

Preliminary Assessment and Site Inspection Report for Atlanta Area Mines (Tahoma Mine, Stanley Mine, Buffalo Mine, Monarch Mine, Idaho Gold Mine, Minerva Mine, Alaska #2 Adit, and Pettit Group)

Elmore County



**State of Idaho
Department of Environmental Quality**

and



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Gold Mine, Minerva Mine, Alaska #2 Adit, and Pettit Group)**

Elmore County

February 2017

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List of Acronyms

amsl	above mean sea level
ATV	all-terrain vehicle
°C	degrees Celcius
CWA	Clean Water Act
DEQ	Idaho Department of Environmental Quality
DO	dissolved oxygen
EPA	United States Environmental Protection Agency
ft	feet
GIS	geographic information system
IDL	Idaho Department of Lands
ITD	Idaho Transportation Department
IGS	Idaho Geological Survey
LTP	Lower Tailings Pile
MCDC	Missouri Census Data Center
MCL	maximum contaminant level
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mV	millivolts
NA	not available
NTU	nephelometric turbidity unit
ORP	oxidation reduction potential
PA	preliminary assessment
PPE	probable point of entry
ppm	parts per million
PWS	public water system
QAPP	Quality Assurance Project Plan
QA/QC	quality assurance/quality control
RPD	relative percent difference
RSLs	regional screening levels
SAP	Sampling Analysis Plan
SC	specific conductivity
SI	site inspection
su	standard units
SVL	SVL Analytical, Inc.

TDL	target distance limit
TMDL	total maximum daily load
μs/cm	micro-Siemens per centimeter
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UTP	Upper Tailings Pile
WRCC	Western Regional Climate Center

1 Introduction

This report presents the preliminary assessment and site inspection (PA/SI) results for the Atlanta area mines in Elmore County, Idaho. Under a cooperative agreement with the United States Environmental Protection Agency (EPA) Region 10, the Idaho Department of Environmental Quality (DEQ) provides technical support for performing the PA/SI process at various mine and industrial sites located on private, state, or mixed ownership (public and private) lands. Additional information about DEQ's PA program can be found at: <http://www.deq.idaho.gov/preliminary-assessments>.

DEQ initiated the PA program in February 2002 to prioritize and assess potentially contaminated sites. Due to accessibility and funding considerations, priority is given to sites where potential contamination poses the most substantial threat to human health or the environment. In recent years, this priority focuses DEQ's efforts in areas where residential and recreational developments are encroaching on historic mining districts. Priority is also given to mining districts where groups or clusters of sites can be cost-effectively assessed on a watershed basis.

The purpose of this PA/SI is to assess the threat posed to human health and the environment and determine the need for additional investigation of the Atlanta area mines. During the 2016 field season, surface water, sediment, and soil samples from the mine area were evaluated.

The PA/SI process is presented in the following sections:

- Section 2, **Site Description**, compiles desktop research information to present the location, ownership, general geology, operational history of past mining activities, climatology, and current and potential future land uses.
- Section 3, **Sample Collection and Analysis**, describes the sampling locations and presents the analytical results.
- Section 4, **Migration/Exposure Pathways and Targets**, presents observations and potential targets for the surface water pathway, soil exposures, ground water pathway, and air pathway.
- Section 5, **Conclusions and Recommendations**, presents a summary of the PA/SI conclusions and recommendations based on the current conditions at the site.
- Appendix A, **Project Photos**, includes photos taken during the SI field work.
- Appendix B, **Analytical Laboratory Reports**, includes the environmental sample results from the laboratory.

2 Site Description

The site description for the Atlanta area mines includes the following information: location and ownership (Section 2.1), general geology and operational history of past mining activities (Section 2.2), climatology (Section 2.3), and current and potential future land uses (Section 2.4).

As part of the desktop research, DEQ uses references from historic reports which often have different spellings for claim names, town sites, and/or geographic features. DEQ retains the spelling and usage from the original source documents.

2.1 Location and Ownership

Site Name: Atlanta Area Mines

Location: Immediately south of Atlanta, Idaho. Accessed via two roads: Quartz Street (209/209A) and Mine Hill Road/Middle Fork Road (207) and other adjoining roads.

County: Elmore

Township/Range/Sections: Township 5 North, Range 11 East, Sections 2, 3, 10, 11, 14, 15

The Atlanta area mines are located on private property in the Atlanta Mining District (aka Middle Boise Mining District) (Figure 1). Table 1 lists the coordinates (Idaho Geological Survey [IGS 2016]) and the parcel numbers for each mine site. Sampling for this assessment was conducted on private property. DEQ does not warrant the ownership research or location of property boundaries contained in this report. Information regarding ownership and property boundaries was obtained from the parcel maps for Elmore County (Idaho State Tax Commission, 2016).

Table 1. Mine Site Locations and Parcel Information.

Mine Site	Latitude ^a	Longitude ^a	Parcel No.	Property Owner
Tahoma Mine	43.7909526706	-115.13050297	RPM5N11E031400	Atlanta Gold Corp.
Stanley Mine	43.7883927106	-115.127962867	RPM5N11E101410	Atlanta Gold Corp.
Buffalo Mine	43.7804028401	-115.119382526	RPM5N11E111360	Atlanta Gold Corp.
Monarch Mine	43.7807128428	-115.118592508	RPM5N11E111370	Atlanta Gold Corp.
Idaho Gold Mine	43.7756428193	-115.128582718	RPM5N11E150110	Atlanta Gold Corp.
Pettit Group	43.7844928617	-115.110942346	RPM5N11E110510	Atlanta Gold Corp.
Minerva Mine	43.7728728704	-115.124702574	RPM5N11E140670	Hollenbeck Properties LLC
Alaska #2 Adit	43.7734429093	-115.118282405	RPM5N11E140670	Hollenbeck Properties LLC

^aWGS84

2.2 General Geology and Operational History of Past Mining Activities

Information about the geology and operational history of past mining activities helps to understand the levels of production, commodities, and potential waste types at the site. This information documents the relative importance of historic mining districts and workings as they are reevaluated from the perspective of economics, multiple land use, human health risks, and ecological risks. Historical research is used for several purposes: to identify the potential

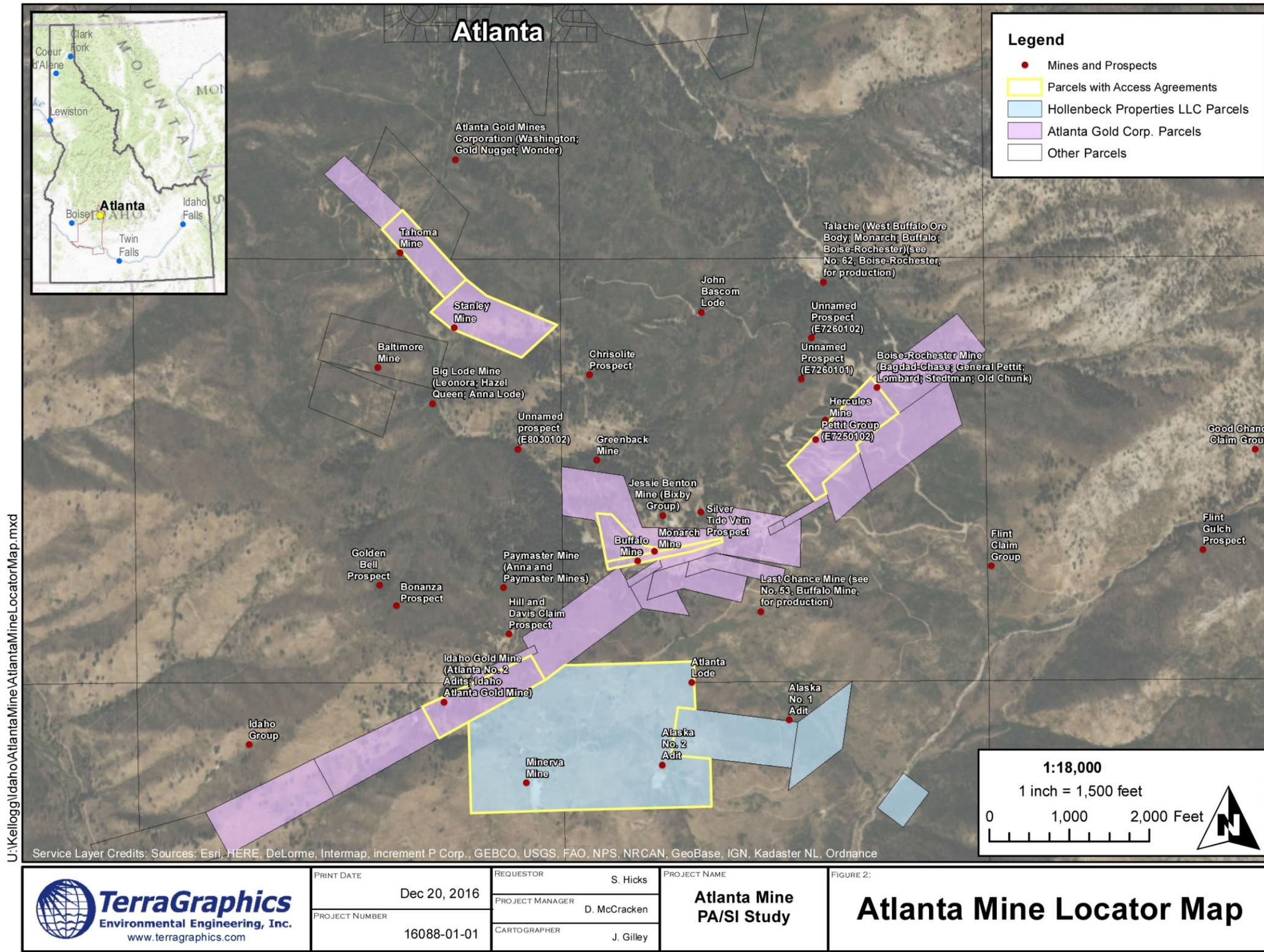


Figure 1. Aerial overview map of the Atlanta area mines.

contaminants of concern, estimate the magnitude of waste at the site, locate potentially dangerous physical hazards such as open adits and shafts, and identify historical land uses that coincide with mining.

Numerous sources were used during desktop research prior to visiting the site. A map of the major lithology for the Atlanta area mines is shown in Figure 2. A summary of commodities and production for each mine is shown in Table 2. Key documents containing geology and history of past mining activities include:

- *Preliminary Report on the Geology and Mineral Deposits of the Atlanta Hill Area, Elmore County, Idaho* (Kiilsgaard and Bacon 2004)
- *Geology and Ore Deposits of the Atlanta District, Elmore County, Idaho* (Anderson 1939)
- *History of the Atlanta Mining Area, Elmore County, Idaho* (Mitchell 2000)
- *Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 4)* (Kauffman, et.al. 2002)

Table 2. Commodities and production (IGS 2016).

Mine	Commodities (Production)
Tahoma Mine	copper, gold (100-500 oz), lead (101-500 lbs), silver (1,001-5,000 oz), zinc
Stanley Mine	None listed
Buffalo Mine	gold (51-100 oz), silver (501-1,000 oz)
Monarch Mine	gold (5,001-10,000 oz), lead (1,001-5,000 lbs), silver (50,001-100,000 oz), zinc (501-1,000 lbs)
Idaho Gold Mine	gold, silver
Pettit Group	None listed
Minerva Mine	antimony, gold (10,001-50,000 oz), silver (10,100-50,000 oz)
Alaska #2 Adit	None listed

Other areas of interest include the Talache Mine Tailings Site located in the vicinity of the Talache Mine on Figure 1. On May 15, 1997, the Upper Tailings Pile (UTP) embankment failed and released tailings into adjacent areas. Time-critical removal actions were performed from 1997-1999 to stabilize the release area and relocate some of the dispersed tailings. Non-time-critical removal actions were performed from 2000-2003 to stabilize and close the UTP and Lower Tailings Pile (LTP; MFG 2004). Long-term inspections and maintenance is ongoing.

2.3 Climatology

Climate information is based on a summary for Atlanta, Idaho obtained from the Western Regional Climate Center (WRCC 2016 [<http://www.wrcc.dri.edu/climatedata/climsum/>]). The climatological data was collected at the Atlanta Model Station (100491) (elevation 5390 feet [ft] above mean sea level [amsl]) which was located on the western edge of the town of Atlanta. Based on data collected from 1955 to 1975, total annual precipitation averages 28.51 inches with

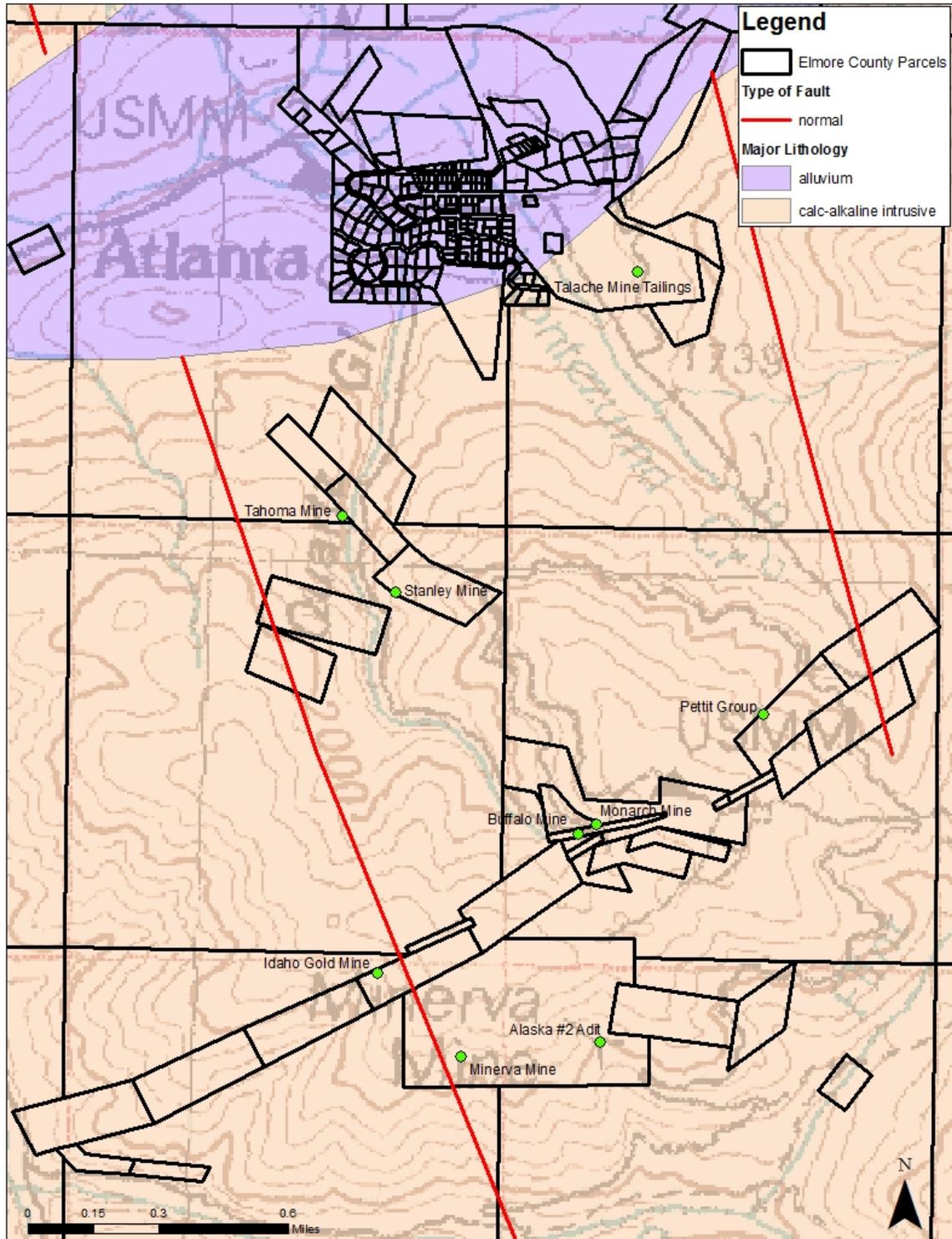


Figure 2. Map of major lithology in the vicinity of the Atlanta area mines.

a total annual snowfall average of 168.6 inches. The driest months of the year are July and August. The average annual high temperature is 55.7°F and the average annual low temperature is 25.2°F. July is the hottest month with an average temperature of 83.9°F. December is the coldest month with an average temperature of 11.8°F.

2.4 Current and Potential Future Land Uses

The town of Atlanta is an unincorporated community with approximately 36 residents (MCDC 2016) located near the headwaters of the Middle Fork of the Boise River and just north of the area mine sites. Although the mine sites are located on private property, public access is unrestricted and the sites are surrounded by United States Forest Service (USFS) property. Current land uses could include recreational activities such as hiking, backpacking, camping, hunting, horseback riding, biking, and all-terrain vehicle (ATV) touring. DEQ understands that mining is the future land use planned by Atlanta Gold Corporation and Hollenbeck Properties LLC. However, new mining operations are not imminent; therefore, this report assumes the current uses are likely to continue for the next several years.

Observations of recreation during the site visit showed that these current uses are limited to a few dirt roads and ATV trails that cross the area and one campfire ring was observed adjacent to the dirt road crossing the Tahoma Mine. Evidence of recreational activities were not observed on or around mine waste piles or adit and shaft openings at the time of the site visit.

3 Sample Collection and Analysis

DEQ and TerraGraphics staff, accompanied by Ernie Simmons and John I'nama, who were representing the Atlanta Gold Corp., visited the Atlanta area mines and collected samples July 18-21, 2016. Photographs (Appendix A), sample collection information, field parameters, and analytical results are presented in this section. The field crew did not purposely or knowingly trespass on any private holdings during field work.

Sampling and laboratory analysis was conducted in accordance with the Sampling Analysis Plan (SAP)/Quality Assurance Project Plan (QAPP) for Atlanta Area Mines Preliminary Assessment Activities (TerraGraphics 2016a). All samples were collected, handled, and stored in accordance with the SAP/QAPP and submitted to SVL Analytical, Inc. (SVL) in Kellogg, Idaho.

Sample locations and descriptions are shown in Table 3. A summary of the laboratory results and field parameters are presented in Tables 4 and 5. Locations of soil, sediment, and surface water samples and associated arsenic concentrations are shown in Figure 3. A copy of the laboratory reports are included as Appendix B. Field observations and laboratory results are discussed in the context of migration/exposure pathways and targets in Section 4.

Table 3. Sample locations and descriptions.

Mine Site	Sample ID	Description
Petit Group	PG-WD-SS1	Petit Group Mine grab sample from trench spoil pile that contained altered rock related to the mineralized zone.
Petit Group	PG-WD-SS2	Petit Group Mine grab sample from waste rock used to form a berm around collapsed shaft opening.
Monarch Mine	MC-WD-SS1	Monarch Mine grab sample from waste pile of fine grained, mineralized rock. Rock contained visible arsenopyrite and scorodite (arsenopyrite oxide mineral).
Monarch Mine	MC-WD-SS2	Monarch Mine grab sample from discrete fine grained waste rock pile.
Monarch Mine	MC-WD-SS3	Monarch Mine grab sample of gully wash material from waste at base of a heavily eroded alluvial fan slope.
Monarch Mine	MC-WD-SS4	Monarch Mine grab sample from waste material forming a berm below the gully wash material at road level.
Monarch Mine	MC-WD-SS5	Monarch Mine grab sample from roadway/parking area soils adjacent to the dirt road leading to the site.
Buffalo Mine	BM-WD-SS1	Buffalo Mine grab sample from stockpile of fine grained waste material.
Buffalo Mine	BM-WD-SS2	Buffalo Mine grab sample from waste material forming a berm around shaft opening.
Idaho Gold Mine	IG-WD-SS1	Idaho Gold Mine grab sample from waste pile near adit opening.
Minerva Mine	MM-WD-SS1	Minerva Mine grab sample from upper waste pile.
Minerva Mine	MM-WD-SS2	Minerva Mine grab sample from lower waste pile below Adit #2.
Alaska No. 2 Adit	AK2-OS-SS1	Alaska No. 2 Adit grab sample from apparent ore stockpile.
Alaska No. 2 Adit	AK2-WD-SS2	Alaska No. 2 Adit grab sample from waste pile.
Hercules	HM-WD-SS1	Hercules Mine grab sample from waste pile.
Boise-Rochester (Atlanta Gold 600 Level)	BR-WD-SS1	Boise Rochester Mine (Atlanta Gold 600 Level) grab sample of silt material from dried puddle located in the laydown yard of the 600 level.
Stanley Mine	SM-OS-SS1 and SM-OS-SS2	Stanley Mine grab sample from mineralized ore stockpile placed to the side of the adit opening. SM-OS-SS2 is a duplicate sample of SM-OS-SS1.
Stanley Mine	SM-WD-SS3	Stanley Mine grab sample from waste dump.
Background Upslope of Atlanta Area Mines	AA-BK-SS1 and AA-BK-SS2	Atlanta Area background sample collected from lower slope of Flint Mountain. Sample collected from rocky soils above ATV trail. AA-BK-SS2 is a duplicate sample of AA-BK-SS1.
Tahoma Mine	TM-WD-SS1	Tahoma Mine grab sample from waste pile berm on Adit #1 level.
Tahoma Mine	TM-AD1-SD1 and TM-AD1-SD2	Tahoma Mine sediment sample collected from entrance of pond approximately 50 ft downstream of Adit #1 opening. TM-AD1-SD2 is a duplicate sample of TM-AD1-SD1.
Tahoma Mine	TM-US-SD1	Sediment sample collected from upstream location above the Tahoma Mine Adit #1 discharge.
Tahoma Mine	TM-US-SW1 and TM-US-SW2	Surface water sample collected from upstream location above the Tahoma Mine Adit #1 discharge. TM-US-SW2 is a duplicate sample of TM-US-SW1.
Tahoma Mine	TM-AD1-SW1	Surface water sample of Adit #1 discharge collected where discharge enters small pond approximately 50 ft downstream of adit opening.
Atlanta Public Water System (PWS)	APWS-US-SW1 and APWS-US-SW2	Surface water sample collected upstream of intake for the Atlanta, Idaho public drinking water system. Sample APWS-US-SW2 is a field blank sample collected after APWS-US-SW1 sample collection.

Table 4. Soil and sediment analytical results for Atlanta Area Mine sites.

Location Description	Sample ID	Sample Type	Date	Analyte (mg/kg)													
				antimony	arsenic	barium	cadmium	chromium	copper	iron	lead	manganese	selenium	silver	zinc	mercury	
Petit Group																	
trench spoil pile	PG-WD-SS1	grab - soil	7/18/2016	10	1,740 J	68.6 J-	<0.20	<0.60	2.45	15,300	19.1	455	2.48 J	<0.50	66.4	0.170 J-	
berm around shaft	PG-WD-SS2	grab - soil	7/18/2016	<2.0	43.5 J	95.4 J-	<0.20	1.11	3.59	13,500	8.02	369	1.99 J	<0.50	68.3	<0.033 UJ	
Monarch Mine																	
waste pile with mineralized rock	MC-WD-SS1	grab - soil	7/19/2016	8.8	2,160 J	37.3 J-	<0.20	<0.60	7.34	5,650	6.51	1.69	1.18 J	0.92	27.6	<0.033 UJ	
fine grained waste pile	MC-WD-SS2	grab - soil	7/19/2016	21.4	5,370 J	59.6 J-	<0.20	0.68	3.26	12,100	16.6	43.1	1.13 J	2.76	14.2	0.058 J-	
waste at base of heavily eroded slope	MC-WD-SS3	grab - soil	7/19/2016	19.6	1,580 J	57.8 J-	<0.20	0.92	2.61	15,300	11.8	383	1.84 J	2.68	90.6	0.065 J-	
berm around road level	MC-WD-SS4	grab - soil	7/19/2016	29.6	3,370 J	64.8 J-	<0.20	1.24	3.37	12,500	22.1	221	1.91 J	5.89	53.6	0.213 J-	
roadway/parking area soils	MC-WD-SS5	grab - soil	7/19/2016	32.2	2,130 J	26.4 J-	<0.20	<0.60	3.11	5,460	17.6	25.0	0.49 J	4.02	10.2	0.188 J-	
Buffalo Mine																	
fine grained waste pile	BM-WD-SS1	grab - soil	7/19/2016	21.2	4,110 J	46.7 J-	<0.20	1.27	7.95	10,700	34.0	26.7	1.00 J	12.6	20.4	0.233 J-	
berm around shaft	BM-WD-SS2	grab - soil	7/19/2016	21.9	2,450 J	48.7 J-	<0.20	7.36	14.5	15,100	31.6	224	1.58 J	364	50.3	0.317 J-	
Idaho Gold Mine																	
waste pile by adit opening	IG-WD-SS1	grab - soil	7/19/2016	22.9	2,820 J	28.7 J-	<0.20	<0.60	7.66	11,800	13.2	140	1.41 J	1.67	49.8	0.205 J-	
Minerva Mine																	
upper waste pile	MM-WD-SS1	grab - soil	7/20/2016	31.6	2,560 J	43.1 J-	<0.20	<0.60	10.8	6,770	68.3	75.9	1.36 J	62.7	24.7	0.282 J-	
lower waste pile	MM-WD-SS2	grab - soil	7/20/2016	14.3	5,190 J	37.8 J-	<0.20	<0.60	5.41	9,890	30.5	90.3	1.07 J	12.7	32.2	0.328 J-	
Alaska No. 2 Adit																	
ore stockpile	AK2-OS-SS1	grab - soil	7/20/2016	42.2	8,000 J	27.6 J-	<0.20	<0.60	3.39	10,900	54.1	8.50	0.66 J	36.6	27.8	0.118 J-	
waste pile	AK2-WD-SS2	grab - soil	7/20/2016	32.8	6,380 J	33.4 J-	<0.20	<0.60	4.01	9,080	42.3	4.89	0.65 J	70.2	12.0	0.097 J-	
Hercules Mine																	
waste pile	HM-WD-SS1	grab - soil	7/20/2016	37.9	6,760 J	34.6 J-	<0.20	<0.60	3.84	9,490	38.7	4.91	0.55 J	22.7	12.4	0.047 J-	
Boise-Rochester (Atlanta Gold 600 Level)																	
silt material from laydown yard	BR-WD-SS1	grab - soil	7/20/2016	12.6	2,890 J	72.2 J-	<0.20	2.25	16.2	16,100	33.3	393	1.72 J	3.62	101	0.322 J-	
Stanley Mine																	
ore stockpile by adit opening	SM-OS-SS1	grab - soil	7/21/2016	52.9	2,580 J	27.6 J-	<0.20	<0.60	39.2	13,500	250	13.3	0.41 J	113	11.9	2.36 J-	
ore stockpile by adit opening (duplicate)	SM-OS-SS2	grab - soil	7/21/2016	46.6	2,600 J	24.6 J-	<0.20	<0.60	40.0	12,800	251	9.69	0.38 J	137	13.0	1.97 J-	
waste dump	SM-WD-SS3	grab - soil	7/21/2016	10.2	969 J	30.3 J-	<0.20	<0.60	10.8	7,000	84.9	31.4	0.56 J	12.3	11.6	0.387 J-	
Background Upslope of Atlanta Area Mines																	
background soil sample	AA-BK-SS1	grab - soil	7/21/2016	<2.0	3.35 J	188 J-	0.22	6.02	6.60	14,900	19.7	529	0.77 J	<0.50	71.1	<0.033 UJ	
background soil sample (duplicate)	AA-BK-SS2	grab - soil	7/21/2016	<2.0	3.91 J	211 J-	0.29	7.96	7.27	17,000	20.0	595	0.79 J	<0.50	81.1	<0.033 UJ	
Tahoma Mine																	
waste pile berm on adit #1 level	TM-WD-SS1	grab - soil	7/21/2016	22.9	2,520 J	55.0 J-	<0.20	<0.60	12.4	10,500	23.6	164	1.25 J	29.7	45.4	0.145 J-	
adit #1 discharge pond sediment	TM-AD1-SD1	grab - sediment	7/21/2016	11.3	469 J	84.2 J-	1.69	3.33	157	22,600	50.9	205	9.06 J	7.21	480	0.668 J-	
adit #1 discharge pond sediment (duplicate)	TM-AD1-SD2	grab - sediment	7/21/2016	14.9	1,540 J	71.7 J-	2.46	2.74	202	27,800	43.2	177	10.4 J	5.01	575	0.538 J-	
sediment from upstream of adit discharge	TM-US-SD1	grab - sediment	7/21/2016	<2.0	306 J	46.5 J-	0.71	1.02	4.65	9,300	17.8	289	0.98 J	0.52	53.3	0.155 J-	
EPA RSL for Resident Soil^a (mg/kg)				31	0.68	15,000	71	NA	3,100	55,000	400	1,800	390	390	23,000	11	
EPA RSL for Industrial Soil^a (mg/kg)				470	3	220,000	980	NA	47,000	820,000	800	26,000	5,800	5,800	350,000	46	
Mean Concentrations in Elmore County, Idaho^b (ppm)				NA	131	NA	NA	NA	15	NA	197	611	0.137	NA	122	0.058	

Notes:

Gray shaded values exceed regional screening levels (RSLs) for residential soils.

Orange shaded values exceed RSLs for both residential and industrial soils.

Bold = Three times greater than background concentrations when comparing: 1) the soil and sediment sample to the background value at AA-BK-SS1. Where the background value is not-detected the limit of detection was used as the background value for calculation purposes.

^aBased on a target hazard quotient of 1.0. <http://www2.epa.gov/risk/risk-based-screening-table-generic-tables>

^bMean concentrations are not available for Sb, Ba, Cd, Cr, Fe, and Ag. <http://mrdata.usgs.gov/geochem/county.php?place=f16039&el=Pb&r=northwestern>

mg/kg = milligram per kilogram

ppm = parts per million; ppm equals mg/kg

< = Result is below the detection limit.

NA = not available

J = The result is an estimated quantity.

J- = The result is an estimated quantity and is biased low.

UJ = Concentration was not detected and is qualified as an estimate.

Table 5. Surface water analytical and field parameter results for Atlanta Area Mine sites (in mg/L unless otherwise noted in table).

Analyte/Parameter	EPA		DEQ		Sample ID				
	Drinking Water Standard MCL	RSL for Tapwater	Cold Water Biota Standard Acute	Cold Water Biota Standard Chronic	Tahoma Mine Upstream TM-US-SW1	Tahoma Mine Upstream TM-US-SW2 (duplicate)	Tahoma Mine Adit #1 Discharge TM-AD1-SW1	Upstream of Public Water System Intake APWS-US-SW1	Field Blank APWS-US-SW2
Antimony (mg/L)	0.006	0.0078	NA	NA	<0.020	<0.020	<0.020	<0.020	<0.020
Arsenic (mg/L)	0.01	0.000052	0.34	0.15	0.0774	0.0754	0.0107	<0.00300	<0.00300
Barium (mg/L)	2	3.8	NA	NA	0.0180	0.0181	0.0230	0.0042	<0.0020
Cadmium (mg/L)	0.005	0.0092	0.00067 to 0.00200 (H)	0.00035 to 0.00075 (H)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Chromium (mg/L)	0.1	NA	NA	NA	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060
Copper (mg/L)	1.0 ^a	0.8	0.0079 to 0.0267 (H)	0.0056 to 0.0171 (H)	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Iron (mg/L)	0.3 ^a	14	NA	NA	<0.060	<0.060	<0.060	<0.060	<0.060
Lead (mg/L)	0.015 ^b	0.015	0.026 to 0.108 (H)	0.0010 to 0.0042 (H)	<0.00300	<0.00300	<0.00300	<0.00300	<0.00300
Manganese (mg/L)	0.05 ^a	0.43	NA	NA	0.0087	0.0090	0.0160	<0.0040	<0.0040
Mercury (mg/L)	0.002	0.00063	NA	NA	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Selenium (mg/L)	0.05	0.1	0.02 (T)	0.005 (T)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Silver (mg/L)	0.1 ^a	0.094	0.0008 to 0.0078 (H)	NA	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Zinc (mg/L)	5 ^a	6	0.058 to 0.175 (H)	0.059 to 0.177 (H)	<0.010	<0.010	<0.010	<0.010	<0.010
Temperature °C ^c	NA	NA	NA	Cold water aquatic life 22°C or less or a maximum daily average not >19°C.	9.25	9.25	12.51	12.98	NA
				Salmonid spawning 13°C or less with a maximum daily average not >9°C.					
pH (su)	6.5 - 8.5 ^a	NA	NA	6.5 - 9.0	7.24	7.24	6.25	7.85	NA
ORP (mV)	NA	NA	NA	NA	109	109	136	115	NA
SC (µS/cm)	NA	NA	NA	NA	230	230	624	66	NA
Turbidity (NTU)	b	NA	Not >50 NTU instantaneous	Not >50 NTU instantaneous and not >25 NTU over a 10 day period.	not recorded	not recorded	not recorded	not recorded	NA
DO (mg/L)	NA	NA	NA	>6 ppm	10.28	10.28	7.95	8.99	NA

Notes:

Shaded values exceed at least one standard and/or RSL.

(T)-Standard in Total, (H)-Hardness dependent for Cd, Cu, Pb, Ni, Ag, Zn, range presented based on calculated values for all samples (excluding background).

MCL = maximum contaminant level; RSL = regional screening level

^aSecondary Standard MCL - non-enforceable guideline.

^bAction level regulated by treatment technique.

^cOnly a snapshot temperature reading was collected. A daily temperature average was not collected.

mg/L=milligrams per liter, su=standard units, mV=millivolts, µS/cm=micro-Siemens per centimeter, NTU=nephelometric turbidity units, °C=degrees Celcius, ppm=parts per million

ORP = oxidation-reduction potential; SC = specific conductivity; DO = dissolved oxygen

NA = not available

4 Migration/Exposure Pathways and Targets

The purpose of this PA/SI is to evaluate the Atlanta area mines to identify if any releases or potentials for release are present to pathways and targets. Pathways and exposure routes that may lead to human or ecological receptors include: surface water pathways and soil exposure (Section 4.1), ground water pathways (Section 4.2), and air pathways (Section 4.3).

4.1 Surface Water Pathways and Soil Exposures

The surface water migration pathway begins at the probable point of entry (PPE) of source water runoff from the site to the nearest surface water body and extends downstream for approximately 15 miles. For the Atlanta area mines, the selected PPE for the surface water migration pathway is the unnamed stream originating near Minerva Mine. Surface water flows to Decker Creek, then Yuba River, and the 15-mile target distance limit (TDL) is completed near the confluence of Hot Creek and the Middle Fork of the Boise River. No significant wetlands or other surface water features are located within a two mile radius from the mine sites when using Buffalo Mine as the central point (Figures 4 and 5).

A surface water intake (E Fk Montezuma, E0006845) for the Atlanta Water Association (PWS #ID4200005) is located along the south bank of Montezuma Creek south of Atlanta. The source water delineation showing the area of contribution to this intake is shown on Figure 5. This PWS serves approximately 91 people through 98 connections (DEQ 2016).

4.1.1 Soil, Sediment, and Surface Water Analytical Results

Soil and sediment laboratory analytical results were compared to the following criteria: 1) EPA regional screening levels (RSLs) for residential and industrial soil and 2) background concentrations (Table 4). The industrial RSLs may be more applicable to the current use status of this site; however, if residential development is considered in the future, then the residential RSLs should be followed.

Surface water laboratory analytical results were compared to the following criteria: 1) EPA drinking water standards, 2) EPA RSLs for tapwater, and 3) DEQ cold water biota standards for acute and chronic. Drinking water standards and RSLs for tapwater are used to protect public health by limiting the levels of contaminants present in drinking water. These criteria are most applicable to sites where “unrestricted uses,” such as residential development, are expected; therefore, they provide a conservative threshold for remote locations. The cold water biota standards are used to protect and restore the quality of Idaho’s surface waters.

The following observations are based on the analytical laboratory results:

- Arsenic is a contaminant of concern in soil and sediment:
 - Arsenic was detected in samples from mining-impacted areas ranging from 43.5 to 8,000 mg/kg.

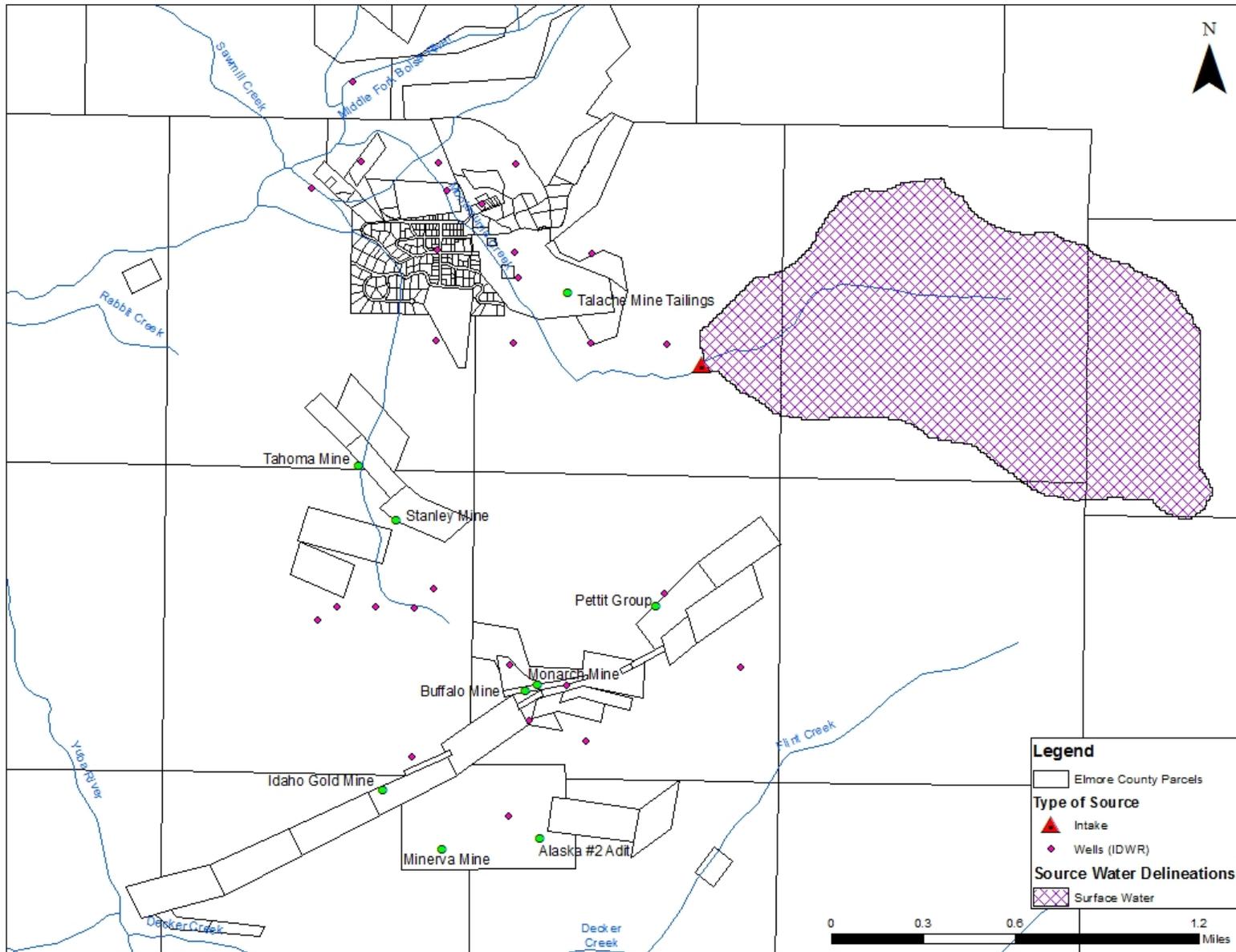


Figure 5. Atlanta area mines PWS and wetlands close-up.

- Highest arsenic detections were observed near Alaska No. 2 Adit (8,000 and 6,380 mg/kg) and Hercules Mine (6,760 mg/kg).
- Arsenic was detected above the residential (0.68 mg/kg) and industrial (3 mg/kg) RSLs in all locations sampled.
- Arsenic is present in background concentrations in this region as the site background (3.35 and 3.91 mg/kg) and mean concentration for Elmore County (131 mg/kg) are both above the RSLs.
- Other than arsenic, only antimony had detections above the residential RSLs. No other metals had detections above the industrial RSLs.
- For surface water samples collected near the Tahoma Mine, arsenic exceeded regulatory standards in both the upstream and discharge locations.
- *Atlanta Public Water System*: One surface water sample was collected on Flint Creek upstream of the intake for the public water system serving the town of Atlanta, Idaho. Total barium was the only metal detected in the sample; there were no exceedances of surface water standards or RSLs.
- *Quality Assurance/Quality Control (QA/QC)*: Samples collected for evaluating QA/QC include one field blank and duplicate samples for soil, sediment, and surface water. None of the target analytes were detected in the field blank. The laboratory and field data are determined to be of acceptable quality and meet the data quality objectives for representativeness and comparability. Final data and assigned qualifiers are included in Tables 4 and 5. Arsenic results were qualified as estimated quantities (J) because the laboratory calibration for this analysis was determined to be incomplete (the matrix spike duplicate percent recovery was low). No laboratory or field data were rejected. The relative percent difference (RPD) for duplicate samples was greater than 20 percent, but less than the maximum project goal of 50 percent, for some analytes in both soil and sediment samples indicating a high level of heterogeneity within the soil sampled. This variability in results is likely attributed to using the grab sampling method and collecting the duplicate as an independent sample collected as close as possible to the original sample; rather than being collected as split subsamples drawn from the same initial volume. One duplicate analytical result, arsenic detected in a sediment sample collected from the discharge pond at Tahoma Mine (TM-AD1-SD), was greater than the maximum project goal of 50 percent. Completeness for this sampling event is calculated at 100 percent (TerraGraphics 2016b).

During the site visit, there was evidence of erosion on all waste piles where samples were collected; however, the lower waste pile at the Tahoma Mine is the only mine waste observed during the site visit to be near a perennial creek (within 50 ft of Quartz Creek), and all other waste piles observed during the site visit are located on or above seasonal drainages.

Erosion at many sites was considerable with many rills and large gullies indicating that erosion is severe during periods of high precipitation and/or spring runoff and regional water quality in Quartz Creek, Dexter Creek, and other perennial waterways may be impacted by runoff from

Atlanta area mines (Appendix A, Photo 11 Petit Group, Photos 15 and 17 Monarch Mine, and Photos 58 and 59 Minerva Mine).

During the site visit, adit discharge was observed at several sites. Discharge from Adit #1 at the Tahoma Mine infiltrated prior to reaching surface water; however, there was a clear drainage path leading to surface water at this site (Appendix A, Photos 118 and 119). Other features for this drainage include: the start of the drainage at the collapsed adit (Photo 110), the pond formed by adit discharge on top of the waste pile (Photo 111), and the location where water infiltrates (Photo 117).

4.1.2 Sensitive Waterways

The Clean Water Act (CWA) requires that the State of Idaho prepare an Integrated Report listing: (1) current conditions of all state waters (§305(b) list) and (2) waters that are impaired and need a total maximum daily load (TMDL; §303(d) list). §305(b)-listed streams, are shown on Figure 6. Middle Fork of the Boise River (ID17050111SW001_03 and ID17050111SW001_04) was not sampled as part of this PA/SI. Yuba River is a tributary to the Middle Fork of the Boise River (North and Middle Fork Boise River subbasin hydrologic unit code 17050111) and contained in the North and Middle Fork Boise River hydrologic unit code.

As listed in the final 2012 Integrated Report, the Yuba River and Decker Creek are identified as fully supporting for both cold water aquatic life, salmonid spawning, and secondary contact recreation. Montezuma Creek is identified as not supporting for cold water aquatic life, domestic water supply, primary contact recreation, and salmonid spawning. Secondary contact recreation was not assessed on Montezuma Creek.

4.1.3 Sensitive, Rare, and Threatened Plant and Animal Species

Sensitive species can have large habitat ranges that overlap the vicinity of the Atlanta area mines. Based on the resource list obtained during a search of the Information for Planning and Conservation System (USFWS 2016), the following species are identified for Elmore County:

- Birds: Yellow-Billed Cuckoo, *Coccyzus americanus*, threatened species.
- Mammals: Canada Lynx, *Lynx canadensis*, threatened species and North American Wolverine, *Gulo gulo luscus*, proposed threatened species.
- Fish: Bull Trout, *Salvelinus confluentus*, threatened species-designated critical habitat.
- Plants: Whitebark Pine, *Pinus albicaulis*, candidate species and Slickspot Peppergrass, *Lepidium papilliferum*, threatened species-proposed critical habitat.

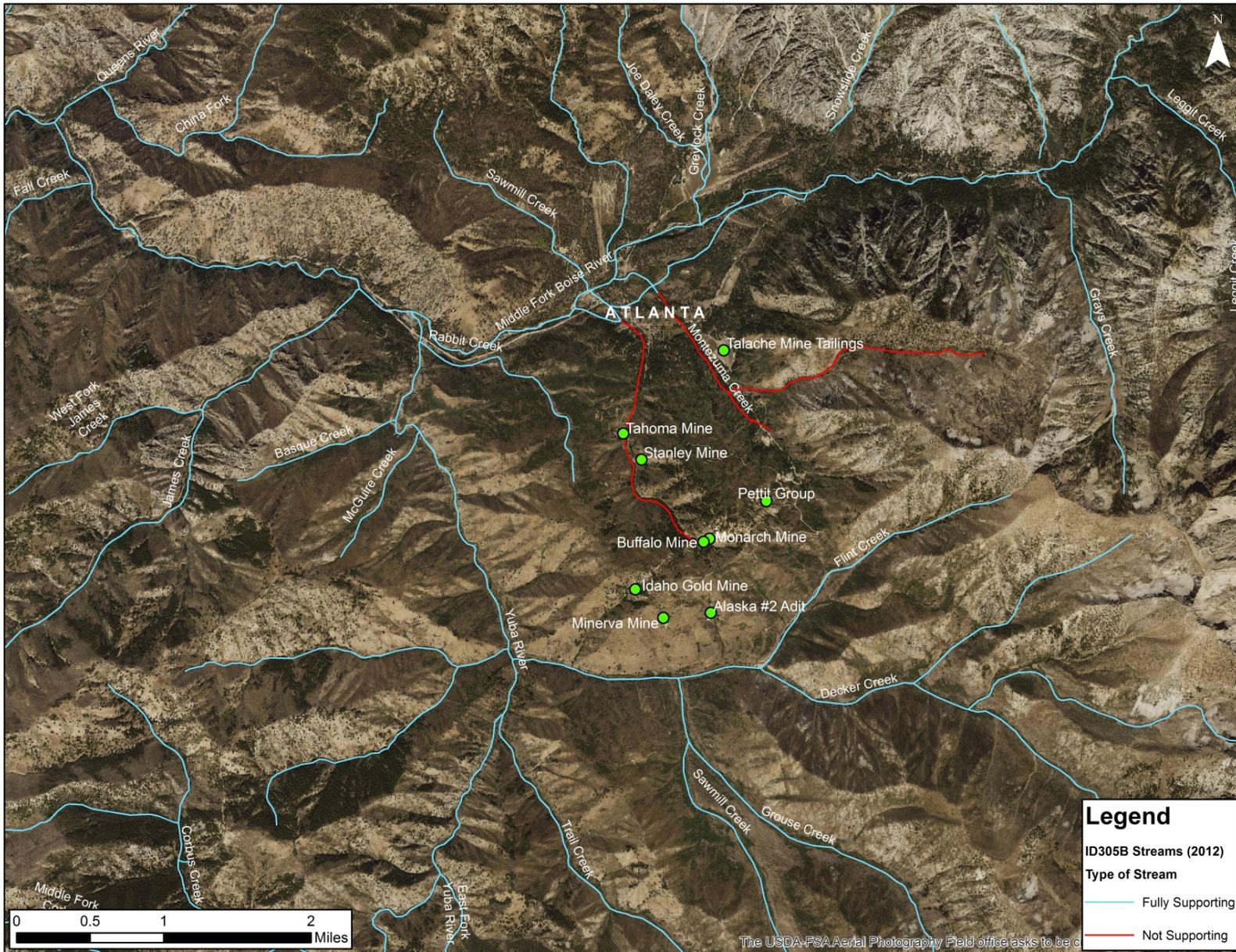


Figure 6. State of Idaho §305(b)-listed streams in the vicinity of the Atlanta area mines.

4.2 Ground Water Pathways

In areas where historic mines are close to residential areas, contamination of drinking water systems may come from two types of mine sources (ore bodies and waste dumps) and along three ground water pathways illustrated by the following three scenarios:

- Heavy metals can leach from tailing piles and waste rock dumps and contaminate the area's shallow ground water system.
- Heavy metals can leach from the local ore bodies and be transported through the geologic structure to the shallow ground water.
- Heavy metals can leach out of the ore bodies and be discharged from the underground workings as adit water, which is then conveyed to the shallow ground water system.

Ground water within a four mile radius of the Atlanta area mine sites supplies 162 wells both domestic wells within and near the town of Atlanta and monitoring wells installed by mining companies (Figure 4 and Figure 5). Since this assessment includes several mines, Buffalo Mine was used as the central point for the four mile radius.

The ground water pathway was not assessed as part of this PA/SI. DEQ understands that Atlanta Gold Corporation currently has an ongoing ground water monitoring program.

4.3 Air Pathways

The waste dump and ore piles remaining at the Atlanta area mines are surrounded by vegetation and most piles, especially those with a significant fine grained component, have formed a hard surface crust; therefore, fugitive dust is likely limited to the immediate vicinity of the mine wastes. The estimated population within the 4-mile radius of the mines, which includes the town of Atlanta, is 36 people (MCDC 2016). No schools or day care facilities are known to be located within four miles of the mine sites.

The air pathway was not assessed as part of this PA/SI.

5 Conclusions and Recommendations

The purpose of this PA/SI is to assess the threat posed to human health and the environment and determine the need for additional investigation at the Atlanta area mine sites. Conducting this PA/SI is important to provide the property owners and recreational users of this area with information about the levels of metals concentrations, possible exposure pathways in the area, and health and safety education about how to reduce exposures.

The detections of arsenic shown and discussed in Sections 3 and 4 of this PA/SI report, identify a concern for human health and the environment; therefore, DEQ recommends **Additional Actions** for this site. DEQ understands that mining is the future land use planned by Atlanta Gold Corporation and Hollenbeck Properties LLC; however, some recreational uses of this area were observed during the site visit.

- **Soil Exposures:** DEQ does not recommend additional sampling of waste rock or ore piles at this time. However, if residential development or increased recreational uses are considered as future land uses, then further characterization of development areas in relation to the waste rock piles, former mine working areas, and other historic mining features should be performed.
- **Surface Water Pathways:**
 - DEQ recommends additional sampling for the surface water pathways (both sediment and surface water) given the evidence of erosion from waste rock and ore piles at many sites and adit drainage observed. Since the surface water pathways are impacted by past mining on private and federal lands, DEQ will work to coordinate with the USFS to plan and perform future sampling.
 - Evidence of erosion from waste rock and ore piles is present at many sites. The lower waste pile at the Tahoma Mine is the only mine waste observed during the site visit to be near a perennial creek (within 50 feet of Quartz Creek), and all other waste piles observed during the site visit are located on or above seasonal drainages. For these and similar areas, DEQ recommends that the landowners follow the Best Management Practices for Mining in Idaho, available at: <https://www.idl.idaho.gov/mining/>. In addition, the following BMPs may also be applicable:
 - DEQ, Catalog of Stormwater Best Management Practices for Idaho Cities and Counties, available at <http://www.deq.idaho.gov/media/622263-Stormwater.pdf>.
 - Idaho Transportation Department (ITD), Erosion and Sediment Control Best Management Practices, available at <http://itd.idaho.gov/env/>.
 - DEQ, Compendium of Best Management Practices to Control Polluted Runoff, available at http://www.deq.idaho.gov/media/458917-compendium_report_2003_entire.pdf.
 - Adit discharge was observed at several sites during the site visit. DEQ recommends that the landowners continue to observe and monitor adit discharge to determine if discharge is seasonal and if adit discharge adversely impacts surface water.
- **Ground water and Air Pathways:** These pathways were not assessed as part of this PA/SI. DEQ understands that Atlanta Gold Corporation currently has an ongoing ground water monitoring program and recommends continuation of this program.

Health and Safety Information: Observations of recreation during the site visit showed only a few dirt roads and ATV trails crossing the area, and one campfire ring adjacent to the dirt road crossing the Tahoma Mine. Persons working or recreating in this area should be aware of the hazards of historic mining areas, especially health risks associated with prolonged exposures to metals, especially arsenic, in soils and sediment. A summary of health and safety information includes:

- Wash hands after any outdoor activity and before eating or drinking. Use a nail scrub brush to get dirt out of fingernails.
- Do not let children play in loose soil, dust, and muddy areas. Keep children's cuts and scrapes clean and covered. Wash children's toys after playing outside.
- Eat on a clean table or blanket, not on the ground. Do not eat food that has been dropped on the ground.
- When riding ATVs or other off-highway vehicles, wear protective gear such as a bandana, follow at a safe riding distance, and avoid riding through extremely dusty areas to avoid breathing in large amounts of dust.
- After outdoor activity, remove shoes, dust off clothing, and wash separately from other laundry. Wash or dust off any camping or recreational items (tents, bicycles, etc...). Wash your dogs, horses, and other animals that accompanied you. Avoid tracking dust into your garage by washing vehicles and ATVs.
- Stay out of old mine adits and structures. Rotting wood, unstable rock, oxygen-depleted air, falling debris, dust, and mining wastes are potential dangers.

Safety Closures: During the site visit, the following openings were observed; however, others may be present. DEQ has notified Idaho Department and Lands (IDL) and the USFS about these openings since they may be eligible for closure.

- There is one partially open adit at the Stanley Mine (Adit #3) located on USFS property adjacent to Forest Service Road 209. All other adits were collapsed.
- There is one partially open shaft at the Buffalo Mine and two areas of subsidence at the Monarch Mine which may be partially filled shaft openings.

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Appendix A. Project Photos

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Photo 1: Overlook of town of Atlanta and airstrip.



Photo 2: Overlook of town of Atlanta and airstrip.



Photo 3: Pettit Group Trench



Photo 4: Pettit Group ponding water area by trench.



Photo 5: Pettit Group area adjacent to trench.



Photo 6: Pettit Group shaft.



Photo 7: Pettit Group shaft.



Photo 8: Shaft berm sample.



Photo 9: Pettit Group road and debris by shaft.



Photo 10: Pettit Group gully by shaft.



Photo 11: Pettit Group gullies on trench spoils.



Photo 12: Pettit Group trench on forest service land.



Photo 13: Pettit Group gully outwash.



Photo 14: Pettit Group gully below outwash.



Photo 15: Monarch Mine overview from midslope.



Photo 16: Monarch Mine subsidence possible shaft.



Photo 17: Monarch Mine tramway frame.



Photo 18: Monarch Mine ponding area at top.



Photo 19: Monarch Mine large sediment pond.



Photo 20: Monarch Mine.



Photo 21: Monarch Mine mineralized outcrop.



Photo 22: Monarch Mine disturbance and piles at top.



Photo 23: Monarch Mine basalt dike.



Photo 24: Monarch Mine disturbance and piles at top.



Photo 25: Monarch Mine looking down eroded slope.



Photo 26: Monarch Mine sample point MC-WD-SS2.



Photo 27: Monarch Mine seep.



Photo 28: Monarch Mine seep drainage.



Photo 29: Monarch Mine seep drainage.



Photo 30: Monarch Mine animal tracks in silt.



Photo 31: Monarch Mine sample point MC-WD-SS3.



Photo 32: Monarch Mine overview from road.



Photo 33: Monarch Mine site overview from road.



Photo 34: Jesse Bennett Mine waste dump.



Photo 35: Jesse Bennett Mine top of waste dump.



Photo 36: Buffalo Mine waste dump above shaft.



Photo 37: Buffalo Mine collapsed shaft.



Photo 38: Buffalo Mine collapsed shaft.



Photo 39: Buffalo Mine debris and drainage upstream of shaft.



Photo 40: Drainage down road from Monarch Mine past Buffalo Mine.



Photo 41: Drainage channel to Buffalo Mine shaft.



Photo 42: Buffalo Mine hoist bucket filled with rock.



Photo 43: Buffalo Mine subsidence in shaft berm.



Photo 44: Drainage path from shaft pond.



Photo 45: Sediment basin downstream of shaft and lower drainage.



Photo 46: Silt/sediment basin.



Photo 47: Hill and Davis Claim on USFS land.



Photo 48: Hill and Davis Claim on USFS land.



Photo 49: Idaho Gold Mine marshy area near adit.



Photo 50: Idaho Gold Mine collapsed adit.



Photo 51: Idaho Gold Mine sample point IG-WD-SS1.



Photo 52: Idaho Gold Mine waste downslope of adit.



Photo 53: Idaho Gold Mine site access by game trail.



Photo 54: Minerva Mine site viewed from road.



Photo 55: Minerva Mine upper waste pile.



Photo 56: Minerva Mine looking down upper pile.



Photo 57: Minerva Mine upper site (possible collapsed adit).



Photo 58: Minerva Mine erosion on lower waste pile.



Photo 59: Minerva Mine lower waste pile.



Photo 60: Minerva Mine debris on top of waste pile.



Photo 61: Minerva Mine winch on top of waste pile.



Photo 62: Minerva Mine burned timbers at collapsed adit.



Photo 63: View of tailings pile on Decker Creek (valley bottom/USFS land) as seen from Minerva Mine.



Photo 64: Minerva Mine small trench on top of pile.



Photo 65: Minerva Mine part of pump on top of pile.



Photo 66: Alaska #1 (USFS land) collapsed adit.



Photo 67: Alaska #1 (USFS land) waste pile.



Photo 68: Alaska #1 (USFS land) waste pile.



Photo 69: Alaska #2 path to adit level.



Photo 70: Alaska #2 top of waste pile at adit level.



Photo 71: Alaska #2 collapsed adit.



Photo 72: Alaska #2 burned/collapsed buildings.



Photo 73: Alaska #2 burned/collapsed buildings.



Photo 74: Alaska #2 waste pile.



Photo 75: Alaska #2 waste pile and debris.



Photo 76: Alaska #2 ore pile with mine debris.



Photo 77: Alaska #2 waste pile.



Photo 78: Alaska # 2 lower bench.



Photo 79: Alaska #2 lower waste pile sample site.



Photo 80: Alaska #2 dry pond area on lower bench.



Photo 81: Hercules Mine above waste pile.



Photo 82: Hercules Mine small draw above waste pile.



Photo 83: Hercules Mine face of waste pile.



Photo 84: Hercules Mine face of waste pile.



Photo 85: Hercules Mine gully wash below waste pile located on USFS land (above Pettit Group).



Photo 86: Boise-Rochester photograph of area where the map point shows site location.



Photo 87: Boise-Rochester laydown yard (Atlanta Gold 600 level).



Photo 88: Boise-Rochester outhouse building in laydown yard (Atlanta Gold 600 level).



Photo 89: Stanley Mine collapsed Adit #1.



Photo 90: Stanley Mine empty drums on ATV trail.



Photo 91: Stanley Mine mineralized rock pile at Adit #2.



Photo 92: Stanley Mine waste pile at Adit #2.



Photo 93: Stanley Mine collapsed Adit #2.



Photo 94: Stanley Mine Adit #3.



Photo 95: Stanley Mine Adit #3 opening.



Photo 96: Stanley Mine Adit #3 drainage.



Photo 97: Stanley Mine Adit #3 drainage down road.



Photo 98: Stanley Mine Adit #3 overview.

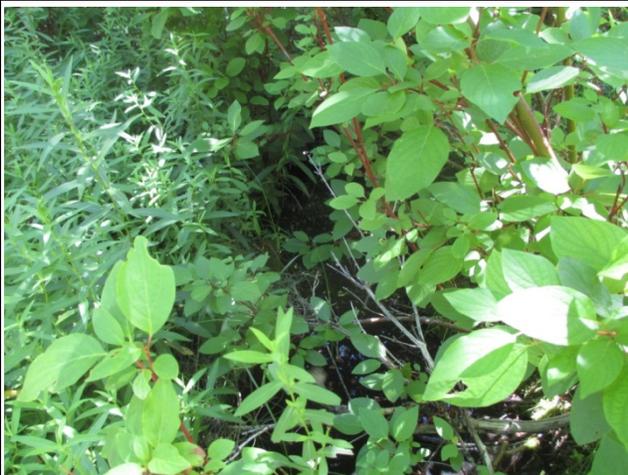


Photo 99: Stanley Mine Adit #3 discharge.



Photo 100: Tahoma Mine waste pile at Adit #4 (USFS land).



Photo 101: Tahoma Mine standing water at Adit #4 (USFS land).



Photo 102: Tahoma Mine collapsed Adit #4 (USFS land).



Photo 103: Tahoma Mine waste pile at Adit #4 (USFS land).



Photo 104: Tahoma Mine waste pile at Adit #4 (USFS land).



Photo 105: Tahoma Mine debris area by Adit #3.



Photo 106: Tahoma Mine Adit #1 pond sample location.



Photo 107: Tahoma Mine upstream sample location.



Photo 108: Tahoma Mine downstream of upstream sample location.



Photo 109: Tahoma Mine overview.



Photo 110: Tahoma Mine Adit #1 collapsed.



Photo 111: Tahoma Mine Adit #1 discharge pond.

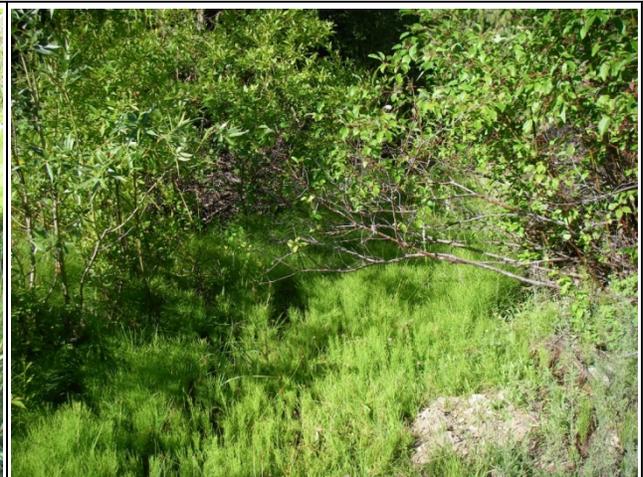


Photo 112: Tahoma Mine Adit #1 discharge.



Photo 113: Tahoma Mine debris on waste pile by Adit #1.

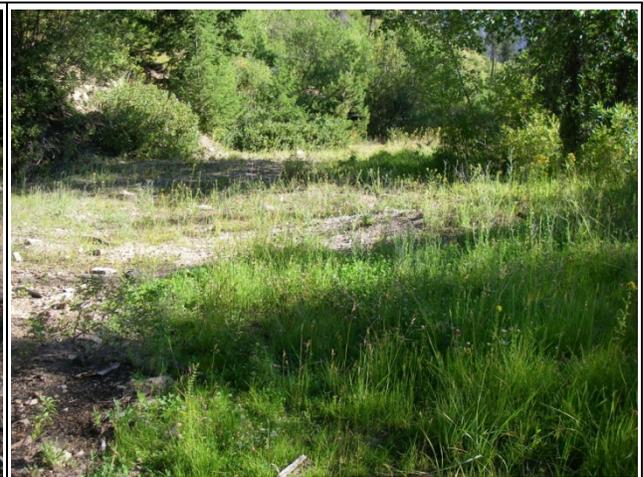


Photo 114: Tahoma Mine top of waste pile at Adit #1.



Photo 115: Tahoma Mine possible collapsed adit.



Photo 116: Tahoma Mine waste pile below Adit #1.



Photo 117: Tahoma Mine Adit #1 discharge infiltration.



Photo 118: Tahoma Mine Adit #1 discharge path to creek (dry).



Photo 119: Tahoma Mine Adit #1 discharge path to creek (dry).



Photo 120: Tahoma Mine rail tracks to Adit #3.



Photo 121: View from background sample looking west towards Atlanta Area Mines.



Photo 122: View from background sample location looking south.



Photo 123: Flint Mountain from background sample.



Photo 124: Trail to background sample location.



Photo 125: Atlanta PWS intake.



Photo 126: Atlanta PWS intake inlet.



Photo 127: Atlanta PWS intake.



Photo 128: Atlanta PWS upstream of intake.

Appendix B. Analytical Laboratory Reports

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CHAIN OF CUSTODY RECORD

SVL Analytical, Inc. • One Government Gulch • Kellogg, ID 83837 • (208) 784-1258 • FAX: (208) 783-0891



Report to Company: TERRAGRAPHS
 Contact: SHELLEY HICKS
 Address: 108 W. IDAHO AVE.
KELOGG, ID 83837
 Phone Number: 208-786-1206
 FAX Number: _____
 E-mail: shelley.hicks@terragraphics.com

Invoice Sent To: DEGR
 Contact: DANA SWIFT
 Address: 1410 N. HILTON
BOISE, ID 83706
 Phone Number: 208-373-0296
 FAX Number: _____
 PO#: _____

TEMP on Receipt: 10.4°C

Table 1. - Matrix Type
 1 = Surface Water, 2 = Ground Water
 3 = Soil/Sediment, 4 = Rinse, 5 = Oil
 6 = Waste, 7 = Other

Project Name: ATLANTA MINES
 Sampler's Signature: [Signature]

Indicate State of sample origination: ID

Sample ID	Collection Date Time	Misc.	Preservative(s)	Analyses Required	Rush Instructions (Days)	Comments
AA-BK-SS2	7/21/16 13:40 GM	3 1	Unpreserved			* 200.7/6010c: Ba, Cd, Cr, Ag, Cu, Fe, Mn, Zn, Pb, Se * 200.8/6020: As, Pb, Se * 245.1/7471: Hg - SOIL + SEDIMENT SIGNED AT -10 MESH
AA-BK-SS1	7/21/16 13:40 GM	3 1	HNO ₃ Filtered			
TM-ADI-SD1	7/21/16 10:52 GM	3 1	HNO ₃ Unfiltered			
TM-ADI-SD2	7/21/16 10:52 GM	3 1	HCl			
TM-US-SD1	7/21/16 11:15 GM	3 1	H ₂ SO ₄			
TM-US-SW1	7/21/16 11:10 GM	3 1	NaOH			
TM-US-SW2	7/21/16 11:10 GM	3 1	Other (Specify)			
TM-ADI-SW1	7/21/16 10:45 GM	3 1	No. of Containers			
APWS-US-SW1	7/21/16 14:40 GM	3 1	Matrix Type (From Table 1)			
APWS-US-SW2	7/21/16 14:55 GM	3 1	Collected by: (Init.)			

Received by: [Signature] Date: 7/25 Time: 14:26
 Received by: [Signature] Date: 7/25 Time: 14:26

* Sample Reject: Return Dispose Store (30 Days)

White: LAB COPY Yellow: CUSTOMER COPY

on this work order 7/25/16

SAMPLE RECEIPT/CHAIN-OF-CUSTODY CHECKLIST

The following items were checked for completeness, correctness, and compliance to project specifications using the Chain-of-Custody (COC) and other supporting information.

Date of acceptance: 7/25/16
 SVL Work No: W6G0530

By: CR Seay

Item	Description	V	VC	NV	NA	Comments
1	Client or project name	✓				TERRAGRAPHS
2	Date and time of receipt at lab	✓				7/25/16 14:26
3	Received by	✓				C. FLORES
4	Temperature blank or cooler temperature	✓				Temp. 10.4 °C.
5	Were the sample(s) received on ice				✓ NO	
6	Custody tape/bottle seals				✓	
7	Condition of samples upon receipt (leaking; bubbles in VOA vials)	✓				GOOD
8	Sample numbers/IDs agree with COC	✓				
9	Sample date & time agree with COC	✓				
10	Number of containers for each sample	✓				
11	The correct preservative for the analysis requested	✓				
12	Did an SVL employee preserve sample(s) upon receipt				✓ NO	
13	Type of container for each sample / volume received	✓				
14	Analysis requested for each sample	✓				
15	Sample matrix description	✓				
16	COC properly completed & legible	✓				
17	Corrections properly made (Initials & date)				✓	
18	Additional comments or records of sample condition or treatment (unlisted or missing samples at laboratory, aliquot taken, sample hold, samples subcontracted, communications between client and laboratory)				✓	
19	Shipper's air bill				✓	WALK-IN

V- Verified VC- Verified Corrections Made NV- Not Verified NA- Not Applicable

Additional Comments: _____



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0530**
Reported: 09-Aug-16 14:01

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received	Notes
TM-US-SW1	W6G0530-01	Surface Water	21-Jul-16 11:10	GM	25-Jul-2016	
TM-US-SW2	W6G0530-02	Surface Water	21-Jul-16 11:10	GM	25-Jul-2016	
TM-AD1-SW1	W6G0530-03	Surface Water	21-Jul-16 10:45	GM	25-Jul-2016	
APWS-US-SW1	W6G0530-04	Surface Water	21-Jul-16 14:40	GM	25-Jul-2016	
APWS-US-SW2	W6G0530-05	Surface Water	21-Jul-16 14:55	GM	25-Jul-2016	

Solid samples are analyzed on an as-received, wet-weight basis, unless otherwise requested.

Sample preparation is defined by the client as per their Data Quality Objectives.

This report supercedes any previous reports for this Work Order. The complete report includes pages for each sample, a full QC report, and a notes section.

The results presented in this report relate only to the samples, and meet all requirements of the NELAC Standards unless otherwise noted.



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0530**
Reported: 09-Aug-16 14:01

Client Sample ID: **TM-US-SW1**

SVL Sample ID: **W6G0530-01 (Surface Water)**

Sample Report Page 1 of 1

Sampled: 21-Jul-16 11:10
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total)										
EPA 245.1	Mercury	< 0.00020	mg/L	0.00020	0.000053		W631167	SCM	07/28/16 11:52	
Metals (Total Recoverable--reportable as Total per 40 CFR 136)										
EPA 200.7	Antimony	< 0.020	mg/L	0.020	0.004		W631154	SMB	08/04/16 08:31	
EPA 200.7	Barium	0.0180	mg/L	0.0020	0.0005		W631154	SMB	08/04/16 08:31	
EPA 200.7	Cadmium	< 0.0020	mg/L	0.0020	0.0004		W631154	SMB	08/04/16 08:31	
EPA 200.7	Chromium	< 0.0060	mg/L	0.0060	0.0008		W631154	SMB	08/04/16 08:31	
EPA 200.7	Copper	< 0.0100	mg/L	0.0100	0.0013		W631154	SMB	08/04/16 08:31	
EPA 200.7	Iron	< 0.060	mg/L	0.060	0.020		W631154	SMB	08/04/16 08:31	
EPA 200.7	Manganese	0.0087	mg/L	0.0040	0.0012		W631154	SMB	08/04/16 08:31	
EPA 200.7	Silver	< 0.0050	mg/L	0.0050	0.0008		W631154	SMB	08/04/16 08:31	
EPA 200.7	Zinc	< 0.010	mg/L	0.010	0.001		W631154	SMB	08/04/16 08:31	
EPA 200.8	Arsenic	0.0774	mg/L	0.00300	0.00023	2	W631122	KWH	08/09/16 12:45	
EPA 200.8	Lead	< 0.00300	mg/L	0.00300	0.000075	2	W631122	KWH	08/09/16 12:45	
EPA 200.8	Selenium	< 0.0030	mg/L	0.0030	0.0002	2	W631122	KWH	08/09/16 12:45	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0530**
Reported: 09-Aug-16 14:01

Client Sample ID: **TM-US-SW2**

SVL Sample ID: **W6G0530-02 (Surface Water)**

Sample Report Page 1 of 1

Sampled: 21-Jul-16 11:10
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total)										
EPA 245.1	Mercury	< 0.00020	mg/L	0.00020	0.000053		W631167	SCM	07/28/16 11:53	
Metals (Total Recoverable--reportable as Total per 40 CFR 136)										
EPA 200.7	Antimony	< 0.020	mg/L	0.020	0.004		W631154	SMB	08/04/16 08:34	
EPA 200.7	Barium	0.0181	mg/L	0.0020	0.0005		W631154	SMB	08/04/16 08:34	
EPA 200.7	Cadmium	< 0.0020	mg/L	0.0020	0.0004		W631154	SMB	08/04/16 08:34	
EPA 200.7	Chromium	< 0.0060	mg/L	0.0060	0.0008		W631154	SMB	08/04/16 08:34	
EPA 200.7	Copper	< 0.0100	mg/L	0.0100	0.0013		W631154	SMB	08/04/16 08:34	
EPA 200.7	Iron	< 0.060	mg/L	0.060	0.020		W631154	SMB	08/04/16 08:34	
EPA 200.7	Manganese	0.0090	mg/L	0.0040	0.0012		W631154	SMB	08/04/16 08:34	
EPA 200.7	Silver	< 0.0050	mg/L	0.0050	0.0008		W631154	SMB	08/04/16 08:34	
EPA 200.7	Zinc	< 0.010	mg/L	0.010	0.001		W631154	SMB	08/04/16 08:34	
EPA 200.8	Arsenic	0.0754	mg/L	0.00300	0.00023	2	W631122	KWH	08/09/16 13:01	
EPA 200.8	Lead	< 0.00300	mg/L	0.00300	0.000075	2	W631122	KWH	08/09/16 13:01	
EPA 200.8	Selenium	< 0.0030	mg/L	0.0030	0.0002	2	W631122	KWH	08/09/16 13:01	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0530**
Reported: 09-Aug-16 14:01

Client Sample ID: **TM-AD1-SW1**

SVL Sample ID: **W6G0530-03 (Surface Water)**

Sample Report Page 1 of 1

Sampled: 21-Jul-16 10:45
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total)										
EPA 245.1	Mercury	< 0.00020	mg/L	0.00020	0.000053		W631167	SCM	07/28/16 11:55	
Metals (Total Recoverable--reportable as Total per 40 CFR 136)										
EPA 200.7	Antimony	< 0.020	mg/L	0.020	0.004		W631154	SMB	08/04/16 08:37	
EPA 200.7	Barium	0.0230	mg/L	0.0020	0.0005		W631154	SMB	08/04/16 08:37	
EPA 200.7	Cadmium	< 0.0020	mg/L	0.0020	0.0004		W631154	SMB	08/04/16 08:37	
EPA 200.7	Chromium	< 0.0060	mg/L	0.0060	0.0008		W631154	SMB	08/04/16 08:37	
EPA 200.7	Copper	< 0.0100	mg/L	0.0100	0.0013		W631154	SMB	08/04/16 08:37	
EPA 200.7	Iron	< 0.060	mg/L	0.060	0.020		W631154	SMB	08/04/16 08:37	
EPA 200.7	Manganese	0.0160	mg/L	0.0040	0.0012		W631154	SMB	08/04/16 08:37	
EPA 200.7	Silver	< 0.0050	mg/L	0.0050	0.0008		W631154	SMB	08/04/16 08:37	
EPA 200.7	Zinc	< 0.010	mg/L	0.010	0.001		W631154	SMB	08/04/16 08:37	
EPA 200.8	Arsenic	0.0107	mg/L	0.00300	0.00023	2	W631122	KWH	08/09/16 13:03	
EPA 200.8	Lead	< 0.00300	mg/L	0.00300	0.000075	2	W631122	KWH	08/09/16 13:03	
EPA 200.8	Selenium	< 0.0030	mg/L	0.0030	0.0002	2	W631122	KWH	08/09/16 13:03	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0530**
Reported: 09-Aug-16 14:01

Client Sample ID: **APWS-US-SW1**

SVL Sample ID: **W6G0530-04 (Surface Water)**

Sample Report Page 1 of 1

Sampled: 21-Jul-16 14:40
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Metals (Total)

EPA 245.1	Mercury	< 0.00020	mg/L	0.00020	0.000053		W631167	SCM	07/28/16 12:02	
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Metals (Total Recoverable--reportable as Total per 40 CFR 136)

EPA 200.7	Antimony	< 0.020	mg/L	0.020	0.004		W631154	SMB	08/04/16 08:41	
EPA 200.7	Barium	0.0042	mg/L	0.0020	0.0005		W631154	SMB	08/04/16 08:41	
EPA 200.7	Cadmium	< 0.0020	mg/L	0.0020	0.0004		W631154	SMB	08/04/16 08:41	
EPA 200.7	Chromium	< 0.0060	mg/L	0.0060	0.0008		W631154	SMB	08/04/16 08:41	
EPA 200.7	Copper	< 0.0100	mg/L	0.0100	0.0013		W631154	SMB	08/04/16 08:41	
EPA 200.7	Iron	< 0.060	mg/L	0.060	0.020		W631154	SMB	08/04/16 08:41	
EPA 200.7	Manganese	< 0.0040	mg/L	0.0040	0.0012		W631154	SMB	08/04/16 08:41	
EPA 200.7	Silver	< 0.0050	mg/L	0.0050	0.0008		W631154	SMB	08/04/16 08:41	
EPA 200.7	Zinc	< 0.010	mg/L	0.010	0.001		W631154	SMB	08/04/16 08:41	
EPA 200.8	Arsenic	< 0.00300	mg/L	0.00300	0.00023	2	W631122	KWH	08/09/16 13:06	
EPA 200.8	Lead	< 0.00300	mg/L	0.00300	0.000075	2	W631122	KWH	08/09/16 13:06	
EPA 200.8	Selenium	< 0.0030	mg/L	0.0030	0.0002	2	W631122	KWH	08/09/16 13:06	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0530**
Reported: 09-Aug-16 14:01

Client Sample ID: **APWS-US-SW2**

SVL Sample ID: **W6G0530-05 (Surface Water)**

Sample Report Page 1 of 1

Sampled: 21-Jul-16 14:55
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Metals (Total)

EPA 245.1	Mercury	< 0.00020	mg/L	0.00020	0.000053		W631167	SCM	07/28/16 12:04	
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Metals (Total Recoverable--reportable as Total per 40 CFR 136)

EPA 200.7	Antimony	< 0.020	mg/L	0.020	0.004		W631154	SMB	08/04/16 08:51	
EPA 200.7	Barium	< 0.0020	mg/L	0.0020	0.0005		W631154	SMB	08/04/16 08:51	
EPA 200.7	Cadmium	< 0.0020	mg/L	0.0020	0.0004		W631154	SMB	08/04/16 08:51	
EPA 200.7	Chromium	< 0.0060	mg/L	0.0060	0.0008		W631154	SMB	08/04/16 08:51	
EPA 200.7	Copper	< 0.0100	mg/L	0.0100	0.0013		W631154	SMB	08/04/16 08:51	
EPA 200.7	Iron	< 0.060	mg/L	0.060	0.020		W631154	SMB	08/04/16 08:51	
EPA 200.7	Manganese	< 0.0040	mg/L	0.0040	0.0012		W631154	SMB	08/04/16 08:51	
EPA 200.7	Silver	< 0.0050	mg/L	0.0050	0.0008		W631154	SMB	08/04/16 08:51	
EPA 200.7	Zinc	< 0.010	mg/L	0.010	0.001		W631154	SMB	08/04/16 08:51	
EPA 200.8	Arsenic	< 0.00300	mg/L	0.00300	0.00023	2	W631122	KWH	08/09/16 13:08	
EPA 200.8	Lead	< 0.00300	mg/L	0.00300	0.000075	2	W631122	KWH	08/09/16 13:08	
EPA 200.8	Selenium	< 0.0030	mg/L	0.0030	0.0002	2	W631122	KWH	08/09/16 13:08	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0530**
Reported: 09-Aug-16 14:01

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
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Metals (Total)

EPA 245.1	Mercury	mg/L	<0.00020	0.000053	0.00020	W631167	28-Jul-16	
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Metals (Total Recoverable--reportable as Total per 40 CFR 136)

EPA 200.7	Antimony	mg/L	<0.020	0.004	0.020	W631154	04-Aug-16	
EPA 200.7	Barium	mg/L	<0.0020	0.0005	0.0020	W631154	04-Aug-16	
EPA 200.7	Cadmium	mg/L	<0.0020	0.0004	0.0020	W631154	04-Aug-16	
EPA 200.7	Chromium	mg/L	<0.0060	0.0008	0.0060	W631154	04-Aug-16	
EPA 200.7	Copper	mg/L	<0.0100	0.0013	0.0100	W631154	04-Aug-16	
EPA 200.7	Iron	mg/L	<0.060	0.020	0.060	W631154	04-Aug-16	
EPA 200.7	Manganese	mg/L	<0.0040	0.0012	0.0040	W631154	04-Aug-16	
EPA 200.7	Silver	mg/L	<0.0050	0.0008	0.0050	W631154	04-Aug-16	
EPA 200.7	Zinc	mg/L	<0.010	0.001	0.010	W631154	04-Aug-16	
EPA 200.8	Arsenic	mg/L	<0.00300	0.00023	0.00300	W631122	09-Aug-16	
EPA 200.8	Lead	mg/L	<0.00300	0.000075	0.00300	W631122	09-Aug-16	
EPA 200.8	Selenium	mg/L	<0.0030	0.0002	0.0030	W631122	09-Aug-16	

Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
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Metals (Total)

EPA 245.1	Mercury	mg/L	0.00504	0.00500	101	85 - 115	W631167	28-Jul-16	
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Metals (Total Recoverable--reportable as Total per 40 CFR 136)

EPA 200.7	Antimony	mg/L	1.01	1.00	101	85 - 115	W631154	04-Aug-16	
EPA 200.7	Barium	mg/L	1.01	1.00	101	85 - 115	W631154	04-Aug-16	
EPA 200.7	Cadmium	mg/L	0.993	1.00	99.3	85 - 115	W631154	04-Aug-16	
EPA 200.7	Chromium	mg/L	1.04	1.00	104	85 - 115	W631154	04-Aug-16	
EPA 200.7	Copper	mg/L	1.03	1.00	103	85 - 115	W631154	04-Aug-16	
EPA 200.7	Iron	mg/L	9.46	10.0	94.6	85 - 115	W631154	04-Aug-16	
EPA 200.7	Manganese	mg/L	1.05	1.00	105	85 - 115	W631154	04-Aug-16	
EPA 200.7	Silver	mg/L	0.0501	0.0500	100	85 - 115	W631154	04-Aug-16	
EPA 200.7	Zinc	mg/L	0.988	1.00	98.8	85 - 115	W631154	04-Aug-16	
EPA 200.8	Arsenic	mg/L	0.0246	0.0250	98.2	85 - 115	W631122	09-Aug-16	
EPA 200.8	Lead	mg/L	0.0250	0.0250	99.9	85 - 115	W631122	09-Aug-16	
EPA 200.8	Selenium	mg/L	0.0235	0.0250	94.1	85 - 115	W631122	09-Aug-16	

Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
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Metals (Total)

EPA 245.1	Mercury	mg/L	0.00100	<0.00020	0.00100	93.0	70 - 130	W631167	28-Jul-16	
EPA 245.1	Mercury	mg/L	0.00106	<0.00020	0.00100	96.4	70 - 130	W631167	28-Jul-16	

Metals (Total Recoverable--reportable as Total per 40 CFR 136)

EPA 200.7	Antimony	mg/L	1.06	<0.020	1.00	104	70 - 130	W631154	04-Aug-16	
EPA 200.7	Antimony	mg/L	0.823	<0.100	1.00	82.3	70 - 130	W631154	04-Aug-16	D1
EPA 200.7	Barium	mg/L	1.13	0.0963	1.00	104	70 - 130	W631154	04-Aug-16	
EPA 200.7	Barium	mg/L	0.181	<0.0100	1.00	18.1	70 - 130	W631154	04-Aug-16	D1,M2
EPA 200.7	Cadmium	mg/L	1.01	<0.0020	1.00	101	70 - 130	W631154	04-Aug-16	
EPA 200.7	Cadmium	mg/L	3.58	2.93	1.00	65.0	70 - 130	W631154	04-Aug-16	D1,M3

SVL holds the following certifications:

AZ:0538, CA:2080, ID:ID00019 & ID00965 (Microbiology), NV:ID000192007A, UT(TNI):ID000192015-1, WA:C573



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0530**
Reported: 09-Aug-16 14:01

Quality Control - MATRIX SPIKE Data (Continued)

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Metals (Total Recoverable--reportable as Total per 40 CFR 136) (Continued)										
EPA 200.7	Chromium	mg/L	1.03	<0.0060	1.00	103	70 - 130	W631154	04-Aug-16	
EPA 200.7	Chromium	mg/L	1.06	<0.0300	1.00	104	70 - 130	W631154	04-Aug-16	D1
EPA 200.7	Copper	mg/L	1.05	<0.0100	1.00	105	70 - 130	W631154	04-Aug-16	
EPA 200.7	Copper	mg/L	224	204	1.00	R > 4S	70 - 130	W631154	04-Aug-16	D2,M3
EPA 200.7	Iron	mg/L	9.93	0.441	10.0	94.9	70 - 130	W631154	04-Aug-16	
EPA 200.7	Iron	mg/L	34.1	25.9	10.0	81.3	70 - 130	W631154	04-Aug-16	D1
EPA 200.7	Manganese	mg/L	1.04	0.0073	1.00	103	70 - 130	W631154	04-Aug-16	
EPA 200.7	Manganese	mg/L	315	328	1.00	R > 4S	70 - 130	W631154	04-Aug-16	D2,M3
EPA 200.7	Silver	mg/L	0.0516	<0.0050	0.0500	103	70 - 130	W631154	04-Aug-16	
EPA 200.7	Silver	mg/L	0.0438	<0.0250	0.0500	87.6	70 - 130	W631154	04-Aug-16	D1
EPA 200.7	Zinc	mg/L	0.967	<0.010	1.00	96.6	70 - 130	W631154	04-Aug-16	
EPA 200.7	Zinc	mg/L	292	279	1.00	R > 4S	70 - 130	W631154	04-Aug-16	D2,M3
EPA 200.8	Arsenic	mg/L	0.102	0.0774	0.0250	99.9	70 - 130	W631122	09-Aug-16	
EPA 200.8	Lead	mg/L	0.0236	<0.00300	0.0250	94.2	70 - 130	W631122	09-Aug-16	
EPA 200.8	Selenium	mg/L	0.0235	<0.0030	0.0250	93.9	70 - 130	W631122	09-Aug-16	

Quality Control - MATRIX SPIKE DUPLICATE Data

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	%R	RPD	RPD Limit	Batch ID	Analyzed	Notes
Metals (Total)											
EPA 245.1	Mercury	mg/L	0.00100	0.00100	0.00100	93.1	0.1	20	W631167	28-Jul-16	
Metals (Total Recoverable--reportable as Total per 40 CFR 136)											
EPA 200.7	Antimony	mg/L	1.07	1.06	1.00	105	0.8	20	W631154	04-Aug-16	
EPA 200.7	Barium	mg/L	1.13	1.13	1.00	103	0.3	20	W631154	04-Aug-16	
EPA 200.7	Cadmium	mg/L	1.01	1.01	1.00	101	0.3	20	W631154	04-Aug-16	
EPA 200.7	Chromium	mg/L	1.03	1.03	1.00	103	0.3	20	W631154	04-Aug-16	
EPA 200.7	Copper	mg/L	1.06	1.05	1.00	106	0.7	20	W631154	04-Aug-16	
EPA 200.7	Iron	mg/L	9.96	9.93	10.0	95.1	0.3	20	W631154	04-Aug-16	
EPA 200.7	Manganese	mg/L	1.04	1.04	1.00	103	0.5	20	W631154	04-Aug-16	
EPA 200.7	Silver	mg/L	0.0516	0.0516	0.0500	103	0.1	20	W631154	04-Aug-16	
EPA 200.7	Zinc	mg/L	0.971	0.967	1.00	96.9	0.4	20	W631154	04-Aug-16	
EPA 200.8	Arsenic	mg/L	0.100	0.102	0.0250	91.3	2.1	20	W631122	09-Aug-16	
EPA 200.8	Lead	mg/L	0.0237	0.0236	0.0250	95.0	0.8	20	W631122	09-Aug-16	
EPA 200.8	Selenium	mg/L	0.0234	0.0235	0.0250	93.5	0.4	20	W631122	09-Aug-16	



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0530**
Reported: 09-Aug-16 14:01

Notes and Definitions

- D1 Sample required dilution due to matrix.
 - D2 Sample required dilution due to high concentration of target analyte.
 - M2 Matrix spike recovery was low, but the LCS recovery was acceptable.
 - M3 The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to spike level. The LCS was acceptable.
 - LCS Laboratory Control Sample (Blank Spike)
 - RPD Relative Percent Difference
 - UDL A result is less than the detection limit
 - R > 4S % recovery not applicable, sample concentration more than four times greater than spike level
 - <RL A result is less than the reporting limit
 - MRL Method Reporting Limit
 - MDL Method Detection Limit
 - N/A Not Applicable
-



CHAIN OF CUSTODY RECORD

SVL Analytical, Inc. • One Government Gulch • Kellogg, ID 83837 • (208) 784-1258 • FAX: (208) 783-0891



TEMP on Receipt: 10.4°C

Table 1. - Matrix Type
 1 = Surface Water, 2 = Ground Water
 3 = Soil/Sediment, 4 = Rinsate, 5 = Oil
 6 = Waste, 7 = Other

Report to Company: TERRAGRAPHS
 Contact: SHELLEY HICKS
 Address: 108 W. IDAHO AVE.
KELOGG, ID 83837
 Phone Number: 208-786-1206
 FAX Number: _____
 E-mail: Shelley.hicks@terragraphics.com

Invoice Sent To: IDEA
 Contact: DANA SWIFT
 Address: 1410 N. HILTON
BOISE, ID 83706
 Phone Number: 208-373-0296
 FAX Number: _____
 PO#: _____

Project Name: ALGANTA MINES
 Sampler's Signature: [Signature]

Indicate State of sample origination: ID

Sample ID	Date	Time	Collection	Misc.	Preservative(s)	Other (Specify)	Analyses Required	Rush Instructions (Days)	Comments
PG-WD-551	7/18/16	16:10	GM	3 1	Unpreserved				* 200.7/6010C: Ba, Cd, Cr, Ag, Cu, Fe, Mn, Zn, Pb, Se * 200.8/6020: As, Pb, Se * 245.1/7471: Hg - SOIL + SEDIMENT SIEVED AT -10 MESH
PG-WD-552	7/18/16	16:30	GM	3 1			TOTAL METALS		
MC-WD-551	7/19/16	10:50	GM	3 1					
MC-WD-552	7/19/16	11:15	GM	3 1					
MC-WD-553	7/19/16	11:38	GM	3 1					
MC-WD-554	7/19/16	12:00	GM	3 1					
BM-WD-551	7/19/16	12:35	GM	3 1					
BM-WD-552	7/19/16	12:50	GM	3 1					
MC-WD-555	7/19/16	13:30	GM	3 1					
IG-WD-551	7/19/16	14:40	GM	3 1					

Relinquished by: [Signature] Date: 7/25 Time: 14:26
 Relinquished by: [Signature] Date: 7/25 Time: 14:26



CHAIN OF CUSTODY RECORD

SVL Analytical, Inc. • One Government Gulch • Kellogg, ID 83837 • (208) 784-1258 • FAX: (208) 783-0881

Page 2 of 3

W6G0331
FOR SVL USE ONLY
SVL JOB #

Report to Company: TERRAGRAPHS
 Contact: SHELLEY HICKS
 Address: 108 W. IDAHO AVE.
KELOGG ID 83837
 Phone Number: 208-786-1206
 FAX Number: _____
 E-mail: shelley.hicks@terragraphics.com

Invoice Sent To: IDEQ
 Contact: DANA SWIFT
 Address: 1410 N. HILTON
BOISE, ID 83706
 Phone Number: 208-373-0296
 FAX Number: _____
 PO#: _____

TEMP on Receipt: 10.4c
 Table 1. - Matrix Type
 1 = Surface Water, 2 = Ground Water
 3 = Soil/Sediment, 4 = Rinsate, 5 = Oil
 6 = Waste, 7 = Other

Project Name: ATLANTA MUES
 Sampler's Signature: [Signature]

Indicate State of sample origination: ID

Sample ID	Date	Time	Collection	Misc.	Preservative(s)	Other (Specify)	Analyses Required	Rush Instructions (Days)	Comments
MM-WD-551	7/20/16	9:15	GM	3	1	Unpreserved			
MM-WD-552	7/20/16	9:50	GM	3	1	HNO ₃ Filtered			
AK2-OS-551	7/20/16	13:00	GM	3	1	HNO ₃ Unfiltered			
AK2-WD-552	7/20/16	13:10	GM	3	1	HCl			
HM-WD-551	7/20/16	15:30	GM	3	1	H ₂ SO ₄			
BR-WD-551	7/20/16	16:00	GM	3	1	NaOH			
TM-WD-551	7/21/16	9:00	GM	3	1	Other (Specify)			
SM-OS-551	7/21/16	12:15	GM	3	1				
SM-OS-552	7/21/16	12:15	GM	3	1				
SM-WD-553	7/21/16	12:25	GM	3	1				

XXXXXX TOTAL METALS

Relinquished by: [Signature] Date: 7/25/16 Time: 14:26
 Relinquished by: [Signature] Date: 7/25/16 Time: 14:26



CHAIN OF CUSTODY RECORD

SVL Analytical, Inc. • One Government Gulch • Kellogg, ID 83837 • (208) 784-1258 • FAX: (208) 783-0891

Wt 6053
FOR SVL USE ONLY
SVL JOB #

TEMP on Receipt: 10.4°C

Table 1. -- Matrix Type

- 1 = Surface Water, 2 = Ground Water
- 3 = Soil/Sediment, 4 = Rinsate, 5 = Oil
- 6 = Waste, 7 = Other

Report to Company: TERIAGRAPHS
 Contact: SHELLEY HICKS
 Address: 108 W. IDAHO AVE.
KELOGG, ID 83837
 Phone Number: 208-786-1206
 FAX Number: -
 E-mail: shelley.hicks@teriagraphs.com

Invoice Sent To: IDECR
 Contact: DANA SWIFT
 Address: 1410 N. HILTON
BOISE, ID 83706
 Phone Number: 208-373-0296
 FAX Number: -
 PO#: -

Project Name: ATLANTA MINES
 Sampler's Signature: [Signature]

Analyses Required: TOTAL METALS*

Rush Instructions (Days):

Comments:
 * 200.7/6010C: Ba, Cd, Cr, Ag, Cu, Fe, Mn, Zn, Pb, Se
 * 200.8/6020: As, Pb, Se
 * 245.1/7471: Hg
 - SOIL + SEDIMENT
 SIGNED AT -10 MESH

Indicate State of sample origination: ID

Sample ID	Date	Time	Collection	Misc.	Preservative(s)
1 AA-BK-SSZ	7/21/16	13:40	GM	3	Unpreserved
2 AA-BK-SS1	7/21/16	13:40	GM	3	HNO ₃ Filtered
3 TM-ADI-SDI	7/21/16	10:52	GM	3	HNO ₃ Unfiltered
4 TM-ADI-SDZ	7/21/16	10:52	GM	3	HCl
5 TM-US-SDI	7/21/16	11:15	GM	3	H ₂ SO ₄
6 TM-US-SWI	7/21/16	11:16	GM	1	NaOH
7 TM-US-SWZ	7/21/16	11:16	GM	1	Other (Specify)
8 TM-ADI-SWI	7/21/16	10:45	GM	1	
9 APWS-US-SWI	7/21/16	14:40	GM	1	
10 APWS-US-SWZ	7/21/16	14:35	GM	1	

Collected by: (Init) MT-TMR

No. of Containers: 1

Received by: [Signature]

Date: 7/25 Time: 14:26

Relinquished by: [Signature] Date: 7/25 Time: 14:26

Relinquished by: [Signature] Date: 7/25 Time: 14:26

* Sample Reject: Return Dispose Store (30 Days)

White: LAB COPY Yellow: CUSTOMER COPY

• on this work order 7/25/16 cgs

SAMPLE RECEIPT/CHAIN-OF-CUSTODY CHECKLIST

The following items were checked for completeness, correctness, and compliance to project specifications using the Chain-of-Custody (COC) and other supporting information.

Date of acceptance: 7/25/16 By: CRSEY
 SVL Work No: W6G0531

Item	Description	V	VC	NV	NA	Comments
1	Client or project name	✓				TERRAGRAPHS
2	Date and time of receipt at lab	✓				7/25/16 14:26
3	Received by	✓				C. FLORES
4	Temperature blank or cooler temperature	✓				Temp. 10.4 °C.
5	Were the sample(s) received on ice				✓	NO
6	Custody tape/bottle seals				✓	
7	Condition of samples upon receipt (leaking; bubbles in VOA vials)	✓				GOOD
8	Sample numbers/IDs agree with COC	✓				
9	Sample date & time agree with COC	✓				
10	Number of containers for each sample	✓				
11	The correct preservative for the analysis requested				✓	SOIL
12	Did an SVL employee preserve sample(s) upon receipt				✓	NO
13	Type of container for each sample / volume received	✓				
14	Analysis requested for each sample	✓				
15	Sample matrix description	✓				
16	COC properly completed & legible	✓				
17	Corrections properly made (Initials & date)				✓	
18	Additional comments or records of sample condition or treatment (unlisted or missing samples at laboratory, aliquot taken, sample hold, samples subcontracted, communications between client and laboratory)				✓	
19	Shipper's air bill				✓	WALK-IN

V- Verified VC- Verified Corrections Made NV- Not Verified NA- Not Applicable

Additional Comments: _____



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received	Notes
PG-WD-SS1	W6G0531-01	Soil	18-Jul-16 16:10	GM	25-Jul-2016	
PG-WD-SS2	W6G0531-02	Soil	18-Jul-16 16:30	GM	25-Jul-2016	
MC-WD-SS1	W6G0531-03	Soil	19-Jul-16 10:50	GM	25-Jul-2016	
MC-WD-SS2	W6G0531-04	Soil	19-Jul-16 11:15	GM	25-Jul-2016	
MC-WD-SS3	W6G0531-05	Soil	19-Jul-16 11:38	GM	25-Jul-2016	
MC-WD-SS4	W6G0531-06	Soil	19-Jul-16 12:00	GM	25-Jul-2016	
BM-WD-SS1	W6G0531-07	Soil	19-Jul-16 12:35	GM	25-Jul-2016	
BM-WD-SS2	W6G0531-08	Soil	19-Jul-16 12:50	GM	25-Jul-2016	
MC-WD-SS5	W6G0531-09	Soil	19-Jul-16 13:30	GM	25-Jul-2016	
IG-WD-SS1	W6G0531-10	Soil	19-Jul-16 14:40	GM	25-Jul-2016	
MM-WD-SS1	W6G0531-11	Soil	20-Jul-16 09:15	GM	25-Jul-2016	
MM-WD-SS2	W6G0531-12	Soil	20-Jul-16 09:50	GM	25-Jul-2016	
AK2-OS-SS1	W6G0531-13	Soil	20-Jul-16 13:00	GM	25-Jul-2016	
AK2-WD-SS2	W6G0531-14	Soil	20-Jul-16 13:10	GM	25-Jul-2016	
HM-WD-SS1	W6G0531-15	Soil	20-Jul-16 15:30	GM	25-Jul-2016	
BR-WD-SS1	W6G0531-16	Soil	20-Jul-16 16:00	GM	25-Jul-2016	
TM-WD-SS1	W6G0531-17	Soil	21-Jul-16 09:00	GM	25-Jul-2016	
SM-OS-SS1	W6G0531-18	Soil	21-Jul-16 12:15	GM	25-Jul-2016	
SM-OS-SS2	W6G0531-19	Soil	21-Jul-16 12:15	GM	25-Jul-2016	
SM-WD-SS3	W6G0531-20	Soil	21-Jul-16 12:25	GM	25-Jul-2016	
AA-BK-SS2	W6G0531-21	Soil	21-Jul-16 13:40	GM	25-Jul-2016	
AA-BK-SS1	W6G0531-22	Soil	21-Jul-16 13:40	GM	25-Jul-2016	
TM-AD1-SD1	W6G0531-23	Soil	21-Jul-16 10:52	GM	25-Jul-2016	
TM-AD1-SD2	W6G0531-24	Soil	21-Jul-16 10:52	GM	25-Jul-2016	
TM-US-SD1	W6G0531-25	Soil	21-Jul-16 11:15	GM	25-Jul-2016	

Solid samples are analyzed on an as-received, wet-weight basis, unless otherwise requested.

Sample preparation is defined by the client as per their Data Quality Objectives.

This report supercedes any previous reports for this Work Order. The complete report includes pages for each sample, a full QC report, and a notes section.

The results presented in this report relate only to the samples, and meet all requirements of the NELAC Standards unless otherwise noted.



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **PG-WD-SS1**

SVL Sample ID: **W6G0531-01 (Soil)**

Sample Report Page 1 of 1

Sampled: 18-Jul-16 16:10
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	1740	mg/kg Dry	1.50	0.047	10	W631121	KWH	08/08/16 08:06	D2,M3
EPA 6020A	Lead	19.1	mg/kg Dry	0.100	0.007	2	W631121	KWH	08/08/16 10:50	D1,M3
EPA 6020A	Selenium	2.48	mg/kg Dry	0.30	0.03	2	W631121	KWH	08/08/16 10:50	M2
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	10.0	mg/kg Dry	2.0	0.5		W632053	AS	08/04/16 11:05	
EPA 6010C	Barium	68.6	mg/kg Dry	0.20	0.14		W632042	AS	08/03/16 08:58	
EPA 6010C	Cadmium	< 0.20	mg/kg Dry	0.20	0.06		W632042	AS	08/03/16 08:58	
EPA 6010C	Chromium	< 0.60	mg/kg Dry	0.60	0.13		W632042	AS	08/03/16 08:58	
EPA 6010C	Copper	2.45	mg/kg Dry	1.00	0.16		W632042	AS	08/03/16 08:58	
EPA 6010C	Iron	15300	mg/kg Dry	6.0	4.0		W632042	SMB	08/03/16 11:39	M3
EPA 6010C	Manganese	455	mg/kg Dry	0.40	0.22		W632042	AS	08/03/16 08:58	M3
EPA 6010C	Silver	< 0.50	mg/kg Dry	0.50	0.14		W632042	AS	08/03/16 08:58	
EPA 6010C	Zinc	66.4	mg/kg Dry	1.0	0.5		W632042	AS	08/03/16 08:58	
EPA 7471B	Mercury	0.170	mg/kg Dry	0.033	0.004		W632016	SCM	08/02/16 15:03	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **PG-WD-SS2**

SVL Sample ID: **W6G0531-02 (Soil)**

Sample Report Page 1 of 1

Sampled: 18-Jul-16 16:30
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	43.5	mg/kg Dry	0.300	0.009	2	W631121	KWH	08/08/16 08:14	D1
EPA 6020A	Lead	8.02	mg/kg Dry	0.100	0.007	2	W631121	KWH	08/08/16 10:58	D1
EPA 6020A	Selenium	1.99	mg/kg Dry	0.30	0.03	2	W631121	KWH	08/08/16 10:58	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	< 2.0	mg/kg Dry	2.0	0.5		W632053	AS	08/04/16 11:14	
EPA 6010C	Barium	95.4	mg/kg Dry	0.20	0.14		W632042	AS	08/03/16 09:07	
EPA 6010C	Cadmium	< 0.20	mg/kg Dry	0.20	0.06		W632042	AS	08/03/16 09:07	
EPA 6010C	Chromium	1.11	mg/kg Dry	0.60	0.13		W632042	AS	08/03/16 09:07	
EPA 6010C	Copper	3.59	mg/kg Dry	1.00	0.16		W632042	AS	08/03/16 09:07	
EPA 6010C	Iron	13500	mg/kg Dry	6.0	4.0		W632042	SMB	08/03/16 11:48	
EPA 6010C	Manganese	369	mg/kg Dry	0.40	0.22		W632042	AS	08/03/16 09:07	
EPA 6010C	Silver	< 0.50	mg/kg Dry	0.50	0.14		W632042	AS	08/03/16 09:07	
EPA 6010C	Zinc	68.3	mg/kg Dry	1.0	0.5		W632042	AS	08/03/16 09:07	
EPA 7471B	Mercury	< 0.033	mg/kg Dry	0.033	0.004		W632016	SCM	08/02/16 15:05	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **MC-WD-SS1**

SVL Sample ID: **W6G0531-03 (Soil)**

Sample Report Page 1 of 1

Sampled: 19-Jul-16 10:50
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	2160	mg/kg Dry	1.50	0.047	10	W631121	KWH	08/08/16 08:17	D2
EPA 6020A	Lead	6.51	mg/kg Dry	0.100	0.007	2	W631121	KWH	08/08/16 11:00	D1
EPA 6020A	Selenium	1.18	mg/kg Dry	0.30	0.03	2	W631121	KWH	08/08/16 11:00	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	8.8	mg/kg Dry	2.0	0.5		W632053	AS	08/04/16 11:17	
EPA 6010C	Barium	37.3	mg/kg Dry	0.20	0.14		W632042	AS	08/03/16 09:10	
EPA 6010C	Cadmium	< 0.20	mg/kg Dry	0.20	0.06		W632042	AS	08/03/16 09:10	
EPA 6010C	Chromium	< 0.60	mg/kg Dry	0.60	0.13		W632042	AS	08/03/16 09:10	
EPA 6010C	Copper	7.34	mg/kg Dry	1.00	0.16		W632042	AS	08/03/16 09:10	
EPA 6010C	Iron	5650	mg/kg Dry	6.0	4.0		W632042	SMB	08/03/16 11:51	
EPA 6010C	Manganese	1.69	mg/kg Dry	0.40	0.22		W632042	AS	08/03/16 09:10	
EPA 6010C	Silver	0.92	mg/kg Dry	0.50	0.14		W632042	AS	08/03/16 09:10	
EPA 6010C	Zinc	27.6	mg/kg Dry	1.0	0.5		W632042	AS	08/03/16 09:10	
EPA 7471B	Mercury	< 0.033	mg/kg Dry	0.033	0.004		W632016	SCM	08/02/16 15:07	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **MC-WD-SS2**

SVL Sample ID: **W6G0531-04 (Soil)**

Sample Report Page 1 of 1

Sampled: 19-Jul-16 11:15
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	5370	mg/kg Dry	7.50	0.235	50	W631121	KWH	08/08/16 08:19	D2
EPA 6020A	Lead	16.6	mg/kg Dry	0.100	0.007	2	W631121	KWH	08/08/16 11:02	D1
EPA 6020A	Selenium	1.13	mg/kg Dry	0.30	0.03	2	W631121	KWH	08/08/16 11:02	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	21.4	mg/kg Dry	2.0	0.5		W632053	AS	08/04/16 11:21	
EPA 6010C	Barium	59.6	mg/kg Dry	0.20	0.14		W632042	AS	08/03/16 09:13	
EPA 6010C	Cadmium	< 0.20	mg/kg Dry	0.20	0.06		W632042	AS	08/03/16 09:13	
EPA 6010C	Chromium	0.68	mg/kg Dry	0.60	0.13		W632042	AS	08/03/16 09:13	
EPA 6010C	Copper	3.26	mg/kg Dry	1.00	0.16		W632042	AS	08/03/16 09:13	
EPA 6010C	Iron	12100	mg/kg Dry	6.0	4.0		W632042	SMB	08/03/16 11:55	
EPA 6010C	Manganese	43.1	mg/kg Dry	0.40	0.22		W632042	AS	08/03/16 09:13	
EPA 6010C	Silver	2.76	mg/kg Dry	0.50	0.14		W632042	AS	08/03/16 09:13	
EPA 6010C	Zinc	14.2	mg/kg Dry	1.0	0.5		W632042	AS	08/03/16 09:13	
EPA 7471B	Mercury	0.058	mg/kg Dry	0.033	0.004		W632016	SCM	08/02/16 15:09	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **MC-WD-SS3**

SVL Sample ID: **W6G0531-05 (Soil)**

Sample Report Page 1 of 1

Sampled: 19-Jul-16 11:38
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	1580	mg/kg Dry	1.50	0.047	10	W631121	KWH	08/08/16 08:21	D2
EPA 6020A	Lead	11.8	mg/kg Dry	0.100	0.007	2	W631121	KWH	08/08/16 11:04	D1
EPA 6020A	Selenium	1.84	mg/kg Dry	0.30	0.03	2	W631121	KWH	08/08/16 11:04	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	19.6	mg/kg Dry	2.0	0.5		W632053	AS	08/04/16 11:24	
EPA 6010C	Barium	57.8	mg/kg Dry	0.20	0.14		W632042	AS	08/03/16 09:16	
EPA 6010C	Cadmium	< 0.20	mg/kg Dry	0.20	0.06		W632042	AS	08/03/16 09:16	
EPA 6010C	Chromium	0.92	mg/kg Dry	0.60	0.13		W632042	AS	08/03/16 09:16	
EPA 6010C	Copper	2.61	mg/kg Dry	1.00	0.16		W632042	AS	08/03/16 09:16	
EPA 6010C	Iron	15300	mg/kg Dry	6.0	4.0		W632042	SMB	08/03/16 11:58	
EPA 6010C	Manganese	383	mg/kg Dry	0.40	0.22		W632042	AS	08/03/16 09:16	
EPA 6010C	Silver	2.68	mg/kg Dry	0.50	0.14		W632042	AS	08/03/16 09:16	
EPA 6010C	Zinc	90.6	mg/kg Dry	1.0	0.5		W632042	AS	08/03/16 09:16	
EPA 7471B	Mercury	0.065	mg/kg Dry	0.033	0.004		W632016	SCM	08/02/16 15:11	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **MC-WD-SS4**

SVL Sample ID: **W6G0531-06 (Soil)**

Sample Report Page 1 of 1

Sampled: 19-Jul-16 12:00
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	3370	mg/kg Dry	3.75	0.118	25	W631121	KWH	08/08/16 08:27	D2
EPA 6020A	Lead	22.1	mg/kg Dry	0.100	0.007	2	W631121	KWH	08/08/16 11:11	D1
EPA 6020A	Selenium	1.91	mg/kg Dry	0.30	0.03	2	W631121	KWH	08/08/16 11:11	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	29.6	mg/kg Dry	2.0	0.5		W632053	AS	08/04/16 11:27	
EPA 6010C	Barium	64.8	mg/kg Dry	0.20	0.14		W632042	AS	08/03/16 09:19	
EPA 6010C	Cadmium	< 0.20	mg/kg Dry	0.20	0.06		W632042	AS	08/03/16 09:19	
EPA 6010C	Chromium	1.24	mg/kg Dry	0.60	0.13		W632042	AS	08/03/16 09:19	
EPA 6010C	Copper	3.37	mg/kg Dry	1.00	0.16		W632042	AS	08/03/16 09:19	
EPA 6010C	Iron	12500	mg/kg Dry	6.0	4.0		W632042	SMB	08/03/16 12:01	
EPA 6010C	Manganese	221	mg/kg Dry	0.40	0.22		W632042	AS	08/03/16 09:19	
EPA 6010C	Silver	5.89	mg/kg Dry	0.50	0.14		W632042	AS	08/03/16 09:19	
EPA 6010C	Zinc	53.6	mg/kg Dry	1.0	0.5		W632042	AS	08/03/16 09:19	
EPA 7471B	Mercury	0.213	mg/kg Dry	0.033	0.004		W632016	SCM	08/02/16 15:13	M2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **BM-WD-SS1**

SVL Sample ID: **W6G0531-07 (Soil)**

Sample Report Page 1 of 1

Sampled: 19-Jul-16 12:35
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	4110	mg/kg Dry	3.75	0.118	25	W631121	KWH	08/08/16 08:30	D2
EPA 6020A	Lead	34.0	mg/kg Dry	0.100	0.007	2	W631121	KWH	08/08/16 11:13	D1
EPA 6020A	Selenium	1.00	mg/kg Dry	0.30	0.03	2	W631121	KWH	08/08/16 11:13	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	21.2	mg/kg Dry	2.0	0.5		W632053	AS	08/04/16 11:59	
EPA 6010C	Barium	46.7	mg/kg Dry	0.20	0.14		W632042	AS	08/03/16 09:28	
EPA 6010C	Cadmium	< 0.20	mg/kg Dry	0.20	0.06		W632042	AS	08/03/16 09:28	
EPA 6010C	Chromium	1.27	mg/kg Dry	0.60	0.13		W632042	AS	08/03/16 09:28	
EPA 6010C	Copper	7.95	mg/kg Dry	1.00	0.16		W632042	AS	08/03/16 09:28	
EPA 6010C	Iron	10700	mg/kg Dry	6.0	4.0		W632042	SMB	08/03/16 12:11	
EPA 6010C	Manganese	26.7	mg/kg Dry	0.40	0.22		W632042	AS	08/03/16 09:28	
EPA 6010C	Silver	12.6	mg/kg Dry	0.50	0.14		W632042	AS	08/03/16 09:28	
EPA 6010C	Zinc	20.4	mg/kg Dry	1.0	0.5		W632042	AS	08/03/16 09:28	
EPA 7471B	Mercury	0.233	mg/kg Dry	0.033	0.004		W632016	SCM	08/02/16 15:24	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **BM-WD-SS2**
SVL Sample ID: **W6G0531-08 (Soil)**

Sampled: 19-Jul-16 12:50
Received: 25-Jul-16
Sampled By: GM

Sample Report Page 1 of 1

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	2450	mg/kg Dry	1.50	0.047	10	W631121	KWH	08/08/16 08:32	D2
EPA 6020A	Lead	31.6	mg/kg Dry	0.100	0.007	2	W631121	KWH	08/08/16 11:15	D1
EPA 6020A	Selenium	1.58	mg/kg Dry	0.30	0.03	2	W631121	KWH	08/08/16 11:15	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	21.9	mg/kg Dry	2.0	0.5		W632053	AS	08/04/16 12:02	
EPA 6010C	Barium	48.7	mg/kg Dry	0.20	0.14		W632042	AS	08/03/16 09:32	
EPA 6010C	Cadmium	< 0.20	mg/kg Dry	0.20	0.06		W632042	AS	08/03/16 09:32	
EPA 6010C	Chromium	7.36	mg/kg Dry	0.60	0.13		W632042	AS	08/03/16 09:32	
EPA 6010C	Copper	14.5	mg/kg Dry	1.00	0.16		W632042	AS	08/03/16 09:32	
EPA 6010C	Iron	15100	mg/kg Dry	6.0	4.0		W632042	SMB	08/03/16 12:14	
EPA 6010C	Manganese	224	mg/kg Dry	0.40	0.22		W632042	AS	08/03/16 09:32	
EPA 6010C	Silver	364	mg/kg Dry	0.50	0.14		W632042	AS	08/03/16 09:32	
EPA 6010C	Zinc	50.3	mg/kg Dry	1.0	0.5		W632042	AS	08/03/16 09:32	
EPA 7471B	Mercury	0.317	mg/kg Dry	0.033	0.004		W632016	SCM	08/02/16 15:26	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **MC-WD-SS5**
SVL Sample ID: **W6G0531-09 (Soil)**

Sampled: 19-Jul-16 13:30
Received: 25-Jul-16
Sampled By: GM

Sample Report Page 1 of 1

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	2130	mg/kg Dry	1.50	0.047	10	W631121	KWH	08/08/16 08:34	D2
EPA 6020A	Lead	17.6	mg/kg Dry	0.100	0.007	2	W631121	KWH	08/08/16 11:17	D1
EPA 6020A	Selenium	0.49	mg/kg Dry	0.30	0.03	2	W631121	KWH	08/08/16 11:17	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	32.2	mg/kg Dry	2.0	0.5		W632053	AS	08/04/16 12:06	
EPA 6010C	Barium	26.4	mg/kg Dry	0.20	0.14		W632042	AS	08/03/16 09:34	
EPA 6010C	Cadmium	< 0.20	mg/kg Dry	0.20	0.06		W632042	AS	08/03/16 09:34	
EPA 6010C	Chromium	< 0.60	mg/kg Dry	0.60	0.13		W632042	AS	08/03/16 09:34	
EPA 6010C	Copper	3.11	mg/kg Dry	1.00	0.16		W632042	AS	08/03/16 09:34	
EPA 6010C	Iron	5460	mg/kg Dry	6.0	4.0		W632042	SMB	08/03/16 12:18	
EPA 6010C	Manganese	25.0	mg/kg Dry	0.40	0.22		W632042	AS	08/03/16 09:34	
EPA 6010C	Silver	4.02	mg/kg Dry	0.50	0.14		W632042	AS	08/03/16 09:34	
EPA 6010C	Zinc	10.2	mg/kg Dry	1.0	0.5		W632042	AS	08/03/16 09:34	
EPA 7471B	Mercury	0.188	mg/kg Dry	0.033	0.004		W632016	SCM	08/02/16 15:29	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **IG-WD-SS1**
SVL Sample ID: **W6G0531-10 (Soil)**

Sampled: 19-Jul-16 14:40
Received: 25-Jul-16
Sampled By: GM

Sample Report Page 1 of 1

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	2820	mg/kg Dry	1.50	0.047	10	W631121	KWH	08/08/16 08:36	D2
EPA 6020A	Lead	13.2	mg/kg Dry	0.100	0.007	2	W631121	KWH	08/08/16 11:19	D1
EPA 6020A	Selenium	1.41	mg/kg Dry	0.30	0.03	2	W631121	KWH	08/08/16 11:19	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	22.9	mg/kg Dry	2.0	0.5		W632053	AS	08/04/16 12:09	
EPA 6010C	Barium	28.7	mg/kg Dry	0.20	0.14		W632042	AS	08/03/16 09:38	
EPA 6010C	Cadmium	< 0.20	mg/kg Dry	0.20	0.06		W632042	AS	08/03/16 09:38	
EPA 6010C	Chromium	< 0.60	mg/kg Dry	0.60	0.13		W632042	AS	08/03/16 09:38	
EPA 6010C	Copper	7.66	mg/kg Dry	1.00	0.16		W632042	AS	08/03/16 09:38	
EPA 6010C	Iron	11800	mg/kg Dry	6.0	4.0		W632042	SMB	08/03/16 12:21	
EPA 6010C	Manganese	140	mg/kg Dry	0.40	0.22		W632042	AS	08/03/16 09:38	
EPA 6010C	Silver	1.67	mg/kg Dry	0.50	0.14		W632042	AS	08/03/16 09:38	
EPA 6010C	Zinc	49.8	mg/kg Dry	1.0	0.5		W632042	AS	08/03/16 09:38	
EPA 7471B	Mercury	0.205	mg/kg Dry	0.033	0.004		W632016	SCM	08/02/16 15:31	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **MM-WD-SS1**

SVL Sample ID: **W6G0531-11 (Soil)**

Sample Report Page 1 of 1

Sampled: 20-Jul-16 09:15
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	2560	mg/kg Dry	1.50	0.047	10	W631121	KWH	08/08/16 08:38	D2
EPA 6020A	Lead	68.3	mg/kg Dry	0.100	0.007	2	W631121	KWH	08/08/16 11:21	D1
EPA 6020A	Selenium	1.36	mg/kg Dry	0.30	0.03	2	W631121	KWH	08/08/16 11:21	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	31.6	mg/kg Dry	2.0	0.5		W632053	AS	08/04/16 12:12	
EPA 6010C	Barium	43.1	mg/kg Dry	0.20	0.14		W632042	AS	08/03/16 09:41	
EPA 6010C	Cadmium	< 0.20	mg/kg Dry	0.20	0.06		W632042	AS	08/03/16 09:41	
EPA 6010C	Chromium	< 0.60	mg/kg Dry	0.60	0.13		W632042	AS	08/03/16 09:41	
EPA 6010C	Copper	10.8	mg/kg Dry	1.00	0.16		W632042	AS	08/03/16 09:41	
EPA 6010C	Iron	6770	mg/kg Dry	6.0	4.0		W632042	SMB	08/03/16 12:24	
EPA 6010C	Manganese	75.9	mg/kg Dry	0.40	0.22		W632042	AS	08/03/16 09:41	
EPA 6010C	Silver	62.7	mg/kg Dry	0.50	0.14		W632042	AS	08/03/16 09:41	
EPA 6010C	Zinc	24.7	mg/kg Dry	1.0	0.5		W632042	AS	08/03/16 09:41	
EPA 7471B	Mercury	0.282	mg/kg Dry	0.033	0.004		W632016	SCM	08/02/16 15:33	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **MM-WD-SS2**

SVL Sample ID: **W6G0531-12 (Soil)**

Sample Report Page 1 of 1

Sampled: 20-Jul-16 09:50
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	5190	mg/kg Dry	7.50	0.235	50	W631121	KWH	08/08/16 08:49	D2
EPA 6020A	Lead	30.5	mg/kg Dry	0.200	0.033	10	W631121	KWH	08/10/16 07:44	D1
EPA 6020A	Selenium	1.07	mg/kg Dry	0.30	0.03	2	W631121	KWH	08/08/16 11:35	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	14.3	mg/kg Dry	2.0	0.5		W632053	AS	08/04/16 12:15	
EPA 6010C	Barium	37.8	mg/kg Dry	0.20	0.14		W632042	AS	08/03/16 09:44	
EPA 6010C	Cadmium	< 0.20	mg/kg Dry	0.20	0.06		W632042	AS	08/03/16 09:44	
EPA 6010C	Chromium	< 0.60	mg/kg Dry	0.60	0.13		W632042	AS	08/03/16 09:44	
EPA 6010C	Copper	5.41	mg/kg Dry	1.00	0.16		W632042	AS	08/03/16 09:44	
EPA 6010C	Iron	9890	mg/kg Dry	6.0	4.0		W632042	SMB	08/03/16 12:27	
EPA 6010C	Manganese	90.3	mg/kg Dry	0.40	0.22		W632042	AS	08/03/16 09:44	
EPA 6010C	Silver	12.7	mg/kg Dry	0.50	0.14		W632042	AS	08/03/16 09:44	
EPA 6010C	Zinc	32.2	mg/kg Dry	1.0	0.5		W632042	AS	08/03/16 09:44	
EPA 7471B	Mercury	0.328	mg/kg Dry	0.033	0.004		W632016	SCM	08/02/16 15:35	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **AK2-OS-SS1**

SVL Sample ID: **W6G0531-13 (Soil)**

Sample Report Page 1 of 1

Sampled: 20-Jul-16 13:00
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	8000	mg/kg Dry	15.0	0.470	100	W631121	KWH	08/08/16 08:51	D2
EPA 6020A	Lead	54.1	mg/kg Dry	0.200	0.033	10	W631121	KWH	08/10/16 07:46	D1
EPA 6020A	Selenium	0.66	mg/kg Dry	0.30	0.03	2	W631121	KWH	08/08/16 11:37	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	42.2	mg/kg Dry	2.0	0.5		W632053	AS	08/04/16 12:18	
EPA 6010C	Barium	27.6	mg/kg Dry	0.20	0.14		W632042	AS	08/03/16 09:47	
EPA 6010C	Cadmium	< 0.20	mg/kg Dry	0.20	0.06		W632042	AS	08/03/16 09:47	
EPA 6010C	Chromium	< 0.60	mg/kg Dry	0.60	0.13		W632042	AS	08/03/16 09:47	
EPA 6010C	Copper	3.39	mg/kg Dry	1.00	0.16		W632042	AS	08/03/16 09:47	
EPA 6010C	Iron	10900	mg/kg Dry	6.0	4.0		W632042	SMB	08/03/16 12:30	
EPA 6010C	Manganese	8.50	mg/kg Dry	0.40	0.22		W632042	AS	08/03/16 09:47	
EPA 6010C	Silver	36.6	mg/kg Dry	0.50	0.14		W632042	AS	08/03/16 09:47	
EPA 6010C	Zinc	27.8	mg/kg Dry	1.0	0.5		W632042	AS	08/03/16 09:47	
EPA 7471B	Mercury	0.118	mg/kg Dry	0.033	0.004		W632016	SCM	08/02/16 15:37	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **AK2-WD-SS2**

SVL Sample ID: **W6G0531-14 (Soil)**

Sample Report Page 1 of 1

Sampled: 20-Jul-16 13:10
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	6380	mg/kg Dry	7.50	0.235	50	W631121	KWH	08/08/16 08:53	D2
EPA 6020A	Lead	42.3	mg/kg Dry	0.200	0.033	10	W631121	KWH	08/10/16 07:48	D1
EPA 6020A	Selenium	0.65	mg/kg Dry	0.30	0.03	2	W631121	KWH	08/08/16 11:39	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	32.8	mg/kg Dry	2.0	0.5		W632053	AS	08/04/16 12:22	
EPA 6010C	Barium	33.4	mg/kg Dry	0.20	0.14		W632042	AS	08/03/16 09:50	
EPA 6010C	Cadmium	< 0.20	mg/kg Dry	0.20	0.06		W632042	AS	08/03/16 09:50	
EPA 6010C	Chromium	< 0.60	mg/kg Dry	0.60	0.13		W632042	AS	08/03/16 09:50	
EPA 6010C	Copper	4.01	mg/kg Dry	1.00	0.16		W632042	AS	08/03/16 09:50	
EPA 6010C	Iron	9080	mg/kg Dry	6.0	4.0		W632042	SMB	08/03/16 12:34	
EPA 6010C	Manganese	4.89	mg/kg Dry	0.40	0.22		W632042	AS	08/03/16 09:50	
EPA 6010C	Silver	70.2	mg/kg Dry	0.50	0.14		W632042	AS	08/03/16 09:50	
EPA 6010C	Zinc	12.0	mg/kg Dry	1.0	0.5		W632042	AS	08/03/16 09:50	
EPA 7471B	Mercury	0.097	mg/kg Dry	0.033	0.004		W632016	SCM	08/02/16 15:39	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **HM-WD-SS1**

SVL Sample ID: **W6G0531-15 (Soil)**

Sample Report Page 1 of 1

Sampled: 20-Jul-16 15:30
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	6760	mg/kg Dry	7.50	0.235	50	W631121	KWH	08/08/16 08:56	D2
EPA 6020A	Lead	38.7	mg/kg Dry	0.200	0.033	10	W631121	KWH	08/10/16 07:50	D1
EPA 6020A	Selenium	0.55	mg/kg Dry	0.30	0.03	2	W631121	KWH	08/08/16 11:41	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	37.9	mg/kg Dry	2.0	0.5		W632053	AS	08/04/16 12:25	
EPA 6010C	Barium	34.6	mg/kg Dry	0.20	0.14		W632042	AS	08/03/16 09:53	
EPA 6010C	Cadmium	< 0.20	mg/kg Dry	0.20	0.06		W632042	AS	08/03/16 09:53	
EPA 6010C	Chromium	< 0.60	mg/kg Dry	0.60	0.13		W632042	AS	08/03/16 09:53	
EPA 6010C	Copper	3.84	mg/kg Dry	1.00	0.16		W632042	AS	08/03/16 09:53	
EPA 6010C	Iron	9490	mg/kg Dry	6.0	4.0		W632042	SMB	08/03/16 12:37	
EPA 6010C	Manganese	4.91	mg/kg Dry	0.40	0.22		W632042	AS	08/03/16 09:53	
EPA 6010C	Silver	22.7	mg/kg Dry	0.50	0.14		W632042	AS	08/03/16 09:53	
EPA 6010C	Zinc	12.4	mg/kg Dry	1.0	0.5		W632042	AS	08/03/16 09:53	
EPA 7471B	Mercury	0.047	mg/kg Dry	0.033	0.004		W632016	SCM	08/02/16 15:41	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **BR-WD-SS1**

SVL Sample ID: **W6G0531-16 (Soil)**

Sample Report Page 1 of 1

Sampled: 20-Jul-16 16:00
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	2890	mg/kg Dry	1.50	0.047	10	W631121	KWH	08/08/16 08:58	D2
EPA 6020A	Lead	33.3	mg/kg Dry	0.200	0.033	10	W631121	KWH	08/10/16 07:53	D1
EPA 6020A	Selenium	1.72	mg/kg Dry	0.30	0.03	2	W631121	KWH	08/08/16 11:43	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	12.6	mg/kg Dry	2.0	0.5		W632053	AS	08/04/16 12:28	
EPA 6010C	Barium	72.2	mg/kg Dry	0.20	0.14		W632042	AS	08/03/16 09:56	
EPA 6010C	Cadmium	< 0.20	mg/kg Dry	0.20	0.06		W632042	AS	08/03/16 09:56	
EPA 6010C	Chromium	2.25	mg/kg Dry	0.60	0.13		W632042	AS	08/03/16 09:56	
EPA 6010C	Copper	16.2	mg/kg Dry	1.00	0.16		W632042	AS	08/03/16 09:56	
EPA 6010C	Iron	16100	mg/kg Dry	6.0	4.0		W632042	SMB	08/03/16 12:40	
EPA 6010C	Manganese	393	mg/kg Dry	0.40	0.22		W632042	AS	08/03/16 09:56	
EPA 6010C	Silver	3.62	mg/kg Dry	0.50	0.14		W632042	AS	08/03/16 09:56	
EPA 6010C	Zinc	101	mg/kg Dry	1.0	0.5		W632042	AS	08/03/16 09:56	
EPA 7471B	Mercury	0.322	mg/kg Dry	0.033	0.004		W632016	SCM	08/02/16 15:44	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **TM-WD-SS1**

SVL Sample ID: **W6G0531-17 (Soil)**

Sample Report Page 1 of 1

Sampled: 21-Jul-16 09:00
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	2520	mg/kg Dry	1.50	0.047	10	W631121	KWH	08/08/16 09:00	D2
EPA 6020A	Lead	23.6	mg/kg Dry	0.200	0.033	10	W631121	KWH	08/10/16 07:55	D1
EPA 6020A	Selenium	1.25	mg/kg Dry	0.30	0.03	2	W631121	KWH	08/08/16 11:45	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	22.9	mg/kg Dry	2.0	0.5		W632053	AS	08/04/16 12:43	
EPA 6010C	Barium	55.0	mg/kg Dry	0.20	0.14		W632042	AS	08/03/16 10:05	
EPA 6010C	Cadmium	< 0.20	mg/kg Dry	0.20	0.06		W632042	AS	08/03/16 10:05	
EPA 6010C	Chromium	< 0.60	mg/kg Dry	0.60	0.13		W632042	AS	08/03/16 10:05	
EPA 6010C	Copper	12.4	mg/kg Dry	1.00	0.16		W632042	AS	08/03/16 10:05	
EPA 6010C	Iron	10500	mg/kg Dry	6.0	4.0		W632042	SMB	08/03/16 12:50	
EPA 6010C	Manganese	164	mg/kg Dry	0.40	0.22		W632042	AS	08/03/16 10:05	
EPA 6010C	Silver	29.7	mg/kg Dry	0.50	0.14		W632042	AS	08/03/16 10:05	
EPA 6010C	Zinc	45.4	mg/kg Dry	1.0	0.5		W632042	AS	08/03/16 10:05	
EPA 7471B	Mercury	0.145	mg/kg Dry	0.033	0.004		W632016	SCM	08/02/16 15:50	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
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Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **SM-OS-SS1**

SVL Sample ID: **W6G0531-18 (Soil)**

Sample Report Page 1 of 1

Sampled: 21-Jul-16 12:15
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	2580	mg/kg Dry	1.50	0.047	10	W631121	KWH	08/08/16 09:02	D2
EPA 6020A	Lead	250	mg/kg Dry	0.200	0.033	10	W631121	KWH	08/10/16 07:57	D1
EPA 6020A	Selenium	0.41	mg/kg Dry	0.30	0.03	2	W631121	KWH	08/08/16 11:47	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	52.9	mg/kg Dry	2.0	0.5		W632053	AS	08/04/16 12:47	
EPA 6010C	Barium	27.6	mg/kg Dry	0.20	0.14		W632042	AS	08/03/16 10:08	
EPA 6010C	Cadmium	< 0.20	mg/kg Dry	0.20	0.06		W632042	AS	08/03/16 10:08	
EPA 6010C	Chromium	< 0.60	mg/kg Dry	0.60	0.13		W632042	AS	08/03/16 10:08	
EPA 6010C	Copper	39.2	mg/kg Dry	1.00	0.16		W632042	AS	08/03/16 10:08	
EPA 6010C	Iron	13500	mg/kg Dry	6.0	4.0		W632042	SMB	08/03/16 12:54	
EPA 6010C	Manganese	13.3	mg/kg Dry	0.40	0.22		W632042	AS	08/03/16 10:08	
EPA 6010C	Silver	113	mg/kg Dry	0.50	0.14		W632042	AS	08/03/16 10:08	
EPA 6010C	Zinc	11.9	mg/kg Dry	1.0	0.5		W632042	AS	08/03/16 10:08	
EPA 7471B	Mercury	2.36	mg/kg Dry	0.099	0.011	3	W632016	SCM	08/02/16 16:10	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **SM-OS-SS2**

SVL Sample ID: **W6G0531-19 (Soil)**

Sample Report Page 1 of 1

Sampled: 21-Jul-16 12:15
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	2600	mg/kg Dry	1.50	0.047	10	W631121	KWH	08/08/16 09:04	D2
EPA 6020A	Lead	251	mg/kg Dry	0.200	0.033	10	W631121	KWH	08/10/16 07:59	D1
EPA 6020A	Selenium	0.38	mg/kg Dry	0.30	0.03	2	W631121	KWH	08/08/16 11:50	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	46.6	mg/kg Dry	2.0	0.5		W632053	AS	08/04/16 12:50	
EPA 6010C	Barium	24.6	mg/kg Dry	0.20	0.14		W632042	AS	08/03/16 10:11	
EPA 6010C	Cadmium	< 0.20	mg/kg Dry	0.20	0.06		W632042	AS	08/03/16 10:11	
EPA 6010C	Chromium	< 0.60	mg/kg Dry	0.60	0.13		W632042	AS	08/03/16 10:11	
EPA 6010C	Copper	40.0	mg/kg Dry	1.00	0.16		W632042	AS	08/03/16 10:11	
EPA 6010C	Iron	12800	mg/kg Dry	6.0	4.0		W632042	SMB	08/03/16 12:57	
EPA 6010C	Manganese	9.69	mg/kg Dry	0.40	0.22		W632042	AS	08/03/16 10:11	
EPA 6010C	Silver	137	mg/kg Dry	0.50	0.14		W632042	AS	08/03/16 10:11	
EPA 6010C	Zinc	13.0	mg/kg Dry	1.0	0.5		W632042	AS	08/03/16 10:11	
EPA 7471B	Mercury	1.97	mg/kg Dry	0.066	0.008	2	W632016	SCM	08/02/16 16:12	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **SM-WD-SS3**

SVL Sample ID: **W6G0531-20 (Soil)**

Sample Report Page 1 of 1

Sampled: 21-Jul-16 12:25
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	969	mg/kg Dry	1.50	0.047	10	W631121	KWH	08/08/16 09:06	D2
EPA 6020A	Lead	84.9	mg/kg Dry	0.200	0.033	10	W631121	KWH	08/10/16 08:01	D1
EPA 6020A	Selenium	0.56	mg/kg Dry	0.30	0.03	2	W631121	KWH	08/08/16 11:52	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	10.2	mg/kg Dry	2.0	0.5		W632053	AS	08/04/16 12:53	
EPA 6010C	Barium	30.3	mg/kg Dry	0.20	0.14		W632042	AS	08/03/16 10:14	
EPA 6010C	Cadmium	< 0.20	mg/kg Dry	0.20	0.06		W632042	AS	08/03/16 10:14	
EPA 6010C	Chromium	< 0.60	mg/kg Dry	0.60	0.13		W632042	AS	08/03/16 10:14	
EPA 6010C	Copper	10.8	mg/kg Dry	1.00	0.16		W632042	AS	08/03/16 10:14	
EPA 6010C	Iron	7000	mg/kg Dry	6.0	4.0		W632042	SMB	08/03/16 13:00	
EPA 6010C	Manganese	31.4	mg/kg Dry	0.40	0.22		W632042	AS	08/03/16 10:14	
EPA 6010C	Silver	12.3	mg/kg Dry	0.50	0.14		W632042	AS	08/03/16 10:14	
EPA 6010C	Zinc	11.6	mg/kg Dry	1.0	0.5		W632042	AS	08/03/16 10:14	
EPA 7471B	Mercury	0.387	mg/kg Dry	0.033	0.004		W632016	SCM	08/02/16 15:56	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **AA-BK-SS2**

SVL Sample ID: **W6G0531-21 (Soil)**

Sample Report Page 1 of 1

Sampled: 21-Jul-16 13:40
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	3.91	mg/kg Dry	0.300	0.009	2	W631120	KWH	08/08/16 09:24	M2
EPA 6020A	Lead	20.0	mg/kg Dry	0.200	0.033	10	W631120	KWH	08/10/16 08:12	D1,M1
EPA 6020A	Selenium	0.79	mg/kg Dry	0.30	0.03	2	W631120	KWH	08/08/16 12:04	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	< 2.0	mg/kg Dry	2.0	0.5		W632054	SMB	08/03/16 10:09	
EPA 6010C	Barium	211	mg/kg Dry	0.20	0.14		W632051	AS	08/03/16 10:57	M2
EPA 6010C	Cadmium	0.29	mg/kg Dry	0.20	0.06		W632051	AS	08/03/16 10:57	
EPA 6010C	Chromium	7.96	mg/kg Dry	0.60	0.13		W632051	AS	08/03/16 10:57	
EPA 6010C	Copper	7.27	mg/kg Dry	1.00	0.16		W632051	AS	08/03/16 10:57	
EPA 6010C	Iron	17000	mg/kg Dry	6.0	4.0		W632051	SMB	08/03/16 13:31	M3
EPA 6010C	Manganese	595	mg/kg Dry	0.40	0.22		W632051	SMB	08/03/16 13:31	M3
EPA 6010C	Silver	< 0.50	mg/kg Dry	0.50	0.14		W632051	AS	08/03/16 10:57	
EPA 6010C	Zinc	81.1	mg/kg Dry	1.0	0.5		W632051	AS	08/03/16 10:57	
EPA 7471B	Mercury	< 0.033	mg/kg Dry	0.033	0.004		W632055	SCM	08/02/16 16:23	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **AA-BK-SS1**

SVL Sample ID: **W6G0531-22 (Soil)**

Sample Report Page 1 of 1

Sampled: 21-Jul-16 13:40
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	3.35	mg/kg Dry	0.300	0.009	2	W631120	KWH	08/08/16 09:33	D1
EPA 6020A	Lead	19.7	mg/kg Dry	0.200	0.033	10	W631120	KWH	08/10/16 08:20	D1
EPA 6020A	Selenium	0.77	mg/kg Dry	0.30	0.03	2	W631120	KWH	08/08/16 12:13	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	< 2.0	mg/kg Dry	2.0	0.5		W632054	SMB	08/03/16 10:18	
EPA 6010C	Barium	188	mg/kg Dry	0.20	0.14		W632051	AS	08/03/16 11:07	
EPA 6010C	Cadmium	0.22	mg/kg Dry	0.20	0.06		W632051	AS	08/03/16 11:07	
EPA 6010C	Chromium	6.02	mg/kg Dry	0.60	0.13		W632051	AS	08/03/16 11:07	
EPA 6010C	Copper	6.60	mg/kg Dry	1.00	0.16		W632051	AS	08/03/16 11:07	
EPA 6010C	Iron	14900	mg/kg Dry	6.0	4.0		W632051	SMB	08/03/16 13:40	
EPA 6010C	Manganese	529	mg/kg Dry	0.40	0.22		W632051	SMB	08/03/16 13:40	
EPA 6010C	Silver	< 0.50	mg/kg Dry	0.50	0.14		W632051	AS	08/03/16 11:07	
EPA 6010C	Zinc	71.1	mg/kg Dry	1.0	0.5		W632051	AS	08/03/16 11:07	
EPA 7471B	Mercury	< 0.033	mg/kg Dry	0.033	0.004		W632055	SCM	08/02/16 16:25	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **TM-AD1-SD1**

SVL Sample ID: **W6G0531-23 (Soil)**

Sample Report Page 1 of 1

Sampled: 21-Jul-16 10:52
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	469	mg/kg Dry	1.50	0.047	10	W631120	KWH	08/08/16 09:46	D1
EPA 6020A	Lead	50.9	mg/kg Dry	0.200	0.033	10	W631120	KWH	08/10/16 08:22	D1
EPA 6020A	Selenium	9.06	mg/kg Dry	1.00	0.14	10	W631120	KWH	08/08/16 12:15	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	11.3	mg/kg Dry	2.0	0.5		W632054	SMB	08/03/16 10:22	
EPA 6010C	Barium	84.2	mg/kg Dry	0.20	0.14		W632051	AS	08/03/16 11:10	
EPA 6010C	Cadmium	1.69	mg/kg Dry	0.20	0.06		W632051	AS	08/03/16 11:10	
EPA 6010C	Chromium	3.33	mg/kg Dry	0.60	0.13		W632051	AS	08/03/16 11:10	
EPA 6010C	Copper	157	mg/kg Dry	1.00	0.16		W632051	AS	08/03/16 11:10	
EPA 6010C	Iron	22600	mg/kg Dry	6.0	4.0		W632051	SMB	08/03/16 13:44	
EPA 6010C	Manganese	205	mg/kg Dry	0.40	0.22		W632051	SMB	08/03/16 13:44	
EPA 6010C	Silver	7.21	mg/kg Dry	0.50	0.14		W632051	AS	08/03/16 11:10	
EPA 6010C	Zinc	480	mg/kg Dry	1.0	0.5		W632051	AS	08/03/16 11:10	
EPA 7471B	Mercury	0.668	mg/kg Dry	0.033	0.004		W632055	SCM	08/02/16 16:28	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **TM-AD1-SD2**

SVL Sample ID: **W6G0531-24 (Soil)**

Sample Report Page 1 of 1

Sampled: 21-Jul-16 10:52
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	1540	mg/kg Dry	1.50	0.047	10	W631120	KWH	08/08/16 09:48	D1
EPA 6020A	Lead	43.2	mg/kg Dry	0.200	0.033	10	W631120	KWH	08/10/16 08:24	D1,M1
EPA 6020A	Selenium	10.4	mg/kg Dry	1.00	0.14	10	W631120	KWH	08/08/16 12:17	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	14.9	mg/kg Dry	2.0	0.5		W632054	SMB	08/03/16 10:25	
EPA 6010C	Barium	71.7	mg/kg Dry	0.20	0.14		W632051	AS	08/03/16 11:13	
EPA 6010C	Cadmium	2.46	mg/kg Dry	0.20	0.06		W632051	AS	08/03/16 11:13	
EPA 6010C	Chromium	2.74	mg/kg Dry	0.60	0.13		W632051	AS	08/03/16 11:13	
EPA 6010C	Copper	202	mg/kg Dry	1.00	0.16		W632051	AS	08/03/16 11:13	
EPA 6010C	Iron	27800	mg/kg Dry	6.0	4.0		W632051	SMB	08/03/16 13:47	
EPA 6010C	Manganese	177	mg/kg Dry	0.40	0.22		W632051	SMB	08/03/16 13:47	
EPA 6010C	Silver	5.01	mg/kg Dry	0.50	0.14		W632051	AS	08/03/16 11:13	
EPA 6010C	Zinc	575	mg/kg Dry	1.0	0.5		W632051	AS	08/03/16 11:13	
EPA 7471B	Mercury	0.538	mg/kg Dry	0.033	0.004		W632055	SCM	08/02/16 16:30	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Client Sample ID: **TM-US-SD1**

SVL Sample ID: **W6G0531-25 (Soil)**

Sample Report Page 1 of 1

Sampled: 21-Jul-16 11:15
Received: 25-Jul-16
Sampled By: GM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) (Sieved)										
EPA 6020A	Arsenic	306	mg/kg Dry	0.300	0.009	2	W631120	KWH	08/08/16 09:40	D1
EPA 6020A	Lead	17.8	mg/kg Dry	0.200	0.033	10	W631120	KWH	08/10/16 08:26	D1
EPA 6020A	Selenium	0.98	mg/kg Dry	0.30	0.03	2	W631120	KWH	08/08/16 12:19	D1
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010C	Antimony	< 2.0	mg/kg Dry	2.0	0.5		W632054	SMB	08/03/16 10:28	
EPA 6010C	Barium	46.5	mg/kg Dry	0.20	0.14		W632051	AS	08/03/16 11:16	
EPA 6010C	Cadmium	0.71	mg/kg Dry	0.20	0.06		W632051	AS	08/03/16 11:16	
EPA 6010C	Chromium	1.02	mg/kg Dry	0.60	0.13		W632051	AS	08/03/16 11:16	
EPA 6010C	Copper	4.65	mg/kg Dry	1.00	0.16		W632051	AS	08/03/16 11:16	
EPA 6010C	Iron	9300	mg/kg Dry	6.0	4.0		W632051	SMB	08/03/16 13:50	
EPA 6010C	Manganese	289	mg/kg Dry	0.40	0.22		W632051	SMB	08/03/16 13:50	
EPA 6010C	Silver	0.52	mg/kg Dry	0.50	0.14		W632051	AS	08/03/16 11:16	
EPA 6010C	Zinc	53.3	mg/kg Dry	1.0	0.5		W632051	AS	08/03/16 11:16	
EPA 7471B	Mercury	0.155	mg/kg Dry	0.033	0.004		W632055	SCM	08/02/16 16:32	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
Metals (Total)								
EPA 6020A	Arsenic	mg/kg	<0.300	0.009	0.300	W631120	08-Aug-16	D1
EPA 6020A	Arsenic	mg/kg	<0.300	0.009	0.300	W631121	08-Aug-16	
EPA 6020A	Lead	mg/kg	<0.100	0.007	0.100	W631120	10-Aug-16	D1
EPA 6020A	Lead	mg/kg	<0.100	0.007	0.100	W631121	08-Aug-16	
EPA 6020A	Selenium	mg/kg	<0.30	0.03	0.30	W631120	08-Aug-16	D1
EPA 6020A	Selenium	mg/kg	<0.30	0.03	0.30	W631121	08-Aug-16	

Metals (Total) by EPA 6000/7000 Methods

EPA 6010C	Antimony	mg/kg	<2.0	0.5	2.0	W632053	04-Aug-16	
EPA 6010C	Antimony	mg/kg	<2.0	0.5	2.0	W632054	03-Aug-16	
EPA 6010C	Barium	mg/kg	<0.20	0.14	0.20	W632042	03-Aug-16	
EPA 6010C	Barium	mg/kg	<0.20	0.14	0.20	W632051	03-Aug-16	
EPA 6010C	Cadmium	mg/kg	<0.20	0.06	0.20	W632042	03-Aug-16	
EPA 6010C	Cadmium	mg/kg	<0.20	0.06	0.20	W632051	03-Aug-16	
EPA 6010C	Chromium	mg/kg	<0.60	0.13	0.60	W632042	03-Aug-16	
EPA 6010C	Chromium	mg/kg	<0.60	0.13	0.60	W632051	03-Aug-16	
EPA 6010C	Copper	mg/kg	<1.00	0.16	1.00	W632042	03-Aug-16	
EPA 6010C	Copper	mg/kg	<1.00	0.16	1.00	W632051	03-Aug-16	
EPA 6010C	Iron	mg/kg	<6.0	4.0	6.0	W632042	03-Aug-16	
EPA 6010C	Iron	mg/kg	<6.0	4.0	6.0	W632051	03-Aug-16	
EPA 6010C	Manganese	mg/kg	<0.40	0.22	0.40	W632042	03-Aug-16	
EPA 6010C	Manganese	mg/kg	<0.40	0.22	0.40	W632051	03-Aug-16	
EPA 6010C	Silver	mg/kg	<0.50	0.14	0.50	W632042	03-Aug-16	M3
EPA 6010C	Silver	mg/kg	<0.50	0.14	0.50	W632051	03-Aug-16	
EPA 6010C	Zinc	mg/kg	<1.0	0.5	1.0	W632042	03-Aug-16	
EPA 6010C	Zinc	mg/kg	<1.0	0.5	1.0	W632051	03-Aug-16	
EPA 7471B	Mercury	mg/kg	<0.033	0.004	0.033	W632016	02-Aug-16	
EPA 7471B	Mercury	mg/kg	<0.033	0.004	0.033	W632055	02-Aug-16	

Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Metals (Total)									
EPA 6020A	Arsenic	mg/kg	2.31	2.50	92.3	80 - 120	W631121	08-Aug-16	
EPA 6020A	Arsenic	mg/kg	2.39	2.50	95.5	80 - 120	W631120	08-Aug-16	
EPA 6020A	Lead	mg/kg	2.43	2.50	97.3	80 - 120	W631121	08-Aug-16	
EPA 6020A	Lead	mg/kg	2.35	2.50	94.1	80 - 120	W631120	10-Aug-16	D1
EPA 6020A	Selenium	mg/kg	2.18	2.50	87.3	80 - 120	W631121	08-Aug-16	
EPA 6020A	Selenium	mg/kg	2.21	2.50	88.6	80 - 120	W631120	08-Aug-16	D1

Metals (Total) by EPA 6000/7000 Methods

EPA 6010C	Antimony	mg/kg	98.4	100	98.4	80 - 120	W632054	03-Aug-16	
EPA 6010C	Antimony	mg/kg	105	100	105	80 - 120	W632053	04-Aug-16	
EPA 6010C	Barium	mg/kg	95.3	100	95.3	80 - 120	W632042	03-Aug-16	
EPA 6010C	Barium	mg/kg	108	100	108	80 - 120	W632051	03-Aug-16	
EPA 6010C	Cadmium	mg/kg	94.7	100	94.7	80 - 120	W632042	03-Aug-16	
EPA 6010C	Cadmium	mg/kg	98.0	100	98.0	80 - 120	W632051	03-Aug-16	
EPA 6010C	Chromium	mg/kg	101	100	101	80 - 120	W632042	03-Aug-16	
EPA 6010C	Chromium	mg/kg	109	100	109	80 - 120	W632051	03-Aug-16	
EPA 6010C	Copper	mg/kg	99.7	100	99.7	80 - 120	W632042	03-Aug-16	
EPA 6010C	Copper	mg/kg	107	100	107	80 - 120	W632051	03-Aug-16	
EPA 6010C	Iron	mg/kg	948	1000	94.8	80 - 120	W632042	03-Aug-16	
EPA 6010C	Iron	mg/kg	920	1000	92.0	80 - 120	W632051	03-Aug-16	

SVL holds the following certifications:

AZ:0538, CA:2080, ID:ID00019 & ID00965 (Microbiology), NV:ID000192007A, UT(TNI):ID000192015-1, WA:C573



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Quality Control - LABORATORY CONTROL SAMPLE Data (Continued)

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Metals (Total) by EPA 6000/7000 Methods (Continued)									
EPA 6010C	Manganese	mg/kg	94.1	100	94.1	80 - 120	W632042	03-Aug-16	
EPA 6010C	Manganese	mg/kg	98.3	100	98.3	80 - 120	W632051	03-Aug-16	
EPA 6010C	Silver	mg/kg	4.78	5.00	95.5	80 - 120	W632042	03-Aug-16	
EPA 6010C	Silver	mg/kg	5.14	5.00	103	80 - 120	W632051	03-Aug-16	
EPA 6010C	Zinc	mg/kg	96.8	100	96.8	80 - 120	W632042	03-Aug-16	
EPA 6010C	Zinc	mg/kg	100	100	100	80 - 120	W632051	03-Aug-16	
EPA 7471B	Mercury	mg/kg	0.820	0.833	98.4	80 - 120	W632016	02-Aug-16	
EPA 7471B	Mercury	mg/kg	0.775	0.833	93.0	80 - 120	W632055	02-Aug-16	

Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Metals (Total)										
EPA 6020A	Arsenic	mg/kg	1440	1740	2.50	R > 4S	75 - 125	W631121	08-Aug-16	D2,M3
EPA 6020A	Arsenic	mg/kg	5.92	3.91	2.50	80.3	75 - 125	W631120	08-Aug-16	D1
EPA 6020A	Lead	mg/kg	19.1	19.1	2.50	R > 4S	75 - 125	W631121	08-Aug-16	D1,M3
EPA 6020A	Lead	mg/kg	24.1	20.0	2.50	R > 4S	75 - 125	W631120	10-Aug-16	D1,M1
EPA 6020A	Selenium	mg/kg	4.17	2.48	2.50	67.7	75 - 125	W631121	08-Aug-16	D1,M2
EPA 6020A	Selenium	mg/kg	2.70	0.79	2.50	76.5	75 - 125	W631120	08-Aug-16	D1

Metals (Total) by EPA 6000/7000 Methods										
Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
EPA 6010C	Antimony	mg/kg	92.9	<2.0	100	92.9	75 - 125	W632054	03-Aug-16	
EPA 6010C	Antimony	mg/kg	115	10.0	100	105	75 - 125	W632053	04-Aug-16	
EPA 6010C	Barium	mg/kg	166	68.6	100	97.4	75 - 125	W632042	03-Aug-16	
EPA 6010C	Barium	mg/kg	290	211	100	79.0	75 - 125	W632051	03-Aug-16	
EPA 6010C	Cadmium	mg/kg	94.3	<0.20	100	94.3	75 - 125	W632042	03-Aug-16	
EPA 6010C	Cadmium	mg/kg	100	0.29	100	100	75 - 125	W632051	03-Aug-16	
EPA 6010C	Chromium	mg/kg	99.5	<0.60	100	99.2	75 - 125	W632042	03-Aug-16	
EPA 6010C	Chromium	mg/kg	116	7.96	100	108	75 - 125	W632051	03-Aug-16	
EPA 6010C	Copper	mg/kg	103	2.45	100	100	75 - 125	W632042	03-Aug-16	
EPA 6010C	Copper	mg/kg	117	7.27	100	110	75 - 125	W632051	03-Aug-16	
EPA 6010C	Iron	mg/kg	15300	15300	1000	R > 4S	75 - 125	W632042	03-Aug-16	M3
EPA 6010C	Iron	mg/kg	16700	17000	1000	R > 4S	75 - 125	W632051	03-Aug-16	M3
EPA 6010C	Manganese	mg/kg	476	455	100	R > 4S	75 - 125	W632042	03-Aug-16	M3
EPA 6010C	Manganese	mg/kg	604	595	100	R > 4S	75 - 125	W632051	03-Aug-16	M3
EPA 6010C	Silver	mg/kg	4.87	<0.50	5.00	90.2	75 - 125	W632042	03-Aug-16	
EPA 6010C	Silver	mg/kg	5.06	<0.50	5.00	101	75 - 125	W632051	03-Aug-16	
EPA 6010C	Zinc	mg/kg	156	66.4	100	89.7	75 - 125	W632042	03-Aug-16	
EPA 6010C	Zinc	mg/kg	170	81.1	100	89.4	75 - 125	W632051	03-Aug-16	
EPA 7471B	Mercury	mg/kg	0.442	0.213	0.333	68.5	75 - 125	W632016	02-Aug-16	M2
EPA 7471B	Mercury	mg/kg	0.430	0.155	0.333	82.5	75 - 125	W632055	02-Aug-16	



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Quality Control - MATRIX SPIKE DUPLICATE Data

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	%R	RPD	RPD Limit	Batch ID	Analyzed	Notes
Metals (Total)											
EPA 6020A	Arsenic	mg/kg	5.67	5.92	2.50	70.3	4.3	20	W631120	08-Aug-16	M2
EPA 6020A	Arsenic	mg/kg	1610	1440	2.50	R > 4S	10.8	20	W631121	08-Aug-16	D2,M3
EPA 6020A	Lead	mg/kg	24.1	24.1	2.50	R > 4S	0.2	20	W631120	10-Aug-16	D1,M1
EPA 6020A	Lead	mg/kg	20.3	19.1	2.50	R > 4S	5.8	20	W631121	08-Aug-16	D1,M3
EPA 6020A	Selenium	mg/kg	2.84	2.70	2.50	82.0	4.9	20	W631120	08-Aug-16	D1
EPA 6020A	Selenium	mg/kg	4.07	4.17	2.50	63.6	2.5	20	W631121	08-Aug-16	M2

Metals (Total) by EPA 6000/7000 Methods

EPA 6010C	Antimony	mg/kg	115	115	100	105	0.5	20	W632053	04-Aug-16	
EPA 6010C	Antimony	mg/kg	93.5	92.9	100	93.5	0.7	20	W632054	03-Aug-16	
EPA 6010C	Barium	mg/kg	175	166	100	107	5.4	20	W632042	03-Aug-16	
EPA 6010C	Barium	mg/kg	284	290	100	72.9	2.1	20	W632051	03-Aug-16	M2
EPA 6010C	Cadmium	mg/kg	95.5	94.3	100	95.5	1.3	20	W632042	03-Aug-16	
EPA 6010C	Cadmium	mg/kg	101	100	100	101	0.9	20	W632051	03-Aug-16	
EPA 6010C	Chromium	mg/kg	101	99.5	100	101	1.9	20	W632042	03-Aug-16	
EPA 6010C	Chromium	mg/kg	115	116	100	107	0.9	20	W632051	03-Aug-16	
EPA 6010C	Copper	mg/kg	104	103	100	101	1.2	20	W632042	03-Aug-16	
EPA 6010C	Copper	mg/kg	116	117	100	109	1.1	20	W632051	03-Aug-16	
EPA 6010C	Iron	mg/kg	16500	15300	1000	122	7.3	20	W632042	03-Aug-16	
EPA 6010C	Iron	mg/kg	15000	16700	1000	R > 4S	10.4	20	W632051	03-Aug-16	M3
EPA 6010C	Manganese	mg/kg	505	476	100	R > 4S	5.8	20	W632042	03-Aug-16	M3
EPA 6010C	Manganese	mg/kg	581	604	100	R > 4S	4.0	20	W632051	03-Aug-16	M3
EPA 6010C	Silver	mg/kg	4.99	4.87	5.00	92.7	2.5	20	W632042	03-Aug-16	
EPA 6010C	Silver	mg/kg	4.98	5.06	5.00	99.6	1.6	20	W632051	03-Aug-16	
EPA 6010C	Zinc	mg/kg	164	156	100	98.0	5.2	20	W632042	03-Aug-16	
EPA 6010C	Zinc	mg/kg	170	170	100	89.2	0.1	20	W632051	03-Aug-16	
EPA 7471B	Mercury	mg/kg	0.447	0.442	0.333	70.0	1.1	20	W632016	02-Aug-16	M2
EPA 7471B	Mercury	mg/kg	0.370	0.430	0.333	64.5	15.0	20	W632055	02-Aug-16	M2

Quality Control - POST DIGESTION SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Metals (Total)										
EPA 6020A	Arsenic	mg/kg	24.1	3.91	20.0	101	75 - 125	W631120	08-Aug-16	D1
EPA 6020A	Lead	mg/kg	71.0	20.0	20.0	255	75 - 125	W631120	10-Aug-16	M1
EPA 6020A	Selenium	mg/kg	19.5	2.48	20.0	84.9	75 - 125	W631121	08-Aug-16	D1
Metals (Total) by EPA 6000/7000 Methods										
EPA 6010C	Barium	mg/kg	211	211	2.00	-37.0	75 - 125	W632051	03-Aug-16	M3
EPA 6010C	Zinc	mg/kg	90.1	81.1	10.0	89.6	75 - 125	W632051	03-Aug-16	



IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Atlanta Area Mines 2016
Work Order: **W6G0531**
Reported: 10-Aug-16 11:08

Notes and Definitions

- D1 Sample required dilution due to matrix.
 - D2 Sample required dilution due to high concentration of target analyte.
 - M1 Matrix spike recovery was high, but the LCS recovery was acceptable.
 - M2 Matrix spike recovery was low, but the LCS recovery was acceptable.
 - M3 The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to spike level. The LCS was acceptable.
 - LCS Laboratory Control Sample (Blank Spike)
 - RPD Relative Percent Difference
 - UDL A result is less than the detection limit
 - R > 4S % recovery not applicable, sample concentration more than four times greater than spike level
 - <RL A result is less than the reporting limit
 - MRL Method Reporting Limit
 - MDL Method Detection Limit
 - N/A Not Applicable
-