

IDAHO CHAMPION GROUP LODE AND PACIFIC GROUP LODE CLAIMS

**AKA: Pacific Mine/Pacific Group Patent, Champion Group, Idaho Champion Deposit,
Black Champion Patent, Champion Patent, Nellie Patent, Gold Dike Patent, Meadow
Patent, Imperial Patent, Elma Patent, Ethel Patent, Crown Point Patent, Gold Card Patent,
Pittsburg Patent, Big Elk Horn Patent, Gold Leaf Patent, Riverside Patent, Mabel Patent,
Blue Jay Patent, and mill site claims**

PRELIMINARY ASSESSMENT AND SITE INSPECTION REPORT

Idaho County
State of Idaho



Department of Environmental Quality

March 2011

Submitted to:
U. S. Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, WA 98101

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STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1410 North Hilton • Boise, Idaho 83706 • (208) 373-0502

C.L. "Butch" Otter, Governor
Toni Hardesty, Director

March 29, 2011

Mr. Al Haener
Haener Properties Limited
1918 4th Ave. N
Lewiston, ID 83530

RE: Preliminary Assessment and Site Inspection of the Idaho Champion Group Lode
and Pacific Lode Group Claims

Dear Mr. Haener:

The Idaho Department of Environmental Quality (DEQ) has completed a review of historical mining data and geological information of the above referenced mine group and claims. Subsequent to that review, DEQ conducted a site visit of the Idaho Champion Group Lode and the Pacific Group Lode claims. During the site visit, mining activity sites such as adits and the mill site were observed and mapped in order to complete the analysis necessary to finalize the Preliminary Assessment report.

Preliminary Assessments (PAs) are conducted according to the Federal Comprehensive Environmental Response, Compensation and Liabilities Act. The reasons to complete a Preliminary Assessment include:

- 1) To identify those sites which are not CERCLIS caliber because they do not post a threat to public health or the environment (No Remedial Action Planned (NRAP));
- 2) To determine if there is a need for removal actions or other programmatic management of sites;
- 3) To determine if a Site Investigation, which is a more detailed site characterization, is needed; and/or
- 4) To gather data to facilitate later evaluation of the release of hazardous substances through the Hazard Ranking System (HRS).

Mr. Al Haener
March 29, 2011
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DEQ has also completed PAs under contract with the U.S. Environmental Protection Agency in order to identify risks to human health and the environment and make recommendations to land owners regarding how risks might be managed, if necessary.

Sediment samples were collected from Crooked River above and below the claims and from four perennial streams either on your property or below it. Although elevated metals concentrations were present in these samples, none of them exceeded the EPA Human Health Screening Levels.

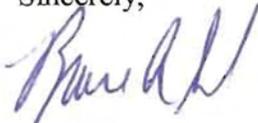
In addition, surface water samples were collected from Crooked River above and below the claims and from four perennially streams either on your property or below it. Although elevated metals concentrations were present in these samples, none of them exceeded the Idaho Drinking Water Standards for metals.

DEQ offers the following health and safety recommendations relating to the Idaho Champion Group Lode and Pacific Lode Group claims. Although there are no permanent residents on or immediately adjacent to your property, it would be best to prevent or minimize human exposure to the soil at the waste dump sites. This recommendation applies not only to your property, but also to all privately held mining claims in the Orogrande area.

Attached is the Preliminary Assessment and Site Inspection Report. It contains a history of the claims, limited geological information, maps of the property, and the sediment and water metals analysis with an interpretation of the results. This information was used by DEQ to make a determination that the property status is NRAP.

DEQ looks forward to addressing any questions you may have regarding our findings. Please contact me (208-373-0554) if you have any comments, questions, or if I may be of any other assistance. Lastly, thank you for allowing us access to your property.

Sincerely,



Bruce A. Schuld
Mine Waste Projects Coordinator
Waste Management and Remediation Division

Attachment

cc: Ken Marcy – U.S. Environmental Protection Agency
Project File

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List of Acronyms

amsl	above mean sea level
bgs	below ground surface
BLM	Bureau of Land Management
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CWA	Clean Water Act
DEQ	Idaho Department of Environmental Quality
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
GIS	Geographic Information System
gpm	gallons per minute
Fish and Game	Idaho Department of Fish and Game
HHSLs	Human Health Medium-Specific Screening Levels
HRS	Hazard Ranking Score
IDL	Idaho Department of Lands
IDTLs	Initial Default Target Levels
IGS	Idaho Geological Survey
MCL	Maximum Concentration Limit
MSHA	Mine Safety and Health Administration
NAIP	National Agriculture Imagery Program
NPDES	National Pollution Discharge Elimination System
NRAP	No Remedial Action Planned
OCA	Other Cleanup Action

ORV	off road vehicle
PA	Preliminary Assessment
PPE	probable point of entry
ppm, mg/kg, mg/L	parts per million, milligrams per kilograms, milligrams per Liter
RCRA	Resource Conservation Recovery Act
RMP	Risk Management Plan
SI	Site Inspection
SQAP	Sampling and Quality Assurance Plan
SVL	Silver Valley Laboratories, Inc.
TAL	Target Analyte List
TDL	Target Distance Limit
TMDL	Total Maximum Daily Load
USFS	United States Forest Service
USGS	U.S. Geological Survey
VCP	Voluntary Cleanup Program

Section 1. Introduction

This report presents the results of the Preliminary Assessment and Site Inspection (PA/SI) for the Idaho Champion Group Lode Claims and the Pacific Group Lode claims. These claims are located within the Orogrande Mining District. The Idaho Department of Environmental Quality (DEQ) is contracted by Region 10 of the United States Environmental Protection Agency (EPA) to provide technical support for completion of preliminary assessments at various mines on private or state lands and/or those areas that have mixed ownership (public and private).

DEQ also completes site assessments to respond to complaints or information about sites possibly contaminated with hazardous waste. These sites include abandoned mines, rural airfields that have served as bases for aerial spraying, old landfills, illegal dumps, and abandoned industrial facilities with known or suspected releases.

In February 2002, DEQ initiated a Preliminary Assessment Program to evaluate and prioritize assessment of such 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 like those found in the Idaho Champion and Pacific Group Lode claims can be cost effectively assessed on a watershed basis.

For additional information about the Preliminary Assessment Program, see the following:

http://www.deq.idaho.gov/waste/prog_issues/mining/pa_program.cfm

The Idaho Champion and Pacific Group Lode claims are located around patented and unpatented mining claims on federal lands administered by the United States Forest Service (USFS). The Idaho Champion and Pacific Group Lode claims contain numerous claims, mines, and a mill site. In June 2010, DEQ visited the area and performed a site assessment. Figure 1 shows the location of the Orogrande Mining District.

Numerous sources were used during the "desktop" research prior to visiting the site. Most notably are the articles on the history and geology written by Erdman, Kauffman, and Mitchell of the Idaho Geological Survey (2001) and by John C. Reed, Idaho Bureau of Mines and Geology (1934). DEQ could not improve or expound upon these reports by writing additional historical or geological text, therefore they were directly referenced and cited.

DEQ visited the Idaho Champion and Pacific Group Lode claims during the week of June 27–29, 2010. DEQ would like to thank Al Haener, property owner, for granting access to the property and Stephanie Bransford, Mr. Haener's granddaughter, for her assistance with that access. DEQ also utilized public access via USFS mining property. DEQ did not purposely or knowingly trespass on any private holdings.

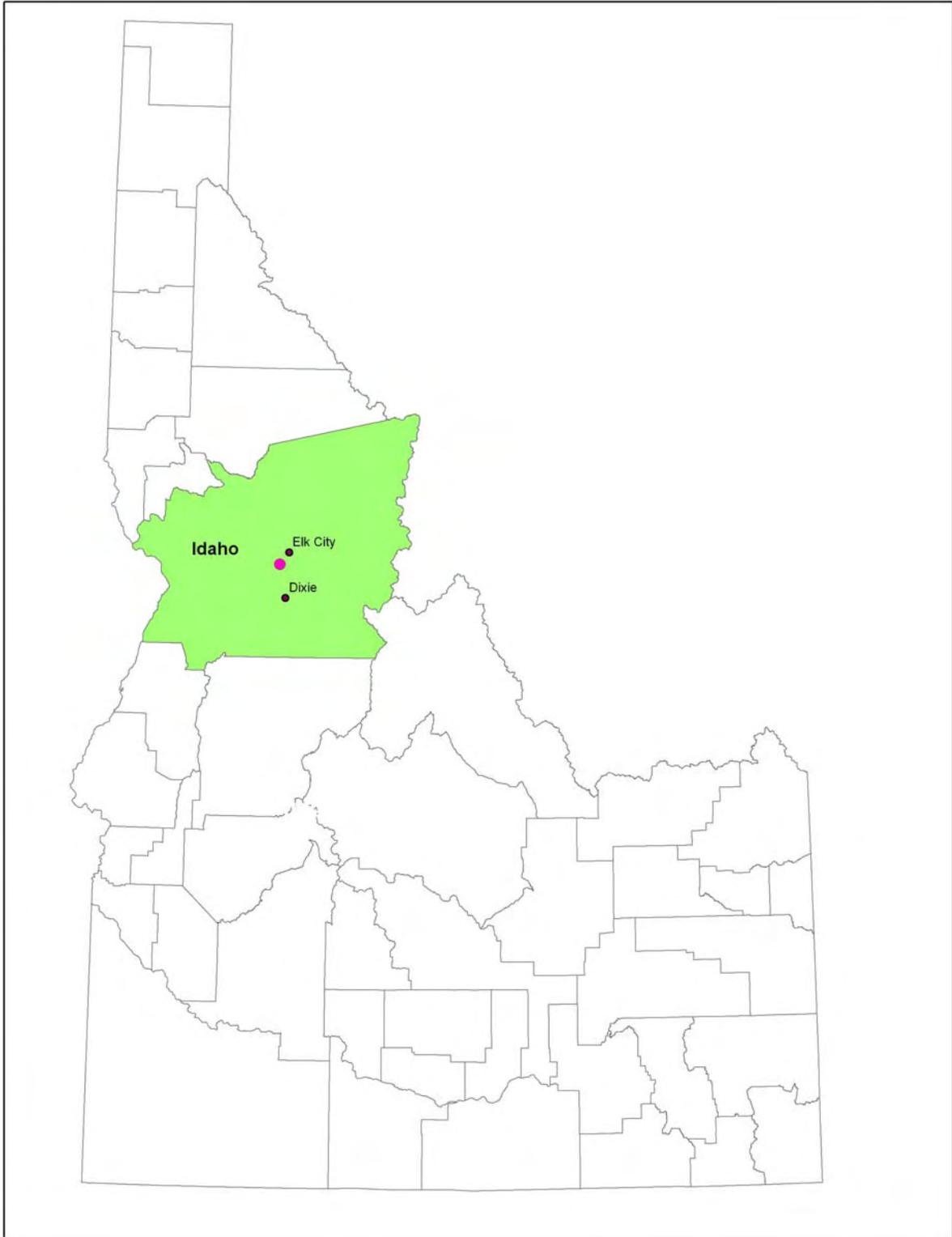


Figure 1. Location of the Orogrande Mining District (pink dot) in Idaho County, Idaho

Section 2. Ownership

DEQ does not warrant the ownership research or location of property boundaries contained in this report. The information regarding ownership and property boundaries was obtained from several sources including the Idaho County Assessor's Office and the U.S. Department of Interior – Bureau of Land Management (BLM) General Land Office (GLO) Records. This area has numerous private land owners and is mixed with unpatented mining claims administered by the USFS.

The Idaho Champion and Pacific Group Lode claims are owned by Al Haener of Haener Properties, Ltd Partnership.

During the site assessments, DEQ has used references from several different documents including U.S. Geological Survey (USGS) maps, county tax rolls, and historical reports that have spelled numerous claim names, town sites and/or geographic features differently from one another. DEQ's use of the different spellings is to remain in context with the reference used for each given section of text or written in this report.

Figure 2 is a topographical map of the area. Figure 3 is an aerial photo overlain by approximate claim boundaries and names of assessed properties of the Idaho Champion and Pacific Group Lode claims.

In the following ownership description the terminology “**Partial Determination**” is meant to convey a very brief summary of DEQ's assessment of individual claims and parcels relative to human health and ecological risk factors associated with toxicological responses to mine wastes. A determination of No Remedial Action Planned or “**NRAP**” means based on current conditions at the site, DEQ did not find any significant evidence indicating the potential of adverse toxicological effects to human or ecological receptors on the parcel of land. This determination says nothing about risks associated with physical hazards such as open adits, open shafts, high walls, or unstable ground. The Partial Determination of “**Calculate HRS**” indicates DEQ has determined there is sufficient evidence of a release of hazardous substances, complete pathways, and likely exposure of sensitive receptors. Therefore, the site conditions warrant calculation of a “**Hazard Ranking Score**” (HRS) by EPA's contractors. This designation also indicates DEQ has made significant conclusions and recommendations that additional site assessments and/or remedial actions are necessary to prevent adverse effects to human or ecological receptors. These conclusions and recommendations are contained in Section 11 of this report. DEQ did not find any sites requiring the Partial Determination of Calculate HRS in the Idaho Champion and Pacific Group Lode claims.

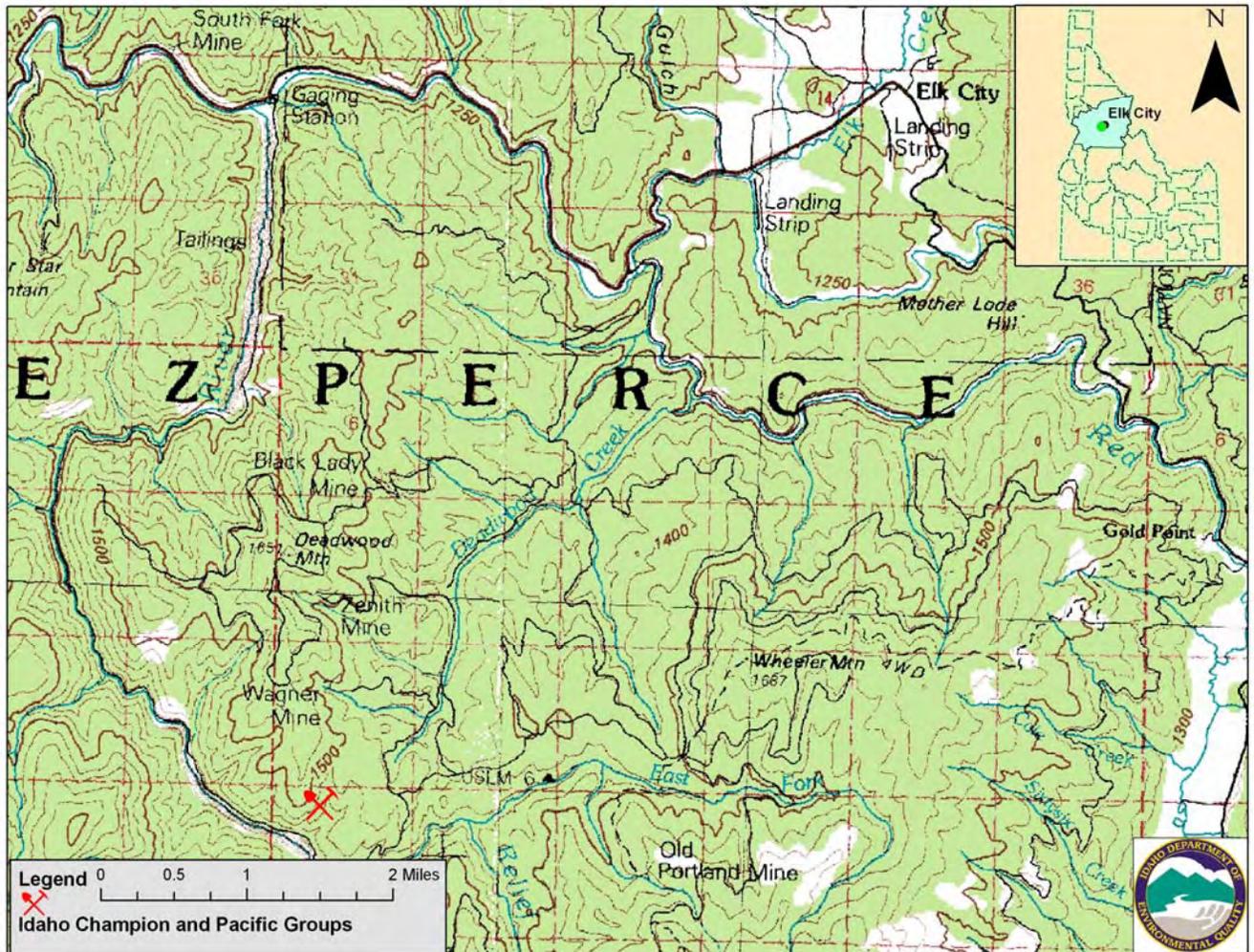


Figure 2. Topographical Location Map of the Idaho Champion Group Lode and Pacific Group Lode Claims (Map Source: USGS 24k)

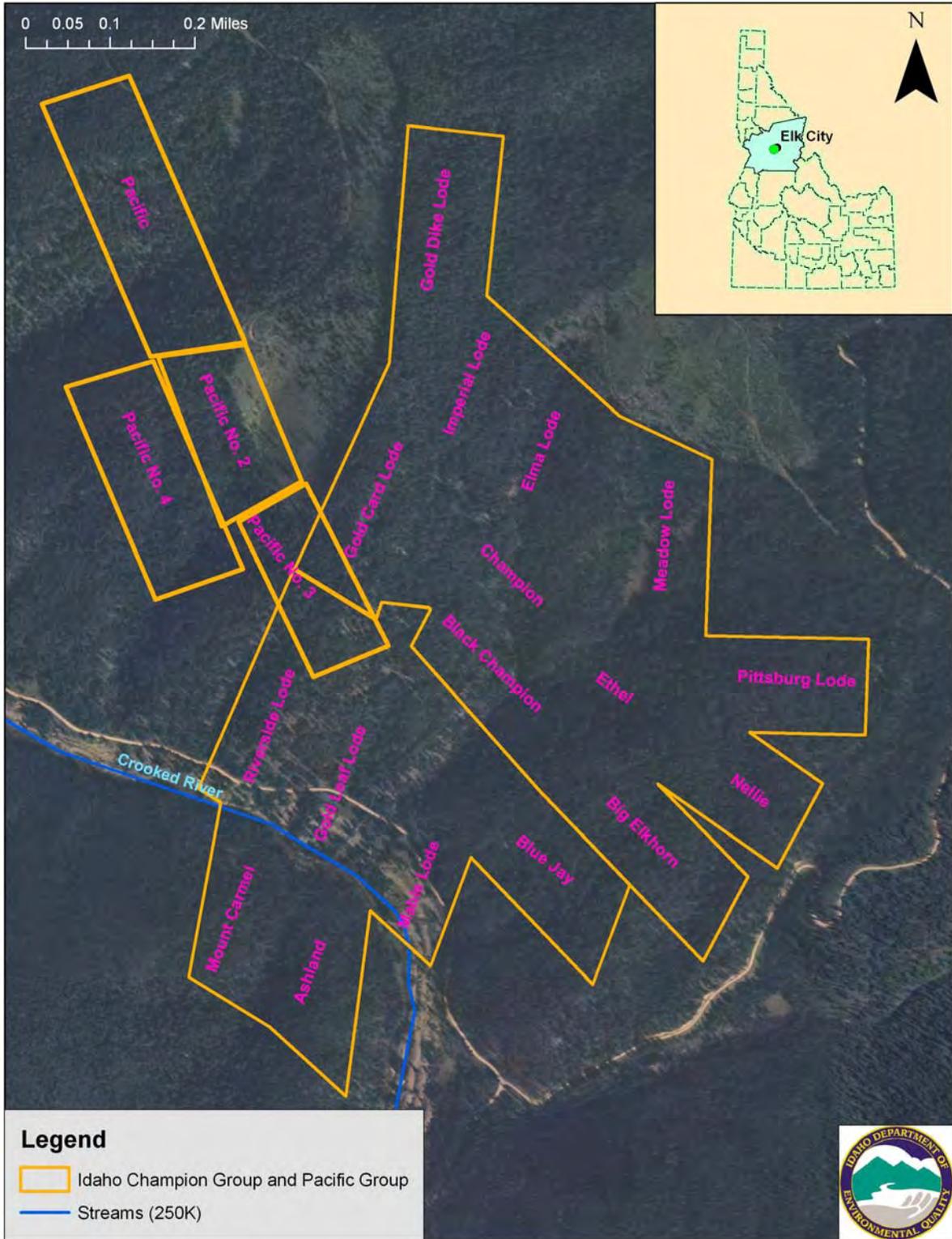


Figure 3. Aerial Location Map of the Idaho Champion Group Lode and Pacific Group Lode with Claim Names, Idaho County 2010 Parcel Data Overlay (Map Source: 2004 National Agriculture Imagery Program (NAIP))

Table 1. Idaho Champion Group Lode and Pacific Group Lode Claims Ownership

Mine/Mill Site	Owner(s)	Mine AKA	Township	Range	Section(s)	Latitude (N)	Longitude (W)	DEQ Status
Idaho Champion Group Lode and Pacific Group Lode Claims	Al Haener Haener Properties, Ltd Partnership 1918 4th Ave. N Lewiston, ID 83501 Parcel Nos: 28N08E192410, 28N08E193610	Pacific Mine/Pacific Group Patent Champion Group Idaho Champion Deposit Black Champion Patent Champion Patent Nellie Patent	28N 29N	8E 7E	18, 19 13, 24	45.75529	-115.5336	NRAP
	USDA Forest Service Nez Perce National Forest 104 Airport Road Grangeville, ID 83530	Gold Dike Patent Meadow Patent Imperial Patent Elma Patent Ethel Patent Crown Point Patent Gold Card Patent Pittsburg Patent Big Elk Horn Patent, Gold Leaf Patent Riverside Patent Mabel Patent Blue Jay Patent						

Section 3. Overview and Location

Access to the Idaho Champion and Pacific Group Lode claims, which are patented claims, was granted to DEQ by Al Haener, the private property owner. The data and observations made during the site visit were used to make specific conclusions regarding this private property and to some extent regarding cumulative effects of all public and private mining properties in the watershed.

The area is accessible from State Highway 14 heading toward Elk City. Turn off the highway onto Crooked River Road (County Road 233) and travel approximately 7.6 miles. At this location, the claims straddle both sides of the road and extend across Crooked River.

This area contains some placer tailings claims along the river. There are residences upstream of the site on Crooked River which are presumed to be seasonal. There is also an Idaho Department of Fish and Game (Fish and Game) Lower Crooked River fish trap facility and office/residence on the Crooked River approximately two miles above the South Fork of the Clearwater River Bridge. During DEQ's visit it was noted that Fish and Game was conducting snorkel (biological) surveys on Crooked River. DEQ staff spoke with Fish and Game staff and learned there were a large number of whitefish in the river.

The area is heavily used by recreationists. Motorcycle and off road vehicle (ORV) traffic is quite common. There are a number of established and dispersed campsites along Crooked River which are located on the tailings piles. The Orogrande town site around the Gnome Mine buildings has historical markers encouraging people to visit the area.

As is evidenced in Photo 1, Crooked River was extensively dredge mined in the past. These historic dredging activities left an interesting and permanent pattern which Crooked River now flows through. Photo 1 was taken many decades ago, as these dredge piles are now covered with vegetation.



**Photo 1. Aerial view of Crooked River and the legacy of dredge mining for gold.
Photo provided by the Nez Perce National Forest**

Section 4. Mine Site History

DEQ utilizes historical research for several purposes. Initially, historical information highlights potential contaminants of concerns, the magnitude of waste sites, and potentially dangerous physical hazards such as open adits and shafts. DEQ also uses the information to properly identify mine and mill facilities, unravel inconsistencies that may exist in property boundaries and ownership, and historical land uses that coincide with mining.

There are 18 patented claims in the Idaho Champion and Pacific Group Lode claims. The historical information assisted DEQ in understanding the relative levels of production, commodities, and potential waste types necessary to prepare for site assessment field work.

DEQ noted during the site visit that many of the mine sites described in the histories are particularly important to both the federal government and State of Idaho. This information documents the relative importance of historic mining districts and workings as they are re-evaluated from the perspectives of economics, multiple land use, human health, and ecological risks.

Numerous sources were used during the “desktop” research prior to visiting the site. The historical passages below are taken from Erdman, Kauffman, and Mitchell of the Idaho Geological Survey (2001) and by John C. Reed, Idaho Bureau of Mines and Geology (1934). DEQ found very few reasons or basis to expound on these writings.

Erdman et al (IGS 2001) wrote:

The Thunder Mountain Gold Company was incorporated in 1904 and changed its name to the Idaho Champion Mining and Milling Company in 1909. That year, the Idaho Inspector of Mines reported that the company's property had 3,000 feet of workings, a ten-stamp mill, and the latest "improved" cyanide plant (Moore 1910). In 1911, five of the ten stamps operated for several months to test the ore, which was difficult to treat. Idaho Champion forfeited its corporate charter in 1912.

The Esperanza Gold Dikes Mining Corporation was organized in 1925. The company traded its stock for ownership of the 18 patented claims of the Champion Group. At that time, the property had six tunnels (four of which were 1,000 feet, 600 feet, 400 feet, and 200 feet long) and five shafts (which together were 300 feet deep). The total development was about 3,000 feet of workings. The company noted that the previous owners had closed the property about 18 years earlier because they couldn't mill the ore successfully and that the property had been sold in bankruptcy proceedings. For the next few years, the company prospected the property and made plans to clean out the old workings, all of which were caved. The number of shafts reported on the property decreased to two or three (depending on the year), while the reported total workings increased to 4,000 feet.

In 1930, Oscar Hershey examined the property for F. W. Bradley of the Treadwell Yukon Company, Ltd. (Bradley was also the president of the Bunker Hill & Sullivan Mining & Concentrating Company.) Hershey (1930, p. 2) described the former mill: "Several hundred yards down Relief Creek there is the old Idaho Champion quartz mill building. The machinery has been removed, but it evidently consisted of a 10-stamp battery, plates, and perhaps several old style concentrators. Also we can see a small roasting furnace probably used for roasting concentrate. There seems to have been a cyanide plant." Hershey noted four tunnels, all caved.

Esperanza held the property throughout the 1930s without doing any significant work. In 1941, the property was leased to W. A. Noon of Portland, Oregon. Noon was planning to dredge part of the property in 1942 or 1943, but World War II and War Production Limitation Order L-208 prevented this from happening. Minor dredging may have been done in the 1950s. Esperanza forfeited its corporate charter in 1960. The company's charter was reinstated in 1971 and forfeited again in 1973, but it is not known if this incarnation of the company had anything to do with the Idaho Champion Mine. In the mid-1970s and early 1980s, the property was prospected by at least two companies. In 1986, it was acquired by Naneco Resources and reported to contain leachable gold averaging 0.056 ounces per ton.

The following, taken from Erdman et al (IGS 2001), is the Environmental Conditions portion of their report:

Four adits were found on the property, along with numerous old prospect pits. Adits 1, 2, and 3 are caved and overgrown with thick vegetation. Figure 3.39-3 is a view of Adit 1, the easternmost tunnel; this picture is representative of these three adits. Numerous large trees are growing on the waste dump for Adit 1, which measures 110 feet long, 15 feet wide, and 15 feet thick. The dumps for caved Adits 2 and 3 partially dam the small stream that flows past them. The dump for Adit 2 measures 75 feet long, 20 feet wide, and 10 feet thick; and the dump for Adit 3 measures 50 feet long, 20 feet wide, and 10 feet thick. Although the stream cuts through the dumps, they appear to be fairly stable, with only minor erosion. Adit 4, also caved, is the westernmost adit on the property. This adit is discharging approximately 1 gallon per minute. The waste dump for Adit 4 measures 70 feet long, 25 feet wide, and 10 feet thick. The total disturbed area covers 1-2 acres.

The mill site consists of the wood foundation for the mill building and a tailings disposal area. The tailings area is approximately 100 feet long, 20 feet wide, and 5 feet thick, although these dimensions are only a rough estimate; the tailings may cover a considerably larger area, up to an acre or two. The tailings are adjacent to, and south and west of the mill foundation. The entire area is overgrown with large trees.

Although not specific to the Idaho Champion and Pacific Group Lode claims, J.C. Reed (1934) describes placer operations further downstream which probably reflect the placer operations on the Idaho Champion and Pacific Group Lode claims. The area described now has the Fish and

Game fish trap facility and office/residence situated on it and has been dredged since this article was written.

Gravel flat along Crooked River:

For the last two miles of its course before emptying in the South Fork, Crooked River flows in a gravel floored plain about a quarter of a mile wide. Some of this gravel has been prospected, but no considerable amount of placer work has been done. The altitude of the plain ranges between 3,900 and 4,000 feet, which corresponds to the lowest gravels in Elk and Newsome Creek basins. The gravel may well be a tertiary deposit and more prospecting may reveal re-concentrated auriferous gravels either on the flat, along tributary streams, or on the valley sides.

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Section 5. Climatology

Northern Idaho is dominated by Pacific maritime air masses and prevailing westerly winds. Over 85 percent of the annual precipitation occurs during the fall, winter, and spring months. Cyclonic storms consisting of a series of frontal systems moving east produce long duration, low intensity precipitation during this period of the year. In winter and spring, this inland maritime regime is characterized by prolonged gentle rains, fog, cloudiness, and high humidity; with deep snow accumulations at higher elevations. Winter temperatures are often 15 to 25°F warmer than the continental locations of the same latitude. The climate during the summer months is influenced by stationary high pressure systems over the northwest coast. This warm dry system results in only 10 to 15 percent of the annual precipitation falling during the summer.

The nearest city to the Orogrande area is Elk City. At an elevation of 4060 feet the mean annual temperature is 41.3°F, mean annual precipitation in inches is 30.2, and the average number of days above 90°F per year is 12.2. The elevation along the river at the Idaho Champion and Pacific Group Lode claims is approximately 4400 feet.

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Section 6. General Geology

Erdman et al (IGS 2001) wrote:

The rocks in the vicinity of the Idaho Champion Mine include the fine-grained quartzite unit and the biotite gneiss and schist unit of the Middle or Early Proterozoic Elk City metamorphic sequence. These rocks are intruded by Late Cretaceous biotite granodiorite. The mine is near the Orogrande shear zone (Lewis and others, 1990, 1993). The adits on the property explored quartz veins enclosed in the metamorphic rocks.

Figure 4 shows the major lithology of the Idaho Champion and Pacific Group Lode claims.

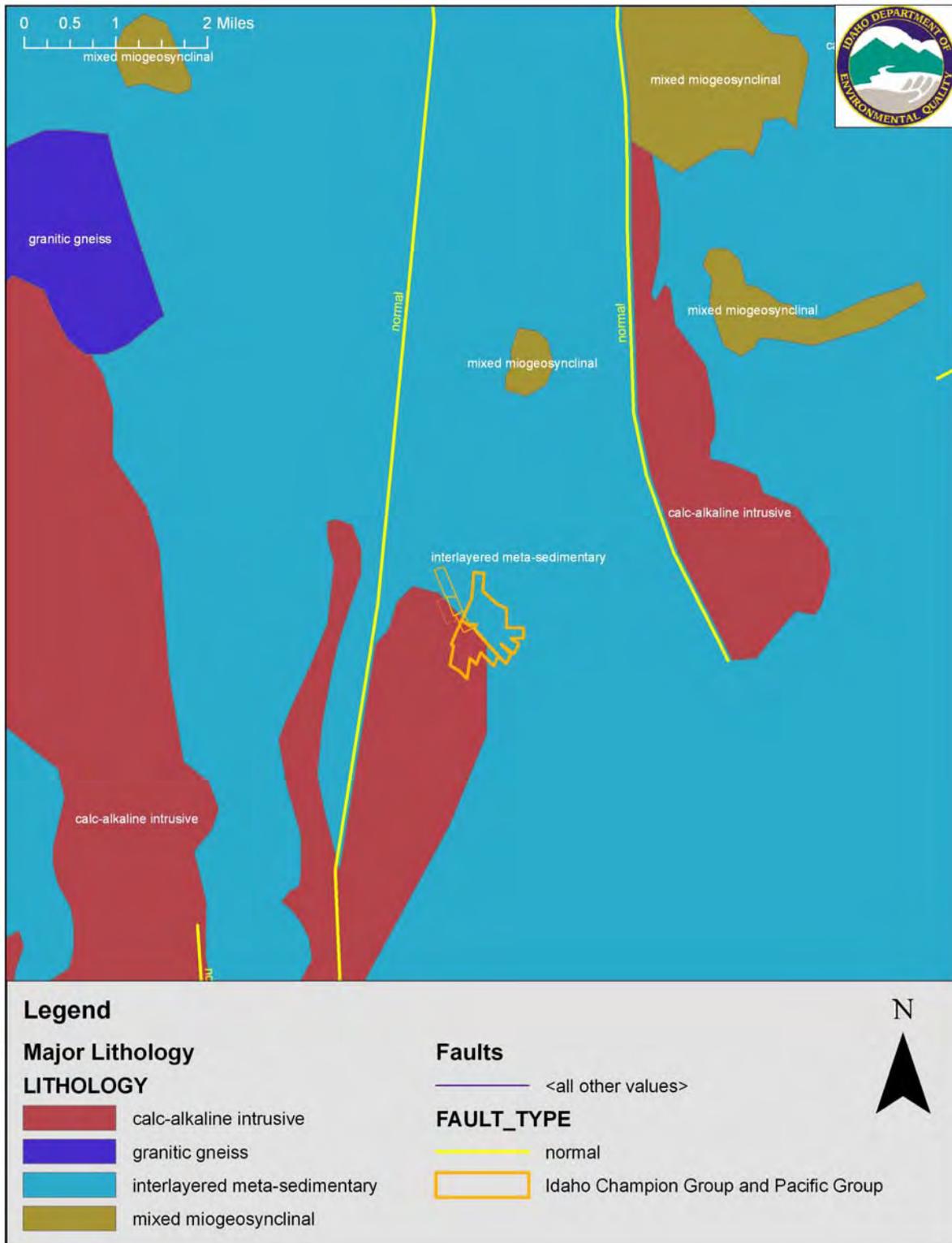


Figure 4. Major Lithology of the Idaho Champion Group Lode and Pacific Group Lode Claims (Map Source: SDE Feature Class, USGS 1995; Idaho DEQ GIS ArcSDE 9.2 Geodatabase)

Section 7. Current and Potential Future Land Uses

More than 100 years ago the beneficial use of lands and waters in the Orogrande area was mining, subsistence hunting and fishing, and associated commerce to support the mining operation industry. These uses expanded to include a broader market for timber, fur trapping, recreational hunting and fishing, camping, and ORV touring. With the exception of pack animals, very little evidence of livestock, specifically the cattle industry, has been found at the site. It is likely the mining patents will continue to be subdivided and sold for recreational properties. A number of patents have already been developed with homes and out building construction. At the time of this writing, numerous cabins and large residences have been constructed in the general vicinity of the Idaho Champion Group and Pacific Group Lode claims. No structures are presently on the patented mining claim, but the potential does exist.

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Section 8. Mine and Mill Site Conditions

The following photograph illustrates what appeared to be an exploratory trench dug at the highest point on the claims. No evidence of a dump or live water was present.



**Photo 2. Idaho Champion Adit 1, exploratory trench at Lat. 45.75865°N,
Long. -115.5052°W (6/29/10)**

The following photographs show a depression, identified as Adit 2, located directly above an access road/ORV trail. Live water flowed along the road but no water flowed from the collapsed adit.



**Photo 3. Collapsed Idaho Champion Adit 2 located at Lat. 45.75610°N,
Long. -115.51777°W (6/29/10)**



**Photo 4. Collapsed Idaho Champion Adit 2 located at Lat. 45.75610°N,
Long. -115.51777°W (6/29/10)**

The waste dump shown in the following photo appeared to be associated with Idaho Champion Adit 2. It was well vegetated with six inches or more of duff over the country rock. No mineralized material was present and no evidence of vegetative stress due to contaminants was noted.



Photo 5. Possible waste dump associated with Idaho Champion Adit 2 located at Lat. 45.75626°N, Long. -115.5177°W (6/29/10)

Idaho Champion Adit 3 was well vegetated with no water being generated from the adit. No mineralized material was present at this site.

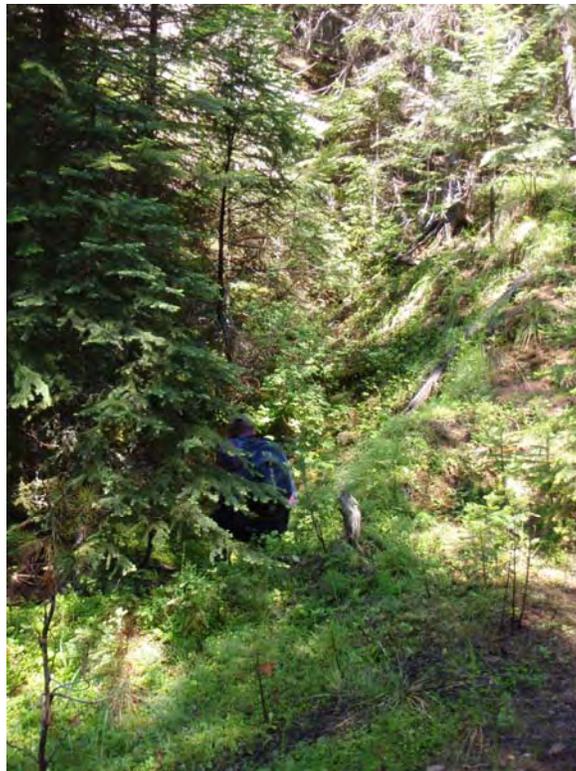


Photo 6. Collapsed Idaho Champion Adit 3, Lat. 45.75586°N, Long. -115.51688°W (6/29/10)

The following photo below shows where sample CRSW1 was collected which is the probable point of entry (PPE) in Crooked River below the Idaho Champion and Pacific Group Lode claims. There were no indications of stress due to contaminants in riparian or wetland flora.



Photo 7. Crooked River downstream of the perennial influence from the Idaho Champion Group. Surface water quality sample CRSW1 and stream sediment sample CRSD1 were collected here, Lat. 45.76045°N, Long. -115.53805°N (6/29/10)

The northern most perennial stream that runs off the Idaho Champion Group flows into wetlands and a riparian area alongside Crooked River Road and stream. The flow of this stream was less than 20 gallons per minute (gpm). There were no indications in the riparian or wetlands flora of stress due to contaminants. Samples ICSW1 and ICSD1 were collected from this stream. Sediment accumulating at the base of the flow was dark brown to buff with approximately 50 percent passing the #9 mesh screen. The sediment contained less than 20 percent organics and was screened and dried for analysis.



Photo 8. Water quality sample ICSW1 and sediment sample ICSD1 were collected at Lat. 45.75900°N, Long. -115.53631°W (6/29/10)

DEQ observed a pond created by the placer deposits from historic mining along the Crooked River. Vegetation appeared to be well established on the top and toe of the placer deposits.



Photo 9. Pond located across Crooked River Road from perennial stream no. 1 (6/29/10)

The second perennial stream DEQ observed is located along Crooked River Road upgradient from the northern most perennial stream. Flows in this perennial stream were greater than 50 gpm. No indications were found of stress due to contaminants in the riparian or wetlands flora.



Photo 10. Idaho Champion perennial stream no. 2. Water quality sample ICSW2 and sediment sample ICSD2 were collected here, Lat. 45.75529°N, Long. -115.53368°W (6/29/10)

Sediment accumulating at the base of the flow was dark brown to buff with approximately 50 percent passing the #9 mesh screen. The sediment contained less than 20 percent organics and was screened and dried for analysis.



Photo 11. Sediment sample ICSD2 collected at Lat. 45.75229°N, Long. -115.53368°W (6/29/10)

The third perennial stream DEQ observed is located along Crooked River Road upgradient from the two previously mentioned perennial streams. Flows in this perennial stream were less than 20

gpm. There were no indications in the riparian or wetlands flora of stress due to contaminants. Water quality sample ICSW3 and sediment sample ICSD3 were collected from this location.



Photo 12. Idaho Champion perennial stream no. 3. Samples ICSW3 and ICSD3 were collected from this location, Lat. 45.75275°N, Long. -115.52749°W (6/29/10)

Sediment accumulating at the base of the flow was dark brown to buff with approximately 50 percent passing the #9 mesh screen. The sediment contained less than 20 percent organics and was screened and dried for analysis.



Photo 13. Sediment sample ICSD3 after passing through the #9 mesh screen taken at Lat. 45.75275°N, Long. -115.52749°W (6/29/10)

As illustrated in the following photo, all vegetation was lush and healthy in appearance. No vegetative indication of stress due to contaminants was apparent.



Photo 14. Riparian area developed in placer tailings between Crooked River Road and Stream. (6/29/10)

Idaho Champion perennial stream no. 4 is located adjacent to the remnants of the Idaho Champion mill site and the few collapsed adits found on the property. Samples ICSW4 and ICSD4 were collected at this location.

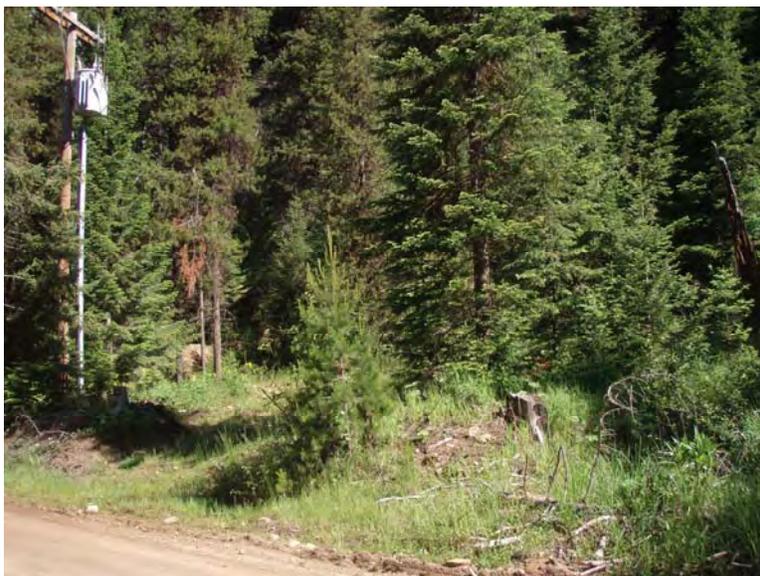


Photo 15. Idaho Champion perennial stream no. 4 samples ICSW4 and ICSD4 were collected at this location, Lat. 45.75145°N, Long. -115.52045°W (6/29/10)

Flows in perennial stream no. 4 were greater than 20 gpm. There were no indications in the riparian or wetlands flora of stress due to contaminants. Sediment accumulating at the base of

the flow was dark brown to buff with approximately 50 percent passing the #9 mesh screen. The sediment contained less than 20 percent organics and was screened and dried for analysis.



Photo 16. View across Crooked River Road from perennial stream no. 4 sampling site, Lat. 45.75145°N, Long. -115.52045°W (6/29/10)

Flows from the perennial stream that runs through the mill site enter wetlands and riparian areas adjacent to Crooked River Road and Stream. As stated, there were no indications of contaminants or stress in floral communities. There were, however, numerous sightings of brook trout and salmonids in ponds that developed in the placer tailings areas.

Although photographs were not taken because of heavy brush and dim lighting in some areas, there are numerous remnants of foundations and equipment at the Idaho Champion mill site located adjacent to Crooked River Road at Lat. 45.75145°N, Long. -115.52045°W. There were not, however, any indications of residual ore, tailings, or chemicals present at this location.

Background water and sediment samples (CRSW2 and CRSD2) were collected from Crooked River upgradient from the mine and mill site. Flows in the river were not measured. Although it was apparent the placer/dredging operations had a great impact on the morphology of the stream and adjacent upland, riparian, and wetland areas, there were no indications in the riparian or wetlands flora of stress due to contaminants.



Photo 17. Crooked River sampling location upstream of the Idaho Champion Group, Lat. 45.75865°N, Long. -115.5052°W (6/29/10)

Sediment accumulating in a depositional area along the stream was dark brown to buff with approximately 50 percent passing the #9 mesh screen. The sediment contained less than 20 percent organics and was screened and dried for analysis.



Photo 18. Crooked River sampling location upstream of the Idaho Champion Group, Lat. 45.75865°N, Long. -115.5052°W (6/29/10)

Section 9. Sample Collection and Analysis

9.1 Collection

A total of 12 samples were collected from the Idaho Champion and Pacific Group Lode claims.

- Sediment – 6 samples
- Water – 6 samples*

Sample locations are shown on Figure 5.

The sediment samples were sieved at the sample location, placed in a properly marked zip lock bag and then placed in a similarly marked cloth bag, and entered into the Chain-of-Custody form prior to shipping to Silver Valley Laboratories, Inc. (SVL). The portion of the sample that passed through a #9 mesh sieve was sent for laboratory analysis.

After the samples were bagged and tagged, Nitrile gloves and disposable plastic spoons were discarded into a sealable waste bag. The screens used to sieve and collect samples were washed and scrubbed with Alconox and thoroughly rinsed with distilled water and then dried with paper towels. The sieves were then stored in a clean, isolated container for transportation to the next sample location.

Prior to collection of field parameters for water quality analysis, laboratory prepared sample bottles were labeled and triple rinsed by a gloved technician who then filled the bottles as grab samples. The bottles were acidified with 10 ml nitric acid, closed, dried, and placed in a cooler with ice.

Once the water samples were collected, a technician used a Horiba to collect field parameters (pH, conductivity, turbidity, dissolved oxygen, temperature, and salinity) from an undisturbed site slightly upgradient from where the water sample was collected. Subsequent to collection of field parameters, the probe for the Horiba was rinsed in distilled water and recalibrated for each new site.

The surface water samples were submitted in accordance with EPA Chain-of-Custody procedures to SVL in Kellogg, Idaho for analysis of RCRA 8 Suite + copper and zinc. A copy of the laboratory report is included as Appendix A. A summary of the laboratory results is included in Tables 2 through 4.

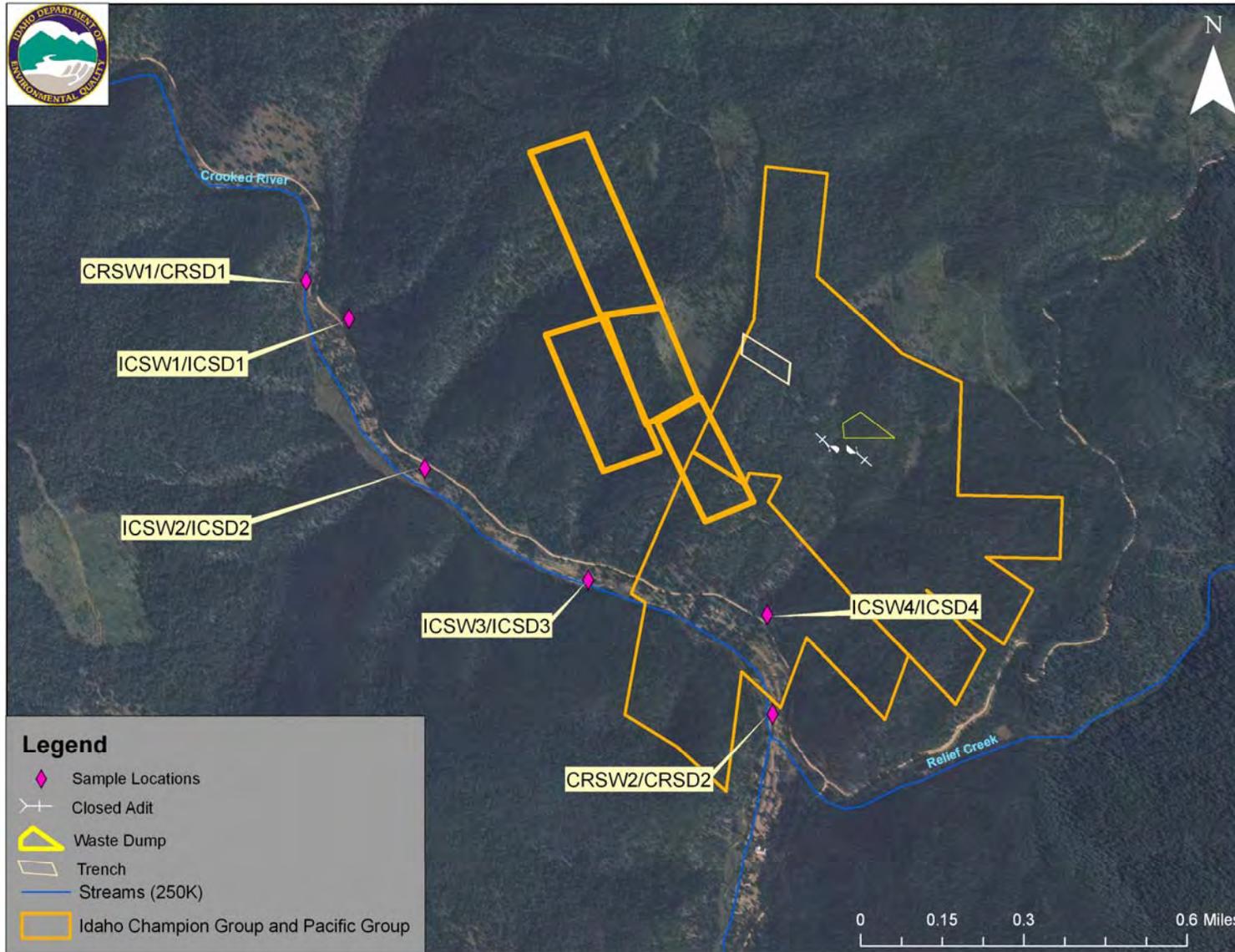


Figure 5. Sample Locations for the Idaho Champion Group Lode and Pacific Group Lode Claims (Map Source: Idaho DEQ GIS ArcSDE 9.2 Geodatabase; Digital Orthoimagery Series of Idaho (2009, 1-Meter, Natural Color))

Table 2. Sediment Sample Analysis

Idaho Champion Group Lode and Pacific Group Lode Claims

Metals	IDTLs (mg/kg)	HHSLs (mg/kg)	Crooked River Background Sediment Sample (Upstream) CRSD2 (mg/kg)	Crooked River PPE Sediment Sample (Downstream) CRSD1 (mg/kg)	Perennial Stream No. 1 Sample ICSD1 (mg/kg)	Perennial Stream No. 2 Sample ICSD2 (mg/kg)	Perennial Stream No. 3 Sample ICSD3 (mg/kg)	Perennial Stream No. 4 Sample ICSD4 (mg/kg)
Antimony	4.77	31	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Arsenic	0.391	23	<2.5	6	3.6	3.4	2.5	9.9
Barium	896	1600	77.6	58.3	140	66.7	88.2	87.5
Cadmium	1.35	39	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chromium	7.9	210	11.6	6.08	12.9	4.54	4.12	4.71
Copper	921	2900	5.36	5.29	9	2.46	3.19	4.36
Iron		55000	10300	8750	22600	8030	8450	14800
Lead	49.6		2.99	5.87	5.3	1.73	3.79	26.1
Manganese	223	3600	108	92.4	393	128	142	293
Selenium	2.03	23	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Silver	0.189	390	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Zinc	886	390	15.7	16	24.3	10	7.96	9.92
Mercury	0.00509	23	0.103	0.045	0.063	<0.033	0.065	0.408

BOLD = exceeds the BLM Ecological Risk Benchmarks.

Orange = exceeds Idaho Initial Default Target Levels (ITDLs).

Yellow = exceeds Human Health Screening Levels (HHSLs).

Blue = exceeds Background Levels by greater than three times.

**Table 3. Wildlife and Livestock Risk Management Criteria for Metals in Soils (mg/kg)
BLM Technical Note 390 Rev. 2004 “Risk Management Criteria for Metals at BLM Mining Sites”**

Idaho Champion Group Lode and Pacific Group Lode Claims

Metals	Elk	Mule Deer	Big Horn Sheep	Deer Mice	Cottontail Rabbits	Canada Goose	Mallard	Robin	Cattle	Sheep	Median Values
Antimony											
Arsenic	328	200	387	230	438	61	116	4	419	275	275
Barium											
Cadmium	3	3	9	7	6	2	1	0.3	15	12	8
Chromium											
Copper	131	102	64	640	358	161	141	7	413	136	136
Iron											
Lead	127	106	152	142	172	34	59	6	244	125	125
Manganese											
Selenium											
Silver											
Zinc	275	222	369	419	373	271	196	43	1082	545	307
Mercury	11	11	6	2	15	6	4	1	45	8	8

Table 4. Total Recoverable Metals Analysis (mg/L) in Surface Water

(Concentrations expressed in mg/l unless otherwise stated)

Idaho Champion Group Lode and Pacific Group Lode Claims

	DEQ Ground Water Standard	DEQ Drinking Water Standard	DEQ Cold Water Biota Standard	DEQ Cold Water Biota Standard	Crooked River Background Surface Water Sample (Upstream)	Crooked River PPE Surface Water Sample (Downstream)	Perennial Stream No. 1 Surface Water Sample	Perennial Stream No. 2 Surface Water Sample	Perennial Stream No. 3 Surface Water Sample	Perennial Stream No. 4 Surface Water Sample
Description	(T)	MCL	Acute	Chronic	CRSW2	CRSW1	ICSW1	ICSW2	ICSW3	ICSW4
Antimony					<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	0.05	0.01	0.36	0.19	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Barium	2	2			0.0156	0.0165	0.0243	0.0548	0.0519	0.0776
Cadmium	0.005	0.005	0.00082 (H)	0.00037 (H)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chromium (Total)	0.1	0.1			<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Copper	1.3		0.0046 (H)	0.0035 (H)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	0.3*				0.278	0.209	0.292	0.808	0.688	1.44
Lead	0.015	0.015	0.014 (H)	0.00054 (H)	<0.0075	<0.0075	<0.0075	<0.0075	<0.0075	<0.0075
Manganese	0.05				0.0061	0.0053	<0.004	0.017	0.0144	0.0574
Selenium	0.05	0.05	0.018 (T)	0.005 (T)	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	0.1*		0.00032 (H)		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	5*		0.035 (H)	0.032 (H)	<0.01	<0.01	<0.01	0.0135	<0.01	<0.01
pH				6.5 - 9.0	6.72 su	7.02 su	6.87 su	6.8 su	6.47 su	6.5 su
Conductivity					0.018 µs/cm	0.019 µs/cm	0.024 µs/cm	0.022 µs/cm	0.023 µs/cm	0.026 µs/cm
Turbidity				Not >50 NTU instantaneous and not >25 NTU over a 10 day period	<10 NTU	<10 NTU	<10 NTU	<10 NTU	<10 NTU	<10 NTU
Dissolved Oxygen				<6	11.25	10.36	12.18	10.36	10.7	12.69
Temperature				Cold water aquatic life 22°C or less or a maximum daily average not >19°C Salmonid spawning 13°C or less with a maximum daily average not >9°C	10.5° C	9.8°C	9.9°C	9.9°C	10.7°C	10.0°C
Salinity					0.0	0.0	0.0	0.0	0.0	0.0

* secondary MCL (T) – Standard in Total (H) – Hardness dependent * 25 mg/L

Bold = Exceeds Background Levels by greater than 3 times.

Gray = Exceeds Ground Water Standard.

9.2 Sediment Analysis

Sediment samples were analyzed at SVL utilizing EPA 6000/7000 method 6010B for all metals except mercury where method 7471A was utilized. Laboratory analytical results have been compared to and will be discussed below relative to Idaho's *Initial Default Target Levels* (IDTLs), EPA Region 6 Human Health Screening Levels (HHSLs), and the U.S. Department of Interior-BLM Wildlife and Livestock Risk Management Criteria for Metals in Soils (and sediments) (Technical Note 390 Rev. 2004). Analytical data will also be discussed relative to background concentrations found in sediment sample CRSD2.

The IDTLs are risk-based target levels for certain chemicals that have been developed by DEQ using conservative input parameters, a target acceptable risk of 10^{-5} , and a *Hazard Quotient* of 1. These numbers, although used for comparison even at remote locations, are more applicable to sites where "unrestricted uses" such as residential development are expected. Similarly, the EPA Region 6 HHSLs are human health based risk derived for screening where residents are at risk for exposure. These concentrations are not unusual for a location or facility in a historic mining area such as the Idaho Champion and Pacific Group Lode claims.

Idaho Champion and Pacific Group Lode Claims Background Sample

Background sediment sample CRSD2 was collected from the bed of Crooked River upstream of the Idaho Champion and Pacific Group lode claims.

The sample exceeded the IDTLs for chromium by 1.4 times and for mercury by 20.2 times. These metal levels are not significantly elevated considering this is not an area likely targeted for residential development. It is unlikely any existing human health or ecological risks will result from current uses.

The sample did not exceed any of the HHSLs parameters or the BLM Ecological Risk Management Criteria.

Crooked River PPE Sediment Sample

Sediment sample CRSD1 was collected from the bed of Crooked River downstream of the Idaho Champion and Pacific Group Lode claims. This sample was considered a probable point of entry (PPE) sample.

The sample exceeded the IDTLs for arsenic by 15.3 times and for mercury by 8.8 times. These levels indicate there would only be concern if this sample had been collected in proximity to a residential area.

The sample did not exceed any of the HHSLs, but it did exceed the BLM Ecological Risk Management Criteria for arsenic by 1.5 times. The animal at risk is the robin. Due to this sample being a subsurface sediment sample, it is highly unlikely for significant contact between a robin and the river bed to occur.

Although mercury was elevated, it was less than one half of the concentration of the background sediment sample. These metal levels are not significantly elevated, and it is unlikely any human health or ecological risks are associated with this area.

Perennial Stream No. 1 Sediment Sample

Sediment sample ICSD1 was collected downstream of the Idaho Champion and Pacific Group Lode claims from the bed of a perennial stream. Examination of the aerial photos for this area indicates this stream does not originate on the claims and may be indicative of additional background conditions in the watershed.

The sample exceeded the IDTLs for arsenic by 9.2 times, for mercury by 12.3 times, and for chromium by 1.6 times. This indicates there would only be concern if this sample was collected in proximity to a residential area.

Manganese exceeded the background sample concentration by 3.6 times. Given this is the only exceedance of background levels at this site, no additional sampling is warranted and risks are likely negligible.

Copper exceeded the BLM Ecological Risk Management Criteria by 1.3 times for the robin. Due to this sample being a subsurface sediment sample, it is highly unlikely for significant contact between a robin and the river bed.

The sample did not exceed any of the HHSLs. These values are not remarkable, and it is unlikely any human health or ecological risks are associated with this area.

Perennial Stream No. 2 Sediment Sample

Sediment sample ICSD2 was collected downstream of the Idaho Champion and Pacific Group Lode claims from a perennial stream. From an examination of the aerial photos for this area, it appears this stream originates on the claims.

The sample exceeded the IDTLs for arsenic by 8.6 times. The sample did not exceed the HHSLs or the BLM Ecological Risk Management Criteria. This value is not remarkable, and it is unlikely any human health or ecological risks are associated with this area.

Perennial Stream No. 3 Sediment Sample

Sediment sample ICSD3 was collected downstream of the Idaho Champion and Pacific Group Lode claims from a perennial stream. From an examination of the aerial photos for this area, it appears this stream originates on the claims.

This sample exceeded the IDTLs for arsenic by 6.3 times and for mercury by 12.7 times. The sample did not exceed the HHSLs or the BLM Ecological Risk Management Criteria. This value is not remarkable, and it is unlikely any human health or ecological risks are associated with this area.

Perennial Stream No. 4 Sediment Sample

Sediment sample ICSD4 was collected downstream of the Idaho Champion and Pacific Group Lode claims from a perennial stream. From an examination of the aerial photos for this area, it appears this stream originates on the claims. This sample site is in proximity to very old historical mine developments. Specifically, an adit, cabin, and an overgrown processing area that has no visual evidence of residual mine or mill waste piles.

This sample exceeded the IDTLs for arsenic by 25.31 times, for manganese by 1.3 times, and mercury by 80.15 times. This indicates some risks for future residential development.

This sample exceeded the background level for lead by 8.7 times. However, these concentrations are far below action levels at residential cleanups throughout the state. Since there are no residential uses or plans for this location, no additional cleanup is necessary. Should the planned uses for this site change to include either residential or industrial development, additional site characterization work is warranted.

This sample exceeded the BLM Ecological Risk Management Criteria for arsenic by 2.4 times and lead by 4.35 times for the robin. Although the sample exceeded the IDTLs for arsenic, manganese, and mercury, it did not exceed the HHSLs.

9.3 Water Quality Sample Analysis

There is significant interaction between surface and ground water systems, with the latter being more influent on the former. However, as discussed below, field parameters and laboratory analyses indicate, although metals are present locally, buffering capacity in host rocks and in the water column stifles migration of metals through the local surface and ground water systems.

Idaho Champion and Pacific Group Lode Claims Background Water Sample

Background surface water sample CRSW2 was collected from Crooked River upstream of the Idaho Champion and Pacific Group Lode claims.

This water sample did not exceed the DEQ ground water standard, drinking water standard, or the cold water biota standard. This sample also did not exceed State of Idaho standards for temperature, dissolved oxygen, pH, and turbidity.

These values are not remarkable, and it is unlikely any human health or ecological risks are associated with this area.

Crooked River PPE Water Sample

Surface water sample CRSW1 was collected from Crooked River downstream of the Idaho Champion and Pacific Group Lode claims. This sample was considered a PPE sample.

This water sample did not exceed the DEQ ground water standard, drinking water standard, or the cold water biota standard. This sample also did not exceed State of Idaho standards for temperature, dissolved oxygen, pH, and turbidity.

These values are not remarkable, and it is unlikely any human health or ecological risks are associated with this area.

Perennial Stream No. 1 Water Sample

Surface water sample ICSW1 was collected downstream of the Idaho Champion and Pacific Group Lode claims from a perennial stream. Examination of the aerial photos for this area indicates this stream does not originate on the claims, and it may be indicative of additional background conditions in the watershed.

This water sample did not exceed the DEQ ground water standard, drinking water standard, or the cold water biota standard. This sample also did not exceed State of Idaho standards for temperature, dissolved oxygen, pH, and turbidity.

These values are not remarkable, and it is unlikely any human health or ecological risks are associated with this area.

Perennial Stream No. 2 Water Sample

Surface water sample ICSW2 was collected downstream of the Idaho Champion and Pacific Group Lode claims from a perennial stream. From an examination of the aerial photos for this area, it appears this stream originates on the claims.

This surface water sample did exceed the DEQ ground water standard for iron by 2.69 times. This water sample did not exceed the DEQ drinking water standard or the cold water biota standard. Also, this sample did not exceed State of Idaho standards for temperature, dissolved oxygen, pH, and turbidity.

These values are not remarkable, and it is unlikely any human health or ecological risks are associated with this area.

Perennial Stream No. 4 Water Sample

Water sample ICSW4 was collected downstream of the Idaho Champion and Pacific Group Lode claims from a perennial stream. From an examination of the aerial photos for this area, it appears this stream originates on the claims. This sample site is in proximity to very old historical mine developments. Specifically, an adit, cabin, and overgrown processing area which show no visual evidence of residual mine or mill waste piles.

This surface water sample did exceed the DEQ ground water standard for iron by 4.8 times. This sample exceeded the background concentration for manganese by 3.13 times.

This water sample did not exceed the DEQ drinking water standard or the cold water biota standard. This sample also did not exceed State of Idaho standards for temperature, dissolved oxygen, pH, and turbidity.

These values are not remarkable, and it is unlikely any human health or ecological risks are associated with this area.

Section 10. Pathways and Environmental Hazards

10.1 Surface Water Pathways

The surface water migration pathway target distance limit (TDL) begins at the probably point of entry (PPE) of surface water runoff from a site to a surface water body and extends downstream for 15 miles. The surface water TDL for the Idaho Champion and Pacific Group Lode claims is presented in Figure 6.

The PPE starts on Crooked River at sampling site CRSW1. Crooked River is a tributary to the South Fork of the Clearwater River. There are no cabins or homes within 15 miles downstream of the PPE. The Fish and Game facility is approximately four miles downstream of the PPE. Surface water is used at the facility on a seasonal basis with no long term exposure occurring.

Surface water pathways are not complete for the 15 mile radius.

10.2 Ground Water Pathways

In areas where historic mines are located in proximity to residential areas, contamination of drinking water systems may come from two types of mine sources (ore bodies and waste dumps) and along three pathways, as illustrated by the following three scenarios. First, heavy metals leach from tailings piles and waste rock dumps, enter ephemeral or perennial drains, and then contaminate the area's shallow ground water system. Second, heavy metals leach from the local ore bodies and are transported through the geologic structure to the shallow ground water. Third, heavy metals could leach out of the ore bodies, and be discharged from the underground workings as adit water, that is then conveyed through ephemeral and perennial drains to the shallow ground water systems.

10.3 Domestic Wells and Public Water Supplies

There are 20 domestic wells and two public water system wells or their zones of capture located within the four mile radius of the Idaho Champion and Pacific Group Lode claims (Figure 6). No wells exist on the claims group. All the wells are either upgradient/upstream of the claims or separated by structural geology with the exception of the Fish and Game facility. This well is used primarily for make up water for the facility but does serve as a domestic water supply when the buildings are occupied. Use of the facility is seasonal and no long term exposure occurs.

However, ground water/springs utilized for potable water could be influenced by mining related disturbances and natural background metals concentrations. Thus, DEQ does recommend the individuals utilizing springs or wells as domestic drinking water in the Orogrande Mining District have their water analyzed for potential hazards. This was a very active mining area and wells or springs in this area maybe influenced from numerous historic mining activities, not necessarily associated with the Idaho Champion and Pacific Group Lode claims.

10.4 Air Quality Pathways

The air quality pathways are not complete. No residences exist on the claims. All waste piles are well off the road and well vegetated. The only potential air pathway is from road dust as the main Crooked River Road does go through part of the mining claims. Assuming the road bed does contain elevated metals, this type of exposure would be minimal at best. DEQ has no documentation the road fill and bed material is from the mining claims.

10.5 Soil Exposures

According to DEQ's Risk Evaluation Manual, if pathways are determined to be "complete" or if pathways are anticipated to become complete as a result of future uses, and the IDTLs are exceeded for any constituents, two options should be considered:

1. Adopt the IDTLs as the cleanup levels and develop a *Risk Management Plan* (RMP).
2. Perform a more detailed, site-specific evaluation which includes developing site-specific background concentrations for comparative purposes.

The soil exposure pathways are not complete. No permanent residents presently reside on the Idaho Champion and Pacific Group Lode claims. All mine related disturbances are well vegetated and stable. Access to the claims is difficult and human use in the general area is restricted to seasonal cabin owners, recreationists, and hunters, thus soil pathways are incomplete for these users.

10.6 Residences, Schools, and Day Care Facilities

The nearest potential permanent residents are approximately 3.5 miles upgradient and upstream of Orogrande. There are no schools or day care facilities in Orogrande.

10.7 Wetlands

No significant wetlands were found within the two mile radius (Figure 6).

10.8 Sensitive, Rare, and Threatened Species (Plant and Animal)

Most of the sensitive species have huge ranges which overlap onto the Idaho Champion and Pacific Group Lode claims. Due to the size of those ranges, these species may not receive significant exposure time or doses to heavy metals. Sediment and soils pathways do not appear to be complete at or adjacent to the mine and mill sites inspected, with the exception of the following plants. It is possible one or all of these plant species could grow on soils with elevated metals. No indication or evidence of stressed plants were encountered.

Three rare or sensitive plant species are documented to exist within the 4-mile radius of the Idaho Champion and Pacific Group Lode claims (Figure 7). The following plants are listed as no status.

Rare or sensitive plants include:

Candystick (*Allotropa virgata*)
Parsons Milkvetch (*Astragalus flexuosus*)
Idaho Strawberry (*Fragaria*)

Fourteen non-game and game animals are listed within the 4-mile radius of the Idaho Champion and Pacific Group Lode claims. The non-game animals are listed as “species of concern” and have no status. The game animals are regulated by the Fish and Game. However, due to the lack of tailings impoundments, well vegetated dumps, and unremarkable water chemistry results, it is unlikely there is a significant source for exposure (Figure 7).

Animal Species of Concern include:

Long eared myotis (*Myotis Septentrionalis*)
California myotis (*Myotis Californicus*)
Gray wolf (*Canis lupus*)
North American wolverine (*Gulo gulo luscus*)
Flammulated owl (*Otus flammeolus*)
Spruce grouse (*Falcapennis canadensis*)
Fisher (*Martes pennanti*)
Harlequin duck (*Histrionicus histrionicus*)
Mountain quail (*Oreortyx pictus*)
Columbian ground squirrel (*Spermophilus columbianus*)
Idaho giant salamander (*Dicomptodon aterrimus*)
Tailed frog (*Ascaphus truei*)
Bald eagle (*Haliaeetus leucocephalus*)
Grizzly bear (*Ursus arctos horribilis*) threatened via Endangered Species Act (ESA)

Three fish are listed within the four mile radius of the Idaho Champion and Pacific Group Lode claims. These fish are considered sensitive species and listed as threatened via the ESA. This area is classified as “critical habitat” for all three species and is classified as “known occupied for the bull trout.” Results of the water chemistry analysis for the mining district indicate no threat to these fish from mine related discharges (Figure 8).

Threatened fish species and critical habitat include:

Bull trout (*Salvelinus confluentus*)
Chinook salmon (*Oncorhynchus tshawytscha*) (Fall/Spring/Summer runs)
Steelhead (*Oncorhynchus mykiss*)

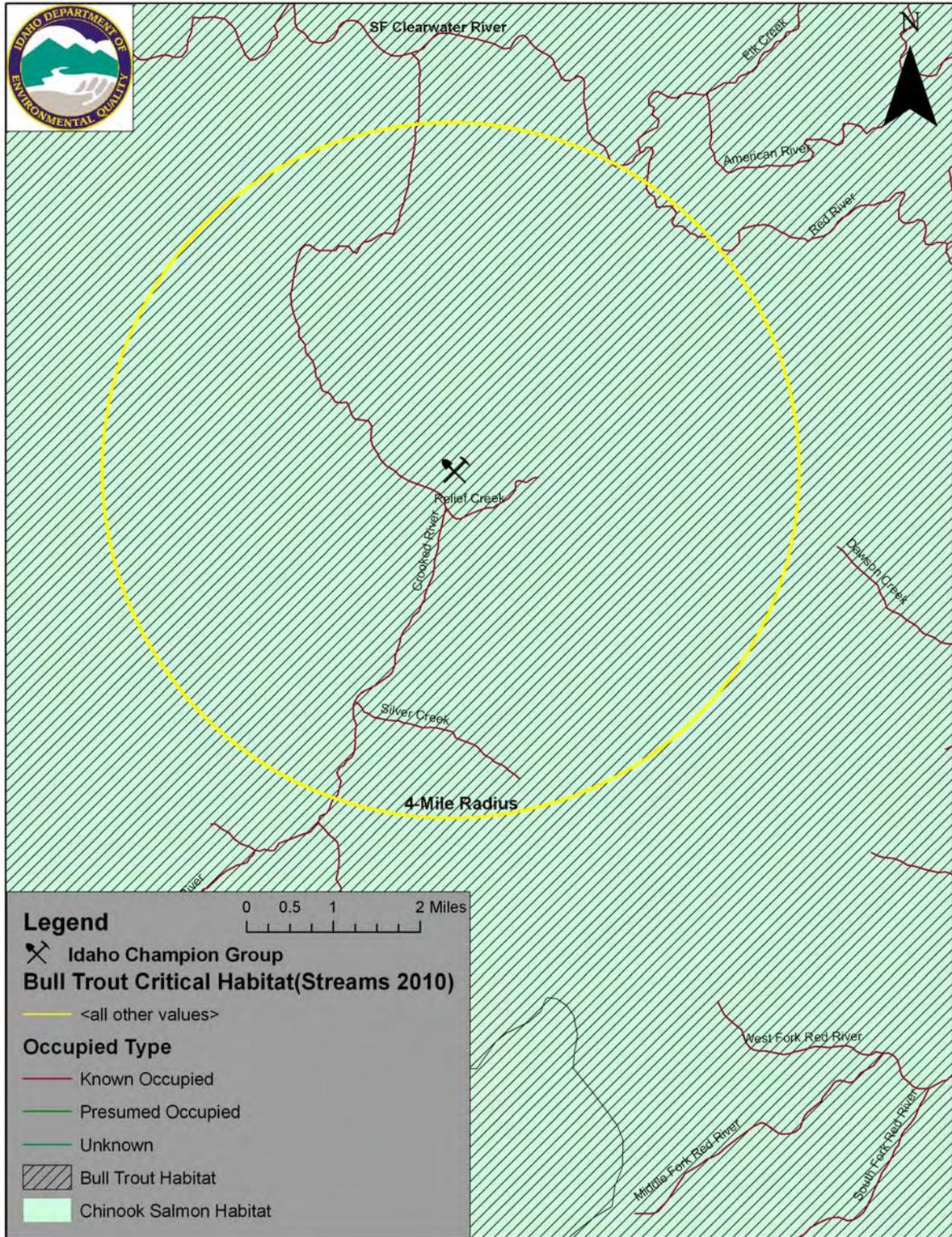


Figure 8. Fisheries and Sensitive Waterways within 4-Mile Radius and in the Vicinity of the Idaho Champion Group Lode and Pacific Group Lode Claims (Map Source: Idaho DEQ GIS ArcSDE 9.3.1 Geodatabase)

10.9 Sensitive Waterways

Crooked River, Waterbody ID17060305CL031_03, is listed on the State of Idaho 303(d) list for impaired waters. It is listed as not supporting cold water aquatic life and salmonid spawning due to temperature. Water body ID 17060305CL032_02 includes Umatilla, Five Mile, Sawmill, Silver and Quartz Creeks. These creeks are listed as not supporting cold water aquatic life and salmonid spawning due to temperature. An EPA approved TMDL document has identified any water quality related issues.

The Clean Water Act (CWA) requires the state to prepare a report, listing (a) the current conditions of all state waters and (b) those waters that are impaired and needing a TMDL (total maximum daily load). The first list is called the 305(b) list and the second is called the 303(d) list. Both lists are named in accordance with the sections of the CWA where they are defined; together they are known as the Integrated Report. Although they are maintained as separate lists and presented separately in the Integrated Report, impaired waters are just some of the state's waters, so water on the 303(d) list is actually a subset of those on the 305(b) list. Figure 8 illustrates the relationship between 303(d) and 305(b) lists.

10.10 Livestock Receptors

No evidence of livestock being pastured on a long term basis was noted in the Idaho Champion and Pacific Group Lode claims. Therefore, pathways or exposures for livestock are minimal including those pathways to horses used by packers for hunting and recreation.

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Section 11. Summary and Conclusions

Generally speaking toxicological risks to human and ecological receptors are very unlikely in the Idaho Champion and Pacific Group Lode claims. This is due to the lack of residences or structures and limited access to the claims. Crooked River Road does go through the claims, so the potential for dust related contact exists, but is very minimal.

There are clear indications that mercury is present in the watershed, perhaps as the result of historic placer mining and milling operations in the Crooked River. Although risks associated with mercury on the Idaho Champion site may be negligible under current site conditions and uses, additional assessment work in the Crooked River may be warranted.

DEQ is recommending each of the 18 mines, mill site, and prospects be designated as No Remedial Action Planned (NRAP). It should, however, be noted by private property owners, developers, and visitors in the Orogrande Mining District this recommendation does not consider indirect risks associated with physical hazards. Furthermore, DEQ strongly recommends all domestic drinking water supplies are routinely tested by their owners.

Crooked River PPE Sediment Sample

Sediment sample CRSD1 was collected from the bed of Crooked River downstream of the Idaho Champion and Pacific Group Lode claims. This sample was considered a PPE sample.

The sample exceeded the IDTLs for arsenic by 15.3 times and for mercury by 8.8 times. These levels indicate there would only be concern if this sample had been collected in proximity to residential area.

The sample did not exceed any of the HHSLs, but it did exceed the BLM Ecological Risk Management Criteria for arsenic by 1.5 times. The animal at risk is the robin. Due to this sample being a subsurface sediment sample, it is highly unlikely for significant contact between a robin and the river bed to occur.

Although mercury was elevated, it was less than one half of the concentration of the background sediment sample. These metal levels are not significantly elevated, and it is unlikely any human health or ecological risks are associated with this area.

Perennial Stream No. 1 Sediment Sample

Sediment sample ICSD1 was collected downstream of the Idaho Champion and Pacific Group Lode claims from the bed of a perennial stream. Examination of the aerial photos for this area indicates this stream does not originate on the claims and may be indicative of additional background conditions in the watershed.

The sample exceeded the IDTLs for arsenic by 9.2 times, for mercury by 12.3 times, and for chromium by 1.6 times. This indicates there would only be concern if this sample was collected in proximity to a residential area.

Manganese exceeded the background sample concentration by 3.6 times. Given this is the only exceedance of background levels at this site, no additional sampling is warranted and risks are likely negligible.

Copper exceeded the BLM Ecological Risk Management Criteria by 1.3 times for the robin. Due to this sample being a subsurface sediment sample, it is highly unlikely for significant contact between a robin and the river bed.

The sample did not exceed any of the HHSLs. These values are not remarkable, and it is unlikely any human health or ecological risks are associated with this area.

Perennial Stream No. 2 Sediment Sample

Sediment sample ICSD2 was collected downstream of the Idaho Champion and Pacific Group Lode claims from a perennial stream. From an examination of the aerial photos for this area, it appears this stream originates on the claims.

The sample exceeded the IDTLs for arsenic by 8.6 times. The sample did not exceed the HHSLs or the BLM Ecological Risk Management Criteria. This value is not remarkable, and it is unlikely any human health or ecological risks are associated with this area.

Perennial Stream No. 3 Sediment Sample

Sediment sample ICSD3 was collected downstream of the Idaho Champion and Pacific Group Lode claims from a perennial stream. From an examination of the aerial photos for this area, it appears this stream originates on the claims.

This sample exceeded the IDTLs for arsenic by 6.3 times and for mercury by 12.7 times. The sample did not exceed the HHSLs or the BLM Ecological Risk Management Criteria. This value is not remarkable, and it is unlikely any human health or ecological risks are associated with this area.

Perennial Stream No. 4 Sediment Sample

Sediment sample ICSD4 was collected downstream of the Idaho Champion and Pacific Group Lode claims from a perennial stream. From an examination of the aerial photos for this area, it appears this stream originates on the claims. This sample site is in proximity to very old historical mine developments. Specifically, an adit, cabin, and an overgrown processing area that has no visual evidence of residual mine or mill waste piles.

This sample exceeded the IDTLs for arsenic by 25.31 times, for manganese by 1.3 times, and mercury by 80.15 times. This indicates some risks for future residential development.

This sample exceeded the background level for lead by 8.7 times. However, these concentrations are far below action levels at residential cleanups throughout the state. Since there are no residential uses or plans for this location, no additional cleanup is necessary. Should the planned uses for this site change to include either residential or industrial development, additional site characterization work is warranted.

This sample exceeded the BLM Ecological Risk Management Criteria for arsenic by 2.4 times and lead by 4.35 times for the robin. Although the sample exceeded the IDTLs for arsenic, manganese, and mercury, it did not exceed the HHSLs.

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Section 12. References

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Appendix A. Laboratory Sample Reports



CHAIN OF CUSTODY RECORD

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

Page 1 of 2

WOG 0216
FOR SVL USE ONLY
SVL JOB #

Report to Company: Tina Elcifer (DEQ)
 Contact: _____
 Address: 1410 N. Fulton Boise, ID 83726
 Phone Number: (208) 373-0563
 FAX Number: (208) 373-0151
 E-mail: tina.elcifer@deq.idaho.gov

Invoice Sent To: Sumo Co. Company
 Contact: _____
 Address: _____
 Phone Number: _____
 FAX Number: _____
 PO#: _____

TEMP on Receipt: 3.80
 Table 1. -- Matrix Type
 1 = Surface Water, 2 = Ground Water
 3 = Soil/Sediment, 4 = Rinsate, 5 = Oil
 6 = Waste, 7 = Other

Project Name: Ore-grade District
 Sampler's Signature: Tina Elcifer (DEQ)

Indicate State of sample origination: ID

USACE? Yes No

Sample ID	Collection		Misc.	Preservative(s)						Other (Specify)	Analyses Required	Rush Instructions (Days)	Comments	
	Date	Time		Matrix Type (From Table 1)	No. of Containers	Unpreserved	HNO ₃ Filtered	HNO ₃ Unfiltered	HCl					H ₂ SO ₄
1 ICSD 2	4/29/10	8:30	BS	3	X									All soil & sed samples sieved w/ 6 mesh (2mm)
2 ICSD 3	4/29/10	9:00	BS	3	X									
3 URSP 1	4/29/10	8:00	BS	3	X									
4 ICSP 4	4/29/10	9:35	BS	3	X									
5 ICSP 1	4/29/10	10:00	BS	3	X									
6 URSP 2	4/29/10	10:30	BS	3	X									
7 UCWDISS-1	4/30/10	15:00	TC	1	X									
8 FS UK WDISS 1	4/29/10	13:00	TC	3	X									
9 IC SW 1	4/29/10	10:05	BS	1	X									
10 CR SW 1	4/29/10	8:05	BS	1	X									
Retinquished by: <u>Tina Elcifer</u> Date: <u>7/10/10</u> Time: <u>10:00</u> Received by: <u>[Signature]</u> Date: <u>7/10/10</u> Time: <u>11:50</u>											Total metals Total metals			



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

Project Name: Boise
Work Order: **W0G0216**
Reported: 27-Jul-10 09:49

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
ICSD2	W0G0216-01	Soil	29-Jun-10 08:30	BS	09-Jul-2010
ICSD3	W0G0216-02	Soil	29-Jun-10 09:00	BS	09-Jul-2010
CRSD1	W0G0216-03	Soil	29-Jun-10 08:00	BS	09-Jul-2010
ICSD4	W0G0216-04	Soil	29-Jun-10 09:35	BS	09-Jul-2010
ICSD1	W0G0216-05	Soil	29-Jun-10 10:00	BS	09-Jul-2010
CRSD2	W0G0216-06	Soil	29-Jun-10 10:30	BS	09-Jul-2010
CCWD1SS-1	W0G0216-07	Soil	29-Jun-10 15:00	BS	09-Jul-2010
FSUKWD1SS-1	W0G0216-08	Soil	29-Jun-10 13:00	BS	09-Jul-2010
ICSW1	W0G0216-09	Surface Water	29-Jun-10 10:05	BS	09-Jul-2010
CRSW1	W0G0216-10	Surface Water	29-Jun-10 08:05	BS	09-Jul-2010
ICSW2	W0G0216-11	Surface Water	29-Jun-10 08:35	BS	09-Jul-2010
CRSW2	W0G0216-12	Surface Water	29-Jun-10 10:35	BS	09-Jul-2010
ICSW3	W0G0216-13	Surface Water	29-Jun-10 09:05	BS	09-Jul-2010
ICSW4	W0G0216-14	Surface Water	29-Jun-10 09:40	BS	09-Jul-2010

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: Boise
Work Order: **W0G0216**
Reported: 27-Jul-10 09:49

Client Sample ID: **ICSD2**

SVL Sample ID: **W0G0216-01 (Soil)**

Sample Report Page 1 of 1

Sampled: 29-Jun-10 08:30
Received: 09-Jul-10
Sampled By: BS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) by EPA 6000/7000 Methods										
EPA 6010B	Antimony	< 2.0	mg/kg	2.0	0.3		W029026	DG	07/23/10 16:20	
EPA 6010B	Arsenic	3.4	mg/kg	2.5	0.5		W029026	DG	07/23/10 16:20	
EPA 6010B	Barium	66.7	mg/kg	0.20	0.02		W029026	DG	07/23/10 16:20	
EPA 6010B	Cadmium	< 0.20	mg/kg	0.20	0.03		W029026	DG	07/23/10 16:20	
EPA 6010B	Chromium	4.54	mg/kg	0.60	0.07		W030408	AS	07/26/10 15:27	
EPA 6010B	Copper	2.46	mg/kg	1.00	0.21		W029026	DG	07/23/10 16:20	
EPA 6010B	Iron	8030	mg/kg	6.0	1.0		W029026	DG	07/23/10 16:19	
EPA 6010B	Lead	1.73	mg/kg	0.75	0.36		W029026	DG	07/23/10 16:20	
EPA 6010B	Manganese	128	mg/kg	0.40	0.06		W029026	DG	07/23/10 16:19	
EPA 6010B	Selenium	< 4.0	mg/kg	4.0	1.4		W029026	DG	07/23/10 16:20	
EPA 6010B	Silver	< 0.50	mg/kg	0.50	0.04		W029026	DG	07/23/10 16:20	
EPA 6010B	Zinc	10.0	mg/kg	1.00	0.22		W029026	DG	07/23/10 16:20	
EPA 7471A	Mercury	< 0.033	mg/kg	0.033	0.010		W028187	JAA	07/12/10 13:35	

Percent Solids

Percent Solids	% Solids	97.8	%	0.1			W029029	DP	07/13/10 10:08	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director



One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

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

Project Name: Boise
Work Order: **W0G0216**
Reported: 27-Jul-10 09:49

Client Sample ID: **ICSD3**

SVL Sample ID: **W0G0216-02 (Soil)**

Sample Report Page 1 of 1

Sampled: 29-Jun-10 09:00
Received: 09-Jul-10
Sampled By: BS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) by EPA 6000/7000 Methods										
EPA 6010B	Antimony	< 2.0	mg/kg	2.0	0.3		W029026	DG	07/23/10 16:25	
EPA 6010B	Arsenic	2.5	mg/kg	2.5	0.5		W029026	DG	07/23/10 16:25	
EPA 6010B	Barium	88.2	mg/kg	0.20	0.02		W029026	DG	07/23/10 16:25	
EPA 6010B	Cadmium	< 0.20	mg/kg	0.20	0.03		W029026	DG	07/23/10 16:25	
EPA 6010B	Chromium	4.12	mg/kg	0.60	0.07		W030408	AS	07/26/10 15:46	
EPA 6010B	Copper	3.19	mg/kg	1.00	0.21		W029026	DG	07/23/10 16:25	
EPA 6010B	Iron	8450	mg/kg	6.0	1.0		W029026	DG	07/23/10 16:24	
EPA 6010B	Lead	3.79	mg/kg	0.75	0.36		W029026	DG	07/23/10 16:25	
EPA 6010B	Manganese	142	mg/kg	0.40	0.06		W029026	DG	07/23/10 16:24	
EPA 6010B	Selenium	< 4.0	mg/kg	4.0	1.4		W029026	DG	07/23/10 16:25	
EPA 6010B	Silver	< 0.50	mg/kg	0.50	0.04		W029026	DG	07/23/10 16:25	
EPA 6010B	Zinc	7.96	mg/kg	1.00	0.22		W029026	DG	07/23/10 16:25	
EPA 7471A	Mercury	0.065	mg/kg	0.033	0.010		W028187	JAA	07/12/10 13:37	
Percent Solids										
Percent Solids	% Solids	99.4	%	0.1			W029029	DP	07/13/10 10:08	

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

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IDEQ (Boise)
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Boise, ID 83706

Project Name: Boise
Work Order: **W0G0216**
Reported: 27-Jul-10 09:49

Client Sample ID: **CRSD1**

SVL Sample ID: **W0G0216-03 (Soil)**

Sample Report Page 1 of 1

Sampled: 29-Jun-10 08:00
Received: 09-Jul-10
Sampled By: BS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) by EPA 6000/7000 Methods										
EPA 6010B	Antimony	< 2.0	mg/kg	2.0	0.3		W029026	DG	07/23/10 16:31	
EPA 6010B	Arsenic	6.0	mg/kg	2.5	0.5		W029026	DG	07/23/10 16:31	
EPA 6010B	Barium	58.3	mg/kg	0.20	0.02		W029026	DG	07/23/10 16:30	
EPA 6010B	Cadmium	< 0.20	mg/kg	0.20	0.03		W029026	DG	07/23/10 16:31	
EPA 6010B	Chromium	6.08	mg/kg	0.60	0.07		W030408	AS	07/26/10 15:52	
EPA 6010B	Copper	5.29	mg/kg	1.00	0.21		W029026	DG	07/23/10 16:30	
EPA 6010B	Iron	8750	mg/kg	6.0	1.0		W029026	DG	07/23/10 16:29	
EPA 6010B	Lead	5.87	mg/kg	0.75	0.36		W029026	DG	07/23/10 16:31	
EPA 6010B	Manganese	92.4	mg/kg	0.40	0.06		W029026	DG	07/23/10 16:29	
EPA 6010B	Selenium	< 4.0	mg/kg	4.0	1.4		W029026	DG	07/23/10 16:31	
EPA 6010B	Silver	< 0.50	mg/kg	0.50	0.04		W029026	DG	07/23/10 16:30	
EPA 6010B	Zinc	16.0	mg/kg	1.00	0.22		W029026	DG	07/23/10 16:31	
EPA 7471A	Mercury	0.045	mg/kg	0.033	0.010		W028187	JAA	07/12/10 13:41	
Percent Solids										
Percent Solids	% Solids	92.4	%	0.1			W029029	DP	07/13/10 10:08	

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

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

Project Name: Boise
Work Order: **W0G0216**
Reported: 27-Jul-10 09:49

Client Sample ID: **ICSD4**

SVL Sample ID: **W0G0216-04 (Soil)**

Sample Report Page 1 of 1

Sampled: 29-Jun-10 09:35
Received: 09-Jul-10
Sampled By: BS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) by EPA 6000/7000 Methods										
EPA 6010B	Antimony	< 2.0	mg/kg	2.0	0.3		W029026	DG	07/23/10 16:36	
EPA 6010B	Arsenic	9.9	mg/kg	2.5	0.5		W029026	DG	07/23/10 16:36	
EPA 6010B	Barium	87.5	mg/kg	0.20	0.02		W029026	DG	07/23/10 16:36	
EPA 6010B	Cadmium	< 0.20	mg/kg	0.20	0.03		W029026	DG	07/23/10 16:36	
EPA 6010B	Chromium	4.71	mg/kg	0.60	0.07		W030408	AS	07/26/10 15:58	
EPA 6010B	Copper	4.36	mg/kg	1.00	0.21		W029026	DG	07/23/10 16:36	
EPA 6010B	Iron	14800	mg/kg	6.0	1.0		W029026	DG	07/23/10 16:34	
EPA 6010B	Lead	26.1	mg/kg	0.75	0.36		W029026	DG	07/23/10 16:36	
EPA 6010B	Manganese	293	mg/kg	0.40	0.06		W029026	DG	07/23/10 16:34	
EPA 6010B	Selenium	< 4.0	mg/kg	4.0	1.4		W029026	DG	07/23/10 16:36	
EPA 6010B	Silver	< 0.50	mg/kg	0.50	0.04		W029026	DG	07/23/10 16:36	
EPA 6010B	Zinc	9.92	mg/kg	1.00	0.22		W029026	DG	07/23/10 16:36	
EPA 7471A	Mercury	0.408	mg/kg	0.033	0.010		W028187	JAA	07/12/10 13:43	
Percent Solids										
Percent Solids	% Solids	99.7	%	0.1			W029029	DP	07/13/10 10:08	

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

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IDEQ (Boise)
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Boise, ID 83706

Project Name: Boise
Work Order: **W0G0216**
Reported: 27-Jul-10 09:49

Client Sample ID: **ICSD1**

SVL Sample ID: **W0G0216-05 (Soil)**

Sample Report Page 1 of 1

Sampled: 29-Jun-10 10:00
Received: 09-Jul-10
Sampled By: BS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) by EPA 6000/7000 Methods										
EPA 6010B	Antimony	< 2.0	mg/kg	2.0	0.3		W029026	DG	07/23/10 16:41	
EPA 6010B	Arsenic	3.6	mg/kg	2.5	0.5		W029026	DG	07/23/10 16:41	
EPA 6010B	Barium	140	mg/kg	0.20	0.02		W029026	DG	07/23/10 16:41	
EPA 6010B	Cadmium	< 0.20	mg/kg	0.20	0.03		W029026	DG	07/23/10 16:41	
EPA 6010B	Chromium	12.9	mg/kg	0.60	0.07		W030408	AS	07/26/10 16:04	
EPA 6010B	Copper	9.00	mg/kg	1.00	0.21		W029026	DG	07/23/10 16:41	
EPA 6010B	Iron	22600	mg/kg	6.0	1.0		W029026	DG	07/23/10 16:40	
EPA 6010B	Lead	5.32	mg/kg	0.75	0.36		W029026	DG	07/23/10 16:41	
EPA 6010B	Manganese	393	mg/kg	0.40	0.06		W029026	DG	07/23/10 16:40	
EPA 6010B	Selenium	< 4.0	mg/kg	4.0	1.4		W029026	DG	07/23/10 16:41	
EPA 6010B	Silver	< 0.50	mg/kg	0.50	0.04		W029026	DG	07/23/10 16:41	
EPA 6010B	Zinc	24.3	mg/kg	1.00	0.22		W029026	DG	07/23/10 16:41	
EPA 7471A	Mercury	0.063	mg/kg	0.033	0.010		W028187	JAA	07/12/10 13:45	
Percent Solids										
Percent Solids	% Solids	92.0	%	0.1			W029029	DP	07/13/10 10:08	

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: Boise
Work Order: **W0G0216**
Reported: 27-Jul-10 09:49

Client Sample ID: **CRSD2**

SVL Sample ID: **W0G0216-06 (Soil)**

Sample Report Page 1 of 1

Sampled: 29-Jun-10 10:30
Received: 09-Jul-10
Sampled By: BS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) by EPA 6000/7000 Methods										
EPA 6010B	Antimony	< 2.0	mg/kg	2.0	0.3		W029026	DG	07/23/10 16:46	
EPA 6010B	Arsenic	< 2.5	mg/kg	2.5	0.5		W029026	DG	07/23/10 16:46	
EPA 6010B	Barium	77.6	mg/kg	0.20	0.02		W029026	DG	07/23/10 16:46	
EPA 6010B	Cadmium	< 0.20	mg/kg	0.20	0.03		W029026	DG	07/23/10 16:46	
EPA 6010B	Chromium	11.6	mg/kg	0.60	0.07		W030408	AS	07/26/10 16:10	
EPA 6010B	Copper	5.36	mg/kg	1.00	0.21		W029026	DG	07/23/10 16:46	
EPA 6010B	Iron	10300	mg/kg	6.0	1.0		W029026	DG	07/23/10 16:45	
EPA 6010B	Lead	2.99	mg/kg	0.75	0.36		W029026	DG	07/23/10 16:46	
EPA 6010B	Manganese	108	mg/kg	0.40	0.06		W029026	DG	07/23/10 16:45	
EPA 6010B	Selenium	< 4.0	mg/kg	4.0	1.4		W029026	DG	07/23/10 16:46	
EPA 6010B	Silver	< 0.50	mg/kg	0.50	0.04		W029026	DG	07/23/10 16:46	
EPA 6010B	Zinc	15.7	mg/kg	1.00	0.22		W029026	DG	07/23/10 16:46	
EPA 7471A	Mercury	0.103	mg/kg	0.033	0.010		W028187	JAA	07/12/10 13:46	
Percent Solids										
Percent Solids	% Solids	99.2	%	0.1			W029029	DP	07/13/10 10:08	

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

John Kern
Laboratory Director



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(208) 784-1258

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

Project Name: Boise
Work Order: **W0G0216**
Reported: 27-Jul-10 09:49

Client Sample ID: **CCWD1SS-1**
SVL Sample ID: **W0G0216-07 (Soil)**

Sampled: 29-Jun-10 15:00
Received: 09-Jul-10
Sampled By: BS

Sample Report Page 1 of 1

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) by EPA 6000/7000 Methods										
EPA 6010B	Antimony	2.1	mg/kg	2.0	0.3		W029026	DG	07/23/10 16:52	
EPA 6010B	Arsenic	77.9	mg/kg	2.5	0.5		W029026	DG	07/23/10 16:52	
EPA 6010B	Barium	26.7	mg/kg	0.20	0.02		W029026	DG	07/23/10 16:51	
EPA 6010B	Cadmium	0.30	mg/kg	0.20	0.03		W029026	DG	07/23/10 16:51	
EPA 6010B	Chromium	2.35	mg/kg	0.60	0.07		W030408	AS	07/26/10 16:27	
EPA 6010B	Copper	1300	mg/kg	1.00	0.21		W029026	DG	07/23/10 16:51	
EPA 6010B	Iron	13500	mg/kg	6.0	1.0		W029026	DG	07/23/10 16:50	
EPA 6010B	Lead	1820	mg/kg	0.75	0.36		W029026	DG	07/23/10 16:51	
EPA 6010B	Manganese	529	mg/kg	0.40	0.06		W029026	DG	07/23/10 16:50	
EPA 6010B	Selenium	< 4.0	mg/kg	4.0	1.4		W029026	DG	07/23/10 16:52	
EPA 6010B	Silver	18.9	mg/kg	0.50	0.04		W029026	DG	07/23/10 16:51	
EPA 6010B	Zinc	26.9	mg/kg	1.00	0.22		W029026	DG	07/23/10 16:51	
EPA 7471A	Mercury	0.870	mg/kg	0.033	0.010		W028187	JAA	07/12/10 13:48	
Percent Solids										
Percent Solids	% Solids	95.2	%	0.1			W029029	DP	07/13/10 10:08	

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: Boise
Work Order: **W0G0216**
Reported: 27-Jul-10 09:49

Client Sample ID: **FSUKWD1SS-1**
SVL Sample ID: **W0G0216-08 (Soil)**

Sampled: 29-Jun-10 13:00
Received: 09-Jul-10
Sampled By: BS

Sample Report Page 1 of 1

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) by EPA 6000/7000 Methods										
EPA 6010B	Antimony	< 2.0	mg/kg	2.0	0.3		W029026	DG	07/23/10 16:57	
EPA 6010B	Arsenic	< 2.5	mg/kg	2.5	0.5		W029026	DG	07/23/10 16:57	
EPA 6010B	Barium	15.2	mg/kg	0.20	0.02		W029026	DG	07/23/10 16:57	
EPA 6010B	Cadmium	< 0.20	mg/kg	0.20	0.03		W029026	DG	07/23/10 16:57	
EPA 6010B	Chromium	13.7	mg/kg	0.60	0.07		W030408	AS	07/26/10 16:32	
EPA 6010B	Copper	12.7	mg/kg	1.00	0.21		W029026	DG	07/23/10 16:57	
EPA 6010B	Iron	8680	mg/kg	6.0	1.0		W029026	DG	07/23/10 16:55	
EPA 6010B	Lead	1.61	mg/kg	0.75	0.36		W029026	DG	07/23/10 16:57	
EPA 6010B	Manganese	233	mg/kg	0.40	0.06		W029026	DG	07/23/10 16:56	
EPA 6010B	Selenium	< 4.0	mg/kg	4.0	1.4		W029026	DG	07/23/10 16:57	
EPA 6010B	Silver	< 0.50	mg/kg	0.50	0.04		W029026	DG	07/23/10 16:57	
EPA 6010B	Zinc	29.1	mg/kg	1.00	0.22		W029026	DG	07/23/10 16:57	
EPA 7471A	Mercury	< 0.033	mg/kg	0.033	0.010		W028187	JAA	07/12/10 13:49	
Percent Solids										
Percent Solids	% Solids	95.7	%	0.1			W029029	DP	07/13/10 10:08	

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: Boise
Work Order: **W0G0216**
Reported: 27-Jul-10 09:49

Client Sample ID: **ICSW1**

SVL Sample ID: **W0G0216-09 (Surface Water)**

Sample Report Page 1 of 1

Sampled: 29-Jun-10 10:05
Received: 09-Jul-10
Sampled By: BS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total)										
EPA 7470A	Mercury	< 0.00020	mg/L	0.00020	0.000065		W029003	JAA	07/14/10 10:59	
Metals (Total Recoverable)										
EPA 6010B	Antimony	< 0.020	mg/L	0.020	0.005		W029021	DG	07/24/10 13:27	
EPA 6010B	Arsenic	< 0.025	mg/L	0.025	0.005		W029021	DG	07/24/10 13:27	
EPA 6010B	Barium	0.0243	mg/L	0.0020	0.0007		W029021	DG	07/24/10 13:27	
EPA 6010B	Cadmium	< 0.0020	mg/L	0.0020	0.0005		W029021	DG	07/24/10 13:27	
EPA 6010B	Chromium	< 0.0060	mg/L	0.0060	0.0009		W029021	DG	07/24/10 13:27	
EPA 6010B	Copper	< 0.010	mg/L	0.010	0.005		W029021	DG	07/24/10 13:27	
EPA 6010B	Iron	0.292	mg/L	0.060	0.018		W029021	DG	07/24/10 13:26	
EPA 6010B	Lead	< 0.0075	mg/L	0.0075	0.0040		W029021	DG	07/24/10 13:27	
EPA 6010B	Manganese	< 0.0040	mg/L	0.0040	0.0019		W029021	DG	07/24/10 13:26	
EPA 6010B	Selenium	< 0.040	mg/L	0.040	0.013		W029021	DG	07/24/10 13:27	
EPA 6010B	Silver	< 0.0050	mg/L	0.0050	0.0012		W029021	DG	07/24/10 13:27	
EPA 6010B	Zinc	< 0.0100	mg/L	0.0100	0.0016		W029021	DG	07/24/10 13:27	

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: Boise
Work Order: **W0G0216**
Reported: 27-Jul-10 09:49

Client Sample ID: **CRSW1**

SVL Sample ID: **W0G0216-10 (Surface Water)**

Sample Report Page 1 of 1

Sampled: 29-Jun-10 08:05
Received: 09-Jul-10
Sampled By: BS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total)										
EPA 7470A	Mercury	< 0.00020	mg/L	0.00020	0.000065		W029003	JAA	07/14/10 11:04	
Metals (Total Recoverable)										
EPA 6010B	Antimony	< 0.020	mg/L	0.020	0.005		W029021	DG	07/24/10 13:43	
EPA 6010B	Arsenic	< 0.025	mg/L	0.025	0.005		W029021	DG	07/24/10 13:43	
EPA 6010B	Barium	0.0165	mg/L	0.0020	0.0007		W029021	DG	07/24/10 13:43	
EPA 6010B	Cadmium	< 0.0020	mg/L	0.0020	0.0005		W029021	DG	07/24/10 13:43	
EPA 6010B	Chromium	< 0.0060	mg/L	0.0060	0.0009		W029021	DG	07/24/10 13:43	
EPA 6010B	Copper	< 0.010	mg/L	0.010	0.005		W029021	DG	07/24/10 13:43	
EPA 6010B	Iron	0.209	mg/L	0.060	0.018		W029021	DG	07/24/10 13:42	
EPA 6010B	Lead	< 0.0075	mg/L	0.0075	0.0040		W029021	DG	07/24/10 13:43	
EPA 6010B	Manganese	0.0053	mg/L	0.0040	0.0019		W029021	DG	07/24/10 13:42	
EPA 6010B	Selenium	< 0.040	mg/L	0.040	0.013		W029021	DG	07/24/10 13:43	
EPA 6010B	Silver	< 0.0050	mg/L	0.0050	0.0012		W029021	DG	07/24/10 13:43	
EPA 6010B	Zinc	< 0.0100	mg/L	0.0100	0.0016		W029021	DG	07/24/10 13:43	

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: Boise
Work Order: **W0G0216**
Reported: 27-Jul-10 09:49

Client Sample ID: **ICSW2**

SVL Sample ID: **W0G0216-11 (Surface Water)**

Sample Report Page 1 of 1

Sampled: 29-Jun-10 08:35
Received: 09-Jul-10
Sampled By: BS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total)										
EPA 7470A	Mercury	< 0.00020	mg/L	0.00020	0.000065		W029003	JAA	07/14/10 11:09	
Metals (Total Recoverable)										
EPA 6010B	Antimony	< 0.020	mg/L	0.020	0.005		W029021	DG	07/24/10 13:49	
EPA 6010B	Arsenic	< 0.025	mg/L	0.025	0.005		W029021	DG	07/24/10 13:49	
EPA 6010B	Barium	0.0548	mg/L	0.0020	0.0007		W029021	DG	07/24/10 13:49	
EPA 6010B	Cadmium	< 0.0020	mg/L	0.0020	0.0005		W029021	DG	07/24/10 13:49	
EPA 6010B	Chromium	< 0.0060	mg/L	0.0060	0.0009		W029021	DG	07/24/10 13:48	
EPA 6010B	Copper	< 0.010	mg/L	0.010	0.005		W029021	DG	07/24/10 13:48	
EPA 6010B	Iron	0.808	mg/L	0.060	0.018		W029021	DG	07/24/10 13:47	
EPA 6010B	Lead	< 0.0075	mg/L	0.0075	0.0040		W029021	DG	07/24/10 13:49	
EPA 6010B	Manganese	0.0170	mg/L	0.0040	0.0019		W029021	DG	07/24/10 13:47	
EPA 6010B	Selenium	< 0.040	mg/L	0.040	0.013		W029021	DG	07/24/10 13:49	
EPA 6010B	Silver	< 0.0050	mg/L	0.0050	0.0012		W029021	DG	07/24/10 13:48	
EPA 6010B	Zinc	0.0135	mg/L	0.0100	0.0016		W029021	DG	07/24/10 13:49	

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: Boise
Work Order: **W0G0216**
Reported: 27-Jul-10 09:49

Client Sample ID: **CRSW2**

SVL Sample ID: **W0G0216-12 (Surface Water)**

Sample Report Page 1 of 1

Sampled: 29-Jun-10 10:35
Received: 09-Jul-10
Sampled By: BS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total)										
EPA 7470A	Mercury	< 0.00020	mg/L	0.00020	0.000065		W029003	JAA	07/14/10 11:10	
Metals (Total Recoverable)										
EPA 6010B	Antimony	< 0.020	mg/L	0.020	0.005		W029021	DG	07/24/10 14:10	
EPA 6010B	Arsenic	< 0.025	mg/L	0.025	0.005		W029021	DG	07/24/10 14:10	
EPA 6010B	Barium	0.0156	mg/L	0.0020	0.0007		W029021	DG	07/24/10 14:10	
EPA 6010B	Cadmium	< 0.0020	mg/L	0.0020	0.0005		W029021	DG	07/24/10 14:10	
EPA 6010B	Chromium	< 0.0060	mg/L	0.0060	0.0009		W029021	DG	07/24/10 14:10	
EPA 6010B	Copper	< 0.010	mg/L	0.010	0.005		W029021	DG	07/24/10 14:10	
EPA 6010B	Iron	0.278	mg/L	0.060	0.018		W029021	DG	07/24/10 14:09	
EPA 6010B	Lead	< 0.0075	mg/L	0.0075	0.0040		W029021	DG	07/24/10 14:10	
EPA 6010B	Manganese	0.0061	mg/L	0.0040	0.0019		W029021	DG	07/24/10 14:09	
EPA 6010B	Selenium	< 0.040	mg/L	0.040	0.013		W029021	DG	07/24/10 14:10	
EPA 6010B	Silver	< 0.0050	mg/L	0.0050	0.0012		W029021	DG	07/24/10 14:10	
EPA 6010B	Zinc	< 0.0100	mg/L	0.0100	0.0016		W029021	DG	07/24/10 14:10	

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: Boise
Work Order: **W0G0216**
Reported: 27-Jul-10 09:49

Client Sample ID: **ICSW3**

SVL Sample ID: **W0G0216-13 (Surface Water)**

Sample Report Page 1 of 1

Sampled: 29-Jun-10 09:05
Received: 09-Jul-10
Sampled By: BS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total)										
EPA 7470A	Mercury	< 0.00020	mg/L	0.00020	0.000065		W029003	JAA	07/14/10 11:12	
Metals (Total Recoverable)										
EPA 6010B	Antimony	< 0.020	mg/L	0.020	0.005		W029021	DG	07/24/10 14:16	
EPA 6010B	Arsenic	< 0.025	mg/L	0.025	0.005		W029021	DG	07/24/10 14:16	
EPA 6010B	Barium	0.0519	mg/L	0.0020	0.0007		W029021	DG	07/24/10 14:16	
EPA 6010B	Cadmium	< 0.0020	mg/L	0.0020	0.0005		W029021	DG	07/24/10 14:16	
EPA 6010B	Chromium	< 0.0060	mg/L	0.0060	0.0009		W029021	DG	07/24/10 14:16	
EPA 6010B	Copper	< 0.010	mg/L	0.010	0.005		W029021	DG	07/24/10 14:16	
EPA 6010B	Iron	0.688	mg/L	0.060	0.018		W029021	DG	07/24/10 14:15	
EPA 6010B	Lead	< 0.0075	mg/L	0.0075	0.0040		W029021	DG	07/24/10 14:16	
EPA 6010B	Manganese	0.0144	mg/L	0.0040	0.0019		W029021	DG	07/24/10 14:15	
EPA 6010B	Selenium	< 0.040	mg/L	0.040	0.013		W029021	DG	07/24/10 14:16	
EPA 6010B	Silver	< 0.0050	mg/L	0.0050	0.0012		W029021	DG	07/24/10 14:16	
EPA 6010B	Zinc	< 0.0100	mg/L	0.0100	0.0016		W029021	DG	07/24/10 14:16	

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: Boise
Work Order: **W0G0216**
Reported: 27-Jul-10 09:49

Client Sample ID: **ICSW4**

SVL Sample ID: **W0G0216-14 (Surface Water)**

Sample Report Page 1 of 1

Sampled: 29-Jun-10 09:40
Received: 09-Jul-10
Sampled By: BS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total)										
EPA 7470A	Mercury	< 0.00020	mg/L	0.00020	0.000065		W029003	JAA	07/14/10 11:14	
Metals (Total Recoverable)										
EPA 6010B	Antimony	< 0.020	mg/L	0.020	0.005		W029021	DG	07/24/10 14:22	
EPA 6010B	Arsenic	< 0.025	mg/L	0.025	0.005		W029021	DG	07/24/10 14:22	
EPA 6010B	Barium	0.0776	mg/L	0.0020	0.0007		W029021	DG	07/24/10 14:22	
EPA 6010B	Cadmium	< 0.0020	mg/L	0.0020	0.0005		W029021	DG	07/24/10 14:22	
EPA 6010B	Chromium	< 0.0060	mg/L	0.0060	0.0009		W029021	DG	07/24/10 14:21	
EPA 6010B	Copper	< 0.010	mg/L	0.010	0.005		W029021	DG	07/24/10 14:21	
EPA 6010B	Iron	1.44	mg/L	0.060	0.018		W029021	DG	07/24/10 14:20	
EPA 6010B	Lead	< 0.0075	mg/L	0.0075	0.0040		W029021	DG	07/24/10 14:22	
EPA 6010B	Manganese	0.0574	mg/L	0.0040	0.0019		W029021	DG	07/24/10 14:20	
EPA 6010B	Selenium	< 0.040	mg/L	0.040	0.013		W029021	DG	07/24/10 14:22	
EPA 6010B	Silver	< 0.0050	mg/L	0.0050	0.0012		W029021	DG	07/24/10 14:21	
EPA 6010B	Zinc	< 0.0100	mg/L	0.0100	0.0016		W029021	DG	07/24/10 14:22	

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: Boise
Work Order: **W0G0216**
Reported: 27-Jul-10 09:49

Quality Control - BLANK Data

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

EPA 7470A	Mercury	mg/L	<0.00020	0.000065	0.00020	W029003	14-Jul-10	
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Metals (Total) by EPA 6000/7000 Methods

EPA 6010B	Antimony	mg/kg	<2.0	0.3	2.0	W029026	23-Jul-10	
EPA 6010B	Arsenic	mg/kg	<2.5	0.5	2.5	W029026	23-Jul-10	
EPA 6010B	Barium	mg/kg	<0.20	0.02	0.20	W029026	23-Jul-10	
EPA 6010B	Cadmium	mg/kg	<0.20	0.03	0.20	W029026	23-Jul-10	
EPA 6010B	Chromium	mg/kg	<0.60	0.07	0.60	W030408	26-Jul-10	
EPA 6010B	Copper	mg/kg	<1.00	0.21	1.00	W029026	23-Jul-10	
EPA 6010B	Iron	mg/kg	7.9	1.0	6.0	W029026	23-Jul-10	B7
EPA 6010B	Lead	mg/kg	<0.75	0.36	0.75	W029026	23-Jul-10	
EPA 6010B	Manganese	mg/kg	<0.40	0.06	0.40	W029026	23-Jul-10	
EPA 6010B	Selenium	mg/kg	<4.0	1.4	4.0	W029026	23-Jul-10	
EPA 6010B	Silver	mg/kg	<0.50	0.04	0.50	W029026	23-Jul-10	
EPA 6010B	Zinc	mg/kg	<1.00	0.22	1.00	W029026	23-Jul-10	
EPA 7471A	Mercury	mg/kg	<0.033	0.010	0.033	W028187	12-Jul-10	

Metals (Total Recoverable)

EPA 6010B	Antimony	mg/L	<0.020	0.005	0.020	W029021	24-Jul-10	
EPA 6010B	Arsenic	mg/L	<0.025	0.005	0.025	W029021	24-Jul-10	
EPA 6010B	Barium	mg/L	<0.0020	0.0007	0.0020	W029021	24-Jul-10	
EPA 6010B	Cadmium	mg/L	<0.0020	0.0005	0.0020	W029021	24-Jul-10	
EPA 6010B	Chromium	mg/L	<0.0060	0.0009	0.0060	W029021	24-Jul-10	
EPA 6010B	Copper	mg/L	<0.010	0.005	0.010	W029021	24-Jul-10	
EPA 6010B	Iron	mg/L	<0.060	0.018	0.060	W029021	24-Jul-10	
EPA 6010B	Lead	mg/L	<0.0075	0.0040	0.0075	W029021	24-Jul-10	
EPA 6010B	Manganese	mg/L	<0.0040	0.0019	0.0040	W029021	24-Jul-10	
EPA 6010B	Selenium	mg/L	<0.040	0.013	0.040	W029021	24-Jul-10	
EPA 6010B	Silver	mg/L	<0.0050	0.0012	0.0050	W029021	24-Jul-10	
EPA 6010B	Zinc	mg/L	<0.0100	0.0016	0.0100	W029021	24-Jul-10	

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 7470A	Mercury	mg/L	0.00481	0.00500	96.2	80 - 120	W029003	14-Jul-10	
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Metals (Total) by EPA 6000/7000 Methods

EPA 6010B	Antimony	mg/kg	96.2	100	96.2	80 - 120	W029026	23-Jul-10	
EPA 6010B	Arsenic	mg/kg	93.7	100	93.7	80 - 120	W029026	23-Jul-10	
EPA 6010B	Barium	mg/kg	93.6	100	93.6	80 - 120	W029026	23-Jul-10	
EPA 6010B	Cadmium	mg/kg	92.4	100	92.4	80 - 120	W029026	23-Jul-10	
EPA 6010B	Chromium	mg/kg	99.3	100	99.3	80 - 120	W030408	26-Jul-10	
EPA 6010B	Copper	mg/kg	100	100	100	80 - 120	W029026	23-Jul-10	
EPA 6010B	Iron	mg/kg	981	1000	98.1	80 - 120	W029026	23-Jul-10	
EPA 6010B	Lead	mg/kg	93.6	100	93.6	80 - 120	W029026	23-Jul-10	
EPA 6010B	Manganese	mg/kg	97.5	100	97.5	80 - 120	W029026	23-Jul-10	
EPA 6010B	Selenium	mg/kg	85.6	100	85.6	80 - 120	W029026	23-Jul-10	
EPA 6010B	Silver	mg/kg	4.43	5.00	88.6	80 - 120	W029026	23-Jul-10	
EPA 6010B	Zinc	mg/kg	89.5	100	89.5	80 - 120	W029026	23-Jul-10	
EPA 7471A	Mercury	mg/kg	0.890	0.833	107	80 - 120	W028187	12-Jul-10	

Metals (Total Recoverable)

EPA 6010B	Antimony	mg/L	1.02	1.00	102	80 - 120	W029021	24-Jul-10	
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IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Boise
Work Order: **W0G0216**
Reported: 27-Jul-10 09:49

Quality Control - LABORATORY CONTROL SAMPLE Data (Continued)

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Metals (Total Recoverable) (Continued)									
EPA 6010B	Arsenic	mg/L	1.00	1.00	100	80 - 120	W029021	24-Jul-10	
EPA 6010B	Barium	mg/L	0.965	1.00	96.5	80 - 120	W029021	24-Jul-10	
EPA 6010B	Cadmium	mg/L	0.979	1.00	97.9	80 - 120	W029021	24-Jul-10	
EPA 6010B	Chromium	mg/L	0.988	1.00	98.8	80 - 120	W029021	24-Jul-10	
EPA 6010B	Copper	mg/L	0.997	1.00	99.7	80 - 120	W029021	24-Jul-10	
EPA 6010B	Iron	mg/L	10.1	10.0	101	80 - 120	W029021	24-Jul-10	
EPA 6010B	Lead	mg/L	0.987	1.00	98.7	80 - 120	W029021	24-Jul-10	
EPA 6010B	Manganese	mg/L	0.980	1.00	98.0	80 - 120	W029021	24-Jul-10	
EPA 6010B	Selenium	mg/L	0.976	1.00	97.6	80 - 120	W029021	24-Jul-10	
EPA 6010B	Silver	mg/L	0.0462	0.0500	92.3	80 - 120	W029021	24-Jul-10	
EPA 6010B	Zinc	mg/L	0.991	1.00	99.1	80 - 120	W029021	24-Jul-10	

Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
EPA 7470A	Mercury	mg/L	0.00104	<0.00020	0.00100	104	70 - 130	W029003	14-Jul-10	
Metals (Total) by EPA 6000/7000 Methods										
EPA 6010B	Antimony	mg/kg	49.0	4.6	100	44.4	75 - 125	W029026	23-Jul-10	M2
EPA 6010B	Arsenic	mg/kg	126	28.7	100	97.4	75 - 125	W029026	23-Jul-10	
EPA 6010B	Barium	mg/kg	106	13.6	100	92.9	75 - 125	W029026	23-Jul-10	
EPA 6010B	Cadmium	mg/kg	85.8	0.64	100	85.2	75 - 125	W029026	23-Jul-10	
EPA 6010B	Chromium	mg/kg	105	4.54	100	100	75 - 125	W030408	26-Jul-10	
EPA 6010B	Copper	mg/kg	1900	1780	100	124	75 - 125	W029026	23-Jul-10	
EPA 6010B	Iron	mg/kg	37500	37700	1000	R > 4S	75 - 125	W029026	23-Jul-10	M3
EPA 6010B	Lead	mg/kg	92.8	11.9	100	80.9	75 - 125	W029026	23-Jul-10	
EPA 6010B	Manganese	mg/kg	2200	1980	100	R > 4S	75 - 125	W029026	23-Jul-10	M3
EPA 6010B	Selenium	mg/kg	89.4	<4.0	100	89.4	75 - 125	W029026	23-Jul-10	
EPA 6010B	Silver	mg/kg	7.45	2.22	5.00	105	75 - 125	W029026	23-Jul-10	
EPA 6010B	Zinc	mg/kg	217	141	100	76.0	75 - 125	W029026	23-Jul-10	
EPA 7471A	Mercury	mg/kg	0.513	0.337	0.167	106	70 - 130	W028187	12-Jul-10	

Metals (Total Recoverable)

EPA 6010B	Antimony	mg/L	1.04	<0.020	1.00	104	75 - 125	W029021	24-Jul-10	
EPA 6010B	Arsenic	mg/L	1.03	<0.025	1.00	103	75 - 125	W029021	24-Jul-10	
EPA 6010B	Barium	mg/L	1.01	0.0243	1.00	98.7	75 - 125	W029021	24-Jul-10	
EPA 6010B	Cadmium	mg/L	1.01	<0.0020	1.00	101	75 - 125	W029021	24-Jul-10	
EPA 6010B	Chromium	mg/L	1.02	<0.0060	1.00	102	75 - 125	W029021	24-Jul-10	
EPA 6010B	Copper	mg/L	1.02	<0.010	1.00	102	75 - 125	W029021	24-Jul-10	
EPA 6010B	Iron	mg/L	10.5	0.292	10.0	102	75 - 125	W029021	24-Jul-10	
EPA 6010B	Lead	mg/L	1.01	<0.0075	1.00	101	75 - 125	W029021	24-Jul-10	
EPA 6010B	Manganese	mg/L	0.993	<0.0040	1.00	99.1	75 - 125	W029021	24-Jul-10	
EPA 6010B	Selenium	mg/L	0.996	<0.040	1.00	99.6	75 - 125	W029021	24-Jul-10	
EPA 6010B	Silver	mg/L	0.0470	<0.0050	0.0500	94.1	75 - 125	W029021	24-Jul-10	
EPA 6010B	Zinc	mg/L	1.03	<0.0100	1.00	102	75 - 125	W029021	24-Jul-10	



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

Project Name: Boise
Work Order: **W0G0216**
Reported: 27-Jul-10 09:49

Quality Control - MATRIX SPIKE DUPLICATE Data

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	RPD	RPD Limit	Batch ID	Analyzed	Notes
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Metals (Total)

EPA 7470A	Mercury	mg/L	0.00094	0.00104	0.00100	10.1	20	W029003	14-Jul-10	
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Metals (Total) by EPA 6000/7000 Methods

EPA 6010B	Antimony	mg/kg	50.7	49.0	100	3.3	20	W029026	23-Jul-10	
EPA 6010B	Arsenic	mg/kg	128	126	100	1.2	20	W029026	23-Jul-10	
EPA 6010B	Barium	mg/kg	105	106	100	1.4	20	W029026	23-Jul-10	
EPA 6010B	Cadmium	mg/kg	85.6	85.8	100	0.3	20	W029026	23-Jul-10	
EPA 6010B	Chromium	mg/kg	106	105	100	1.1	20	W030408	26-Jul-10	
EPA 6010B	Copper	mg/kg	1880	1900	100	1.3	20	W029026	23-Jul-10	
EPA 6010B	Iron	mg/kg	36600	37500	1000	2.4	20	W029026	23-Jul-10	
EPA 6010B	Lead	mg/kg	94.2	92.8	100	1.4	20	W029026	23-Jul-10	
EPA 6010B	Manganese	mg/kg	2170	2200	100	1.6	20	W029026	23-Jul-10	
EPA 6010B	Selenium	mg/kg	90.1	89.4	100	0.7	20	W029026	23-Jul-10	
EPA 6010B	Silver	mg/kg	7.32	7.45	5.00	1.7	20	W029026	23-Jul-10	
EPA 6010B	Zinc	mg/kg	226	217	100	3.8	20	W029026	23-Jul-10	
EPA 7471A	Mercury	mg/kg	0.502	0.513	0.167	2.3	20	W028187	12-Jul-10	

Metals (Total Recoverable)

EPA 6010B	Antimony	mg/L	1.01	1.04	1.00	2.8	20	W029021	24-Jul-10	
EPA 6010B	Arsenic	mg/L	1.00	1.03	1.00	2.8	20	W029021	24-Jul-10	
EPA 6010B	Barium	mg/L	0.997	1.01	1.00	1.4	20	W029021	24-Jul-10	
EPA 6010B	Cadmium	mg/L	0.980	1.01	1.00	2.7	20	W029021	24-Jul-10	
EPA 6010B	Chromium	mg/L	0.988	1.02	1.00	2.9	20	W029021	24-Jul-10	
EPA 6010B	Copper	mg/L	0.987	1.02	1.00	3.2	20	W029021	24-Jul-10	
EPA 6010B	Iron	mg/L	10.2	10.5	10.0	2.6	20	W029021	24-Jul-10	
EPA 6010B	Lead	mg/L	0.985	1.01	1.00	2.6	20	W029021	24-Jul-10	
EPA 6010B	Manganese	mg/L	0.982	0.993	1.00	1.2	20	W029021	24-Jul-10	
EPA 6010B	Selenium	mg/L	0.970	0.996	1.00	2.6	20	W029021	24-Jul-10	
EPA 6010B	Silver	mg/L	0.0461	0.0470	0.0500	2.0	20	W029021	24-Jul-10	
EPA 6010B	Zinc	mg/L	0.990	1.03	1.00	4.1	20	W029021	24-Jul-10	

Quality Control - POST DIGESTION 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) by EPA 6000/7000 Methods

EPA 6010B	Antimony	mg/kg	98.6	4.6	100	94.0	75 - 125	W029026	23-Jul-10	
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IDEQ (Boise)
1410 N. Hilton
Boise, ID 83706

Project Name: Boise
Work Order: **W0G0216**
Reported: 27-Jul-10 09:49

Notes and Definitions

B7	Target analyte in method blank exceeded method QC limits, but concentrations in samples were at least 10x the blank concentration.
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
