium		0.0251	mg/L	0.0010	100	90 110		
Cadmium		0.0263	mg/L	0.0010	105	90 110		
Chromium		0.0509	mg/L	0.010	102	90 110		
Cobalt		0.0510	mg/L	0.010	102	90 110		
Copper		0.0522	mg/L	0.010	104	90 110		
Iron		0.255	mg/L	0.030	102	90 110		
Lead		0.0499	mg/L	0.010	100	90 110		
Manganese		0.260	mg/L	0.010	104	90 110		
Nickel		0.0517	mg/L	0.010	103	90 110		
Strontium		0.0485	mg/L	0.10	97	90 110		
Thallium		0.0499	mg/L	0.10	100	90 110		
Zinc		0.0513	mg/L	0.010	103	90 110		
Sa ple CS	15	Interference Check Sample A						04/20/12 00:01
Antimony		0.000280	mg/L	0.050				
Arsenic		9.80E-05	mg/L	0.0050				
Barium		9.60E-05	mg/L	0.10				
Beryllium		4.40E-05	mg/L	0.0010				
Cadmium		0.00102	mg/L	0.0010				
Chromium		0.00107	mg/L	0.010				
Cobalt		0.000366	mg/L	0.010				
Copper		0.000137	mg/L	0.010				
Iron		98.2	mg/L	0.030	98	70 130		
Lead		0.000135	mg/L	0.010				
Manganese		0.000146	mg/L	0.010				
Nickel		0.000623	mg/L	0.010				
Strontium		0.000395	mg/L	0.10				
Thallium		2.80E-05	mg/L	0.10				
Zinc		0.00119	mg/L	0.010				
Sa ple CS	15	Interference Check Sample AB						04/20/12 00:05
Antimony		0.000282	mg/L	0.050		0 0		
Arsenic		0.0102	mg/L	0.0050	102	70 130		
Barium		8.40E-05	mg/L	0.10		0 0		
Beryllium		3.30E-05	mg/L	0.0010		0 0		
Cadmium		0.0106	mg/L	0.0010	106	70 130		

uali iers

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C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te	Count	Result	nits	R	R C o i it	igh i it	RP RP i it ual
ethod							Analytical Run: ICPMS204-B 120419A
Sa ple CS	15	Interference Check Sample AB					04/20/12 00:05
Chromium		0.0206	mg/L	0.010	103	70 130	
Cobalt		0.0201	mg/L	0.010	101	70 130	
Copper		0.0196	mg/L	0.010	98	70 130	
Iron		98.7	mg/L	0.030	99	70 130	
Lead		0.000123	mg/L	0.010		0 0	
Manganese		0.0195	mg/L	0.010	97	70 130	
Nickel		0.0203	mg/L	0.010	102	70 130	
Strontium		0.000392	mg/L	0.10		0 0	
Thallium		1.40E-05	mg/L	0.10		0 0	
Zinc		0.0111	mg/L	0.010	111	70 130	
Sa ple C S	15	Initial Calibration erification Standard					04/20/12 08:25
Antimony		0.0504	mg/L	0.050	101	90 110	
Arsenic		0.0506	mg/L	0.0050	101	90 110	
Barium		0.0502	mg/L	0.10	100	90 110	
Beryllium		0.0242	mg/L	0.0010	97	90 110	
Cadmium		0.0256	mg/L	0.0010	102	90 110	
Chromium		0.0514	mg/L	0.010	103	90 110	
Cobalt		0.0499	mg/L	0.010	100	90 110	
Copper		0.0525	mg/L	0.010	105	90 110	
Iron		0.257	mg/L	0.030	103	90 110	
Lead		0.0486	mg/L	0.010	97	90 110	
Manganese		0.261	mg/L	0.010	104	90 110	
Nickel		0.0517	mg/L	0.010	103	90 110	
Strontium		0.0481	mg/L	0.10	96	90 110	
Thallium		0.0489	mg/L	0.10	98	90 110	
Zinc		0.0530	mg/L	0.010	106	90 110	
Sa ple CS	15	Interference Check Sample A					04/20/12 08:30
Antimony		0.000263	mg/L	0.050			
Arsenic		8.30E-05	mg/L	0.0050			
Barium		0.000122	mg/L	0.10			
Beryllium		2.10E-05	mg/L	0.0010			
Cadmium		0.00103	mg/L	0.0010			
Chromium		0.00112	mg/L	0.010			
Cobalt		0.000370	mg/L	0.010			
Copper		0.000166	mg/L	0.010			
Iron		100	mg/L	0.030	100	70 130	
Lead		0.000139	mg/L	0.010			
Manganese		0.000233	mg/L	0.010			
Nickel		7.40E-05	mg/L	0.010			
Strontium		0.000401	mg/L	0.10			
Thallium		5.60E-05	mg/L	0.10			
Zinc		0.00122	mg/L	0.010			

uali iers

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C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te	Count	Result	nits	R	R C	o i it	igh i it	RP	RP i it	ual
ethod								Analytical Run: ICPMS204-B 120419A		
Sa ple CS	15	Interference Check Sample AB								04/20/12 08:34
Antimony		0.000260	mg/L	0.050		0	0			
Arsenic		0.0106	mg/L	0.0050	105	70	130			
Barium		0.000136	mg/L	0.10		0	0			
Beryllium		1.30E-05	mg/L	0.0010		0	0			
Cadmium		0.0102	mg/L	0.0010	102	70	130			
Chromium		0.0208	mg/L	0.010	104	70	130			
Cobalt		0.0199	mg/L	0.010	100	70	130			
Copper		0.0199	mg/L	0.010	99	70	130			
Iron		101	mg/L	0.030	101	70	130			
Lead		0.000126	mg/L	0.010		0	0			
Manganese		0.0194	mg/L	0.010	97	70	130			
Nickel		0.0199	mg/L	0.010	100	70	130			
Strontium		0.000397	mg/L	0.10		0	0			
Thallium		3.70E-05	mg/L	0.10		0	0			
Zinc		0.0109	mg/L	0.010	109	70	130			
ethod										Batch: 16315
Sa ple	15	Method Blank						Run: ICPMS204-B 120419A		04/19/12 19:22
Antimony		ND	mg/L	4E-05						
Arsenic		0.0002	mg/L	5E-05						
Barium		ND	mg/L	9E-05						
Beryllium		ND	mg/L	2E-05						
Cadmium		ND	mg/L	2E-05						
Chromium		ND	mg/L	6E-05						
Cobalt		ND	mg/L	3E-05						
Copper		ND	mg/L	0.0004						
Iron		0.001	mg/L	0.0006						
Lead		ND	mg/L	2E-05						
Manganese		0.0005	mg/L	6E-05						
Nickel		0.0005	mg/L	0.0002						
Strontium		ND	mg/L	4E-05						
Thallium		ND	mg/L	2E-05						
Zinc		0.003	mg/L	0.0003						
Sa ple CS	15	Laboratory Control Sample						Run: ICPMS204-B 120419A		04/19/12 19:27
Antimony		0.550	mg/L	0.0010	110	85	115			
Arsenic		0.503	mg/L	0.0010	101	85	115			
Barium		0.505	mg/L	0.050	101	85	115			
Beryllium		0.237	mg/L	0.0010	95	85	115			
Cadmium		0.256	mg/L	0.0010	102	85	115			
Chromium		0.476	mg/L	0.0050	95	85	115			
Cobalt		0.503	mg/L	0.0050	101	85	115			
Copper		0.475	mg/L	0.0050	95	85	115			
Iron		2.46	mg/L	0.030	98	85	115			

uali iers

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C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te	Count	Result	nits	R	R C	o i it	igh i it	RP	RP i it	ual
ethod										Batch: 16315
Sa ple CS	15	Laboratory Control Sample				Run: ICPMS204-B 120419A			04/19/12 19:27	
Lead		0.522	mg/L	0.0010	104	85	115			
Manganese		2.43	mg/L	0.0010	97	85	115			
Nickel		0.470	mg/L	0.0050	94	85	115			
Strontium		0.487	mg/L	0.010	97	85	115			
Thallium		0.529	mg/L	0.00050	106	85	115			
Zinc		0.486	mg/L	0.010	97	85	115			
Sa ple S	15	Sample Matrix Spike				Run: ICPMS204-B 120419A			04/19/12 20:09	
Antimony		0.555	mg/L	0.0010	111	70	130			
Arsenic		0.509	mg/L	0.0010	102	70	130			
Barium		0.532	mg/L	0.050	106	70	130			
Beryllium		0.226	mg/L	0.0010	90	70	130			
Cadmium		0.255	mg/L	0.0010	102	70	130			
Chromium		0.468	mg/L	0.0050	94	70	130			
Cobalt		0.502	mg/L	0.0050	100	70	130			
Copper		0.468	mg/L	0.0050	94	70	130			
Iron		2.92	mg/L	0.030	117	70	130			
Lead		0.524	mg/L	0.0010	105	70	130			
Manganese		2.46	mg/L	0.0010	98	70	130			
Nickel		0.462	mg/L	0.0050	92	70	130			
Strontium		0.688	mg/L	0.010	138	70	130			S
Thallium		0.535	mg/L	0.00050	107	70	130			
Zinc		0.523	mg/L	0.010	105	70	130			
Sa ple S	15	Sample Matrix Spike Duplicate				Run: ICPMS204-B 120419A			04/19/12 20:13	
Antimony		0.557	mg/L	0.0010	111	70	130	0.3	20	
Arsenic		0.507	mg/L	0.0010	101	70	130	0.4	20	
Barium		0.532	mg/L	0.050	106	70	130	0.0	20	
Beryllium		0.224	mg/L	0.0010	89	70	130	1.1	20	
Cadmium		0.252	mg/L	0.0010	101	70	130	1.0	20	
Chromium		0.465	mg/L	0.0050	93	70	130	0.7	20	
Cobalt		0.496	mg/L	0.0050	99	70	130	1.3	20	
Copper		0.465	mg/L	0.0050	93	70	130	0.7	20	
Iron		2.95	mg/L	0.030	118	70	130	1.0	20	
Lead		0.519	mg/L	0.0010	104	70	130	1.0	20	
Manganese		2.45	mg/L	0.0010	98	70	130	0.3	20	
Nickel		0.457	mg/L	0.0050	91	70	130	1.0	20	
Strontium		0.685	mg/L	0.010	137	70	130	0.4	20	S
Thallium		0.523	mg/L	0.00050	105	70	130	2.1	20	
Zinc		0.525	mg/L	0.010	105	70	130	0.2	20	

uali iers

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te		Count	Result	nits	R	R C o i it	igh i it	RP RP i it ual
ethod								Analytical Run: ICPMS204-B 120423A
Sa ple	C S	2	Initial Calibration erification Standard					04/23/12 11:48
Iron			0.266	mg/L	0.030	106	90 110	
Zinc			0.0500	mg/L	0.010	100	90 110	
Sa ple	CS	2	Interference Check Sample A					04/23/12 11:53
Iron			108	mg/L	0.030	108	70 130	
Zinc			0.00129	mg/L	0.010			
Sa ple	CS	2	Interference Check Sample AB					04/23/12 11:58
Iron			109	mg/L	0.030	109	70 130	
Zinc			0.0118	mg/L	0.010	118	70 130	
Sa ple	C S	2	Initial Calibration erification Standard					04/23/12 18:24
Iron			0.271	mg/L	0.030	108	90 110	
Zinc			0.0522	mg/L	0.010	104	90 110	
Sa ple	CS	2	Interference Check Sample A					04/23/12 18:29
Iron			99.4	mg/L	0.030	99	70 130	
Zinc			0.000969	mg/L	0.010			
Sa ple	CS	2	Interference Check Sample AB					04/23/12 18:33
Iron			96.5	mg/L	0.030	96	70 130	
Zinc			0.0107	mg/L	0.010	107	70 130	
ethod								Batch: 16315
Sa ple		15	Method Blank			Run: ICPMS204-B 120423A		04/23/12 19:06
Antimony			5E-05	mg/L	4E-05			
Arsenic			0.0001	mg/L	5E-05			
Barium			ND	mg/L	9E-05			
Beryllium			ND	mg/L	2E-05			
Cadmium			ND	mg/L	2E-05			
Chromium			ND	mg/L	6E-05			
Cobalt			ND	mg/L	3E-05			
Copper			0.0009	mg/L	0.0004			
Iron			0.004	mg/L	0.0006			
Lead			ND	mg/L	2E-05			
Manganese			ND	mg/L	6E-05			
Nickel			0.0004	mg/L	0.0002			
Strontium			ND	mg/L	4E-05			
Thallium			ND	mg/L	2E-05			
Zinc			0.002	mg/L	0.0003			

uali iers

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C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te		Count	Result	nits	R	R C	o	i it	igh i it	RP	RP i it	ual
ethod										Analytical Run: H C 201-H 120424B		
Sa ple	C		Initial Calibration erification Standard									04/24/12 14:15
Mercury			0.00019	mg/L	0.00010	95		90	110			
ethod												Batch: 16358
Sa ple			Method Blank				Run: H C 201-H 120424B					04/24/12 14:22
Mercury			ND	mg/L	9E-06							
Sa ple	CS		Laboratory Control Sample				Run: H C 201-H 120424B					04/24/12 14:31
Mercury			0.00021	mg/L	0.00010	104		90	110			
Sa ple		S	Sample Matrix Spike				Run: H C 201-H 120424B					04/24/12 14:52
Mercury			0.00023	mg/L	0.00010	117		70	130			
Sa ple		S	Sample Matrix Spike Duplicate				Run: H C 201-H 120424B					04/24/12 14:55
Mercury			0.00023	mg/L	0.00010	113		70	130	3.4	30	

uali iers

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te	Count	Result	nits	R	R C	o i it	igh i it	RP	RP i it	ual
ethod So ek odi ied										Batch: R79715
Sa ple CS	6	Laboratory Control Sample			Run: LECO632 120504A					05/03/12 12:48
Sulfur, Pyritic		0.19		0.010	82	69	131			
Sulfur, Total		0.70		0.010	96	90	110			
Sulfur, Hot ater Extractable		0.17		0.010	88	77	123			
Sulfur, HCl Extractable		0.13		0.010	146	52	148			
Sulfur, HNO3 Extractable		0.19		0.010	82	69	131			
Sulfur, Residual		0.21		0.010	96	82	118			
Sa ple	6	Sample Duplicate			Run: LECO632 120504A					05/03/12 14:13
Sulfur, Pyritic		1.1		0.010						
Sulfur, Total		4.5		0.010				0.1	30	
Sulfur, Hot ater Extractable		1.5		0.010				1.2	30	
Sulfur, HCl Extractable		1.7		0.010				3.8	30	
Sulfur, HNO3 Extractable		1.1		0.010				1.4	30	
Sulfur, Residual		0.19		0.010				28	30	
ethod So ek odi ied										Batch: 16420
Sa ple CS		Laboratory Control Sample			Run: MAN-TECH 120504A					05/04/12 07:10
Neutrali ation Potential		72	t/kt		101	70	130			
Sa ple P		Sample Duplicate			Run: MAN-TECH 120504A					05/04/12 08:01
Neutrali ation Potential		18	t/kt					4.7	20	
ethod So ek odi ied										Batch: 16420
Sa ple P	2	Sample Duplicate			Run: MISC SOILS 120504A					05/04/12 14:57
Acid Potential		33	t/kt	0.31				1.4	20	
Acid/Base Potential		-15	t/kt					8.9	20	

uali iers

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te		Count	Result	nits	R	R C	o i it	igh i it	RP	RP i it	ual
ethod SW											Batch: 16380
Sa ple		12	Method Blank				Run: ICP1-HE 120502B				05/02/12 19:19
Barium			ND	mg/kg	0.1						
Beryllium			ND	mg/kg	0.006						
Cadmium			ND	mg/kg	0.04						
Chromium			ND	mg/kg	0.05						
Cobalt			ND	mg/kg	0.1						
Copper			ND	mg/kg	0.2						
Iron			0.8	mg/kg	0.3						
Lead			ND	mg/kg	0.5						
Manganese			ND	mg/kg	0.02						
Nickel			ND	mg/kg	0.1						
Strontium			0.02	mg/kg	0.01						
Zinc			0.2	mg/kg	0.07						
Sa ple		12	Laboratory Fortified Blank				Run: ICP1-HE 120502B				05/02/12 19:28
Barium			51.2	mg/kg	1.0	102	80	120			
Beryllium			24.9	mg/kg	1.0	99	80	120			
Cadmium			21.9	mg/kg	1.0	88	80	120			
Chromium			47.3	mg/kg	1.0	95	80	120			
Cobalt			44.7	mg/kg	1.0	90	80	120			
Copper			48.6	mg/kg	1.0	97	80	120			
Iron			241	mg/kg	5.0	96	80	120			
Lead			46.3	mg/kg	1.0	93	80	120			
Manganese			244	mg/kg	1.0	97	80	120			
Nickel			47.2	mg/kg	1.0	94	80	120			
Strontium			48.8	mg/kg	1.0	98	80	120			
Zinc			45.1	mg/kg	1.0	90	80	120			
Sa ple	CS	12	Laboratory Control Sample				Run: ICP1-HE 120502B				05/02/12 19:31
Barium			574	mg/kg	1.0	94	80.6	112.2			
Beryllium			44.8	mg/kg	1.0	89	76.3	108.6			
Cadmium			115	mg/kg	1.0	85	73	105.1			
Chromium			70.0	mg/kg	1.0	93	72.8	109.1			
Cobalt			51.0	mg/kg	1.0	90	73.3	103.7			
Copper			248	mg/kg	1.0	90	77.5	109.6			
Iron			19000	mg/kg	16	83	39.6	138.3			
Lead			176	mg/kg	2.1	95	75.9	108.6			
Manganese			371	mg/kg	1.0	102	80.8	115.7			
Nickel			55.9	mg/kg	1.0	93	72.3	103.4			
Strontium			192	mg/kg	1.0	90	77.1	115			
Zinc			180	mg/kg	1.0	85	74.2	109.9			
Sa ple	S	12	Sample Matrix Spike				Run: ICP1-HE 120502B				05/02/12 20:05
Barium			167	mg/kg	1.0	78	75	125			
Beryllium			24.1	mg/kg	1.0	94	75	125			
Cadmium			20.3	mg/kg	1.0	82	75	125			

uali iers

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te		Count	Result	nits	R	R C o i it	igh i it	RP	RP i it	ual
ethod SW										Batch: 16380
Sa ple	S	12	Sample Matrix Spike			Run: ICP1-HE 120502B				05/02/12 20:05
Chromium			55.6	mg/kg	1.0	86	75 125			
Cobalt			46.1	mg/kg	1.0	86	75 125			
Copper			79.8	mg/kg	1.0	79	75 125			
Iron			67600	mg/kg	16		75 125			A
Lead			59.3	mg/kg	2.1	82	75 125			
Manganese			255	mg/kg	1.0	91	75 125			
Nickel			57.5	mg/kg	1.0	88	75 125			
Strontium			107	mg/kg	1.0	79	75 125			
Zinc			113	mg/kg	1.0	169	75 125			S
Sa ple	S	12	Sample Matrix Spike Duplicate			Run: ICP1-HE 120502B				05/02/12 20:08
Barium			172	mg/kg	1.0	89	75 125	3.2	20	
Beryllium			24.6	mg/kg	1.0	96	75 125	2.1	20	
Cadmium			21.7	mg/kg	1.0	88	75 125	6.4	20	
Chromium			58.6	mg/kg	1.0	93	75 125	5.3	20	
Cobalt			48.4	mg/kg	1.0	91	75 125	4.8	20	
Copper			130	mg/kg	1.0	181	75 125	48	20	SR
Iron			66700	mg/kg	16		75 125	1.4	20	A
Lead			72.8	mg/kg	2.1	109	75 125	21	20	R
Manganese			262	mg/kg	1.0	93	75 125	2.8	20	
Nickel			59.3	mg/kg	1.0	91	75 125	3.1	20	
Strontium			110	mg/kg	1.0	84	75 125	2.1	20	
Zinc			163	mg/kg	1.0	271	75 125	37	20	SR

uali iers

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

A - The analyte level was greater than four times the spike level. In accordance with the method recovery is not calculated.

R - RPD exceeds advisory limit.

C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te		Count	Result	nits	R	R C	o i it	igh i it	RP	RP i it	ual
ethod SW											Batch: 16380
Sa ple		12	Method Blank				Run: ICP2-HE 120427B				04/27/12 18:45
Arsenic			ND	mg/kg	0.3						
Barium			0.02	mg/kg	0.02						
Beryllium			ND	mg/kg	0.004						
Cadmium			ND	mg/kg	0.02						
Chromium			ND	mg/kg	0.07						
Cobalt			ND	mg/kg	0.1						
Copper			ND	mg/kg	0.1						
Iron			0.5	mg/kg	0.3						
Lead			ND	mg/kg	0.6						
Nickel			ND	mg/kg	0.08						
Strontium			ND	mg/kg	0.01						
Zinc			0.2	mg/kg	0.07						
Sa ple		12	Laboratory Fortified Blank				Run: ICP2-HE 120427B				04/27/12 18:49
Arsenic			50.2	mg/kg	1.0	100	80	120			
Barium			54.0	mg/kg	1.0	108	80	120			
Beryllium			26.8	mg/kg	1.0	107	80	120			
Cadmium			25.8	mg/kg	1.0	103	80	120			
Chromium			54.4	mg/kg	1.0	109	80	120			
Cobalt			52.4	mg/kg	1.0	105	80	120			
Copper			54.9	mg/kg	1.0	110	80	120			
Iron			265	mg/kg	5.0	106	80	120			
Lead			52.1	mg/kg	1.0	104	80	120			
Nickel			53.4	mg/kg	1.0	107	80	120			
Strontium			53.5	mg/kg	1.0	107	80	120			
Zinc			53.3	mg/kg	1.0	106	80	120			
Sa ple	CS	12	Laboratory Control Sample				Run: ICP2-HE 120427B				04/27/12 18:52
Arsenic			258	mg/kg	1.5	76	72.3	106.4			
Barium			539	mg/kg	1.0	89	80.6	112.2			
Beryllium			43.1	mg/kg	1.0	85	76.3	108.6			
Cadmium			116	mg/kg	1.0	85	73	105.1			
Chromium			67.6	mg/kg	1.0	90	72.8	109.1			
Cobalt			48.0	mg/kg	1.0	84	73.3	103.7			
Copper			249	mg/kg	1.0	90	77.5	109.6			
Iron			19100	mg/kg	5.0	84	39.6	138.3			
Lead			173	mg/kg	3.1	93	75.9	108.6			
Nickel			52.4	mg/kg	1.0	87	72.3	103.4			
Strontium			187	mg/kg	1.0	88	77.1	115			
Zinc			183	mg/kg	1.0	87	74.2	109.9			
Sa ple	S	11	Sample Matrix Spike				Run: ICP2-HE 120427B				04/27/12 19:33
Arsenic			47.5	mg/kg	1.5	96	75	125			
Barium			173	mg/kg	1.0	97	75	125			
Beryllium			26.3	mg/kg	1.0	101	75	125			

ual i ers

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te		Count	Result	nits	R	R C o i it	igh i it	RP	RP i it ual
ethod SW									Batch: 16380
Sa ple	S	11	Sample Matrix Spike			Run: ICP2-HE 120427B			04/27/12 19:33
Cadmium			23.1	mg/kg	1.0	92	75 125		
Chromium			61.0	mg/kg	1.0	99	75 125		
Cobalt			47.5	mg/kg	1.0	92	75 125		
Copper			91.6	mg/kg	1.0	104	75 125		
Lead			75.4	mg/kg	3.1	91	75 125		
Nickel			59.3	mg/kg	1.0	97	75 125		
Strontium			116	mg/kg	1.0	93	75 125		
Zinc			129	mg/kg	1.0	82	75 125		
Sa ple	S	11	Sample Matrix Spike Duplicate			Run: ICP2-HE 120427B			04/27/12 19:36
Arsenic			47.3	mg/kg	1.5	96	75 125	0.4	20
Barium			174	mg/kg	1.0	100	75 125	0.7	20
Beryllium			26.3	mg/kg	1.0	101	75 125	0.1	20
Cadmium			24.4	mg/kg	1.0	97	75 125	5.1	20
Chromium			63.5	mg/kg	1.0	104	75 125	3.9	20
Cobalt			49.3	mg/kg	1.0	95	75 125	3.9	20
Copper			88.8	mg/kg	1.0	98	75 125	3.1	20
Lead			75.0	mg/kg	3.1	91	75 125	0.5	20
Nickel			61.1	mg/kg	1.0	101	75 125	2.9	20
Strontium			117	mg/kg	1.0	96	75 125	1.2	20
Zinc			147	mg/kg	1.0	117	75 125	13	20

uali iers

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te	Count	Result	nits	R	R C o i it	igh i it	RP	RP i it ual
ethod SW								Batch: 16380
Sa ple	13 Method Blank				Run: ICP2-HE 120508B			05/09/12 03:07
Arsenic		0.3	mg/kg	0.3				
Barium		ND	mg/kg	0.02				
Beryllium		ND	mg/kg	0.004				
Cadmium		ND	mg/kg	0.02				
Chromium		ND	mg/kg	0.1				
Cobalt		ND	mg/kg	0.1				
Copper		ND	mg/kg	0.1				
Iron		0.6	mg/kg	0.3				
Lead		ND	mg/kg	0.6				
Manganese		ND	mg/kg	0.03				
Nickel		ND	mg/kg	0.08				
Strontium		ND	mg/kg	0.01				
Zinc		0.1	mg/kg	0.07				
Sa ple	13 Laboratory Fortified Blank				Run: ICP2-HE 120508B			05/09/12 03:11
Arsenic		49.9	mg/kg	1.0	99	80	120	
Barium		49.3	mg/kg	1.0	99	80	120	
Beryllium		24.9	mg/kg	1.0	100	80	120	
Cadmium		24.1	mg/kg	1.0	97	80	120	
Chromium		48.1	mg/kg	1.0	96	80	120	
Cobalt		49.7	mg/kg	1.0	99	80	120	
Copper		49.5	mg/kg	1.0	99	80	120	
Iron		250	mg/kg	5.0	100	80	120	
Lead		51.5	mg/kg	1.0	103	80	120	
Manganese		249	mg/kg	1.0	100	80	120	
Nickel		47.9	mg/kg	1.0	96	80	120	
Strontium		49.5	mg/kg	1.0	99	80	120	
Zinc		49.9	mg/kg	1.0	100	80	120	
Sa ple CS	13 Laboratory Control Sample				Run: ICP2-HE 120508B			05/09/12 03:15
Arsenic		263	mg/kg	1.5	77	72.3	106.4	
Barium		519	mg/kg	1.0	85	80.6	112.2	
Beryllium		41.4	mg/kg	1.0	82	76.3	108.6	
Cadmium		113	mg/kg	1.0	83	73	105.1	
Chromium		63.2	mg/kg	1.0	84	72.8	109.1	
Cobalt		47.6	mg/kg	1.0	84	73.3	103.7	
Copper		236	mg/kg	1.0	85	77.5	109.6	
Iron		18900	mg/kg	5.0	83	39.6	138.3	
Lead		176	mg/kg	3.1	95	75.9	108.6	
Manganese		351	mg/kg	1.0	96	80.8	115.7	
Nickel		49.5	mg/kg	1.0	82	72.3	103.4	
Strontium		181	mg/kg	1.0	85	77.1	115	
Zinc		180	mg/kg	1.0	85	74.2	109.9	

uali iers

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te		Count	Result	nits	R	R C o i it	igh i it	RP	RP i it	ual
ethod SW										Batch: 16380
Sa ple	S	13	Sample Matrix Spike			Run: ICP2-HE 120508B			05/09/12 03:37	
Arsenic			56.3	mg/kg	6.0	97	75 125			
Barium			155	mg/kg	1.0	89	75 125			
Beryllium			23.4	mg/kg	1.0	90	75 125			
Cadmium			22.5	mg/kg	1.0	91	75 125			
Chromium			52.9	mg/kg	1.4	81	75 125			
Cobalt			45.7	mg/kg	2.5	92	75 125			
Copper			77.1	mg/kg	2.3	87	75 125			
Iron			74100	mg/kg	6.2		75 125			A
Lead			92.6	mg/kg	12	110	75 125			
Manganese			257	mg/kg	1.0	93	75 125			
Nickel			55.9	mg/kg	1.7	92	75 125			
Strontium			105	mg/kg	1.0	85	75 125			
Zinc			127	mg/kg	1.5	84	75 125			
Sa ple	S	13	Sample Matrix Spike Duplicate			Run: ICP2-HE 120508B			05/09/12 03:41	
Arsenic			59.5	mg/kg	6.0	103	75 125	5.5	20	
Barium			160	mg/kg	1.0	98	75 125	3.0	20	
Beryllium			24.1	mg/kg	1.0	93	75 125	2.6	20	
Cadmium			23.3	mg/kg	1.0	94	75 125	3.4	20	
Chromium			56.5	mg/kg	1.4	89	75 125	6.6	20	
Cobalt			48.6	mg/kg	2.5	98	75 125	6.0	20	
Copper			79.9	mg/kg	2.3	92	75 125	3.6	20	
Iron			72900	mg/kg	6.2		75 125	1.7	20	A
Lead			85.5	mg/kg	12	96	75 125	8.1	20	
Manganese			262	mg/kg	1.0	95	75 125	1.9	20	
Nickel			57.8	mg/kg	1.7	96	75 125	3.4	20	
Strontium			108	mg/kg	1.0	91	75 125	2.9	20	
Zinc			143	mg/kg	1.5	117	75 125	12	20	

uali iers

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method recovery is not calculated.

C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te		Count	Result	nits	R	R C	o i it	igh i it	RP	RP i it	ual
ethod	SW								Analytical Run: ICPMS204-B 120430B		
Sa ple	C S	8	Initial Calibration erification Standard								05/01/12 03:50
Antimony			0.0507	mg/L	0.0010	101	90	110			
Arsenic			0.0496	mg/L	0.0010	99	90	110			
Barium			0.0506	mg/L	0.0010	101	90	110			
Beryllium			0.0255	mg/L	0.0010	102	90	110			
Cadmium			0.0265	mg/L	0.0010	106	90	110			
Lead			0.0498	mg/L	0.0010	100	90	110			
Strontium			0.0492	mg/L	0.0010	98	90	110			
Thallium			0.0507	mg/L	0.0010	101	90	110			
ethod	SW										Batch: 16380
Sa ple		8	Method Blank						Run: ICPMS204-B 120430B		05/01/12 04:43
Antimony			0.02	mg/kg	0.003						
Arsenic			0.04	mg/kg	0.03						
Barium			ND	mg/kg	0.06						
Beryllium			ND	mg/kg	0.010						
Cadmium			0.04	mg/kg	0.02						
Lead			ND	mg/kg	0.02						
Strontium			ND	mg/kg	0.01						
Thallium			0.01	mg/kg	0.003						
Sa ple	CS	8	Laboratory Control Sample						Run: ICPMS204-B 120430B		05/01/12 04:50
Antimony			55.4	mg/kg	1.0	44	2.2	92.9			
Arsenic			326	mg/kg	1.0	96	72.3	106.4			
Barium			622	mg/kg	1.0	102	80.6	112.2			
Beryllium			51.4	mg/kg	1.0	102	76.3	108.6			
Cadmium			132	mg/kg	1.0	97	73	105.1			
Lead			200	mg/kg	1.0	108	75.9	108.6			
Strontium			224	mg/kg	1.0	106	77.1	115			
Thallium			89.4	mg/kg	1.0	99	71.7	109.5			
Sa ple		8	Laboratory Fortified Blank						Run: ICPMS204-B 120430B		05/01/12 04:56
Antimony			58.0	mg/kg	1.0	116	80	120			
Arsenic			59.0	mg/kg	1.0	118	80	120			
Barium			56.8	mg/kg	1.0	114	80	120			
Beryllium			29.4	mg/kg	1.0	118	80	120			
Cadmium			29.2	mg/kg	1.0	117	80	120			
Lead			56.5	mg/kg	1.0	113	80	120			
Strontium			56.5	mg/kg	1.0	113	80	120			
Thallium			55.4	mg/kg	1.0	111	80	120			
Sa ple	S	8	Sample Matrix Spike						Run: ICPMS204-B 120430B		05/01/12 06:30
Antimony			30.2	mg/kg	1.0	61	75	125			S
Arsenic			57.6	mg/kg	1.0	109	75	125			
Barium			181	mg/kg	1.0	136	75	125			S
Beryllium			27.0	mg/kg	1.0	105	75	125			

uali iers

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te		Count	Result	nits	R	R C	o i it	igh i it	RP	RP i it	ual
ethod SW											Batch: 16380
Sa ple	S	8	Sample Matrix Spike			Run: ICPMS204-B 120430B					05/01/12 06:30
Cadmium			26.1	mg/kg	1.0	103	75	125			
Lead			69.6	mg/kg	1.0	104	75	125			
Strontium			119	mg/kg	1.0	116	75	125			
Thallium			49.9	mg/kg	1.0	100	75	125			
Sa ple	S	8	Sample Matrix Spike Duplicate			Run: ICPMS204-B 120430B					05/01/12 06:36
Antimony			28.8	mg/kg	1.0	58	75	125	4.7	20	S
Arsenic			54.6	mg/kg	1.0	103	75	125	5.4	20	
Barium			177	mg/kg	1.0	127	75	125	2.4	20	S
Beryllium			25.5	mg/kg	1.0	99	75	125	5.5	20	
Cadmium			25.0	mg/kg	1.0	98	75	125	4.6	20	
Lead			67.7	mg/kg	1.0	100	75	125	2.7	20	
Strontium			116	mg/kg	1.0	109	75	125	2.8	20	
Thallium			49.5	mg/kg	1.0	100	75	125	0.8	20	
ethod SW											Batch: 16380
Sa ple	S	8	Sample Matrix Spike			Run: ICPMS204-B 120501B					05/02/12 19:51
Antimony			28.1	mg/kg	1.0	57	75	125			S
Arsenic			51.0	mg/kg	1.0	96	75	125			
Barium			168	mg/kg	1.0	101	75	125			
Beryllium			22.0	mg/kg	1.0	85	75	125			
Cadmium			22.7	mg/kg	1.0	89	75	125			
Lead			65.2	mg/kg	1.0	91	75	125			
Strontium			101	mg/kg	1.0	81	75	125			
Thallium			47.9	mg/kg	1.0	96	75	125			
Sa ple	S	8	Sample Matrix Spike Duplicate			Run: ICPMS204-B 120501B					05/02/12 19:55
Antimony			28.3	mg/kg	1.0	57	75	125	0.6	20	S
Arsenic			51.3	mg/kg	1.0	96	75	125	0.7	20	
Barium			176	mg/kg	1.0	116	75	125	4.4	20	
Beryllium			21.9	mg/kg	1.0	84	75	125	0.3	20	
Cadmium			23.0	mg/kg	1.0	90	75	125	1.5	20	
Lead			66.6	mg/kg	1.0	94	75	125	2.1	20	
Strontium			106	mg/kg	1.0	90	75	125	4.2	20	
Thallium			48.7	mg/kg	1.0	98	75	125	1.8	20	

uali iers

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Pro ect Belt etland

Report ate 05/11/12
Work rder H12040264

nal te		Count	Result	nits	R	R C o i it	igh i it	RP	RP i it ual
ethod	SW							Analytical Run: S B-B184211	
Sa ple	CS	7	Interference Check Sample A						04/26/12 13:38
Arsenic			0.000397	mg/L	0.0010				
Barium			8.70E-05	mg/L	0.0010				
Cadmium			0.00219	mg/L	0.0010				
Chromium			0.00105	mg/L	0.0010				
Lead			0.00167	mg/L	0.0010				
Selenium			0.00207	mg/L	0.0010				
Silver			0.000234	mg/L	0.0010				
Sa ple	CS	7	Interference Check Sample AB						04/26/12 13:42
Arsenic			0.0102	mg/L	0.0010	102	70 130		
Barium			8.30E-05	mg/L	0.0010		0 0		
Cadmium			0.0113	mg/L	0.0010	113	70 130		
Chromium			0.0203	mg/L	0.0010	101	70 130		
Lead			0.00139	mg/L	0.0010		0 0		
Selenium			0.0103	mg/L	0.0010	103	70 130		
Silver			0.0199	mg/L	0.0010	99	70 130		
Sa ple	CS	7	Initial Calibration erification Standard						04/26/12 16:46
Arsenic			0.0498	mg/L	0.0010	100	90 110		
Barium			0.0485	mg/L	0.0010	97	90 110		
Cadmium			0.0239	mg/L	0.0010	96	90 110		
Chromium			0.0505	mg/L	0.0010	101	90 110		
Lead			0.0484	mg/L	0.0010	97	90 110		
Selenium			0.0546	mg/L	0.0010	109	90 110		
Silver			0.0264	mg/L	0.0010	105	90 110		
Sa ple	CS	7	Initial Calibration erification Standard						04/26/12 13:25
Arsenic			0.0490	mg/L	0.0010	98	90 110		
Barium			0.0498	mg/L	0.0010	100	90 110		
Cadmium			0.0255	mg/L	0.0010	102	90 110		
Chromium			0.0492	mg/L	0.0010	98	90 110		
Lead			0.0495	mg/L	0.0010	99	90 110		
Selenium			0.0514	mg/L	0.0010	103	90 110		
Silver			0.0260	mg/L	0.0010	104	90 110		
ethod	SW								Batch: B 61984
Sa ple		7	Method Blank					Run: S B-B184211	04/26/12 20:17
Arsenic			ND	mg/L	0.0003				
Barium			0.01	mg/L	0.0001				
Cadmium			ND	mg/L	3E-05				
Chromium			0.008	mg/L	0.0002				
Lead			ND	mg/L	2E-05				
Selenium			ND	mg/L	0.0005				
Silver			0.0003	mg/L	0.0001				

uali iers

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ND - Not detected at the reporting limit.

C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te		Count	Result	nits	R	R C	o i it	igh i it	RP	RP i it	ual
ethod SW											Batch: B 61984
Sa ple		7	Serial Dilution			Run: S B-B184211					04/26/12 21:23
Arsenic			ND	mg/L	0.20		0	0		10	
Barium			0.183	mg/L	1.0		0	0		10	
Cadmium			ND	mg/L	0.10		0	0		10	
Chromium			0.0490	mg/L	0.20		0	0		10	
Lead			ND	mg/L	0.20		0	0		10	
Selenium			ND	mg/L	0.10		0	0		10	
Silver			ND	mg/L	0.020		0	0		10	
Sa ple	CS	7	Laboratory Control Sample			Run: S B-B184211					04/26/12 21:28
Arsenic			0.466	mg/L	0.20	93	85	115			
Barium			5.36	mg/L	1.0	97	85	115			
Cadmium			0.236	mg/L	0.10	94	85	115			
Chromium			0.500	mg/L	0.20	98	85	115			
Lead			0.499	mg/L	0.20	100	85	115			
Selenium			0.440	mg/L	0.10	88	85	115			
Silver			0.0518	mg/L	0.020	103	85	115			
Sa ple	CS	7	Laboratory Control Sample Duplicate			Run: S B-B184211					04/26/12 21:32
Arsenic			0.467	mg/L	0.20	93	85	115	0.1	20	
Barium			5.12	mg/L	1.0	93	85	115	4.6	20	
Cadmium			0.225	mg/L	0.10	90	85	115	4.5	20	
Chromium			0.500	mg/L	0.20	98	85	115	0.1	20	
Lead			0.483	mg/L	0.20	97	85	115	3.2	20	
Selenium			0.460	mg/L	0.10	92	85	115	4.6	20	
Silver			0.0494	mg/L	0.020	98	85	115	4.7	20	
Sa ple	P S	7	Post Digestion/Distillation Spike			Run: S B-B184211					04/26/12 21:36
Arsenic			0.245	mg/L	0.20	97	70	130			
Barium			0.423	mg/L	1.0	93	70	130			
Cadmium			0.251	mg/L	0.10	94	70	130			
Chromium			0.305	mg/L	0.20	102	70	130			
Lead			0.241	mg/L	0.20	96	70	130			
Selenium			0.233	mg/L	0.10	93	70	130			
Silver			0.0954	mg/L	0.020	95	70	130			
Sa ple		7	Sample Matrix Spike			Run: S B-B184211					04/26/12 22:56
Arsenic			0.481	mg/L	0.20	96	75	125			
Barium			5.32	mg/L	1.0	96	75	125			
Cadmium			0.323	mg/L	0.10	99	75	125			
Chromium			0.512	mg/L	0.20	102	75	125			
Lead			0.501	mg/L	0.20	100	75	125			
Selenium			0.437	mg/L	0.10	87	75	125			
Silver			0.0514	mg/L	0.020	102	75	125			
Sa ple	S	7	Sample Matrix Spike			Run: S B-B184211					04/26/12 21:58
Arsenic			0.474	mg/L	0.20	94	75	125			

uali iers

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C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te		Count	Result	nits	R	R C	o i it	igh i it	RP	RP i it	ual
ethod SW											Batch: B 61984
Sa ple	S	7	Sample Matrix Spike			Run: S B-B184211					04/26/12 21:58
Barium			5.16	mg/L	1.0	90	75	125			
Cadmium			0.247	mg/L	0.10	92	75	125			
Chromium			0.546	mg/L	0.20	99	75	125			
Lead			0.474	mg/L	0.20	95	75	125			
Selenium			0.429	mg/L	0.10	86	75	125			
Silver			0.0489	mg/L	0.020	97	75	125			
Sa ple		7	Sample Matrix Spike			Run: S B-B184211					04/26/12 22:03
Arsenic			0.474	mg/L	0.20	95	75	125			
Barium			5.54	mg/L	1.0	96	75	125			
Cadmium			0.238	mg/L	0.10	93	75	125			
Chromium			0.500	mg/L	0.20	99	75	125			
Lead			0.578	mg/L	0.20	104	75	125			
Selenium			0.442	mg/L	0.10	88	75	125			
Silver			0.0550	mg/L	0.020	103	75	125			
Sa ple		7	Sample Matrix Spike			Run: S B-B184211					04/26/12 22:07
Arsenic			0.449	mg/L	0.20	90	75	125			
Barium			5.39	mg/L	1.0	94	75	125			
Cadmium			0.232	mg/L	0.10	90	75	125			
Chromium			0.483	mg/L	0.20	95	75	125			
Lead			0.550	mg/L	0.20	101	75	125			
Selenium			0.450	mg/L	0.10	90	75	125			
Silver			0.0526	mg/L	0.020	100	75	125			
Sa ple		7	Sample Matrix Spike			Run: S B-B184211					04/26/12 22:12
Arsenic			0.472	mg/L	0.20	94	75	125			
Barium			5.39	mg/L	1.0	96	75	125			
Cadmium			0.237	mg/L	0.10	93	75	125			
Chromium			0.497	mg/L	0.20	98	75	125			
Lead			0.519	mg/L	0.20	104	75	125			
Selenium			0.457	mg/L	0.10	91	75	125			
Silver			0.0516	mg/L	0.020	103	75	125			
Sa ple		7	Sample Matrix Spike			Run: S B-B184211					04/26/12 22:16
Arsenic			0.473	mg/L	0.20	95	75	125			
Barium			5.33	mg/L	1.0	95	75	125			
Cadmium			0.232	mg/L	0.10	92	75	125			
Chromium			0.499	mg/L	0.20	99	75	125			
Lead			0.494	mg/L	0.20	99	75	125			
Selenium			0.455	mg/L	0.10	91	75	125			
Silver			0.0521	mg/L	0.020	101	75	125			
Sa ple		7	Sample Matrix Spike			Run: S B-B184211					04/26/12 22:20
Arsenic			0.476	mg/L	0.20	95	75	125			
Barium			5.58	mg/L	1.0	99	75	125			

uali iers

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C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te	Count	Result	nits	R	R C o i it	igh i it	RP	RP i it ual
ethod SW								Batch: B 61984
Sa ple	7 Sample Matrix Spike				Run: S B-B184211			04/26/12 22:20
Cadmium		0.246	mg/L	0.10	96	75 125		
Chromium		0.496	mg/L	0.20	99	75 125		
Lead		0.552	mg/L	0.20	108	75 125		
Selenium		0.463	mg/L	0.10	93	75 125		
Silver		0.0538	mg/L	0.020	106	75 125		
Sa ple	7 Sample Matrix Spike				Run: S B-B184211			04/26/12 22:25
Arsenic		0.477	mg/L	0.20	95	75 125		
Barium		5.15	mg/L	1.0	93	75 125		
Cadmium		0.225	mg/L	0.10	90	75 125		
Chromium		0.495	mg/L	0.20	99	75 125		
Lead		0.504	mg/L	0.20	101	75 125		
Selenium		0.484	mg/L	0.10	97	75 125		
Silver		0.0498	mg/L	0.020	98	75 125		

uali iers

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C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Report ate 05/11/12
Pro ect Belt etland
Work rder H12040264

nal te		Count	Result	nits	R	R C	o i it	igh i it	RP	RP i it	ual
ethod	SW									Analytical Run: S B-B184133	
Sa ple	CS		Initial Calibration erification Standard								04/25/12 15:15
Mercury			0.0018	mg/L	0.0020	93	90	110			
ethod	SW										Batch: B 61965
Sa ple			Method Blank				Run: S B-B184133				04/25/12 15:22
Mercury			ND	mg/L	3E-05						
Sa ple	CS		Laboratory Control Sample				Run: S B-B184133				04/25/12 15:24
Mercury			0.0022	mg/L	0.0020	112	85	115			
Sa ple	CS		Laboratory Control Sample Duplicate				Run: S B-B184133				04/25/12 15:34
Mercury			0.0022	mg/L	0.0020	110	85	115	0.9	10	
Sa ple			Serial Dilution				Run: S B-B184133				04/25/12 15:41
Mercury			ND	mg/L	0.0020		0	0		10	
Sa ple			Sample Matrix Spike				Run: S B-B184133				04/25/12 16:34
Mercury			0.0019	mg/L	0.0020	96	75	125			
Sa ple			Sample Matrix Spike				Run: S B-B184133				04/25/12 15:43
Mercury			0.0023	mg/L	0.0020	114	75	125			
Sa ple			Sample Matrix Spike				Run: S B-B184133				04/25/12 15:47
Mercury			0.0021	mg/L	0.0020	101	75	125			
Sa ple			Sample Matrix Spike				Run: S B-B184133				04/25/12 15:52
Mercury			0.0022	mg/L	0.0020	110	75	125			
Sa ple			Sample Matrix Spike				Run: S B-B184133				04/25/12 16:01
Mercury			0.0020	mg/L	0.0020	99	75	125			
Sa ple			Sample Matrix Spike				Run: S B-B184133				04/25/12 16:06
Mercury			0.0022	mg/L	0.0020	110	75	125			
Sa ple			Sample Matrix Spike				Run: S B-B184133				04/25/12 16:10
Mercury			0.0022	mg/L	0.0020	110	75	125			

uali iers

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C Su ar Report

Prepared by Helena, MT Branch

Client MT DEQ-Abandoned Mines
Pro ect Belt etland

Report ate 05/11/12
Work rder H12040264

nal te		Count	Result	nits	R	R C o i it	igh i it	RP RP i it ual
ethod SW							Analytical Run: H C 201-H 120424A	
Sa ple	C		Initial Calibration erification Standard					04/24/12 12:16
Mercury			0.00099	mg/kg	0.50	99 90	110	
Sa ple	CC		Continuing Calibration erification Standard					04/24/12 12:18
Mercury			0.0024	mg/kg	0.50	97 90	110	
Sa ple	CC		Continuing Calibration erification Standard					04/24/12 13:00
Mercury			0.0025	mg/kg	0.50	100 90	110	
Sa ple	CC		Continuing Calibration erification Standard					04/24/12 13:31
Mercury			0.0024	mg/kg	0.50	97 90	110	
ethod SW								Batch: 16360
Sa ple			Method Blank			Run: H C 201-H 120424A		04/24/12 12:23
Mercury			0.003	mg/kg	3E-05			
Sa ple	CS		Laboratory Control Sample			Run: H C 201-H 120424A		04/24/12 12:25
Mercury			5.3	mg/kg	0.50	107 80	120	
Sa ple		S	Sample Matrix Spike			Run: H C 201-H 120424A		04/24/12 12:37
Mercury			1.1	mg/kg	0.50	111 80	120	
Sa ple		S	Sample Matrix Spike Duplicate			Run: H C 201-H 120424A		04/24/12 12:40
Mercury			1.2	mg/kg	0.50	113 80	120	1.8 20
Sa ple		S	Sample Matrix Spike			Run: H C 201-H 120424A		04/24/12 13:22
Mercury			1.1	mg/kg	0.50	108 80	120	
Sa ple		S	Sample Matrix Spike Duplicate			Run: H C 201-H 120424A		04/24/12 13:24
Mercury			1.2	mg/kg	0.50	112 80	120	3.5 20

uali iers

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Workorder Receipt Checklist

H12040264

MT DEQ-Abandoned Mines

Login completed by: Tracy L. Lorash
Date Received: 4/17/2012

Reviewed by: BL2000 sdull
Received by: TLL

Reviewed Date: 4/24/2012
Carrier name: Hand Del

Shipping container/cooler in good condition	es ☐	No ☐	Not Present ☑
Custody seals intact on shipping container/cooler	es ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles	es ☐	No ☐	Not Present ☑
Chain of custody present	es ☑	No ☐	
Chain of custody signed when relinquished and received	es ☑	No ☐	
Chain of custody agrees with sample labels	es ☐	No ☑	
Samples in proper container/bottle	es ☑	No ☐	
Sample containers intact	es ☑	No ☐	
Sufficient sample volume for indicated test	es ☑	No ☐	
All samples received within holding time Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.	es ☑	No ☐	
Container/Temp Blank temperature:	11.9 C		
ater - OA vials have ero headspace	es ☐	No ☐	No OA vials submitted ☑
ater - pH acceptable upon receipt	es ☐	No ☑	Not Applicable ☐

Contact and Corrective Action Comments:

Per client, TCLP metals are RCRA metals. Attached sheet has Th as a requested metal - per client, we are to analy e for Thallium. No collection time on aqueous sample bottles - took from COC. No collection time on one of the sediment jars for B C2B - took from COC. Sample ID on COC is B C1 - ID on bottle is Belt etland Cell 1. Sample ID on COC is B C2 - ID on bottle is Belt etland Cell 3. Emailed client. Per ohn, we are to use ID B C1 and B C3 replaces B C2. Metals samples were preserved with 2 mL nitric acid upon receipt to pH 2 in the laboratory. In accordance with the Clean ater Act, these samples must be held for 24 hours prior to analysis. Tl 4/17/12.

Chain of Custody and Analytical Request Record

Page _____ of _____

PLEASE PRINT (Provide as much information as possible.)

Company Name: MT DEQ - AML	Project Name, PWS, Permit, Etc.: BELT WETLAND	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: P.O. Box 200901	Contact Name: JOHN KOERTH Phone/Fax: 841-5026 Email: jkoerth@mt.gov		Sampler: (Please Print) JOHN KOERTH
Invoice Address: Helena MT 59620	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Number of Containers
Sample Type: A Water S Soils/Solids V Vegetation B Bioassay O Other D DW - Drinking Water

ANALYSIS REQUESTED

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	TCLP metals	PH, EC	TOTAL Metals see attached	ABA Modified Sobek	SMP Buffer	SEE ATTACHED
1 BW C1 A	4/16/12	13:00	Sed	x	x		+	x	
2 BW C1 B				x	x		+	x	
3 BW C2A				x	x		+	x	
4 BW C2B				x	x		+	x	
5 BW C 3A				x	x		+	x	
6 BW C 3B				x	x		+	x	
7 BW C 1			WATER		x				
8 BW C 2			WATER		x				
9									
10									

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: Hand del.
Cooler ID(s): None
Receipt Temp: 11.9 °C
On Ice: Y (N)
Custody Seal: On Bottle Y N; On Cooler Y N
Intact Y N
Signature Match Y N

LABORATORY USE ONLY H12040264

Custody Record MUST be Signed

Relinquished by (print): JOHN KOERTH	Date/Time: 4/17/12 9:42	Signature: JNK	Received by (print):
Relinquished by (print):	Date/Time:	Signature:	Received by (print):
Sample Disposal: Return to Client: _____	Lab Disposal: _____		Received by Laboratory: Tracy Good 4/17/12 9:42

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Environmental Assessment - French Coulee AMD Treatment Wetlands Removal

– BELT WETLANDS –

~~Sand Coulee Cottonwood Clogged Streams~~

Total metals

- ~~As~~
- ~~Ba~~
- ~~Cd~~
- ~~Co~~
- ~~Cr~~
- ~~Cu~~
- ~~Fe~~
- ~~Hg~~
- ~~Mn~~
- ~~Ni~~
- ~~Pb~~
- ~~Sb~~
- ~~Sr~~
- ~~Zn~~

Be
Th.

APPENDIX E

Census Data

Cascade County, Montana

People QuickFacts	Cascade County	Montana
Population, 2013 estimate	NA	1,015,165
Population, 2012 estimate	81,723	1,005,494
Population, 2010 (April 1) estimates base	81,327	989,417
Population, percent change, April 1, 2010 to July 1, 2013	NA	2.6%
Population, percent change, April 1, 2010 to July 1, 2012	0.5%	1.6%
Population, 2010	81,327	989,415
Persons under 5 years, percent, 2012	6.8%	6.1%
Persons under 18 years, percent, 2012	22.6%	22.1%
Persons 65 years and over, percent, 2012	16.1%	15.7%
Female persons, percent, 2012	49.8%	49.8%
White alone, percent, 2012 (a)	89.6%	89.7%
Black or African American alone, percent, 2012 (a)	1.4%	0.6%
American Indian and Alaska Native alone, percent, 2012 (a)	4.5%	6.5%
Asian alone, percent, 2012 (a)	0.9%	0.7%
Native Hawaiian and Other Pacific Islander alone, percent, 2012 (a)	0.1%	0.1%
Two or More Races, percent, 2012	3.5%	2.5%
Hispanic or Latino, percent, 2012 (b)	3.8%	3.1%
White alone, not Hispanic or Latino, percent, 2012	86.8%	87.2%
Living in same house 1 year & over, percent, 2008-2012	81.7%	83.6%
Foreign born persons, percent, 2008-2012	2.2%	2.0%
Language other than English spoken at home, pct age 5+, 2008-2012	4.3%	4.6%
High school graduate or higher, percent of persons age 25+, 2008-2012	90.3%	91.9%
Bachelor's degree or higher, percent of persons age 25+, 2008-2012	23.0%	28.5%
Veterans, 2008-2012	10,448	97,991
Mean travel time to work (minutes), workers age 16+, 2008-2012	16.1	18.0
Housing units, 2012	37,438	486,141
Homeownership rate, 2008-2012	66.1%	68.5%
Housing units in multi-unit structures, percent, 2008-2012	22.9%	16.6%
Median value of owner-occupied housing units, 2008-2012	$155,100	$183,000
Households, 2008-2012	33,352	405,508
Persons per household, 2008-2012	2.37	2.37
Per capita money income in past 12 months (2012 dollars), 2008-2012	$23,976	$25,002
Median household income, 2008-2012	$43,817	$45,456
Persons below poverty level, percent, 2008-2012	14.9%	14.8%

Business QuickFacts	Cascade County	Montana
Private nonfarm establishments, 2011	2,429	35,687[1]
Private nonfarm employment, 2011	29,151	336,110[1]
Private nonfarm employment, percent change, 2010-2011	-3.8%	-0.7%[1]
Nonemployer establishments, 2011	4,762	84,070
Total number of firms, 2007	7,266	114,398
Black-owned firms, percent, 2007	F	0.2%
American Indian- and Alaska Native-owned firms, percent, 2007	2.6%	2.0%
Asian-owned firms, percent, 2007	S	0.6%
Native Hawaiian and Other Pacific Islander-owned firms, percent, 2007	F	S
Hispanic-owned firms, percent, 2007	S	1.0%
Women-owned firms, percent, 2007	25.1%	24.6%
Manufacturers shipments, 2007 ($1000)	670,881	10,638,145
Merchant wholesaler sales, 2007 ($1000)	672,008	8,202,782
Retail sales, 2007 ($1000)	1,302,292	14,686,854
Retail sales per capita, 2007	$15,924	$15,343
Accommodation and food services sales, 2007 ($1000)	174,295	2,079,426
Building permits, 2012	129	2,736

Geography QuickFacts	Cascade County	Montana
Land area in square miles, 2010	2,698.16	145,545.80
Persons per square mile, 2010	30.1	6.8

FIPS Code	013	30
Metropolitan or Micropolitan Statistical Area	Great Falls, MT Metro Area	

1: Includes data not distributed by county.

(a) Includes persons reporting only one race.
(b) Hispanics may be of any race, so also are included in applicable race categories.

D: Suppressed to avoid disclosure of confidential information
F: Fewer than 25 firms
FN: Footnote on this item for this area in place of data
NA: Not available
S: Suppressed; does not meet publication standards
X: Not applicable
Z: Value greater than zero but less than half unit of measure shown

Source U.S. Census Bureau: State and County QuickFacts. Data derived from Population Estimates, American Community Survey, Census of Population and Housing, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building Permits
Last Revised: Monday, 06-Jan-2014 17:34:22 EST

Subject	Belknap CDP, Montana	Belt town, Montana			
	Percent Margin of Error	Estimate	Margin of Error	Percent	Percent Margin of Error
EMPLOYMENT STATUS					
Population 16 years and over	(X)	573	+/-125	573	(X)
In labor force	+/-50.3	378	+/-114	66.0%	+/-8.2
Civilian labor force	+/-50.3	365	+/-115	63.7%	+/-9.3
Employed	+/-50.3	335	+/-106	58.5%	+/-8.9
Unemployed	+/-26.9	30	+/-23	5.2%	+/-3.7
Armed Forces	+/-26.9	13	+/-16	2.3%	+/-2.7
Not in labor force	+/-50.3	195	+/-44	34.0%	+/-8.2
Civilian labor force	(X)	365	+/-115	365	(X)
Percent Unemployed	+/-41.1	(X)	(X)	8.2%	+/-5.5
Females 16 years and over	(X)	278	+/-62	278	(X)
In labor force	+/-48.8	157	+/-49	56.5%	+/-9.0
Civilian labor force	+/-48.8	157	+/-49	56.5%	+/-9.0
Employed	+/-48.8	155	+/-49	55.8%	+/-9.2
Own children under 6 years	(X)	30	+/-23	30	(X)
All parents in family in labor force	**	30	+/-23	100.0%	+/-47.5
Own children 6 to 17 years	(X)	150	+/-75	150	(X)
All parents in family in labor force	**	145	+/-76	96.7%	+/-4.4
COMMUTING TO WORK					
Workers 16 years and over	(X)	333	+/-101	333	(X)
Car, truck, or van -- drove alone	+/-6.2	221	+/-77	66.4%	+/-11.8
Car, truck, or van -- carpooled	+/-6.2	57	+/-38	17.1%	+/-9.3
Public transportation (excluding taxicab)	+/-41.1	0	+/-10	0.0%	+/-7.2
Walked	+/-41.1	41	+/-26	12.3%	+/-7.3
Other means	+/-41.1	6	+/-6	1.8%	+/-2.1
Worked at home	+/-41.1	8	+/-8	2.4%	+/-2.5
Mean travel time to work (minutes)	N	24.9	+/-4.1	(X)	(X)
OCCUPATION					
Civilian employed population 16 years and over	(X)	335	+/-106	335	(X)
Management, business, science, and arts occupations	+/-41.1	86	+/-39	25.7%	+/-11.2
Service occupations	+/-6.2	84	+/-49	25.1%	+/-10.3
Sales and office occupations	+/-41.1	63	+/-37	18.8%	+/-9.8
Natural resources, construction, and maintenance occupations	+/-41.1	86	+/-51	25.7%	+/-12.1
Production, transportation, and material moving occupations	+/-6.2	16	+/-10	4.8%	+/-3.2
INDUSTRY					
Civilian employed population 16 years and over	(X)	335	+/-106	335	(X)
Agriculture, forestry, fishing and hunting, and mining	+/-41.1	39	+/-29	11.6%	+/-7.3
Construction	+/-41.1	37	+/-23	11.0%	+/-6.1
Manufacturing	+/-41.1	19	+/-15	5.7%	+/-4.1
Wholesale trade	+/-41.1	23	+/-23	6.9%	+/-6.8
Retail trade	+/-6.2	29	+/-21	8.7%	+/-5.6
Transportation and warehousing, and utilities	+/-41.1	9	+/-14	2.7%	+/-4.2
Information	+/-41.1	0	+/-10	0.0%	+/-7.2
Finance and insurance, and real estate and rental and leasing	+/-41.1	21	+/-16	6.3%	+/-4.6
Professional, scientific, and management, and administrative and waste management services	+/-41.1	6	+/-6	1.8%	+/-1.9
Educational services, and health care and social assistance	+/-6.2	82	+/-39	24.5%	+/-10.8

Subject	Belknap CDP, Montana	Belt town, Montana			
	Percent Margin of Error	Estimate	Margin of Error	Percent	Percent Margin of Error
Arts, entertainment, and recreation, and accommodation and food services	+/-41.1	43	+/-40	12.8%	+/-10.0
Other services, except public administration	+/-41.1	23	+/-20	6.9%	+/-5.9
Public administration	+/-41.1	4	+/-6	1.2%	+/-1.6
CLASS OF WORKER					
Civilian employed population 16 years and over	(X)	335	+/-106	335	(X)
Private wage and salary workers	+/-41.1	237	+/-94	70.7%	+/-13.4
Government workers	+/-41.1	77	+/-42	23.0%	+/-11.9
Self-employed in own not incorporated business workers	+/-41.1	21	+/-15	6.3%	+/-4.1
Unpaid family workers	+/-41.1	0	+/-10	0.0%	+/-7.2
INCOME AND BENEFITS (IN 2012 INFLATION-ADJUSTED DOLLARS)					
Total households	(X)	300	+/-53	300	(X)
Less than $10,000	+/-36.7	13	+/-9	4.3%	+/-3.0
$10,000 to $14,999	+/-36.7	15	+/-12	5.0%	+/-4.2
$15,000 to $24,999	+/-51.8	43	+/-23	14.3%	+/-7.1
$25,000 to $34,999	+/-51.8	44	+/-25	14.7%	+/-7.8
$35,000 to $49,999	+/-36.7	68	+/-33	22.7%	+/-10.3
$50,000 to $74,999	+/-36.7	75	+/-36	25.0%	+/-11.0
$75,000 to $99,999	+/-36.7	39	+/-26	13.0%	+/-8.5
$100,000 to $149,999	+/-36.7	1	+/-4	0.3%	+/-1.4
$150,000 to $199,999	+/-36.7	0	+/-10	0.0%	+/-8.0
$200,000 or more	+/-36.7	2	+/-3	0.7%	+/-1.0
Median household income (dollars)	(X)	37,500	+/-16,559	(X)	(X)
Mean household income (dollars)	(X)	51,712	+/-11,238	(X)	(X)
With earnings	+/-51.8	201	+/-54	67.0%	+/-9.9
Mean earnings (dollars)	(X)	47,033	+/-7,875	(X)	(X)
With Social Security	+/-51.8	118	+/-30	39.3%	+/-9.3
Mean Social Security income (dollars)	(X)	15,505	+/-3,439	(X)	(X)
With retirement income	+/-36.7	43	+/-17	14.3%	+/-5.6
Mean retirement income (dollars)	(X)	65,198	+/-71,648	(X)	(X)
With Supplemental Security Income	+/-36.7	7	+/-10	2.3%	+/-3.2
Mean Supplemental Security Income (dollars)	(X)	12,871	+/-3,665	(X)	(X)
With cash public assistance income	+/-36.7	2	+/-3	0.7%	+/-1.0
Mean cash public assistance income (dollars)	(X)	-	**	(X)	(X)
With Food Stamp/SNAP benefits in the past 12 months	+/-36.7	22	+/-18	7.3%	+/-5.8
Families	(X)	175	+/-48	175	(X)
Less than $10,000	+/-46.0	2	+/-3	1.1%	+/-1.8
$10,000 to $14,999	+/-46.0	3	+/-4	1.7%	+/-2.5
$15,000 to $24,999	+/-45.9	18	+/-18	10.3%	+/-9.9
$25,000 to $34,999	+/-45.9	25	+/-19	14.3%	+/-9.9
$35,000 to $49,999	+/-46.0	28	+/-21	16.0%	+/-10.5
$50,000 to $74,999	+/-46.0	57	+/-30	32.6%	+/-13.8
$75,000 to $99,999	+/-46.0	39	+/-26	22.3%	+/-13.7
$100,000 to $149,999	+/-46.0	1	+/-4	0.6%	+/-2.4
$150,000 to $199,999	+/-46.0	0	+/-10	0.0%	+/-13.3
$200,000 or more	+/-46.0	2	+/-3	1.1%	+/-1.7
Median family income (dollars)	(X)	55,156	+/-12,888	(X)	(X)
Mean family income (dollars)	N	65,274	+/-18,484	(X)	(X)
Per capita income (dollars)	(X)	20,872	+/-5,576	(X)	(X)
Nonfamily households	(X)	125	+/-44	125	(X)

Subject	Belknap CDP, Montana	Belt town, Montana			
	Percent Margin of Error	Estimate	Margin of Error	Percent	Percent Margin of Error
Median nonfamily income (dollars)	(X)	30,625	+/-7,969	(X)	(X)
Mean nonfamily income (dollars)	N	32,725	+/-5,994	(X)	(X)
Median earnings for workers (dollars)	(X)	18,911	+/-5,833	(X)	(X)
Median earnings for male full-time, year-round workers (dollars)	(X)	39,333	+/-7,072	(X)	(X)
Median earnings for female full-time, year-round workers (dollars)	(X)	19,313	+/-2,763	(X)	(X)
HEALTH INSURANCE COVERAGE					
Civilian noninstitutionalized population	(X)	734	+/-180	734	(X)
With health insurance coverage	+/-23.1	595	+/-155	81.1%	+/-10.2
With private health insurance	+/-23.1	496	+/-149	67.6%	+/-13.2
With public coverage	+/-50.3	200	+/-64	27.2%	+/-8.4
No health insurance coverage	+/-23.1	139	+/-85	18.9%	+/-10.2
Civilian noninstitutionalized population under 18 years	(X)	195	+/-89	195	(X)
No health insurance coverage	**	5	+/-6	2.6%	+/-3.1
Civilian noninstitutionalized population 18 to 64 years	(X)	423	+/-117	423	(X)
In labor force:	(X)	336	+/-112	336	(X)
Employed:	(X)	309	+/-103	309	(X)
With health insurance coverage	+/-6.2	204	+/-71	66.0%	+/-18.4
With private health insurance	+/-6.2	201	+/-70	65.0%	+/-18.4
With public coverage	+/-41.1	19	+/-15	6.1%	+/-5.3
No health insurance coverage	+/-6.2	105	+/-75	34.0%	+/-18.4
Unemployed:	(X)	27	+/-24	27	(X)
With health insurance coverage	**	2	+/-3	7.4%	+/-11.4
With private health insurance	**	2	+/-3	7.4%	+/-11.4
With public coverage	**	0	+/-10	0.0%	+/-50.1
No health insurance coverage	**	25	+/-23	92.6%	+/-11.4
Not in labor force:	(X)	87	+/-33	87	(X)
With health insurance coverage	+/-61.3	83	+/-33	95.4%	+/-5.7
With private health insurance	+/-61.3	64	+/-27	73.6%	+/-17.5
With public coverage	+/-61.3	38	+/-26	43.7%	+/-20.2
No health insurance coverage	+/-61.3	4	+/-5	4.6%	+/-5.7
PERCENTAGE OF FAMILIES AND PEOPLE WHOSE INCOME IN THE PAST 12 MONTHS IS BELOW THE POVERTY LEVEL					
All families	+/-46.0	(X)	(X)	14.3%	+/-12.0
With related children under 18 years	**	(X)	(X)	23.5%	+/-20.9
With related children under 5 years only	**	(X)	(X)	-	**
Married couple families	+/-46.0	(X)	(X)	7.9%	+/-10.2
With related children under 18 years	**	(X)	(X)	12.8%	+/-19.4
With related children under 5 years only	**	(X)	(X)	-	**
Families with female householder, no husband present	**	(X)	(X)	59.1%	+/-45.1
With related children under 18 years	**	(X)	(X)	65.0%	+/-46.8
With related children under 5 years only	**	(X)	(X)	-	**
All people	+/-26.9	(X)	(X)	23.4%	+/-14.2
Under 18 years	**	(X)	(X)	30.1%	+/-27.5
Related children under 18 years	**	(X)	(X)	30.1%	+/-27.5
Related children under 5 years	**	(X)	(X)	0.0%	+/-75.1
Related children 5 to 17 years	**	(X)	(X)	32.2%	+/-28.9
18 years and over	+/-26.9	(X)	(X)	21.2%	+/-12.6
18 to 64 years	+/-33.4	(X)	(X)	23.9%	+/-15.4
65 years and over	+/-58.2	(X)	(X)	11.2%	+/-7.6
People in families	+/-32.7	(X)	(X)	19.2%	+/-16.6

Subject	Belknap CDP, Montana	Belt town, Montana			
	Percent Margin of Error	Estimate	Margin of Error	Percent	Percent Margin of Error
Unrelated individuals 15 years and over	+/-61.3	(X)	(X)	36.3%	+/-16.4

Subject	Belknap CDP, Montana	Belt town, Montana			
	Percent Margin of Error	Estimate	Margin of Error	Percent	Percent Margin of Error
HOUSEHOLDS BY TYPE					
Total households	(X)	300	+/-53	300	(X)
Family households (families)	+/-51.5	175	+/-48	58.3%	+/-12.7
With own children under 18 years	+/-36.7	95	+/-41	31.7%	+/-11.2
Married-couple family	+/-51.5	152	+/-46	50.7%	+/-12.6
With own children under 18 years	+/-36.7	75	+/-39	25.0%	+/-11.3
Male householder, no wife present, family	+/-36.7	1	+/-4	0.3%	+/-1.4
With own children under 18 years	+/-36.7	0	+/-10	0.0%	+/-8.0
Female householder, no husband present, family	+/-36.7	22	+/-18	7.3%	+/-6.0
With own children under 18 years	+/-36.7	20	+/-18	6.7%	+/-6.0
Nonfamily households	+/-51.5	125	+/-44	41.7%	+/-12.7
Householder living alone	+/-51.5	104	+/-33	34.7%	+/-9.9
65 years and over	+/-36.7	44	+/-19	14.7%	+/-6.0
Households with one or more people under 18 years	+/-36.7	101	+/-43	33.7%	+/-11.5
Households with one or more people 65 years and over	+/-24.8	83	+/-23	27.7%	+/-7.9
Average household size	(X)	2.49	+/-0.32	(X)	(X)
Average family size	(X)	3.16	+/-0.38	(X)	(X)
RELATIONSHIP					
Population in households	(X)	747	+/-183	747	(X)
Householder	+/-19.4	300	+/-53	40.2%	+/-5.0
Spouse	+/-19.4	155	+/-48	20.7%	+/-4.6
Child	+/-26.9	205	+/-97	27.4%	+/-8.5
Other relatives	+/-26.9	18	+/-18	2.4%	+/-2.2
Nonrelatives	+/-26.9	69	+/-59	9.2%	+/-7.7
Unmarried partner	+/-26.9	8	+/-8	1.1%	+/-1.1
MARITAL STATUS					
Males 15 years and over	(X)	306	+/-85	306	(X)
Never married	+/-36.7	116	+/-75	37.9%	+/-17.0
Now married, except separated	+/-51.5	157	+/-49	51.3%	+/-15.8
Separated	+/-36.7	2	+/-4	0.7%	+/-1.2
Widowed	+/-36.7	10	+/-9	3.3%	+/-3.1
Divorced	+/-51.5	21	+/-14	6.9%	+/-5.0
Females 15 years and over	(X)	287	+/-70	287	(X)
Never married	+/-49.2	26	+/-20	9.1%	+/-5.7
Now married, except separated	+/-49.2	153	+/-45	53.3%	+/-11.6
Separated	+/-49.2	10	+/-15	3.5%	+/-5.2
Widowed	+/-49.2	51	+/-25	17.8%	+/-8.8
Divorced	+/-49.2	47	+/-24	16.4%	+/-6.5
FERTILITY					
Number of women 15 to 50 years old who had a birth in the past 12 months	(X)	3	+/-4	3	(X)
Unmarried women (widowed, divorced, and never married)	**	3	+/-4	100.0%	+/-100.0
Per 1,000 unmarried women	(X)	59	+/-83	(X)	(X)
Per 1,000 women 15 to 50 years old	(X)	21	+/-30	(X)	(X)
Per 1,000 women 15 to 19 years old	(X)	0	+/-510	(X)	(X)
Per 1,000 women 20 to 34 years old	(X)	0	+/-467	(X)	(X)
Per 1,000 women 35 to 50 years old	(X)	34	+/-48	(X)	(X)
GRANDPARENTS					
Number of grandparents living with own grandchildren under 18 years	(X)	16	+/-18	16	(X)
Responsible for grandchildren	**	6	+/-9	37.5%	+/-56.2

Subject	Belknap CDP, Montana	Belt town, Montana			
	Percent Margin of Error	Estimate	Margin of Error	Percent	Percent Margin of Error
Years responsible for grandchildren					
Less than 1 year	**	0	+/-10	0.0%	+/-65.0
1 or 2 years	**	6	+/-9	37.5%	+/-56.2
3 or 4 years	**	0	+/-10	0.0%	+/-65.0
5 or more years	**	0	+/-10	0.0%	+/-65.0
Number of grandparents responsible for own grandchildren under 18 years	(X)	6	+/-9	6	(X)
Who are female	**	3	+/-4	50.0%	+/-24.5
Who are married	**	6	+/-9	100.0%	+/-100.0
SCHOOL ENROLLMENT					
Population 3 years and over enrolled in school	(X)	233	+/-111	233	(X)
Nursery school, preschool	**	8	+/-11	3.4%	+/-5.1
Kindergarten	**	20	+/-20	8.6%	+/-7.1
Elementary school (grades 1-8)	**	106	+/-52	45.5%	+/-10.0
High school (grades 9-12)	**	70	+/-44	30.0%	+/-12.6
College or graduate school	**	29	+/-24	12.4%	+/-7.8
EDUCATIONAL ATTAINMENT					
Population 25 years and over	(X)	484	+/-95	484	(X)
Less than 9th grade	+/-26.9	5	+/-5	1.0%	+/-1.1
9th to 12th grade, no diploma	+/-26.9	29	+/-20	6.0%	+/-4.2
High school graduate (includes equivalency)	+/-27.0	229	+/-81	47.3%	+/-11.5
Some college, no degree	+/-31.2	115	+/-40	23.8%	+/-8.0
Associate's degree	+/-27.6	31	+/-24	6.4%	+/-4.7
Bachelor's degree	+/-26.9	54	+/-34	11.2%	+/-6.8
Graduate or professional degree	+/-26.9	21	+/-14	4.3%	+/-3.0
Percent high school graduate or higher	+/-26.9	(X)	(X)	93.0%	+/-4.3
Percent bachelor's degree or higher	+/-26.9	(X)	(X)	15.5%	+/-6.8
VETERAN STATUS					
Civilian population 18 years and over	(X)	539	+/-120	539	(X)
Civilian veterans	+/-15.4	86	+/-30	16.0%	+/-5.5
DISABILITY STATUS OF THE CIVILIAN NONINSTITUTIONALIZED POPULATION					
Total Civilian Noninstitutionalized Population	(X)	734	+/-180	734	(X)
With a disability	+/-23.1	98	+/-39	13.4%	+/-4.6
Under 18 years	(X)	195	+/-89	195	(X)
With a disability	**	0	+/-10	0.0%	+/-12.0
18 to 64 years	(X)	423	+/-117	423	(X)
With a disability	+/-26.4	62	+/-34	14.7%	+/-5.9
65 years and over	(X)	116	+/-32	116	(X)
With a disability	+/-58.2	36	+/-17	31.0%	+/-13.1
RESIDENCE 1 YEAR AGO					
Population 1 year and over	(X)	747	+/-183	747	(X)
Same house	+/-26.9	593	+/-152	79.4%	+/-12.6
Different house in the U.S.	+/-26.9	154	+/-108	20.6%	+/-12.6
Same county	+/-26.9	95	+/-94	12.7%	+/-11.2
Different county	+/-26.9	59	+/-52	7.9%	+/-7.0
Same state	+/-26.9	26	+/-32	3.5%	+/-4.3
Different state	+/-26.9	33	+/-26	4.4%	+/-3.5
Abroad	+/-26.9	0	+/-10	0.0%	+/-3.3

Subject	Belknap CDP, Montana	Belt town, Montana			
	Percent Margin of Error	Estimate	Margin of Error	Percent	Percent Margin of Error
PLACE OF BIRTH					
Total population	(X)	747	+/-183	747	(X)
Native	+/-26.9	732	+/-179	98.0%	+/-2.0
Born in United States	+/-26.9	694	+/-169	92.9%	+/-5.3
State of residence	+/-40.9	424	+/-116	56.8%	+/-9.4
Different state	+/-40.9	270	+/-90	36.1%	+/-7.7
Born in Puerto Rico, U.S. Island areas, or born abroad to American parent(s)	+/-26.9	38	+/-40	5.1%	+/-5.1
Foreign born	+/-26.9	15	+/-15	2.0%	+/-2.0
U.S. CITIZENSHIP STATUS					
Foreign-born population	(X)	15	+/-15	15	(X)
Naturalized U.S. citizen	**	5	+/-7	33.3%	+/-45.4
Not a U.S. citizen	**	10	+/-14	66.7%	+/-45.4
YEAR OF ENTRY					
Population born outside the United States	(X)	53	+/-43	53	(X)
Native	(X)	38	+/-40	38	(X)
Entered 2010 or later	**	0	+/-10	0.0%	+/-42.2
Entered before 2010	**	38	+/-40	100.0%	+/-42.2
Foreign born	(X)	15	+/-15	15	(X)
Entered 2010 or later	**	0	+/-10	0.0%	+/-67.2
Entered before 2010	**	15	+/-15	100.0%	+/-67.2
WORLD REGION OF BIRTH OF FOREIGN BORN					
Foreign-born population, excluding population born at sea	(X)	15	+/-15	15	(X)
Europe	**	0	+/-10	0.0%	+/-67.2
Asia	**	5	+/-7	33.3%	+/-45.4
Africa	**	0	+/-10	0.0%	+/-67.2
Oceania	**	0	+/-10	0.0%	+/-67.2
Latin America	**	0	+/-10	0.0%	+/-67.2
Northern America	**	10	+/-14	66.7%	+/-45.4
LANGUAGE SPOKEN AT HOME					
Population 5 years and over	(X)	732	+/-181	732	(X)
English only	+/-26.9	727	+/-181	99.3%	+/-0.9
Language other than English	+/-26.9	5	+/-7	0.7%	+/-0.9
Speak English less than "very well"	+/-26.9	5	+/-7	0.7%	+/-0.9
Spanish	+/-26.9	0	+/-10	0.0%	+/-3.4
Speak English less than "very well"	+/-26.9	0	+/-10	0.0%	+/-3.4
Other Indo-European languages	+/-26.9	0	+/-10	0.0%	+/-3.4
Speak English less than "very well"	+/-26.9	0	+/-10	0.0%	+/-3.4
Asian and Pacific Islander languages	+/-26.9	5	+/-7	0.7%	+/-0.9
Speak English less than "very well"	+/-26.9	5	+/-7	0.7%	+/-0.9
Other languages	+/-26.9	0	+/-10	0.0%	+/-3.4
Speak English less than "very well"	+/-26.9	0	+/-10	0.0%	+/-3.4
ANCESTRY					
Total population	(X)	747	+/-183	747	(X)
American	+/-26.9	38	+/-34	5.1%	+/-4.2
Arab	+/-26.9	0	+/-10	0.0%	+/-3.3
Czech	+/-26.9	15	+/-23	2.0%	+/-3.0
Danish	+/-26.9	11	+/-13	1.5%	+/-1.7
Dutch	+/-26.9	9	+/-8	1.2%	+/-1.2
English	+/-15.4	112	+/-57	15.0%	+/-6.6

APPENDIX F

Project Plans and Cross Sections

Preferred Alternative

10/10/2013 11:10:03 AM P:\HELENADATA\DEQ BELT\2013 WETLANDS REMOVAL\DRAWINGS\SHEET SET\BELT-C0-PLN-001-13.DWG

SHEET 3 OF 18

PIONEER TECHNICAL SERVICES, INC.
201 E. BROADWAY, SUITE C
HELENA, MT 59601

PROJECT OVERVIEW

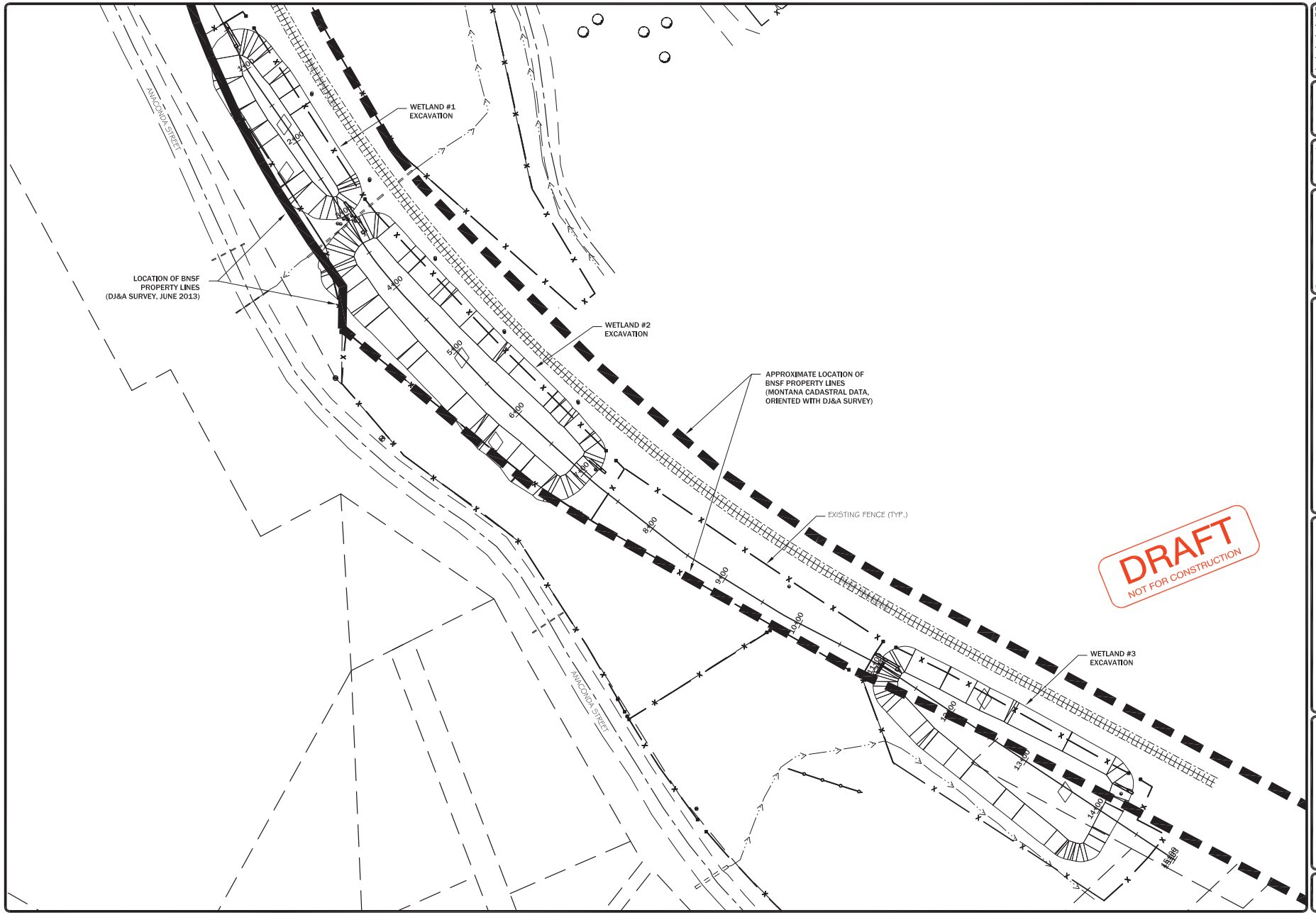
MDEQ/MWCB
FRENCH COULEE WETLANDS
RECLAMATION PROJECT
BELT, MT

0 200 400
SCALE IN FEET

COORD SYS/ZONE: MSP
DATUM: NAD 83
UNITS: FEET
SOURCE: HORIZON/PIONEER

DRAWN BY: CR
DESIGNED BY: JM
CHECKED BY:
APPROVED BY:
PROJECT NO.:
DATE: 08-23-13

REVISION DATE | BY | DESC.



REVISION:
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DRAWN BY: CR
DESIGNED BY: JW
CHECKED BY: --
APPROVED BY: --
PROJECT NO.: --
DATE: 08-23-13

DISPLAYED AS:
COORD SYS/ZONE: MSP
DATUM: NAD 83
UNITS: FEET
SOURCE: HORIZON/PIONEER

SCALE IN FEET
0 50 100

MDEQ/MWCB
FRENCH COULEE WETLANDS
RECLAMATION PROJECT

WETLAND EXCAVATION
PLAN OVERVIEW

PIONEER
TECHNICAL SERVICES, INC
201 E. BROADWAY, SUITE C
HELENA, MT 59601

Environmental Assessment - French Coulee AMD Treatment Wetlands Removal

SHEET
10 OF 18

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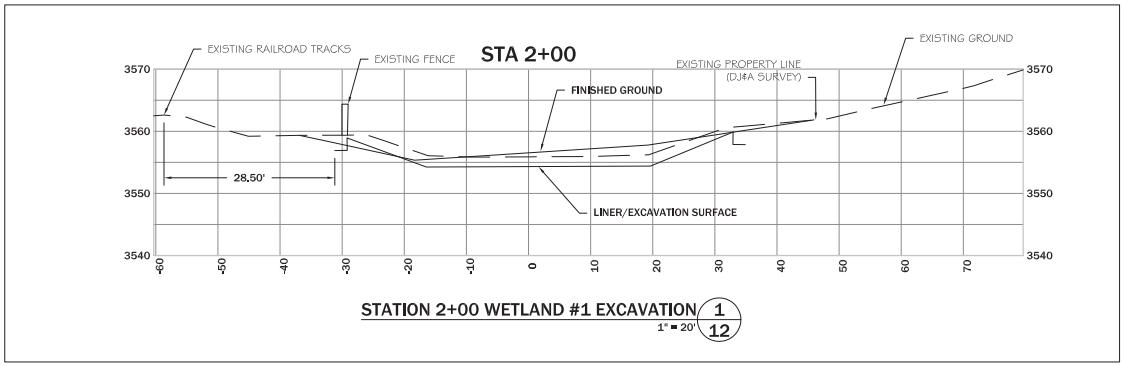
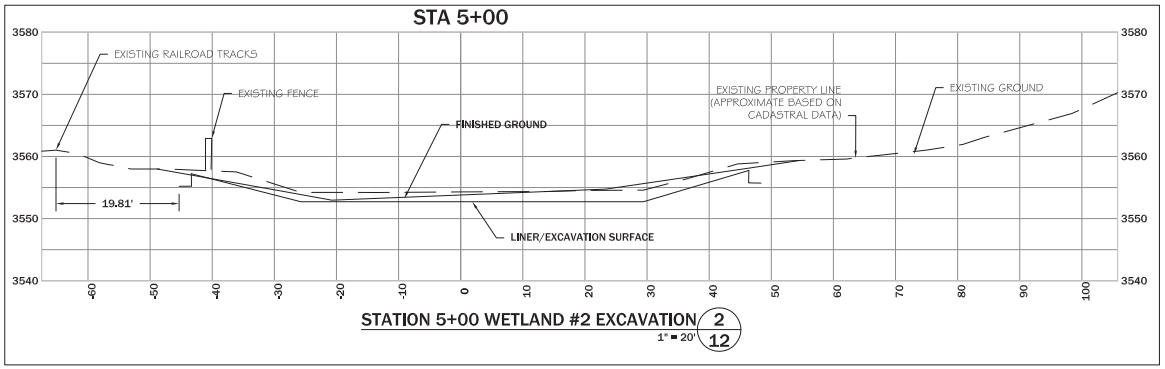
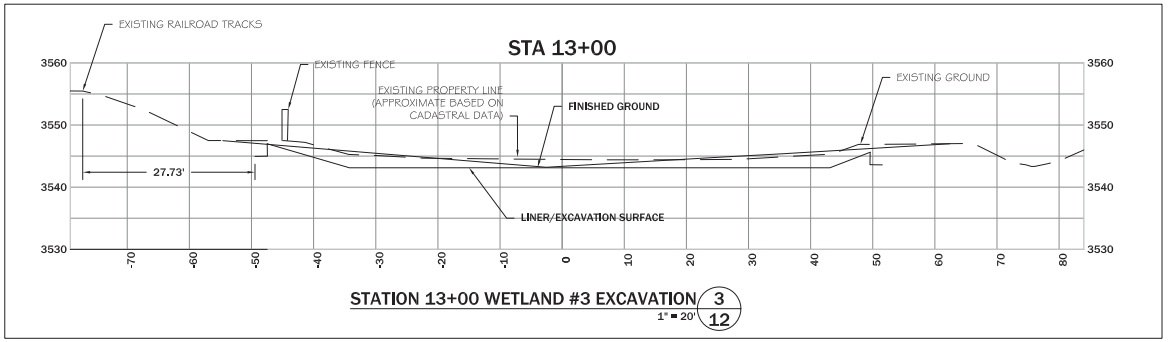


STATION 2+00 WETLAND #1 EXCAVATION 1/12
1" = 20'



STATION 5+00 WETLAND #2 EXCAVATION 2/12
1" = 20'



STATION 13+00 WETLAND #3 EXCAVATION 3/12
1" = 20'

DRAFT
NOT FOR CONSTRUCTION

REVISION:
DATE: BY: DESC:
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DRAWN BY: CR
DESIGNED BY: JW
CHECKED BY: CROSS SECTIONS
APPROVED BY: ---
PROJECT NO: ---
DATE: 08-23-13

DISPLAYED AS:
COORD SYS/ZONE: MSP
DATUM: NAD 83
UNITS: FEET
SOURCE: HORIZON/PIONEER

SCALE IN FEET
0 10 20

MDEQ/MWCB
FRENCH COULEE WETLANDS
RECLAMATION PROJECT

WETLANDS
EXCAVATION
CROSS SECTIONS

PIONEER TECHNICAL SERVICES, INC
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(406) 457-9352

SHEET
12 OF 18