



**FINAL**  
**Engineering Evaluation/Cost Analysis**  
**New Dominion Mine**

**Grand Mesa, Uncompahgre and Gunnison National Forests**

**April 28, 2021**

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US Forest Service, Uncompahgre National Forest



## ACRONYMS

AAK	Au' Authum Ki, Inc.
AI	Applied Intellect, LLC
AOC	Area of Concern
ARAR	Applicable, Relevant, and Appropriate Requirement
B&M	Birds and Mammals
BLM	Bureau of Land Management
BTV	Background Threshold Value
CAS	Chemical Abstract Services
CCR	Colorado Code of Regulation
CDPHE	Colorado Department of Public Health and Environment
CDWR	Colorado Division of Water Resources
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cfs	cubic feet per second
CGS	Colorado Geological Survey
COC	Contaminants of Concern
COPC	Contaminant of Potential Concern
COPEC	Contaminant of Potential Ecological Concern
COR	Contracting Officer's Representative
CPG	Certified Professional Geologist
CSEM	Conceptual Site Exposure Model
CWA	Clean Water Act
CY	Cubic yards
DQO	Data Quality Objective
Eco-SSLs	Ecological Soil Screening Level
EE/CA	Engineering Evaluation/Cost Analysis
EF	Exceedance Factor
ESV	Ecological Screening Values
ft, amsl	feet above mean sea level
FSP/QAPP	Field Sampling Plan/Quality Assurance Project Plan
GMUG	Grand Mesa, Uncompahgre, and Gunnison
gpm	gallons per minute
HDPE	High-density polyethylene
HRS	Hazard Ranking System
IPaC	Information for Planning and Consultation
LANL	Los Alamos National Lab
MCL	Maximum Contaminant Level
MDL	Method Detection Limit
µS/cm	MicroSiemens per centimeter
mg/kg	Milligram per Kilogram
mg/L	Milligrams per Liter
mm	millimeter
MOC	Media of Concern



MS/MSD	Matrix Spike/Matrix Spike Duplicate
MSE	Millennium Science and Engineering
NCP	National Contingency Plan
NF	National Forest
NOAEL	No Adverse Effect Level
NPS	United States National Parks Service
NPR	Neutralization Potential Ratio
NRWQC	National Recommended Water Quality Criteria
NF	National Forest
NFSR	National Forest Service Road
NRCS	United States Department of Agriculture, Natural Resources Conservation Service
ORP	Oxygen Reduction Potential
P&I	Plants and Invertebrates
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation Recovery Act
RG	Registered Geologist
RSL	Regional Screening Level
SDWA	Safe Drinking Water Act
SI	Site Inspection
SLRA	Screening Level Risk Assessment
SMCL	Secondary Maximum Contaminant Level
SOP	Standard Operating Procedure
SOW	Scope of Work
SPLP	Synthetic Precipitation Leaching Procedure
T&E	Threatened and Endangered
TAL	Target Analyte List
TBC	To Be Considered
TCLP	Toxicity Characteristic Leaching Procedure
TV	Threshold Values
USEPA	United States Environmental Protection Agency
USFS	United States Department of Agriculture, Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WQCC	Water Quality Control Commission



## EXECUTIVE SUMMARY

The United States Department of Agriculture, Forest Service (USFS) Grand Mesa, Uncompahgre and Gunnison (GMUG) National Forests has contracted Applied Intellect, LLC (AI) to perform an Engineering Evaluation/Cost Analysis (EE/CA) for the New Dominion Mine Site (the Site) in San Miguel County, Colorado. This EE/CA was performed in accordance with Schedule of Items presented in the USFS Statement of Work (SOW) Task Order No. 1282MK20F0021. This report presents the results of the EE/CA for the Site.

The USFS is evaluating a non-time critical removal action (NTCRA) at the Site to address mine waste rock and tailings that contain high levels of metals that may be hazardous to human health and the environment, in accordance with the National Contingency Plan (NCP) 40 Code of Federal Regulations Part 300.415 (40 CFR 300.415) Removal action. 40 CFR 300.415 requires consideration of eight factors, including the three factors provided below that are potentially relevant to the Site:

1. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;
2. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate; and
3. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

Based on these factors, the scope, goals and objectives of this NTCRA are to reduce the potential for exposure to humans and ecological receptors to acceptable levels and reduce the potential for contaminants to migrate or be released.

The Site consists of three work areas associated with draining adits and tailings piles. Remnant features of the mine are located within approximately 500 to 1,000 feet of the Town of Ophir, Colorado, situated at approximately 9,700 feet above mean sea level (ft, amsl). Ophir can be accessed via National Forest Service Road (NFSR) 630 at Colorado Highway 145 approximately 10 miles south of Telluride, Colorado. NFSR 630 is also known as Ophir Pass Road. The three mine work areas that are the focus of this investigation are:

- The Original New Dominion (OND) Mine area of concern (AOC), located between 10,135 ft, amsl and 10,170 ft, amsl, consisting of a dry collapsed adit and waste pile. The waste pile consists of approximately 1,662 cubic yards (CY) of tailings and waste rock collocated on land managed by the Town of Ophir and land managed by the USFS.
- The 002 AOC is the middle adit work area, located between 10,040 ft, amsl and 10,070 ft, amsl, consisting of a draining adit measured at 42 gallons per minute (gpm) and an extended waste pile of waste rock and tailings. The waste pile was measured to range between 900 CY and 1,260 CY and is located on USFS managed land.
- The 00 AOC is the lower adit work area, located between 9,900 ft, amsl and 9,980 ft, amsl consisting of a draining adit measured at 104 gpm and a partially saturated waste pile of



waste rock and tailings and red mine water precipitate. The waste pile was measured at an estimated 1,963 CY and is located mainly on USFS managed land with the toe overflowing onto land managed by the Town of Ophir. Mine water draining from the 02 adit also flows onto the Town of Ophir managed land.

The USFS conducted a Site Inspection (SI) in 2005 that was documented in 2006 Site Assessment Report (Au' Authum Ki, Inc. [AAK], 2006), which characterized the 00 and 02 AOCs but did not characterize the OND AOC. To fill data gaps to complete the 2020 EE/CA contractors for the USFS conducted additional fieldwork to:

- Estimate the volume of the waste piles at each AOC;
- Characterize the portion of the OND waste pile located on NF managed land including background;
- Characterize the leaching potential from all three AOC waste piles; and
- Re-characterize the mine water flowing from the 00 and 02 draining adits.

On July 6, 2020 and July 7, 2020, AI conducted environmental sampling (surface soil, surface water and sediments), volume analysis, and onsite repository assessment at the Site. Surface soil samples, 0 to 6 inches below ground surface (bgs), were collected and composited to represent the exposure concentrations of mine related metals for human and ecological receptors at the OND AOC and at a background location adjacent to the AOC. Mine water and sediments were collected from the 02 and 00 adits, and from a location where the 00 water flowed off NF-managed land. Five additional composite samples were collected and analyzed for leaching potential by the Synthetic Precipitate Leaching Procedure (SPLP) from each of the AOC waste piles. Waste pile volume measurements were conducted to support the alternatives analysis for the EE/CA.

A streamlined risk evaluation was conducted using a combination of data from the 2006 Site Assessment (AAK, 2006) and the current EE/CA data gaps investigation, which compared environmental sample results to observed background concentrations, and to human health and ecological risk- and technology-based threshold values (TVs).

Human health concerns from surface soil in the waste piles include:

- Metals exceeded the BLM recreational exposure TVs (Cox, 2017):
  - Lead at the 02 AOC by a factor of 11 times; and
  - Arsenic at the 02 AOC by a factor of 3.2 times.
- Metals exceeded the Ecological risk-based TVs (NPS, 2018):
  - Antimony, arsenic, cadmium, cobalt, copper, lead, manganese, selenium, silver, and zinc.

Ecological risk driver include:



- Cadmium, with an exceedance factor (EF) of 76 at AOC 02;
- Copper, with an EF of 120 at AOC 02;
- Lead, with an EF of 770 at AOC 02;
- Manganese, with an EF of 140 at AOC 02; and
- Zinc, with an EF of 79 at AOC 02.

In addition, the only SPLP exceedance occurred at AOC 02 at waste pile 2 (ND2-SS-202-1) where the SPLP extraction for lead result exceeded the 20x MCL standard by a factor of 33.

Based on the results of the streamlined risk assessment, three alternatives were evaluated to meet the scope, goals, and objectives of the removal action:

- Alternative 1: Off-Site Repository and Surface Water Controls Onsite;
- Alternative 2: Covering Waste Piles and Surface Water Controls Onsite and Institutional Controls; and
- Alternative 3: No Action.

In accordance with non-time-critical removal action guidance (USEPA, 1993), these three alternatives were evaluated against the following criteria: effectiveness, implementability, and cost. Alternative 2 was chosen as the preferred alternative at a rough order of magnitude cost of \$289,500. This alternative includes:

- Utilizing the nearby former USFS borrow areas that were used to construct the Carbonero Tailings repository;
- Re-shaping, and benching of slopes on existing waste piles before adding cover material;
- Constructing rock-armored drainage swales and/or diversion channels near the adits to divert flow away from waste rock piles to preferred natural drainage areas;
- Constructing tiered drainage features in steeper areas to manage flows and promote vegetation and organic matter;
- Constructing berms at the downgradient toes of the existing waste piles; and
- Other potential diversion structures (gabion dams, check dams).

The US Forest Service submitted the Draft Final EE/CA Report to the Administrative Record files for public review and comment between March 1, 2021 and March 31, 2021 and conducted a public meeting on March 16, 2021. The meeting was conducted utilizing MS Teams teleconferencing tools and attendees were provided a summary presentation of the New Dominion EE/CA and a description of the proposed remedy, including access to the Draft Final EE/CA report and fact sheet. Stakeholders were invited to provide comments on the EE/CA during the public comment period and those comments have been compiled and addressed in the Responsiveness Summary of this report (Appendix G).





## 1. INTRODUCTION

The United States Department of Agriculture, Forest Service (USFS) Grand Mesa, Uncompahgre and Gunnison (GMUG) National Forest (NF) has contracted Applied Intellect, LLC (AI) to perform an Engineering Evaluation/Cost Analysis (EE/CA) for the New Dominion Mine Site in San Miguel County, Colorado. This EE/CA was performed in accordance with Schedule of Items presented in the USFS Statement of Work (SOW) Task Order No. 1282MK20F0021.

Following Notice to Proceed on April 21, 2020, AI prepared the draft project Work Plan, Field Sampling Plan/Quality Assurance Project Plan (FSP/QAPP) and Health and Safety Plan (AI, 2020). The USFS Contracting Officers Representative (COR) and AI conducted an initial site visit and reconnaissance on June 12, 2020. A previous Site Inspection (SI) had been conducted at the Site in 2006. The June 2020 reconnaissance addressed the following objectives to complete the EE/CA:

- Identify data gaps in the SI and conduct an additional data gathering event to fill the data gaps;
- Use SI and EE/CA data to evaluate site-specific risk to human health and ecological receptors;
- If risks are unacceptable, identify laws and guidance known as Applicable or Relevant and Appropriate Requirements (ARARs) that should be used to guide the removal action;
- Develop removal action alternatives that should be used to mitigate the unacceptable risks; and
- Compare each alternative based on effectiveness, implementability and cost to develop a chosen action, with community and stakeholder input.

All of the remnant mine features were reviewed and discussed by the USFS COR and during the initial site visit on June 12, 2020. In general, these features include:

- Three main portals or mine adits;
  - The original upper adit located on the Town of Ophir managed land which is dry and collapsed; and
  - The two lower adits were leaking groundwater to the surface, releasing dissolved metals to the environment;
- Three remnant piles of waste rock and/or tailings.

Following completion of the initial site visit, AI provided a Site Visit Summary Memorandum on June 16, 2020 to the USFS COR. The memorandum identified the data gaps from previous studies and the technical approach to filling data gaps and using data previously collected. AI revised and finalized the Work Plan and FSP/QAPP and transmitted these planning documents to the USFS on June 26, 2020 (AI, 2020d). Subsequently the site characterization data collection event was scheduled and completed June 6 and 7, 2020.



This EE/CA report presents the results of the site characterization, a streamlined risk assessment conducted using data from the 2006 SI and the July 2020 sampling event, Applicable or Relevant and Appropriate Requirements (ARARs), and the identification and comparison of removal action alternatives to support the EE/CA. The EE/CA was developed in accordance with United States Environmental Protection Agency (USEPA) guidance (USEPA, 1993).

## **1.1 Purpose and Scope**

The purpose of this EE/CA is to evaluate a limited number of removal action alternatives for this Site which would substantially reduce the threat to public health or welfare, or the environment associated with exposure to tailings and historical mine waste hazards related to the former mine features. The following removal action objectives have been identified:

- Control contaminant source areas (leaking adits and waste piles) from migration to nearby surface water or other media/areas; and
- Reduce potential contaminant exposure to recreational visitors and the surrounding environment.

## **1.2 Report Organization**

This document is organized as follows:

Section 1 – Introduction, including Purpose and Scope, and Report Organization  
Section 2 – Site Description and Summary of Previous Investigations  
Section 3 – Source, Nature and Extent of Contamination  
Section 4 – ARARs  
Section 5 – Streamlined Risk Evaluation  
Section 6 – Identification of Removal Action Scope, Goals and Objectives  
Section 7 – Identification and Comparison of Removal Action Alternatives  
Section 8 – Recommended Removal Action Alternative  
Section 9 – References  
Tables  
Figures  
Appendices



## 2. SITE DESCRIPTION AND SUMMARY OF PREVIOUS INVESTIGATIONS

Figure 2-1 shows the regional location of the Site within the State of Colorado and the Uncompahgre NF, and Figure 2-2 shows the general topographic setting of the Site. Remnant features of the mine are located within approximately 500 to 1,000 feet of the Town of Ophir, Colorado (Figure 2-3), situated at approximately 9,700 feet above mean sea level (amsl). Ophir can be accessed via National Forest Service Road (NFSR) 630 at Colorado Highway 145 approximately 10 miles south of Telluride, Colorado. NFSR 630 is also known as Ophir Pass Road.

The Ophir 7 ½ minute United States Geological Survey (USGS) quadrangle (Figure 2-2) shows the New Dominion Mine located in Section 35, Township 42 North, Range 9 West, New Mexico Principal Meridian. Access to the site is by way of spur roads through private land, or by a short hike from Ophir Pass Road (NFSR 630).

### 2.1 History and Production

The New Dominion Mine was founded in 1902, primary commodity was gold. Production at New Dominion occurred intermittently between 1905 to 1970, with peak years of production occurring from 1931 through 1940.

USFS provided AI the *History, Geology, and Environmental Setting of Selected Mines Near Ophir* (Colorado Geological Survey [CGS], 2001). This document indicated the following information for the New Dominion Mine:

- By 1910 the mine was developed by two 1,000 feet long adits, and by 1917 a mill was nearly completed. Ophir Gold Mines and Reduction Company employed 3 to 5 people and produced 44 tons of crude ore containing 0.44 ounces per ton (oz/ton) of gold, 12.3 oz/ton of silver, 6.1 percent (%) lead, 2.7% copper, and 8 to 18 % zinc. The ore was shipped to a smelter in Durango.;
- Between 1917 and 1921 the mine was operated intermittently, and ore was not sold in 1918 and 1919;
- 110 tons of crude ore were shipped from the mine in 1921 and 80 tons were shipped in 1922;
- In 1926 the mine was leased from the Ophir Gold Mines and Reduction Company and in 1928 small lots of smelting ore were shipped from the mine;
- In 1931 a new lessee operated the mine and approximately 40 tons of ore were shipped from the mine, and in 1933 approximately 23 tons were shipped;
- Between 1932 and 1941 the mine was operated fairly steadily and approximately 469 tons of ore were shipped from the mine;
- In 1942 the USGS mapped the New Dominion Mine. The survey indicated that the 100 Adit was the lower level, and the 102 Adit did not exist at the time. There appears to be little mine activity between 1942 and 1950;



- In 1950 a 0.5 ton/hour gravity mill was nearly completed at the mine; little to no activity between 1950 and 1958;
- In 1958 there was new ownership and a gas-powered 15-ton per day gravity mill was operated using a small crusher, ball mill, mineral jig, and shaking table. Production was 1,700 pounds yielding 7.1 ounces of gold.
- The New Dominion Mine was operated sporadically by the same owner between 1958 and 1975; however, little ore was shipped. Some ore was stockpiled; and
- After 1975 most of the information regards mining claims for the New Dominion; in 1985 BLM closed the case file on the claim.

Research on the USGS Mineral Research Data System (MRDS) identified the New Dominion Mine as Deposit ID 10167510. General characteristics provided by MRDS include:

- Operation type: Underground;
- Development status: Past Producer;
- Commodity type: Metallic;
- Significant: No;
- Commodities listed include: Gold (primary) and nickel, silica, zinc (tertiary); and
- The Main Entrance (adits) are in the Cutler Formation.

Research conducted at Western Mining History

([https://westernmininghistory.com/mine\\_detail/10167510/](https://westernmininghistory.com/mine_detail/10167510/)) provided similar information to that reported by MRDS.

Mindat.org (<https://www.mindat.org/loc-50127.html>) identifies the Ophir Mining District (also known as the Iron Springs Mining District) as a former gold, silver, lead, and copper mining area with the mining camp of Ophir at the center of the district. Rock types recorded include quartz monzonite porphyry, metasedimentary rock, gabbro, volcanics, and conglomerate. Mindat lists multiple mines in San Miguel County; however, the New Dominion Mine is not included in the list.

Western Mining History (<https://westernmininghistory.com/towns/colorado/ophir2/>) indicates that gold was discovered in the Ophir area in 1875 and the town was established near these new discoveries. The town never grew to the size of some of its famous neighboring communities, but mining sustained a population in the hundreds for several decades. The mines were closing by 1910 and people started moving away.

## **2.2 Geology, Mineralogy, Topography and Hydrogeology**

The USGS Geologic Map of the Ophir, Colorado Quadrangle (USGS, 1996) indicates that the youngest rocks in the vicinity of Ophir and the remnant mine features are Quaternary alluvial cone deposits and talus, consisting of angular rock fragments and slope cover, commonly at the base of cliffs and along steep slopes. These alluvial and colluvial deposits are underlain by the



Lower Permian Cutler Formation that consists of thin to thick lenticular beds of micaceous shale, siltstone, fine- to coarse-grained sandstone that is locally conglomeratic, and arkosic sandstone and conglomerate, locally calcareous. The exposed thickness is estimated at 550 meters. These rocks are underlain by the Telluride Conglomerate that is estimated at 60 meters thick in the Howard Ford drainage near Ophir. The Telluride Conglomerate is overlain by a thick volcanic assemblage composed of volcanoclastic rocks and welded ash flow tuffs. Sources of the volcanics were the Silverton caldera and adjacent calderas of the San Juan Mountains.

The Ophir area, which produced base and precious metal ores, has been an integral part of the western San Juan Mountains metal-mining region. Rich silver ore from near Ophir was being packed over Ophir Pass to a smelter at Silverton as early as 1878, and by the mid 1880's, the Ophir district was an active mining area with a number of operating mines. Most ore produced in the area was from vein deposits. Near surface supergene-enriched ores were soon mined out, necessitating exploration and development of deeper buried ores. Records of metals produced are scarce for the Ophir quadrangle, as a whole, and particularly for the early years of mining activity (USGS, 1996).

The topography of the New Dominion Mine (Figure 2-2) features the steeply sloping ridge to the north of the mine and Town of Ophir that slopes southward toward the Howard Fork Drainage, and the prominent Spring Gulch drainage located to the west of the New Dominion Mine. The Spring Gulch drainage was observed to be dry during the site characterization visit on July 6 and 7, 2020.

Figure 2-4 illustrates the groundwater well permits located in the Site vicinity. A survey of wells near the Site was conducted on the Colorado Division of Water Resources mapviewer website <https://gis.colorado.gov/dnrviewer/Index.html?viewer=mapviewer>. The results of this research are summarized below:

- Five groundwater wells identified within the vicinity of the Site and Town of Ophir are classified as "Household" (3 wells) or "Domestic" (2 wells);
- The well nearest the New Dominion Site is a household well 162 feet in depth;
- The other four wells are located further to the west of the Town of Ophir along the Howard Fork Drainage, and range from 36 to 83 feet in depth; and
- A CDWR Covenant or Institutional Control Site was identified as the "North Star Mill Site" a repository located east of the New Dominion area (Figure 2-4). The covenant is dated October 15, 2013 and based on the location does not appear associated with the Carbonero Tailings repository (addressed below in section 2.3), and from aerial imagery appears to be located over 1,000 feet east of the New Dominion Mine and located on private property. The CDWR covenant indicates the following information and restrictions:
  - Institutional Control ID: HMCOV00114
  - Owner Corporation: David Wolf
  - No activities damaging repository cap, including digging, drilling, tilling, excavation, construction, vehicular traffic;



- No access within repository boundary area except for monitoring and maintenance;
- No irrigation unless Colorado department of Public Health and Environment (CDPHE) approved; and
- No enclosed structures built or placed within repository boundary area.

### 2.3 Current Site Features for EE/CA

The general site features pertinent to the site characterization and EE/CA are described below and shown on Figure 2-3. These features are generally consistent with those identified in a previous study performed for USFS, and described in further detail in Section 3:

- The Original New Dominion Adit and Waste Rock Pile;
- The 102 Adit and Dump 202 Waste Rock Pile; and
- The 100 Adit and Dump 200 Waste Rock Pile.

Other features shown on Figure 2-3 include a wetlands area associated with the Howard Fork Drainage, and the USFS-managed Carbonero Tailings Reclamation Repository located southeast of the New Dominion Mine and south of the Howard Fork Drainage.

Portions of the New Dominion features described above are situated on both USFS-managed lands and land owned by the Town of Ophir. USFS and Town of Ophir boundaries are shown on Figure 2-3. Adits #100 and #102 are located on lands managed by GMUG Norwood Ranger District. Dump #200 is partially located on GMUG Norwood Ranger District and partially on land administered by the Town of Ophir. Dump #202 is located on land managed by GMUG NF. The original New Dominion adit is located on the New Dominion Lode claim owned by the Town of Ophir.

### 2.4 Previous Investigation

A prior SI that included a screening-level risk evaluation was conducted at the New Dominion Mine by Au' Authum Ki, Inc. (AAK) in the *Site Assessment Report, New Dominion Mine, San Miguel County, Colorado* (AAK, 2006). The scope of sampling is summarized below and in Figure 2-5, and the analytical results are provided in Section 6.

Surface Water Samples:

- ND ADIT 100 – mine discharge at collapsed Adit 100;
- ND DRAIN 100 – mine drainage from Adit 100, downstream of the toe of Dump 200;
- ND ADIT 102 – mine discharge at Adit 102;
- ND DRAIN 102 – mine drainage from Adit 102, downstream of the toe of Dump 202;
- ND WL SW1 – wetland/pond in northern portion of wetland area;
- ND WL SW2 – wetland/pond in north-central portion of wetland area;
- ND WL SW3 – wetland/pond in south-central portion of wetland area;



- ND WL SW4 – wetland/pond in southern portion of wetland area;
- ND HF-UP – Howard Fork upstream of mine area;
- ND HF-DN – Howard Fork downstream of mine area; and
- FERRO SPRING – Natural iron spring located east of the wetland area.

Sediment samples collocated with surface water samples in wetland areas:

- ND WL SED 1 – composite wetland/pond in northern portion of wetland area;
- ND WL SED 2 – composite wetland/pond in north-central portion of wetland area;
- ND WL SED 3 – composite wetland/pond in south-central portion of wetland area; and
- ND WL SED 4 – composite wetland/pond in southern portion of wetland area.

Waste-rock, precipitate, and background soil samples were collected for laboratory analysis at the following locations:

- ND DUMP 200 – composite waste-rock sample from Dump 200;
- ND DUMP 200 PPT – composite precipitate sample along mine drainage channel;
- ND DUMP 200 BKG – composite background soil sample collected approximately 300 feet east of Dump 200;
- ND DUMP 202-W – composite waste-rock sample from west lobe of Dump 202;
- ND DUMP 202-E – composite waste-rock sample from east lobe of Dump 202;
- ND DUMP 202 PPT – composite precipitate sample along mine drainage channel; and
- ND DUMP 202 BKG – composite background soil sample collected approximately 300 feet east of Dump 202.

Risk screening levels for the previous study included the United States Bureau of Land Management (BLM) risk management criteria for metals at mine sites (Ford, 2004), USEPA modified Maximum Contaminant Levels (MCLs) and modified Secondary MCLs (SMCLs), USEPA Regional Screening Levels (RSLs) for industrial soils, and Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Commission (WQCC) ecological screening values available in 2006 for Segment 7a of the San Miguel River Basin. The risk screening threshold values (TVs) have been updated; therefore, the streamlined risk assessment conducted for this EE/CA uses the updated TVs as described in the FSP/QAPP (AI, 2020).

The FSP/QAPP Data Quality Objectives (DQOs) included an evaluation of the usability of the previous data. The lab data package was reviewed following USEPA's *Guidance on Environmental Data Verification and Data Validation*, EAP QA/G-8, (USEPA, 2002). The previous data were found to be usable and to be supported by additional data collection in 2020 (AI, 2020).





### **3. EE/CA SITE CHARACTERIZATION ACTIVITIES AND FINDINGS**

The EE/CA Site Characterization was conducted on July 6 and 7, 2020 by Jeff Hart, Registered Geologist (RG), and John DeAngelis, Certified Professional Geologist (CPG). The AI team was accompanied by Seth Ehret, the USFS COR. The New Dominion features sampled and evaluated are summarized in separate sections below. The sampling methods and laboratory analyses are described in Section 3.6. Quality Control/Quality Assurance (QA/QC) samples are summarized in Table 3-1. Field notes from this sampling event are documented in Appendix A.

#### **3.1 Dump 200**

Two composite samples of Dump 200 material were collected and analyzed by SPLP using USEPA Method 1312 and the extract was analyzed for total analyte list (TAL) metals. Samples are shown on Figure 3-1 and results are shown in Table 3-5:

- Sample ND2-SS-200-1 was a composite of saturated precipitate; and
- Sample ND2-SS-200-2 was a composite soil sample.

#### **3.2 Adit 100**

Mine water and precipitate samples associated with the Adit 100 were analyzed for TAL metals and for hardness (water samples only) as shown on Figure 3-1 including, from Adit 100 location ND2-AWP-100:

- Water sample ND2-AWT-100-1 from the 100 adit;
- Water sample ND2-AWD-100-1 from the 100 adit;
- Precipitate sample ND2-AP-100-1 from the 100 adit.

From adit water drainage location ND2-DWP-100:

- Water sample ND2-DWT-100-1 for total metal analysis, collected downstream from the draining adit water flow as it exits the Dump 200 waste pile;
- Water sample ND2-DWD-100-1 for dissolved metal analysis, collected downstream from the draining adit water flow as it exits the Dump 200 waste pile; and
- Precipitate sample ND2-DP-100-1 downstream from the draining adit water flow as it exits the Dump 200 waste pile.

#### **3.3 Dump 202**

Two composite samples of Dump 200 material were collected and analyzed by SPLP and the extract was analyzed for TAL Metals. Locations are shown on Figure 3-2 and results are presented in Table 3-5:





- Soil sample ND2-SS-202-1 from the western (blonde-colored) portion of Dump 202; and
- Soil sample ND2-SS-202-2 from the eastern (red-colored) portion of Dump 202.

### **3.4 Adit 102**

Mine water and precipitate samples associated with the Adit 102 location ND2-AWP-102 were collected and were analyzed for TAL metals and hardness (water samples only) as shown on Figure 3-2:

- Water sample ND2-AWT-102-1 for total metal analysis from the 102 adit;
- Water sample ND2-AWD-102-1 for dissolved metal analysis from the 102 adit; and
- Precipitate sample ND2-AP-102-1 from the 102 adit.

### **3.5 Original New Dominion Dump**

Surface soil consisting of finely weathered mine waste, similar to the upper bench of the waste pile that extends north onto the Town of Ophir property, was sampled from the portion of the OND waste pile on USFS managed land (see Figure 3-3). Surface soil samples from the OND area were analyzed for TAL metals, both as soil and SPLP-prepared leachate:

- Sample ND2-SS-OND-1 and duplicate ND2-SS-OND-2.

Additionally, one composite background surface soil sample was collected approximately 100 ft south-southeast of the OND waste pile on the opposite side of a small draw and analyzed for TAL metals as shown on Figure 3-3:

- ND2-SS-OND-BKG-1.

### **3.6 Sampling and Analytical Methods, Decontamination, Sample Handling**

#### **3.6.1 Sampling Methods**

Per the FSP/QAPP, composite soil and /or precipitate samples were comprised of a minimum of 30 sample increments from 0- to 3-inch depth, roughly equally spaced, in accordance with the USGS Sampling Strategy for the Rapid Screening of Mine-Waste Dumps on Abandoned Mine Lands (USGS, 2000). Each composited multi-increment sample was sieved to <2 millimeter (mm – or 10-mesh). The >2 mm fraction was returned to the waste pile, and the <2 mm fraction was retained for laboratory analysis.

Water samples were collected using a peristaltic pump and disposable pump tubing. Water samples were collected directly into certified precleaned containers provided by the analytical laboratory. The containers for both total and dissolved metals contained nitric acid preservative



in accordance with the FSP/QAPP. Water samples collected for dissolved metals analysis were field-filtered using disposable 0.45 micron filters.

### 3.6.2 Analytical Methods

Soil, precipitate, and adit water samples were analyzed for TAL metals under USEPA Method 6010B and USEPA Method 7471/7470. Select soil samples for SPLP analysis were prepared by USEPA Method 1312 before TAL metal analysis by USEPA Method 6010B was conducted on the SPLP extract. Table 3-1 summarizes all sampling identifications, location descriptions, laboratory analyses, QA/QC samples, and applicable sample preservation.

### 3.6.3 Decontamination

In accordance with the FSP/QAPP, the sampling equipment (soil probe, sharp-shooter shovel and/or hand-trowel, and stainless steel sieves) were decontaminated with an Alconox solution wash and de-ionized water rinse between collection of each composite sample. The water quality parameter probes and vessel were also decontaminated with an Alconox solution wash and de-ionized water rinse between sampling locations.

### 3.6.4 Sample Handling

All soil and water samples were placed in coolers on ice and maintained under chain-of-custody procedures until delivery to the analytical laboratory. Analytical methods for soil, precipitate, and water allow for a maximum 120 day holding time before analyses. The samples were maintained on ice until they were hand-delivered to the Pace Analytical Distribution Center on July 14, 2020. The samples were re-packed with ice and shipped overnight to the Pace Analytical Laboratory in Mount Juliet Tennessee for receipt on July 15, 2020.

### 3.6.5 Laboratory Data Review Report

Pace Analytical Laboratory conducted the chemical analyses for preliminary constituents of concern and provided USEPA Level 3 data packages for data review. These laboratory packages are provided as Appendix B. A summary of the data validation parameters is provided as Appendix C. All data was determined to be useable for risk assessment.

## 3.7 Deviations from the FSP/QAPP

All samples were collected in accordance with the FSP/QAPP, and the accompanying Standard Operating Procedures (SOPs) outlined within. There were no deviations from the FSP/QAPP to note. Standard field methods were performed in accordance with SOPs to reduce data variability associated with field contamination or sampling error. As identified in the FSP/QAPP, these included:

- Proper cleaning of sampling equipment;



- Maintaining, cleaning, and calibrating field equipment per manufacturer's instructions;
- Using proper field sample collection techniques;
- Collection of appropriate duplicates and laboratory QA/QC samples;
- Processing and compositing soil samples;
- Correctly labeling and transcribing sample data; and
- Properly preserving, handling, and shipping samples.

### 3.8 Supporting Data

Per the FSP/QAPP, supporting data collection in the field for the EE/CA included surface water quality measurements and flow estimates. In addition, volume estimates were conducted on the waste piles.

#### 3.8.1 Surface Water Quality and Flow

AI performed water quality measurements at three locations: Adit 100, Adit 100 drainage as flow exits the Dump 200 waste pile, and Adit 102, as shown on Figures 3-1 and 3-2. The results are provided in Table 3-2 and summarized below:

- Temperature ranged from 6.5 degrees Celsius (°C) at Adit 102 to 10.8 °C downstream of Adit 100;
- Dissolved oxygen ranged from 5.57 milligrams per liter (mg/L) at Adit 100 to 8.02 mg/L downstream of Adit 100;
- Specific conductance ranged from 608 microSiemens per centimeter (µS/cm) at Adit 102 to 1,650 µS/cm at Adit 100;
- pH ranged from 7.11 at Adit 102 to 7.43 downstream of Adit 100; and
- Oxidation Reduction Potential (ORP) ranged from -67.3 at Adit 100 to 24.5 at Adit 102.

These results generally indicate water quality with neutral pH, low to moderate specific conductance, and ORP conditions that are reducing at Adit 100 to slightly oxidizing at Adit 102.

General comparisons of July 2020 water quality measurements with measurements performed in October of 2005 (AAK, 2006) are summarized below:

- The pH measured at Adit 100 in 2020 (7.38) is comparable to 2005 (7.25);
- The specific conductance measured at Adit 100 in 2020 (1,650 µS/cm) is comparable to 2005 (1,539 µS/cm); and
- The ORP measured at Adit 100 in 2020 (-67.3) is comparable to 2005 (-78.7).

Complete comparisons of all water quality parameters at Adit 100, downstream of Adit 100, and Adit 102 are presented in Table 3-3. Overall, the water quality measured at these locations does not appear to have significantly changed since last measured in 2005.



In addition, Table 3-4 provides a summary of water quality measurements obtained in August 1996 and October 2000 (CGS, 2001) from Adit 100 and Adit 102 compared with the most recent water quality results. These results indicate that Specific Conductance has remained relatively consistent (slight increase) since 1996, while the pH at Adits 100 and 102 (7 range in 2020) appears to have increased from pH readings in the 5 and 6 range since 1996 and 2000.

### **Adit Water Flow**

Flow measurements from July 2020 are summarized in Table 3-2 and discussed below.

AI estimated flow at Adit 100 using a 5-gallon bucket and stopwatch, summarized as follows:

- The entire flow stream could not be captured within the bucket; therefore the estimate was based on 85% capture;
- An average of several readings resulted in an estimated flow of 104 gallons per minute (gpm) or 0.23 cubic feet per second (cfs);
- The 2005 study (AAK, 2006) estimated Adit 100 flow in October 2005 at 0.5 to 1.0 cfs.

AI estimated Adit 102 flow approximately 50-feet downstream of the adit using a Baski portable flume, summarized as follows:

- AI captured approximately 80% of the flow in the flume and estimated the flow at approximately 42 gpm or 0.094 cfs;
- The 2005 study (AAK, 2006) estimated Adit 100 flow in October 2005 at 0.5 cfs.

### **3.8.2 Volume Estimates**

Volume estimates of the waste piles were surveyed on July 7, 2020 using a LTI Tripulse 360 laser range finder unit. Multiple survey shots of the toe of each waste pile and top (profile) of each waste pile were collected. The laser range finder measures distance, angle, and azimuth for each survey shot and automatically triangulates the survey points and the temporary control points established around the perimeter of the pile. The survey points are recorded using Mapsmart® field data collection software that calculates the estimated volume in the field.

Volume data are summarized as follows:

- Dump 200 was estimated at 1,963 cubic yards (CY); and
- The Original New Dominion Dump was estimated at 1,662 CY.

Dump 202 was estimated at between 900 CY and 1,260 CY using survey tape and height measurements because of the irregular shape of the pile which presented unacceptable error using the laser range finder.



For comparison, the prior volume estimates provided in 2006 SI (AAK, 2006) were:

- Dump 200 was estimated at 3,000 CY;
- Dump 202 was estimated at 1,500 CY; and
- The Original New Dominion Dump was not estimated in 2005.

The volume estimate survey points and diagrams of the piles are provided in Appendix D.

### 3.8.3 Synthetic Precipitation Leaching Procedure Results

To evaluate the potential impact of metals in waste rock leaching to groundwater, SPLP results were compared to USEPA MCLs (<https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations>) from the National Primary Drinking Water Regulations to include groundwater that could be a drinking water resource multiplied by a dilution/attenuation factor (DAF) of 20. SPLP results that exceeded 20x the USEPA Tapwater RSL are shown in Table 3-5 and summarized below.

- Arsenic exceeded 20x the USEPA residential tap water RSL in soil sample ND2-SS-200-2, with an exceedance factor (EF) of 6.4; and
- Lead exceeded 20x the USEPA residential tapwater RSL in soil sample ND2-SS-202-1, with an EF of 33.

Additionally, arsenic and thallium concentrations were below method detection limits (MDLs) in one or more samples, but the MDL exceeded 20x the USEPA Tapwater RSL.



## 4. NATURE AND EXTENT OF CONTAMINATION

In accordance with the SOW and project planning documents, the nature and extent of contamination evaluation uses data from the 2006 SI (AAK, 2006) and data from the July 2020 sampling event conducted by AI for characterization of waste piles, precipitate collected from Site adits and adit drainages, and Site adit water and adit drainage water. Additionally, two composite background surface soil samples were collected in proximity to Site 01 and Site 02 during the 2006 SI, and one composite background surface soil sample was collected adjacent to the OND Site in July 2020. Finally, the 2006 SI included the collection of surface water samples from Ferro Spring, located to the southeast of the Site in a cross-gradient location presumed to not be impacted from mining activity at the Site.

### 4.1 Soil and Precipitate

To identify contaminants of potential concern (COPCs) and contaminants of potential ecological concern (COPECs) in Site soil and precipitate, analytical results from soil and precipitate samples collected at Site features were compared to analytical results from background soil samples. The maximum metal result from the three background surface soil samples collected in 2006 and 2020 was considered the background threshold value (BTV) for that metal. Based on USEPA Hazard Ranking System (HRS) guidance (1992) which identifies a threshold of three times (3x) background as indicative of a probable release, metal results in Site soil and precipitate that exceeded 3x the BTV were identified as COPCs and COPECs. COPCs and COPECs were retained to be compared to threshold values (TVs) in the Screening Level Risk Assessment (SLRA, Section 6.0).

Table 4-1 shows analytical results for background soil sample; Table 4-2 compares mine impacted surface soil and precipitate analytical results to their associated BTVs. Analytes with >3x the BTV are summarized below.

- For ND-200-PPT:
  - Arsenic exceeded the BTV by a factor of 10;
  - Iron exceeded the BTV by a factor of 8.4;
  - Manganese exceeded the BTV by a factor of 11; and
  - Zinc exceeded the BTV by a factor of 4.2.
- For ND-Dump 200:
  - Arsenic exceeded the BTV by a factor of 9.4;
  - Cadmium exceeded the BTV by a factor of 11;
  - Copper exceeded the BTV by a factor of 8.3;
  - Lead exceeded the BTV by a factor of 60;
  - Manganese exceeded the BTV by a factor of 5.2;
  - Mercury exceeded the BTV by a factor of 8.3;
  - Silver exceeded the BTV by a factor of 16; and
  - Zinc exceeded the BTV by a factor of 11.
- For ND-202-PPT:



- Arsenic exceeded the BTV by a factor of 4.3;
  - Cadmium exceeded the BTV by a factor of 57;
  - Copper exceeded the BTV by a factor of 44;
  - Iron exceeded the BTV by a factor of 3.8;
  - Manganese exceeded the BTV by a factor of 62;
  - Nickel exceeded the BTV by a factor of 10;
  - Uranium exceeded the BTV by a factor of 14; and
  - Zinc exceeded the BTV by a factor of 28.
- For ND-Dump 202-E:
  - Arsenic exceeded the BTV by a factor of 6.2;
  - Cadmium exceeded the BTV by a factor of 9;
  - Copper exceeded the BTV by a factor of 8.8;
  - Lead exceeded the BTV by a factor of 58;
  - Manganese exceeded the BTV by a factor of 12;
  - Nickel exceeded the BTV by a factor of 4;
  - Silver exceeded the BTV by a factor of 5; and
  - Zinc exceeded the BTV by a factor of 8.9.
- For ND-Dump 202-W:
  - Antimony exceeded the BTV by a factor of 11;
  - Arsenic exceeded the BTV by a factor of 8;
  - Cadmium exceeded the BTV by a factor of 35;
  - Copper exceeded the BTV by a factor of 6.6;
  - Lead exceeded the BTV by a factor of 130;
  - Mercury exceeded the BTV by a factor of 3.8;
  - Molybdenum exceeded the BTV by a factor of 8.2;
  - Silver exceeded the BTV by a factor of 20; and
  - Zinc exceeded the BTV by a factor of 32.
- For ND2-AP-100-1:
  - Antimony exceeded the BTV by a factor of 7.8;
  - Arsenic exceeded the BTV by a factor of 3.2;
  - Beryllium exceeded the BTV by a factor of 4.4;
  - Cobalt exceeded the BTV by a factor of 6.1;
  - Iron exceeded the BTV by a factor of 3.8;
  - Manganese exceeded the BTV by a factor of 4.5; and
  - Selenium exceeded the BTV by a factor of 3.9.
- For ND2-AP-102-1:
  - Beryllium exceeded the BTV by a factor of 12;
  - Cadmium exceeded the BTV by a factor of 11;
  - Cobalt exceeded the BTV by a factor of 43;
  - Copper exceeded the BTV by a factor of 3.4;
  - Manganese exceeded the BTV by a factor of 21; and
  - Zinc exceeded the BTV by a factor of 6.7.
- For ND2-DP-100-1:
  - Antimony exceeded the BTV by a factor of 6.9;



- Arsenic exceeded the BTV by a factor of 3.1;
  - Beryllium exceeded the BTV by a factor of 6.8;
  - Cadmium exceeded the BTV by a factor of 7
  - Cobalt exceeded the BTV by a factor of 23;
  - Manganese exceeded the BTV by a factor of 19;
  - Selenium exceeded the BTV by a factor of 4.2; and
  - Zinc exceeded the BTV by a factor of 4.1.
- For ND2-DP2-100-1:
  - Antimony exceeded the BTV by a factor of 7.2;
  - Arsenic exceeded the BTV by a factor of 3.5;
  - Beryllium exceeded the BTV by a factor of 7.2;
  - Cadmium exceeded the BTV by a factor of 6.9;
  - Cobalt exceeded the BTV by a factor of 25;
  - Iron exceeded the BTV by a factor of 3.1;
  - Manganese exceeded the BTV by a factor of 21;
  - Selenium exceeded the BTV by a factor of 5; and
  - Zinc exceeded the BTV by a factor of 4.2.
- For ND2-SS-OND-1:
  - Arsenic exceeded the BTV by a factor of 8.4;
  - Lead exceeded the BTV by a factor of 18;
  - Mercury exceeded the BTV by a factor of 23;
  - Selenium exceeded the BTV by a factor of 3.2; and
  - Silver exceeded the BTV by a factor of 6.1
- For ND2-SS-OND-2:
  - Arsenic exceeded the BTV by a factor of 8.7;
  - Cadmium exceeded the BTV by a factor of 4.1;
  - Lead exceeded the BTV by a factor of 20;
  - Mercury exceeded the BTV by a factor of 21;
  - Selenium exceeded the BTV by a factor of 3.7;
  - Silver exceeded the BTV by a factor of 6.5; and
  - Zinc exceeded the BTV by a factor of 3.3.

Based on this initial screening, the following analytes were identified as COPCs and COPECs in Site soil and precipitate and were retained for the SLRA (Section 6.0):

- Antimony;
- Arsenic;
- Beryllium;
- Cadmium;
- Cobalt;
- Copper;
- Iron;
- Lead;





- Manganese;
- Molybdenum;
- Mercury;
- Nickel;
- Selenium;
- Silver;
- Uranium; and
- Zinc.

## **4.2 Adit Water and Adit Drainage Water**

Adit water and adit drainage water did not undergo an initial screening process with background to establish COPCs/COPECs; therefore, all analytes in these media were compared to TVs in the streamlined risk evaluation (Section 6.0), and COCs were identified from constituents that exceeded applicable TVs. See Section 6.0 for the identification of COCs in Site adit and adit drainage water.



## 5. APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS)

Investigative or clean-up actions taken by the USFS under the authority of CERCLA must be consistent with the National Contingency Plan (NCP), 40 CFR Part 300. Section 300.415(j) of the NCP requires that fund-financed removal actions under CERCLA Section 104 and removal actions pursuant to CERCLA Section 106 shall attain ARARs under Federal or State environmental laws or facility siting laws. Potential ARARs for the removal actions at the New Dominion Mine are identified and summarized in Table 5-1.

ARARs are derived from both federal and state laws. The definitions of “applicable” or “relevant and appropriate” requirements are found in the NCP, 40 CFR Part 300.5. “Applicable” requirements apply to cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental, state environmental, or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. “Relevant and appropriate” requirements refer to cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental, state environmental, or facility siting laws that, while not “applicable” to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site to attain goals protective of human health and the environment. A requirement must be both relevant and appropriate, which is determined based on best professional judgment.

ARARs are divided into three categories: chemical-specific, action-specific, and location-specific.

Chemical-Specific ARARs are usually health- or risk-based numerical values or methodologies which, when applied to site-specific conditions, result in the establishment of numerical values. These values establish an acceptable amount or concentration of a chemical that may remain in, or be discharged to, the ambient environment. Examples include Federal MCLs established under the Safe Drinking Water Act (SDWA), or State cleanup levels for soil. Chemical-specific risk-based health standards are criteria used in the focused human health and ecological risk evaluations presented in Section 5 of this report.

Location-Specific ARARs are restrictions on concentrations of hazardous substances or the conduct of response activities solely because the specific locations are of environmental importance (e.g., federal and state siting laws for hazardous waste facilities on the National Register of Historic Places, wetlands, floodplains, wilderness areas).

Action-Specific ARARs are usually technology- or activity-based requirements or limitations on actions taken with respect to hazardous wastes. These requirements are triggered by the particular activities that are selected to accomplish a remedy (e.g., capping, excavation, or pretreatment standards for discharges to a publicly owned treatment works under the Clean Water Act (CWA)).



To Be Considered (TBC) criteria are addressed occasionally when ARARs are not sufficient to protect public health and the environment. When this occurs, non-promulgated standards, criteria, guidance, and advisories issued by federal, or state government must be evaluated along with the chosen ARARs to help provide protective target cleanup levels and to develop CERCLA remedies. These types of non-promulgated standards are referred to as TBC requirements and are not legally binding, and do not have the status of potential ARARs.

As indicated above, ARARs for the New Dominion Mine are summarized in Table 5-1.



## **6. STREAMLINED RISK EVALUATION**

### **6.1 General Approach**

This streamline risk evaluation generally followed current USEPA guidance for human health (USEPA, 1989) and ecological (USEPA, 1997) risk assessments. The screening level approach was designed to be implemented where data are limited and used to evaluate relative risk associated with removal actions in accordance with CERCLA. This screening level approach has evaluated analytical results from both the AAK SI (2006), and the July 2020 sampling event conducted by AI, with an initial screening step for soil and precipitate consisting of comparison to background soil metal concentrations (see Section 4.0).

In this streamlined approach, environmental sample results from soil (mine waste rock and/or tailing), precipitates, adit water, adit drainage water, and surface water and sediment samples collected from the nearby wetland area were compared to established TVs for human and ecological receptors. In soil and precipitate, metals that exceeded 3x BTVs were identified as COPCs and COPEC, and COPCs/COPECs that exceeded TVs for human and ecological receptors were identified as contaminants of concern (COC). Adit water and adit drainage water samples did not undergo an initial screening process with background to establish COPCs/COPECs; therefore, all analytes in these media were compared to TVs, and COCs were identified from constituents that exceeded applicable TVs.

This approach does not address impact to groundwater because groundwater is not accessible in the general site vicinity at the site at this time; however, SPLP results from waste rock samples at the Dump 200 and Dump 202 areas (Section 3.7.3) indicate leaching to groundwater should be considered in the alternatives analysis.

### **6.2 Problem Formulation**

The Site is located near the Town of Ophir Colorado, a popular and accessible recreation area in the Uncompahgre NF. Recreational activities include sight-seeing, historical mining areas, camping, and all-terrain vehicle riding.

Tailings and/or waste rock, precipitates, and adit water from the former dump sites are known to contain elevated concentrations of metals that are toxic to human and ecological receptors under certain concentrations and exposure parameters. Areas of Concern (AOCs) are accessible to campers, hikers and terrestrial ecological receptors which use the area for habitat. In addition, metals may be transported into the downgradient wetlands area or adjacent habitats via transport pathways. Figure 6-1 provides a waste rock and tailings Conceptual Site Exposure Model (CSEM) schematic of the sources of potentially toxic metals, transport pathways, and potential receptors that will be evaluated in the streamlined risk evaluation. Figure 6-2 provides a similar CSEM schematic for adit water drainage.



Potential pathways of contaminant migration include surface runoff of adit water from Adits 100 and 102 through waste rock and/or tailings piles to down-gradient wetland areas. Contaminants in air due to generation of fugitive dust were not measured. In general, the 00, 02 and OND waste piles were poorly vegetated during the investigation which took place in July 2020. During the investigation, fine yellow to light brown silts and fine sands associated with maximum COPC concentrations were observed in the surface soils of 00, 02 and OND AOCs. These fine silts and sands may be mobile in high winds during the dry summer months, though these soils were moist during the field effort in July and were not airborne. All three AOCs are surrounded by large trees that further limit strong winds. The airborne pathway is expected to be seasonal, highly variable, and may be exacerbated by recreational vehicle traffic, though this is not currently observed.

The study area consists of three primary source areas identified as AOCs:

1. The 00 area, which includes Adit 100. Below the adit is the waste rock/tailing pile Dump 200, including an iron precipitate zone and a waste rock pile. Drainage from Adit 100 passes through and around the iron precipitate and waste rock piles and has been observed to travel over Ophir Pass Road;
2. The Site 02 area, which includes Adit 102, below which is a waste rock pile 202. Adit drainage passes around the waste rock pile to the south; and
3. The OND area, which consists of a dry, collapsed adit and a waste rock pile. Approximately 85% of the waste rock pile is on land administered by Town of Ophir, with the remaining portion on land administered by USFS on the Uncompahgre NF.

The following offsite locations were evaluated in the 2006 SI (AAK, 2006) but were not included in the streamlined risk evaluation:

1. Wetlands area, located to the south of the AOCs described above, in a down-gradient location;
2. Howard Fork, a receiving stream located to the south of the wetlands area, with sampling locations both upstream and downstream of the Site; and
3. Ferro Spring located to the southeast of the Site in a cross-gradient location presumed to be unimpacted by Site activities.

Although these sampling locations were not included in the streamlined risk evaluation of this EE/CA, analytical results are presented in Tables 6-4, 6-12, and 6-14 of this EE/CA, in comparison to current TVs.

Probable receptors include human recreationalists, potential Site workers and ecological receptors that use the site for habitat.

### **6.3 Risk Assessment Approach**

This streamlined risk evaluation was completed to identify environmental media impacted by mine waste and identify where this waste is most likely to present an exposure and migration



threat to onsite and offsite human and ecological receptors. This screening-level approach was designed for sites with limited data sets to evaluate relative risk and to determine if risks are acceptable or if removal actions are necessary to lower the risks to acceptable levels.

### 6.3.1 Identification of Media of Concern

The primary media of concern (MOC) are:

1. Soil (waste rock and/or tailings) and precipitate associated with the Dump 200, Dump 202, and OND Dump sites and associated adits and drainage areas; and
2. Surface water associated with Adits 100 and 102.

Soil (waste rock and/or tailings) and precipitate at the AOCs described above are available for direct contact, inhalation, and ingestion by recreational visitors and ecological receptors. Adit water and adit drainage water are available for mammal and bird ingestion, along with aquatic ecologic receptors. Human campers, hikers and workers have the potential for limited exposure to adit water and adit drainage water through the ingestion and dermal exposure routes.

### 6.3.2 Risk Screening Methodology

Environmental samples were collected in two sampling events, the first occurring in 2006 in conjunction with an SI conducted by AAK (2006) and the second conducted by AI in July 2020 (See Section 2.4 and 3.0). COPCs and COPECs were identified at the Site based on metal constituents that exceeded 3x established BTVs.

In soil and precipitate, metals that exceeded 3x BTVs were identified as COPCs and COPECs, and COPCs/COPECs that exceeded TVs for human and ecological receptors were identified as COC. Adit water and adit drainage water samples did not undergo an initial screening process with background to establish COPCs/COPECs; therefore, all analytes in these media were compared to TVs, and COCs were identified from constituents that exceeded applicable TVs.

### 6.3.3 Human Receptor Threshold Values

AI conducted a streamlined human health risk assessment using the BLM Recreational Camper exposure scenario (Cox, 2017), along with USEPA Industrial RSLs (USEPA, 2020) as a more conservative scenario for comparison purposes. The use of the more conservative exposure scenario also provides insight into how the material can be used if transported offsite for fill material. Table 6-1 presents the TVS that were used for human health screening.

The BLM Recreational Camper exposure scenario uses the same exposure parameters as the USEPA residential exposure scenario, except the annual exposure frequency is limited to 14 days per year, which is the amount of time a camper is allowed to camp in a single location within the NF or on BLM lands (Cox, 2017).



The USEPA Industrial exposure scenario is described in detail in USEPA User Guidance (2020) as a full-time employee adult receptor, exposed to the Site during the workday, who spends most of the workday conducting maintenance activities outdoors. The composite worker uses an exposure frequency of 250 days/year, and other default exposure parameters are listed in USEPA (2020).

USEPA Tapwater Regional Screening Levels (RSLs) are described in detail in USEPA User Guidance (2020) and are based on a residential tap water scenario, which includes with activities such as showering, laundering, and dishwashing. Therefore, inhalation and dermal contact are considered along with ingestion as potential exposure routes.

USEPA MCLs are also described in detail in USEPA User Guidance (2020) and are national, enforceable standards based on sound science to protect against human health risks while considering available technology and costs.

USEPA SMCLs are not enforceable standards but have been developed to address aesthetic considerations such as taste, color, and odor. Contaminants present at SMCLs are not considered to present risks to human health.

#### *6.3.3.1 Surface Soil Concentrations Compared to Human Health TVs*

Table 6-2 presents the metal analytical results in surface soil and precipitate samples collected in 2006 at Dump 200 and Dump 202 areas (AAK, 2006) in comparison with human health TVs with findings summarized below.

##### Dump 200

- BLM Recreational TVs were exceeded for the following constituents in soils and precipitates:
  - Arsenic, with EFs ranging from 3 to 3.2, respectively; and
  - Lead (soils only), with an EF of 5.1.
- USEPA Industrial TVs were exceeded for the following constituents in soils and precipitates:
  - Arsenic, with EFs ranging from 31 to 33; and
  - Lead (soils only) with an EF of 5.1.

##### Dump 202

- BLM Recreational TVs were exceeded for the following constituents in soils and precipitates:
  - Arsenic, with EFs ranging from 1.4 to 2.5; and
  - Lead (soils only), with EFs ranging from 4.8 to 11.



- USEPA Industrial TVs were exceeded for the following constituents in soils and precipitates:
  - Arsenic, with EFs ranging from 14 to 20; and
  - Lead (soil only), with EFs ranging from 4.8 to 11; and
  - Manganese (precipitate only), with EF of 1.2.

Table 6-3 presents the metal analytical results in surface soil and precipitate samples collected in July 2020 at the OND Dump area (soils only), Dump 200 area (adit and adit drainage precipitate only), and Dump 202 area (adit and adit drainage precipitate only) in comparison with human health TVs with findings summarized below.

#### OND Dump (soils)

BLM Recreational TVs were exceeded for the following constituents in soils:

- Arsenic, with EFs ranging from 2.7 to 2.9 in duplicate samples ND2-SS-OND-1/ND2-SS-OND-2; and
- Lead, with EFs ranging from 1.5 to 1.6 in duplicate samples ND2-SS-OND-1/ND2-SS-OND-2.

USEPA Industrial TVs were exceeded for the following constituents in soils:

- Arsenic, with EFs ranging from 28 to 29 in duplicate samples ND2-SS-OND-1/ND2-SS-OND-2; and
- Lead, with EFs ranging from 1.5 to 1.6 in duplicate samples ND2-SS-OND-1/ND2-SS-OND-2.

#### Dump 200 (adit precipitate and adit drainage precipitate)

BLM Recreational TVs were exceeded for the following constituents in precipitate:

- Arsenic (drainage precipitate only), with an EF of 1.1.

USEPA Industrial TVs were exceeded for the following constituents in precipitate:

- Arsenic, with EFs ranging from 10 to 11.

#### Dump 202 (adit precipitate)

BLM Recreational TVs were exceeded for the following constituents in adit precipitate:

- None.

USEPA Industrial TVs were exceeded for the following constituents in precipitate:

- Arsenic, with an EF of 3.2.





### 6.3.3.2 Adit/Surface Water Concentrations compared to Human Health TVs (AAK, 2006)

Table 6-4 presents the metal analytical results from the 2006 SI (AAK, 2006) for adit water from Adits 100 and 102, adit drainage water from Adits 100 and 102, surface water from the down-gradient wetlands area, surface water from Howard Fork at locations up- and down-gradient of the Site, and surface water from Ferro Spring (presumed to not be impacted by Site activities) in comparison to human health TVs. Findings are summarized below.

#### Adit 100 and Adit 100 drainage

USEPA Tapwater RSLs were exceeded for the following constituents:

- Dissolved arsenic, with EFs ranging from 33 to 54;
- Total arsenic, with EFs ranging from 40 to 44; and
- Dissolved manganese (adit drainage only), with EFs of 3.3 to 3.4 in duplicate samples.

USEPA MCLs were exceeded for the following constituents:

- None.

USEPA SCMLs were exceeded for the following constituents:

- Dissolved iron, with EFs ranging from 17 to 28;
- Total iron, with EFs ranging from 13 to 26;
- Dissolved manganese, with EFs ranging from 29 to 31;
- Sulfate, with EFs ranging from 3.4 to 3.5; and
- Total dissolved solids (TDS), with EFs of 2.6 (both adit water and adit drainage water).

#### Adit 102 and Adit 102 drainage

USEPA Tapwater RSLs were exceeded for the following constituents:

- Dissolved arsenic (drainage only), with EFs of 9.6;
- Total arsenic, with EFs of 13 (both adit water and adit drainage); and
- Dissolved manganese, with EFs of 4.8 and 4.9.

USEPA MCLs were exceeded for the following constituents:

- None.

USEPA SCMLs were exceeded for the following constituents:

- Dissolved iron, with EFs ranging from 6.5 to 7.4;
- Total iron, with EFs ranging from 10 to 12; and
- Dissolved manganese, with EFs ranging from 41 to 42.

Analytical results were below MDLs, with MDLs exceeding USEPA Tapwater RSLs for the following constituents:

- Arsenic (adit water only).



### 6.3.3.3 Adit/Surface Water Concentrations compared to Human Health TVs (AI, 2020)

Table 6-5 presents the metal analytical results from the AI July 2020 sampling event for adit water from Adits 100 and 102 and adit drainage water from Adit 100 in comparison to human health TVs. Findings are summarized below.

#### Adit 100 and Adit 100 drainage

USEPA Tapwater RSLs were exceeded for the following constituents:

- Dissolved arsenic (adit water only), with an EF of 88;
- Total arsenic (adit drainage water only), with an EF of 120;
- Dissolved cobalt, with EFs ranging from 1.5 to 1.6;
- Total cobalt, with EFs ranging from 1.6 to 1.8;
- Dissolved manganese, with EFs ranging from 3 to 3.1; and
- Total manganese, with EFs ranging from 3 to 3.3.

USEPA MCLs were exceeded for the following constituents:

- None.

USEPA SCMLs were exceeded for the following constituents:

- Iron, with EFs ranging from 16 to 25; and
- Manganese, with EFs ranging from 26 to 29.

Analytical results were below MDLs, with MDLs exceeding USEPA Tapwater RSLs for the following constituents:

- Arsenic; and
- Thallium.

Analytical results were below MDLs, with MDLs exceeding USEPA MCLs for the following constituents:

- Thallium.

#### Adit 102

USEPA Tapwater RSLs were exceeded for the following constituents:

- Dissolved cobalt, with an EF of 3.5;
- Total cobalt, with an EF of 3.8;
- Dissolved manganese, with EF of 4.6 and
- Total manganese, with an EF of 4.7.

USEPA MCLs were exceeded for the following constituents:

- None.



USEPA SCMLs were exceeded for the following constituents:

- Aluminum, with an EF of 6.1;
- Iron, with an EF of 16; and
- Manganese, with an EF of 40.

Analytical results were below MDLs, with MDLs exceeding USEPA Tapwater RSLs for the following constituents:

- Arsenic; and
- Thallium.

Analytical results were below MDLs, with MDLs exceeding USEPA MCLs for the following constituents:

- Thallium.

#### 6.3.4 Streamlined Ecological Risk Evaluation

AI evaluated site-specific receptors by first identifying potential Threatened and Endangered Species (T&E species) with the potential to use the study area as a habitat. AI screened the area for T&E species using the United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) website (IPaC, 2020) for the New Dominion study area (see Appendix E). The following species were identified as having the potential to use the Site as habitat:

- Mammals – Canada Lynx (*Lynx canadensis*)
- Birds – Mexican Spotted Owl (*Strix occidentalis lucida*); and
- Fish – Bonytail Chub (*Gila elegans*), Colorado Pikeminnow (squawfish) (*Ptychocheilus lucius*), Humpback Chub (*Gila cypha*), Razorback Sucker (*Xyrauchen texanus*).

According to IPaC, the study area for the Site is not within the critical habitat for any of these T&E or migratory species.

TVs for the streamlined ecological risk assessment are shown in Tables 6-7 through 6-9.

##### 6.3.4.1 To Be Considered Ecological Risk Standards for Terrestrial Receptors

Ecological screening of waste rock and/or tailings and precipitates was conducted using USEPA Ecological Soil Screening Levels (ECO-SSLs) (<https://cfpub.epa.gov/ecotox/>). ECO-SSLs are established for birds and mammals (B&M) and plants & invertebrates (P&I). Ecological TVs are shown in Table 6-7.



#### 6.3.4.1.1 *Surface Soil Risk Screening for Terrestrial Ecological Receptors*

Table 6-10 presents the analytical results for surface soil and precipitate samples collected in 2006 at the Dump 200 and Dump 202 areas (AAK, 2006) in comparison with ecological TVs, with findings summarized below.

##### Dump 200 (soil and precipitate)

B&M TVs were exceeded for the following COPECs:

- Antimony, with EFs ranging from 3 (precipitate) to 7.4 (soil);
- Arsenic, with EFs ranging from 2.3 to 2.1;
- Cadmium, with EFs ranging from 2.2 (precipitate) to 15 (soil);
- Copper (soil only), with an EF of 23;
- Lead, with EFs ranging from 6.4 (precipitate) to 370 (soil);
- Manganese (precipitate only), with EF of 1.4;
- Selenium (soil only), with EF of 3.7;
- Silver (soil only), with EF of 7.9; and
- Zinc, with EFs ranging from 10 (precipitate) to 27 (soil).

P&I TVs were exceeded for the following COPECs:

- Arsenic, with EFs ranging from 5.1 to 5.4;
- Copper (soil only), with an EF of 9.1;
- Lead (soil only), with EFs of 34;
- Manganese, with EFs ranging from 12 (soil) to 25 (precipitate);
- Selenium (soil only), with EF of 4.4; and
- Zinc, with EFs ranging from 4 (precipitate) to 10 (soil).

Analytical results were below MDLs, with MDLs exceeding B&M TVs for the following constituents:

- Silver (precipitate only).

Analytical results were below MDLs, with MDLs exceeding P&I TVs for the following constituents:

- Selenium (precipitate only).

##### Dump 202 (soil and precipitate)

B&M TVs were exceeded for the following COPECs:

- Antimony, with EFs ranging from 3.7 (precipitate) to 36 (soil);
- Arsenic (soil only), with EFs ranging from 1.4 to 1.8;
- Cadmium, with EFs ranging from 12 to 76;
- Copper, with EFS ranging from 18-24 (soil) to 120 (precipitate);
- Lead, with EFs ranging from 18 (precipitate) to 350-770 (soil);
- Manganese, with EFs ranging from 1.6 (soil) to 7.8 (precipitate);



- Selenium, with EFS ranging from 2.9 to 3.7;
- Silver (soil only), with EFs between 2.4 and 9.8; and
- Zinc, with EFs ranging from 22 to 79.

P&I TVs were exceeded for the following COPECs:

- Arsenic, with EFs ranging from 5.1 to 5.4;
- Copper (soil only), with an EF of 9.1;
- Lead (soil only), with EFs of 34;
- Manganese, with EFs ranging from 12 (soil) to 25 (precipitate);
- Selenium (soil only), with EF of 4.4; and
- Zinc, with EFs ranging from 4 (precipitate) to 10 (soil).

Analytical results were below MDLs, with MDLs exceeding B&M TVs for the following constituents:

- Silver (precipitate only).

#### 6.3.4.1.2 *Surface Soil Risk Screening for Terrestrial Ecological Receptors*

Table 6-11 presents the metal analytical results in surface soil and precipitate samples collected by AI in July 2020 at the OND Dump area (soils only), Dump 200 area (adit precipitate and adit drainage precipitate only), and Dump 202 area (adit precipitate and adit drainage precipitate only) in comparison with ecological TVs. Findings are summarized below.

##### OND Dump (soils)

B&M TVs were exceeded for the following COPECs:

- Antimony, with EFs ranging from 8.1 to 9.1 in duplicate samples ND2-SS-OND-1/ND2-SS-OND-2;
- Arsenic, with EFs ranging from 1.9 to 2 in duplicate samples ND2-SS-OND-1/ND2-SS-OND-2;
- Cadmium (duplicate ND2-SS-OND-2 only), with an EF of 5.5;
- Copper, with EFs ranging from 5.9 to 6.5 in duplicate samples ND2-SS-OND-1/ND2-SS-OND-2;
- Lead, with EFs ranging from 110 to 120 in duplicate samples ND2-SS-OND-1/ND2-SS-OND-2;
- Selenium, with EFs ranging from 8.5 to 9.7 in duplicate samples ND2-SS-OND-1/ND2-SS-OND-2; and
- Zinc, with EFs ranging from 1.8 to 8.2 in duplicate samples ND2-SS-OND-1/ND2-SS-OND-2

P&I TVs were exceeded for the following COPECs:

- Arsenic, with EFs ranging from 4.6 to 4.8 in duplicate samples ND2-SS-OND-1/ND2-SS-OND-2;



- Copper, with EFs ranging from 2.3 to 2.6 in duplicate samples ND2-SS-OND-1/ND2-SS-OND-2;
- Lead, with EFs ranging from 10 to 11 in duplicate samples ND2-SS-OND-1/ND2-SS-OND-2;
- Selenium, with EFs ranging from 10 to 12 in duplicate samples ND2-SS-OND-1/ND2-SS-OND-2; and
- Zinc (duplicate ND2-SS-OND-2 only), with an EF of 3.1.

#### Dump 200 (adit precipitate and adit drainage precipitate)

B&M TVs were exceeded for the following COPECs:

- Antimony, with EFs of 23 to 26;
- Cadmium, with EFs of 1.1 (adit precipitate) to 9.3 (drainage precipitate);
- Copper (adit drainage precipitate only), with EFs of 2 to 2.1;
- Lead, with EFS ranging from 1.2 (adit precipitate) to 12 (drainage precipitate);
- Manganese (drainage precipitate only), with EFs of 2.4 to 2.6;
- Selenium, with EFs of 10 to 13; and
- Zinc, with EFs ranging from 2.1 (adit precipitate) to 11 (drainage precipitate).

P&I TVs were exceeded for the following COPECs:

- Arsenic, with EFs of 1.7 to 1.9;
- Cobalt, with EFs ranging from 1.5 (adit precipitate) to 5.9 (drainage precipitate);
- Lead (drainage precipitate only), with an EF of 1.1;
- Manganese, with EFs ranging from 10 (adit precipitate) to 47 (drainage precipitate);
- Selenium, with EFs of 13 to 16; and
- Zinc (drainage precipitate only), with EFs of 3.9 to 4.

#### Dump 202 (adit precipitate)

B&M TVs were exceeded for the following COPECs:

- Cadmium, with an EF of 15;
- Cobalt, with an EF of 1.1;
- Copper, with an EF of 9.3;
- Lead, with an EF of 3;
- Manganese, with an EF of 2.6;
- Selenium, with an EF of 5.4; and
- Zinc, with an EF of 17.

P&I TVs were exceeded for the following COPECs:

- Cobalt, with an EF of 10;
- Copper, with an EF of 3.7;
- Manganese, with an EF of 48;
- Selenium, with an EF of 6.6; and



- Zinc, with an EF of 6.4.

#### 6.3.4.2 *To Be Considered Surface Water Ecological TVs for Aquatic Receptors*

Ecological screening of adit and adit drainage water was conducted using CDPHE WQCC Regulation 35 – Classifications and Numeric Standards for Gunnison and Lower Dolores River Basins (CDPHE, 2019), Segment 7 (Howard Fork mainstem, tributaries, and wetlands). These standards include hardness-dependent values for some analytes that are outlined in Table 6-8 for acute toxicity and Table 6-9 for chronic toxicity.

##### 6.3.4.2.1 *Surface Water Quantitative Risk Screening for Freshwater Aquatic Receptors*

Table 6-13 presents the ecological risk screening comparison to TVs for adit water and adit drainage water collected by AAK (2006). Findings are summarized below.

#### Adit 100 and Adit 100 drainage

Site-specific acute TVs were exceeded for the following constituents:

- None.

Site-specific chronic TVs were exceeded for the following constituents:

- Total arsenic, with EFs of 100 to 110;
- Dissolved boron (drainage water only), with an EF of 13;
- Total iron, with EFs ranging from 6.8 to 7.8;
- Sulfate, with EFs ranging from 3.4 to 3.5; and
- Sulfide (drainage water only), with an EF of 55.

Analytical results were below MDLs, with MDLs exceeding site-specific chronic TVs for the following constituents:

- Dissolved boron;
- Total mercury; and
- Sulfide.

#### Adit 102 and Adit 102 drainage

Site-specific acute TVs were exceeded for the following constituents:

- Dissolved copper, with EFs ranging from 1.2 to 1.5; and
- Dissolved zinc, with EFs of 1.6.

Site-specific chronic TVs were exceeded for the following constituents:

- Total arsenic, with EFs of 35;
- Dissolved cadmium, with EFs ranging from 3.1 to 3.2;
- Dissolved copper, with EFs ranging from 1.9 to 2.4;



- Total iron, with EFs ranging from 3.1 to 3.4; and
- Dissolved zinc, with EFs ranging from 2.1 to 2.2.

Analytical results were below MDLs, with MDLs exceeding site-specific chronic TVs for the following constituents:

- Dissolved boron;
- Total mercury; and
- Sulfide.

#### *6.3.4.2.2 Surface Water Quantitative Risk Screening for Freshwater Aquatic Receptors*

Table 6-14 presents the ecological risk screening comparison to TVs for adit water and drainage water samples collected by AI in July 2020. Findings are summarized below.

##### Adit 100 and Adit 100 drainage

Site-specific acute TVs were exceeded for the following constituents:

- None.

Site-specific chronic TVs were exceeded for the following constituents:

- Total arsenic (drainage water only), with an EF of 300; and
- Total iron, with EFs of 4.8 to 7.6.

Analytical results were below MDLs, with MDLs higher than site-specific acute TVs for the following constituents:

- None.

Analytical results were below MDLs, with MDLs higher than site-specific chronic TVs for the following constituents:

- Arsenic (adit water and duplicate drainage water sample ND2-DW-100-2 only);
- Mercury;
- Selenium; and
- Thallium.

##### Adit 102

Site-specific acute TVs were exceeded for the following constituents:

- None.

Site-specific chronic TVs were exceeded for the following constituents:

- Dissolved cadmium, with an EF of 1.6; and
- Total iron, with an EF of 4.9.





Analytical results were below MDLs, with MDLs higher than site-specific acute TVs for the following constituents:

- None.

Analytical results were below MDLs, with MDLs higher than site-specific chronic TVs for the following constituents:

- Arsenic;
- Mercury;
- Selenium; and
- Silver.

## 6.4 Risk Assessment Conclusions

### 6.4.1 Soil and precipitate

Based on a streamlined risk evaluation of COPCs in site soils and precipitates, the following analytes are identified as COCs under a BLM recreational exposure scenario:

- Arsenic, soil and precipitate in all AOCs, with a maximum EF of 3.2 in 200 PPT; and
- Lead, soil only in all AOCs, with a maximum EF of 11 in 202 W Dump.

Based on a streamlined risk evaluation of COPECs in site soils and precipitates, the following analytes are identified as COCs for terrestrial ecological receptors:

- Antimony, soil and precipitate in all AOCs, with a maximum EF of 36 in 202 W Dump;
- Arsenic, soil and precipitate in all AOCs, with a maximum EF of 5.4 in 200-PPT;
- Cadmium, soil and precipitate in all AOCs, with a maximum EF of 76 in 202-PPT;
- Cobalt, soil and precipitate in Dump 200 and Dump 202, with a maximum EF of 10 in 102-AP;
- Copper, soil and precipitate in all AOCs, with a maximum EF of 120 in 202-PPT;
- Lead, soil and precipitate in all AOCs, with a maximum EF of 770 in 202 W Dump;
- Manganese, Dump 200 precipitate and Dump 202 precipitate and soils, with a maximum EF of 140 in 202-PPT;
- Selenium, soil and precipitate in all AOCs, with a maximum EF of 16 in 100-DP;
- Silver, soils only, Dump 200 and Dump 202, with a maximum EF of 9.8 in 202 W Dump; and
- Zinc, soil and precipitate in all AOCs, with a maximum EF of 79 in 202 W Dump.

### 6.4.2 Adit water and Adit drainage water

As described above, no constituents exceeded MCLs established by USEPA in any collected adit water or adit drainage water. MCLs are enforceable standards for public drinking water sources. USEPA Tapwater TVs were exceeded for arsenic, cobalt, and manganese at one or more adit



water sampling locations at Site AOCs; however, USEPA Tapwater TVs are a risk-based TV that assume a residential drinking water scenario that is not relevant to Site adit water or adit drainage water. USEPA SMCLs were exceeded for aluminum (Adit 102 only), iron, manganese, sulfate, and TDS at one or more adit water sampling locations; however, SMCLs are non-mandatory water-quality standards for drinking water related to aesthetic considerations such as taste, color, and odor.

Based on the absence of MCL exceedances in adit water and adit drainage water, no COCs were identified in the human receptor risk screening for surface water at the Site.

Based on a streamlined ecological risk evaluation of metals data collected by AAK (2006) and AI in July 2020, the following are identified as COCs in adit water and adit drainage water:

- Arsenic, AOC 00 and AOC 02, with a maximum EF of 300 in 100 DW;
- Cadmium, AOC 02, with a maximum EF of 3.1 in 102 DW;
- Copper, AOC 02, with an EF of 1.9 in 102 DW;
- Iron, AOC 00 and AOC 02, with a maximum EF of 7.8 in 100 AW; and
- Sulfate, AOC 00, with a maximum EF of 3.5 in 100 DW.



## **7. IDENTIFICATION OF REMOVAL ACTION SCOPE AND GOALS**

Identifying the scope and goals for a removal action is a critical step in the EE/CA and in the conduct of non-time-critical removal actions. In general, the scope, goals and objectives of a removal action under CERCLA are set to abate, prevent, minimize, stabilize, mitigate, or eliminate the release or threat of release that is an unacceptable threat to human health or the environment.

The goal of the removal action at the Site, includes limiting the effects of contaminated Site soils and tailings to recreational visitors and the surrounding environment. The objectives of the removal action are to:

1. Reduce the exposure of human and ecological receptors to COCs identified in mine tailings evaluated in this study;
2. Control contaminant source areas (soil and tailings) from migration to nearby surface water or other media/areas;
3. Limit the migration of tailings via air and surface water and other surface transport mechanisms; and
4. Restore/revegetate disturbed areas with native vegetation to minimize erosion.



## **8. IDENTIFICATION AND COMPARISON OF REMOVAL ACTION ALTERNATIVES**

This section addresses the following key items: (1) identifies potential removal action technologies to be considered (2) identifies and presents the criteria for selecting the most appropriate removal action alternatives, and (3) identifies and presents an analysis of the selected/implementable removal action alternatives.

Due to the nature of the MOCs and COCs (metals and metallic minerals in surface soil, tailings and/or sediments and surface water from adits), there are a limited number of alternatives associated with this analysis. There is no treatment technology to destroy COCs to reduce volume. The objectives will be to minimize exposure to human and ecological receptors. The USFS standard practices for mine sites are to consider presumptive remedies and, if necessary, removal action alternatives that do not require long term operations and maintenance.

### **8.1 Description of Removal Action Technologies**

This section identifies applicable technologies, based on site conditions and COCs. Only those technologies proven to be effective at similar sites were evaluated during the EE/CA technology screening process. The following technologies were selected for further development and possible implementation during evaluation of the removal action alternatives:

- Off-site Repository;
- Covering waste piles;
- Surface controls for adit water drainage; and
- Institutional Controls.

#### **8.1.1 Off-Site Repository**

Disposal at an off-site repository does not eliminate or significantly reduce the waste volume, toxicity, and mobility because the contaminated material would still be present at the off-site location. If properly capped, an offsite repository would reduce or eliminate exposure to the waste from human or ecological receptors. Disposal at an off-site repository may also be advantageous in that the offsite location would be chosen to accommodate certain on-site construction constraints such as volume capacity, depth to groundwater, highly toxic waste, or appropriate soil cap material on-site or nearby.

#### **8.1.2 Covering Waste Piles Onsite**

Covering material in place involves placement of fill over the existing contaminant source to construct a protective layer to reduce contaminant exposure and migration. The protective layer typically consists of a vegetated topsoil layer designed to protect the low permeability layer and to help reduce infiltration through evapotranspiration. Covering in-place is an appropriate alternative for addressing contaminated materials that need to be left in place due to site constraints, or an optimum in-place location.



## Consolidation

Consolidation involves placing similar types of wastes together in a common area for more efficient management. Consolidation can be especially appropriate in areas where multiple, smaller contaminant sources are present or in environmentally sensitive areas, such as floodplains.

### 8.1.3 Surface Water Controls On-Site

Surface water control measures are implemented to reduce contaminant mobility by limiting water erosion processes. Surface water controls may include drainage channel improvements and relocation or diversion of surface water run-off around potentially contaminated areas. One approach may include use of surface water management systems (also referred to as run-on and run-off control measures) which diverts stormwater away from the contaminated areas and contaminated mine drainage away from clean or sensitive areas. Vegetation or riprap may be used in the diversion swales and areas of sheet flow to limit the erosion potential.

Surface controls can be integrated with other technologies to minimize migration of contaminants to nearby surface water or other media/areas. These measures typically include grading, vegetation, erosion protection, consolidation, and surface water diversion.

## Grading

Grading is used to reduce/reshape slopes for managing surface water run-on/run-off, control erosion, minimize hazards, and contour sites to more natural conditions. Periodic maintenance may be necessary to repair problems associated with settlement and erosion.

## Vegetation

Vegetation may involve adding soil amendments to a specific depth to provide nutrients and organic materials for enhancing vegetation growth. At a minimum, selection of the appropriate plant species, preparation of the seeding area, seeding and/or planting, and fertilization are also necessary steps in the vegetation process. Adding neutralizing agents and/or additives to improve pH conditions and/or the water storage capacity of soil may also be required. Vegetation is essential to control water and wind erosion processes and reduce surface water infiltration through evapotranspiration. Periodic maintenance may be required to ensure adequate vegetative establishment and weed control.

## Erosion Protection

Erosion protection includes using erosion resistant materials to control and reduce erosional effects at the surface. Typical applications of erosion protection involve installation of natural or synthetic fabric mats, straw wattles, riprap, hay bales, or earthen berms along slopes, or surface water diversion structures.



#### 8.1.4 Institutional Controls

Institutional controls are administrative and/or legal controls that help minimize risk and/or protect the integrity of a remedy by limiting future land use or preventing access to the Site. Examples include deed restrictions to prohibit residential use of the Site and fencing and warning signs to discourage access to the site. While such controls may not effectively achieve cleanup goals, they are often used to augment other removal alternatives.

### 8.2 Components of the Removal Action Scope

The USEPA NTCRA guidance (USEPA, 1993) identifies that a limited number of alternatives should be selected for detailed analysis. Furthermore, USEPA suggests that only the most qualified technologies that apply to the media or source of contamination should be discussed in the EE/CA. The following general technologies were selected for further development and possible implementation during evaluation of the removal action alternatives:

- Off-Site Repository and Surface Water Controls on-site;
- Covering Waste Piles and Surface Water Controls on-site; and
- Surface Water Controls onsite and Institutional Controls.

Each of the selected technologies listed above is described in the following subsections. These descriptions provide an overview of their technical application and approach used in the development and assembly of the evaluated removal action alternatives. The following bullets present the limited number of removal action alternatives evaluated in this EE/CA.

- Alternative 1: Off-Site Repository and Surface Water Controls Onsite;
- Alternative 2: Covering Waste Piles and Surface Water Controls Onsite and Institutional Controls; and
- Alternative 3: No Action.

The no action alternative is included in this report as a baseline for comparison with other removal action alternatives and is routinely included in EE/CA and feasibility study documents for these purposes. This alternative does not require remediation or removal work. No effort would be made to actively reduce risks to human health or the environment. The Site would remain as it exists today or would further degrade due to outside influences.

#### 8.2.1 Alternative 1: Off-Site Repository and Surface Water Controls Onsite

Removal of the wastes for disposal to an off-site repository is considered a widely used presumptive remedy. Although an off-site repository would reduce the contaminant volume toxicity at the New Dominion Site, it would still be a concern at the off-site location; therefore, no real reduction of toxicity or volume is gained.



Off-site disposal involves excavating the waste materials and debris for transport to an off-site disposal facility permitted to accept such materials. Off-site disposal options include the nearest permitted solid-waste, Resource Conservation and Recovery Act (RCRA) Subtitle D landfill or a distant RCRA Subtitle C permitted facility. Non-Bevell exempt hazardous materials would require disposal in a RCRA Subpart C hazardous waste facility; although, no materials at the site have been identified as such. Less toxic materials and debris could be disposed of in a permitted solid waste Subpart D landfill. However, many Subpart D landfills will not accept mining waste.

For purposes of this EECA, the initial evaluation assumes that the wastes from the Site would be transported for disposal at one of these alternate sites:

- Alternative 1A: The Broad Canyon Landfill is the nearest Colorado Operating Commercial Landfill to the New Dominion Mine permitted by the CDPHE, located approximately six miles southeast of Naturita, Colorado, or approximately 55 miles northwest of the New Dominion Mine; and
- Alternative 1B: The USFS-managed Carbonero Tailings Repository located within one-half mile of the New Dominion Mine.

AI contacted the Broad Canyon Landfill management to determine whether the landfill can accept mining waste. The landfill does accept mining waste if the waste characterization profile demonstrates that the waste is non-hazardous, and must pass the following analytical requirements:

- Toxicity Characteristic Leaching Procedure (TCLP) metals;
- Flashpoint; and
- Paint filter test for solids.

The primary advantage to Alternative 1A is removal of the wastes from the New Dominion Mine, and exposure potential to human and ecological receptors would be removed. The primary disadvantages to Alternative 1A is the time period and cost of transporting the wastes, the haul truck traffic and noise of heavy equipment in the vicinity of the Town of Ophir, and potential long-term liability associated with USFS- and Town of Ophir- derived wastes at an off-site facility regulated by the CDPHE.

For Alternative 1B, AI was provided the construction as-built drawings and the Construction Completion Report [Millennium Science and Engineering (MSE) 2010] for the Carbonero Tailings Project completed in the fall of 2010. Review of these documents indicate the following:

- The original design volume of 4,500 CY of tailings for the Carbonero Tailings would be doubled by the estimated 4,800 CY of New Dominion waste material if all waste piles were moved to the Carbonero repository;
- The construction completion report states that the volume of Carbonero material handled and covered was 5,259 CY, which exceeded the design volume of 4,500 CY; and



- The construction completion report states that 2,214 CY of cover material was required to cap the pile. This volume of cover exceeded the design volume by 1,900 CY.

This evaluation indicates that using the existing USFS-managed Carbonero Tailings repository as a potential off-site repository may pose technical feasibility concerns, primarily associated with the current waste volume capacity at the Carbonero repository. Additional technical feasibility concerns with the Carbonero repository include:

- Removal of the cover material to add additional material could severely damage or destroy the existing high-density polyethylene (HDPE) lining and geosynthetics that are components of the existing cover at the repository, and would likely have to be replaced;
- Adding nearly double the volume would likely require a complete re-design of the existing repository with the potential for slope-stability hazards; and
- The existing repository appears to be functional as-is and may be put at risk by a proposed expansion with co-mingling of wastes from two separate sites.

Therefore it is proposed that the Alternative 1B, removal and disposal of the New Dominion wastes at the nearby Carbonero Tailings Repository, be removed from further consideration because of technical feasibility.

For Alternative 1A, removal and disposal of the New Dominion wastes at the Broad Canyon Land fill, the following general removal action items would be required:

- Construction of a temporary access road(s) (truck haul route) of approximately one-half mile from the waste areas that bypasses the Town of Ophir residential areas and main existing access road;
- Excavate and remove the estimated 4,800 cubic yards of waste rock and/or tailings for off-site disposal;
- Re-shape, contour, and bench the former waste areas to design grade for proper slope stabilization;
- Reclaim the former waste areas with organic topsoil and revegetate with species compatible with the area;
- Construct surface controls per design to manage surface runoff from the adits and other disturbed areas; and
- Post-removal action reclamation of the temporary construction access road(s).

Off-site repositories are often considered if they are better suited to accommodate certain construction constraints such as volume capacity, highly toxic waste, or the availability of appropriate soil cap materials on-site or nearby. These conditions are not found at the New Dominion Mine.





### 8.2.2 Alternative 2, Covering Waste Piles, Surface Water Controls, and Institutional Controls Onsite

As indicated above, the primary advantages of surface controls is the on-site reduction of contaminant mobility and diversion of contaminated drainage from clean or sensitive areas. Also a variety of surface controls are available and may include diversion swales, vegetation, gabions, rock berms, and grading. Surface controls could be augmented by institutional controls, including deed restrictions to prohibit residential use of the Site and fencing/warning signs to discourage access to the site.

General removal action items for Alternative 2 would include:

- Utilizing the nearby former USFS borrow areas that were used to construct the Carbonero Tailings repository;
- Re-shaping, and benching of slopes on existing waste piles before adding cover material;
- Constructing rock-armored drainage swales and/or diversion channels near the adits to divert flow away from waste rock piles to preferred natural drainage areas;
- Constructing tiered drainage features in steeper areas to manage flows and promote vegetation and organic matter;
- Constructing berms at the downgradient toes of the existing waste piles; and
- Other potential diversion structures (gabion dams, check dams).

These removal action items would be supplemented by institutional controls. Administrative controls may involve deed restrictions from the Town of Ophir to prohibit residential use, for example. Site institutional controls may include signage to promote awareness of the historic mining features.

### 8.2.3 Alternative 3: No Action

As indicated above, the no action alternative is included in this report as a baseline for comparison with other removal action alternatives. Under this alternative, no effort would be made to actively reduce risks to human health or the environment. No action and leaving the Site as-is would entail:

- The draining adits and waste piles would remain in their current locations and in their current and future natural state; and
- The surface water and waste piles would remain accessible to recreational visitors, and ecological receptors.

## 8.3 Overview of the Evaluation Criteria for Non-Time Critical Removal Actions

There are three types of criteria against which each alternative is evaluated. These criteria are derived from the Guidance on Conducting Non-Time-Critical Removal Actions under CERCLA



(USEPA, 1993). The evaluation criteria include effectiveness, implementability, and cost. Within each primary criterion, EE/CA guidance recognizes a number of factors that help define the primary criteria that should be individually considered. These three evaluation criteria and their additional factors are discussed in detail in the following subsections.

### 8.3.1 Effectiveness

Effectiveness focuses on the degree to which an alternative (1) provides adequate overall protection of human health and the environment; (2) complies with ARARs; (3) affords long-term protection by minimizing residual risk; (4) provides reduction of toxicity, mobility, or volume of hazardous material; and (5) minimizes short-term effects.

#### *8.3.1.1 Overall Protection of Human Health and the Environment*

This criterion serves as a final check in assessing whether each alternative provides adequate protection of human health and the environment. The analysis conducted for long-term effectiveness and permanence, short-term effectiveness, and compliance with ARARs is used to evaluate the overall protection of human health and the environment. This criterion is also used to evaluate how risks would be eliminated, reduced, or controlled through treatment, engineering, or institutional controls.

#### *8.3.1.2 Compliance with ARARs*

Compliance with ARARs is used to assess whether each alternative will attain the chemical-specific, location-specific, and action-specific ARARs identified in Table 4-1.

#### *8.3.1.3 Long-term Effectiveness and Permanence*

Long-term effectiveness and permanence address the risk remaining at the Site after remediation goals have been met.

#### *8.3.1.4 Reduction of Toxicity, Mobility, or Volume*

Reduction of toxicity, mobility, or volume addresses the statutory preference for selecting removal actions that permanently and significantly reduce toxicity, mobility, and/or volume of hazardous materials at the Site. This preference is satisfied when treatment is used to reduce principal risks through destruction or irreversible reductions of toxicity, mobility, and/or volume.

#### *8.3.1.5 Short-term Effectiveness*

Short-term effectiveness addresses the effects of each alternative in the protection of human health and the environment during the construction and implementation phase. The following factors are addressed during the evaluation process:



- Protection of the workers during removal actions – This factor assesses threats that may be posed to workers and the effectiveness and reliability of measures to be taken.
- Environmental impacts of the removal action – This factor addresses the potential adverse environmental impacts that may result from construction and implementation of a removal alternative, and evaluates the reliability of mitigation measures, if necessary, to prevent or reduce potential impacts.
- Effects on local community – This factor addresses the potential adverse impacts on the local community, including psychological impacts and effects on the local economy, including tourism. Also includes the potential for accidents, increase in dust level, and threats to inadvertent intruders during removal activities.

### 8.3.2 Implementability

Implementability evaluates the technical feasibility of implementing each alternative, the availability of required services and materials during its implementation, and the administrative feasibility.

#### *8.3.2.1 Technical Feasibility and Availability*

Technical feasibility and availability address the ability to implement the alternative, the reliability of the alternative, and the availability of services and materials. USFS considers the potential construction season to be from mid- to late-May to mid-October and depends on the snowpack present. The following factors were addressed during the evaluation process:

- Ability to construct and operate the technology;
- Reliability of the technology;
- Ease of undertaking additional removal actions, if necessary;
- Ability to monitor effectiveness of removal action; and
- Availability of necessary equipment, materials, and personnel.

#### *8.3.2.2 Administrative Feasibility*

The administrative feasibility criterion addresses the following factors:

- Likelihood of public acceptance of the alternative, including state and local governments concerns; and
- Activities needed to coordinate with other agencies

### 8.3.3 Cost

The cost of each alternative is evaluated based on estimates of capital cost for construction. Cost estimates are based on vendor information, cost-estimating guides, and actual costs incurred



during studies performed at similar sites. Capital costs shown in Table 7-2 typically include the cost for construction activities, transportation, equipment, mobilization, and demobilization.

## **8.4 Comparative Analysis of Each Alternative**

The comparative analysis of the removal action alternatives is summarized in the table below. In addition, a quantitative ranking of the alternatives is presented. The comparative analysis and discussion of each of the criteria in relation to the removal action alternatives is presented in the following sections.

### **8.4.1 Effectiveness**

#### **Alternative 1 – Off-Site Repository and Surface Water Controls Onsite**

Rank on a scale of 0 to 6: High - (6).

- Removal of the waste rock piles and debris for off-site disposal would protect human and ecological receptors at the New Dominion Mine;
- Surface controls would reduce erosional areas and reduce human and ecological exposure to adit surface water;
- The long-term effectiveness would depend on establishment of vegetation and limitation of human impact;
- The waste could be removed in a single field season, providing immediate short-term effectiveness.

#### **Alternative 2 – Covering Waste Piles and On-Site Surface Controls and Institutional Controls**

Rank on a scale of 0 to 6: High - (5).

- Covering the waste piles coupled with on-Site Surface Controls and Institutional Controls would be protective of human health and the environment by limiting exposure pathways;
- There would be no reduction in toxicity or volume through treatment;
- This alternative would provide long-term effectiveness if the covers, surface controls, and institutional controls could be efficiently maintained; and
- The covering of the waste piles along with surface controls and institutional controls could be implemented in a single season, providing short-term effectiveness;

#### **Alternative 3 – No Action**

Rank on a scale of 0 to 6: Low - (0).



- This alternative is the least effective as it is not protective of human health and the environment, as the chemical and physical hazards would remain at the Site and with high exposure to receptors.

#### 8.4.2 Implementability

##### Alternative 1 – Off-Site Repository and Surface Controls On-Site

Rank on a scale of 0 to 3: Moderate - (2).

- Off-Site removal disposal is highly implementable;
- Surface control materials may be available on-Site or from nearby borrow sources;
- The alternative is technically feasible using standard construction equipment and methods (excavators, dozers, loaders, haul trucks, backhoes); this equipment can feasibly access all areas, and be used to construct equipment access; and
- Administrative feasibility may not be acceptable to the Town of Ophir considering haul truck traffic and noise. This alternative would require construction of a haul truck detour away from the Town.

##### Alternative 2 – Covering Waste Piles and On-Site Surface Water Controls and Institutional Controls

Rank on a scale of 0 to 3: High - (3).

- This alternative is highly implementable. Surface control materials are likely available on-Site or from nearby borrow sources on USFS-managed lands;
- Based on the areal estimates of the waste piles, they could be covered with less than 1,000 CY of material that may be derived from nearby USFS borrow sources located east of the Site and the Town of Ophir.; hauling borrow material would not go through the town;
- The alternative is technically feasible using standard construction equipment and methods (excavators, dozers, loaders, haul trucks, and backhoes); and
- This alternative may be more acceptable to the Town of Ophir:
  - Some Town members have favored the historical interest of the remnant mine features if the potential exposure can be reduced; and
  - Covering the piles coupled with on-Site surface controls and institutional controls would not require the excessive haul truck traffic and noise associated with an off-Site removal action.

##### Alternative 3 – No Action

Rank on a scale of 0 to 3: High - (3).

The no action alternative is the easiest to implement.



### 8.4.3 Estimated Cost

The relative costs of each alternative are evaluated based on professional experience, engineering judgment, and standard cost estimating tools referenced below. Primary cost considerations include capital costs and approximated engineering and design costs. The costs are estimated at the conceptual level, as defined by the American Association of Cost Engineers, and the *Cost Estimating Guide for Road Construction, USDA Forest Service Northern Region Engineering*, (USFS, 2017). The estimated costs are intended for alternative comparison only and are not for construction bid purposes. Per EPA guidance, engineering evaluation-level cost estimates are based on – 30% to + 50% range of accuracy.

A detailed breakdown of estimated costs for each Alternative is presented in Table 7-2 and is summarized below. Cost is ranked on a scale of Low (3) to High (0).

Alternative	Final Cost	Rank
Alternative 1: Off-Site Repository and Surface Controls On-Site	<b>\$529,100</b>	<b>Low (0)</b>
Alternative 2: Covering Waste Piles and On-Site Surface Controls and Institutional Controls	<b>\$289,500</b>	<b>Moderate (2)</b>
Alternative 3: No Action	<b>\$0</b>	<b>High (3)</b>

### 8.5 Final Ranking of Alternatives

A detailed description of how each alternative ranks for each criterion is presented in the previous subsections. The final ranking of the Alternatives compared to all criteria is summarized below.

Alternative	Final Ranking
<b>Alternative 1: Off-Site Repository and Surface Controls On-Site</b>	<b>8</b>
Effectiveness	6
Implementability	2
Cost	0
<b>Alternative 2: Covering Waste Piles and On-Site Surface Controls and Institutional Controls</b>	<b>10</b>
Effectiveness	5
Implementability	3
Cost	2
<b>Alternative 3: No Action - Does Not Meet ARARs</b>	<b><u>6</u></b>
Effectiveness	<u>0</u>
Implementability	<u>3</u>
Cost	<u>3</u>

**10** – Bold shows the highest-ranking Alternative



## 9. RECOMMENDED REMOVAL ACTION ALTERNATIVE

Based on the elements of the alternatives and the comparative analysis and quantitative ranking in Section 8, the recommended alternative is Alternative 2, Covering Waste Piles and On-Site Surface Controls and Institutional Controls.

As introduced above in Section 8.2, covering the waste piles and on-Site construction of surface control features would generally include:

- Utilizing the nearby former USFS borrow areas that were used previously to construct the Carbonero Tailings repository;
- Re-shaping, and benching of slopes on existing waste piles before adding cover material to the piles;
- Constructing rock-armored drainage swales and/or diversion channels near the adits to divert flow away from waste rock piles to preferred natural drainage areas;
- Constructing tiered drainage features in steeper areas to manage flows and promote vegetation and organic matter;
- Constructing berms at the downgradient toes of the existing waste piles; and
- Other potential diversion structures (gabion dams, check dams).

These removal action items would be supplemented by institutional controls. Administrative controls may involve deed restrictions from the Town of Ophir to prohibit residential use, for example. Site institutional controls may include signage and/or fencing to promote awareness and prevent direct entry to the historic mining features.

Nearby borrow sources that were utilized for construction of the Carbonero Tailings repository in 2010 are located on USFS-managed lands and may be accessed for materials used to construct the drainage swales, berms, and diversion structures under this alternative. The removal action design may identify geosynthetics or other materials to be used in conjunction with the native materials to enhance the surface controls of this alternative.



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**TABLES**



Table 3-1: Sampling and Analytical Summary

Location and Media	Sample ID	Chemical Analyses and Methods	QA/QC Samples	Sample Preservation
Dump 200 Composite Saturated Precipitate	ND2-SS-200-1	- SPLP (USEPA Method 1312) for TAL Metals, including (by USEPA 6010B): (Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Sodium, Selenium, Silver, Thallium, Vanadium and Zinc; and (by USEPA Method 7470A) Mercury.	N/A	Ice
Dump 200 Composite Surface Soil	ND2-SS-200-2	- SPLP for TAL metals (listed above) including Mercury by USEPA 7471A.	N/A	Ice
Adit 100 Water	ND2-AWT-100-1	- Total TAL Metals (listed above), Hardness.	N/A	Nitric Acid, Ice
	ND2-AWD-100-1	Dissolved TAL Metals (listed above)		
Adit 100 Precipitate	ND2-AP-100-1	- TAL metals (listed above)		Ice
Adit 100 Water downstream of Adit 100 as water exits Dump 200	ND2-DWT-100-1	- Total TAL Metals (listed above) , Hardness.	Field Duplicate: ND2-DWT-100-2 and ND2-DWD-100-2; and MS/MSD	Nitric Acid, Ice
	ND2-DWD-100-1	- Dissolved TAL Metals (listed above).		
Adit 100 Precipitate downstream of Adit 100 as water exits Dump 200	ND2-DP-100-1	- TAL metals (listed above).	Field Duplicate: ND2-DP2-100-1 and MS/MSD	Ice
Dump 202 Composite Surface Soil (Western, Blonde-colored portion of the pile)	ND2-SS-202-1	- SPLP for TAL metals (listed above).	N/A	Ice
Dump 202 Composite Surface Soil (Eastern, Red-colored portion of the pile)	ND2-SS-202-2	- SPLP for TAL metals (listed above).		
Adit 102 Water	ND2-AWT-102-1	- Total TAL Metals (list above) , Hardness.	N/A	Nitric Acid, Ice
	ND2-AWD-102-1	Dissolved TAL Metals (listed above)		
Adit 102 Precipitate	ND2-AP-102-1	- TAL metals (listed above).	N/A	Ice
Original New Dominion Dump Composite Surface Soil	ND2-SS-OND-1	- TAL metals (listed above) and - SPLP for TAL metals (listed above).	Field Duplicate: ND2-SS-OND-2 and MS/MSD	Ice
Composite Background surface Soil in vicinity of Original New Dominion Dump	ND2-SS-OND-BKG-1	- SPLP for TAL metals (listed above).	N/A	Ice

MS/MSD = Laboratory matrix spike/matrix spike duplicate sample  
N/A = Not applicable.  
QA/QC = Quality Assurance/Quality Control  
SPLP = Synthetic Precipitation Leaching Procedure  
TAL = Target Analyte List  
USEPA = United States Environmental Protection Agency



Table 3-2: New Dominion Water Quality Measurements, July 2020

Sample Location	Description	GPS Coordinates	Temp. (° C)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	ORP	Turbidity (ntu)	Estimated Flow (cfs)
ND2-AWT-100-1 ND2 AWD-100-1	Adit 100 Water	Lat: 37.8582 Long: -107.82269	8.6	5.57	1,650	7.38	-67.3	3.17	0.23
ND2-DWT-100-1 ND2-DWD-100-1	Adit 100 water downstream exiting Dump 200	Lat: 37.8579 Long: -107.82281	10.8	8.02	1,639	7.43	-33.6	23.2	NM
ND2-AWT-102-1 ND2-AWD-102-1	Adit 102 Water	Lat: 37.8592 Long: -107.82523	6.5	7.35	608	7.11	24.5	73	0.094

°C – Degrees Centigrade  
cfs – cubic feet per second  
µS/cm – MicroSiemens per centimeter  
Lat – Latitude, World Geodetic System  
Long = Longitude, World Geodetic System  
mg/L – Milligrams per liter  
mV – Millivolts  
NM – Not measured  
NTU – Nephelometric Turbidity Unit



Table 3-3: Comparison of New Dominion Water Quality Measurements October 2005 and July 2020

Sample Location	2005 Temp. (° C)	2020 Temp. (° C)	2005 DO (mg/L)	2020 DO (mg/L)	2005 Spec. Cond. (µS/cm)	2020 Spec. Cond. (µS/cm)	2005 pH	2020 pH	2005 ORP	2020 ORP
Adit 100	7.4	8.6	0	5.57	1,539	1,650	7.25	7.38	-78.7	-67.3
Adit 100 Downstream	7.3	10.8	9.18	8.02	1,540	1,639	7.85	7.43	-128	-33.6
Adit 102	4.6	6.5	5.67	7.35	563	608	6.56	7.11	145.6	24.5

°C – Degrees Centigrade  
µS/cm – MicroSiemens per centimeter  
mg/L – Milligrams per liter  
mV – Millivolts  
NM – Not measured  
ntu – Nephelometric Turbidity Unit  
Spec. Cond - Specific Conductivity



Table 3-4: Comparison of New Dominion Water Quality Measurements, August 1996, October 2000, and July 2020

Sample Location	1996 pH	2000 pH	2020 pH	1996 Spec. Cond. (µS/cm)	2000 Spec. Cond. (µS/cm)	2020 Spec. Cond. (µS/cm)
Adit 100	6.30	6.86	7.38	1,585	1,540	1,650
Adit 102	5.21	6.38	7.11	586	565	608

Spec. Cond - Specific Conductivity  
µS/cm – MicroSiemens per centimeter



Table 3-5. Synthetic Precipitation Leaching Procedure (SPLP) Results Compared to SPLP Threshold Values

Analyte	CAS No.	Regulatory Screening Levels	ND2-SS-200-1				ND2-SS-200-2				ND2-SS-202-1				ND2-SS-202-2			
		20x EPA MCL (ug/L)	Result (ug/L)	Flag	MDL (ug/L)	20x EPA MCL EF	Result (ug/L)	Flag	MDL (ug/L)	20x EPA MCL EF	Result (ug/L)	Flag	MDL (ug/L)	20x EPA MCL EF	Result (ug/L)	Flag	MDL (ug/L)	20x EPA MCL EF
Aluminum	7429-90-5	NE	341		70.4	NA	<70.4		70.4	NA	185	J	70.4	NA	<70.4		70.4	NA
Antimony	7440-36-0	120	<4.30		4.30	<0.1*	<4.30		4.30	<0.1*	<4.30		4.30	<0.1*	<4.30		4.30	<0.1*
Arsenic	7440-38-2	200	<4.40		4.40	<0.1*	6.70	J	4.40	<0.1	<4.40		4.40	<0.1*	<4.40		4.40	<0.1*
Barium	7440-39-3	40000	10.3		0.895	<0.1	8.93		0.895	<0.1	141		0.895	<0.1	72.7		0.895	<0.1
Beryllium	7440-41-7	80	<0.460		0.460	<0.1*	<0.460		0.460	<0.1*	<0.460		0.460	<0.1*	<0.460		0.460	<0.1*
Cadmium	7440-43-9	100	<0.563		0.563	<0.1*	<0.563		0.563	<0.1*	10.9		0.563	0.11	<0.563		0.563	<0.1*
Calcium	7440-70-2	NE	47000		389	NA	2670		389	NA	4750		389	NA	5500		389	NA
Chromium	7440-47-3	2000	6.56	J	5.00	<0.1	<5.00		5.00	<0.1*	<5.00		5.00	<0.1*	<5.00		5.00	<0.1*
Cobalt	7440-48-4	NE	<0.807		0.807	NA	<0.807		0.807	NA	3.24	J	0.807	NA	1.09	J	0.807	NA
Copper	7440-50-8	26000	7.02	J	4.69	<0.1	5.05	J	4.69	<0.1	447		4.69	<0.1	8.01	J	4.69	<0.1
Iron	7439-89-6	NE	1110		45.8	NA	<45.8		45.8	NA	486		45.8	NA	87.0	J	45.8	NA
Lead	7439-92-1	300	4.59	J	2.95	<0.1	3.56	J	2.95	<0.1	9990		2.95	33	53.1		2.95	0.18
Magnesium	7439-95-4	NE	2250		111	NA	371	J	111	NA	661	J	111	NA	625	J	111	NA
Manganese	7439-96-5	NE	5.90	J	3.27	NA	<3.27		3.27	NA	225		3.27	NA	197		3.27	NA
Mercury	7439-97-6	40	<0.100		0.100	<0.1*	<0.100		0.100	<0.1*	0.562		0.100	<0.1	<0.100		0.100	<0.1*
Nickel	7440-02-0	NE	3.50	J	2.98	NA	<2.98		2.98	NA	<2.98		2.98	NA	<2.98		2.98	NA
Potassium	7440-09-7	NE	1090	J	510	NA	<510		510	NA	2240		510	NA	717	J	510	NA
Selenium	7782-49-2	1000	16.7		7.35	<0.1	<7.35		7.35	<0.1*	<7.35		7.35	<0.1*	8.58	J	7.35	<0.1
Silver	7440-22-4	NE	<1.91		1.91	NA	<1.91		1.91	NA	<1.91		1.91	NA	<1.91		1.91	NA
Sodium	7440-23-5	NE	20600		1400	NA	14400		1400	NA	12800		1400	NA	13200		1400	NA
Thallium	7440-28-0	40	<4.31		4.31	0.11*	<4.31		4.31	0.11*	<4.31		4.31	0.11*	<4.31		4.31	0.11*
Vanadium	7440-62-2	NE	<6.34		6.34	NA	<6.34		6.34	NA	<6.34		6.34	NA	<6.34		6.34	NA
Zinc	7440-66-6	NE	<9.16		9.16	NA	<9.16		9.16	NA	2680		9.16	NA	20.1	J	9.16	NA



Table 3-5. Synthetic Precipitation Leaching Procedure (SPLP) Results Compared to SPLP Threshold Values (continued)

Analyte	CAS No.	Regulatory Screening Levels	ND2-SS-OND-1				ND2-SS-OND-2				ND2-SS-ONDBKG-1			
		20x EPA MCL (ug/L)	Result (ug/L)	Flag	MDL (ug/L)	20x EPA MCL EF	Result (ug/L)	Flag	MDL (ug/L)	20x EPA MCL EF	Result (ug/L)	Flag	MDL (ug/L)	20x EPA MCL EF
Aluminum	7429-90-5	NE	127	J	70.4	NA	<70.4		70.4	NA	2320		70.4	NA
Antimony	7440-36-0	120	<4.30		4.30	<0.1*	<4.30		4.30	<0.1*	<4.30		4.30	<0.1*
Arsenic	7440-38-2	200	<4.40		4.40	<0.1*	<4.40		4.40	<0.1*	<4.40		4.40	<0.1*
Barium	7440-39-3	40000	13.9		0.895	<0.1	24.8		0.895	<0.1	99.2		0.895	<0.1
Beryllium	7440-41-7	80	<0.460		0.460	<0.1*	<0.460		0.460	<0.1*	<0.460		0.460	<0.1*
Cadmium	7440-43-9	100	<0.563		0.563	<0.1*	<0.563		0.563	<0.1*	<0.563		0.563	<0.1*
Calcium	7440-70-2	NE	1550		389	NA	2070		389	NA	2780		389	NA
Chromium	7440-47-3	2000	<5.00		5.00	<0.1*	<5.00		5.00	<0.1*	<5.00		5.00	<0.1*
Cobalt	7440-48-4	NE	<0.807		0.807	NA	<0.807		0.807	NA	<0.807		0.807	NA
Copper	7440-50-8	26000	6.53	J	4.69	<0.1	7.37	J	4.69	<0.1	15.0		4.69	<0.1
Iron	7439-89-6	NE	261		45.8	NA	63.3	J	45.8	NA	6750		45.8	NA
Lead	7439-92-1	300	136		2.95	0.45	16.0		2.95	<0.1	72.2		2.95	0.24
Magnesium	7439-95-4	NE	195	J	111	NA	552	J	111	NA	860	J	111	NA
Manganese	7439-96-5	NE	<3.27		3.27	NA	11.0		3.27	NA	32.9		3.27	NA
Mercury	7439-97-6	40	<0.100		0.100	<0.1*	<0.100		0.100	<0.1*	<0.100		0.100	<0.1*
Nickel	7440-02-0	NE	<2.98		2.98	NA	<2.98		2.98	NA	<2.98		2.98	NA
Potassium	7440-09-7	NE	<510		510	NA	1030	J	510	NA	2030		510	NA
Selenium	7782-49-2	1000	<7.35		7.35	<0.1*	<7.35		7.35	<0.1*	16.3		7.35	<0.1
Silver	7440-22-4	NE	<1.91		1.91	NA	<1.91		1.91	NA	<1.91		1.91	NA
Sodium	7440-23-5	NE	31900		1400	NA	6390		1400	NA	19100		1400	NA
Thallium	7440-28-0	40	<4.31		4.31	0.11*	<4.31		4.31	0.11*	6.89	J	4.31	0.17
Vanadium	7440-62-2	NE	<6.34		6.34	NA	<6.34		6.34	NA	<6.34		6.34	NA
Zinc	7440-66-6	NE	25.6	J	9.16	NA	10.9	J	9.16	NA	18.1	J	9.16	NA





Table 4-1. Background Soil Results

Analyte	CAS No.	ND 200 BKG <sup>1</sup>			ND DUMP BKG <sup>1</sup>			ND2-SS-ONDBKG-1 <sup>2</sup>		
		Result (mg/kg)	Flag	MDL (mg/kg)	Result (mg/kg)	Flag	MDL (mg/kg)	Result (mg/kg)	Flag	MDL (mg/kg)
Aluminum	7429-90-5	NA		NA	NA		NA	12500		8.20
Antimony	7440-36-0	0.400	B	0.200	0.400	B	0.200	0.903	J	0.500
Arsenic	7440-38-2	7.20		0.300	9.80		0.300	9.60		0.460
Barium	7440-39-3	NA		NA	NA		NA	185		0.240
Beryllium	7440-41-7	NA		NA	NA		NA	0.274		0.0800
Cadmium	7440-43-9	0.210	B	0.0500	0.480		0.0500	0.225	J	0.0810
Calcium	7440-70-2	NA		NA	NA		NA	4590		30.0
Chromium	7440-47-3	10.0		1.00	10.0		1.00	6.57		0.250
Cobalt	7440-48-4	NA		NA	NA		NA	3.13		0.230
Copper	7440-50-8	77.0		1.00	42.0		1.00	21.4		0.506
Iron	7439-89-6	53300		4.00	25000		2.00	26400		5.00
Lead	7439-92-1	67.0		4.00	66.0		4.00	66.3		0.208
Magnesium	7439-95-4	NA		NA	NA		NA	4600		20.5
Manganese	7439-96-5	504		0.500	367		0.500	273		0.245
Mercury	7439-97-6	<0.0600	U	0.0600	<0.0500	U	0.0500	0.0289	J	0.0180
Molybdenum	7439-98-7	9.00		1.00	11.0		1.00	NA		NA
Nickel	7440-02-0	4.00	B	1.00	4.00	B	1.00	3.31		0.490
Potassium	7440-09-7	NA		NA	NA		NA	2790		20.9
Selenium	7782-49-2	1.40	B	0.500	0.800	B	0.500	1.66	J	0.617
Silver	7440-22-4	2.00	B	1.00	<1.00	U	1.00	<0.228		0.228
Sodium	7440-23-5	NA		NA	NA		NA	377		33.2
Thallium	7440-28-0	NA		NA	NA		NA	<0.354		0.354
Uranium	7440-61-1	1.89		0.0500	0.680		0.0500	NA		NA
Vanadium	7440-62-2	45.0		0.500	35.2		0.500	34.5		0.687
Zinc	7440-66-6	105		1.00	115		1.00	56.0		0.939

<sup>1</sup> From Au’ Authum Ki 2006 Site Investigation (AAK, 2006)  
<sup>2</sup> From AI July 2020 sampling event  
B -- The same analyte is found in the associated blank  
CAS – Chemical Abstracts Service  
J – The identification of the analyte is acceptable; the reported value is an estimate  
MDL – Laboratory Method Detection Limit  
mg/kg – Milligrams per kilogram  
NA - Not analyzed  
U – Undetected



Table 4-2. Site Soil and Precipitate Results Compared to Background Soil

Analyte	CAS No.	Maximum Background Soil Concentration (mg/kg)	ND 200 PPT				ND 202 PPT				ND DUMP 200			
			Result (mg/kg)	Flag	MDL (mg/kg)	Background Exceedance Factor	Result (mg/kg)	Flag	MDL (mg/kg)	Background Exceedance Factor	Result (mg/kg)	Flag	MDL (mg/kg)	Background Exceedance Factor
Aluminum	7429-90-5	12500	NA		NA		NA		NA		NA		NA	
Antimony	7440-36-0	0.903	0.800	B	0.200		1.00	B	0.200	1.1	2.00		0.200	2.2
Arsenic	7440-38-2	9.80	98.0		0.300	10	42.6		0.300	4.3	92.1		0.300	9.4
Barium	7440-39-3	185	NA		NA		NA		NA		NA		NA	
Beryllium	7440-41-7	0.274	NA		NA		NA		NA		NA		NA	
Cadmium	7440-43-9	0.480	0.780		0.0600	1.6	27.2		0.0600	57	5.24		0.0500	11
Calcium	7440-70-2	4590	NA		NA		NA		NA		NA		NA	
Chromium	7440-47-3	10.0	<10.0	U	10.0		<10.0	U	10.0		6.00		1.00	
Cobalt	7440-48-4	3.13	NA		NA		NA		NA		NA		NA	
Copper	7440-50-8	77.0	10.0	B	10.0		3400		10.0	44	639		1.00	8.3
Iron	7439-89-6	53300	450000		20.0	8.4	200000		20.0	3.8	33900		2.00	
Lead	7439-92-1	67.0	70.0	B	50.0	1	200		40.0	3	4050		4.00	60
Magnesium	7439-95-4	4600	NA		NA		NA		NA		NA		NA	
Manganese	7439-96-5	504	5540		0.600	11	31400		6.00	62	2630		0.500	5.2
Mercury	7439-97-6	0.0289	<0.100	U	0.100		<0.300	U	0.300		0.240	B	0.0500	8.3
Molybdenum	7439-98-7	11.0	<10.0	U	10.0		<10.0	U	10.0		24.0		1.00	2.2
Nickel	7440-02-0	4.00	<10.0	U	10.0		40.0	B	10.0	10	5.00	B	1.00	1.2
Potassium	7440-09-7	2790	NA		NA		NA		NA		NA		NA	
Selenium	7782-49-2	1.66	<0.600	U	0.600		2.10	B	0.600	1.3	2.30	B	0.500	1.4
Silver	7440-22-4	2.00	<10.0	U	10.0		<10.0	U	10.0		33.0		1.00	16
Sodium	7440-23-5	377	NA		NA		NA		NA		NA		NA	
Thallium	7440-28-0	<MDL	NA		NA		NA		NA		NA		NA	
Uranium	7440-61-1	1.89	3.95		0.0600	2.1	26.2		0.0600	14	3.85		0.0500	2
Vanadium	7440-62-2	45.0	<6.00	U	6.00		9.00	B	6.00		13.8		0.500	
Zinc	7440-66-6	115	480		10.0	4.2	3180		10.0	28	1260		1.00	11



Table 4-2. Site Soil and Precipitate Results Compared to Background Soil (continued)

Analyte	CAS No.	Maximum Background Soil Concentration (mg/kg)	ND DUMP 202-E				ND DUMP 202-W				ND2-AP-100-1			
			Result (mg/kg)	Flag	MDL (mg/kg)	Background Exceedance Factor	Result (mg/kg)	Flag	MDL (mg/kg)	Background Exceedance Factor	Result (mg/kg)	Flag	MDL (mg/kg)	Background Exceedance Factor
Aluminum	7429-90-5	12500	NA		NA		NA		NA		236		41.0	
Antimony	7440-36-0	0.903	2.20		0.200	2.4	9.60		0.200	11	7.05	J	2.50	7.8
Arsenic	7440-38-2	9.80	60.6		0.300	6.2	78.0		0.300	8	31.1		2.30	3.2
Barium	7440-39-3	185	NA		NA		NA		NA		11.5		1.20	
Beryllium	7440-41-7	0.274	NA		NA		NA		NA		1.21		0.400	4.4
Cadmium	7440-43-9	0.480	4.31		0.0500	9	16.6		0.0500	35	0.409	J	0.405	
Calcium	7440-70-2	4590	NA		NA		NA		NA		7210		150	1.6
Chromium	7440-47-3	10.0	23.0		1.00	2.3	<1.00	U	1.00		<1.25		1.25	
Cobalt	7440-48-4	3.13	NA		NA		NA		NA		19.2		1.15	6.1
Copper	7440-50-8	77.0	674		1.00	8.8	510		1.00	6.6	<2.53		2.53	
Iron	7439-89-6	53300	55500		4.00	1	14600		2.00		201000		25.0	3.8
Lead	7439-92-1	67.0	3870		4.00	58	8520		4.00	130	13.2		1.04	
Magnesium	7439-95-4	4600	NA		NA		NA		NA		<102		102	
Manganese	7439-96-5	504	6280		0.500	12	28.8		0.500		2250		1.22	4.5
Mercury	7439-97-6	0.0289	<0.0600	U	0.0600		0.110	B	0.0500	3.8	<0.0180		0.0180	
Molybdenum	7439-98-7	11.0	9.00		1.00		90.0		1.00	8.2	NA		NA	
Nickel	7440-02-0	4.00	16.0		1.00	4	1.00	B	1.00		<2.45		2.45	
Potassium	7440-09-7	2790	NA		NA		NA		NA		<104		104	
Selenium	7782-49-2	1.66	1.80	B	0.500	1.1	2.30	B	0.500	1.4	6.54	J	3.08	3.9
Silver	7440-22-4	2.00	10.0		1.00	5	41.0		1.00	20	<1.14		1.14	
Sodium	7440-23-5	377	NA		NA		NA		NA		<166		166	
Thallium	7440-28-0	<MDL	NA		NA		NA		NA		<1.77		1.77	
Uranium	7440-61-1	1.89	2.33		0.0500	1.2	0.180	B	0.0500		NA		NA	
Vanadium	7440-62-2	45.0	45.1		0.500	1	0.700	B	0.500		4.25	J	3.44	
Zinc	7440-66-6	115	1020		1.00	8.9	3640		1.00	32	98.7		4.70	



Table 4-2. Site Soil and Precipitate Results Compared to Background Soil (continued)

Analyte	CAS No.	Maximum Background Soil Concentration (mg/kg)	ND2-AP-102-1				ND2-DP-100-1				ND2-DP2-100-1			
			Result (mg/kg)	Flag	MDL (mg/kg)	Background Exceedance Factor	Result (mg/kg)	Flag	MDL (mg/kg)	Background Exceedance Factor	Result (mg/kg)	Flag	MDL (mg/kg)	Background Exceedance Factor
Aluminum	7429-90-5	12500	6820		41.0		1440		41.0		1500		41.0	
Antimony	7440-36-0	0.903	<2.50		2.50		6.24	J J6	2.50	6.9	6.49	J	2.50	7.2
Arsenic	7440-38-2	9.80	9.45	J	2.30		30.6	O1	2.30	3.1	33.9		2.30	3.5
Barium	7440-39-3	185	26.5		1.20		29.7		1.20		32.1		1.20	
Beryllium	7440-41-7	0.274	3.21		0.400	12	1.87		0.400	6.8	1.96		0.400	7.2
Cadmium	7440-43-9	0.480	5.39		0.405	11	3.36		0.405	7	3.33		0.405	6.9
Calcium	7440-70-2	4590	1760		150		8520	V	150	1.9	8860		150	1.9
Chromium	7440-47-3	10.0	<1.25		1.25		<1.25		1.25		<1.25		1.25	
Cobalt	7440-48-4	3.13	134		1.15	43	72.2		1.15	23	76.8		1.15	25
Copper	7440-50-8	77.0	261		2.53	3.4	57.1		2.53		58.0		2.53	
Iron	7439-89-6	53300	47500		25.0		156000	V	25.0	2.9	164000		25.0	3.1
Lead	7439-92-1	67.0	33.1		1.04		137		1.04	2	136		1.04	2
Magnesium	7439-95-4	4600	<102		102		161	J	103		166	J	102	
Manganese	7439-96-5	504	10600		2.45	21	9590		2.45	19	10400		2.45	21
Mercury	7439-97-6	0.0289	<0.0180		0.0180		<0.0180		0.0180		0.0200	J	0.0180	
Molybdenum	7439-98-7	11.0	NA		NA		NA		NA		NA		NA	
Nickel	7440-02-0	4.00	11.4		2.45	2.8	<2.45		2.45		<2.45		2.45	
Potassium	7440-09-7	2790	<104		104		107	J	105		117	J	104	
Selenium	7782-49-2	1.66	3.43	J	3.08	2.1	7.00	J	3.09	4.2	8.29	J	3.08	5
Silver	7440-22-4	2.00	1.15	J	1.14		1.85	J	1.14		2.10	J	1.14	1
Sodium	7440-23-5	377	<166		166		<166		166		<166		166	
Thallium	7440-28-0	<MDL	<1.77		1.77		<1.77		1.77		<1.77		1.77	
Uranium	7440-61-1	1.89	NA		NA		NA		NA		NA		NA	
Vanadium	7440-62-2	45.0	<3.44		3.44		<3.44		3.44		3.65	J	3.44	
Zinc	7440-66-6	115	768		4.70	6.7	471	V	4.70	4.1	484		4.70	4.2



Table 4-2. Site Soil and Precipitate Results Compared to Background Soil (continued)

Analyte	CAS No.	Maximum Background Soil Concentration (mg/kg)	ND2-SS-OND-1				ND2-SS-OND-2			
			Result (mg/kg)	Flag	MDL (mg/kg)	Background Exceedance Factor	Result (mg/kg)	Flag	MDL (mg/kg)	Background Exceedance Factor
Aluminum	7429-90-5	12500	9820		8.20		10600		8.20	
Antimony	7440-36-0	0.903	2.19		0.500	2.4	2.47		0.500	2.7
Arsenic	7440-38-2	9.80	82.5		0.460	8.4	85.7		0.460	8.7
Barium	7440-39-3	185	188		0.240	1	216		0.240	1.2
Beryllium	7440-41-7	0.274	0.176	J	0.0800		0.180	J	0.0800	
Cadmium	7440-43-9	0.480	0.266	J	0.0810		1.99		0.0810	4.1
Calcium	7440-70-2	4590	309		30.0		347		30.0	
Chromium	7440-47-3	10.0	14.6		0.250	1.5	16.0		0.250	1.6
Cobalt	7440-48-4	3.13	1.88		0.230		2.07		0.230	
Copper	7440-50-8	77.0	164		0.506	2.1	181		0.506	2.4
Iron	7439-89-6	53300	58800		25.0	1.1	63100		25.0	1.2
Lead	7439-92-1	67.0	1200		0.208	18	1320		0.208	20
Magnesium	7439-95-4	4600	5810		20.5	1.3	6300		20.5	1.4
Manganese	7439-96-5	504	89.9		0.245		97.5		0.245	
Mercury	7439-97-6	0.0289	0.674		0.0180	23	0.606		0.0180	21
Molybdenum	7439-98-7	11.0	NA		NA		NA		NA	
Nickel	7440-02-0	4.00	5.56		0.490	1.4	6.02		0.490	1.5
Potassium	7440-09-7	2790	4230		20.9	1.5	4630		20.9	1.7
Selenium	7782-49-2	1.66	5.34		0.617	3.2	6.11		0.617	3.7
Silver	7440-22-4	2.00	12.2		0.228	6.1	13.0		0.228	6.5
Sodium	7440-23-5	377	384		33.2	1	428		33.2	1.1
Thallium	7440-28-0	<MDL	<0.354		0.354		<0.354		0.354	
Uranium	7440-61-1	1.89	NA		NA		NA		NA	
Vanadium	7440-62-2	45.0	34.9		0.687		38.1		0.687	
Zinc	7440-66-6	115	84.9		0.939		376		0.939	3.3

Values in red indicate >3x maximum background  
B -- The same analyte is found in the associated blank  
CAS – Chemical Abstracts Service  
J – The identification of the analyte is acceptable; the reported value is an estimate  
mg/kg – Milligrams per kilogram  
MDL – Laboratory Method Detection Limit



Table 5-1: Applicable or Relevant and Appropriate Requirements and To Be Considered Guidance

	Standard, Requirement, or Criteria	Description	Type	Potentially ARAR or TBC	Comment
SURFACE WATER					
1	USFS Forest Management Plan, Subpart A—National Forest System Land Management Planning, 36 CFR Chapter II § 219.10, Multiple Use	The Plan must provide for ecosystem services and multiple uses, including outdoor recreation, range, timber, watershed, wildlife, and fish, within Forest Service authority.	Location Specific	Relevant and Appropriate	Activities shall consider aesthetic values, air quality, cultural and heritage resources, ecosystem services, fish and wildlife species, forage, geologic features, grazing and rangelands, habitat and habitat connectivity, recreation settings and opportunities, riparian areas, scenery, soil, surface and subsurface water quality, timber, trails, vegetation, viewsheds, wilderness, and other relevant resources and uses.
2	Colorado Basic Standards & Methodologies for Surface Water, 5 CCR 1002-31, pursuant to C.R.S. § 25-8-101 et seq.	This regulation establishes statewide surface water quality standards for acceptable concentrations of specified parameters including chemical constituents and pH. The regulation also establishes methodologies for assigning and implementing those standards. Reg 31.	Chemical/ Action Specific	Potentially Applicable	Removal action goal for site is NOT to clean up nearby Howard Fork Drainage, but to remove exposure pathway(s) for human/ecological risk to surface waste rock. Potentially applies only if removal action occurs near or in the Howard Fork Drainage.
3	Mined Land Reclamation Board Regulations for Hard Rock, Metal, and Designated Mining Operations,: Reclamation Performance Standards, 2 CCR 407-1 Rules 3.1.5(10) and (11), pursuant to the Colorado Mined Land Reclamation Act, CRS § 34-32-101 et seq.	All mined material to be disposed of within the affected area must be handled in such a manner so as to prevent any unauthorized release of pollutants to the surface drainage system.	Action Specific	Potentially Applicable	Generally, removal action design will meet substantive requirements of these standards, however, procedural and/or enforcement aspects of these standards are not applicable onsite at an USFS CERCLA removal action. Further, there is no generation and/or placement of any wastes onsite at a CERCLA removal action.
4	Mined Land Reclamation Board Regulations for Hard Rock, Metal, and Designated Mining Operations,: Reclamation Performance Standards, 2 CCR 407-1 Rules 3.1.8, pursuant to the Colorado Mined Land Reclamation Act, CRS § 34-32-101 et seq.	Reclamation activities must consider the safety and protection of wildlife on the mined site and along access roads with special attention given to critical periods in the life cycle of species requiring special consideration (elk calving, migration routes, peregrine falcon nesting, grouse strutting grounds).	Action Specific	Potentially Applicable	Generally, removal action design will meet substantive requirements of these standards, however, procedural and/or enforcement aspects of these standards are not applicable onsite at an USFS CERCLA removal action. Removal action will comply with substantive requirements of Endangered Species Act and consider any state-specific species.  Substantively covered by Federal Endangered Species Act
5	Colorado Discharge Permit System (CDPS) Regulations, 5 CCR 1002-61.3(2)(a) and (f)(ii), and CDPS general permit No. COR0300000 (Stormwater discharges associated with construction activity), pursuant to CRS § 25-8-501	Requires implementing management controls through defined “general limitations” and “best management practices” for stormwater pollution prevention pursuant to Colorado Discharge Permit System general permit COR03000002. This permit applies to stormwater discharges from small construction activities, including clearing, grading, and excavating, that result in land disturbance of equal to or greater than one acre and less than five acres.	Action Specific	Applicable	Substantive requirement(s) of regulation apply for any release of stormwater off-site. If the preferred removal action includes earthwork, the removal action design will include a stormwater management plan that meets substantive requirements of ARAR. Procedural and/or enforcement provisions not applicable onsite at an USFS CERCLA removal action.
6	CWA Ambient Water Quality Criteria, 40 CFR Part 131, pursuant to 33 USC§§ 1313-1314	Requires EPA and the State to establish ambient water quality control criteria (AWQC) and standards for surface water based on use classifications and the criteria stated under sections 303 and 304(a) of the Clean Water Act.	Chemical Specific	Applicable	Non-degradation standard. During removal action, existing water quality in Howard Fork Drainage will not be impacted. Potentially applies only if work occurs near or in Howard Fork Drainage – this will be part of the removal design



	Standard, Requirement, or Criteria	Description	Type	Potentially ARAR or TBC	Comment
7	Land Management Plan, Grand Mesa, Uncompahgre, and Gunnison National Forests, 2007	The GMUG Land Management Plan states: “Under the Clean Water Act, the Forest Service is an integral partner and has obligations to meet state water quality standards and beneficial uses”. Among the strategies of the Plan are to “participate with State water quality agencies in analysis and assignment of pollutant load allocations when TMDLs are developed that cover 303(d) listed streams on NFS lands”.	Chemical Specific	TBC	
<b>SOLID AND HAZARDOUS WASTE MANAGEMENT</b>					
8	USFS Forest Management Plan, Subpart A—National Forest System Land Management Planning, 36 CFR Chapter II § 219.10, Multiple Use	The Plan must provide for ecosystem services and multiple uses, including outdoor recreation, range, timber, watershed, wildlife, and fish, within Forest Service authority.	Location Specific	Relevant and Appropriate	Activities shall consider aesthetic values, air quality, cultural and heritage resources, ecosystem services, fish and wildlife species, forage, geologic features, grazing and rangelands, habitat and habitat connectivity, recreation settings and opportunities, riparian areas, scenery, soil, surface and subsurface water quality, timber, trails, vegetation, viewsheds, wilderness, and other relevant resources and uses.
<b>SOIL</b>					
9	MLRB Regulations Rule 3.1.5(1), (3), and (7)	Any grading shall be done in a manner to control erosion and siltation and protect from slides and other damage. High walls shall be stabilized or eliminated. Grading shall create a final topography appropriate to the future land use. Slopes and slope combinations shall be compatible with the configuration of surrounding conditions and future land use.	Action Specific	Applicable	Substantive requirements are applicable onsite, but procedural and/or enforcement aspects of MLRB Regulations are not applicable onsite at an USFS CERCLA removal action. There are no lakes or ponds at this site.
10	MLRB Regulations Rule 3.1.5(2)	Backfilling shall ensure adequate compaction for stability and prevent leaching of toxic or acid forming materials.	Action Specific	Potentially Applicable	Groundwater is outside of the scope of this USFS CERCLA removal action.
11	MLRB Regulations Rule 3.1.6	Reclamation activities must minimize disturbances to the prevailing hydrologic balance of the mined land and surrounding area by complying with all laws pertaining to water rights, water quality and dredge and fill activities. Minimizing measures also include removing temporary or large siltation structures from drainageways after stabilization and rehabilitation.	Action Specific	Potentially Applicable	No dredge and fill associated with this project. Substantive reclamation requirements are potentially-applicable and will be included in design. Procedural and/or enforcement aspects of MLRB Regulations are not applicable onsite at an USFS CERCLA removal action.
<b>AIR</b>					
12	Colorado Fugitive Dust Control Plan/Opacity, Regulation No. 1., 5 CCR 1001-3, pursuant to Colorado Air Pollution Prevention and Control Act, CRS § 25-7-101 et seq.	Establishes regulations concerning fugitive emissions from construction activities, storage and stockpiling activities, haul trucks, and tailings ponds.	Action Specific	Potentially Applicable	Substantive requirements of dust control/opacity will be included in design for onsite CERCLA removal action. Compliance with worker safety requirements onsite will preclude any offsite air release(s). Procedural and enforcement provisions do not apply onsite at an USFS CERCLA removal action.





	Standard, Requirement, or Criteria	Description	Type	Potentially ARAR or TBC	Comment
<b>DREDGING OR FILLING OF WETLANDS</b>					
13	CWA Section 404, 33 USC§ 1344, 40 CFR Parts 230 and 231, 33 CFR Part 323	Requires federal agencies to avoid, to the extent possible, adverse impacts associated with destruction or loss of wetlands. Regulates the discharge of dredged or fill material into waters of the U.S. Requires consultation with the Regional Response Team.	Action/ Location Specific	Applicable	Ensure cleanup activities will not impact any wetlands.
<b>FLOODPLAINS</b>					
14	Rivers and Harbors Act of 1899, Section 10 Permit, 33 USC§ 403, 33 CFR Parts 320-330	Section 10 Permit required for structures or work in or affecting navigable waters.	Location Specific	Relevant and Appropriate	The regulations will require avoidance of adverse impacts in these areas.  Ensure site activities do not impact navigable waters.
15	USFS Forest Management Plan, Subpart A—National Forest System Land Management Planning, 36 CFR Chapter II § 219	Planning requirements for developing, amending, and revising land management plans (also referred to as plans) for units of the National Forest System.	Location Specific	Relevant and Appropriate	
16	Executive Order on Floodplain Management, Exec. Order No. 11998	Limits activities in floodplains, defined as “the lowland and relatively flat areas adjoining inland and coastal waters ... including at a minimum, that area subject to a one percent or greater chance of flooding in any given year.”	Location Specific	To Be Considered	The Executive order is TBC because it is not a promulgated regulation.  The regulations will require avoidance of adverse impacts in these areas. Site activities are not expected to occur near or within in any floodplains.
<b>MINING RECLAMATION</b>					
17	USFS Forest Management Plan, Subpart A—National Forest System Land Management Planning, 36 CFR Chapter II § 219.10, Multiple Use	The Plan must provide for ecosystem services and multiple uses, including outdoor recreation, range, timber, watershed, wildlife, and fish, within Forest Service authority.	Location Specific	Relevant and Appropriate	Activities shall consider aesthetic values, air quality, cultural and heritage resources, ecosystem services, fish and wildlife species, forage, geologic features, grazing and rangelands, habitat and habitat connectivity, recreation settings and opportunities, riparian areas, scenery, soil, surface and subsurface water quality, timber, trails, vegetation, viewsheds, wilderness, and other relevant resources and uses.
18	Colorado Noxious Weed Act and Gunnison County Noxious Weed regulations, CRS § 35-5.5-101-119; 8 CCR 1206-2	Removal activities must control the spread of noxious weeds pursuant to this Regulation	Action Specific	Potentially Applicable	Compliance with Forest Plan meets substantive requirements. Procedural and enforcement provisions do not apply onsite at an USFS CERCLA removal action.
19	Colorado Mined Land Reclamation Board Regulations (“MLRB Regulations”), Reclamation Performance Standards, 2 C.C.R. 407-1, Rule 1.1 (definitions) and Rule 3 (Reclamation Performance Standards), pursuant to the Co. Mined Land Reclamation Act, C.R.S. § 34-32-101 et seq	The MLRB Regulations require reclamation of permitted mined lands, defined as “employment of procedures reasonably designed to minimize as much as practicable the disruption from mining operations and to provide for the establishment of plant cover, stabilization of soil, the protection of water resources, or other measures appropriate to the subsequent beneficial use of such affected lands.” Reclamation must be conducted in accordance with the performance standards in Rule 3 of the Regulations.	Action Specific	Relevant and Appropriate	Substantive reclamation requirements may be relevant and appropriate. Procedural and/or enforcement aspects of MLRB Regulations are not applicable onsite at an USFS CERCLA removal action.
<b>WILDLIFE</b>					





	Standard, Requirement, or Criteria	Description	Type	Potentially ARAR or TBC	Comment
20	USFS Forest Management Plan, Subpart A—National Forest System Land Management Planning, 36 CFR Chapter II § 219.9, Diversity of plant and animal communities.	The Plan must include plan components, including standards or guidelines, to maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area, Including: (i) Key characteristics associated with terrestrial and aquatic ecosystem types; (ii) Rare aquatic and terrestrial plant and animal communities; and (iii) The diversity of native tree species similar to that existing in the plan area.	Location Specific	Relevant and Appropriate	The Action must meet the requirements of the Forest Management Plan.
21	Endangered Species Act, 16 USC §§ 1531-1544, 50 CFR Parts 17,402	Protects endangered and threatened species and preserves their habitats, including any modification to critical habitats. Requires coordination with federal agencies for mitigation of impacts.	Location Specific	Applicable	Threatened and Endangered Species (T&E species) with the potential to use the study area as a habitat are listed in Section 6.3.4. The study area for the Site is not within the critical habitat for any of the T&E species identified.
22	Fish and Wildlife Coordination Act, 16 USC §§ 661- 666; 40 CFR 6.302(g)	Requires consultation when federal department or agency proposes or authorizes activities affecting or modifying any stream or other water body to provide for adequate provision for protection of fish and wildlife resources.	Location Specific	TBC	Site activities will not affect any stream or other water body.
23	Bald and Golden Eagles Protection Act, 16 USC §§ 668. Et seq.	Prohibits the taking, possession, sale, purchase. Barter, transport, export/import at anytime or in any manner, any bald (American) or any golden eagle, alive or dead, or any part, nest, or egg; establishes civil and criminal penalties (where “take” has been construed to affect habitat as well as physical possession of the eagles).	Action/ Location Specific	Applicable	Activities must avoid actions that affect Bald or Golden Eagles in a manner prohibited by the Act including actions that constitute “taking,” “possession” or use.”
24	Migratory Bird Treaty Act 16 U.S.C. §§ 703 & 707	Establishes federal responsibility for the protection of international migratory bird resources from pursuit, hunt, take, capture or kill from hunters and poachers.	Action Specific	Relevant and Appropriate	Activities must avoid actions that affect migratory birds in a manner prohibited by the Act including actions that constitute “taking,” “possession” or “use”.
25	Colorado Wildlife Enforcement and Penalties Act, CRS §§ 33-6-101 to 130	Prohibits actions detrimental to wildlife, and establishes provisions governing the taking, possession, hunting and use of wildlife and migratory birds.	Action/ Location Specific	Potentially Applicable	Substantively covered by Federal Endangered Species Act. Generally, removal action design will meet substantive requirements of these standards. Removal action will comply with substantive requirements of Endangered Species Act and consider any state-specific species. Procedural and enforcement provisions may not apply onsite at an USFS CERCLA removal action.
26	Colorado Non-game, Endangered, or Threatened Species Act, CRS §§ 33-2-101-108	Protects endangered and threatened species and preserves their habitats. Requires coordination with the Division of Wildlife if remedial activities impact nongame wildlife deemed to be in need of management.	Action Specific	Potentially Applicable	Substantively covered by Federal Endangered Species Act. Generally, removal action design will meet substantive requirements of these standards, Removal action will comply with substantive requirements of Endangered Species Act and consider any state-specific species. Procedural and enforcement provisions may not apply onsite at an USFS CERCLA removal action.
27	Colorado Wildlife Commission Regulations, 2 CCR 406, pursuant to CRS §§ 33-2-101-108	Establishes specific requirements for protection of wildlife.	Action Specific	Potentially Applicable	Substantively covered by Federal Endangered Species Act. Generally, removal action design will meet substantive requirements of these standards, Removal action will comply with substantive requirements of Endangered Species Act and consider any state-specific species. Procedural and enforcement provisions may not apply onsite at an USFS CERCLA removal action.
28	Colorado Natural Areas, CRS § 33-33-104	Maintains a list of plant species of “special concern.” Recommends coordination among Division of Parks and Outdoor Recreation.	Action Specific	To Be Considered	Does not meet definition requirements of an ARAR - Not a promulgated regulation.



	Standard, Requirement, or Criteria	Description	Type	Potentially ARAR or TBC	Comment
29	MLRB Regulations Rule 3.1.8	Reclamation activities must consider the safety and protection of wildlife on the mined site and along access roads with special attention given to critical periods in the life cycle of species requiring special consideration (elk calving, migration routes, peregrine falcon nesting, grouse strutting grounds).	Action Specific	Potentially Applicable	Substantively covered by Federal Endangered Species Act. Generally, removal action design will meet substantive requirements of these standards, however, procedural and/or enforcement aspects of these standards are not applicable onsite at an USFS CERCLA removal action. Removal action will comply with substantive requirements of Endangered Species Act and consider any state-specific species.
30	Land Management Plan, Grand Mesa, Uncompahgre, and Gunnison National Forests, 2007	Table 18 of the GMUG Land Management Plan provides federally-listed threatened and endangered species on the GMUG. Plan components for these species comply with the Endangered Species Act.	Location Specific	To Be Considered	
<b>HISTORIC PRESERVATION</b>					
31	Historic and Archeological Data Preservation Act of 1974, 16 USC§ 469	Establishes procedures for preservation of historical and archeological data that might be destroyed through alteration of terrain as a result of a federal construction project or a federally licensed activity.	Location Specific	To Be Considered	The Site is not listed on the National Register of Historic Places.
32	Preservation Regulations, 8 CCR 1504-7, pursuant to CRS 24-80-401 to 410, 1301 to 1305.	Regulates prehistoric and archaeological resources on State lands	Location/Action Specific	Applicable	Substantive compliance with NHPA requirements satisfies this requirement. Procedural and enforcement provisions do not apply onsite at an USFS CERCLA removal action.
<b>WORKER SAFETY AND HEALTH</b>					
33	Occupational Safety and Health Act, 29 USC §§ 651-678	Regulates worker health and safety.	Action Specific	Applicable	Requirements of this Act will apply during site related work activities.

AWQC – Ambient Water Quality Criteria of the Clean Water Act  
ARAR – Applicable, or Relevant and Appropriate Requirements, are promulgated requirements that are considered during the feasibility assessment  
CERCLA – Comprehensive Environmental Response, Compensation, Liability and Act of 1980  
CCR – Code of Colorado Regulations, Colorado state agency regulations  
CFR – Code of Federal Regulations, legal code of Colorado  
CNAP – Colorado Nature Areas Program, program of Colorado Parks and Wildlife that identifies and protects public areas with unique resources  
CRS – Colorado Revised Statutes  
CWA – Clean Water Act of 1972  
DOT – United States Department of Transportation  
MCL – Maximum Contaminant Level of the Safe Drinking Water Act  
MCLG – Maximum Contaminant Level Goals of the Safe Drinking Water Act  
OSWER – Office of Solid Waste and Emergency Response, USEPA  
RCRA – Resource Conservation and Recovery Act of 1976  
SDWA – Safe Drinking Water Act  
TBC – To Be Considered requirements, that are not promulgated but are provided as guidance, that can be addressed through risk management  
T&E – Threatened and Endangered Species, accordance with the Endangered Species Act  
USC – United States Code of Laws for the United States of America  
USEPA – United States Environmental Protection Agency  
Action-Specific – Requirements that must be considered during the construction process of the removal action.  
Chemical-Specific – Requirements that are based on the nature and extent of the chemical COPC identified onsite  
Location-Specific – Requirement that are based on the location where the removal action will take place, including zoning requirements, permitting, natural and cultural resource impacts.



Table 6-1. Human Health Threshold Values (TV)

Analyte	CAS Number	Soil/Precipitates		Water			Soil Leachate
		BLM Recreation RSL <sup>1</sup> (mg/kg)	USEPA Industrial RSL <sup>2</sup> (mg/kg)	USEPA MCL <sup>3</sup> (mg/L)	USEPA SMCL <sup>4</sup> (mg/L)	USEPA Tapwater RSL <sup>5</sup> (mg/L)	SPLP Screening Level (mg/L) <sup>6</sup>
<b>Metals</b>							
Aluminum	7429-90-5	1,000,000	110,000	NE	0.2	20	400
Antimony	7440-36-0	782	470	0.006	NE	0.0078	0.156
Arsenic	7440-38-2	31	3.0	0.01	NE	0.000052	0.00104
Barium	7440-39-3	390,000	220,000	2	NE	3.8	76
Beryllium	7440-41-7	3,910	2,300	0.004	NE	0.025	0.5
Cadmium	7440-43-9	1,780	980	0.005	NE	0.0092	0.184
Chromium	7440-47-3	1,000,000	1,800,000	0.1	NE	22	440
Cobalt	7440-48-4	586	350	NE	NE	0.006	0.12
Copper	7440-50-8	78,200	47,000	1.3	1	0.8	16
Iron	7439-89-6	1,000,000	820,000	NE	0.3	14	280
Lead	7439-92-1	800	800	0.015	NE	0.015	0.3
Manganese	7439-96-5	46,700	26,000	NE	0.05	0.43	8.6
Mercury	7439-97-6	271	46	0.002	NE	0.00063	0.0126
Molybdenum	7439-98-7	9780	5800	NE	NE	0.1	2
Nickel	7440-02-0	39,000	22,000	NE	NE	0.39	7.8
Selenium	7782-49-2	9,780	5,800	0.05	NE	0.1	2
Silver	7440-22-4	9,780	5,800	NE	0.1	0.094	1.88
Thallium	7440-28-0	19.6	12	0.002	NE	0.0002	0.004
Uranium	7440-61-1	391	230	0.03	NE	0.004	0.08
Vanadium	7440-62-2	9,850	5,800	NE	NE	0.086	1.72
Zinc	7440-66-6	587,000	350,000	NE	5	6	120
<b>Others</b>							
Chloride	16887-00-6	NE	NE	NE	250	NE	NE
Nitrate as N	14797-55-8	NE	1,900,000	10	NE	0.032	0.64
Nitrite as N	14797-65-0	NE	120,000	1	NE	0.002	0.64
Sulfate	14808-79-8	NE	NE	NE	250	NE	NE
Sulfide	18496-25-8	NE	NE	NE	NE	NE	NE
TDS	NA	NE	NE	NE	500	NE	NE

<sup>1</sup> Bureau of Land Management Recreational Screening Level (RSL), (Cox 2017)  
<sup>2</sup> USEPA Regional Screening Levels (RSLs) Industrial Soil, (USEPA, 2020)  
<sup>3</sup> USEPA Maximum Contaminant Level (MCL)  
<sup>4</sup> USEPA Secondary Maximum Contaminant Level (SMCL)  
<sup>5</sup> USEPA Residential Tapwater RSL (USEPA, 2020)  
<sup>6</sup> SPLP Screening Level established as USEPA Tapware RSL multiplied by a dilution attenuation factor (DAF) of 20  
CAS Number – Chemical Abstract Service Lookup numbers unique to each chemical.  
mg/kg – milligrams per kilogram  
mg/L – milligrams per liter  
NE – not established



Table 6-2. 2006 Soil and Precipitate Data Compared to Human Health Threshold Values (from Au’ Authum Ki, 2006)

Analyte	CAS No.	Regulatory Screening Levels		ND 200 PPT					ND 200 DUMP					ND 202 PPT				
		BLM Recreational RSL (mg/kg)	EPA Industrial RSL (mg/kg)	Result (mg/kg)	Flag	MDL (mg/kg)	BLM Recreational RSL EF	EPA Industrial RSL REF	Result (mg/kg)	Flag	MDL (mg/kg)	BLM Recreational RSL EF	EPA Industrial RSL REF	Result (mg/kg)	Flag	MDL (mg/kg)	BLM Recreational RSL EF	EPA Industrial RSL REF
Antimony	7440-36-0	782	470	0.800	B	0.200	<0.1	<0.1	2.00		0.200	<0.1	<0.1	1.00	B	0.200	<0.1	<0.1
Arsenic	7440-38-2	30.6	3	98.0		0.300	3.2	33	92.1		0.300	3	31	42.6		0.300	1.4	14
Cadmium	7440-43-9	1780	980	0.780		0.0600	<0.1	<0.1	5.24		0.0500	<0.1	<0.1	27.2		0.0600	<0.1	<0.1
Chromium	7440-47-3	1000000	NE	<10.0	U	10.0	<0.1*	NA	6.00		1.00	<0.1	NA	<10.0	U	10.0	<0.1*	NA
Copper	7440-50-8	78200	47000	10.0	B	10.0	<0.1	<0.1	639		1.00	<0.1	<0.1	3400		10.0	<0.1	<0.1
Iron	7439-89-6	1000000	820000	450000		20.0	0.45	0.55	33900		2.00	<0.1	<0.1	200000		20.0	0.2	0.24
Lead	7439-92-1	800	800	70.0	B	50.0	<0.1	<0.1	4050		4.00	5.1	5.1	200		40.0	0.25	0.25
Manganese	7439-96-5	46700	26000	5540		0.600	0.12	0.21	2630		0.500	<0.1	0.1	31400		6.00	0.67	1.2
Mercury	7439-97-6	271	46	<0.100	U	0.100	<0.1*	<0.1*	0.240	B	0.0500	<0.1	<0.1	<0.300	U	0.300	<0.1*	<0.1*
Molybdenum	7439-98-7	9780	5800	<10.0	U	10.0	<0.1*	<0.1*	24.0		1.00	<0.1	<0.1	<10.0	U	10.0	<0.1*	<0.1*
Nickel	7440-02-0	39000	22000	<10.0	U	10.0	<0.1*	<0.1*	5.00	B	1.00	<0.1	<0.1	40.0	B	10.0	<0.1	<0.1
Selenium	7782-49-2	9780	5800	<0.600	U	0.600	<0.1*	<0.1*	2.30	B	0.500	<0.1	<0.1	2.10	B	0.600	<0.1	<0.1
Silver	7440-22-4	9780	5800	<10.0	U	10.0	<0.1*	<0.1*	33.0		1.00	<0.1	<0.1	<10.0	U	10.0	<0.1*	<0.1*
Uranium	7440-61-1	391	230	3.95		0.0600	<0.1	<0.1	3.85		0.0500	<0.1	<0.1	26.2		0.0600	<0.1	0.11
Vanadium	7440-62-2	9850	5800	<6.00	U	6.00	<0.1*	<0.1*	13.8		0.500	<0.1	<0.1	9.00	B	6.00	<0.1	<0.1
Zinc	7440-66-6	587000	350000	480		10.0	<0.1	<0.1	1260		1.00	<0.1	<0.1	3180		10.0	<0.1	<0.1



Table 6-2. 2006 Soil and Precipitate Data Compared to Human Health Threshold Values (from Au’ Authum Ki, 2006) (continued)

Analyte	CAS No.	Regulatory Screening Levels		ND 202-E DUMP					ND 202-W DUMP				
		BLM Recreational RSL (mg/kg)	EPA Industrial RSL (mg/kg)	Result (mg/kg)	Flag	MDL (mg/kg)	BLM Recreational RSL EF	EPA Industrial RSL REF	Result (mg/kg)	Flag	MDL (mg/kg)	BLM Recreational RSL EF	EPA Industrial RSL REF
Antimony	7440-36-0	782	470	2.20		0.200	<0.1	<0.1	9.60		0.200	<0.1	<0.1
Arsenic	7440-38-2	30.6	3	60.6		0.300	2	20	78.0		0.300	2.5	26
Cadmium	7440-43-9	1780	980	4.31		0.0500	<0.1	<0.1	16.6		0.0500	<0.1	<0.1
Chromium	7440-47-3	1000000	NE	23.0		1.00	<0.1	NA	<1.00	U	1.00	<0.1*	NA
Copper	7440-50-8	78200	47000	674		1.00	<0.1	<0.1	510		1.00	<0.1	<0.1
Iron	7439-89-6	1000000	820000	55500		4.00	<0.1	<0.1	14600		2.00	<0.1	<0.1
Lead	7439-92-1	800	800	3870		4.00	4.8	4.8	8520		4.00	11	11
Manganese	7439-96-5	46700	26000	6280		0.500	0.13	0.24	28.8		0.500	<0.1	<0.1
Mercury	7439-97-6	271	46	<0.0600	U	0.0600	<0.1*	<0.1*	0.110	B	0.0500	<0.1	<0.1
Molybdenum	7439-98-7	9780	5800	9.00		1.00	<0.1	<0.1	90.0		1.00	<0.1	<0.1
Nickel	7440-02-0	39000	22000	16.0		1.00	<0.1	<0.1	1.00	B	1.00	<0.1	<0.1
Selenium	7782-49-2	9780	5800	1.80	B	0.500	<0.1	<0.1	2.30	B	0.500	<0.1	<0.1
Silver	7440-22-4	9780	5800	10.0		1.00	<0.1	<0.1	41.0		1.00	<0.1	<0.1
Uranium	7440-61-1	391	230	2.33		0.0500	<0.1	<0.1	0.180	B	0.0500	<0.1	<0.1
Vanadium	7440-62-2	9850	5800	45.1		0.500	<0.1	<0.1	0.700	B	0.500	<0.1	<0.1
Zinc	7440-66-6	587000	350000	1020		1.00	<0.1	<0.1	3640		1.00	<0.1	<0.1

Values in red indicate EF > 1  
B -- The same analyte is found in the associated blank  
BLM – Bureau of Land Management  
CAS – Chemical Abstracts Service  
EF – Exceedance Factor  
EPA – United States Environmental Protection Agency  
MDL – Laboratory Method Detection Limit  
mg/kg – Milligrams per kilogram  
NA - Not applicable  
NE – Not established  
U – Undetected



Table 6-3. 2020 Soil and Precipitate Data Compared to Human Health Threshold Values

Analyte	CAS No.	Regulatory Screening Levels		ND2-AP-100-1					ND2-AP-102-1					ND2-DP-100-1				
		BLM Recreational RSL (mg/kg)	EPA Industrial RSL (mg/kg)	Result (mg/kg)	Flag	MDL (mg/kg)	BLM Recreational RSL EF	EPA Industrial RSL EF	Result (mg/kg)	Flag	MDL (mg/kg)	BLM Recreational RSL EF	EPA Industrial RSL EF	Result (mg/kg)	Flag	MDL (mg/kg)	BLM Recreational RSL EF	EPA Industrial RSL EF
Aluminum	7429-90-5	1000000	1100000	236		41.0	<0.1	<0.1	6820		41.0	<0.1	<0.1	1440		41.0	<0.1	<0.1
Antimony	7440-36-0	782	470	7.05	J	2.50	<0.1	<0.1	<2.50		2.50	<0.1*	<0.1*	6.24	J J6	2.50	<0.1	<0.1
Arsenic	7440-38-2	30.6	3	31.1		2.30	1	10	9.45	J	2.30	0.31	3.2	30.6	O1	2.30	1	10
Barium	7440-39-3	390000	220000	11.5		1.20	<0.1	<0.1	26.5		1.20	<0.1	<0.1	29.7		1.20	<0.1	<0.1
Beryllium	7440-41-7	3910	2300	1.21		0.400	<0.1	<0.1	3.21		0.400	<0.1	<0.1	1.87		0.400	<0.1	<0.1
Cadmium	7440-43-9	1780	980	0.409	J	0.405	<0.1	<0.1	5.39		0.405	<0.1	<0.1	3.36		0.405	<0.1	<0.1
Chromium	7440-47-3	1000000	1800000	<1.25		1.25	<0.1*	<0.1*	<1.25		1.25	<0.1*	<0.1*	<1.25		1.25	<0.1*	<0.1*
Cobalt	7440-48-4	586	350	19.2		1.15	<0.1	<0.1	134		1.15	0.23	0.38	72.2		1.15	0.12	0.21
Copper	7440-50-8	78200	47000	<2.53		2.53	<0.1*	<0.1*	261		2.53	<0.1	<0.1	57.1		2.53	<0.1	<0.1
Iron	7439-89-6	1000000	820000	201000		25.0	0.2	0.25	47500		25.0	<0.1	<0.1	156000	V	25.0	0.16	0.19
Lead	7439-92-1	800	800	13.2		1.04	<0.1	<0.1	33.1		1.04	<0.1	<0.1	137		1.04	0.17	0.17
Manganese	7439-96-5	46700	26000	2250		1.22	<0.1	<0.1	10600		2.45	0.23	0.41	9590		2.45	0.21	0.37
Mercury	7439-97-6	271	46	<0.0180		0.0180	<0.1*	<0.1*	<0.0180		0.0180	<0.1*	<0.1*	<0.0180		0.0180	<0.1*	<0.1*
Nickel	7440-02-0	39000	22000	<2.45		2.45	<0.1*	<0.1*	11.4		2.45	<0.1	<0.1	<2.45		2.45	<0.1*	<0.1*
Selenium	7782-49-2	9780	5800	6.54	J	3.08	<0.1	<0.1	3.43	J	3.08	<0.1	<0.1	7.00	J	3.09	<0.1	<0.1
Silver	7440-22-4	9780	5800	<1.14		1.14	<0.1*	<0.1*	1.15	J	1.14	<0.1	<0.1	1.85	J	1.14	<0.1	<0.1
Thallium	7440-28-0	19.6	12	<1.77		1.77	<0.1*	0.15*	<1.77		1.77	<0.1*	0.15*	<1.77		1.77	<0.1*	0.15*
Vanadium	7440-62-2	9850	5800	4.25	J	3.44	<0.1	<0.1	<3.44		3.44	<0.1*	<0.1*	<3.44		3.44	<0.1*	<0.1*
Zinc	7440-66-6	587000	350000	98.7		4.70	<0.1	<0.1	768		4.70	<0.1	<0.1	471	V	4.70	<0.1	<0.1



Table 6.3. 2020 Soil and Precipitate Data Compared to Human Health Threshold Values (continued)

Analyte	CAS No.	Regulatory Screening Levels		ND2-DP2-100-1					ND2-SS-OND-1					ND2-SS-OND-2				
		BLM Recreational RSL (mg/kg)	EPA Industrial RSL (mg/kg)	Result (mg/kg)	Flag	MDL (mg/kg)	BLM Recreational RSL EF	EPA Industrial RSL EF	Result (mg/kg)	Flag	MDL (mg/kg)	BLM Recreational RSL EF	EPA Industrial RSL EF	Result (mg/kg)	Flag	MDL (mg/kg)	BLM Recreational RSL EF	EPA Industrial RSL EF
Aluminum	7429-90-5	1000000	1100000	1500		41.0	<0.1	<0.1	9820		8.20	<0.1	<0.1	10600		8.20	<0.1	<0.1
Antimony	7440-36-0	782	470	6.49	J	2.50	<0.1	<0.1	2.19		0.500	<0.1	<0.1	2.47		0.500	<0.1	<0.1
Arsenic	7440-38-2	30.6	3	33.9		2.30	1.1	11	82.5		0.460	2.7	28	85.7		0.460	2.8	29
Barium	7440-39-3	390000	220000	32.1		1.20	<0.1	<0.1	188		0.240	<0.1	<0.1	216		0.240	<0.1	<0.1
Beryllium	7440-41-7	3910	2300	1.96		0.400	<0.1	<0.1	0.176	J	0.0800	<0.1	<0.1	0.180	J	0.0800	<0.1	<0.1
Cadmium	7440-43-9	1780	980	3.33		0.405	<0.1	<0.1	0.266	J	0.0810	<0.1	<0.1	1.99		0.0810	<0.1	<0.1
Chromium	7440-47-3	1000000	1800000	<1.25		1.25	<0.1*	<0.1*	14.6		0.250	<0.1	<0.1	16.0		0.250	<0.1	<0.1
Cobalt	7440-48-4	586	350	76.8		1.15	0.13	0.22	1.88		0.230	<0.1	<0.1	2.07		0.230	<0.1	<0.1
Copper	7440-50-8	78200	47000	58.0		2.53	<0.1	<0.1	164		0.506	<0.1	<0.1	181		0.506	<0.1	<0.1
Iron	7439-89-6	1000000	820000	164000		25.0	0.16	0.2	58800		25.0	<0.1	<0.1	63100		25.0	<0.1	<0.1
Lead	7439-92-1	800	800	136		1.04	0.17	0.17	1200		0.208	1.5	1.5	1320		0.208	1.6	1.6
Manganese	7439-96-5	46700	26000	10400		2.45	0.22	0.4	89.9		0.245	<0.1	<0.1	97.5		0.245	<0.1	<0.1
Mercury	7439-97-6	271	46	0.0200	J	0.0180	<0.1	<0.1	0.674		0.0180	<0.1	<0.1	0.606		0.0180	<0.1	<0.1
Nickel	7440-02-0	39000	22000	<2.45		2.45	<0.1*	<0.1*	5.56		0.490	<0.1	<0.1	6.02		0.490	<0.1	<0.1
Selenium	7782-49-2	9780	5800	8.29	J	3.08	<0.1	<0.1	5.34		0.617	<0.1	<0.1	6.11		0.617	<0.1	<0.1
Silver	7440-22-4	9780	5800	2.10	J	1.14	<0.1	<0.1	12.2		0.228	<0.1	<0.1	13.0		0.228	<0.1	<0.1
Thallium	7440-28-0	19.6	12	<1.77		1.77	<0.1*	0.15*	<0.354		0.354	<0.1*	<0.1*	<0.354		0.354	<0.1*	<0.1*
Vanadium	7440-62-2	9850	5800	3.65	J	3.44	<0.1	<0.1	34.9		0.687	<0.1	<0.1	38.1		0.687	<0.1	<0.1
Zinc	7440-66-6	587000	350000	484		4.70	<0.1	<0.1	84.9		0.939	<0.1	<0.1	376		0.939	<0.1	<0.1

Values in red indicate EF > 1  
B -- The same analyte is found in the associated blank  
BLM – Bureau of Land Management  
CAS – Chemical Abstracts Service  
EF – Exceedance Factor  
EPA – United States Environmental Protection Agency  
J – The identification of the analyte is acceptable; the reported value is an estimate.  
J6 – The sample matrix interfered with the ability to make any accurate determination; spike value is low  
MDL – Laboratory Method Detection Limit  
mg/kg – Milligrams per kilogram  
O1 – The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.  
V – The sample concentration is too high to evaluate accurate spike recoveries  
NA - Not applicable  
NE – Not established  
U – Undetected





Table 6-4. 2006 Surface Water Data Compared to Human Health Threshold Values (from Au’ Authum Ki, 2006)

Analyte	Units	CAS No.	Regulatory Screening Levels			ND ADIT 100						ND DRAIN 100					
			EPA Tapwater RSL	EPA MCL	Secondary EPA MCL	Result	Flag	MDL	EPA Tapwater EF	EPA MCL EF	Secondary MCL EF	Result	Flag	MDL	EPA Tapwater EF	EPA MCL EF	Secondary MCL EF
Metals																	
Antimony, Dissolved	ug/L	7440-36-0	7.8	6	NE	<0.400	U	0.400	<0.1*	<0.1*	NA	<0.400	U	0.400	<0.1*	<0.1*	NA
Arsenic, Dissolved	ug/L	7440-38-2	0.052	10	NE	2.80	B	0.500	54	0.28	NA	2.00	B	0.500	38	0.2	NA
Arsenic, Total	ug/L	7440-38-2	0.052	10	NE	2.30	B	0.500	44	0.23	NA	2.10	B	0.500	40	0.21	NA
Boron, Dissolved	ug/L	7440-42-8	4000	NE	NE	<10.0	U	10.0	<0.1*	NA	NA	<10.0	U	10.0	<0.1*	NA	NA
Cadmium, Dissolved	ug/L	7440-43-9	NE	NE	NE	<0.100	U	0.100	NA	NA	NA	<0.100	U	0.100	NA	NA	NA
Calcium, Dissolved	ug/L	7440-70-2	NE	NE	NE	379000		200	NA	NA	NA	381000		200	NA	NA	NA
Chromium, Dissolved	ug/L	7440-47-3	22000	100	NE	<10.0	U	10.0	<0.1*	<0.1*	NA	<10.0	U	10.0	<0.1*	<0.1*	NA
Copper, Dissolved	ug/L	7440-50-8	800	1300	1000	<10.0	U	10.0	<0.1*	<0.1*	<0.1*	<10.0	U	10.0	<0.1*	<0.1*	<0.1*
Iron, Dissolved	ug/L	7439-89-6	14000	NE	300	8470		20.0	0.6	NA	28	5110		20.0	0.36	NA	17
Iron, Total	ug/L	7439-89-6	14000	NE	300	7800		20.0	0.56	NA	26	6830		20.0	0.49	NA	23
Lead, Dissolved	ug/L	7439-92-1	15	15	NE	0.400	B	0.100	<0.1	<0.1	NA	0.200	B	0.100	<0.1	<0.1	NA
Magnesium, Dissolved	ug/L	7439-95-4	NE	NE	NE	12200		200	NA	NA	NA	12300		200	NA	NA	NA
Manganese, Dissolved	ug/L	7439-96-5	430	NE	50	1540		5.00	3.6	NA	31	1480		5.00	3.4	NA	30
Mercury, Total	ug/L	7439-97-6	0.63	2	NE	<0.200	U	0.200	0.32*	<0.1*	NA	<0.200	U	0.200	0.32*	<0.1*	NA
Nickel, Dissolved	ug/L	7440-02-0	390	NE	NE	<10.0	U	10.0	<0.1*	NA	NA	<10.0	U	10.0	<0.1*	NA	NA
Potassium, Dissolved	ug/L	7440-09-7	NE	NE	NE	1200		300	NA	NA	NA	1300		300	NA	NA	NA
Selenium, Dissolved	ug/L	7782-49-2	100	50	NE	<1.00	U	1.00	<0.1*	<0.1*	NA	<1.00	U	1.00	<0.1*	<0.1*	NA
Silver, Dissolved	ug/L	7440-22-4	94	NE	100	<0.0500	U	0.0500	<0.1*	NA	<0.1*	<0.0500	U	0.0500	<0.1*	NA	<0.1*
Sodium, Dissolved	ug/L	7440-23-5	NE	NE	NE	9000		300	NA	NA	NA	9000		300	NA	NA	NA
Zinc, Dissolved	ug/L	7440-66-6	6000	NE	5000	50.0	B	10.0	<0.1	NA	<0.1	80.0		10.0	<0.1	NA	<0.1
Others																	
Chloride	mg/L	16887-00-6	NE	NE	250	1.00	B	1.00	NA	NA	<0.1	1.00	B	1.00	NA	NA	<0.1
Nitrate As N, Dissolved	mg/L	14797-55-8	32	10	NE	<0.0200	U	0.0200	<0.1*	<0.1*	NA	<0.0200	U	0.0200	<0.1*	<0.1*	NA
Nitrite As N, Dissolved	mg/L	14797-65-0	2	1	NE	<0.0100	U H	0.0100	<0.1*	<0.1*	NA	<0.0100	U H	0.0100	<0.1*	<0.1*	NA
Sulfate	mg/L	14808-79-8	NE	NE	250	850		10.0	NA	NA	3.4	850		10.0	NA	NA	3.4
Sulfide As S	mg/L	18496-25-8	NE	NE	NE	<0.0200	U	0.0200	NA	NA	NA	<0.0200	U	0.0200	NA	NA	NA
TDS	mg/L	NA	NE	NE	500	1300		10.0	NA	NA	2.6	1300		10.0	NA	NA	2.6





Table 6-4. 2006 Surface Water Data Compared to Human Health Threshold Values (from Au’ Authum Ki, 2006) (continued)

Analyte	Units	CAS No.	Regulatory Screening Levels			ND DRAIN 100 DUP						ND ADIT 102					
			EPA Tapwater RSL	EPA MCL	Secondary EPA MCL	Result	Flag	MDL	EPA Tapwater EF	EPA MCL EF	Secondary MCL EF	Result	Flag	MDL	EPA Tapwater EF	EPA MCL EF	Secondary MCL EF
Metals																	
Antimony, Dissolved	ug/L	7440-36-0	7.8	6	NE	<0.400	U	0.400	<0.1*	<0.1*	NA	<0.400	U	0.400	<0.1*	<0.1*	NA
Arsenic, Dissolved	ug/L	7440-38-2	0.052	10	NE	1.70	B	0.500	33	0.17	NA	<0.500	U	0.500	9.6*	<0.1*	NA
Arsenic, Total	ug/L	7440-38-2	0.052	10	NE	2.30	B	0.500	44	0.23	NA	0.700	B	0.500	13	<0.1	NA
Boron, Dissolved	ug/L	7440-42-8	4000	NE	NE	10.0	B	10.0	<0.1	NA	NA	<10.0	U	10.0	<0.1*	NA	NA
Cadmium, Dissolved	ug/L	7440-43-9	NE	NE	NE	<0.100	U	0.100	NA	NA	NA	2.90		0.100	NA	NA	NA
Calcium, Dissolved	ug/L	7440-70-2	NE	NE	NE	371000		200	NA	NA	NA	96700		200	NA	NA	NA
Chromium, Dissolved	ug/L	7440-47-3	22000	100	NE	<10.0	U	10.0	<0.1*	<0.1*	NA	<10.0	U	10.0	<0.1*	<0.1*	NA
Copper, Dissolved	ug/L	7440-50-8	800	1300	1000	<10.0	U	10.0	<0.1*	<0.1*	<0.1*	50.0	B	10.0	<0.1	<0.1	<0.1
Iron, Dissolved	ug/L	7439-89-6	14000	NE	300	5000		20.0	0.36	NA	17	1940		20.0	0.14	NA	6.5
Iron, Total	ug/L	7439-89-6	14000	NE	300	6910		20.0	0.49	NA	23	3070		20.0	0.22	NA	10
Lead, Dissolved	ug/L	7439-92-1	15	15	NE	0.200	B	0.100	<0.1	<0.1	NA	0.200	B	0.100	<0.1	<0.1	NA
Magnesium, Dissolved	ug/L	7439-95-4	NE	NE	NE	11900		200	NA	NA	NA	7000		200	NA	NA	NA
Manganese, Dissolved	ug/L	7439-96-5	430	NE	50	1440		5.00	3.3	NA	29	2050		5.00	4.8	NA	41
Mercury, Total	ug/L	7439-97-6	0.63	2	NE	<0.200	U	0.200	0.32*	<0.1*	NA	<0.200	U	0.200	0.32*	<0.1*	NA
Nickel, Dissolved	ug/L	7440-02-0	390	NE	NE	<10.0	U	10.0	<0.1*	NA	NA	10.0	B	10.0	<0.1	NA	NA
Potassium, Dissolved	ug/L	7440-09-7	NE	NE	NE	1300		300	NA	NA	NA	1300		300	NA	NA	NA
Selenium, Dissolved	ug/L	7782-49-2	100	50	NE	1.00	B	1.00	<0.1	<0.1	NA	<1.00	U	1.00	<0.1*	<0.1*	NA
Silver, Dissolved	ug/L	7440-22-4	94	NE	100	<0.0500	U	0.0500	<0.1*	NA	<0.1*	<0.0500	U	0.0500	<0.1*	NA	<0.1*
Sodium, Dissolved	ug/L	7440-23-5	NE	NE	NE	8500		300	NA	NA	NA	6400		300	NA	NA	NA
Zinc, Dissolved	ug/L	7440-66-6	6000	NE	5000	70.0		10.0	<0.1	NA	<0.1	630		10.0	0.1	NA	0.13
Others																	
Chloride	mg/L	16887-00-6	NE	NE	250	1.00	B	1.00	NA	NA	<0.1	<1.00	U	1.00	NA	NA	<0.1*
Nitrate As N, Dissolved	mg/L	14797-55-8	32	10	NE	<0.0200	U	0.0200	<0.1*	<0.1*	NA	<0.0200	U	0.0200	<0.1*	<0.1*	NA
Nitrite As N, Dissolved	mg/L	14797-65-0	2	1	NE	<0.0100	U H	0.0100	<0.1*	<0.1*	NA	<0.0100	U	0.0100	<0.1*	<0.1*	NA
Sulfate	mg/L	14808-79-8	NE	NE	250	880		10.0	NA	NA	3.5	240		10.0	NA	NA	0.96
Sulfide As S	mg/L	18496-25-8	NE	NE	NE	0.110		0.0200	NA	NA	NA	<0.0200	U	0.0200	NA	NA	NA
TDS	mg/L	NA	NE	NE	500	1320		10.0	NA	NA	2.6	369		10.0	NA	NA	0.74



Table 6-4. 2006 Surface Water Data Compared to Human Health Threshold Values (from Au’ Authum Ki, 2006) (continued)

Analyte	Units	CAS No.	Regulatory Screening Levels			ND DRAIN 102						ND WL SW-1					
			EPA Tapwater RSL	EPA MCL	Secondary EPA MCL	Result	Flag	MDL	EPA Tapwater EF	EPA MCL EF	Secondary MCL EF	Result	Flag	MDL	EPA Tapwater EF	EPA MCL EF	Secondary MCL EF
Metals																	
Antimony, Dissolved	ug/L	7440-36-0	7.8	6	NE	<0.400	U	0.400	<0.1*	<0.1*	NA	<0.400	U	0.400	<0.1*	<0.1*	NA
Arsenic, Dissolved	ug/L	7440-38-2	0.052	10	NE	0.500	B	0.500	9.6	<0.1	NA	<0.500	U	0.500	9.6*	<0.1*	NA
Arsenic, Total	ug/L	7440-38-2	0.052	10	NE	0.700	B	0.500	13	<0.1	NA	1.10	B	0.500	21	0.11	NA
Boron, Dissolved	ug/L	7440-42-8	4000	NE	NE	<10.0	U	10.0	<0.1*	NA	NA	<10.0	U	10.0	<0.1*	NA	NA
Cadmium, Dissolved	ug/L	7440-43-9	NE	NE	NE	2.70		0.100	NA	NA	NA	<0.100	U	0.100	NA	NA	NA
Calcium, Dissolved	ug/L	7440-70-2	NE	NE	NE	94600		200	NA	NA	NA	355000		200	NA	NA	NA
Chromium, Dissolved	ug/L	7440-47-3	22000	100	NE	<10.0	U	10.0	<0.1*	<0.1*	NA	<10.0	U	10.0	<0.1*	<0.1*	NA
Copper, Dissolved	ug/L	7440-50-8	800	1300	1000	40.0	B	10.0	<0.1	<0.1	<0.1	<10.0	U	10.0	<0.1*	<0.1*	<0.1*
Iron, Dissolved	ug/L	7439-89-6	14000	NE	300	2210		20.0	0.16	NA	7.4	740		20.0	<0.1	NA	2.5
Iron, Total	ug/L	7439-89-6	14000	NE	300	3450		20.0	0.25	NA	12	2050		20.0	0.15	NA	6.8
Lead, Dissolved	ug/L	7439-92-1	15	15	NE	0.800		0.100	<0.1	<0.1	NA	<0.100	U	0.100	<0.1*	<0.1*	NA
Magnesium, Dissolved	ug/L	7439-95-4	NE	NE	NE	6900		200	NA	NA	NA	11600		200	NA	NA	NA
Manganese, Dissolved	ug/L	7439-96-5	430	NE	50	2120		5.00	4.9	NA	42	836		5.00	1.9	NA	17
Mercury, Total	ug/L	7439-97-6	0.63	2	NE	<0.200	U	0.200	0.32*	<0.1*	NA	<0.200	U	0.200	0.32*	<0.1*	NA
Nickel, Dissolved	ug/L	7440-02-0	390	NE	NE	10.0	B	10.0	<0.1	NA	NA	<10.0	U	10.0	<0.1*	NA	NA
Potassium, Dissolved	ug/L	7440-09-7	NE	NE	NE	1300		300	NA	NA	NA	1200		300	NA	NA	NA
Selenium, Dissolved	ug/L	7782-49-2	100	50	NE	<1.00	U	1.00	<0.1*	<0.1*	NA	<1.00	U	1.00	<0.1*	<0.1*	NA
Silver, Dissolved	ug/L	7440-22-4	94	NE	100	<0.0500	U	0.0500	<0.1*	NA	<0.1*	<0.0500	U	0.0500	<0.1*	NA	<0.1*
Sodium, Dissolved	ug/L	7440-23-5	NE	NE	NE	6100		300	NA	NA	NA	8600		300	NA	NA	NA
Zinc, Dissolved	ug/L	7440-66-6	6000	NE	5000	640		10.0	0.11	NA	0.13	60.0		10.0	<0.1	NA	<0.1
Others																	
Chloride	mg/L	16887-00-6	NE	NE	250	<1.00	U	1.00	NA	NA	<0.1*	1.00	B	1.00	NA	NA	<0.1
Nitrate As N, Dissolved	mg/L	14797-55-8	32	10	NE	<0.0200	U	0.0200	<0.1*	<0.1*	NA	<0.0200	U	0.0200	<0.1*	<0.1*	NA
Nitrite As N, Dissolved	mg/L	14797-65-0	2	1	NE	<0.0100	U	0.0100	<0.1*	<0.1*	NA	<0.0100	U	0.0100	<0.1*	<0.1*	NA
Sulfate	mg/L	14808-79-8	NE	NE	250	240		10.0	NA	NA	0.96	880		10.0	NA	NA	3.5
Sulfide As S	mg/L	18496-25-8	NE	NE	NE	<0.0200	U	0.0200	NA	NA	NA	0.0200	B	0.0200	NA	NA	NA
TDS	mg/L	NA	NE	NE	500	367		10.0	NA	NA	0.73	1290		10.0	NA	NA	2.6



Table 6-4. 2006 Surface Water Data Compared to Human Health Threshold Values (from Au’ Authum Ki, 2006) (continued)

Analyte	Units	CAS No.	Regulatory Screening Levels			ND WL SW-2						ND WL SW-3					
			EPA Tapwater RSL	EPA MCL	Secondary EPA MCL	Result	Flag	MDL	EPA Tapwater EF	EPA MCL EF	Secondary MCL EF	Result	Flag	MDL	EPA Tapwater EF	EPA MCL EF	Secondary MCL EF
Metals																	
Antimony, Dissolved	ug/L	7440-36-0	7.8	6	NE	<0.400	U	0.400	<0.1*	<0.1*	NA	<0.400	U	0.400	<0.1*	<0.1*	NA
Arsenic, Dissolved	ug/L	7440-38-2	0.052	10	NE	<0.500	U	0.500	9.6*	<0.1*	NA	<0.500	U	0.500	9.6*	<0.1*	NA
Arsenic, Total	ug/L	7440-38-2	0.052	10	NE	0.900	B	0.500	17	<0.1	NA	0.600	B	0.500	12	<0.1	NA
Boron, Dissolved	ug/L	7440-42-8	4000	NE	NE	<10.0	U	10.0	<0.1*	NA	NA	<10.0	U	10.0	<0.1*	NA	NA
Cadmium, Dissolved	ug/L	7440-43-9	NE	NE	NE	<0.100	U	0.100	NA	NA	NA	1.00		0.100	NA	NA	NA
Calcium, Dissolved	ug/L	7440-70-2	NE	NE	NE	332000		200	NA	NA	NA	328000		200	NA	NA	NA
Chromium, Dissolved	ug/L	7440-47-3	22000	100	NE	<10.0	U	10.0	<0.1*	<0.1*	NA	<10.0	U	10.0	<0.1*	<0.1*	NA
Copper, Dissolved	ug/L	7440-50-8	800	1300	1000	<10.0	U	10.0	<0.1*	<0.1*	<0.1*	<10.0	U	10.0	<0.1*	<0.1*	<0.1*
Iron, Dissolved	ug/L	7439-89-6	14000	NE	300	760		20.0	<0.1	NA	2.5	250		20.0	<0.1	NA	0.83
Iron, Total	ug/L	7439-89-6	14000	NE	300	2030		20.0	0.14	NA	6.8	1530		20.0	0.11	NA	5.1
Lead, Dissolved	ug/L	7439-92-1	15	15	NE	<0.100	U	0.100	<0.1*	<0.1*	NA	<0.100	U	0.100	<0.1*	<0.1*	NA
Magnesium, Dissolved	ug/L	7439-95-4	NE	NE	NE	10800		200	NA	NA	NA	11200		200	NA	NA	NA
Manganese, Dissolved	ug/L	7439-96-5	430	NE	50	781		5.00	1.8	NA	16	546		5.00	1.3	NA	11
Mercury, Total	ug/L	7439-97-6	0.63	2	NE	<0.200	U	0.200	0.32*	<0.1*	NA	<0.200	U	0.200	0.32*	<0.1*	NA
Nickel, Dissolved	ug/L	7440-02-0	390	NE	NE	<10.0	U	10.0	<0.1*	NA	NA	<10.0	U	10.0	<0.1*	NA	NA
Potassium, Dissolved	ug/L	7440-09-7	NE	NE	NE	1300		300	NA	NA	NA	1300		300	NA	NA	NA
Selenium, Dissolved	ug/L	7782-49-2	100	50	NE	<1.00	U	1.00	<0.1*	<0.1*	NA	<1.00	U	1.00	<0.1*	<0.1*	NA
Silver, Dissolved	ug/L	7440-22-4	94	NE	100	<0.0500	U	0.0500	<0.1*	NA	<0.1*	<0.0500	U	0.0500	<0.1*	NA	<0.1*
Sodium, Dissolved	ug/L	7440-23-5	NE	NE	NE	8400		300	NA	NA	NA	7900		300	NA	NA	NA
Zinc, Dissolved	ug/L	7440-66-6	6000	NE	5000	50.0		10.0	<0.1	NA	<0.1	310		10.0	<0.1	NA	<0.1
Others																	
Chloride	mg/L	16887-00-6	NE	NE	250	1.00	B	1.00	NA	NA	<0.1	1.00	B	1.00	NA	NA	<0.1
Nitrate As N, Dissolved	mg/L	14797-55-8	32	10	NE	<0.0200	U	0.0200	<0.1*	<0.1*	NA	<0.0200	U	0.0200	<0.1*	<0.1*	NA
Nitrite As N, Dissolved	mg/L	14797-65-0	2	1	NE	<0.0100	U	0.0100	<0.1*	<0.1*	NA	<0.0100	U	0.0100	<0.1*	<0.1*	NA
Sulfate	mg/L	14808-79-8	NE	NE	250	850		10.0	NA	NA	3.4	810		10.0	NA	NA	3.2
Sulfide As S	mg/L	18496-25-8	NE	NE	NE	<0.0200	U	0.0200	NA	NA	NA	<0.0200	U	0.0200	NA	NA	NA
TDS	mg/L	NA	NE	NE	500	1240		10.0	NA	NA	2.5	1180		10.0	NA	NA	2.4



Table 6-4. 2006 Surface Water Data Compared to Human Health Threshold Values (from Au’ Authum Ki, 2006) (continued)

Analyte	Units	CAS No.	Regulatory Screening Levels			ND WL SW-4						ND HF-UP					
			EPA Tapwater RSL	EPA MCL	Secondary EPA MCL	Result	Flag	MDL	EPA Tapwater EF	EPA MCL EF	Secondary MCL EF	Result	Flag	MDL	EPA Tapwater EF	EPA MCL EF	Secondary MCL EF
Metals																	
Antimony, Dissolved	ug/L	7440-36-0	7.8	6	NE	<0.400	U	0.400	<0.1*	<0.1*	NA	<0.400	U	0.400	<0.1*	<0.1*	NA
Arsenic, Dissolved	ug/L	7440-38-2	0.052	10	NE	<0.500	U	0.500	9.6*	<0.1*	NA	<0.500	U	0.500	9.6*	<0.1*	NA
Arsenic, Total	ug/L	7440-38-2	0.052	10	NE	0.700	B	0.500	13	<0.1	NA	<0.500	U	0.500	9.6*	<0.1*	NA
Boron, Dissolved	ug/L	7440-42-8	4000	NE	NE	<10.0	U	10.0	<0.1*	NA	NA	<10.0	U	10.0	<0.1*	NA	NA
Cadmium, Dissolved	ug/L	7440-43-9	NE	NE	NE	0.100	B	0.100	NA	NA	NA	1.00		0.100	NA	NA	NA
Calcium, Dissolved	ug/L	7440-70-2	NE	NE	NE	361000		200	NA	NA	NA	143000		200	NA	NA	NA
Chromium, Dissolved	ug/L	7440-47-3	22000	100	NE	<10.0	U	10.0	<0.1*	<0.1*	NA	<10.0	U	10.0	<0.1*	<0.1*	NA
Copper, Dissolved	ug/L	7440-50-8	800	1300	1000	<10.0	U	10.0	<0.1*	<0.1*	<0.1*	<10.0	U	10.0	<0.1*	<0.1*	<0.1*
Iron, Dissolved	ug/L	7439-89-6	14000	NE	300	80.0		20.0	<0.1	NA	0.27	180		20.0	<0.1	NA	0.6
Iron, Total	ug/L	7439-89-6	14000	NE	300	800		20.0	<0.1	NA	2.7	850		20.0	<0.1	NA	2.8
Lead, Dissolved	ug/L	7439-92-1	15	15	NE	<0.100	U	0.100	<0.1*	<0.1*	NA	0.600		0.100	<0.1	<0.1	NA
Magnesium, Dissolved	ug/L	7439-95-4	NE	NE	NE	11800		200	NA	NA	NA	7400		200	NA	NA	NA
Manganese, Dissolved	ug/L	7439-96-5	430	NE	50	562		5.00	1.3	NA	11	298		5.00	0.69	NA	6
Mercury, Total	ug/L	7439-97-6	0.63	2	NE	<0.200	U	0.200	0.32*	<0.1*	NA	0.200	B	0.200	0.32	<0.1	NA
Nickel, Dissolved	ug/L	7440-02-0	390	NE	NE	<10.0	U	10.0	<0.1*	NA	NA	<10.0	U	10.0	<0.1*	NA	NA
Potassium, Dissolved	ug/L	7440-09-7	NE	NE	NE	1400		300	NA	NA	NA	700	B	300	NA	NA	NA
Selenium, Dissolved	ug/L	7782-49-2	100	50	NE	<1.00	U	1.00	<0.1*	<0.1*	NA	<1.00	U	1.00	<0.1*	<0.1*	NA
Silver, Dissolved	ug/L	7440-22-4	94	NE	100	<0.0500	U	0.0500	<0.1*	NA	<0.1*	<0.0500	U	0.0500	<0.1*	NA	<0.1*
Sodium, Dissolved	ug/L	7440-23-5	NE	NE	NE	8600		300	NA	NA	NA	4300		300	NA	NA	NA
Zinc, Dissolved	ug/L	7440-66-6	6000	NE	5000	50.0		10.0	<0.1	NA	<0.1	200		10.0	<0.1	NA	<0.1
Others																	
Chloride	mg/L	16887-00-6	NE	NE	250	1.00	B	1.00	NA	NA	<0.1	1.00	B	1.00	NA	NA	<0.1
Nitrate As N, Dissolved	mg/L	14797-55-8	32	10	NE	<0.0200	U	0.0200	<0.1*	<0.1*	NA	0.0500	B	0.0200	<0.1	<0.1	NA
Nitrite As N, Dissolved	mg/L	14797-65-0	2	1	NE	<0.0100	U	0.0100	<0.1*	<0.1*	NA	<0.0100	U H	0.0100	<0.1*	<0.1*	NA
Sulfate	mg/L	14808-79-8	NE	NE	250	860		10.0	NA	NA	3.4	350		10.0	NA	NA	1.4
Sulfide As S	mg/L	18496-25-8	NE	NE	NE	<0.0200	U	0.0200	NA	NA	NA	<0.0200	U	0.0200	NA	NA	NA
TDS	mg/L	NA	NE	NE	500	1280		10.0	NA	NA	2.6	520		10.0	NA	NA	1



Table 6-4. 2006 Surface Water Data Compared to Human Health Threshold Values (from Au’ Authum Ki, 2006) (continued)

Analyte	Units	CAS No.	Regulatory Screening Levels			ND HF-DN						FERRO SPRING					
			EPA Tapwater RSL	EPA MCL	Secondary EPA MCL	Result	Flag	MDL	EPA Tapwater EF	EPA MCL EF	Secondary MCL EF	Result	Flag	MDL	EPA Tapwater EF	EPA MCL EF	Secondary MCL EF
Metals																	
Antimony, Dissolved	ug/L	7440-36-0	7.8	6	NE	<0.400	U	0.400	<0.1*	<0.1*	NA	<0.400	U	0.400	<0.1*	<0.1*	NA
Arsenic, Dissolved	ug/L	7440-38-2	0.052	10	NE	<0.500	U	0.500	9.6*	<0.1*	NA	<0.500	U	0.500	9.6*	<0.1*	NA
Arsenic, Total	ug/L	7440-38-2	0.052	10	NE	<0.500	U	0.500	9.6*	<0.1*	NA	<0.500	U	0.500	9.6*	<0.1*	NA
Boron, Dissolved	ug/L	7440-42-8	4000	NE	NE	<10.0	U	10.0	<0.1*	NA	NA	<10.0	U	10.0	<0.1*	NA	NA
Cadmium, Dissolved	ug/L	7440-43-9	NE	NE	NE	0.900		0.100	NA	NA	NA	50.6		0.100	NA	NA	NA
Calcium, Dissolved	ug/L	7440-70-2	NE	NE	NE	172000		200	NA	NA	NA	189000		200	NA	NA	NA
Chromium, Dissolved	ug/L	7440-47-3	22000	100	NE	<10.0	U	10.0	<0.1*	<0.1*	NA	<10.0	U	10.0	<0.1*	<0.1*	NA
Copper, Dissolved	ug/L	7440-50-8	800	1300	1000	<10.0	U	10.0	<0.1*	<0.1*	<0.1*	3060		10.0	3.8	2.4	3.1
Iron, Dissolved	ug/L	7439-89-6	14000	NE	300	70.0		20.0	<0.1	NA	0.23	2590		20.0	0.18	NA	8.6
Iron, Total	ug/L	7439-89-6	14000	NE	300	540		20.0	<0.1	NA	1.8	3100		20.0	0.22	NA	10
Lead, Dissolved	ug/L	7439-92-1	15	15	NE	<0.100	U	0.100	<0.1*	<0.1*	NA	37.8		0.100	2.5	2.5	NA
Magnesium, Dissolved	ug/L	7439-95-4	NE	NE	NE	7600		200	NA	NA	NA	11300		200	NA	NA	NA
Manganese, Dissolved	ug/L	7439-96-5	430	NE	50	276		5.00	0.64	NA	5.5	1440		5.00	3.3	NA	29
Mercury, Total	ug/L	7439-97-6	0.63	2	NE	<0.200	U	0.200	0.32*	<0.1*	NA	<0.200	U	0.200	0.32*	<0.1*	NA
Nickel, Dissolved	ug/L	7440-02-0	390	NE	NE	<10.0	U	10.0	<0.1*	NA	NA	110		10.0	0.28	NA	NA
Potassium, Dissolved	ug/L	7440-09-7	NE	NE	NE	800	B	300	NA	NA	NA	1100		300	NA	NA	NA
Selenium, Dissolved	ug/L	7782-49-2	100	50	NE	<1.00	U	1.00	<0.1*	<0.1*	NA	3.00	B	1.00	<0.1	<0.1	NA
Silver, Dissolved	ug/L	7440-22-4	94	NE	100	<0.0500	U	0.0500	<0.1*	NA	<0.1*	<0.0500	U	0.0500	<0.1*	NA	<0.1*
Sodium, Dissolved	ug/L	7440-23-5	NE	NE	NE	4700		300	NA	NA	NA	6300		300	NA	NA	NA
Zinc, Dissolved	ug/L	7440-66-6	6000	NE	5000	210		10.0	<0.1	NA	<0.1	9970		10.0	1.7	NA	2
Others																	
Chloride	mg/L	16887-00-6	NE	NE	250	1.00	B	1.00	NA	NA	<0.1	1.00	B	1.00	NA	NA	<0.1
Nitrate As N, Dissolved	mg/L	14797-55-8	32	10	NE	0.0500	B	0.0200	<0.1	<0.1	NA	0.100		0.0200	<0.1	<0.1	NA
Nitrite As N, Dissolved	mg/L	14797-65-0	2	1	NE	<0.0100	U	0.0100	<0.1*	<0.1*	NA	<0.0100	U	0.0100	<0.1*	<0.1*	NA
Sulfate	mg/L	14808-79-8	NE	NE	250	410		10.0	NA	NA	1.6	720		10.0	NA	NA	2.9
Sulfide As S	mg/L	18496-25-8	NE	NE	NE	<0.0200	U	0.0200	NA	NA	NA	<0.0200	U	0.0200	NA	NA	NA
TDS	mg/L	NA	NE	NE	500	614		10.0	NA	NA	1.2	946		10.0	NA	NA	1.9

Values in red indicate EF > 1  
\* Analyte not present above MDL; value calculated from MDL  
B – The same analyte is found in the associated blank  
EF – Exceedance Factor  
EPA – US Environmental Protection Agency  
J – The identification of the analyte is acceptable; the reported value is an estimate  
µg/L – micrograms per liter



MCL – Maximum contaminant level  
MDL – Laboratory Method Detection Limit  
NA – Not applicable  
NE – Not established  
RSL – Regional Screening Level



Table 6-5. 2020 Surface Water Data (Dissolved Metals) Compared to Human Health Threshold Values

Analyte	CAS No.	EPA Tapwater RSL (ug/L)	ND2-AWD-100-1				ND2-AWD-102-1				ND2-DWD-100-1				ND2-DWD-100-2			
			Result (ug/L)	Flag	MDL (ug/L)	EPA Tapwater EF	Result (ug/L)	Flag	MDL (ug/L)	EPA Tapwater EF	Result (ug/L)	Flag	MDL (ug/L)	EPA Tapwater EF	Result (ug/L)	Flag	MDL (ug/L)	EPA Tapwater EF
Aluminum, Dissolved	7429-90-5	20000	<70.4		70.4	<0.1*	408		70.4	<0.1	<70.4		70.4	<0.1*	<70.4		70.4	<0.1*
Antimony, Dissolved	7440-36-0	7.8	<4.30		4.30	0.55*	<4.30		4.30	0.55*	<4.30		4.30	0.55*	<4.30		4.30	0.55*
Arsenic, Dissolved	7440-38-2	0.052	4.57	J	4.40	88	<4.40		4.40	85*	<4.40		4.40	85*	<4.40		4.40	85*
Barium, Dissolved	7440-39-3	3800	5.52		0.895	<0.1	7.07		0.895	<0.1	5.24		0.895	<0.1	5.57		0.895	<0.1
Beryllium, Dissolved	7440-41-7	25	<0.460		0.460	<0.1*	0.644	J	0.460	<0.1	<0.460		0.460	<0.1*	<0.460		0.460	<0.1*
Cadmium, Dissolved	7440-43-9	9.2	<0.563		0.563	<0.1*	1.46	J	0.563	0.16	<0.563		0.563	<0.1*	<0.563		0.563	<0.1*
Calcium, Dissolved	7440-70-2	NE	388000		389	NA	101000		389	NA	384000	V	389	NA	382000		389	NA
Chromium, Dissolved	7440-47-3	22000	<5.00		5.00	<0.1*	<5.00		5.00	<0.1*	<5.00		5.00	<0.1*	<5.00		5.00	<0.1*
Cobalt, Dissolved	7440-48-4	6	9.73	J	0.807	1.6	21.1		0.807	3.5	9.23	J	0.807	1.5	9.60	J	0.807	1.6
Copper, Dissolved	7440-50-8	800	<4.69		4.69	<0.1*	20.3		4.69	<0.1	<4.69		4.69	<0.1*	<4.69		4.69	<0.1*
Iron, Dissolved	7439-89-6	14000	7150		45.8	0.51	3280		45.8	0.23	3870		45.8	0.28	3890		45.8	0.28
Lead, Dissolved	7439-92-1	15	<2.95		2.95	0.2*	<2.95		2.95	0.2*	<2.95		2.95	0.2*	<2.95		2.95	0.2*
Magnesium, Dissolved	7439-95-4	NE	10600		111	NA	7090		111	NA	10600		111	NA	10600		111	NA
Manganese, Dissolved	7439-96-5	430	1350		3.27	3.1	1990		3.27	4.6	1290		3.27	3	1310		3.27	3
Mercury, Dissolved	7439-97-6	0.63	<0.100		0.100	0.16*	<0.100		0.100	0.16*	<0.100		0.100	0.16*	<0.100		0.100	0.16*
Nickel, Dissolved	7440-02-0	390	<2.98		2.98	<0.1*	4.30	J	2.98	<0.1	<2.98		2.98	<0.1*	<2.98		2.98	<0.1*
Potassium, Dissolved	7440-09-7	NE	1130	J	510	NA	1180	J	510	NA	1080	J	510	NA	1110	J	510	NA
Selenium, Dissolved	7782-49-2	100	<7.35		7.35	<0.1*	<7.35		7.35	<0.1*	<7.35		7.35	<0.1*	<7.35		7.35	<0.1*
Silver, Dissolved	7440-22-4	94	<1.91		1.91	<0.1*	<1.91		1.91	<0.1*	<1.91		1.91	<0.1*	<1.91		1.91	<0.1*
Sodium, Dissolved	7440-23-5	NE	8460		1400	NA	6390		1400	NA	8380		1400	NA	8430		1400	NA
Thallium, Dissolved	7440-28-0	0.2	<4.31		4.31	22*	<4.31		4.31	22*	<4.31		4.31	22*	<4.31		4.31	22*
Vanadium, Dissolved	7440-62-2	86	<6.34		6.34	<0.1*	<6.34		6.34	<0.1*	<6.34		6.34	<0.1*	<6.34		6.34	<0.1*
Zinc, Dissolved	7440-66-6	6000	15.3	J	9.16	<0.1	384		9.16	<0.1	14.3	J	9.16	<0.1	14.2	J	9.16	<0.1

Values in red indicate EF > 1  
\* Analyte not present above MDL; value calculated from MDL  
EF – Exceedance Factor  
EPA – US Environmental Protection Agency  
J – The identification of the analyte is acceptable; the reported value is an estimate  
µg/L – micrograms per liter  
MCL – Maximum contaminant level  
MDL – Laboratory Method Detection Limit  
NA – Not applicable  
NE – Not established  
RSL – Regional Screening Level



Table 6-6. 2020 Surface Water Data (Total Metals) Compared to Human Health Threshold Values

Analyte	CAS No.	Regulatory Screening Levels			ND2-AWT-100-1						ND2-AWT-102-1					
		EPA Tapwater RSL (ug/L)	EPA MCL (ug/L)	EPA SMCL (ug/L)	Result (ug/L)	Flag	MDL (ug/L)	EPA Tapwater EF	EPA MCL EF	EPA SMCL EF	Result (ug/L)	Flag	MDL (ug/L)	EPA Tapwater EF	EPA MCL EF	EPA SMCL EF
Aluminum	7429-90-5	20000	NE	200	<70.4		70.4	<0.1*	NA	0.35*	1220		70.4	<0.1	NA	6.1
Antimony	7440-36-0	7.8	6	NE	<4.30		4.30	0.55*	0.72*	NA	<4.30		4.30	0.55*	0.72*	NA
Arsenic	7440-38-2	0.052	10	NE	<4.40		4.40	85*	0.44*	NA	<4.40		4.40	85*	0.44*	NA
Barium	7440-39-3	3800	2000	NE	5.51		0.895	<0.1	<0.1	NA	7.15		0.895	<0.1	<0.1	NA
Beryllium	7440-41-7	25	4	NE	<0.460		0.460	<0.1*	0.12*	NA	0.911	J	0.460	<0.1	0.23	NA
Cadmium	7440-43-9	9.2	5	NE	<0.563		0.563	<0.1*	0.11*	NA	2.02		0.563	0.22	0.4	NA
Calcium	7440-70-2	NE	NE	NE	386000		389	NA	NA	NA	102000		389	NA	NA	NA
Chromium	7440-47-3	22000	100	NE	<5.00		5.00	<0.1*	<0.1*	NA	<5.00		5.00	<0.1*	<0.1*	NA
Cobalt	7440-48-4	6	NE	NE	9.80	J	0.807	1.6	NA	NA	22.6		0.807	3.8	NA	NA
Copper	7440-50-8	800	1300	1000	4.77	J	4.69	<0.1	<0.1	<0.1	43.1		4.69	<0.1	<0.1	<0.1
Iron	7439-89-6	14000	NE	300	7420		45.8	0.53	NA	25	4900		45.8	0.35	NA	16
Lead	7439-92-1	15	15	NE	<2.95		2.95	0.2*	0.2*	NA	3.88	J	2.95	0.26	0.26	NA
Magnesium	7439-95-4	NE	NE	NE	10600		111	NA	NA	NA	7150		111	NA	NA	NA
Manganese	7439-96-5	430	NE	50	1320		3.27	3.1	NA	26	2010		3.27	4.7	NA	40
Mercury	7439-97-6	0.63	2	NE	<0.100		0.100	0.16*	<0.1*	NA	<0.100		0.100	0.16*	<0.1*	NA
Nickel	7440-02-0	390	NE	NE	<2.98		2.98	<0.1*	NA	NA	5.80	J	2.98	<0.1	NA	NA
Potassium	7440-09-7	NE	NE	NE	1130	J	510	NA	NA	NA	1250	J	510	NA	NA	NA
Selenium	7782-49-2	100	50	NE	<7.35		7.35	<0.1*	0.15*	NA	<7.35		7.35	<0.1*	0.15*	NA
Silver	7440-22-4	94	NE	100	<1.91		1.91	<0.1*	NA	<0.1*	<1.91		1.91	<0.1*	NA	<0.1*
Sodium	7440-23-5	NE	NE	NE	8320		1400	NA	NA	NA	6420		1400	NA	NA	NA
Thallium	7440-28-0	0.2	2	NE	<4.31		4.31	22*	2.2*	NA	<4.31		4.31	22*	2.2*	NA
Vanadium	7440-62-2	86	NE	NE	<6.34		6.34	<0.1*	NA	NA	<6.34		6.34	<0.1*	NA	NA
Zinc	7440-66-6	6000	NE	5000	17.5	J	9.16	<0.1	NA	<0.1	406		9.16	<0.1	NA	<0.1

Values in red indicate EF > 1  
\* Analyte not present above MDL; value calculated from MDL  
EF – Exceedance Factor  
EPA – US Environmental Protection Agency  
J – The identification of the analyte is acceptable; the reported value is an estimate  
µg/L – micrograms per liter  
MCL – Maximum contaminant level  
MDL – Laboratory Method Detection Limit  
NA – Not applicable  
NE – Not established  
RSL – Regional Screening Level





Table 6-7. Ecological Threshold Values for Soil/Precipitate and Sediment

Analyte	CAS Number	Soil/Precipitate		Sediment
		USEPA Ecological SSLs B&M <sup>1</sup> (mg/kg)	NPS SLERA ESVs <sup>3</sup> (mg/kg)	NPS SLERA ESVs <sup>3</sup> (mg/kg)
Aluminum	7429-90-5	NE	NE	NE
Antimony	7440-36-0	0.27	NE	NE
Arsenic	7440-38-2	43	9.7	9.7
Barium	7440-39-3	2000	150	150
Beryllium	7440-41-7	21	No ESV	No ESV
Cadmium	7440-43-9	0.36	0.58	0.58
Chromium (III)	16065-83-1	26	NE	NE
Chromium (total)	7440-47-3	NE	36	36
Cobalt	744-48-4	120	NE	NE
Copper	7440-50-8	28	28	28
Iron	7439-89-6	NE	20,000	20,000
Lead	7439-92-1	11	35	35
Manganese	7439-96-5	4,000	460	460
Mercury	7439-97-6	NE	0.18	0.18
Nickel	7440-02-0	130	20	20
Selenium	7782-49-2	0.63	0.72	0.72
Silver	7440-22-4	4.2	0.50	0.50
Thallium	7440-28-0	NE	NE	NE
Vanadium	7440-62-2	7.8	NE	NE
Zinc	7440-66-6	46	98	98

<sup>1</sup> USEPA Ecological Soil Screening Levels, Birds & Mammals, <https://www.epa.gov/chemical-research/interim-ecological-soil-screening-level-documents>  
<sup>2</sup> USEPA Ecological Soil Screening Levels, Plants & Invertebrates, <https://www.epa.gov/chemical-research/interim-ecological-soil-screening-level-documents>  
<sup>3</sup> NPS Freshwater sediment screening level ecological risk assessment ecological screening values (NPS, 2018)  
B&M – Birds and mammals  
CAS Number – Chemical Abstract Service Lookup numbers unique to each chemical  
mg/kg – milligrams per kilogram  
NE – Not established  
NPS – National Park Service  
P&I – Plants and invertebrates  
SLERA – Screening Level Ecological Risk Assessment  
SSL – Soil Screening Level



Table 6-8. Hardness Function Coefficients for Calculation of Numeric Standards in Freshwater Habitat (Acute Exposure)\*

Metal	CDPHE <sup>1</sup> Hardness Coefficients for Calculation of Site-Specific Acute Exposure Table Value Standards			
	A	B	C	D
Arsenic	340	0	0	0
Cadmium <sup>2,4</sup>	1.136672	0.041838	0.9151	-3.6236
Cadmium <sup>3</sup>	5	0	0	0
Chromium (III) <sup>3</sup>	50	0	0	0
Chromium (VI)	16	0	0	0
Copper <sup>2</sup>	1	0	0.9422	-1.7408
Lead <sup>2</sup>	1.46203	0.145712	1.273	-1.46
Lead <sup>3</sup>	50	0	0	0
Manganese <sup>2</sup>	1	0	0.3331	5.8743
Nickel <sup>2</sup>	1	0	0.846	2.253
Selenium	18.4	0	0	0
Silver <sup>2</sup>	0.5	0	1.72	-6.52
Zinc <sup>2</sup>	0.978	0	0.9094	0.9095
Chlorine	0.019	0	0	0
Nitrate	10	0	0	0
Nitrite	0.05	0	0	0

\*Maximum allowable hardness as CaCO<sub>3</sub> = 400 mg/L; all analytes are dissolved concentrations unless noted otherwise  
<sup>1</sup> Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Commission (WQCC) Regulation 35: Classifications and Numeric Standards for Gunnison and Lower Dolores River Basins, Segment 7 (Howard Fork mainstem, tributaries, and wetlands). <https://www.sos.state.co.us/CCR/GenerateRulePdf.do?ruleVersionId=8117&fileName=5%20CCR%201002-35>  
<sup>2</sup> Hardness dependent  
<sup>3</sup> Total concentration  
<sup>4</sup> Assumption that trout are present  
Site-specific ESV = (A<sub>m</sub>-ln(hardness)(B<sub>m</sub>))\*e (C<sub>m</sub>{ln(hardness)} +D<sub>m</sub>), where A<sub>m</sub>, B<sub>m</sub>, C<sub>m</sub> and D<sub>m</sub> are the metal specific coefficients above.



Table 6-9. Hardness Function Coefficients for Calculation of Numeric Standards in Freshwater Habitat (Chronic Exposure)\*

Metal	CDPHE <sup>1</sup> Hardness Coefficients for Calculation of Site-Specific Chronic Exposure Numeric Criteria			
	A	B	C	D
Arsenic <sup>2</sup>	0.02	0	0	0
Cadmium <sup>3</sup>	1.101672	0.041838	0.7998	-4.4451
Chromium (III) <sup>3</sup>	1	0	0.819	0.534
Chromium (VI)	11	0	0	0
Copper <sup>3</sup>	1	0	0.8545	-1.7428
Iron <sup>2</sup>	1000	0	0	0
Lead <sup>3</sup>	1.46203	0.145712	1.273	-4.705
Manganese <sup>3</sup>	1	0	0.3331	5.8743
Mercury <sup>2</sup>	0.01	0	0	0
Molybdenum <sup>2</sup>	150	0	0	0
Nickel <sup>3</sup>	1	0	0.846	0.0554
Nickel <sup>2</sup>	100	0	0	0
Selenium	4.6	0	0	0
Silver <sup>3,4</sup>	1	0	1.72	-10.51
Zinc_lowH <sup>3,5</sup>	1	0	2.14	-5.084
Zinc_highH <sup>3,5</sup>	0.986	0	0.9094	0.6235
Boron	0.75	0	0	0
Chloride	250	0	0	0
Chlorine	0.011	0	0	0
Phosphorus	0.11	0	0	0
Sulfate <sup>6</sup>	250	0	0	0
Sulfide	0.002	0	0	0

\*Maximum allowable hardness as CaCO<sub>3</sub> = 400 mg/L; all analytes are dissolved concentrations unless noted otherwise

<sup>1</sup> Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Commission (WQCC) Regulation 35: Classifications and Numeric Standards for Gunnison and Lower Dolores River Basins, Segment 7 (Howard Fork mainstem, tributaries, and wetlands). <https://www.sos.state.co.us/CCR/GenerateRulePdf.do?ruleVersionId=8117&fileName=5%20CCR%201002-35>

<sup>2</sup> Total concentration

<sup>3</sup> Hardness dependent

<sup>4</sup> Assumption that trout are present

<sup>5</sup> Zinc\_low H coefficients used if hardness as CaCO<sub>3</sub> ≤ 102 mg/L, Zinc\_high H coefficients used if hardness as CaCO<sub>3</sub> >102 mg/L

<sup>6</sup> Only applicable to surface water with “Water Supply” classification that are in actual use for water supply

Site-specific ESV = (A<sub>m</sub>-{ln(hardness)(B<sub>m</sub>)})\*e (C<sub>m</sub>{ln(hardness)} +D<sub>m</sub>), where A<sub>m</sub>, B<sub>m</sub>, C<sub>m</sub> and D<sub>m</sub> are the metal specific coefficients above.



Table 6-10. 2006 Soil and Precipitate Data Compared to Ecological Threshold Values (from Au’ Authum Ki, 2006)

Analyte	CAS No.	Regulatory Screening Levels		ND 200 PPT					ND 200 DUMP					ND 202 PPT				
		EPA SSLs, B&M ESV (mg/kg)	EPA SSLs, P&I ESV (mg/kg)	Result (mg/kg)	Flag	MDL (mg/kg)	B&M TV EF	P&I TV EF	Result (mg/kg)	Flag	MDL (mg/kg)	B&M TV EF	P&I TV EF	Result (mg/kg)	Flag	MDL (mg/kg)	B&M TV EF	P&I TV EF
Antimony	7440-36-0	0.27	78	0.800	B	0.200	3	<0.1	2.00		0.200	7.4	<0.1	1.00	B	0.200	3.7	<0.1
Arsenic	7440-38-2	43	18	98.0		0.300	2.3	5.4	92.1		0.300	2.1	5.1	42.6		0.300	0.99	2.4
Cadmium	7440-43-9	0.36	32	0.780		0.0600	2.2	<0.1	5.24		0.0500	15	0.16	27.2		0.0600	76	0.85
Chromium	7440-47-3	26	NE	<10.0	U	10.0	0.38*	NA	6.00		1.00	0.23	NA	<10.0	U	10.0	0.38*	NA
Copper	7440-50-8	28	70	10.0	B	10.0	0.36	0.14	639		1.00	23	9.1	3400		10.0	120	49
Iron	7439-89-6	NE	NE	450000		20.0	NA	NA	33900		2.00	NA	NA	200000		20.0	NA	NA
Lead	7439-92-1	11	120	70.0	B	50.0	6.4	0.58	4050		4.00	370	34	200		40.0	18	1.7
Manganese	7439-96-5	4000	220	5540		0.600	1.4	25	2630		0.500	0.66	12	31400		6.00	7.8	140
Mercury	7439-97-6	NE	NE	<0.100	U	0.100	NA	NA	0.240	B	0.0500	NA	NA	<0.300	U	0.300	NA	NA
Molybdenum	7439-98-7	NE	NE	<10.0	U	10.0	NA	NA	24.0		1.00	NA	NA	<10.0	U	10.0	NA	NA
Nickel	7440-02-0	130	38	<10.0	U	10.0	<0.1*	0.26*	5.00	B	1.00	<0.1	0.13	40.0	B	10.0	0.31	1.1
Selenium	7782-49-2	0.63	0.52	<0.600	U	0.600	0.95*	1.2*	2.30	B	0.500	3.7	4.4	2.10	B	0.600	3.3	4
Silver	7440-22-4	4.2	560	<10.0	U	10.0	2.4*	<0.1*	33.0		1.00	7.9	<0.1	<10.0	U	10.0	2.4*	<0.1*
Uranium	7440-61-1	NE	NE	3.95		0.0600	NA	NA	3.85		0.0500	NA	NA	26.2		0.0600	NA	NA
Vanadium	7440-62-2	7.8	NE	<6.00	U	6.00	0.77*	NA	13.8		0.500	1.8	NA	9.00	B	6.00	1.2	NA
Zinc	7440-66-6	46	120	480		10.0	10	4	1260		1.00	27	10	3180		10.0	69	26



Table 6-10. 2006 Soil and Precipitate Data Compared to Ecological Threshold Values (from Au’ Authum Ki, 2006) (continued)

Analyte	CAS No.	Regulatory Screening Levels		ND 202-E DUMP					ND 202-W DUMP									
		EPA B&M SSL (mg/kg)	EPA P&I SSL (mg/kg)	Result (mg/kg)	Flag	MDL (mg/kg)	B&M TV EF	P&I TV EF	Result (mg/kg)	Flag	MDL (mg/kg)	B&M TV EF	P&I TV EF	30	31	32	33	34
Antimony	7440-36-0	0.27	78	2.20		0.200	8.1	<0.1	9.60		0.200	36	0.12	NA	NA	NA	NA	NA
Arsenic	7440-38-2	43	18	60.6		0.300	1.4	3.4	78.0		0.300	1.8	4.3	NA	NA	NA	NA	NA
Cadmium	7440-43-9	0.36	32	4.31		0.0500	12	0.13	16.6		0.0500	46	0.52	NA	NA	NA	NA	NA
Chromium	7440-47-3	26	NE	23.0		1.00	0.88	NA	<1.00	U	1.00	<0.1*	NA	NA	NA	NA	NA	NA
Copper	7440-50-8	28	70	674		1.00	24	9.6	510		1.00	18	7.3	NA	NA	NA	NA	NA
Iron	7439-89-6	NE	NE	55500		4.00	NA	NA	14600		2.00	NA	NA	NA	NA	NA	NA	NA
Lead	7439-92-1	11	120	3870		4.00	350	32	8520		4.00	770	71	NA	NA	NA	NA	NA
Manganese	7439-96-5	4000	220	6280		0.500	1.6	29	28.8		0.500	<0.1	0.13	NA	NA	NA	NA	NA
Mercury	7439-97-6	NE	NE	<0.0600	U	0.0600	NA	NA	0.110	B	0.0500	NA	NA	NA	NA	NA	NA	NA
Molybdenum	7439-98-7	NE	NE	9.00		1.00	NA	NA	90.0		1.00	NA	NA	NA	NA	NA	NA	NA
Nickel	7440-02-0	130	38	16.0		1.00	0.12	0.42	1.00	B	1.00	<0.1	<0.1	NA	NA	NA	NA	NA
Selenium	7782-49-2	0.63	0.52	1.80	B	0.500	2.9	3.5	2.30	B	0.500	3.7	4.4	NA	NA	NA	NA	NA
Silver	7440-22-4	4.2	560	10.0		1.00	2.4	<0.1	41.0		1.00	9.8	<0.1	NA	NA	NA	NA	NA
Uranium	7440-61-1	NE	NE	2.33		0.0500	NA	NA	0.180	B	0.0500	NA	NA	NA	NA	NA	NA	NA
Vanadium	7440-62-2	7.8	NE	45.1		0.500	5.8	NA	0.700	B	0.500	<0.1	NA	NA	NA	NA	NA	NA
Zinc	7440-66-6	46	120	1020		1.00	22	8.5	3640		1.00	79	30	NA	NA	NA	NA	NA

Values in red indicate EF > 1  
B -- The same analyte is found in the associated blank  
B&M -- Birds and Mammals  
CAS -- Chemical Abstracts Service  
EF -- Exceedance factor  
ESV -- Ecological Screening Value  
MDL -- Laboratory Method Detection Limit  
mg/kg -- Milligrams per kilogram  
NA - Not applicable  
NE -- Not established  
NPS -- National Park Service  
P&I -- Plants and Invertebrates



Table 6-11. 2020 Soil and Precipitate Data Compared to Ecological Threshold Values

Analyte	CAS No.	Regulatory Screening Levels		ND2-AP-100-1					ND2-AP-102-1					ND2-DP-100-1				
		EPA B&M SSL (mg/kg)	EPA P&I SSL (mg/kg)	Result (mg/kg)	Flag	MDL (mg/kg)	EPA B&M EF	EPA P&I EF	Result (mg/kg)	Flag	MDL (mg/kg)	EPA B&M EF	EPA P&I EF	Result (mg/kg)	Flag	MDL (mg/kg)	EPA B&M EF	EPA P&I EF
Aluminum	7429-90-5	NE	NE	236		41.0	NA	NA	6820		41.0	NA	NA	1440		41.0	NA	NA
Antimony	7440-36-0	0.27	78	7.05	J	2.50	26	<0.1	<2.50		2.50	9.3*	<0.1*	6.24	J J6	2.50	23	<0.1
Arsenic	7440-38-2	43	18	31.1		2.30	0.72	1.7	9.45	J	2.30	0.22	0.52	30.6	O1	2.30	0.71	1.7
Barium	7440-39-3	2000	330	11.5		1.20	<0.1	<0.1	26.5		1.20	<0.1	<0.1	29.7		1.20	<0.1	<0.1
Beryllium	7440-41-7	21	40	1.21		0.400	<0.1	<0.1	3.21		0.400	0.15	<0.1	1.87		0.400	<0.1	<0.1
Cadmium	7440-43-9	0.36	32	0.409	J	0.405	1.1	<0.1	5.39		0.405	15	0.17	3.36		0.405	9.3	0.1
Calcium	7440-70-2	NE	NE	7210		150.	NA	NA	1760		150.	NA	NA	8520	V	150.	NA	NA
Chromium	7440-47-3	26	NE	<1.25		1.25	<0.1*	NA	<1.25		1.25	<0.1*	NA	<1.25		1.25	<0.1*	NA
Cobalt	7440-48-4	120	13	19.2		1.15	0.16	1.5	134		1.15	1.1	10	72.2		1.15	0.6	5.6
Copper	7440-50-8	28	70	<2.53		2.53	<0.1*	<0.1*	261		2.53	9.3	3.7	57.1		2.53	2	0.82
Iron	7439-89-6	NE	NE	201000		25.0	NA	NA	47500		25.0	NA	NA	156000	V	25.0	NA	NA
Lead	7439-92-1	11	120	13.2		1.04	1.2	0.11	33.1		1.04	3	0.28	137		1.04	12	1.1
Magnesium	7439-95-4	NE	NE	<102.		102.	NA	NA	<102.		102.	NA	NA	161	J	103.	NA	NA
Manganese	7439-96-5	4000	220	2250		1.22	0.56	10	10600		2.45	2.6	48	9590		2.45	2.4	44
Mercury	7439-97-6	NE	NE	<0.0180		0.0180	NA	NA	<0.0180		0.0180	NA	NA	<0.0180		0.0180	NA	NA
Nickel	7440-02-0	130	38	<2.45		2.45	<0.1*	<0.1*	11.4		2.45	<0.1	0.3	<2.45		2.45	<0.1*	<0.1*
Potassium	7440-09-7	NE	NE	<104.		104.	NA	NA	<104.		104.	NA	NA	107	J	105.	NA	NA
Selenium	7782-49-2	0.63	0.52	6.54	J	3.08	10	13	3.43	J	3.08	5.4	6.6	7.00	J	3.09	11	13
Silver	7440-22-4	4.2	560	<1.14		1.14	0.27*	<0.1*	1.15	J	1.14	0.27	<0.1	1.85	J	1.14	0.44	<0.1
Sodium	7440-23-5	NE	NE	<166.		166.	NA	NA	<166.		166.	NA	NA	<166.		166.	NA	NA
Thallium	7440-28-0	NE	NE	<1.77		1.77	NA	NA	<1.77		1.77	NA	NA	<1.77		1.77	NA	NA
Vanadium	7440-62-2	7.8	NE	4.25	J	3.44	0.54	NA	<3.44		3.44	0.44*	NA	<3.44		3.44	0.44*	NA
Zinc	7440-66-6	46	120	98.7		4.70	2.1	0.82	768		4.70	17	6.4	471	V	4.70	10	3.9



Table 6-11. 2020 Soil and Precipitate Data Compared to Ecological Threshold Values (continued)

Analyte	CAS No.	Regulatory Screening Levels		ND2-AP-100-1					ND2-AP-102-1					ND2-DP-100-1				
		EPA B&M SSL (mg/kg)	EPA P&I SSL (mg/kg)	Result (mg/kg)	Flag	MDL (mg/kg)	EPA B&M EF	EPA P&I EF	Result (mg/kg)	Flag	MDL (mg/kg)	EPA B&M EF	EPA P&I EF	Result (mg/kg)	Flag	MDL (mg/kg)	EPA B&M EF	EPA P&I EF
Aluminum	7429-90-5	NE	NE	236		41.0	NA	NA	6820		41.0	NA	NA	1440		41.0	NA	NA
Antimony	7440-36-0	0.27	78	7.05	J	2.50	26	<0.1	<2.50		2.50	9.3*	<0.1*	6.24	J J6	2.50	23	<0.1
Arsenic	7440-38-2	43	18	31.1		2.30	0.72	1.7	9.45	J	2.30	0.22	0.52	30.6	O1	2.30	0.71	1.7
Barium	7440-39-3	2000	330	11.5		1.20	<0.1	<0.1	26.5		1.20	<0.1	<0.1	29.7		1.20	<0.1	<0.1
Beryllium	7440-41-7	21	40	1.21		0.400	<0.1	<0.1	3.21		0.400	0.15	<0.1	1.87		0.400	<0.1	<0.1
Cadmium	7440-43-9	0.36	32	0.409	J	0.405	1.1	<0.1	5.39		0.405	15	0.17	3.36		0.405	9.3	0.1
Calcium	7440-70-2	NE	NE	7210		150.	NA	NA	1760		150.	NA	NA	8520	V	150.	NA	NA
Chromium	7440-47-3	26	NE	<1.25		1.25	<0.1*	NA	<1.25		1.25	<0.1*	NA	<1.25		1.25	<0.1*	NA
Cobalt	7440-48-4	120	13	19.2		1.15	0.16	1.5	134		1.15	1.1	10	72.2		1.15	0.6	5.6
Copper	7440-50-8	28	70	<2.53		2.53	<0.1*	<0.1*	261		2.53	9.3	3.7	57.1		2.53	2	0.82
Iron	7439-89-6	NE	NE	201000		25.0	NA	NA	47500		25.0	NA	NA	156000	V	25.0	NA	NA
Lead	7439-92-1	11	120	13.2		1.04	1.2	0.11	33.1		1.04	3	0.28	137		1.04	12	1.1
Magnesium	7439-95-4	NE	NE	<102.		102.	NA	NA	<102.		102.	NA	NA	161	J	103.	NA	NA
Manganese	7439-96-5	4000	220	2250		1.22	0.56	10	10600		2.45	2.6	48	9590		2.45	2.4	44
Mercury	7439-97-6	NE	NE	<0.0180		0.0180	NA	NA	<0.0180		0.0180	NA	NA	<0.0180		0.0180	NA	NA
Nickel	7440-02-0	130	38	<2.45		2.45	<0.1*	<0.1*	11.4		2.45	<0.1	0.3	<2.45		2.45	<0.1*	<0.1*
Potassium	7440-09-7	NE	NE	<104.		104.	NA	NA	<104.		104.	NA	NA	107	J	105.	NA	NA
Selenium	7782-49-2	0.63	0.52	6.54	J	3.08	10	13	3.43	J	3.08	5.4	6.6	7.00	J	3.09	11	13
Silver	7440-22-4	4.2	560	<1.14		1.14	0.27*	<0.1*	1.15	J	1.14	0.27	<0.1	1.85	J	1.14	0.44	<0.1
Sodium	7440-23-5	NE	NE	<166.		166.	NA	NA	<166.		166.	NA	NA	<166.		166.	NA	NA
Thallium	7440-28-0	NE	NE	<1.77		1.77	NA	NA	<1.77		1.77	NA	NA	<1.77		1.77	NA	NA
Vanadium	7440-62-2	7.8	NE	4.25	J	3.44	0.54	NA	<3.44		3.44	0.44*	NA	<3.44		3.44	0.44*	NA
Zinc	7440-66-6	46	120	98.7		4.70	2.1	0.82	768		4.70	17	6.4	471	V	4.70	10	3.9

Values in red indicate EF > 1  
B -- The same analyte is found in the associated blank  
B&M -- Birds and Mammals  
CAS -- Chemical Abstracts Service  
EF -- Exceedance factor  
ESV -- Ecological Screening Value  
MDL -- Laboratory Method Detection Limit  
mg/kg -- Milligrams per kilogram  
NA - Not applicable  
NE -- Not established  
NPS -- National Park Service  
P&I -- Plants and Invertebrates



Table 6-12. 2006 Sediment Data Compared to Ecological Threshold Values (from Au’ Authum Ki, 2006)

Analyte	CAS No.	NPS SLERA ESV Sediments <sup>1</sup> (mg/kg)	ND WL SED 1				ND WL SED 2				ND WL SED 3				ND WL SED 4			
			Result (mg/kg)	Flag	MDL (mg/kg)	ESV EF	Result (mg/kg)	Flag	MDL (mg/kg)	ESV EF	Result (mg/kg)	Flag	MDL (mg/kg)	ESV EF	Result (mg/kg)	Flag	MDL (mg/kg)	ESV EF
Antimony	7440-36-0	NE	0.300	B	0.200	NA	0.400	B	0.200	NA	0.400	B	0.200	NA	<0.200	U	0.200	NA
Arsenic	7440-38-2	9.79	22.3		0.300	2.3	35.2		0.300	3.6	22.6		0.300	2.3	6.80		0.300	0.69
Cadmium	7440-43-9	0.583	4.95		0.0500	8.5	11.5		0.0600	20	9.22		0.0500	16	2.81		0.0600	4.8
Chromium	7440-47-3	36.2	<10.0	U	10.0	0.28*	<10.0	U	10.0	0.28*	<10.0	U	10.0	0.28*	<10.0	U	10.0	0.28*
Copper	7440-50-8	28	400		10.0	14	440		10.0	16	1600		10.0	57	160		10.0	5.7
Iron	7439-89-6	1.88e+05	296000		20.0	1.6	248000		20.0	1.3	219000		20.0	1.2	413000		20.0	2.2
Lead	7439-92-1	35.8	80.0	B	40.0	2.2	140	B	40.0	3.9	290		40.0	8.1	<50.0	U	50.0	1.4*
Manganese	7439-96-5	631	1640		5.00	2.6	5260		0.600	8.3	527		5.00	0.84	2440		0.600	3.9
Mercury	7439-97-6	0.18	<0.100	U	0.100	0.56*	<0.200	U	0.200	1.1*	<0.400	U	0.400	2.2*	<0.100	U	0.100	0.56*
Molybdenum	7439-98-7	NE	<10.0	U	10.0	NA	<10.0	U	10.0	NA	<10.0	U	10.0	NA	<10.0	U	10.0	NA
Nickel	7440-02-0	19.5	<10.0	U	10.0	0.51*	<10.0	U	10.0	0.51*	<10.0	U	10.0	0.51*	<10.0	U	10.0	0.51*
Selenium	7782-49-2	NE	0.700	B	0.500	NA	1.00	B	0.600	NA	1.20	B	0.500	NA	<0.600	U	0.600	NA
Silver	7440-22-4	NE	<10.0	U	10.0	NA	<10.0	U	10.0	NA	<10.0	U	10.0	NA	<10.0	U	10.0	NA
Uranium	7440-61-1	NE	5.18		0.0500	NA	2.99		0.0600	NA	2.62		0.0500	NA	4.75		0.0600	NA
Vanadium	7440-62-2	NE	17.0	B	5.00	NA	6.00	B	6.00	NA	5.00	B	5.00	NA	<6.00	U	6.00	NA
Zinc	7440-66-6	98	730		10.0	7.4	2280		10.0	23	2070		10.0	21	1150		10.0	12

<sup>1</sup> National Park Service Screening Level Ecological Risk Assessment Risk Based Screening Levels (NPS, 2018)  
\*Result < MDL; EF calculated from MDL  
Values in red indicate EF > 1  
B – The same analyte is found in the associated blank  
CAS – Chemical Abstracts Service  
EF – Exceedance factor  
ESV -- Ecological Screening Value  
MDL – Method Detection Limit  
mg/kg – Milligrams per kilogram  
NPS – National Park Service  
SLERA – Screening Level Ecological Risk Assessment  
U -- Undetected





Table 6-13. 2006 Adit/Surface Water Data Compared to Ecological Threshold Values (from Au’ Authum Ki, 2006)

Analyte	Units	CAS No.	ND ADIT 100							ND DRAIN 100							ND DRAIN 100 DUP						
			Result	Flag	MDL	SS Acute ESV	SS Chronic ESV	SS Acute EF	SS Chronic EF	Result	Flag	MDL	SS Acute ESV	SS Chronic ESV	SS Acute EF	SS Chronic EF	Result	Flag	MDL	SS Acute ESV	SS Chronic ESV	SS Acute EF	SS Chronic EF
Metals																							
Antimony, Dissolved	ug/L	7440-36-0	<0.400	U	0.400	NE	NE	NA	NA	<0.400	U	0.400	NE	NE	NA	NA	<0.400	U	0.400	NE	NE	NA	NA
Arsenic, Dissolved	ug/L	7440-38-2	2.80	B	0.500	340	NE	<0.1	NA	2.00	B	0.500	340	NE	<0.1	NA	1.70	B	0.500	340	NE	<0.1	NA
Arsenic, Total	ug/L	7440-38-2	2.30	B	0.500	NE	0.02	NA	110	2.10	B	0.500	NE	0.02	NA	100	2.30	B	0.500	NE	0.02	NA	110
Boron, Dissolved	ug/L	7440-42-8	<10.0	U	10.0	NE	0.75	NA	13*	<10.0	U	10.0	NE	0.75	NA	13*	10.0	B	10.0	NE	0.75	NA	13
Cadmium, Dissolved	ug/L	7440-43-9	<0.100	U	0.100	5.7	1.2	<0.1*	<0.1*	<0.100	U	0.100	5.7	1.2	<0.1*	<0.1*	<0.100	U	0.100	5.7	1.2	<0.1*	<0.1*
Calcium, Dissolved	ug/L	7440-70-2	379000		200	NE	NE	NA	NA	381000		200	NE	NE	NA	NA	371000		200	NE	NE	NA	NA
Chromium, Dissolved	ug/L	7440-47-3	<10.0	U	10.0	NE	NE	NA	NA	<10.0	U	10.0	NE	NE	NA	NA	<10.0	U	10.0	NE	NE	NA	NA
Copper, Dissolved	ug/L	7440-50-8	<10.0	U	10.0	50	29	0.2*	0.34*	<10.0	U	10.0	50	29	0.2*	0.34*	<10.0	U	10.0	50	29	0.2*	0.34*
Iron, Dissolved	ug/L	7439-89-6	8470		20.0	NE	NE	NA	NA	5110		20.0	NE	NE	NA	NA	5000		20.0	NE	NE	NA	NA
Iron, Total	ug/L	7439-89-6	7800		20.0	NE	1000	NA	7.8	6830		20.0	NE	1000	NA	6.8	6910		20.0	NE	1000	NA	6.9
Lead, Dissolved	ug/L	7439-92-1	0.400	B	0.100	280	11	<0.1	<0.1	0.200	B	0.100	280	11	<0.1	<0.1	0.200	B	0.100	280	11	<0.1	<0.1
Magnesium, Dissolved	ug/L	7439-95-4	12200		200	NE	NE	NA	NA	12300		200	NE	NE	NA	NA	11900		200	NE	NE	NA	NA
Manganese, Dissolved	ug/L	7439-96-5	1540		5.00	4700	2600	0.33	0.59	1480		5.00	4700	2600	0.31	0.57	1440		5.00	4700	2600	0.3	0.55
Mercury, Total	ug/L	7439-97-6	<0.200	U	0.200	NE	0.01	NA	20*	<0.200	U	0.200	NE	0.01	NA	20*	<0.200	U	0.200	NE	0.01	NA	20*
Nickel, Dissolved	ug/L	7440-02-0	<10.0	U	10.0	1500	170	<0.1*	<0.1*	<10.0	U	10.0	1500	170	<0.1*	<0.1*	<10.0	U	10.0	1500	170	<0.1*	<0.1*
Potassium, Dissolved	ug/L	7440-09-7	1200		300	NE	NE	NA	NA	1300		300	NE	NE	NA	NA	1300		300	NE	NE	NA	NA
Selenium, Dissolved	ug/L	7782-49-2	<1.00	U	1.00	18	4.6	<0.1*	0.22*	<1.00	U	1.00	18	4.6	<0.1*	0.22*	1.00	B	1.00	18	4.6	<0.1	0.22
Silver, Dissolved	ug/L	7440-22-4	<0.0500	U	0.0500	22	0.81	<0.1*	<0.1*	<0.0500	U	0.0500	22	0.81	<0.1*	<0.1*	<0.0500	U	0.0500	22	0.81	<0.1*	<0.1*
Sodium, Dissolved	ug/L	7440-23-5	9000		300	NE	NE	NA	NA	9000		300	NE	NE	NA	NA	8500		300	NE	NE	NA	NA
Zinc, Dissolved	ug/L	7440-66-6	50.0	B	10.0	560	430	<0.1	0.12	80.0		10.0	560	430	0.14	0.19	70.0		10.0	560	430	0.12	0.16
Others																							
Chloride	mg/L	16887-00-6	1.00	B	1.00	NE	250	NA	<0.1	1.00	B	1.00	NE	250	NA	<0.1	1.00	B	1.00	NE	250	NA	<0.1
Hardness as CaCO3	mg/L	NA	998		1.00	NE	NE	NA	NA	1000		1.00	NE	NE	NA	NA	976		1.00	NE	NE	NA	NA
Nitrate	mg/L	14797-55-8	<0.0200	U	0.0200	10	NE	<0.1*	NA	<0.0200	U	0.0200	10	NE	<0.1*	NA	<0.0200	U	0.0200	10	NE	<0.1*	NA
Nitrite	mg/L	14797-65-0	<0.0100	UH	0.0100	0.05	NE	0.2*	NA	<0.0100	UH	0.0100	0.05	NE	0.2*	NA	<0.0100	UH	0.0100	0.05	NE	0.2*	NA
Sulfate	mg/L	14808-79-8	850		10.0	NE	250	NA	3.4	850		10.0	NE	250	NA	3.4	880		10.0	NE	250	NA	3.5
Sulfide	mg/L	18496-25-8	<0.0200	U	0.0200	NE	0.002	NA	10*	<0.0200	U	0.0200	NE	0.002	NA	10*	0.110		0.0200	NE	0.002	NA	55



Table 6-13. 2006 Adit/Surface Water Data Compared to Ecological Threshold Values (from Au’ Authum Ki, 2006) (continued)

Analyte	Units	CAS No.	ND ADIT 102							ND DRAIN 102							ND WL SW-1						
			Result	Flag	MDL	SS Acute ESV	SS Chronic ESV	SS Acute EF	SS Chronic EF	Result	Flag	MDL	SS Acute ESV	SS Chronic ESV	SS Acute EF	SS Chronic EF	Result	Flag	MDL	SS Acute ESV	SS Chronic ESV	SS Acute EF	SS Chronic EF
Metals																							
Antimony, Dissolved	ug/L	7440-36-0	<0.400	U	0.400	NE	NE	NA	NA	<0.400	U	0.400	NE	NE	NA	NA	<0.400	U	0.400	NE	NE	NA	NA
Arsenic, Dissolved	ug/L	7440-38-2	<0.500	U	0.500	340	NE	<0.1*	NA	0.500	B	0.500	340	NE	<0.1	NA	<0.500	U	0.500	340	NE	<0.1*	NA
Arsenic, Total	ug/L	7440-38-2	0.700	B	0.500	NE	0.02	NA	35	0.700	B	0.500	NE	0.02	NA	35	1.10	B	0.500	NE	0.02	NA	55
Boron, Dissolved	ug/L	7440-42-8	<10.0	U	10.0	NE	0.75	NA	13*	<10.0	U	10.0	NE	0.75	NA	13*	<10.0	U	10.0	NE	0.75	NA	13*
Cadmium, Dissolved	ug/L	7440-43-9	2.90		0.100	4.1	0.9	0.72	3.2	2.70		0.100	4	0.88	0.68	3.1	<0.100	U	0.100	5.7	1.2	<0.1*	<0.1*
Calcium, Dissolved	ug/L	7440-70-2	96700		200	NE	NE	NA	NA	94600		200	NE	NE	NA	NA	355000		200	NE	NE	NA	NA
Chromium, Dissolved	ug/L	7440-47-3	<10.0	U	10.0	NE	NE	NA	NA	<10.0	U	10.0	NE	NE	NA	NA	<10.0	U	10.0	NE	NE	NA	NA
Copper, Dissolved	ug/L	7440-50-8	50.0	B	10.0	34	21	1.5	2.4	40.0	B	10.0	34	21	1.2	1.9	<10.0	U	10.0	50	29	0.2*	0.34*
Iron, Dissolved	ug/L	7439-89-6	1940		20.0	NE	NE	NA	NA	2210		20.0	NE	NE	NA	NA	740		20.0	NE	NE	NA	NA
Iron, Total	ug/L	7439-89-6	3070		20.0	NE	1000	NA	3.1	3450		20.0	NE	1000	NA	3.4	2050		20.0	NE	1000	NA	2
Lead, Dissolved	ug/L	7439-92-1	0.200	B	0.100	190	7.3	<0.1	<0.1	0.800		0.100	180	7.1	<0.1	0.11	<0.100	U	0.100	280	11	<0.1*	<0.1*
Magnesium, Dissolved	ug/L	7439-95-4	7000		200	NE	NE	NA	NA	6900		200	NE	NE	NA	NA	11600		200	NE	NE	NA	NA
Manganese, Dissolved	ug/L	7439-96-5	2050		5.00	4200	2300	0.49	0.89	2120		5.00	4100	2300	0.51	0.93	836		5.00	4700	2600	0.18	0.32
Mercury, Total	ug/L	7439-97-6	<0.200	U	0.200	NE	0.01	NA	20*	<0.200	U	0.200	NE	0.01	NA	20*	<0.200	U	0.200	NE	0.01	NA	20*
Nickel, Dissolved	ug/L	7440-02-0	10.0	B	10.0	1100	120	<0.1	<0.1	10.0	B	10.0	1100	120	<0.1	<0.1	<10.0	U	10.0	1500	170	<0.1*	<0.1*
Potassium, Dissolved	ug/L	7440-09-7	1300		300	NE	NE	NA	NA	1300		300	NE	NE	NA	NA	1200		300	NE	NE	NA	NA
Selenium, Dissolved	ug/L	7782-49-2	<1.00	U	1.00	18	4.6	<0.1*	0.22*	<1.00	U	1.00	18	4.6	<0.1*	0.22*	<1.00	U	1.00	18	4.6	<0.1*	0.22*
Silver, Dissolved	ug/L	7440-22-4	<0.0500	U	0.0500	11	0.42	<0.1*	0.12*	<0.0500	U	0.0500	11	0.4	<0.1*	0.12*	<0.0500	U	0.0500	22	0.81	<0.1*	<0.1*
Sodium, Dissolved	ug/L	7440-23-5	6400		300	NE	NE	NA	NA	6100		300	NE	NE	NA	NA	8600		300	NE	NE	NA	NA
Zinc, Dissolved	ug/L	7440-66-6	630		10.0	400	300	1.6	2.1	640		10.0	390	290	1.6	2.2	60.0		10.0	560	430	0.11	0.14
Others																							
Chloride	mg/L	16887-00-6	<1.00	U	1.00	NE	250	NA	<0.1*	<1.00	U	1.00	NE	250	NA	<0.1*	1.00	B	1.00	NE	250	NA	<0.1
Hardness as CaCO3	mg/L	NA	271		1.00	NE	NE	NA	NA	265		1.00	NE	NE	NA	NA	935		1.00	NE	NE	NA	NA
Nitrate	mg/L	14797-55-8	<0.0200	U	0.0200	10	NE	<0.1*	NA	<0.0200	U	0.0200	10	NE	<0.1*	NA	<0.0200	U	0.0200	10	NE	<0.1*	NA
Nitrite	mg/L	14797-65-0	<0.0100	U	0.0100	0.05	NE	0.2*	NA	<0.0100	U	0.0100	0.05	NE	0.2*	NA	<0.0100	U	0.0100	0.05	NE	0.2*	NA
Sulfate	mg/L	14808-79-8	240		10.0	NE	250	NA	0.96	240		10.0	NE	250	NA	0.96	880		10.0	NE	250	NA	3.5
Sulfide	mg/L	18496-25-8	<0.0200	U	0.0200	NE	0.002	NA	10*	<0.0200	U	0.0200	NE	0.002	NA	10*	0.0200	B	0.0200	NE	0.002	NA	10



Table 6-13. 2006 Adit/Surface Water Data Compared to Ecological Threshold Values (from Au’ Authum Ki, 2006) (continued)

Analyte	Units	CAS No.	ND WL SW-2							ND WL SW-3							ND WL SW-4						
			Result	Flag	MDL	SS Acute ESV	SS Chronic ESV	SS Acute EF	SS Chronic EF	Result	Flag	MDL	SS Acute ESV	SS Chronic ESV	SS Acute EF	SS Chronic EF	Result	Flag	MDL	SS Acute ESV	SS Chronic ESV	SS Acute EF	SS Chronic EF
Metals																							
Antimony, Dissolved	ug/L	7440-36-0	<0.400	U	0.400	NE	NE	NA	NA	<0.400	U	0.400	NE	NE	NA	NA	<0.400	U	0.400	NE	NE	NA	NA
Arsenic, Dissolved	ug/L	7440-38-2	<0.500	U	0.500	340	NE	<0.1*	NA	<0.500	U	0.500	340	NE	<0.1*	NA	<0.500	U	0.500	340	NE	<0.1*	NA
Arsenic, Total	ug/L	7440-38-2	0.900	B	0.500	NE	0.02	NA	45	0.600	B	0.500	NE	0.02	NA	30	0.700	B	0.500	NE	0.02	NA	35
Boron, Dissolved	ug/L	7440-42-8	<10.0	U	10.0	NE	0.75	NA	13*	<10.0	U	10.0	NE	0.75	NA	13*	<10.0	U	10.0	NE	0.75	NA	13*
Cadmium, Dissolved	ug/L	7440-43-9	<0.100	U	0.100	5.7	1.2	<0.1*	<0.1*	1.00		0.100	5.7	1.2	0.18	0.83	0.100	B	0.100	5.7	1.2	<0.1	<0.1
Calcium, Dissolved	ug/L	7440-70-2	332000		200	NE	NE	NA	NA	328000		200	NE	NE	NA	NA	361000		200	NE	NE	NA	NA
Chromium, Dissolved	ug/L	7440-47-3	<10.0	U	10.0	NE	NE	NA	NA	<10.0	U	10.0	NE	NE	NA	NA	<10.0	U	10.0	NE	NE	NA	NA
Copper, Dissolved	ug/L	7440-50-8	<10.0	U	10.0	50	29	0.2*	0.34*	<10.0	U	10.0	50	29	0.2*	0.34*	<10.0	U	10.0	50	29	0.2*	0.34*
Iron, Dissolved	ug/L	7439-89-6	760		20.0	NE	NE	NA	NA	250		20.0	NE	NE	NA	NA	80.0		20.0	NE	NE	NA	NA
Iron, Total	ug/L	7439-89-6	2030		20.0	NE	1000	NA	2	1530		20.0	NE	1000	NA	1.5	800		20.0	NE	1000	NA	0.8
Lead, Dissolved	ug/L	7439-92-1	<0.100	U	0.100	280	11	<0.1*	<0.1*	<0.100	U	0.100	280	11	<0.1*	<0.1*	<0.100	U	0.100	280	11	<0.1*	<0.1*
Magnesium, Dissolved	ug/L	7439-95-4	10800		200	NE	NE	NA	NA	11200		200	NE	NE	NA	NA	11800		200	NE	NE	NA	NA
Manganese, Dissolved	ug/L	7439-96-5	781		5.00	4700	2600	0.16	0.3	546		5.00	4700	2600	0.12	0.21	562		5.00	4700	2600	0.12	0.21
Mercury, Total	ug/L	7439-97-6	<0.200	U	0.200	NE	0.01	NA	20*	<0.200	U	0.200	NE	0.01	NA	20*	<0.200	U	0.200	NE	0.01	NA	20*
Nickel, Dissolved	ug/L	7440-02-0	<10.0	U	10.0	1500	170	<0.1*	<0.1*	<10.0	U	10.0	1500	170	<0.1*	<0.1*	<10.0	U	10.0	1500	170	<0.1*	<0.1*
Potassium, Dissolved	ug/L	7440-09-7	1300		300	NE	NE	NA	NA	1300		300	NE	NE	NA	NA	1400		300	NE	NE	NA	NA
Selenium, Dissolved	ug/L	7782-49-2	<1.00	U	1.00	18	4.6	<0.1*	0.22*	<1.00	U	1.00	18	4.6	<0.1*	0.22*	<1.00	U	1.00	18	4.6	<0.1*	0.22*
Silver, Dissolved	ug/L	7440-22-4	<0.0500	U	0.0500	22	0.81	<0.1*	<0.1*	<0.0500	U	0.0500	22	0.81	<0.1*	<0.1*	<0.0500	U	0.0500	22	0.81	<0.1*	<0.1*
Sodium, Dissolved	ug/L	7440-23-5	8400		300	NE	NE	NA	NA	7900		300	NE	NE	NA	NA	8600		300	NE	NE	NA	NA
Zinc, Dissolved	ug/L	7440-66-6	50.0		10.0	560	430	<0.1	0.12	310		10.0	560	430	0.55	0.73	50.0		10.0	560	430	<0.1	0.12
Others																							
Chloride	mg/L	16887-00-6	1.00	B	1.00	NE	250	NA	<0.1	1.00	B	1.00	NE	250	NA	<0.1	1.00	B	1.00	NE	250	NA	<0.1
Hardness as CaCO3	mg/L	NA	874		1.00	NE	NE	NA	NA	866		1.00	NE	NE	NA	NA	951		1.00	NE	NE	NA	NA
Nitrate	mg/L	14797-55-8	<0.0200	U	0.0200	10	NE	<0.1*	NA	<0.0200	U	0.0200	10	NE	<0.1*	NA	<0.0200	U	0.0200	10	NE	<0.1*	NA
Nitrite	mg/L	14797-65-0	<0.0100	U	0.0100	0.05	NE	0.2*	NA	<0.0100	U	0.0100	0.05	NE	0.2*	NA	<0.0100	U	0.0100	0.05	NE	0.2*	NA
Sulfate	mg/L	14808-79-8	850		10.0	NE	250	NA	3.4	810		10.0	NE	250	NA	3.2	860		10.0	NE	250	NA	3.4
Sulfide	mg/L	18496-25-8	<0.0200	U	0.0200	NE	0.002	NA	10*	<0.0200	U	0.0200	NE	0.002	NA	10*	<0.0200	U	0.0200	NE	0.002	NA	10*



Table 6-13. 2006 Adit/Surface Water Data Compared to Ecological Threshold Values (from Au’ Authum Ki, 2006) (continued)

Analyte	Units	CAS No.	ND HF-UP							ND HF-DN							FERRO SPRING						
			Result	Flag	MDL	SS Acute ESV	SS Chronic ESV	SS Acute EF	SS Chronic EF	Result	Flag	MDL	SS Acute ESV	SS Chronic ESV	SS Acute EF	SS Chronic EF	Result	Flag	MDL	SS Acute ESV	SS Chronic ESV	SS Acute EF	SS Chronic EF
Metals																							
Antimony, Dissolved	ug/L	7440-36-0	<0.400	U	0.400	NE	NE	NA	NA	<0.400	U	0.400	NE	NE	NA	NA	<0.400	U	0.400	NE	NE	NA	NA
Arsenic, Dissolved	ug/L	7440-38-2	<0.500	U	0.500	340	NE	<0.1*	NA	<0.500	U	0.500	340	NE	<0.1*	NA	<0.500	U	0.500	340	NE	<0.1*	NA
Arsenic, Total	ug/L	7440-38-2	<0.500	U	0.500	NE	0.02	NA	25*	<0.500	U	0.500	NE	0.02	NA	25*	<0.500	U	0.500	NE	0.02	NA	25*
Boron, Dissolved	ug/L	7440-42-8	<10.0	U	10.0	NE	0.75	NA	13*	<10.0	U	10.0	NE	0.75	NA	13*	<10.0	U	10.0	NE	0.75	NA	13*
Cadmium, Dissolved	ug/L	7440-43-9	1.00		0.100	5.5	1.2	0.18	0.85	0.900		0.100	5.7	1.2	0.16	0.75	50.6		0.100	5.7	1.2	8.9	42
Calcium, Dissolved	ug/L	7440-70-2	143000		200	NE	NE	NA	NA	172000		200	NE	NE	NA	NA	189000		200	NE	NE	NA	NA
Chromium, Dissolved	ug/L	7440-47-3	<10.0	U	10.0	NE	NE	NA	NA	<10.0	U	10.0	NE	NE	NA	NA	<10.0	U	10.0	NE	NE	NA	NA
Copper, Dissolved	ug/L	7440-50-8	<10.0	U	10.0	48	29	0.21*	0.35*	<10.0	U	10.0	50	29	0.2*	0.34*	3060		10.0	50	29	62	100
Iron, Dissolved	ug/L	7439-89-6	180		20.0	NE	NE	NA	NA	70.0		20.0	NE	NE	NA	NA	2590		20.0	NE	NE	NA	NA
Iron, Total	ug/L	7439-89-6	850		20.0	NE	1000	NA	0.85	540		20.0	NE	1000	NA	0.54	3100		20.0	NE	1000	NA	3.1
Lead, Dissolved	ug/L	7439-92-1	0.600		0.100	270	11	<0.1	<0.1	<0.100	U	0.100	280	11	<0.1*	<0.1*	37.8		0.100	280	11	0.13	3.5
Magnesium, Dissolved	ug/L	7439-95-4	7400		200	NE	NE	NA	NA	7600		200	NE	NE	NA	NA	11300		200	NE	NE	NA	NA
Manganese, Dissolved	ug/L	7439-96-5	298		5.00	4700	2600	<0.1	0.12	276		5.00	4700	2600	<0.1	0.11	1440		5.00	4700	2600	0.3	0.55
Mercury, Total	ug/L	7439-97-6	0.200	B	0.200	NE	0.01	NA	20	<0.200	U	0.200	NE	0.01	NA	20*	<0.200	U	0.200	NE	0.01	NA	20*
Nickel, Dissolved	ug/L	7440-02-0	<10.0	U	10.0	1500	160	<0.1*	<0.1*	<10.0	U	10.0	1500	170	<0.1*	<0.1*	110		10.0	1500	170	<0.1	0.65
Potassium, Dissolved	ug/L	7440-09-7	700	B	300	NE	NE	NA	NA	800	B	300	NE	NE	NA	NA	1100		300	NE	NE	NA	NA
Selenium, Dissolved	ug/L	7782-49-2	<1.00	U	1.00	18	4.6	<0.1*	0.22*	<1.00	U	1.00	18	4.6	<0.1*	0.22*	3.00	B	1.00	18	4.6	0.16	0.65
Silver, Dissolved	ug/L	7440-22-4	<0.0500	U	0.0500	21	0.77	<0.1*	<0.1*	<0.0500	U	0.0500	22	0.81	<0.1*	<0.1*	<0.0500	U	0.0500	22	0.81	<0.1*	<0.1*
Sodium, Dissolved	ug/L	7440-23-5	4300		300	NE	NE	NA	NA	4700		300	NE	NE	NA	NA	6300		300	NE	NE	NA	NA
Zinc, Dissolved	ug/L	7440-66-6	200		10.0	550	420	0.36	0.48	210		10.0	560	430	0.37	0.49	9970		10.0	560	430	18	23
Others																							
Chloride	mg/L	16887-00-6	1.00	B	1.00	NE	250	NA	<0.1	1.00	B	1.00	NE	250	NA	<0.1	1.00	B	1.00	NE	250	NA	<0.1
Hardness as CaCO3	mg/L	NA	388		1.00	NE	NE	NA	NA	461		1.00	NE	NE	NA	NA	519		1.00	NE	NE	NA	NA
Nitrate	mg/L	14797-55-8	0.221	B	0.0200	10	NE	<0.1	NA	0.221	B	0.0200	10	NE	<0.1	NA	0.443		0.0200	10	NE	<0.1	NA
Nitrite	mg/L	14797-65-0	<0.0100	UH	0.0100	0.05	NE	0.2*	NA	<0.0100	U	0.0100	0.05	NE	0.2*	NA	<0.0100	U	0.0100	0.05	NE	0.2*	NA
Sulfate	mg/L	14808-79-8	350		10.0	NE	250	NA	1.4	410		10.0	NE	250	NA	1.6	720		10.0	NE	250	NA	2.9
Sulfide	mg/L	18496-25-8	<0.0200	U	0.0200	NE	0.002	NA	10*	<0.0200	U	0.0200	NE	0.002	NA	10*	<0.0200	U	0.0200	NE	0.002	NA	10*

\* Analytical results below MDL; result calculated from MDL  
Values in **red** indicate EF > 1  
B – The same analyte is found in the associated blank.  
EF – Exceedance factor  
ESV – Ecological Screening Level  
MDL – Laboratory Method Detection Limit  
NA – Not applicable



NE – Not established  
SS – Site-specific value calculated from hardness  
µg/L – micrograms per liter



Table 6-14. 2020 Adit/Surface Water Data Compared to Ecological Threshold Values

Analyte	CAS No.	ND2-AW-100-1							ND2-AW-102-1							ND2-DW-100-1						
		Result (ug/L)	Flag	MDL (ug/L)	SS Acute ESV (ug/L)	SS Chronic ESV (ug/L)	SS Acute EF	SS Chronic EF	Result (ug/L)	Flag	MDL (ug/L)	SS Acute ESV (ug/L)	SS Chronic ESV (ug/L)	SS Acute EF	SS Chronic EF	Result (ug/L)	Flag	MDL (ug/L)	SS Acute ESV (ug/L)	SS Chronic ESV (ug/L)	SS Acute EF	SS Chronic EF
Aluminum, Dissolved	7429-90-5	<70.4		70.4	NE	NE	NA	NA	408		70.4	NE	NE	NA	NA	<70.4		70.4	NE	NE	NA	NA
Antimony, Dissolved	7440-36-0	<4.30		4.30	NE	NE	NA	NA	<4.30		4.30	NE	NE	NA	NA	<4.30		4.30	NE	NE	NA	NA
Arsenic, Dissolved	7440-38-2	4.57	J	4.40	340	NE	<0.1	NA	<4.40		4.40	340	NE	<0.1*	NA	<4.40		4.40	340	NE	<0.1*	NA
Arsenic, Total	7440-38-2	<4.40		4.40	NE	0.02	NA	220*	<4.40		4.40	NE	0.02	NA	220*	6.04	J	4.40	NE	0.02	NA	300
Barium, Dissolved	7440-39-3	5.52		0.895	NE	NE	NA	NA	7.07		0.895	NE	NE	NA	NA	5.24		0.895	NE	NE	NA	NA
Beryllium, Dissolved	7440-41-7	<0.460		0.460	NE	NE	NA	NA	0.644	J	0.460	NE	NE	NA	NA	<0.460		0.460	NE	NE	NA	NA
Cadmium, Dissolved	7440-43-9	<0.563		0.563	5.7	1.2	<0.1*	0.47*	1.46	J	0.563	4.2	0.93	0.35	1.6	<0.563		0.563	5.7	1.2	<0.1*	0.47*
Cadmium, Total	7440-43-9	<0.563		0.563	5	NE	0.11*	NA	2.02		0.563	5	NE	0.4	NA	<0.563		0.563	5	NE	0.11*	NA
Calcium, Dissolved	7440-70-2	388000		389	NE	NE	NA	NA	101000		389	NE	NE	NA	NA	384000	V	389	NE	NE	NA	NA
Chromium, Total	7440-47-3	<5.00		5.00	50	NE	<0.1*	NA	<5.00		5.00	50	NE	<0.1*	NA	<5.00		5.00	50	NE	<0.1*	NA
Cobalt, Dissolved	7440-48-4	9.73	J	0.807	NE	NE	NA	NA	21.1		0.807	NE	NE	NA	NA	9.23	J	0.807	NE	NE	NA	NA
Copper, Dissolved	7440-50-8	<4.69		4.69	50	29	<0.1*	0.16*	20.3		4.69	36	22	0.56	0.93	<4.69		4.69	50	29	<0.1*	0.16*
Iron, Total	7439-89-6	7420		45.8	NE	1000	NA	7.4	4900		45.8	NE	1000	NA	4.9	4850		45.8	NE	1000	NA	4.8
Lead, Dissolved	7439-92-1	<2.95		2.95	280	11	<0.1*	0.27*	<2.95		2.95	200	7.7	<0.1*	0.38*	<2.95		2.95	280	11	<0.1*	0.27*
Lead, Total	7439-92-1	<2.95		2.95	50	NE	<0.1*	NA	3.88	J	2.95	50	NE	<0.1	NA	<2.95		2.95	50	NE	<0.1*	NA
Magnesium, Dissolved	7439-95-4	10600		111	NE	NE	NA	NA	7090		111	NE	NE	NA	NA	10600		111	NE	NE	NA	NA
Manganese, Dissolved	7439-96-5	1350		3.27	4700	2600	0.28	0.52	1990		3.27	4200	2300	0.47	0.85	1290		3.27	4700	2600	0.27	0.49
Mercury, Total	7439-97-6	<0.100		0.100	NE	0.01	NA	10*	<0.100		0.100	NE	0.01	NA	10*	<0.100		0.100	NE	0.01	NA	10*
Nickel, Dissolved	7440-02-0	<2.98		2.98	1500	170	<0.1*	<0.1*	4.30	J	2.98	1100	130	<0.1	<0.1	<2.98		2.98	1500	170	<0.1*	<0.1*
Nickel, Total	7440-02-0	<2.98		2.98	NE	100	NA	<0.1*	5.80	J	2.98	NE	100	NA	<0.1	<2.98		2.98	NE	100	NA	<0.1*
Potassium, Dissolved	7440-09-7	1130	J	510	NE	NE	NA	NA	1180	J	510	NE	NE	NA	NA	1080	J	510	NE	NE	NA	NA
Selenium, Dissolved	7782-49-2	<7.35		7.35	18	4.6	0.4*	1.6*	<7.35		7.35	18	4.6	0.4*	1.6*	<7.35		7.35	18	4.6	0.4*	1.6*
Silver, Dissolved	7440-22-4	<1.91		1.91	22	0.81	<0.1*	2.3*	<1.91		1.91	12	0.45	0.16*	4.2*	<1.91		1.91	22	0.81	<0.1*	2.3*
Sodium, Dissolved	7440-23-5	8460		1400	NE	NE	NA	NA	6390		1400	NE	NE	NA	NA	8380		1400	NE	NE	NA	NA
Thallium, Dissolved	7440-28-0	<4.31		4.31	NE	NE	NA	NA	<4.31		4.31	NE	NE	NA	NA	<4.31		4.31	NE	NE	NA	NA
Vanadium, Dissolved	7440-62-2	<6.34		6.34	NE	NE	NA	NA	<6.34		6.34	NE	NE	NA	NA	<6.34		6.34	NE	NE	NA	NA
Zinc, Dissolved	7440-66-6	15.3	J	9.16	560	NE	<0.1	NA	384		9.16	410	NE	0.93	NA	14.3	J	9.16	560	NE	<0.1	NA
Hardness as CaCO3		1010000		NA	NE	NE	NA	NA	284000		NA	NE	NE	NA	NA	1000000		NA	NE	NE	NA	NA



Table 6-14. 2020 Adit/Surface Water Data Compared to Ecological Threshold Values (continued)

Analyte	CAS No.	ND2-DW-100-2						
		Result (ug/L)	Flag	MDL (ug/L)	SS Acute ESV (ug/L)	SS Chronic ESV (ug/L)	SS Acute EF	SS Chronic EF
Aluminum, Dissolved	7429-90-5	<70.4		70.4	NE	NE	NA	NA
Antimony, Dissolved	7440-36-0	<4.30		4.30	NE	NE	NA	NA
Arsenic, Dissolved	7440-38-2	<4.40		4.40	340	NE	<0.1*	NA
Arsenic, Total	7440-38-2	<4.40		4.40	NE	0.02	NA	220*
Barium, Dissolved	7440-39-3	5.57		0.895	NE	NE	NA	NA
Beryllium, Dissolved	7440-41-7	<0.460		0.460	NE	NE	NA	NA
Cadmium, Dissolved	7440-43-9	<0.563		0.563	5.7	1.2	<0.1*	0.47*
Cadmium, Total	7440-43-9	<0.563		0.563	5	NE	0.11*	NA
Calcium, Dissolved	7440-70-2	382000		389	NE	NE	NA	NA
Chromium, Total	7440-47-3	<5.00		5.00	50	NE	<0.1*	NA
Cobalt, Dissolved	7440-48-4	9.60	J	0.807	NE	NE	NA	NA
Copper, Dissolved	7440-50-8	<4.69		4.69	50	29	<0.1*	0.16*
Iron, Total	7439-89-6	7600	O1	45.8	NE	1000	NA	7.6
Lead, Dissolved	7439-92-1	<2.95		2.95	280	11	<0.1*	0.27*
Lead, Total	7439-92-1	<2.95		2.95	50	NE	<0.1*	NA
Magnesium, Dissolved	7439-95-4	10600		111	NE	NE	NA	NA
Manganese, Dissolved	7439-96-5	1310		3.27	4700	2600	0.28	0.5
Mercury, Total	7439-97-6	<0.100		0.100	NE	0.01	NA	10*
Nickel, Dissolved	7440-02-0	<2.98		2.98	1500	170	<0.1*	<0.1*
Nickel, Total	7440-02-0	<2.98		2.98	NE	100	NA	<0.1*
Potassium, Dissolved	7440-09-7	1110	J	510	NE	NE	NA	NA
Selenium, Dissolved	7782-49-2	<7.35		7.35	18	4.6	0.4*	1.6*
Silver, Dissolved	7440-22-4	<1.91		1.91	22	0.81	<0.1*	2.3*
Sodium, Dissolved	7440-23-5	8430		1400	NE	NE	NA	NA
Thallium, Dissolved	7440-28-0	<4.31		4.31	NE	NE	NA	NA
Vanadium, Dissolved	7440-62-2	<6.34		6.34	NE	NE	NA	NA
Zinc, Dissolved	7440-66-6	14.2	J	9.16	560	NE	<0.1	NA
Hardness as CaCO3		998000		NA	NE	NE	NA	NA

\* Analytical results below MDL; result calculated from MDL  
Values in red indicate EF > 1  
B – The same analyte is found in the associated blank.  
EF – Exceedance factor  
ESV – Ecological Screening Level



MDL – Laboratory Method Detection Limit  
NA – Not applicable  
NE – Not established  
SS – Site-specific value calculated from hardness µg/L – micrograms per liter





Table 7-1: Removal Action Construction Cost Comparison

Item	Estimated Cost <sup>1</sup>		Alternative 1 Off-Site Repository and Surface Controls on-site		Alternative 2 Covering Waste Piles and on-site Surface Controls and Institutional Controls		Alternative 3 No Action	
			Units	Cost	Units	Cost	Units	Cost
Alt 1, Alt 2: Equipment Mob-Demobilizations:				\$17,500		\$17,500		
Excavator Mobilization	\$4,000	Fixed	1	\$4,000	1	\$4,000		
Backhoe Mobilization	\$2,500	Fixed	1	\$2,500	1	\$2,500		
Front Loader Mobilization	\$3,500	Fixed	1	\$3,500	1	\$3,500		
Light Dozer Mob-Mobilization	\$3,500	Fixed	1	\$3,500	1	\$3,500		
On-Site Haul Trucks	\$2,000	Fixed	2	\$4,000	2	\$4,000		
Alt1, Alt 2: Stormwater and Erosion Controls	lump sum		1	\$8,000	1	\$8,000		
Alt 1: Excavate/Load and Transport Wastes for Off-Site Disposal				\$60,000		\$0		
Excavator	\$250/hr		100	\$25,000				
Dump Trucks (2)	\$100/hr		200	\$20,000				
Front Loader	\$150/hr		100	\$15,000				
Alt 1: Construction ½ mile Haul Road Bypass Town of Ophir				\$44,000		\$0		
Excavator	\$250/hr		60	\$15,000				
Light Dozer	\$150/hr		60	\$9,000				
Dump Trucks (2)	\$100/hr		120	\$12,000				
Alt 1: Reclamation Haul Road Bypass Post-Construction	lump sum			\$8,000				
Alt 1: Transport Wastes - Off-Site Repository <sup>2</sup>	lump sum			\$200,100		\$0		
Alt 1: Disposal Wastes - Off-Site Repository	per cubic yard		\$15	\$60,000				
Alt 1: On-Site Surface Controls Following Off-Site Removal	lump sum			\$85,000		\$0		
TOTAL ALTERNATIVE 1	Total			\$474,600				
Alt 2: Covering Waste Piles						\$37,500		
Excavator	\$250/hr				50	\$12,500		
Light Dozer	\$150/hr				100	\$15,000		
Dump Trucks (2)	\$100/hr				100	\$10,000		
Alt 2: Construction Rock-Armored Drainage Swales to Divert Adit Flows						\$85,000		
Excavator	\$250/hr				100	\$25,000		
Light Dozer	\$150/hr				100	\$15,000		
Dump Trucks (2)	\$100/hr				200	\$20,000		
Dewatering during construction	lump sum					\$25,000		
Alt 2: Construction of Berms at Toe of Waste Piles						\$19,500		



Item	Estimated Cost <sup>1</sup>	Alternative 1 Off-Site Repository and Surface Controls on-site		Alternative 2 Covering Waste Piles and on-site Surface Controls and Institutional Controls		Alternative 3 No Action	
		Units	Cost	Units	Cost	Units	Cost
Excavator	\$250/hr			30	\$7,500		
Light Dozer	\$150/hr			40	\$6,000		
Dump Trucks (2)	\$100/hr			60	\$6,000		
Alt 2: Gabions, Tiered Drainage Structures, Check Dams	lump sum				\$25,000		
Alt 2: Institutional Controls	lump sum				\$20,000		
TOTAL ALTERNATIVE 2	Total				\$212,500		
REMOVAL ACTION CONSTRUCTION SUBTOTAL			\$474,600		\$212,500		
50 and 90% Removal Action Designs	lump sum		\$20,000		\$30,000		
Work Plan, Construction Quality Control Plan, Health and Safety Plan	lump sum		\$12,000		\$12,000		
Removal Action Oversight	lump sum		\$15,000		\$25,000		
Removal Action Report	lump sum		\$7,500		\$10,000		
TOTALS			\$529,100		\$289,500		\$0

<sup>1</sup> Equipment and labor estimates based on scopes of similar projects and *Cost Estimating Guide for Road Construction* (USFS 2017).

<sup>2</sup> Estimated transport costs assume disposal at the Broad Canyon Landfill in Naturita, Colorado, based on *Variable Haul Cost, USFS Cost Estimating Guide for Road Construction* (USFS 2017).



Table 8-1: 40 CFR 300.415(b) Factor Analysis

Factor	Site Condition	Satisfied?
1) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants, or contaminants.	The potential for human and ecological exposure to the waste piles and adit flows will be significantly reduced following covering of the waste piles and diversion of the flows.	Yes
2) Actual or potential contamination of drinking water supplies or sensitive ecosystems.	There are no drinking wells or sensitive ecosystems on the Site. The metals and SPLP results suggest that groundwater and off-site surface water are unlikely to be impaired by the proposed removal action.	Not applicable
3) Hazardous substances, pollutants, or contaminants in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release.	There are no hazardous substances, pollutants, or contaminants in drums, barrels, tanks, or other bulk storage containers. The removal action does not need to address this factor.	Not applicable
4) High levels of hazardous substances, pollutants, or contaminants in soils largely at, or near, the surface that may migrate.	There does not appear to be a potential for migration of hazardous substances from the Site. However, the removal action will further minimize this potential.	Yes
5) Weather conditions that may cause hazardous substances, pollutants, or contaminants to migrate or be released.	The Site is located in a high alpine environment below major drainage features and could be subject to peak runoff events in Spring/Summer. However, the removal action will minimize potential for contaminant release.	Yes
6) Threat of fire or explosion.	There are no flammable materials on the Site. Potential exists for fire from lightning strikes in Summer. Post -removal Operations and Maintenance (O&M) would address erosion control and revegetation because of fire.	Satisfied
7) The availability of other appropriate federal or state response mechanisms to respond to the release.	The Site is on USFS-managed land and is being addressed by USFS.	Yes
8) Other situations or factors that may pose threats.	There appear to be no other situations or factors than those addressed.	Yes

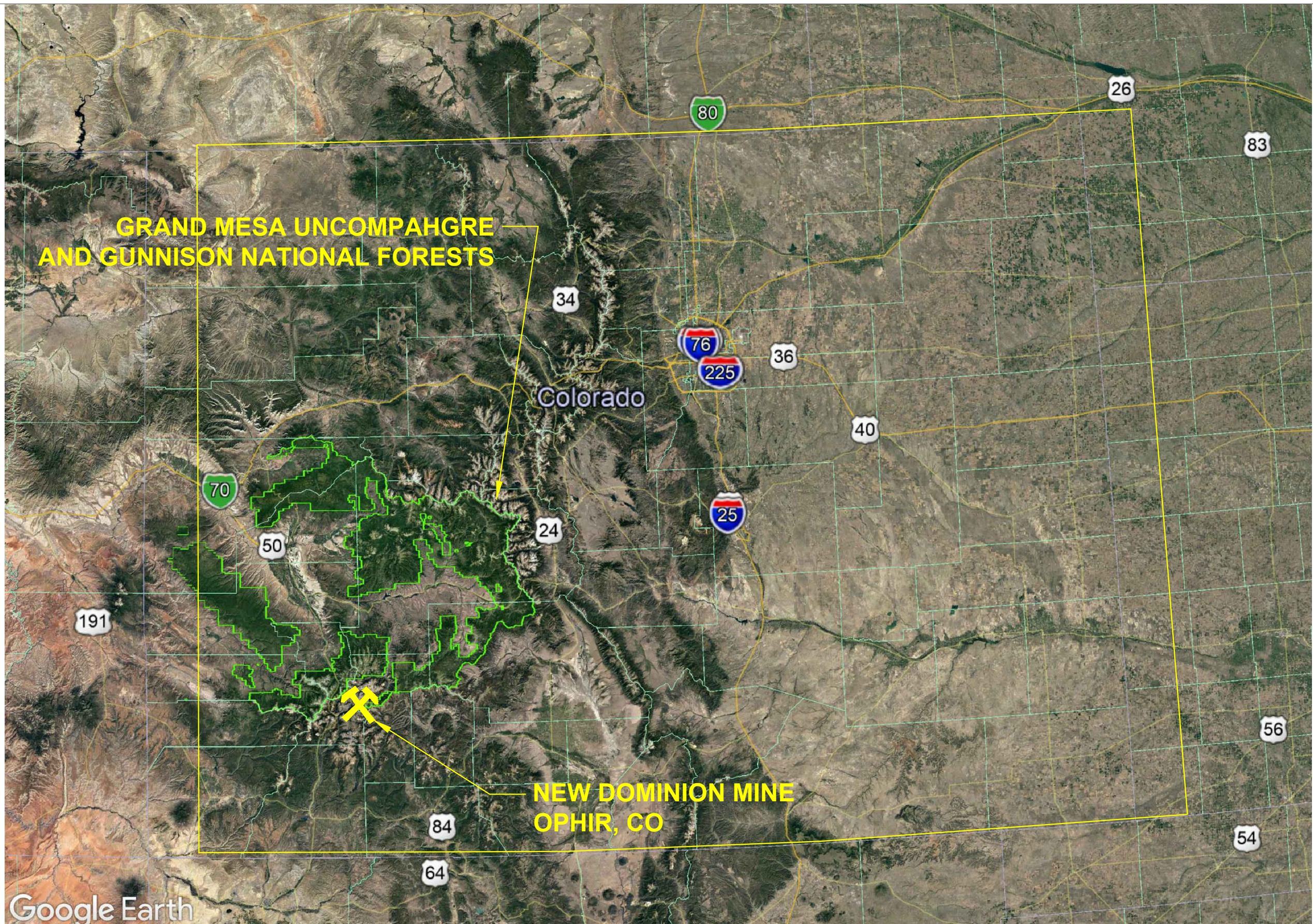
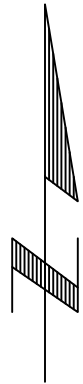




## FIGURES

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		DATE
DRAWN:	O. SALMON	8/18/2020
		DATE
CHECKED:	J. HART	4/27/2021
		DATE



PROJECT NAME

**NEW DOMINION EE/CA**

SECTION

**REGIONAL MAP**

REVISION DATE

**4/27/2021**

**FINAL**

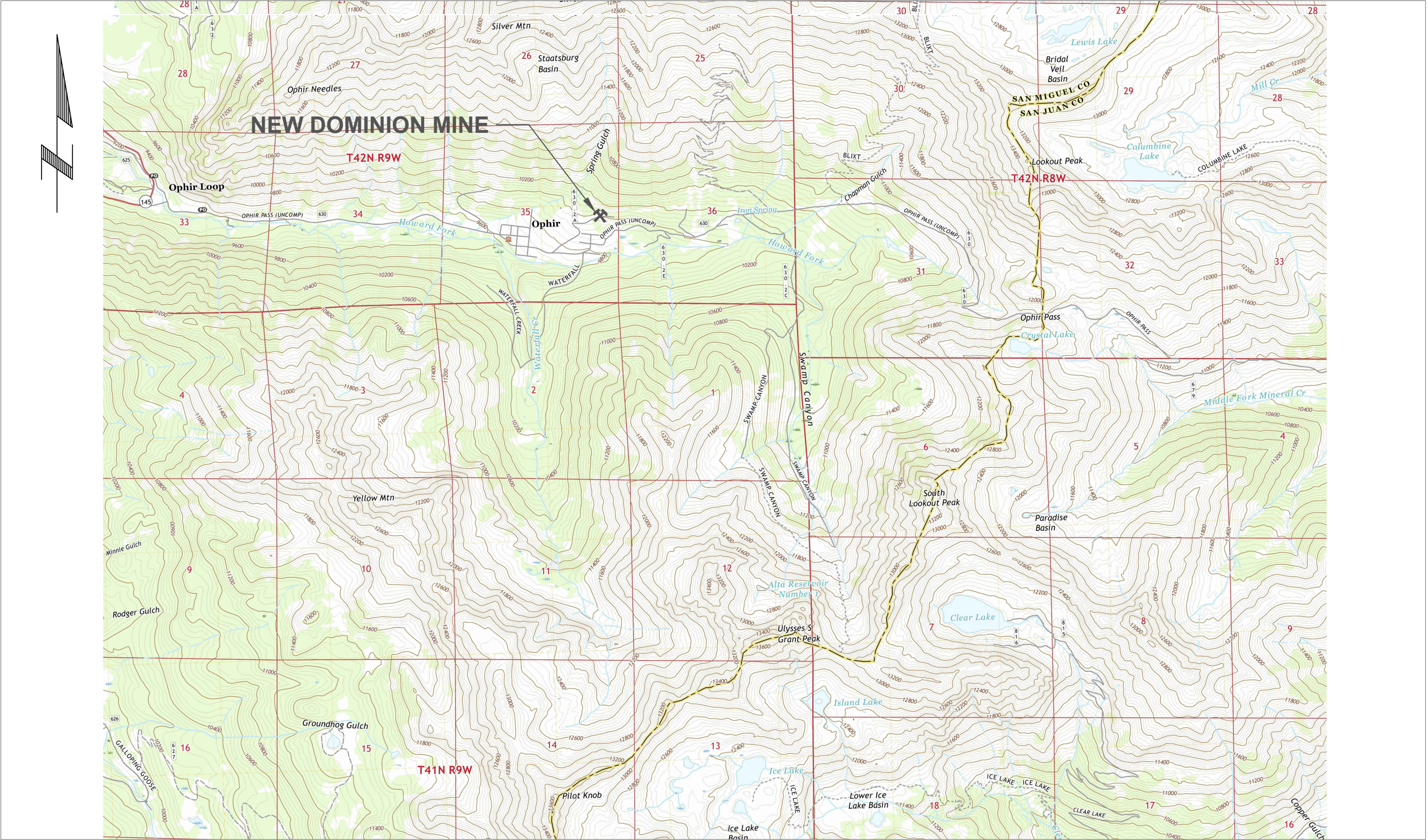
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**FIG 2-1**

SHEET

**1 OF 1**





0

0.5

1

Miles

FROM USGS 7.5" OPHIR, CO QUADRANGLE, 2019

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8/18/2020

DATE

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8/18/2020

DATE

CHECKED: J. HART

4/27/2021

DATE

PROJECT NAME

NEW DOMINION MINE EE/CA

SECTION

SITE LOCATION MAP

REVISION DATE

4/27/2021

FINAL

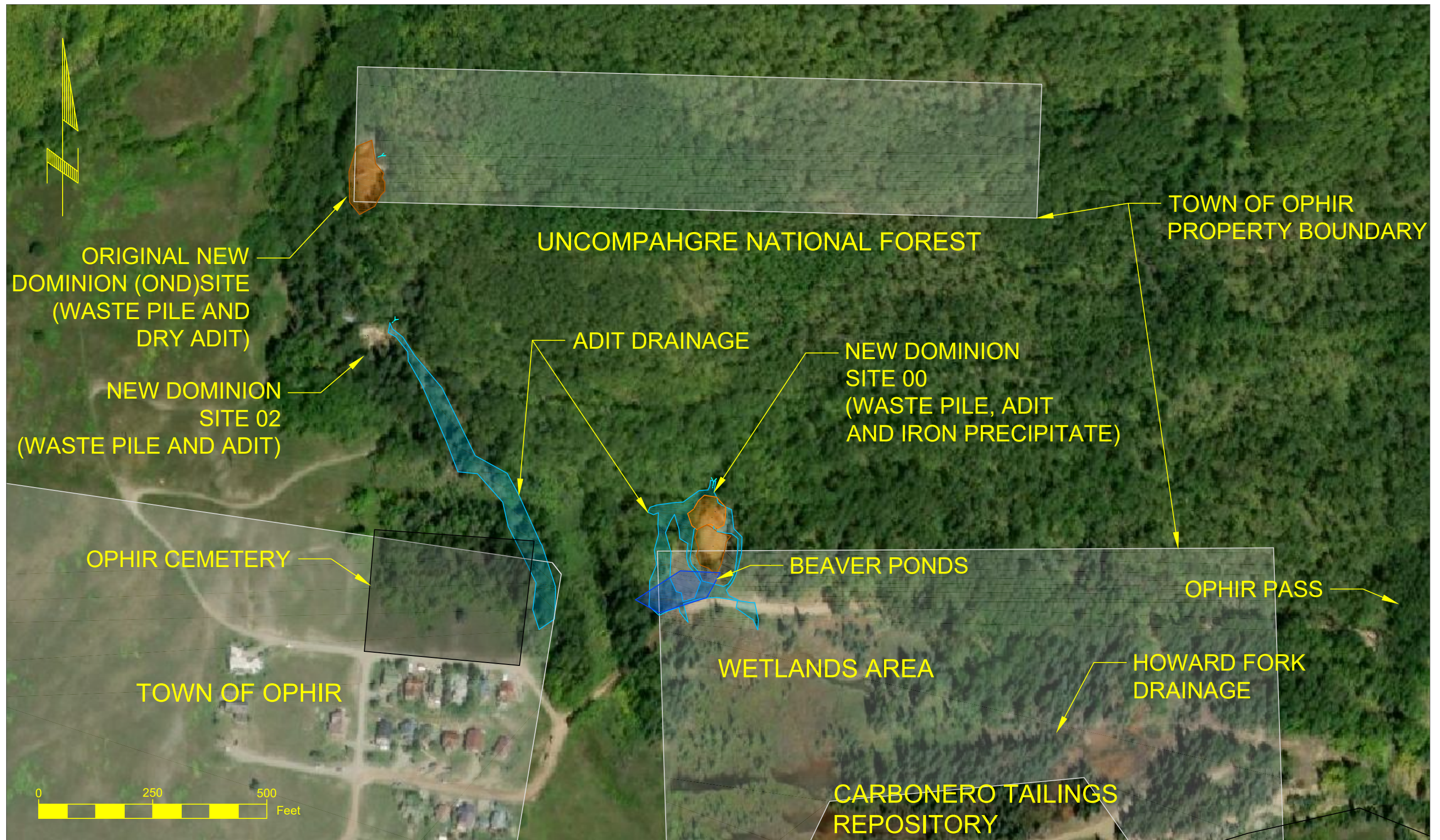
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FIG 2-2

SHEET

1 OF 1



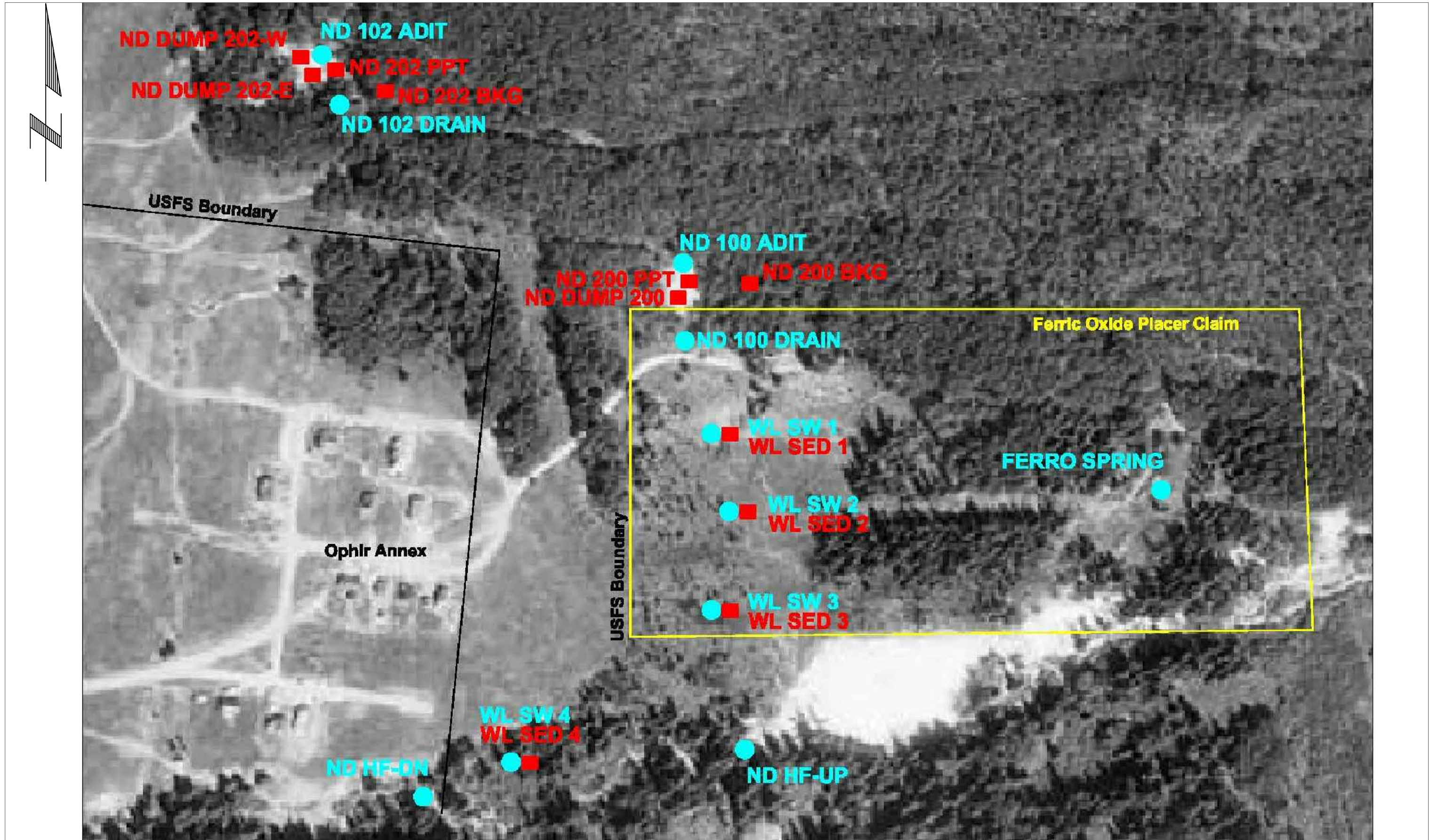


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No. 1		DATE	INITIALS		DATE		NEW DOMINION EE/CA		4/27/2021		FIG 2-3	
No. 2		DATE	INITIALS		DATE		SECTION		FINAL		SHEET 1 OF 1	
No. 3		DATE	INITIALS				SITE FEATURES					









FROM: AU' AUTHUM KI, INC., 2006. SITE ASSESSMENT REPORT, NEW DOMINION MINE, SAN MIGUEL COUNTY, COLORADO. May 14.

0 150 300 Feet

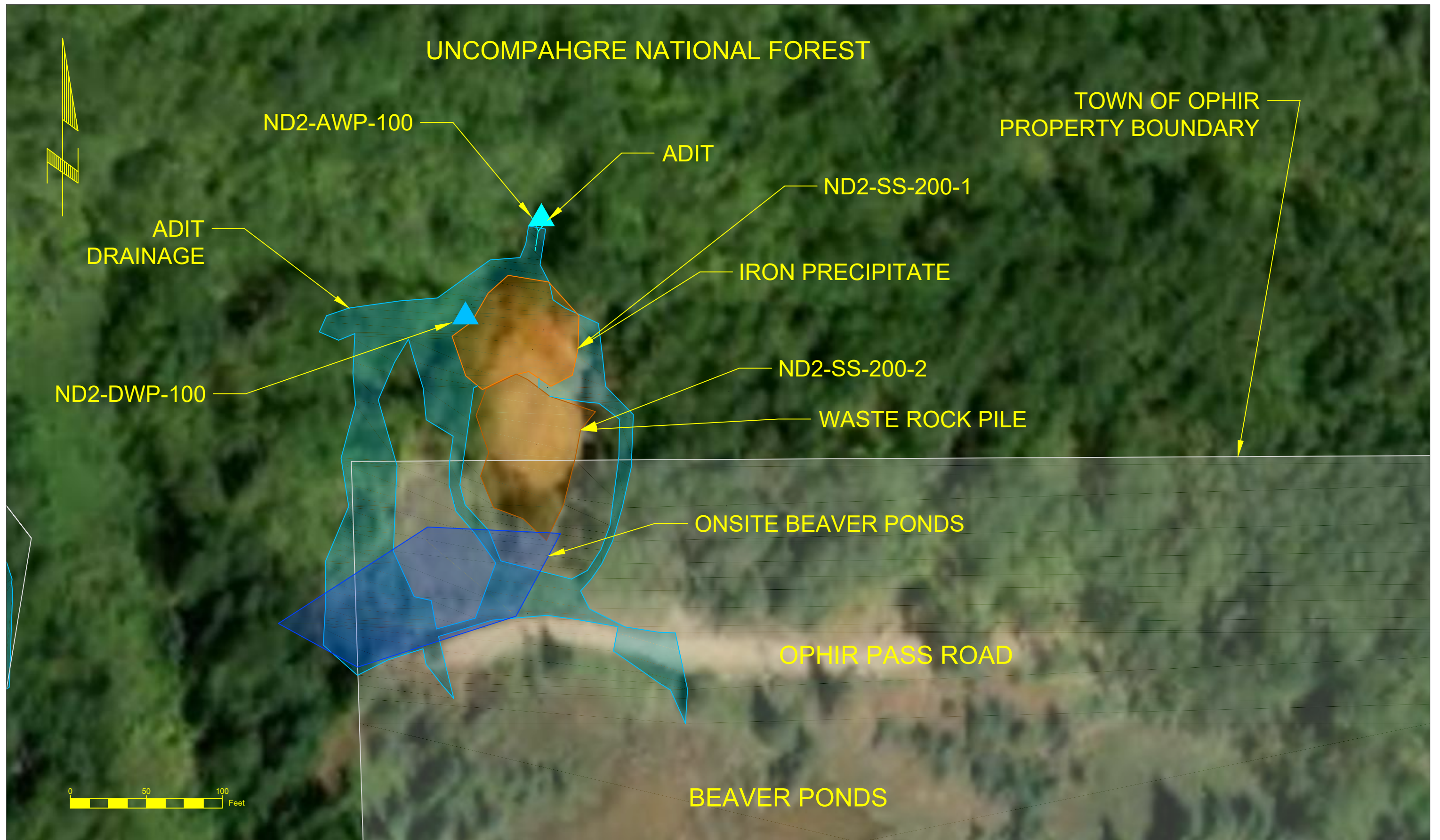
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		DATE
DRAWN:	O.SALMON	8/24/2020
		DATE
CHECKED:	J.HART	4/27/2021
		DATE

PROJECT NAME	NEW DOMINION EE/CA
SECTION	2006 SAMPLING LOCATIONS

REVISION DATE	4/27/2021
FINAL	

DRAWING NO.	FIG 2-5
SHEET	1 OF 1





REVISIONS:			
No. <u>1</u>		DATE	INITIALS
No. <u>2</u>		DATE	INITIALS
No. <u>3</u>		DATE	INITIALS

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	DATE
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	DATE

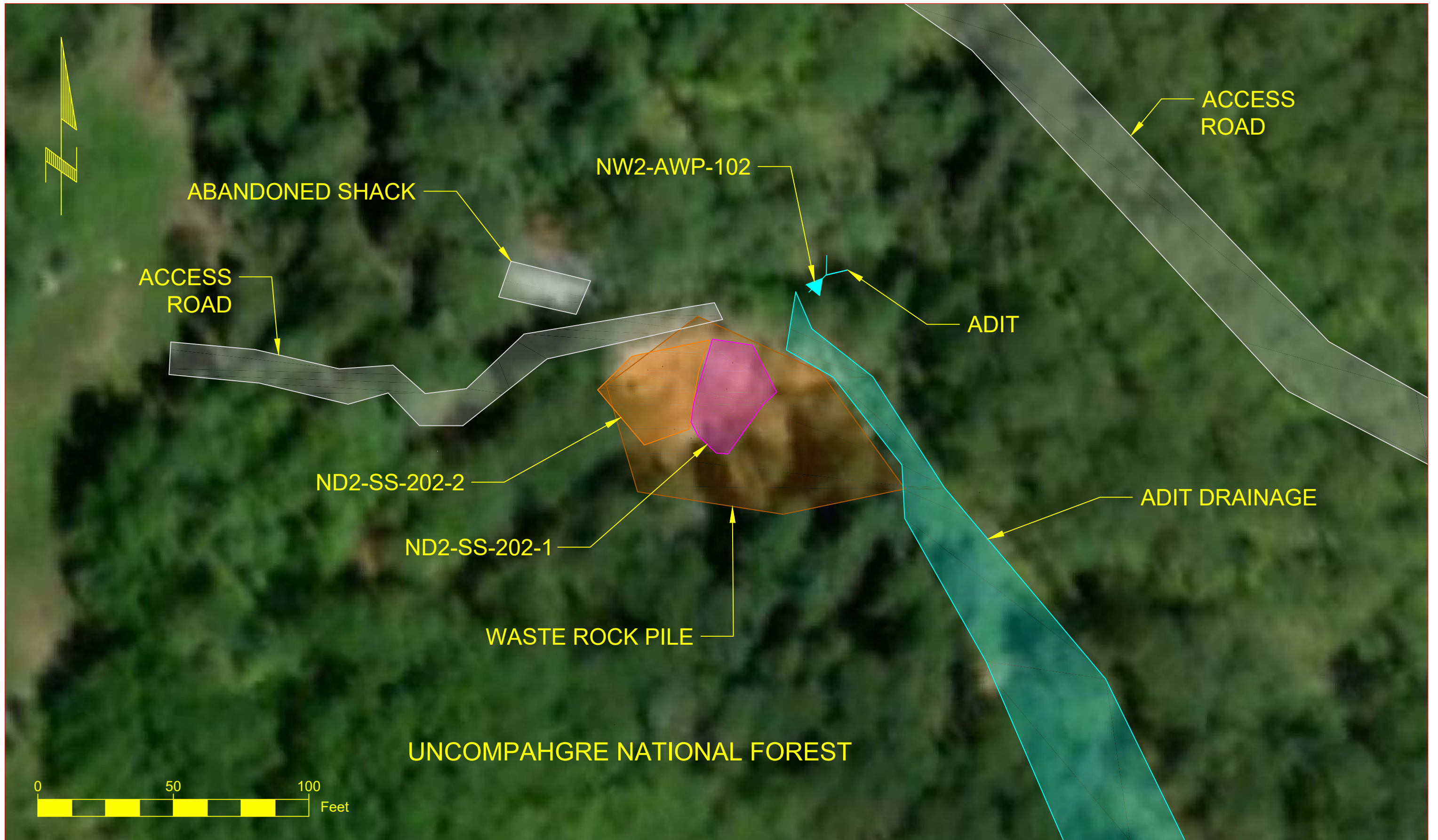


PROJECT NAME	<b>NEW DOMINION EE/CA</b>
SECTION	<b>SITE 00 SAMPLING LOCATIONS</b>

REVISION DATE	<b>4/27/2021</b>
	<b>FINAL</b>

DRAWING NO.	<b>FIG 3-1</b>
SHEET	<b>1</b> OF <b>1</b>





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No. <u>1</u>		DATE	INITIALS
No. <u>2</u>		DATE	INITIALS
No. <u>3</u>		DATE	INITIALS

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		DATE
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		DATE
CHECKED:	<u>J. HART</u>	<u>4/27/2021</u>
		DATE

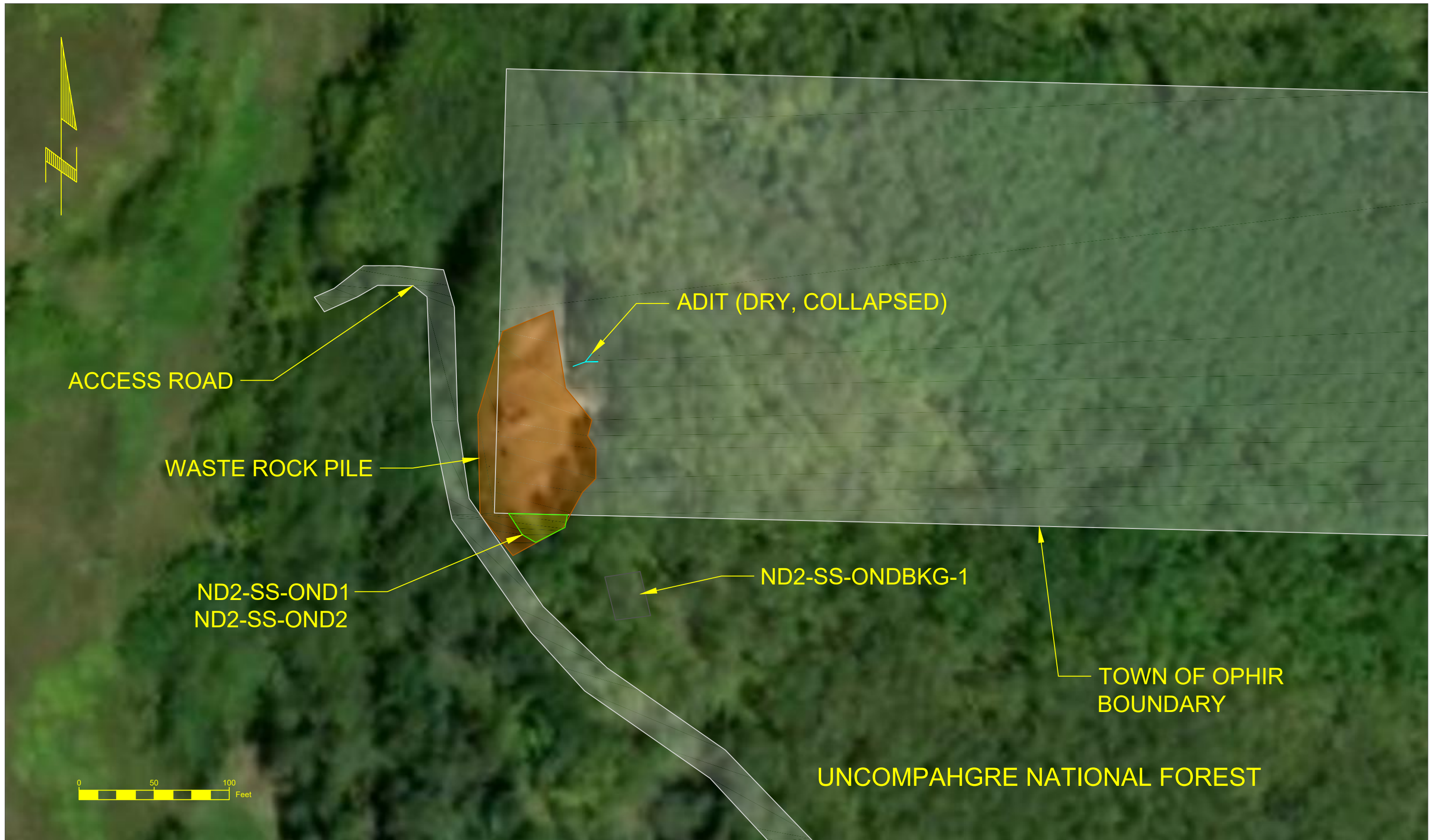


PROJECT NAME	<b>NEW DOMINION EE/CA</b>
SECTION	<b>SITE 02 SAMPLING LOCATIONS</b>

REVISION DATE	<b>4/27/2021</b>
	<b>FINAL</b>

DRAWING NO.	<b>FIG 3-2</b>
SHEET	<b>1</b> OF <b>1</b>





REVISIONS:			
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No. <u>2</u>	_____	DATE	INITIALS
No. <u>3</u>	_____	DATE	INITIALS

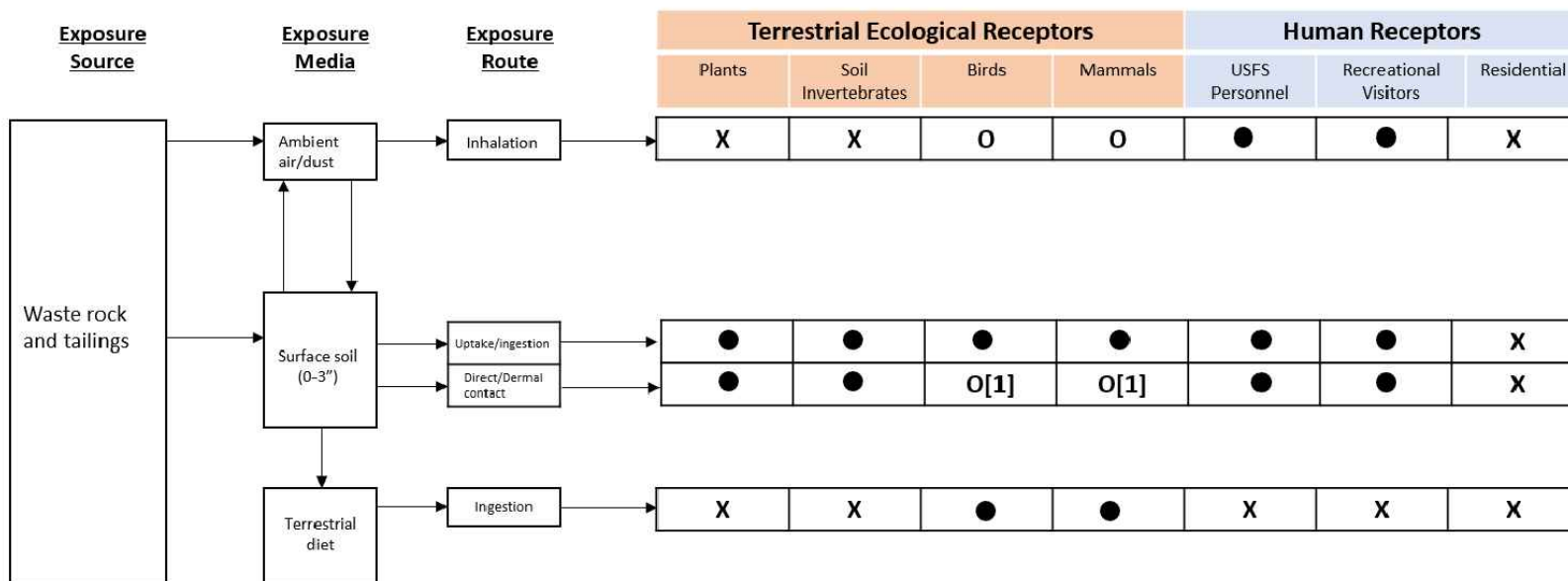
DESIGN: <u>J. HART</u>	<u>8/19/2020</u>
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DRAWN: <u>O. SALMON</u>	<u>8/19/2020</u>
	DATE
CHECKED: <u>J. HART</u>	<u>4/27/2021</u>
	DATE



PROJECT NAME	<b>NEW DOMINION EE/CA</b>
SECTION	<b>ORIGINAL NEW DOMINION SITE - SAMPLING LOCATIONS</b>

REVISION DATE	<b>4/27/2021</b>
	<b>FINAL</b>

DRAWING NO.	<b>FIG 3-3</b>
SHEET	<b>1</b> OF <b>1</b>



#### LEGEND

- Pathway is believed to be complete and may be an important contribution to the total risk to the receptor
- O Pathway is believed to be complete but is unlikely to be a major contributor to the total risk to the receptor (in comparison to one or more other pathways that are evaluated)
- X Pathway is incomplete or believed to be negligible

[1] Burrowing animals may be exposed to surface and subsurface soils while digging both via incidental ingestion, inhalation, and dermal contact. However, available exposure and toxicity data are too limited to perform a quantitative evaluation of dermal exposures and these pathways are considered negligible compared to ingestion.

#### REVISIONS:

No.	_____	DATE	INITIALS
No.	_____	DATE	INITIALS
No.	_____	DATE	INITIALS

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 DRAWN: O. SALMON 9/3/2020  
 CHECKED: J. HART 9/3/2020



#### PROJECT NAME

**NEW DOMINION EE/CA**

#### SECTION

**WASTE ROCK AND TAILINGS CSEM**

#### REVISION DATE

**9/3/2020**

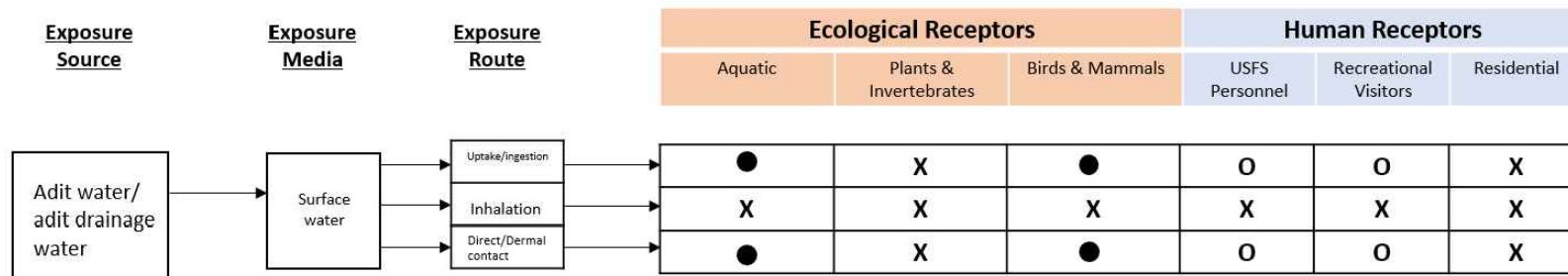
**FINAL**

#### DRAWING NO.

**FIG 6-1**

#### SHEET

**1 OF 1**



#### LEGEND

- Pathway is believed to be complete and may be an important contribution to the total risk to the receptor
- O Pathway is believed to be complete but is unlikely to be a major contributor to the total risk to the receptor (in comparison to one or more other pathways that are evaluated)
- X Pathway is incomplete or believed to be negligible

#### REVISIONS:

No.	_____	DATE	INITIALS
No.	_____	DATE	INITIALS
No.	_____	DATE	INITIALS

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 CHECKED: J. HART 9/3/2020



#### PROJECT NAME

**NEW DOMINION EE/CA**

#### SECTION

**ADIT/ADIT DRAINAGE WATER CSEM**

#### REVISION DATE

**9/3/2020**

**FINAL**

#### DRAWING NO.

**FIG 6-2**

#### SHEET

**1 OF 1**





## **Appendix A**

### **Field Notes, July 6, 2020 and July 7, 2020 New Dominion EE/CA Field Investigation**

Applied Intellect, LLC

---

# New Dominion Project

1:05 Met Seth Ebert at Site - SE  
ONSITE AT TEAM IS  
JEFF HART - JH  
Jordan DeAngelis - JD

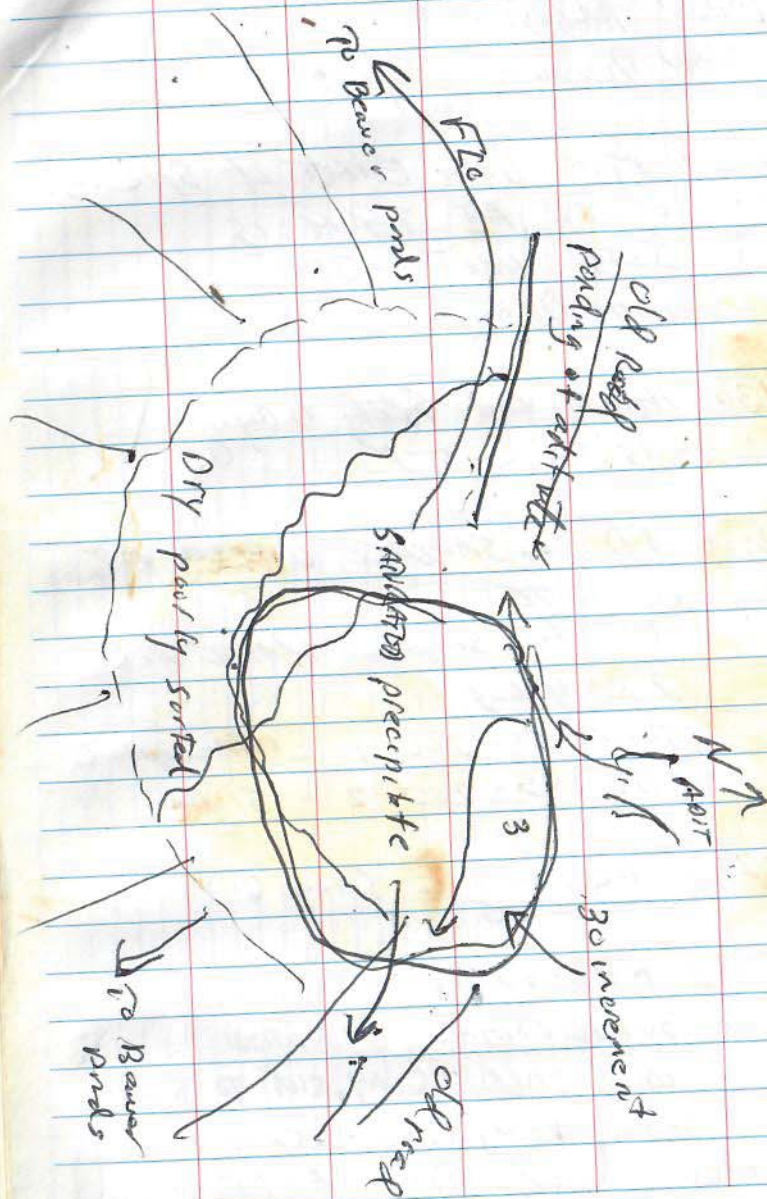
1:30 HEALTH and Safety Briefing  
was conducted

2:00 JD to SAMPLE WATER AT  
OG SITE  
JH to Sample WASTE PILE  
2 SAMPLES  
ND2-SS-200-1 - ACCEPTABLE  
ND2-SS-200-2 - SLUDGE

2:22. Preliminary Sample

2:40 ND2-SS-200-1 collected  
30 increments, SATURATED  
PAIL SLUDGE, CLAY-SILT TO 3m by 5  
7 3in, Rocky sub surface  
photo collected - PART OF TOP OF  
pile





3:20: collected a 30 point COMMA:  
ON SLOPE OF THE US DUNE TO  
20 FT DOWN SLOPE. MATERIAL ON  
OF SLOPE IS ANCHOR BEAVER HOLE  
DOWN SLOPE MATERIAL IS FINE,  
WASHED OFF PILE  
DRY,

4:30: JH AND JO COLLECTED WATER  
AT 200 AND JH IS COLLECTING  
SEDIMENTS

ND2-DP-200-1 - TRIPLE Volume  
FV MS/MSD

AT 4:30

ND2-DP-100-2 - Duplicate  
Sediments From Drains at  
Water Flow as it leaves  
the USFS Mined lands

5:30: FINISHED PACKING SAMPLES  
LEFT OFFSITE AT 5:00

SITE 00 IS COMPLETED FOR  
SAMPLING, STILL NEED TO SURVEY  
JH & JO TO 02 and 000.



: JH + JD VISIT SITES  
AND ONE TO EVALUATE  
TUESDAY ACTIVITY  
6:45 JH + JD OFFSITE.

0815: JH + JD AT 02 SITE.

JH to Collect Boil

- ND2-SS-202-1 UPPER Bank

- ND2-SS-202-2 Lower Bank

Both for SPC OFFICE

JO to Collect water and Sediment  
from Ad. 102

ND2-ANT-102-1 = TOTAL

ND2-AND-102-1 = Dissolved

0830: AT 02 SITE, JH IDENTIFIES  
TWO SEPARATE PILES MATERIALS

1: BLONDE WASTE ROCK - PHOTO

2: BROWNISH RED WASTE ROCK - PHOTO

- REVISED SAMPLING STRATEGY

ND2-SS-202-1 = BLONDE PILE - 9:15

ND2-SS-202-2 = BROWNISH RED PILE

0915: ND2-SS-202-1 @ 9:15 (PHOTO)  
PHOTO OF BROWN PILE

0940: ND2-SS-202-2 9:40  
PHOTO OF Bucket of Sieved  
Material

Both samples Sieved + < 2 mm



0955: PHOTO OF BOTH SIEVED  
REMAINS FOR COMPARISON

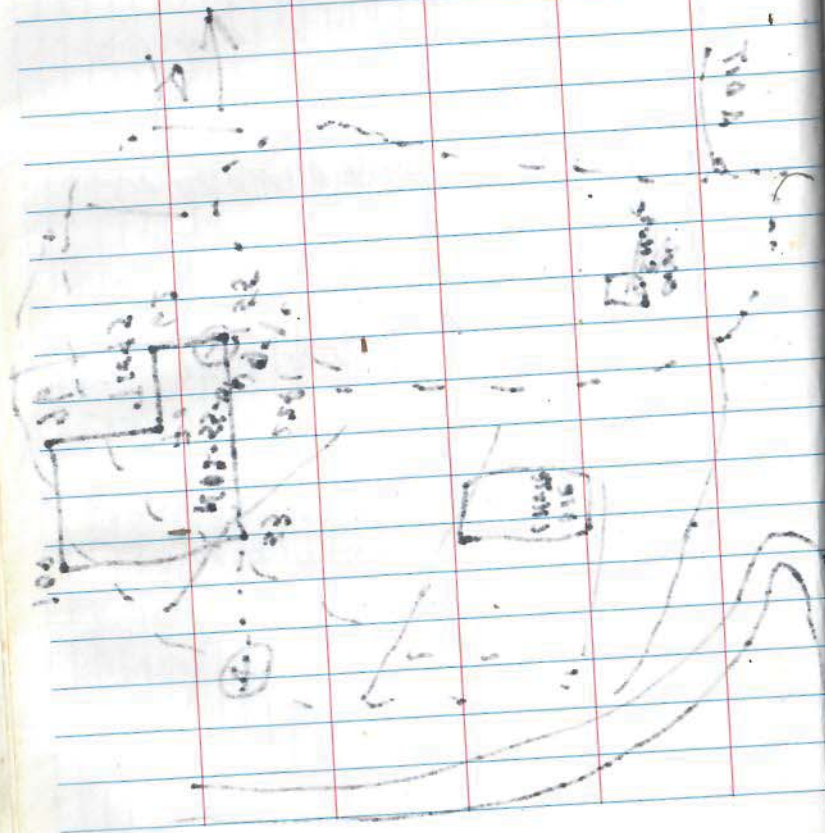
1040: AT OND-JH TO SAMPLE

WILL SAMPLE SOUTH CORNER OF  
PILE 30 ENCROACH COMPOSITE  
CORNER POST IS AT BOTTOM OF  
PILE. ALL TALS AT BOTTOM  
WILL SAMPLE





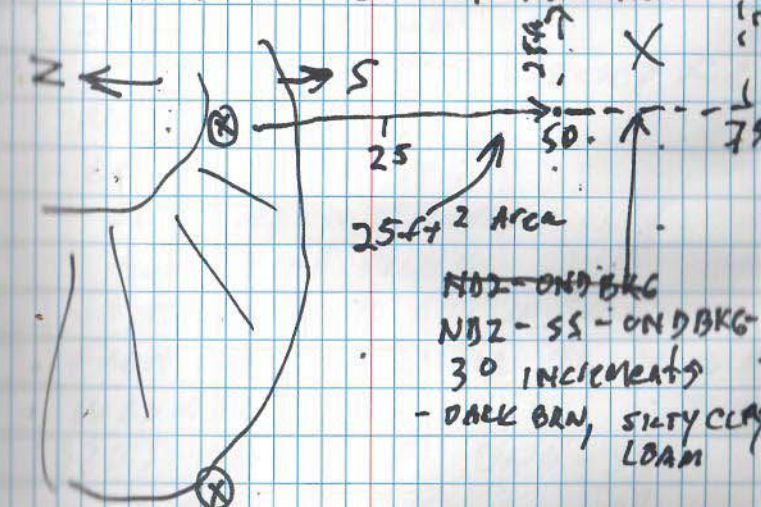
1110: NO2-SS-OND-1 LAID OUT  
 1120 SAMPLE COLLECTED AT 11:20  
 30 INCREMENTS, SIEVED to < 2mm  
 TWO SAMPLES COLLECTED INCLINOMETER  
 DUPLICATE.  
 NO2-SS-OND-1 - 11:20  
 NO2-SS-OND-2 - 12:00 (DUPE)  
 12:15: JH TO TAKE BACKGROUND  
 SOIL SAMPLE FOR OND  
 SAMPLE LOCATION IS  
 50 FT to 75 FT South of  
 EASTERN SURVEY MARKER



JA  
 7/7/2020

1110: NO2-SS-OND-1 LAID OUT  
 1120 SAMPLE COLLECTED AT 11:20  
 30 INCREMENTS, SIEVED to < 2mm  
 TWO SAMPLES COLLECTED INCLINOMETER  
 DUPLICATE.

NO2-SS-OND-1 - 11:20  
 NO2-SS-OND-2 - 12:00 (DUPE)  
 12:15: JH TO TAKE BACKGROUND  
 SOIL SAMPLE FOR OND  
 SAMPLE LOCATION IS  
 50 FT to 75 FT South of  
 EASTERN SURVEY MARKER



1242 - PHOTO OF BKG LOCATION  
 LOOKING NORTH AT OND IN  
 DISTANCE, WOODEN, NATURAL  
 SECTION



JA  
7/7/2020

1242: BK6 SOIL IN ROOT ZONE  
GRASS AND ASPEN FOREST

1255: BK6 SAMPLE SIEVED  
BK6 SETUP TORN DOWN

~~BK6~~

ND2-SS-OND-BK6-1 AT 1255  
DARK BROWN, SILTY CLAY LOAM  
ROUTE 2

SIEVED TO < 2mm

1307: PHOTO: MINE WASTE VS  
BACKGROUND REMAINS

BLONDISH YELLOW VS BROWNISH BLACK  
SIEVED TO < 2mm

FINAL SAMPLE COLLECTED FOR  
NEW DOMINION,  
LEFT TO DO IS:

- FLON MEASUREMENTS
- SURVEYING PILES

TO IRF SITE TO GET INSTRUCTIONS  
FROM SURVEY RENTAL TO CALCULATE  
VOLUME:

1330: PHOTO OF OND-SS

SAMPLING UNIT FOR

ND2-SS-OND-1

ND2-SS-OND-2

JA OFF SITE FOR CUNCH

1-OND-22-2018 :011

005:11 2A 005:11 2A 005:11 2A 005:11 2A

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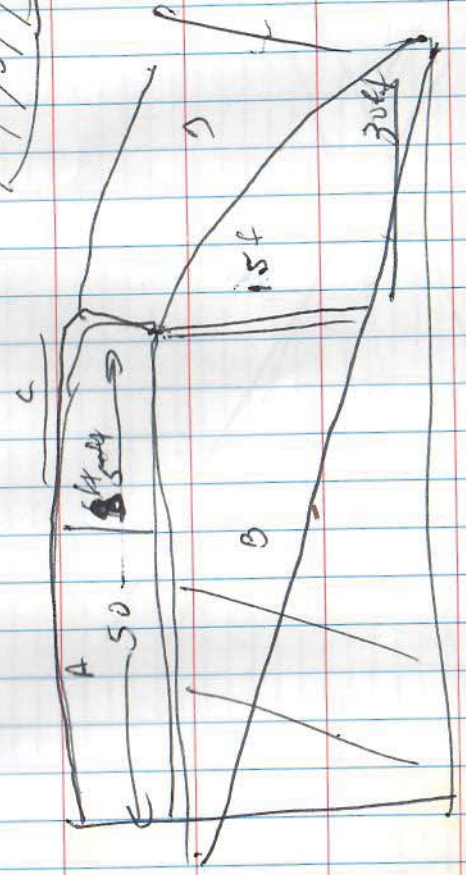
# SITE 02 VOLUME ESTIMATE 7/1/2020



$$\begin{aligned}
 A &= 50 \times 4 \times 15 \times 0.12 \\
 &= 55 - 45 \\
 B+C &= 40 + 40 = 80 \\
 D &= 15 \times 30 \times 0.5 \times \\
 &= 30 \times 0.5 \\
 &= 125 \text{ cy} \\
 &= 140
 \end{aligned}$$

$$\begin{aligned}
 A+B+C+D &= \\
 55 + 80 + 125 \\
 &= 260 - 260
 \end{aligned}$$

TOTAL 650 - 920 cy

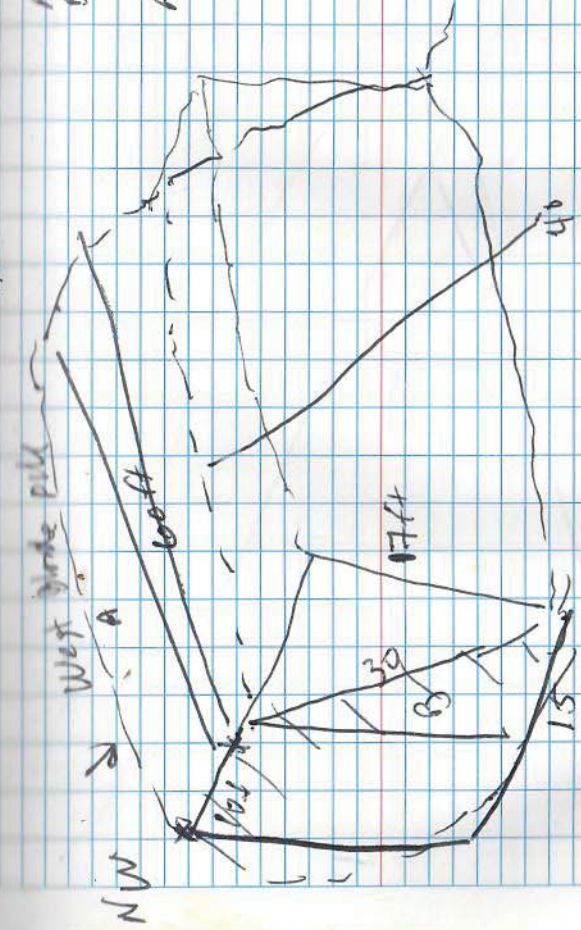


# SITE 02 VOLUME ESTIMATE

7/1/2020

$$\begin{aligned}
 A &= 10 \times 60 \times 17 = 3840 \text{ yd} \\
 B &= 15 \times 17 \times 10 \times 0.5 \\
 &= 285 - 200
 \end{aligned}$$

$$A+B = 450 - 660$$





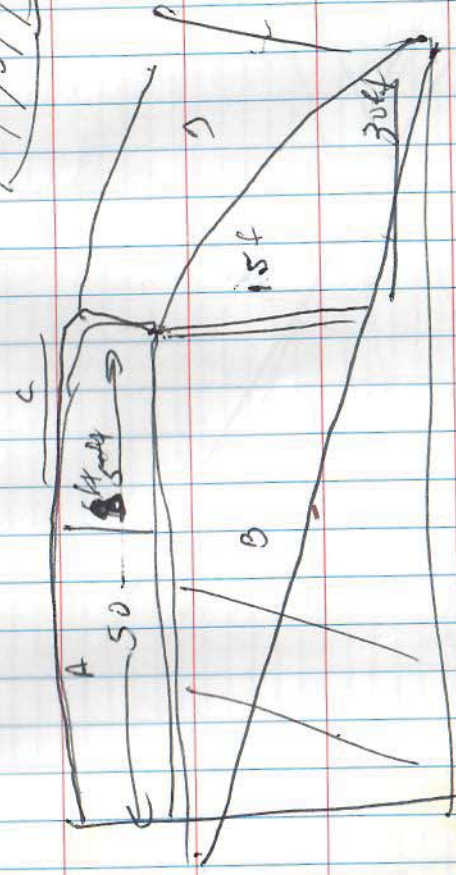
# SITE 02 VOLUME ESTIMATE 7/1/2020



$$\begin{aligned}
 A &= 50 \times 4 \times 15 \times 0.12 \\
 &= 55 - 45 \\
 B+C &= 40 + 40 = 80 \\
 D &= 15 \times 30 \times 0.5 \times \\
 &= 30 \times 0.5 \\
 &= 125 \text{ cy} \\
 &= 140
 \end{aligned}$$

$$\begin{aligned}
 A+B+C+D &= \\
 55 + 80 + 125 \\
 &= 260 - 260
 \end{aligned}$$

TOTAL 650 - 920 cy

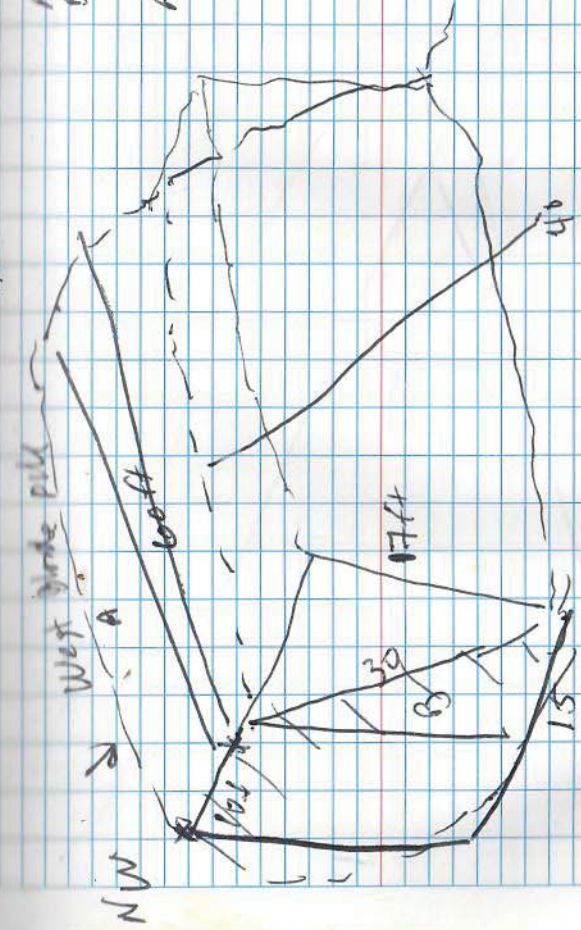


# SITE 02 VOLUME ESTIMATE

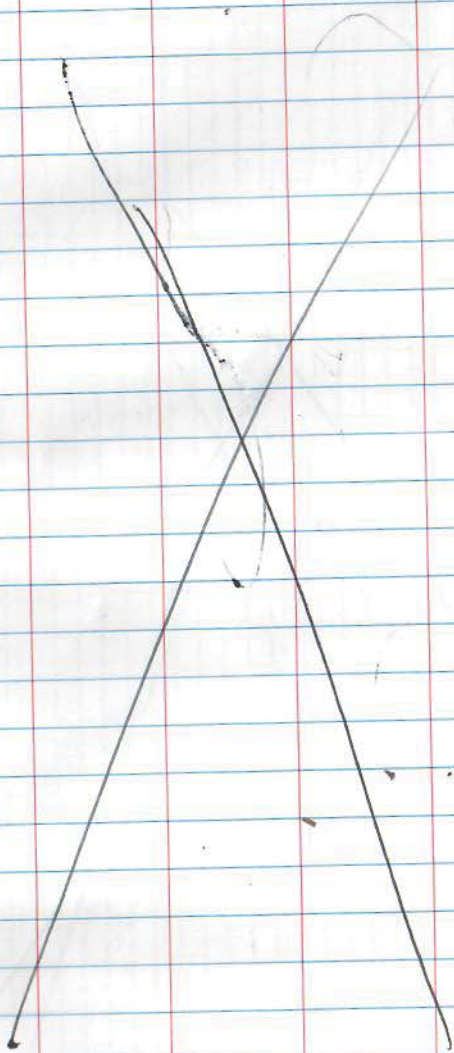
7/1/2020

$$\begin{aligned}
 A &= 10 \times 60 \times 17 = 3840 \text{ yd} \\
 B &= 15 \times 17 \times 10 \times 0.5 \\
 &= 285 - 200
 \end{aligned}$$

$$A+B = 450 - 660$$







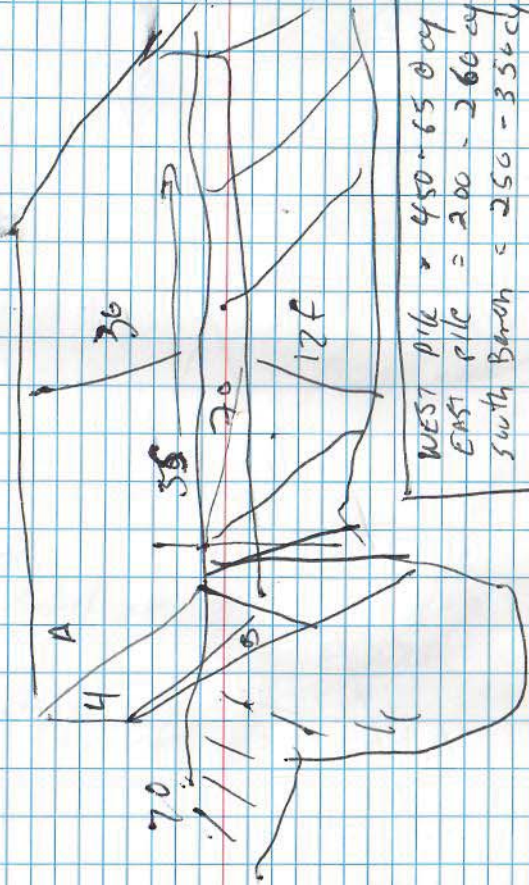
Gutter Bend

$$A = 30 \times 35 \times 4 = 4200$$

$$B = 30 \times 35 \times 8 \times 0.5 = 4200$$

$$C = 35 \times 10 \times 12 \times 0.5 = 2100$$

$$A+B+C = 8400 - 3500 = 4900$$



SITE 02  
VOLUME  
ESTIMATE

740000

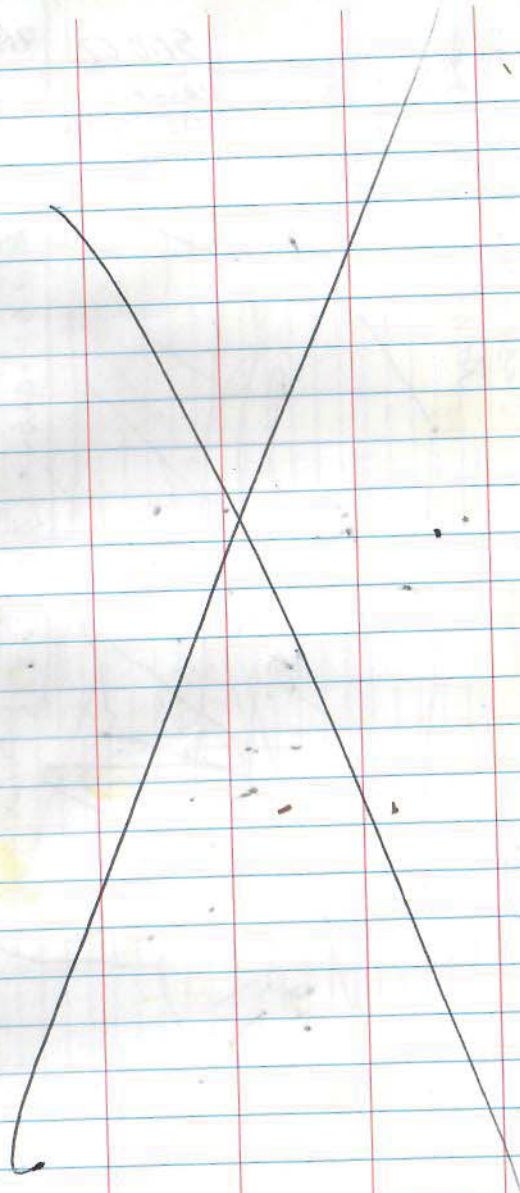
$$\text{WEST PILE} = 450 - 650 \text{ cu}$$

$$\text{EAST PILE} = 200 - 260 \text{ cu}$$

$$\text{South Bend} = 250 - 350 \text{ cu}$$

$$900 - 1200 \text{ cu}$$





JAL  
7-4-200

315: AT ADIT 102

MEASURING FLOW WITH 5gal  
Bucket

CAPTURE ESTIMATE = 85%

TIME TO FILL = 7 SEC

5gal / 7 SEC = X g /  $\frac{60 \text{ sec}}{60 \text{ sec}}$

$$5 \text{ gal} \times \frac{60}{7} = \frac{439 \text{ g/m}}{.85}$$

= 509 g/min

325: PHOTOGRAPH LOCATION

OF FLOW MEASUREMENTS

4:00 USED BASK CUT THROAT TO ESTIMATE

FLOW AT POINT APPROX 50 FT Down

GRADIENT OF THE ADIT 102

- HT IN FLUME = 0.275

- 2 INCH THROAT

- ESTIMATE 33.4 GPM

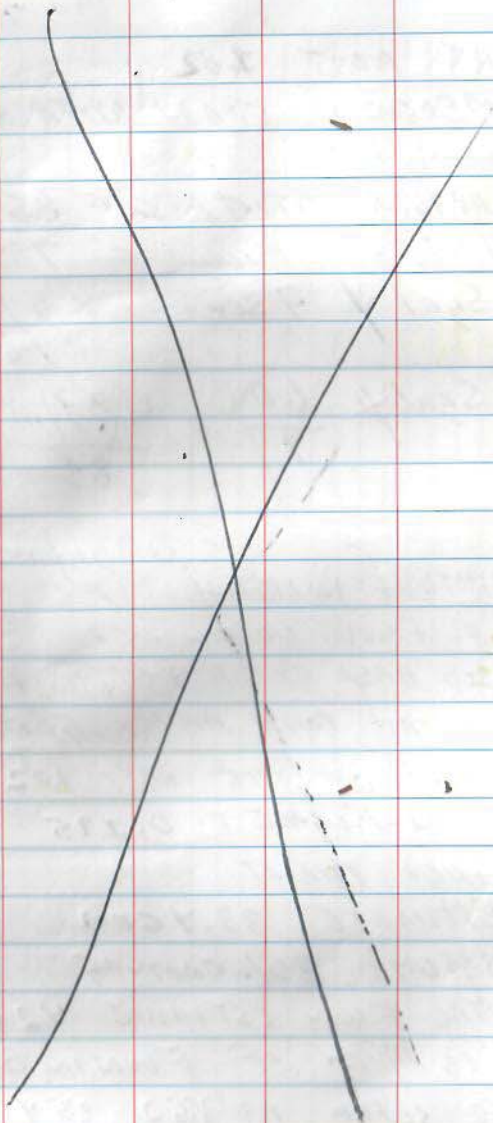
- ASSUME 80% CAPTURE

- TOTAL FLOW ESTIMATE 42 GPM

2 PHOTOS TAKEN OF FLOW IN BASKI

AND SETUP AT 352, 354





JAL

7/1/2020

442: COMPLETED FLOW MEASUREMENT  
AT ADIT 100

- 2.5 g in 1.7 sec

- 88% ESTIMATE CAPTURE

$$\frac{2.5g}{1.7 \text{ sec}} = \frac{7g}{60 \text{ sec}}$$

$$xg = 2.5g \times \frac{60 \text{ sec}}{1.7 \text{ sec}}$$

$$= \frac{88g/m}{0.85} = 104g/min$$

450: JO COMPLETING SURVEY OF  
SITE 200 WASTE PILE FOR VOLUME

JO ALREADY COMPLETED SITE  
AND ~~200~~ WASTE PILE VOLUME  
SURVEY.

WASTE PILE 202 WAS DONE BY  
GEOMETRIC ESTIMATES ON PAPER

∴ PAGES DUE TO ITS IRREGULAR  
SHAPE.

0535: JO + JH COMPLETED SURVEY OF

WASTE PILE ~~200~~ 200 - 00 SITE

AND ~~VOLUME~~  $\left\{ \begin{array}{l} 1963 \text{ CY AREA} \\ 27,659 \text{ SF} \end{array} \right.$

200 VOL  
AND - 1662 CY  
- 26,593 SF

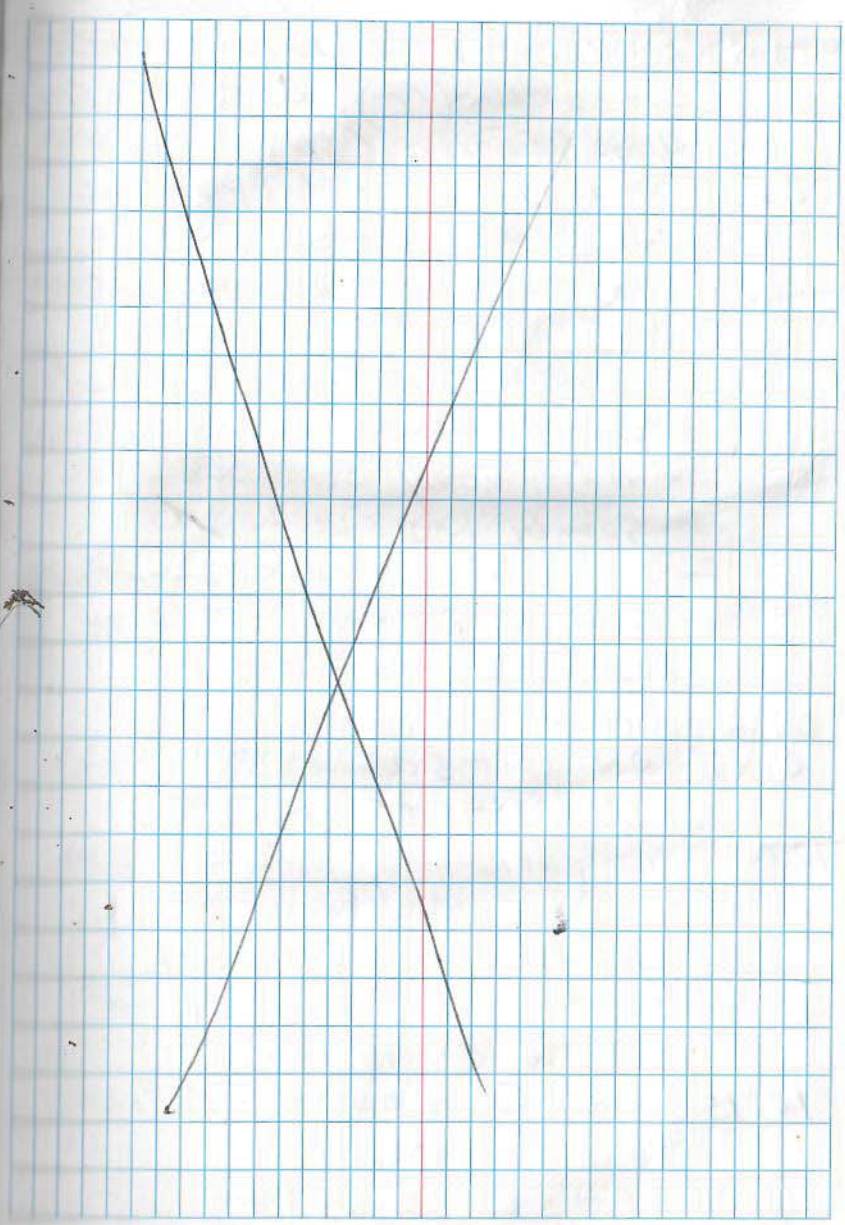


7-7-2020

02 VOLUME 900-1260  
JD+JH to look at  
CARBONERO REPOSITORY

0530: JH+JD OFFSITE

~~MS. 140~~  
~~7/7/2020~~





7-6-20 New Dominion New Dominion

05:30 - 13:00 Moore to Site

13:15 - 13:20 HSP Tailgate Mtg  
w/ Seth, Tolt

13:20 - Equipment, Labels

14:15

14:24 Hike to AWD-100

38 46, 314

~106, 20, 673

Sample Time 14:30  
7-6-20

AWD-100

pH: <sup>7.43</sup>  
~~10.8~~

Temp: 10.8°C

Cond: 1639

DO: 8.02 mg/L

ORP: -33.6

Turb: 23.2



15:30 Arrive Add Water 100

Temp 8.1

pH 7.38

DO 5.57

Cond 1650

ORP -67.3

Turb 3.17

N  $37^{\circ} 51.492$

$-107^{\circ} 49.362$

Sampling Time 15:45

20:15 - Looking

Calibration YSI 3 point pH 4, 7, 10

Calibrated

7-7-20

07:00 - Move to Site

08:00 - Arrive @ New Dominion

08:30 FR-01 7-7-20 Equipment Private  
Sample from Steam Heat Spoon



102 Adot



Standard Water

ND2 - RWT  
AND - 102 - )

09:00

Standard, Sed

ND2 - AP - 102 - 1

09:15

37.51.533

-107.49.512

Temp: 6.5°C

COND: 608

pH: 7.11

ORP: 24.5

DO: 7.35 mg/L

Turb 73



10:00 - 15:40

Laser Survey 102, 10-15-102.000







## **Appendix B**

### **Laboratory Data Reports**

Pace Analytical Laboratory Report L1239858;  
Pace Analytical Laboratory,  
(Laboratory Reports are available in Electronic Version Only)

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## Applied Intellect

Sample Delivery Group: L1239858  
Samples Received: 07/15/2020  
Project Number: EN 20-002  
Description: New Dominion

Report To: Jeffrey Hart  
2801 Youngfield St.  
Suite 240  
Golden, CO 80401

Entire Report Reviewed By:

*Chris Ward*

Chris Ward  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



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LCS(R3550332-2) WG1510345 07/16/20 23:54 ICP14	49
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PS(R3551348-8) WG1510845 07/20/20 19:12 CVAA5	239
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CVAA5 071720CVAA5 W	244
CVAA5 072020CVAA5 WB	247
<b>Blank</b>	<b>250</b>
CVAA5 071620CVAA5 WB	250
CVAA5 071720CVAA5 W	252
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WG1509756 MS(R3550299-5) MSD(R3550299-6)	258
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WG1510845 MS(R3551348-3) MSD(R3551348-4)	261
WG1510845 MS(R3551348-5) MSD(R3551348-6)	262
<b>Post Digestion Spike</b>	<b>263</b>
WG1510845 PS(R3551348-7)	263
WG1510845 PS(R3551348-8)	264
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CVAA5 072020CVAA5 WB 07/20/20 16:46	274
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MS(R3550537-3) WG1510525 07/17/20 12:41 CVAA7	300
MS(R3550537-5) WG1510525 07/17/20 12:49 CVAA7	301
MSD(R3550537-4) WG1510525 07/17/20 12:44 CVAA7	302
MSD(R3550537-6) WG1510525 07/17/20 12:51 CVAA7	303
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<b>Calibration Verification</b>	<b>305</b>
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<sup>1</sup> Cp
<sup>2</sup> Tc
<sup>3</sup> Ss
<sup>4</sup> Cn
<sup>5</sup> Su
<sup>6</sup> Gl
<sup>7</sup> Al
<sup>8</sup> Sc



# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



## ND2-SS-200-2 L1239858-01 GW

				Collected by Jeff Hart	Collected date/time 07/06/20 15:20	Received date/time 07/15/20 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1312	WG1510103	1	07/16/20 11:36	07/16/20 11:36	TM	Mt. Juliet, TN
Mercury by Method 7470A	WG1510845	1	07/17/20 12:46	07/20/20 18:19	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1511061	1	07/17/20 22:08	07/18/20 10:46	EL	Mt. Juliet, TN

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

## ND2-SS-200-1 L1239858-02 GW

				Collected by Jeff Hart	Collected date/time 07/06/20 14:40	Received date/time 07/15/20 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1312	WG1510103	1	07/16/20 11:36	07/16/20 11:36	TM	Mt. Juliet, TN
Mercury by Method 7470A	WG1510845	1	07/17/20 12:46	07/20/20 18:21	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1511061	1	07/17/20 22:08	07/18/20 10:49	EL	Mt. Juliet, TN

<sup>4</sup> Cn

<sup>5</sup> Su

<sup>6</sup> Gl

## ND2-DP-100-1 L1239858-03 Solid

				Collected by Jeff Hart	Collected date/time 07/06/20 16:30	Received date/time 07/15/20 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1510525	1	07/16/20 20:44	07/17/20 12:38	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1510526	10	07/17/20 23:36	07/20/20 11:37	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1510526	5	07/17/20 23:36	07/20/20 00:21	JDG	Mt. Juliet, TN

<sup>7</sup> Al

<sup>8</sup> Sc

## ND2-DP2-100-1 L1239858-04 Solid

				Collected by Jeff Hart	Collected date/time 07/06/20 12:00	Received date/time 07/15/20 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1510525	1	07/16/20 20:44	07/17/20 12:54	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1510526	10	07/17/20 23:36	07/20/20 11:40	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1510526	5	07/17/20 23:36	07/20/20 00:38	RDS	Mt. Juliet, TN

## ND2-AP-100-1 L1239858-05 Solid

				Collected by Jeff Hart	Collected date/time 07/06/20 16:45	Received date/time 07/15/20 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1510525	1	07/16/20 20:44	07/17/20 13:01	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1510526	5	07/17/20 23:36	07/20/20 00:41	RDS	Mt. Juliet, TN

## ND2-DWT-100-1 L1239858-06 GW

				Collected by Jeff Hart	Collected date/time 07/06/20 14:30	Received date/time 07/15/20 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1509755	1	07/16/20 08:39	07/16/20 19:46	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1510357	1	07/20/20 00:27	07/21/20 06:44	CCE	Mt. Juliet, TN

## ND2-DWD-100-1 L1239858-07 GW

				Collected by Jeff Hart	Collected date/time 07/06/20 14:30	Received date/time 07/15/20 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1509757	1	07/16/20 19:00	07/17/20 09:15	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1510345	1	07/16/20 20:37	07/16/20 23:57	TRB	Mt. Juliet, TN

# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



## ND2-DWT-100-2 L1239858-08 GW

				Collected by Jeff Hart	Collected date/time 07/06/20 14:30	Received date/time 07/15/20 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1509755	1	07/16/20 08:39	07/16/20 18:55	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1510357	1	07/20/20 00:27	07/21/20 06:26	CCE	Mt. Juliet, TN

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

## ND2-DWD-100-2 L1239858-09 GW

				Collected by Jeff Hart	Collected date/time 07/06/20 14:30	Received date/time 07/15/20 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1509757	1	07/16/20 19:00	07/17/20 09:26	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1510345	1	07/16/20 20:37	07/17/20 00:47	TRB	Mt. Juliet, TN

<sup>4</sup> Cn

<sup>5</sup> Su

<sup>6</sup> Gl

## ND2-AWT-100-1 L1239858-10 GW

				Collected by Jeff Hart	Collected date/time 07/06/20 15:45	Received date/time 07/15/20 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1509756	1	07/16/20 08:36	07/16/20 20:16	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1510357	1	07/20/20 00:27	07/21/20 06:53	CCE	Mt. Juliet, TN

<sup>7</sup> A

<sup>8</sup> Sc

## ND2-AWD-100-1 L1239858-11 GW

				Collected by Jeff Hart	Collected date/time 07/06/20 15:45	Received date/time 07/15/20 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1509757	1	07/16/20 19:00	07/17/20 09:28	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1510345	1	07/16/20 20:37	07/17/20 00:50	TRB	Mt. Juliet, TN

## ER-01 L1239858-12 GW

				Collected by Jeff Hart	Collected date/time 07/07/20 08:30	Received date/time 07/15/20 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1509756	1	07/16/20 08:36	07/16/20 20:18	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1510357	1	07/20/20 00:27	07/21/20 06:55	CCE	Mt. Juliet, TN

## ND2-AWT-102-1 L1239858-13 GW

				Collected by Jeff Hart	Collected date/time 07/07/20 09:00	Received date/time 07/15/20 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1509756	1	07/16/20 08:36	07/16/20 20:20	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1510357	1	07/20/20 00:27	07/21/20 06:58	CCE	Mt. Juliet, TN

## ND2-AWD-102-1 L1239858-14 GW

				Collected by Jeff Hart	Collected date/time 07/07/20 09:00	Received date/time 07/15/20 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1509757	1	07/16/20 19:00	07/17/20 09:36	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1510345	1	07/16/20 20:37	07/17/20 00:58	TRB	Mt. Juliet, TN

# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



## ND2-AP-102-1 L1239858-15 Solid

Collected by  
Jeff Hart

Collected date/time  
07/07/20 09:15

Received date/time  
07/15/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1510525	1	07/16/20 20:44	07/17/20 13:04	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1510526	10	07/17/20 23:36	07/20/20 11:43	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1510526	5	07/17/20 23:36	07/20/20 00:44	RDS	Mt. Juliet, TN

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Su

<sup>6</sup> Gl

<sup>7</sup> A

<sup>8</sup> Sc

## ND2-SS-202-1 L1239858-16 GW

Collected by  
Jeff Hart

Collected date/time  
07/07/20 09:15

Received date/time  
07/15/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1312	WG1510103	1	07/16/20 11:36	07/16/20 11:36	TM	Mt. Juliet, TN
Mercury by Method 7470A	WG1510845	1	07/17/20 12:46	07/20/20 18:23	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1511061	1	07/17/20 22:08	07/18/20 10:51	EL	Mt. Juliet, TN

## ND2-SS-202-2 L1239858-17 GW

Collected by  
Jeff Hart

Collected date/time  
07/07/20 09:40

Received date/time  
07/15/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1312	WG1510103	1	07/16/20 11:36	07/16/20 11:36	TM	Mt. Juliet, TN
Mercury by Method 7470A	WG1510845	1	07/17/20 12:46	07/20/20 18:25	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1511061	1	07/17/20 22:08	07/18/20 10:54	EL	Mt. Juliet, TN

## ND2-SS-OND-2 L1239858-18 GW

Collected by  
Jeff Hart

Collected date/time  
07/07/20 12:00

Received date/time  
07/15/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1312	WG1510103	1	07/16/20 11:36	07/16/20 11:36	TM	Mt. Juliet, TN
Mercury by Method 7470A	WG1510845	1	07/17/20 12:46	07/20/20 18:27	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1511061	1	07/17/20 22:08	07/18/20 11:02	EL	Mt. Juliet, TN

## ND2-SS-OND-1 L1239858-19 GW

Collected by  
Jeff Hart

Collected date/time  
07/07/20 11:20

Received date/time  
07/15/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1312	WG1510103	1	07/16/20 11:36	07/16/20 11:36	TM	Mt. Juliet, TN
Mercury by Method 7470A	WG1510845	1	07/17/20 12:46	07/20/20 18:29	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1518611	1	07/31/20 19:37	08/01/20 10:37	CCE	Mt. Juliet, TN

## ND2-SS-ONDBKG-1 L1239858-20 GW

Collected by  
Jeff Hart

Collected date/time  
07/07/20 12:55

Received date/time  
07/15/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1312	WG1510103	1	07/16/20 11:36	07/16/20 11:36	TM	Mt. Juliet, TN
Mercury by Method 7470A	WG1510845	1	07/17/20 12:46	07/20/20 18:31	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1511061	1	07/17/20 22:08	07/18/20 11:07	EL	Mt. Juliet, TN



## ND2-SS-OND-1 L1239858-21 Solid

Collected by  
Jeff HartCollected date/time  
07/07/20 12:00Received date/time  
07/15/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1510525	1	07/16/20 20:44	07/17/20 13:07	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1510526	1	07/17/20 23:36	07/19/20 20:55	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1510526	5	07/17/20 23:36	07/20/20 00:47	CCE	Mt. Juliet, TN

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss<sup>4</sup>Cn<sup>5</sup>Su<sup>6</sup>Gl<sup>7</sup>Al<sup>8</sup>Sc

## ND2-SS-OND-2 L1239858-22 Solid

Collected by  
Jeff HartCollected date/time  
07/07/20 11:20Received date/time  
07/15/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1510525	1	07/16/20 20:44	07/17/20 13:09	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1510526	1	07/17/20 23:36	07/19/20 20:58	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1510526	5	07/17/20 23:36	07/20/20 00:50	CCE	Mt. Juliet, TN

## ND2-SS-ONDBKG-1 L1239858-23 Solid

Collected by  
Jeff HartCollected date/time  
07/07/20 12:55Received date/time  
07/15/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1510525	1	07/16/20 20:44	07/17/20 13:12	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1510526	1	07/17/20 23:36	07/19/20 21:01	CCE	Mt. Juliet, TN





All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Chris Ward  
Project Manager



### Report Revision History

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Level II Report - Version 1: 07/21/20 16:11

Level II Report - Version 2: 08/03/20 13:00



## 6010B Metals (ICP)

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEETSAMPLE NO.:  
ND2-SS-200-2

Lab Sample ID: L1239858-01  
Client Sample ID: ND2-SS-200-2  
Lab File ID: 20200718104621  
Instrument ID: ICP12  
Analytical Batch: WG1511061  
Dilution Factor: 1  
Analytical Method: 6010B  
Matrix: GW  
Total Solids (%): \_\_\_\_\_

SDG: L1239858  
Collected Date/Time: 07/06/20 15:20  
Received Date/Time: 07/15/20 08:30  
Preparation Date/Time: 07/17/20 22:08  
Analysis Date/Time: 07/18/20 10:46  
Prep Method: 3015  
Sample Vol Used: \_\_\_\_\_  
Initial Wt/Vol: 45 mL  
Final Wt/Vol: 50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	U		0.0704	0.200
Antimony	7440-36-0	U		0.00430	0.0100
Arsenic	7440-38-2	0.00670	J	0.00440	0.0100
Barium	7440-39-3	0.00893		0.000895	0.00500
Beryllium	7440-41-7	U		0.000460	0.00200
Cadmium	7440-43-9	U		0.000563	0.00200
Calcium	7440-70-2	2.67		0.389	1.00
Chromium	7440-47-3	U		0.00500	0.0100
Cobalt	7440-48-4	U		0.000807	0.0100
Copper	7440-50-8	0.00505	J	0.00469	0.0100
Iron	7439-89-6	U		0.0458	0.100
Lead	7439-92-1	0.00356	J	0.00295	0.00600
Magnesium	7439-95-4	0.371	J	0.111	1.00
Manganese	7439-96-5	U		0.00327	0.0100
Nickel	7440-02-0	U		0.00298	0.0100
Potassium	7440-09-7	U		0.510	2.00
Selenium	7782-49-2	U		0.00735	0.0100
Silver	7440-22-4	U		0.00191	0.00500
Sodium	7440-23-5	14.4		1.40	3.00
Thallium	7440-28-0	U		0.00431	0.0100
Vanadium	7440-62-2	U		0.00634	0.0200
Zinc	7440-66-6	U		0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-02	SDG:	L1239858
Client Sample ID:	ND2-SS-200-1	Collected Date/Time:	07/06/20 14:40
Lab File ID:	20200718104902	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP12	Preparation Date/Time:	07/17/20 22:08
Analytical Batch:	WG1511061	Analysis Date/Time:	07/18/20 10:49
Dilution Factor:	1	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	0.341		0.0704	0.200
Antimony	7440-36-0	U		0.00430	0.0100
Arsenic	7440-38-2	U		0.00440	0.0100
Barium	7440-39-3	0.0103		0.000895	0.00500
Beryllium	7440-41-7	U		0.000460	0.00200
Cadmium	7440-43-9	U		0.000563	0.00200
Calcium	7440-70-2	47.0		0.389	1.00
Chromium	7440-47-3	0.00656	J	0.00500	0.0100
Cobalt	7440-48-4	U		0.000807	0.0100
Copper	7440-50-8	0.00702	J	0.00469	0.0100
Iron	7439-89-6	1.11		0.0458	0.100
Lead	7439-92-1	0.00459	J	0.00295	0.00600
Magnesium	7439-95-4	2.25		0.111	1.00
Manganese	7439-96-5	0.00590	J	0.00327	0.0100
Nickel	7440-02-0	0.00350	J	0.00298	0.0100
Potassium	7440-09-7	1.09	J	0.510	2.00
Selenium	7782-49-2	0.0167		0.00735	0.0100
Silver	7440-22-4	U		0.00191	0.00500
Sodium	7440-23-5	20.6		1.40	3.00
Thallium	7440-28-0	U		0.00431	0.0100
Vanadium	7440-62-2	U		0.00634	0.0200
Zinc	7440-66-6	U		0.00916	0.0500



SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-03	SDG:	L1239858
Client Sample ID:	ND2-DP-100-1	Collected Date/Time:	07/06/20 16:30
Lab File ID:	20200720002102	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP13	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/20/20 00:21
Dilution Factor:	5	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.53 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Aluminum	7429-90-5	1440		41.0	100
Antimony	7440-36-0	6.24	J J6	2.50	10.0
Arsenic	7440-38-2	30.6	O1	2.30	10.0
Barium	7440-39-3	29.7		1.20	2.50
Beryllium	7440-41-7	1.87		0.400	1.00
Cadmium	7440-43-9	3.36		0.405	2.50
Calcium	7440-70-2	8520	V	150	500
Chromium	7440-47-3	U		1.25	5.00
Cobalt	7440-48-4	72.2		1.15	5.00
Copper	7440-50-8	57.1		2.53	10.0
Iron	7439-89-6	156000	V	25.0	50.0
Lead	7439-92-1	137		1.04	2.50
Magnesium	7439-95-4	161	J	102	500
Nickel	7440-02-0	U		2.45	10.0
Potassium	7440-09-7	107	J	104	250
Selenium	7782-49-2	7.00	J	3.08	10.0
Silver	7440-22-4	1.85	J	1.14	5.00
Sodium	7440-23-5	U		166	500
Thallium	7440-28-0	U		1.77	10.0
Vanadium	7440-62-2	U		3.44	10.0
Zinc	7440-66-6	471	V	4.70	25.0

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-03	SDG:	L1239858
Client Sample ID:	ND2-DP-100-1	Collected Date/Time:	07/06/20 16:30
Lab File ID:	20200720113745	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP14	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/20/20 11:37
Dilution Factor:	10	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.53 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Manganese	7439-96-5	9590		2.45	10.0

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-04	SDG:	L1239858
Client Sample ID:	ND2-DP2-100-1	Collected Date/Time:	07/06/20 12:00
Lab File ID:	20200720003837	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP13	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/20/20 00:38
Dilution Factor:	5	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.46 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Aluminum	7429-90-5	1500		41.0	100
Antimony	7440-36-0	6.49	J	2.50	10.0
Arsenic	7440-38-2	33.9		2.30	10.0
Barium	7440-39-3	32.1		1.20	2.50
Beryllium	7440-41-7	1.96		0.400	1.00
Cadmium	7440-43-9	3.33		0.405	2.50
Calcium	7440-70-2	8860		150	500
Chromium	7440-47-3	U		1.25	5.00
Cobalt	7440-48-4	76.8		1.15	5.00
Copper	7440-50-8	58.0		2.53	10.0
Iron	7439-89-6	164000		25.0	50.0
Lead	7439-92-1	136		1.04	2.50
Magnesium	7439-95-4	166	J	102	500
Nickel	7440-02-0	U		2.45	10.0
Potassium	7440-09-7	117	J	104	250
Selenium	7782-49-2	8.29	J	3.08	10.0
Silver	7440-22-4	2.10	J	1.14	5.00
Sodium	7440-23-5	U		166	500
Thallium	7440-28-0	U		1.77	10.0
Vanadium	7440-62-2	3.65	J	3.44	10.0
Zinc	7440-66-6	484		4.70	25.0

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-04	SDG:	L1239858
Client Sample ID:	ND2-DP2-100-1	Collected Date/Time:	07/06/20 12:00
Lab File ID:	20200720114034	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP14	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/20/20 11:40
Dilution Factor:	10	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.46 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Manganese	7439-96-5	10400		2.45	10.0



SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.:

ND2-AP-100-1

Lab Sample ID:	L1239858-05	SDG:	L1239858
Client Sample ID:	ND2-AP-100-1	Collected Date/Time:	07/06/20 16:45
Lab File ID:	20200720004145	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP13	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/20/20 00:41
Dilution Factor:	5	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.48 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Aluminum	7429-90-5	236		41.0	100
Antimony	7440-36-0	7.05	J	2.50	10.0
Arsenic	7440-38-2	31.1		2.30	10.0
Barium	7440-39-3	11.5		1.20	2.50
Beryllium	7440-41-7	1.21		0.400	1.00
Cadmium	7440-43-9	0.409	J	0.405	2.50
Calcium	7440-70-2	7210		150	500
Chromium	7440-47-3	U		1.25	5.00
Cobalt	7440-48-4	19.2		1.15	5.00
Copper	7440-50-8	U		2.53	10.0
Iron	7439-89-6	201000		25.0	50.0
Lead	7439-92-1	13.2		1.04	2.50
Magnesium	7439-95-4	U		102	500
Manganese	7439-96-5	2250		1.22	5.00
Nickel	7440-02-0	U		2.45	10.0
Potassium	7440-09-7	U		104	250
Selenium	7782-49-2	6.54	J	3.08	10.0
Silver	7440-22-4	U		1.14	5.00
Sodium	7440-23-5	U		166	500
Thallium	7440-28-0	U		1.77	10.0
Vanadium	7440-62-2	4.25	J	3.44	10.0
Zinc	7440-66-6	98.7		4.70	25.0

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-06	SDG:	L1239858
Client Sample ID:	ND2-DWT-100-1	Collected Date/Time:	07/06/20 14:30
Lab File ID:	20200721064451	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP14	Preparation Date/Time:	07/20/20 00:27
Analytical Batch:	WG1510357	Analysis Date/Time:	07/21/20 06:44
Dilution Factor:	1	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	U		0.0704	0.200
Antimony	7440-36-0	U		0.00430	0.0100
Arsenic	7440-38-2	0.00604	J	0.00440	0.0100
Barium	7440-39-3	0.00521		0.000895	0.00500
Beryllium	7440-41-7	U		0.000460	0.00200
Cadmium	7440-43-9	U		0.000563	0.00200
Calcium	7440-70-2	383		0.389	1.00
Chromium	7440-47-3	U		0.00500	0.0100
Cobalt	7440-48-4	0.00991	J	0.000807	0.0100
Copper	7440-50-8	0.00486	J	0.00469	0.0100
Iron	7439-89-6	4.85		0.0458	0.100
Lead	7439-92-1	U		0.00295	0.00600
Magnesium	7439-95-4	10.6		0.111	1.00
Manganese	7439-96-5	1.29		0.00327	0.0100
Nickel	7440-02-0	U		0.00298	0.0100
Potassium	7440-09-7	1.16	J	0.510	2.00
Selenium	7782-49-2	U		0.00735	0.0100
Silver	7440-22-4	U		0.00191	0.00500
Sodium	7440-23-5	8.32		1.40	3.00
Thallium	7440-28-0	U		0.00431	0.0100
Vanadium	7440-62-2	U		0.00634	0.0200
Zinc	7440-66-6	0.0313	J	0.00916	0.0500

# SAMPLE RESULT SUMMARY

## INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.:  
ND2-DWD-100-1

Lab Sample ID: L1239858-07  
 Client Sample ID: ND2-DWD-100-1  
 Lab File ID: 20200716235715  
 Instrument ID: ICP14  
 Analytical Batch: WG1510345  
 Dilution Factor: 1  
 Analytical Method: 6010B  
 Matrix: GW  
 Total Solids (%): \_\_\_\_\_

SDG: L1239858  
 Collected Date/Time: 07/06/20 14:30  
 Received Date/Time: 07/15/20 08:30  
 Preparation Date/Time: 07/16/20 20:37  
 Analysis Date/Time: 07/16/20 23:57  
 Prep Method: 3015  
 Sample Vol Used: \_\_\_\_\_  
 Initial Wt/Vol: 45 mL  
 Final Wt/Vol: 50 mL

Analyte	CAS	Result mg/l	Qualifier	MDL mg/l	RDL mg/l
Aluminum,Dissolved	7429-90-5	U		0.0704	0.200
Antimony,Dissolved	7440-36-0	U		0.00430	0.0100
Arsenic,Dissolved	7440-38-2	U		0.00440	0.0100
Barium,Dissolved	7440-39-3	0.00524		0.000895	0.00500
Beryllium,Dissolved	7440-41-7	U		0.000460	0.00200
Cadmium,Dissolved	7440-43-9	U		0.000563	0.00200
Calcium,Dissolved	7440-70-2	384	V	0.389	1.00
Chromium,Dissolved	7440-47-3	U		0.00500	0.0100
Cobalt,Dissolved	7440-48-4	0.00923	J	0.000807	0.0100
Copper,Dissolved	7440-50-8	U		0.00469	0.0100
Iron,Dissolved	7439-89-6	3.87		0.0458	0.100
Lead,Dissolved	7439-92-1	U		0.00295	0.00600
Magnesium,Dissolved	7439-95-4	10.6		0.111	1.00
Manganese,Dissolved	7439-96-5	1.29		0.00327	0.0100
Nickel,Dissolved	7440-02-0	U		0.00298	0.0100
Potassium,Dissolved	7440-09-7	1.08	J	0.510	2.00
Selenium,Dissolved	7782-49-2	U		0.00735	0.0100
Silver,Dissolved	7440-22-4	U		0.00191	0.00500
Sodium,Dissolved	7440-23-5	8.38		1.40	3.00
Thallium,Dissolved	7440-28-0	U		0.00431	0.0100
Vanadium,Dissolved	7440-62-2	U		0.00634	0.0200
Zinc,Dissolved	7440-66-6	0.0143	J	0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-08	SDG:	L1239858
Client Sample ID:	ND2-DWT-100-2	Collected Date/Time:	07/06/20 14:30
Lab File ID:	20200721062604	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP14	Preparation Date/Time:	07/20/20 00:27
Analytical Batch:	WG1510357	Analysis Date/Time:	07/21/20 06:26
Dilution Factor:	1	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	U		0.0704	0.200
Antimony	7440-36-0	U		0.00430	0.0100
Arsenic	7440-38-2	U		0.00440	0.0100
Barium	7440-39-3	0.00553		0.000895	0.00500
Beryllium	7440-41-7	U		0.000460	0.00200
Cadmium	7440-43-9	U		0.000563	0.00200
Calcium	7440-70-2	382	O1 V	0.389	1.00
Chromium	7440-47-3	U		0.00500	0.0100
Cobalt	7440-48-4	0.0107		0.000807	0.0100
Copper	7440-50-8	U		0.00469	0.0100
Iron	7439-89-6	7.60	O1	0.0458	0.100
Lead	7439-92-1	U		0.00295	0.00600
Magnesium	7439-95-4	10.5	O1	0.111	1.00
Manganese	7439-96-5	1.44	O1	0.00327	0.0100
Nickel	7440-02-0	U		0.00298	0.0100
Potassium	7440-09-7	1.15	J	0.510	2.00
Selenium	7782-49-2	U		0.00735	0.0100
Silver	7440-22-4	U		0.00191	0.00500
Sodium	7440-23-5	8.32		1.40	3.00
Thallium	7440-28-0	U		0.00431	0.0100
Vanadium	7440-62-2	U		0.00634	0.0200
Zinc	7440-66-6	0.0166	J	0.00916	0.0500

# SAMPLE RESULT SUMMARY

## INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.:  
ND2-DWD-100-2

Lab Sample ID: L1239858-09  
Client Sample ID: ND2-DWD-100-2  
Lab File ID: 20200717004747  
Instrument ID: ICP14  
Analytical Batch: WG1510345  
Dilution Factor: 1  
Analytical Method: 6010B  
Matrix: GW  
Total Solids (%): \_\_\_\_\_

SDG: L1239858  
Collected Date/Time: 07/06/20 14:30  
Received Date/Time: 07/15/20 08:30  
Preparation Date/Time: 07/16/20 20:37  
Analysis Date/Time: 07/17/20 00:47  
Prep Method: 3015  
Sample Vol Used: \_\_\_\_\_  
Initial Wt/Vol: 45 mL  
Final Wt/Vol: 50 mL

Analyte	CAS	Result mg/l	Qualifier	MDL mg/l	RDL mg/l
Aluminum,Dissolved	7429-90-5	U		0.0704	0.200
Antimony,Dissolved	7440-36-0	U		0.00430	0.0100
Arsenic,Dissolved	7440-38-2	U		0.00440	0.0100
Barium,Dissolved	7440-39-3	0.00557		0.000895	0.00500
Beryllium,Dissolved	7440-41-7	U		0.000460	0.00200
Cadmium,Dissolved	7440-43-9	U		0.000563	0.00200
Calcium,Dissolved	7440-70-2	382		0.389	1.00
Chromium,Dissolved	7440-47-3	U		0.00500	0.0100
Cobalt,Dissolved	7440-48-4	0.00960	J	0.000807	0.0100
Copper,Dissolved	7440-50-8	U		0.00469	0.0100
Iron,Dissolved	7439-89-6	3.89		0.0458	0.100
Lead,Dissolved	7439-92-1	U		0.00295	0.00600
Magnesium,Dissolved	7439-95-4	10.6		0.111	1.00
Manganese,Dissolved	7439-96-5	1.31		0.00327	0.0100
Nickel,Dissolved	7440-02-0	U		0.00298	0.0100
Potassium,Dissolved	7440-09-7	1.11	J	0.510	2.00
Selenium,Dissolved	7782-49-2	U		0.00735	0.0100
Silver,Dissolved	7440-22-4	U		0.00191	0.00500
Sodium,Dissolved	7440-23-5	8.43		1.40	3.00
Thallium,Dissolved	7440-28-0	U		0.00431	0.0100
Vanadium,Dissolved	7440-62-2	U		0.00634	0.0200
Zinc,Dissolved	7440-66-6	0.0142	J	0.00916	0.0500



SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-10	SDG:	L1239858
Client Sample ID:	ND2-AWT-100-1	Collected Date/Time:	07/06/20 15:45
Lab File ID:	20200721065304	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP14	Preparation Date/Time:	07/20/20 00:27
Analytical Batch:	WG1510357	Analysis Date/Time:	07/21/20 06:53
Dilution Factor:	1	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	U		0.0704	0.200
Antimony	7440-36-0	U		0.00430	0.0100
Arsenic	7440-38-2	U		0.00440	0.0100
Barium	7440-39-3	0.00551		0.000895	0.00500
Beryllium	7440-41-7	U		0.000460	0.00200
Cadmium	7440-43-9	U		0.000563	0.00200
Calcium	7440-70-2	386		0.389	1.00
Chromium	7440-47-3	U		0.00500	0.0100
Cobalt	7440-48-4	0.00980	J	0.000807	0.0100
Copper	7440-50-8	0.00477	J	0.00469	0.0100
Iron	7439-89-6	7.42		0.0458	0.100
Lead	7439-92-1	U		0.00295	0.00600
Magnesium	7439-95-4	10.6		0.111	1.00
Manganese	7439-96-5	1.32		0.00327	0.0100
Nickel	7440-02-0	U		0.00298	0.0100
Potassium	7440-09-7	1.13	J	0.510	2.00
Selenium	7782-49-2	U		0.00735	0.0100
Silver	7440-22-4	U		0.00191	0.00500
Sodium	7440-23-5	8.32		1.40	3.00
Thallium	7440-28-0	U		0.00431	0.0100
Vanadium	7440-62-2	U		0.00634	0.0200
Zinc	7440-66-6	0.0175	J	0.00916	0.0500

# SAMPLE RESULT SUMMARY

## INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.:  
ND2-AWD-100-1

Lab Sample ID: L1239858-11  
 Client Sample ID: ND2-AWD-100-1  
 Lab File ID: 20200717005043  
 Instrument ID: ICP14  
 Analytical Batch: WG1510345  
 Dilution Factor: 1  
 Analytical Method: 6010B  
 Matrix: GW  
 Total Solids (%): \_\_\_\_\_

SDG: L1239858  
 Collected Date/Time: 07/06/20 15:45  
 Received Date/Time: 07/15/20 08:30  
 Preparation Date/Time: 07/16/20 20:37  
 Analysis Date/Time: 07/17/20 00:50  
 Prep Method: 3015  
 Sample Vol Used: \_\_\_\_\_  
 Initial Wt/Vol: 45 mL  
 Final Wt/Vol: 50 mL

Analyte	CAS	Result mg/l	Qualifier	MDL mg/l	RDL mg/l
Aluminum,Dissolved	7429-90-5	U		0.0704	0.200
Antimony,Dissolved	7440-36-0	U		0.00430	0.0100
Arsenic,Dissolved	7440-38-2	0.00457	J	0.00440	0.0100
Barium,Dissolved	7440-39-3	0.00552		0.000895	0.00500
Beryllium,Dissolved	7440-41-7	U		0.000460	0.00200
Cadmium,Dissolved	7440-43-9	U		0.000563	0.00200
Calcium,Dissolved	7440-70-2	388		0.389	1.00
Chromium,Dissolved	7440-47-3	U		0.00500	0.0100
Cobalt,Dissolved	7440-48-4	0.00973	J	0.000807	0.0100
Copper,Dissolved	7440-50-8	U		0.00469	0.0100
Iron,Dissolved	7439-89-6	7.15		0.0458	0.100
Lead,Dissolved	7439-92-1	U		0.00295	0.00600
Magnesium,Dissolved	7439-95-4	10.6		0.111	1.00
Manganese,Dissolved	7439-96-5	1.35		0.00327	0.0100
Nickel,Dissolved	7440-02-0	U		0.00298	0.0100
Potassium,Dissolved	7440-09-7	1.13	J	0.510	2.00
Selenium,Dissolved	7782-49-2	U		0.00735	0.0100
Silver,Dissolved	7440-22-4	U		0.00191	0.00500
Sodium,Dissolved	7440-23-5	8.46		1.40	3.00
Thallium,Dissolved	7440-28-0	U		0.00431	0.0100
Vanadium,Dissolved	7440-62-2	U		0.00634	0.0200
Zinc,Dissolved	7440-66-6	0.0153	J	0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-12	SDG:	L1239858
Client Sample ID:	ER-01	Collected Date/Time:	07/07/20 08:30
Lab File ID:	20200721065551	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP14	Preparation Date/Time:	07/20/20 00:27
Analytical Batch:	WG1510357	Analysis Date/Time:	07/21/20 06:55
Dilution Factor:	1	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	U		0.0704	0.200
Antimony	7440-36-0	U		0.00430	0.0100
Arsenic	7440-38-2	U		0.00440	0.0100
Barium	7440-39-3	U		0.000895	0.00500
Beryllium	7440-41-7	U		0.000460	0.00200
Cadmium	7440-43-9	U		0.000563	0.00200
Calcium	7440-70-2	U		0.389	1.00
Chromium	7440-47-3	U		0.00500	0.0100
Cobalt	7440-48-4	U		0.000807	0.0100
Copper	7440-50-8	U		0.00469	0.0100
Iron	7439-89-6	0.0755	J	0.0458	0.100
Lead	7439-92-1	U		0.00295	0.00600
Magnesium	7439-95-4	U		0.111	1.00
Manganese	7439-96-5	0.00533	J	0.00327	0.0100
Nickel	7440-02-0	U		0.00298	0.0100
Potassium	7440-09-7	U		0.510	2.00
Selenium	7782-49-2	U		0.00735	0.0100
Silver	7440-22-4	U		0.00191	0.00500
Sodium	7440-23-5	U		1.40	3.00
Thallium	7440-28-0	U		0.00431	0.0100
Vanadium	7440-62-2	U		0.00634	0.0200
Zinc	7440-66-6	U		0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.:  
ND2-AWT-102-1

Lab Sample ID:	L1239858-13	SDG:	L1239858
Client Sample ID:	ND2-AWT-102-1	Collected Date/Time:	07/07/20 09:00
Lab File ID:	20200721065830	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP14	Preparation Date/Time:	07/20/20 00:27
Analytical Batch:	WG1510357	Analysis Date/Time:	07/21/20 06:58
Dilution Factor:	1	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	1.22		0.0704	0.200
Antimony	7440-36-0	U		0.00430	0.0100
Arsenic	7440-38-2	U		0.00440	0.0100
Barium	7440-39-3	0.00715		0.000895	0.00500
Beryllium	7440-41-7	0.000911	J	0.000460	0.00200
Cadmium	7440-43-9	0.00202		0.000563	0.00200
Calcium	7440-70-2	102		0.389	1.00
Chromium	7440-47-3	U		0.00500	0.0100
Cobalt	7440-48-4	0.0226		0.000807	0.0100
Copper	7440-50-8	0.0431		0.00469	0.0100
Iron	7439-89-6	4.90		0.0458	0.100
Lead	7439-92-1	0.00388	J	0.00295	0.00600
Magnesium	7439-95-4	7.15		0.111	1.00
Manganese	7439-96-5	2.01		0.00327	0.0100
Nickel	7440-02-0	0.00580	J	0.00298	0.0100
Potassium	7440-09-7	1.25	J	0.510	2.00
Selenium	7782-49-2	U		0.00735	0.0100
Silver	7440-22-4	U		0.00191	0.00500
Sodium	7440-23-5	6.42		1.40	3.00
Thallium	7440-28-0	U		0.00431	0.0100
Vanadium	7440-62-2	U		0.00634	0.0200
Zinc	7440-66-6	0.406		0.00916	0.0500

# SAMPLE RESULT SUMMARY

## INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.:  
ND2-AWD-102-1

Lab Sample ID: L1239858-14  
 Client Sample ID: ND2-AWD-102-1  
 Lab File ID: 20200717005837  
 Instrument ID: ICP14  
 Analytical Batch: WG1510345  
 Dilution Factor: 1  
 Analytical Method: 6010B  
 Matrix: GW  
 Total Solids (%): \_\_\_\_\_

SDG: L1239858  
 Collected Date/Time: 07/07/20 09:00  
 Received Date/Time: 07/15/20 08:30  
 Preparation Date/Time: 07/16/20 20:37  
 Analysis Date/Time: 07/17/20 00:58  
 Prep Method: 3015  
 Sample Vol Used: \_\_\_\_\_  
 Initial Wt/Vol: 45 mL  
 Final Wt/Vol: 50 mL

Analyte	CAS	Result mg/l	Qualifier	MDL mg/l	RDL mg/l
Aluminum,Dissolved	7429-90-5	0.408		0.0704	0.200
Antimony,Dissolved	7440-36-0	U		0.00430	0.0100
Arsenic,Dissolved	7440-38-2	U		0.00440	0.0100
Barium,Dissolved	7440-39-3	0.00707		0.000895	0.00500
Beryllium,Dissolved	7440-41-7	0.000644	J	0.000460	0.00200
Cadmium,Dissolved	7440-43-9	0.00146	J	0.000563	0.00200
Calcium,Dissolved	7440-70-2	101		0.389	1.00
Chromium,Dissolved	7440-47-3	U		0.00500	0.0100
Cobalt,Dissolved	7440-48-4	0.0211		0.000807	0.0100
Copper,Dissolved	7440-50-8	0.0203		0.00469	0.0100
Iron,Dissolved	7439-89-6	3.28		0.0458	0.100
Lead,Dissolved	7439-92-1	U		0.00295	0.00600
Magnesium,Dissolved	7439-95-4	7.09		0.111	1.00
Manganese,Dissolved	7439-96-5	1.99		0.00327	0.0100
Nickel,Dissolved	7440-02-0	0.00430	J	0.00298	0.0100
Potassium,Dissolved	7440-09-7	1.18	J	0.510	2.00
Selenium,Dissolved	7782-49-2	U		0.00735	0.0100
Silver,Dissolved	7440-22-4	U		0.00191	0.00500
Sodium,Dissolved	7440-23-5	6.39		1.40	3.00
Thallium,Dissolved	7440-28-0	U		0.00431	0.0100
Vanadium,Dissolved	7440-62-2	U		0.00634	0.0200
Zinc,Dissolved	7440-66-6	0.384		0.00916	0.0500



SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-15	SDG:	L1239858
Client Sample ID:	ND2-AP-102-1	Collected Date/Time:	07/07/20 09:15
Lab File ID:	20200720004441	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP13	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/20/20 00:44
Dilution Factor:	5	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.49 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Aluminum	7429-90-5	6820		41.0	100
Antimony	7440-36-0	U		2.50	10.0
Arsenic	7440-38-2	9.45	J	2.30	10.0
Barium	7440-39-3	26.5		1.20	2.50
Beryllium	7440-41-7	3.21		0.400	1.00
Cadmium	7440-43-9	5.39		0.405	2.50
Calcium	7440-70-2	1760		150	500
Chromium	7440-47-3	U		1.25	5.00
Cobalt	7440-48-4	134		1.15	5.00
Copper	7440-50-8	261		2.53	10.0
Iron	7439-89-6	47500		25.0	50.0
Lead	7439-92-1	33.1		1.04	2.50
Magnesium	7439-95-4	U		102	500
Nickel	7440-02-0	11.4		2.45	10.0
Potassium	7440-09-7	U		104	250
Selenium	7782-49-2	3.43	J	3.08	10.0
Silver	7440-22-4	1.15	J	1.14	5.00
Sodium	7440-23-5	U		166	500
Thallium	7440-28-0	U		1.77	10.0
Vanadium	7440-62-2	U		3.44	10.0
Zinc	7440-66-6	768		4.70	25.0

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-15	SDG:	L1239858
Client Sample ID:	ND2-AP-102-1	Collected Date/Time:	07/07/20 09:15
Lab File ID:	20200720114322	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP14	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/20/20 11:43
Dilution Factor:	10	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	_____
Matrix:	Solid	Initial Wt/Vol:	0.49 g
Total Solids (%):	_____	Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Manganese	7439-96-5	10600		2.45	10.0

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID: L1239858-16  
Client Sample ID: ND2-SS-202-1  
Lab File ID: 20200718105139  
Instrument ID: ICP12  
Analytical Batch: WG1511061  
Dilution Factor: 1  
Analytical Method: 6010B  
Matrix: GW  
Total Solids (%): \_\_\_\_\_

SDG: L1239858  
Collected Date/Time: 07/07/20 09:15  
Received Date/Time: 07/15/20 08:30  
Preparation Date/Time: 07/17/20 22:08  
Analysis Date/Time: 07/18/20 10:51  
Prep Method: 3015  
Sample Vol Used: \_\_\_\_\_  
Initial Wt/Vol: 45 mL  
Final Wt/Vol: 50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	0.185	J	0.0704	0.200
Antimony	7440-36-0	U		0.00430	0.0100
Arsenic	7440-38-2	U		0.00440	0.0100
Barium	7440-39-3	0.141		0.000895	0.00500
Beryllium	7440-41-7	U		0.000460	0.00200
Cadmium	7440-43-9	0.0109		0.000563	0.00200
Calcium	7440-70-2	4.75		0.389	1.00
Chromium	7440-47-3	U		0.00500	0.0100
Cobalt	7440-48-4	0.00324	J	0.000807	0.0100
Copper	7440-50-8	0.447		0.00469	0.0100
Iron	7439-89-6	0.486		0.0458	0.100
Lead	7439-92-1	9.99		0.00295	0.00600
Magnesium	7439-95-4	0.661	J	0.111	1.00
Manganese	7439-96-5	0.225		0.00327	0.0100
Nickel	7440-02-0	U		0.00298	0.0100
Potassium	7440-09-7	2.24		0.510	2.00
Selenium	7782-49-2	U		0.00735	0.0100
Silver	7440-22-4	U		0.00191	0.00500
Sodium	7440-23-5	12.8		1.40	3.00
Thallium	7440-28-0	U		0.00431	0.0100
Vanadium	7440-62-2	U		0.00634	0.0200
Zinc	7440-66-6	2.68		0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-17	SDG:	L1239858
Client Sample ID:	ND2-SS-202-2	Collected Date/Time:	07/07/20 09:40
Lab File ID:	20200718105420	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP12	Preparation Date/Time:	07/17/20 22:08
Analytical Batch:	WG1511061	Analysis Date/Time:	07/18/20 10:54
Dilution Factor:	1	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	U		0.0704	0.200
Antimony	7440-36-0	U		0.00430	0.0100
Arsenic	7440-38-2	U		0.00440	0.0100
Barium	7440-39-3	0.0727		0.000895	0.00500
Beryllium	7440-41-7	U		0.000460	0.00200
Cadmium	7440-43-9	U		0.000563	0.00200
Calcium	7440-70-2	5.50		0.389	1.00
Chromium	7440-47-3	U		0.00500	0.0100
Cobalt	7440-48-4	0.00109	J	0.000807	0.0100
Copper	7440-50-8	0.00801	J	0.00469	0.0100
Iron	7439-89-6	0.0870	J	0.0458	0.100
Lead	7439-92-1	0.0531		0.00295	0.00600
Magnesium	7439-95-4	0.625	J	0.111	1.00
Manganese	7439-96-5	0.197		0.00327	0.0100
Nickel	7440-02-0	U		0.00298	0.0100
Potassium	7440-09-7	0.717	J	0.510	2.00
Selenium	7782-49-2	0.00858	J	0.00735	0.0100
Silver	7440-22-4	U		0.00191	0.00500
Sodium	7440-23-5	13.2		1.40	3.00
Thallium	7440-28-0	U		0.00431	0.0100
Vanadium	7440-62-2	U		0.00634	0.0200
Zinc	7440-66-6	0.0201	J	0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEETSAMPLE NO.:  
ND2-SS-OND-2

Lab Sample ID: L1239858-18  
Client Sample ID: ND2-SS-OND-2  
Lab File ID: 20200718110218  
Instrument ID: ICP12  
Analytical Batch: WG1511061  
Dilution Factor: 1  
Analytical Method: 6010B  
Matrix: GW  
Total Solids (%): \_\_\_\_\_

SDG: L1239858  
Collected Date/Time: 07/07/20 12:00  
Received Date/Time: 07/15/20 08:30  
Preparation Date/Time: 07/17/20 22:08  
Analysis Date/Time: 07/18/20 11:02  
Prep Method: 3015  
Sample Vol Used: \_\_\_\_\_  
Initial Wt/Vol: 45 mL  
Final Wt/Vol: 50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	U		0.0704	0.200
Antimony	7440-36-0	U		0.00430	0.0100
Arsenic	7440-38-2	U		0.00440	0.0100
Barium	7440-39-3	0.0248		0.000895	0.00500
Beryllium	7440-41-7	U		0.000460	0.00200
Cadmium	7440-43-9	U		0.000563	0.00200
Calcium	7440-70-2	2.07		0.389	1.00
Chromium	7440-47-3	U		0.00500	0.0100
Cobalt	7440-48-4	U		0.000807	0.0100
Copper	7440-50-8	0.00737	J	0.00469	0.0100
Iron	7439-89-6	0.0633	J	0.0458	0.100
Lead	7439-92-1	0.0160		0.00295	0.00600
Magnesium	7439-95-4	0.552	J	0.111	1.00
Manganese	7439-96-5	0.0110		0.00327	0.0100
Nickel	7440-02-0	U		0.00298	0.0100
Potassium	7440-09-7	1.03	J	0.510	2.00
Selenium	7782-49-2	U		0.00735	0.0100
Silver	7440-22-4	U		0.00191	0.00500
Sodium	7440-23-5	6.39		1.40	3.00
Thallium	7440-28-0	U		0.00431	0.0100
Vanadium	7440-62-2	U		0.00634	0.0200
Zinc	7440-66-6	0.0109	J	0.00916	0.0500



SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-19	SDG:	L1239858
Client Sample ID:	ND2-SS-OND-1	Collected Date/Time:	07/07/20 11:20
Lab File ID:	20200801103741	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP12	Preparation Date/Time:	07/31/20 19:37
Analytical Batch:	WG1518611	Analysis Date/Time:	08/01/20 10:37
Dilution Factor:	1	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	0.127	J	0.0704	0.200
Antimony	7440-36-0	U		0.00430	0.0100
Arsenic	7440-38-2	U		0.00440	0.0100
Barium	7440-39-3	0.0139		0.000895	0.00500
Beryllium	7440-41-7	U		0.000460	0.00200
Cadmium	7440-43-9	U		0.000563	0.00200
Calcium	7440-70-2	1.55		0.389	1.00
Chromium	7440-47-3	U		0.00500	0.0100
Cobalt	7440-48-4	U		0.000807	0.0100
Copper	7440-50-8	0.00653	J	0.00469	0.0100
Iron	7439-89-6	0.261		0.0458	0.100
Lead	7439-92-1	0.136		0.00295	0.00600
Magnesium	7439-95-4	0.195	J	0.111	1.00
Manganese	7439-96-5	U		0.00327	0.0100
Nickel	7440-02-0	U		0.00298	0.0100
Potassium	7440-09-7	U		0.510	2.00
Selenium	7782-49-2	U		0.00735	0.0100
Silver	7440-22-4	U		0.00191	0.00500
Sodium	7440-23-5	31.9		1.40	3.00
Thallium	7440-28-0	U		0.00431	0.0100
Vanadium	7440-62-2	U		0.00634	0.0200
Zinc	7440-66-6	0.0256	J	0.00916	0.0500

# SAMPLE RESULT SUMMARY

## INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.:

ND2-SS-ONDBKG-1

**Lab Sample ID:** L1239858-20  
**Client Sample ID:** ND2-SS-ONDBKG-1  
**Lab File ID:** 20200718110742  
**Instrument ID:** ICP12  
**Analytical Batch:** WG1511061  
**Dilution Factor:** 1  
**Analytical Method:** 6010B  
**Matrix:** GW  
**Total Solids (%):** \_\_\_\_\_

**SDG:** L1239858  
**Collected Date/Time:** 07/07/20 12:55  
**Received Date/Time:** 07/15/20 08:30  
**Preparation Date/Time:** 07/17/20 22:08  
**Analysis Date/Time:** 07/18/20 11:07  
**Prep Method:** 3015  
**Sample Vol Used:** \_\_\_\_\_  
**Initial Wt/Vol:** 45 mL  
**Final Wt/Vol:** 50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	2.32		0.0704	0.200
Antimony	7440-36-0	U		0.00430	0.0100
Arsenic	7440-38-2	U		0.00440	0.0100
Barium	7440-39-3	0.0992		0.000895	0.00500
Beryllium	7440-41-7	U		0.000460	0.00200
Cadmium	7440-43-9	U		0.000563	0.00200
Calcium	7440-70-2	2.78		0.389	1.00
Chromium	7440-47-3	U		0.00500	0.0100
Cobalt	7440-48-4	U		0.000807	0.0100
Copper	7440-50-8	0.0150		0.00469	0.0100
Iron	7439-89-6	6.75		0.0458	0.100
Lead	7439-92-1	0.0722		0.00295	0.00600
Magnesium	7439-95-4	0.860	J	0.111	1.00
Manganese	7439-96-5	0.0329		0.00327	0.0100
Nickel	7440-02-0	U		0.00298	0.0100
Potassium	7440-09-7	2.03		0.510	2.00
Selenium	7782-49-2	0.0163		0.00735	0.0100
Silver	7440-22-4	U		0.00191	0.00500
Sodium	7440-23-5	19.1		1.40	3.00
Thallium	7440-28-0	0.00689	J	0.00431	0.0100
Vanadium	7440-62-2	U		0.00634	0.0200
Zinc	7440-66-6	0.0181	J	0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-21	SDG:	L1239858
Client Sample ID:	ND2-SS-OND-1	Collected Date/Time:	07/07/20 12:00
Lab File ID:	20200719205519	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP13	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/19/20 20:55
Dilution Factor:	1	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.49 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Aluminum	7429-90-5	9820		8.20	20.0
Antimony	7440-36-0	2.19		0.500	2.00
Arsenic	7440-38-2	82.5		0.460	2.00
Barium	7440-39-3	188		0.240	0.500
Beryllium	7440-41-7	0.176	J	0.0800	0.200
Cadmium	7440-43-9	0.266	J	0.0810	0.500
Calcium	7440-70-2	309		30.0	100
Chromium	7440-47-3	14.6		0.250	1.00
Cobalt	7440-48-4	1.88		0.230	1.00
Copper	7440-50-8	164		0.506	2.00
Lead	7439-92-1	1200		0.208	0.500
Magnesium	7439-95-4	5810		20.5	100
Manganese	7439-96-5	89.9		0.245	1.00
Nickel	7440-02-0	5.56		0.490	2.00
Potassium	7440-09-7	4230		20.9	50.0
Selenium	7782-49-2	5.34		0.617	2.00
Silver	7440-22-4	12.2		0.228	1.00
Sodium	7440-23-5	384		33.2	100
Thallium	7440-28-0	U		0.354	2.00
Vanadium	7440-62-2	34.9		0.687	2.00
Zinc	7440-66-6	84.9		0.939	5.00

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-21	SDG:	L1239858
Client Sample ID:	ND2-SS-OND-1	Collected Date/Time:	07/07/20 12:00
Lab File ID:	20200720004724	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP13	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/20/20 00:47
Dilution Factor:	5	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	_____
Matrix:	Solid	Initial Wt/Vol:	0.49 g
Total Solids (%):	_____	Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Iron	7439-89-6	58800		25.0	50.0

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-22	SDG:	L1239858
Client Sample ID:	ND2-SS-OND-2	Collected Date/Time:	07/07/20 11:20
Lab File ID:	20200719205807	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP13	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/19/20 20:58
Dilution Factor:	1	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.49 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Aluminum	7429-90-5	10600		8.20	20.0
Antimony	7440-36-0	2.47		0.500	2.00
Arsenic	7440-38-2	85.7		0.460	2.00
Barium	7440-39-3	216		0.240	0.500
Beryllium	7440-41-7	0.180	J	0.0800	0.200
Cadmium	7440-43-9	1.99		0.0810	0.500
Calcium	7440-70-2	347		30.0	100
Chromium	7440-47-3	16.0		0.250	1.00
Cobalt	7440-48-4	2.07		0.230	1.00
Copper	7440-50-8	181		0.506	2.00
Lead	7439-92-1	1320		0.208	0.500
Magnesium	7439-95-4	6300		20.5	100
Manganese	7439-96-5	97.5		0.245	1.00
Nickel	7440-02-0	6.02		0.490	2.00
Potassium	7440-09-7	4630		20.9	50.0
Selenium	7782-49-2	6.11		0.617	2.00
Silver	7440-22-4	13.0		0.228	1.00
Sodium	7440-23-5	428		33.2	100
Thallium	7440-28-0	U		0.354	2.00
Vanadium	7440-62-2	38.1		0.687	2.00
Zinc	7440-66-6	376		0.939	5.00



SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-22	SDG:	L1239858
Client Sample ID:	ND2-SS-OND-2	Collected Date/Time:	07/07/20 11:20
Lab File ID:	20200720005007	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP13	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/20/20 00:50
Dilution Factor:	5	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	_____
Matrix:	Solid	Initial Wt/Vol:	0.49 g
Total Solids (%):	_____	Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Iron	7439-89-6	63100		25.0	50.0

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-23	SDG:	L1239858
Client Sample ID:	ND2-SS-ONDBKG-1	Collected Date/Time:	07/07/20 12:55
Lab File ID:	20200719210105	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP13	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/19/20 21:01
Dilution Factor:	1	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.50 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Aluminum	7429-90-5	12500		8.20	20.0
Antimony	7440-36-0	0.903	J	0.500	2.00
Arsenic	7440-38-2	9.60		0.460	2.00
Barium	7440-39-3	185		0.240	0.500
Beryllium	7440-41-7	0.274		0.0800	0.200
Cadmium	7440-43-9	0.225	J	0.0810	0.500
Calcium	7440-70-2	4590		30.0	100
Chromium	7440-47-3	6.57		0.250	1.00
Cobalt	7440-48-4	3.13		0.230	1.00
Copper	7440-50-8	21.4		0.506	2.00
Iron	7439-89-6	26400		5.00	10.0
Lead	7439-92-1	66.3		0.208	0.500
Magnesium	7439-95-4	4600		20.5	100
Manganese	7439-96-5	273		0.245	1.00
Nickel	7440-02-0	3.31		0.490	2.00
Potassium	7440-09-7	2790		20.9	50.0
Selenium	7782-49-2	1.66	J	0.617	2.00
Silver	7440-22-4	U		0.228	1.00
Sodium	7440-23-5	377		33.2	100
Thallium	7440-28-0	U		0.354	2.00
Vanadium	7440-62-2	34.5		0.687	2.00
Zinc	7440-66-6	56.0		0.939	5.00

# SAMPLE RESULT SUMMARY

## INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.:  
R3550332-1

Lab Sample ID: R3550332-1  
 Client Sample ID: BLANK  
 Lab File ID: 20200716235149  
 Instrument ID: ICP14  
 Analytical Batch: WG1510345  
 Dilution Factor: 1  
 Analytical Method: 6010B  
 Matrix: GW  
 Total Solids (%): \_\_\_\_\_

SDG: L1239858  
 Collected Date/Time: \_\_\_\_\_  
 Received Date/Time: \_\_\_\_\_  
 Preparation Date/Time: 07/16/20 20:37  
 Analysis Date/Time: 07/16/20 23:51  
 Prep Method: 3015  
 Sample Vol Used: \_\_\_\_\_  
 Initial Wt/Vol: 45 mL  
 Final Wt/Vol: 50 mL

Analyte	CAS	Result mg/l	Qualifier	MDL mg/l	RDL mg/l
Aluminum,Dissolved	7429-90-5	U		0.0704	0.200
Antimony,Dissolved	7440-36-0	U		0.00430	0.0100
Arsenic,Dissolved	7440-38-2	U		0.00440	0.0100
Barium,Dissolved	7440-39-3	U		0.000895	0.00500
Beryllium,Dissolved	7440-41-7	U		0.000460	0.00200
Cadmium,Dissolved	7440-43-9	U		0.000563	0.00200
Calcium,Dissolved	7440-70-2	U		0.389	1.00
Chromium,Dissolved	7440-47-3	U		0.00500	0.0100
Cobalt,Dissolved	7440-48-4	U		0.000807	0.0100
Copper,Dissolved	7440-50-8	U		0.00469	0.0100
Iron,Dissolved	7439-89-6	U		0.0458	0.100
Lead,Dissolved	7439-92-1	U		0.00295	0.00600
Magnesium,Dissolved	7439-95-4	U		0.111	1.00
Manganese,Dissolved	7439-96-5	U		0.00327	0.0100
Nickel,Dissolved	7440-02-0	U		0.00298	0.0100
Potassium,Dissolved	7440-09-7	U		0.510	2.00
Selenium,Dissolved	7782-49-2	U		0.00735	0.0100
Silver,Dissolved	7440-22-4	U		0.00191	0.00500
Sodium,Dissolved	7440-23-5	U		1.40	3.00
Thallium,Dissolved	7440-28-0	U		0.00431	0.0100
Vanadium,Dissolved	7440-62-2	U		0.00634	0.0200
Zinc,Dissolved	7440-66-6	U		0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550925-1	SDG:	L1239858
Client Sample ID:	BLANK	Collected Date/Time:	
Lab File ID:	20200718103046	Received Date/Time:	
Instrument ID:	ICP12	Preparation Date/Time:	07/17/20 22:10
Analytical Batch:	WG1511061	Analysis Date/Time:	07/18/20 10:30
Dilution Factor:	1	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	U		0.0704	0.200
Antimony	7440-36-0	U		0.00430	0.0100
Arsenic	7440-38-2	U		0.00440	0.0100
Barium	7440-39-3	U		0.000895	0.00500
Beryllium	7440-41-7	U		0.000460	0.00200
Cadmium	7440-43-9	U		0.000563	0.00200
Calcium	7440-70-2	U		0.389	1.00
Chromium	7440-47-3	U		0.00500	0.0100
Cobalt	7440-48-4	U		0.000807	0.0100
Copper	7440-50-8	U		0.00469	0.0100
Iron	7439-89-6	U		0.0458	0.100
Lead	7439-92-1	U		0.00295	0.00600
Magnesium	7439-95-4	U		0.111	1.00
Manganese	7439-96-5	U		0.00327	0.0100
Nickel	7440-02-0	U		0.00298	0.0100
Potassium	7440-09-7	U		0.510	2.00
Selenium	7782-49-2	U		0.00735	0.0100
Silver	7440-22-4	U		0.00191	0.00500
Sodium	7440-23-5	U		1.40	3.00
Thallium	7440-28-0	U		0.00431	0.0100
Vanadium	7440-62-2	U		0.00634	0.0200
Zinc	7440-66-6	U		0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550996-1	SDG:	L1239858
Client Sample ID:	BLANK	Collected Date/Time:	
Lab File ID:	20200719200925	Received Date/Time:	
Instrument ID:	ICP13	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/19/20 20:09
Dilution Factor:	1	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.50 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Aluminum	7429-90-5	U		8.20	20.0
Antimony	7440-36-0	U		0.500	2.00
Arsenic	7440-38-2	U		0.460	2.00
Barium	7440-39-3	U		0.240	0.500
Beryllium	7440-41-7	U		0.0800	0.200
Cadmium	7440-43-9	U		0.0810	0.500
Calcium	7440-70-2	U		30.0	100
Chromium	7440-47-3	U		0.250	1.00
Cobalt	7440-48-4	U		0.230	1.00
Copper	7440-50-8	U		0.506	2.00
Iron	7439-89-6	U		5.00	10.0
Lead	7439-92-1	U		0.208	0.500
Magnesium	7439-95-4	U		20.5	100
Manganese	7439-96-5	U		0.245	1.00
Nickel	7440-02-0	U		0.490	2.00
Potassium	7440-09-7	U		20.9	50.0
Selenium	7782-49-2	U		0.617	2.00
Silver	7440-22-4	U		0.228	1.00
Sodium	7440-23-5	U		33.2	100
Thallium	7440-28-0	U		0.354	2.00
Vanadium	7440-62-2	U		0.687	2.00
Zinc	7440-66-6	U		0.939	5.00



SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3551587-1	SDG:	L1239858
Client Sample ID:	BLANK	Collected Date/Time:	
Lab File ID:	20200721062035	Received Date/Time:	
Instrument ID:	ICP14	Preparation Date/Time:	07/20/20 00:29
Analytical Batch:	WG1510357	Analysis Date/Time:	07/21/20 06:20
Dilution Factor:	1	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	U		0.0704	0.200
Antimony	7440-36-0	U		0.00430	0.0100
Arsenic	7440-38-2	U		0.00440	0.0100
Barium	7440-39-3	U		0.000895	0.00500
Beryllium	7440-41-7	U		0.000460	0.00200
Cadmium	7440-43-9	U		0.000563	0.00200
Calcium	7440-70-2	U		0.389	1.00
Chromium	7440-47-3	U		0.00500	0.0100
Cobalt	7440-48-4	U		0.000807	0.0100
Copper	7440-50-8	U		0.00469	0.0100
Iron	7439-89-6	U		0.0458	0.100
Lead	7439-92-1	U		0.00295	0.00600
Magnesium	7439-95-4	U		0.111	1.00
Manganese	7439-96-5	U		0.00327	0.0100
Nickel	7440-02-0	U		0.00298	0.0100
Potassium	7440-09-7	U		0.510	2.00
Selenium	7782-49-2	U		0.00735	0.0100
Silver	7440-22-4	U		0.00191	0.00500
Sodium	7440-23-5	U		1.40	3.00
Thallium	7440-28-0	U		0.00431	0.0100
Vanadium	7440-62-2	U		0.00634	0.0200
Zinc	7440-66-6	U		0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3555593-1	SDG:	L1239858
Client Sample ID:	BLANK	Collected Date/Time:	
Lab File ID:	20200801103225	Received Date/Time:	
Instrument ID:	ICP12	Preparation Date/Time:	07/31/20 18:52
Analytical Batch:	WG1518611	Analysis Date/Time:	08/01/20 10:32
Dilution Factor:	1	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	U		0.0704	0.200
Antimony	7440-36-0	U		0.00430	0.0100
Arsenic	7440-38-2	U		0.00440	0.0100
Barium	7440-39-3	U		0.000895	0.00500
Beryllium	7440-41-7	U		0.000460	0.00200
Cadmium	7440-43-9	U		0.000563	0.00200
Calcium	7440-70-2	U		0.389	1.00
Chromium	7440-47-3	U		0.00500	0.0100
Cobalt	7440-48-4	U		0.000807	0.0100
Copper	7440-50-8	U		0.00469	0.0100
Iron	7439-89-6	U		0.0458	0.100
Lead	7439-92-1	U		0.00295	0.00600
Magnesium	7439-95-4	U		0.111	1.00
Manganese	7439-96-5	U		0.00327	0.0100
Nickel	7440-02-0	U		0.00298	0.0100
Potassium	7440-09-7	U		0.510	2.00
Selenium	7782-49-2	U		0.00735	0.0100
Silver	7440-22-4	U		0.00191	0.00500
Sodium	7440-23-5	U		1.40	3.00
Thallium	7440-28-0	U		0.00431	0.0100
Vanadium	7440-62-2	U		0.00634	0.0200
Zinc	7440-66-6	U		0.00916	0.0500

# SAMPLE RESULT SUMMARY

## INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.:  
R3550332-2

Lab Sample ID: R3550332-2  
 Client Sample ID: LCS  
 Lab File ID: 20200716235417  
 Instrument ID: ICP14  
 Analytical Batch: WG1510345  
 Dilution Factor: 1  
 Analytical Method: 6010B  
 Matrix: GW  
 Total Solids (%): \_\_\_\_\_

SDG: L1239858  
 Collected Date/Time: \_\_\_\_\_  
 Received Date/Time: \_\_\_\_\_  
 Preparation Date/Time: 07/16/20 20:37  
 Analysis Date/Time: 07/16/20 23:54  
 Prep Method: 3015  
 Sample Vol Used: \_\_\_\_\_  
 Initial Wt/Vol: 45 mL  
 Final Wt/Vol: 50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum,Dissolved	7429-90-5	9.47		0.0704	0.200
Antimony,Dissolved	7440-36-0	0.944		0.00430	0.0100
Arsenic,Dissolved	7440-38-2	0.925		0.00440	0.0100
Barium,Dissolved	7440-39-3	0.982		0.000895	0.00500
Beryllium,Dissolved	7440-41-7	0.982		0.000460	0.00200
Cadmium,Dissolved	7440-43-9	0.937		0.000563	0.00200
Calcium,Dissolved	7440-70-2	9.78		0.389	1.00
Chromium,Dissolved	7440-47-3	0.970		0.00500	0.0100
Cobalt,Dissolved	7440-48-4	0.956		0.000807	0.0100
Copper,Dissolved	7440-50-8	0.956		0.00469	0.0100
Iron,Dissolved	7439-89-6	9.67		0.0458	0.100
Lead,Dissolved	7439-92-1	0.937		0.00295	0.00600
Magnesium,Dissolved	7439-95-4	9.62		0.111	1.00
Manganese,Dissolved	7439-96-5	0.951		0.00327	0.0100
Nickel,Dissolved	7440-02-0	0.948		0.00298	0.0100
Potassium,Dissolved	7440-09-7	9.02		0.510	2.00
Selenium,Dissolved	7782-49-2	0.938		0.00735	0.0100
Silver,Dissolved	7440-22-4	0.187		0.00191	0.00500
Sodium,Dissolved	7440-23-5	9.70		1.40	3.00
Thallium,Dissolved	7440-28-0	0.974		0.00431	0.0100
Vanadium,Dissolved	7440-62-2	0.991		0.00634	0.0200
Zinc,Dissolved	7440-66-6	0.935		0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550925-2	SDG:	L1239858
Client Sample ID:	LCS	Collected Date/Time:	
Lab File ID:	20200718103316	Received Date/Time:	
Instrument ID:	ICP12	Preparation Date/Time:	07/17/20 22:10
Analytical Batch:	WG1511061	Analysis Date/Time:	07/18/20 10:33
Dilution Factor:	1	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	9.61		0.0704	0.200
Antimony	7440-36-0	0.955		0.00430	0.0100
Arsenic	7440-38-2	0.922		0.00440	0.0100
Barium	7440-39-3	0.989		0.000895	0.00500
Beryllium	7440-41-7	0.975		0.000460	0.00200
Cadmium	7440-43-9	0.955		0.000563	0.00200
Calcium	7440-70-2	10.3		0.389	1.00
Chromium	7440-47-3	0.917		0.00500	0.0100
Cobalt	7440-48-4	0.985		0.000807	0.0100
Copper	7440-50-8	0.997		0.00469	0.0100
Iron	7439-89-6	9.78		0.0458	0.100
Lead	7439-92-1	0.939		0.00295	0.00600
Magnesium	7439-95-4	10.2		0.111	1.00
Manganese	7439-96-5	0.904		0.00327	0.0100
Nickel	7440-02-0	0.964		0.00298	0.0100
Potassium	7440-09-7	9.54		0.510	2.00
Selenium	7782-49-2	0.941		0.00735	0.0100
Silver	7440-22-4	0.175		0.00191	0.00500
Sodium	7440-23-5	10.1		1.40	3.00
Thallium	7440-28-0	1.00		0.00431	0.0100
Vanadium	7440-62-2	0.992		0.00634	0.0200
Zinc	7440-66-6	0.947		0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550996-2	SDG:	L1239858
Client Sample ID:	LCS	Collected Date/Time:	
Lab File ID:	20200719201159	Received Date/Time:	
Instrument ID:	ICP13	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/19/20 20:11
Dilution Factor:	1	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.51 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Aluminum	7429-90-5	976		8.20	20.0
Antimony	7440-36-0	95.7		0.500	2.00
Arsenic	7440-38-2	95.2		0.460	2.00
Barium	7440-39-3	100		0.240	0.500
Beryllium	7440-41-7	101		0.0800	0.200
Cadmium	7440-43-9	95.6		0.0810	0.500
Calcium	7440-70-2	997		30.0	100
Chromium	7440-47-3	98.5		0.250	1.00
Cobalt	7440-48-4	102		0.230	1.00
Copper	7440-50-8	97.0		0.506	2.00
Iron	7439-89-6	983		5.00	10.0
Lead	7439-92-1	97.6		0.208	0.500
Magnesium	7439-95-4	958		20.5	100
Manganese	7439-96-5	97.3		0.245	1.00
Nickel	7440-02-0	101		0.490	2.00
Potassium	7440-09-7	910		20.9	50.0
Selenium	7782-49-2	94.1		0.617	2.00
Silver	7440-22-4	18.0		0.228	1.00
Sodium	7440-23-5	991		33.2	100
Thallium	7440-28-0	96.5		0.354	2.00
Vanadium	7440-62-2	99.2		0.687	2.00
Zinc	7440-66-6	97.1		0.939	5.00



SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3551587-7	SDG:	L1239858
Client Sample ID:	LCS	Collected Date/Time:	
Lab File ID:	20200721112732	Received Date/Time:	
Instrument ID:	ICP14	Preparation Date/Time:	07/20/20 00:29
Analytical Batch:	WG1510357	Analysis Date/Time:	07/21/20 11:27
Dilution Factor:	1	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	9.54		0.0704	0.200
Antimony	7440-36-0	0.964		0.00430	0.0100
Arsenic	7440-38-2	0.964		0.00440	0.0100
Barium	7440-39-3	1.02		0.000895	0.00500
Beryllium	7440-41-7	0.977		0.000460	0.00200
Cadmium	7440-43-9	0.987		0.000563	0.00200
Calcium	7440-70-2	9.86		0.389	1.00
Chromium	7440-47-3	0.983		0.00500	0.0100
Cobalt	7440-48-4	0.996		0.000807	0.0100
Copper	7440-50-8	0.969		0.00469	0.0100
Iron	7439-89-6	9.68		0.0458	0.100
Lead	7439-92-1	0.972		0.00295	0.00600
Magnesium	7439-95-4	9.77		0.111	1.00
Manganese	7439-96-5	0.964		0.00327	0.0100
Nickel	7440-02-0	0.994		0.00298	0.0100
Potassium	7440-09-7	9.13		0.510	2.00
Selenium	7782-49-2	0.971		0.00735	0.0100
Silver	7440-22-4	0.186		0.00191	0.00500
Sodium	7440-23-5	9.76		1.40	3.00
Thallium	7440-28-0	0.977		0.00431	0.0100
Vanadium	7440-62-2	0.981		0.00634	0.0200
Zinc	7440-66-6	0.969		0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3555593-2	SDG:	L1239858
Client Sample ID:	LCS	Collected Date/Time:	
Lab File ID:	20200801103459	Received Date/Time:	
Instrument ID:	ICP12	Preparation Date/Time:	07/31/20 18:52
Analytical Batch:	WG1518611	Analysis Date/Time:	08/01/20 10:34
Dilution Factor:	1	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	9.85		0.0704	0.200
Antimony	7440-36-0	0.961		0.00430	0.0100
Arsenic	7440-38-2	0.952		0.00440	0.0100
Barium	7440-39-3	1.01		0.000895	0.00500
Beryllium	7440-41-7	0.955		0.000460	0.00200
Cadmium	7440-43-9	0.991		0.000563	0.00200
Calcium	7440-70-2	9.94		0.389	1.00
Chromium	7440-47-3	0.994		0.00500	0.0100
Cobalt	7440-48-4	1.00		0.000807	0.0100
Copper	7440-50-8	1.00		0.00469	0.0100
Iron	7439-89-6	9.76		0.0458	0.100
Lead	7439-92-1	0.966		0.00295	0.00600
Magnesium	7439-95-4	10.2		0.111	1.00
Manganese	7439-96-5	0.971		0.00327	0.0100
Nickel	7440-02-0	0.975		0.00298	0.0100
Potassium	7440-09-7	9.79		0.510	2.00
Selenium	7782-49-2	0.958		0.00735	0.0100
Silver	7440-22-4	0.185		0.00191	0.00500
Sodium	7440-23-5	10.0		1.40	3.00
Thallium	7440-28-0	0.987		0.00431	0.0100
Vanadium	7440-62-2	0.965		0.00634	0.0200
Zinc	7440-66-6	0.989		0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550332-4	SDG:	L1239858
Client Sample ID:	MS	Collected Date/Time:	07/06/20 14:30
Lab File ID:	20200717000242	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP14	Preparation Date/Time:	07/16/20 20:37
Analytical Batch:	WG1510345	Analysis Date/Time:	07/17/20 00:02
Dilution Factor:	1	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum,Dissolved	7429-90-5	9.66		0.0704	0.200
Antimony,Dissolved	7440-36-0	0.978		0.00430	0.0100
Arsenic,Dissolved	7440-38-2	0.983		0.00440	0.0100
Barium,Dissolved	7440-39-3	0.979		0.000895	0.00500
Beryllium,Dissolved	7440-41-7	0.995		0.000460	0.00200
Cadmium,Dissolved	7440-43-9	0.977		0.000563	0.00200
Calcium,Dissolved	7440-70-2	388	V	0.389	1.00
Chromium,Dissolved	7440-47-3	0.970		0.00500	0.0100
Cobalt,Dissolved	7440-48-4	0.986		0.000807	0.0100
Copper,Dissolved	7440-50-8	0.990		0.00469	0.0100
Iron,Dissolved	7439-89-6	13.5		0.0458	0.100
Lead,Dissolved	7439-92-1	0.940		0.00295	0.00600
Magnesium,Dissolved	7439-95-4	19.9		0.111	1.00
Manganese,Dissolved	7439-96-5	2.23		0.00327	0.0100
Nickel,Dissolved	7440-02-0	0.967		0.00298	0.0100
Potassium,Dissolved	7440-09-7	10.7		0.510	2.00
Selenium,Dissolved	7782-49-2	1.01		0.00735	0.0100
Silver,Dissolved	7440-22-4	0.197		0.00191	0.00500
Sodium,Dissolved	7440-23-5	18.7		1.40	3.00
Thallium,Dissolved	7440-28-0	0.958		0.00431	0.0100
Vanadium,Dissolved	7440-62-2	1.00		0.00634	0.0200
Zinc,Dissolved	7440-66-6	0.941		0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550925-4	SDG:	L1239858
Client Sample ID:	MS	Collected Date/Time:	07/10/20 10:15
Lab File ID:	20200718104109	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP12	Preparation Date/Time:	07/17/20 22:08
Analytical Batch:	WG1511061	Analysis Date/Time:	07/18/20 10:41
Dilution Factor:	1	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	10.1		0.0704	0.200
Antimony	7440-36-0	1.01		0.00430	0.0100
Arsenic	7440-38-2	0.953		0.00440	0.0100
Barium	7440-39-3	1.07		0.000895	0.00500
Beryllium	7440-41-7	1.01		0.000460	0.00200
Cadmium	7440-43-9	0.989		0.000563	0.00200
Calcium	7440-70-2	13.6		0.389	1.00
Chromium	7440-47-3	0.932		0.00500	0.0100
Cobalt	7440-48-4	1.02		0.000807	0.0100
Copper	7440-50-8	1.06		0.00469	0.0100
Iron	7439-89-6	10.2		0.0458	0.100
Lead	7439-92-1	1.02		0.00295	0.00600
Magnesium	7439-95-4	11.3		0.111	1.00
Manganese	7439-96-5	0.969		0.00327	0.0100
Nickel	7440-02-0	0.996		0.00298	0.0100
Potassium	7440-09-7	10.4		0.510	2.00
Selenium	7782-49-2	0.973		0.00735	0.0100
Silver	7440-22-4	0.181		0.00191	0.00500
Sodium	7440-23-5	19.0		1.40	3.00
Thallium	7440-28-0	1.05		0.00431	0.0100
Vanadium	7440-62-2	1.03		0.00634	0.0200
Zinc	7440-66-6	1.06		0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550996-11	SDG:	L1239858
Client Sample ID:	MS	Collected Date/Time:	07/06/20 16:30
Lab File ID:	20200720003234	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP13	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/20/20 00:32
Dilution Factor:	5	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.51 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Manganese	7439-96-5	8630	E V	1.23	5.00



SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.:  
R3550996-5

Lab Sample ID:	R3550996-5	SDG:	L1239858
Client Sample ID:	MS	Collected Date/Time:	07/06/20 16:30
Lab File ID:	20200719202351	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP13	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/19/20 20:23
Dilution Factor:	1	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.51 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Aluminum	7429-90-5	2310		8.20	20.0
Antimony	7440-36-0	80.8		0.500	2.00
Arsenic	7440-38-2	125		0.460	2.00
Barium	7440-39-3	122		0.240	0.500
Beryllium	7440-41-7	97.5		0.0800	0.200
Cadmium	7440-43-9	96.0		0.0810	0.500
Calcium	7440-70-2	9750		30.0	100
Chromium	7440-47-3	90.2		0.250	1.00
Cobalt	7440-48-4	182		0.230	1.00
Copper	7440-50-8	153		0.506	2.00
Iron	7439-89-6	145000	E V	5.00	10.0
Lead	7439-92-1	241		0.208	0.500
Magnesium	7439-95-4	1000		20.5	100
Nickel	7440-02-0	105		0.490	2.00
Potassium	7440-09-7	980		20.9	50.0
Selenium	7782-49-2	97.4		0.617	2.00
Silver	7440-22-4	20.3		0.228	1.00
Sodium	7440-23-5	993		33.2	100
Thallium	7440-28-0	84.5		0.354	2.00
Vanadium	7440-62-2	96.8		0.687	2.00
Zinc	7440-66-6	506	V	0.939	5.00

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550996-8	SDG:	L1239858
Client Sample ID:	MS	Collected Date/Time:	07/09/20 15:45
Lab File ID:	20200719203456	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP13	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/19/20 20:34
Dilution Factor:	1	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.51 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Aluminum	7429-90-5	8290	V	8.20	20.0
Antimony	7440-36-0	61.2	J6	0.500	2.00
Arsenic	7440-38-2	196		0.460	2.00
Barium	7440-39-3	642	V	0.240	0.500
Beryllium	7440-41-7	100		0.0800	0.200
Cadmium	7440-43-9	95.9		0.0810	0.500
Calcium	7440-70-2	1120		30.0	100
Chromium	7440-47-3	99.5		0.250	1.00
Cobalt	7440-48-4	104		0.230	1.00
Copper	7440-50-8	169		0.506	2.00
Iron	7439-89-6	40000	V	5.00	10.0
Lead	7439-92-1	265	J5	0.208	0.500
Magnesium	7439-95-4	3350	J5	20.5	100
Manganese	7439-96-5	186		0.245	1.00
Nickel	7440-02-0	102		0.490	2.00
Potassium	7440-09-7	2830		20.9	50.0
Selenium	7782-49-2	97.6		0.617	2.00
Silver	7440-22-4	20.0		0.228	1.00
Sodium	7440-23-5	1060		33.2	100
Thallium	7440-28-0	92.6		0.354	2.00
Vanadium	7440-62-2	121		0.687	2.00
Zinc	7440-66-6	160	J5	0.939	5.00

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3551587-3	SDG:	L1239858
Client Sample ID:	MS	Collected Date/Time:	07/06/20 14:30
Lab File ID:	20200721063127	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP14	Preparation Date/Time:	07/20/20 00:27
Analytical Batch:	WG1510357	Analysis Date/Time:	07/21/20 06:31
Dilution Factor:	1	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	9.49		0.0704	0.200
Antimony	7440-36-0	0.991		0.00430	0.0100
Arsenic	7440-38-2	0.991		0.00440	0.0100
Barium	7440-39-3	0.994		0.000895	0.00500
Beryllium	7440-41-7	0.964		0.000460	0.00200
Cadmium	7440-43-9	0.992		0.000563	0.00200
Calcium	7440-70-2	386	V	0.389	1.00
Chromium	7440-47-3	0.958		0.00500	0.0100
Cobalt	7440-48-4	1.01		0.000807	0.0100
Copper	7440-50-8	0.976		0.00469	0.0100
Iron	7439-89-6	16.8		0.0458	0.100
Lead	7439-92-1	0.965		0.00295	0.00600
Magnesium	7439-95-4	19.7		0.111	1.00
Manganese	7439-96-5	2.35		0.00327	0.0100
Nickel	7440-02-0	0.995		0.00298	0.0100
Potassium	7440-09-7	10.5		0.510	2.00
Selenium	7782-49-2	0.996		0.00735	0.0100
Silver	7440-22-4	0.189		0.00191	0.00500
Sodium	7440-23-5	18.1		1.40	3.00
Thallium	7440-28-0	0.934		0.00431	0.0100
Vanadium	7440-62-2	0.967		0.00634	0.0200
Zinc	7440-66-6	0.962		0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3551587-5	SDG:	L1239858
Client Sample ID:	MS	Collected Date/Time:	07/10/20 10:50
Lab File ID:	20200721063923	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP14	Preparation Date/Time:	07/20/20 00:27
Analytical Batch:	WG1510357	Analysis Date/Time:	07/21/20 06:39
Dilution Factor:	1	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	66.0		0.0704	0.200
Antimony	7440-36-0	0.922		0.00430	0.0100
Arsenic	7440-38-2	0.950		0.00440	0.0100
Barium	7440-39-3	1.00		0.000895	0.00500
Beryllium	7440-41-7	0.969		0.000460	0.00200
Cadmium	7440-43-9	1.03		0.000563	0.00200
Calcium	7440-70-2	154	V	0.389	1.00
Chromium	7440-47-3	0.949		0.00500	0.0100
Cobalt	7440-48-4	1.16		0.000807	0.0100
Copper	7440-50-8	3.09		0.00469	0.0100
Iron	7439-89-6	189	V	0.0458	0.100
Lead	7439-92-1	1.07		0.00295	0.00600
Magnesium	7439-95-4	49.2		0.111	1.00
Manganese	7439-96-5	23.5	E V	0.00327	0.0100
Nickel	7440-02-0	1.08		0.00298	0.0100
Potassium	7440-09-7	10.2		0.510	2.00
Selenium	7782-49-2	0.947		0.00735	0.0100
Silver	7440-22-4	0.191		0.00191	0.00500
Sodium	7440-23-5	11.8		1.40	3.00
Thallium	7440-28-0	0.910		0.00431	0.0100
Vanadium	7440-62-2	0.955		0.00634	0.0200
Zinc	7440-66-6	16.1	V	0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEETSAMPLE NO.:  
R3555593-4

Lab Sample ID: R3555593-4  
Client Sample ID: MS  
Lab File ID: 20200801104255  
Instrument ID: ICP12  
Analytical Batch: WG1518611  
Dilution Factor: 1  
Analytical Method: 6010B  
Matrix: GW  
Total Solids (%): \_\_\_\_\_

SDG: L1239858  
Collected Date/Time: 07/07/20 11:20  
Received Date/Time: 07/15/20 08:30  
Preparation Date/Time: 07/31/20 19:37  
Analysis Date/Time: 08/01/20 10:42  
Prep Method: 3015  
Sample Vol Used: \_\_\_\_\_  
Initial Wt/Vol: 45 mL  
Final Wt/Vol: 50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	9.94		0.0704	0.200
Antimony	7440-36-0	0.979		0.00430	0.0100
Arsenic	7440-38-2	0.960		0.00440	0.0100
Barium	7440-39-3	1.03		0.000895	0.00500
Beryllium	7440-41-7	0.959		0.000460	0.00200
Cadmium	7440-43-9	1.01		0.000563	0.00200
Calcium	7440-70-2	11.5		0.389	1.00
Chromium	7440-47-3	1.00		0.00500	0.0100
Cobalt	7440-48-4	1.00		0.000807	0.0100
Copper	7440-50-8	1.03		0.00469	0.0100
Iron	7439-89-6	10.1		0.0458	0.100
Lead	7439-92-1	1.12		0.00295	0.00600
Magnesium	7439-95-4	10.3		0.111	1.00
Manganese	7439-96-5	0.978		0.00327	0.0100
Nickel	7440-02-0	0.972		0.00298	0.0100
Potassium	7440-09-7	9.90		0.510	2.00
Selenium	7782-49-2	0.969		0.00735	0.0100
Silver	7440-22-4	0.186		0.00191	0.00500
Sodium	7440-23-5	40.5		1.40	3.00
Thallium	7440-28-0	0.995		0.00431	0.0100
Vanadium	7440-62-2	0.971		0.00634	0.0200
Zinc	7440-66-6	1.04		0.00916	0.0500



SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550332-5	SDG:	L1239858
Client Sample ID:	MSD	Collected Date/Time:	07/06/20 14:30
Lab File ID:	20200717000524	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP14	Preparation Date/Time:	07/16/20 20:37
Analytical Batch:	WG1510345	Analysis Date/Time:	07/17/20 00:05
Dilution Factor:	1	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum,Dissolved	7429-90-5	9.55		0.0704	0.200
Antimony,Dissolved	7440-36-0	0.986		0.00430	0.0100
Arsenic,Dissolved	7440-38-2	0.975		0.00440	0.0100
Barium,Dissolved	7440-39-3	0.977		0.000895	0.00500
Beryllium,Dissolved	7440-41-7	0.985		0.000460	0.00200
Cadmium,Dissolved	7440-43-9	0.976		0.000563	0.00200
Calcium,Dissolved	7440-70-2	379	V	0.389	1.00
Chromium,Dissolved	7440-47-3	0.963		0.00500	0.0100
Cobalt,Dissolved	7440-48-4	0.983		0.000807	0.0100
Copper,Dissolved	7440-50-8	0.985		0.00469	0.0100
Iron,Dissolved	7439-89-6	13.3		0.0458	0.100
Lead,Dissolved	7439-92-1	0.936		0.00295	0.00600
Magnesium,Dissolved	7439-95-4	19.6		0.111	1.00
Manganese,Dissolved	7439-96-5	2.21		0.00327	0.0100
Nickel,Dissolved	7440-02-0	0.964		0.00298	0.0100
Potassium,Dissolved	7440-09-7	10.5		0.510	2.00
Selenium,Dissolved	7782-49-2	1.01		0.00735	0.0100
Silver,Dissolved	7440-22-4	0.195		0.00191	0.00500
Sodium,Dissolved	7440-23-5	18.5		1.40	3.00
Thallium,Dissolved	7440-28-0	0.953		0.00431	0.0100
Vanadium,Dissolved	7440-62-2	0.987		0.00634	0.0200
Zinc,Dissolved	7440-66-6	0.938		0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEETSAMPLE NO.:  
R3550925-5

Lab Sample ID: R3550925-5  
Client Sample ID: MSD  
Lab File ID: 20200718104338  
Instrument ID: ICP12  
Analytical Batch: WG1511061  
Dilution Factor: 1  
Analytical Method: 6010B  
Matrix: GW  
Total Solids (%): \_\_\_\_\_

SDG: L1239858  
Collected Date/Time: 07/10/20 10:15  
Received Date/Time: 07/15/20 08:30  
Preparation Date/Time: 07/17/20 22:08  
Analysis Date/Time: 07/18/20 10:43  
Prep Method: 3015  
Sample Vol Used: \_\_\_\_\_  
Initial Wt/Vol: 45 mL  
Final Wt/Vol: 50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	10.0		0.0704	0.200
Antimony	7440-36-0	0.978		0.00430	0.0100
Arsenic	7440-38-2	0.942		0.00440	0.0100
Barium	7440-39-3	1.05		0.000895	0.00500
Beryllium	7440-41-7	0.995		0.000460	0.00200
Cadmium	7440-43-9	0.971		0.000563	0.00200
Calcium	7440-70-2	13.4		0.389	1.00
Chromium	7440-47-3	0.918		0.00500	0.0100
Cobalt	7440-48-4	0.999		0.000807	0.0100
Copper	7440-50-8	1.04		0.00469	0.0100
Iron	7439-89-6	10.2		0.0458	0.100
Lead	7439-92-1	1.00		0.00295	0.00600
Magnesium	7439-95-4	11.0		0.111	1.00
Manganese	7439-96-5	0.956		0.00327	0.0100
Nickel	7440-02-0	0.987		0.00298	0.0100
Potassium	7440-09-7	10.3		0.510	2.00
Selenium	7782-49-2	0.952		0.00735	0.0100
Silver	7440-22-4	0.177		0.00191	0.00500
Sodium	7440-23-5	18.7		1.40	3.00
Thallium	7440-28-0	1.01		0.00431	0.0100
Vanadium	7440-62-2	1.01		0.00634	0.0200
Zinc	7440-66-6	1.05		0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550996-12	SDG:	L1239858
Client Sample ID:	MSD	Collected Date/Time:	07/06/20 16:30
Lab File ID:	20200720003532	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP13	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/20/20 00:35
Dilution Factor:	5	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.51 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Manganese	7439-96-5	8660	E V	1.23	5.00

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550996-6	SDG:	L1239858
Client Sample ID:	MSD	Collected Date/Time:	07/06/20 16:30
Lab File ID:	20200719202645	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP13	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/19/20 20:26
Dilution Factor:	1	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.51 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Aluminum	7429-90-5	2390		8.20	20.0
Antimony	7440-36-0	79.8	J6	0.500	2.00
Arsenic	7440-38-2	121		0.460	2.00
Barium	7440-39-3	122		0.240	0.500
Beryllium	7440-41-7	97.0		0.0800	0.200
Cadmium	7440-43-9	95.7		0.0810	0.500
Calcium	7440-70-2	9190	V	30.0	100
Chromium	7440-47-3	89.7		0.250	1.00
Cobalt	7440-48-4	179		0.230	1.00
Copper	7440-50-8	174		0.506	2.00
Iron	7439-89-6	130000	E V	5.00	10.0
Lead	7439-92-1	223		0.208	0.500
Magnesium	7439-95-4	983		20.5	100
Nickel	7440-02-0	104		0.490	2.00
Potassium	7440-09-7	976		20.9	50.0
Selenium	7782-49-2	96.2		0.617	2.00
Silver	7440-22-4	20.2		0.228	1.00
Sodium	7440-23-5	982		33.2	100
Thallium	7440-28-0	83.9		0.354	2.00
Vanadium	7440-62-2	95.6		0.687	2.00
Zinc	7440-66-6	528		0.939	5.00

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.:  
R3550996-9

Lab Sample ID:	R3550996-9	SDG:	L1239858
Client Sample ID:	MSD	Collected Date/Time:	07/09/20 15:45
Lab File ID:	20200719204320	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP13	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/19/20 20:43
Dilution Factor:	1	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.51 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Aluminum	7429-90-5	6840	V	8.20	20.0
Antimony	7440-36-0	62.1	J6	0.500	2.00
Arsenic	7440-38-2	173	J6	0.460	2.00
Barium	7440-39-3	556	V	0.240	0.500
Beryllium	7440-41-7	100		0.0800	0.200
Cadmium	7440-43-9	96.1		0.0810	0.500
Calcium	7440-70-2	1070		30.0	100
Chromium	7440-47-3	102		0.250	1.00
Cobalt	7440-48-4	104		0.230	1.00
Copper	7440-50-8	131	J3 J6	0.506	2.00
Iron	7439-89-6	31600	J3 V	5.00	10.0
Lead	7439-92-1	225		0.208	0.500
Magnesium	7439-95-4	2530	J3 J5	20.5	100
Manganese	7439-96-5	251	J3 J5	0.245	1.00
Nickel	7440-02-0	103		0.490	2.00
Potassium	7440-09-7	2410		20.9	50.0
Selenium	7782-49-2	97.2		0.617	2.00
Silver	7440-22-4	20.9		0.228	1.00
Sodium	7440-23-5	1020		33.2	100
Thallium	7440-28-0	93.3		0.354	2.00
Vanadium	7440-62-2	117		0.687	2.00
Zinc	7440-66-6	112	J3	0.939	5.00



SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEETSAMPLE NO.:  
R3551587-4

Lab Sample ID: R3551587-4  
Client Sample ID: MSD  
Lab File ID: 20200721063409  
Instrument ID: ICP14  
Analytical Batch: WG1510357  
Dilution Factor: 1  
Analytical Method: 6010B  
Matrix: GW  
Total Solids (%): \_\_\_\_\_

SDG: L1239858  
Collected Date/Time: 07/06/20 14:30  
Received Date/Time: 07/15/20 08:30  
Preparation Date/Time: 07/20/20 00:27  
Analysis Date/Time: 07/21/20 06:34  
Prep Method: 3015  
Sample Vol Used: \_\_\_\_\_  
Initial Wt/Vol: 45 mL  
Final Wt/Vol: 50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	9.66		0.0704	0.200
Antimony	7440-36-0	0.984		0.00430	0.0100
Arsenic	7440-38-2	1.01		0.00440	0.0100
Barium	7440-39-3	1.00		0.000895	0.00500
Beryllium	7440-41-7	0.974		0.000460	0.00200
Cadmium	7440-43-9	1.00		0.000563	0.00200
Calcium	7440-70-2	386	V	0.389	1.00
Chromium	7440-47-3	0.974		0.00500	0.0100
Cobalt	7440-48-4	1.02		0.000807	0.0100
Copper	7440-50-8	0.986		0.00469	0.0100
Iron	7439-89-6	18.1		0.0458	0.100
Lead	7439-92-1	0.968		0.00295	0.00600
Magnesium	7439-95-4	19.8		0.111	1.00
Manganese	7439-96-5	2.36		0.00327	0.0100
Nickel	7440-02-0	1.00		0.00298	0.0100
Potassium	7440-09-7	10.7		0.510	2.00
Selenium	7782-49-2	0.998		0.00735	0.0100
Silver	7440-22-4	0.191		0.00191	0.00500
Sodium	7440-23-5	18.2		1.40	3.00
Thallium	7440-28-0	0.943		0.00431	0.0100
Vanadium	7440-62-2	0.981		0.00634	0.0200
Zinc	7440-66-6	0.967		0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3551587-6	SDG:	L1239858
Client Sample ID:	MSD	Collected Date/Time:	07/10/20 10:50
Lab File ID:	20200721064155	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP14	Preparation Date/Time:	07/20/20 00:27
Analytical Batch:	WG1510357	Analysis Date/Time:	07/21/20 06:41
Dilution Factor:	1	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	66.3		0.0704	0.200
Antimony	7440-36-0	0.919		0.00430	0.0100
Arsenic	7440-38-2	0.954		0.00440	0.0100
Barium	7440-39-3	1.01		0.000895	0.00500
Beryllium	7440-41-7	0.962		0.000460	0.00200
Cadmium	7440-43-9	1.03		0.000563	0.00200
Calcium	7440-70-2	154	V	0.389	1.00
Chromium	7440-47-3	0.949		0.00500	0.0100
Cobalt	7440-48-4	1.17		0.000807	0.0100
Copper	7440-50-8	3.09		0.00469	0.0100
Iron	7439-89-6	190	V	0.0458	0.100
Lead	7439-92-1	1.08		0.00295	0.00600
Magnesium	7439-95-4	49.3		0.111	1.00
Manganese	7439-96-5	23.4	E V	0.00327	0.0100
Nickel	7440-02-0	1.08		0.00298	0.0100
Potassium	7440-09-7	10.3		0.510	2.00
Selenium	7782-49-2	0.941		0.00735	0.0100
Silver	7440-22-4	0.189		0.00191	0.00500
Sodium	7440-23-5	11.8		1.40	3.00
Thallium	7440-28-0	0.920		0.00431	0.0100
Vanadium	7440-62-2	0.955		0.00634	0.0200
Zinc	7440-66-6	16.1	V	0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3555593-5	SDG:	L1239858
Client Sample ID:	MSD	Collected Date/Time:	07/07/20 11:20
Lab File ID:	20200801104524	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP12	Preparation Date/Time:	07/31/20 19:37
Analytical Batch:	WG1518611	Analysis Date/Time:	08/01/20 10:45
Dilution Factor:	1	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	10.1		0.0704	0.200
Antimony	7440-36-0	0.980		0.00430	0.0100
Arsenic	7440-38-2	0.956		0.00440	0.0100
Barium	7440-39-3	1.04		0.000895	0.00500
Beryllium	7440-41-7	0.969		0.000460	0.00200
Cadmium	7440-43-9	1.01		0.000563	0.00200
Calcium	7440-70-2	11.6		0.389	1.00
Chromium	7440-47-3	1.01		0.00500	0.0100
Cobalt	7440-48-4	1.00		0.000807	0.0100
Copper	7440-50-8	1.03		0.00469	0.0100
Iron	7439-89-6	10.3		0.0458	0.100
Lead	7439-92-1	1.17		0.00295	0.00600
Magnesium	7439-95-4	10.4		0.111	1.00
Manganese	7439-96-5	0.982		0.00327	0.0100
Nickel	7440-02-0	0.980		0.00298	0.0100
Potassium	7440-09-7	10.1		0.510	2.00
Selenium	7782-49-2	0.969		0.00735	0.0100
Silver	7440-22-4	0.187		0.00191	0.00500
Sodium	7440-23-5	40.9		1.40	3.00
Thallium	7440-28-0	0.992		0.00431	0.0100
Vanadium	7440-62-2	0.976		0.00634	0.0200
Zinc	7440-66-6	1.05		0.00916	0.0500

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.:  
R3550996-4

Lab Sample ID:	R3550996-4	SDG:	L1239858
Client Sample ID:	PS	Collected Date/Time:	07/06/20 16:30
Lab File ID:	20200719202057	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP13	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/19/20 20:20
Dilution Factor:	1	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.53 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Aluminum	7429-90-5	2170	O1	8.20	20.0
Antimony	7440-36-0	84.7	O1	0.500	2.00
Arsenic	7440-38-2	112		0.460	2.00
Barium	7440-39-3	111		0.240	0.500
Beryllium	7440-41-7	85.5		0.0800	0.200
Cadmium	7440-43-9	85.0		0.0810	0.500
Calcium	7440-70-2	9430	O1	30.0	100
Chromium	7440-47-3	78.8	O1	0.250	1.00
Cobalt	7440-48-4	169		0.230	1.00
Copper	7440-50-8	141		0.506	2.00
Iron	7439-89-6	141000	E O1	5.00	10.0
Lead	7439-92-1	227		0.208	0.500
Magnesium	7439-95-4	899	O1	20.5	100
Nickel	7440-02-0	92.8		0.490	2.00
Potassium	7440-09-7	890	O1	20.9	50.0
Selenium	7782-49-2	86.9	O1	0.617	2.00
Silver	7440-22-4	17.5	O1	0.228	1.00
Sodium	7440-23-5	872		33.2	100
Thallium	7440-28-0	73.7	O1	0.354	2.00
Vanadium	7440-62-2	84.4		0.687	2.00
Zinc	7440-66-6	502	O1	0.939	5.00

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550996-7	SDG:	L1239858
Client Sample ID:	PS	Collected Date/Time:	07/09/20 15:45
Lab File ID:	20200719203215	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP13	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/19/20 20:32
Dilution Factor:	1	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.51 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Aluminum	7429-90-5	5170		8.20	20.0
Antimony	7440-36-0	92.7		0.500	2.00
Arsenic	7440-38-2	197		0.460	2.00
Barium	7440-39-3	664	O1	0.240	0.500
Beryllium	7440-41-7	94.5		0.0800	0.200
Cadmium	7440-43-9	90.1		0.0810	0.500
Calcium	7440-70-2	1070		30.0	100
Chromium	7440-47-3	94.1		0.250	1.00
Cobalt	7440-48-4	98.1		0.230	1.00
Copper	7440-50-8	185		0.506	2.00
Iron	7439-89-6	42900	O1	5.00	10.0
Lead	7439-92-1	227		0.208	0.500
Magnesium	7439-95-4	1970		20.5	100
Manganese	7439-96-5	186		0.245	1.00
Nickel	7440-02-0	96.4		0.490	2.00
Potassium	7440-09-7	2490		20.9	50.0
Selenium	7782-49-2	92.8		0.617	2.00
Silver	7440-22-4	19.1		0.228	1.00
Sodium	7440-23-5	968		33.2	100
Thallium	7440-28-0	87.6		0.354	2.00
Vanadium	7440-62-2	112		0.687	2.00
Zinc	7440-66-6	107		0.939	5.00



SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.:  
R3550332-3

Lab Sample ID:	R3550332-3	SDG:	L1239858
Client Sample ID:	SD	Collected Date/Time:	07/06/20 14:30
Lab File ID:	20200716235957	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP14	Preparation Date/Time:	07/16/20 20:37
Analytical Batch:	WG1510345	Analysis Date/Time:	07/16/20 23:59
Dilution Factor:	5	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum,Dissolved	7429-90-5	U		0.352	1.00
Antimony,Dissolved	7440-36-0	U		0.0215	0.0500
Arsenic,Dissolved	7440-38-2	U		0.0220	0.0500
Barium,Dissolved	7440-39-3	0.00703		0.00448	0.0250
Beryllium,Dissolved	7440-41-7	U		0.00230	0.0100
Cadmium,Dissolved	7440-43-9	U		0.00282	0.0100
Calcium,Dissolved	7440-70-2	356		1.95	5.00
Chromium,Dissolved	7440-47-3	U		0.0250	0.0500
Cobalt,Dissolved	7440-48-4	0.0101		0.00404	0.0500
Copper,Dissolved	7440-50-8	U		0.0235	0.0500
Iron,Dissolved	7439-89-6	3.69		0.229	0.500
Lead,Dissolved	7439-92-1	U		0.0148	0.0300
Magnesium,Dissolved	7439-95-4	10.0		0.555	5.00
Manganese,Dissolved	7439-96-5	1.23		0.0164	0.0500
Nickel,Dissolved	7440-02-0	U		0.0149	0.0500
Potassium,Dissolved	7440-09-7	U		2.55	10.0
Selenium,Dissolved	7782-49-2	U		0.0368	0.0500
Silver,Dissolved	7440-22-4	U		0.00955	0.0250
Sodium,Dissolved	7440-23-5	7.46		7.00	15.0
Thallium,Dissolved	7440-28-0	U		0.0216	0.0500
Vanadium,Dissolved	7440-62-2	U		0.0317	0.100
Zinc,Dissolved	7440-66-6	U		0.0458	0.250

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.:  
R3550925-3

Lab Sample ID:	R3550925-3	SDG:	L1239858
Client Sample ID:	SD	Collected Date/Time:	07/10/20 10:15
Lab File ID:	20200718103841	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP12	Preparation Date/Time:	07/17/20 22:08
Analytical Batch:	WG1511061	Analysis Date/Time:	07/18/20 10:38
Dilution Factor:	5	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	U		0.352	1.00
Antimony	7440-36-0	U		0.0215	0.0500
Arsenic	7440-38-2	U		0.0220	0.0500
Barium	7440-39-3	0.0537		0.00448	0.0250
Beryllium	7440-41-7	U		0.00230	0.0100
Cadmium	7440-43-9	U		0.00282	0.0100
Calcium	7440-70-2	2.96		1.95	5.00
Chromium	7440-47-3	U		0.0250	0.0500
Cobalt	7440-48-4	U		0.00404	0.0500
Copper	7440-50-8	0.0301		0.0235	0.0500
Iron	7439-89-6	U		0.229	0.500
Lead	7439-92-1	0.0327		0.0148	0.0300
Magnesium	7439-95-4	U		0.555	5.00
Manganese	7439-96-5	0.0404		0.0164	0.0500
Nickel	7440-02-0	U		0.0149	0.0500
Potassium	7440-09-7	U		2.55	10.0
Selenium	7782-49-2	U		0.0368	0.0500
Silver	7440-22-4	U		0.00955	0.0250
Sodium	7440-23-5	9.04		7.00	15.0
Thallium	7440-28-0	U		0.0216	0.0500
Vanadium	7440-62-2	U		0.0317	0.100
Zinc	7440-66-6	0.0660		0.0458	0.250

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550996-10	SDG:	L1239858
Client Sample ID:	SD	Collected Date/Time:	07/06/20 16:30
Lab File ID:	20200720002400	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP13	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/20/20 00:24
Dilution Factor:	25	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.53 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Manganese	7439-96-5	9260		6.13	25.0

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.:  
R3550996-3

Lab Sample ID:	R3550996-3	SDG:	L1239858
Client Sample ID:	SD	Collected Date/Time:	07/06/20 16:30
Lab File ID:	20200719201804	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP13	Preparation Date/Time:	07/17/20 23:36
Analytical Batch:	WG1510526	Analysis Date/Time:	07/19/20 20:18
Dilution Factor:	5	Prep Method:	3050B
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.53 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Aluminum	7429-90-5	1300		41.0	100
Antimony	7440-36-0	5.34		2.50	10.0
Arsenic	7440-38-2	28.8		2.30	10.0
Barium	7440-39-3	26.1		1.20	2.50
Beryllium	7440-41-7	1.73		0.400	1.00
Cadmium	7440-43-9	2.82		0.405	2.50
Calcium	7440-70-2	7700	O1	150	500
Chromium	7440-47-3	U		1.25	5.00
Cobalt	7440-48-4	64.2	O1	1.15	5.00
Copper	7440-50-8	51.1		2.53	10.0
Iron	7439-89-6	141000		25.0	50.0
Lead	7439-92-1	123	O1	1.04	2.50
Magnesium	7439-95-4	146		103	500
Nickel	7440-02-0	U		2.45	10.0
Potassium	7440-09-7	118		105	250
Selenium	7782-49-2	6.83		3.09	10.0
Silver	7440-22-4	1.72		1.14	5.00
Sodium	7440-23-5	U		166	500
Thallium	7440-28-0	U		1.77	10.0
Vanadium	7440-62-2	U		3.44	10.0
Zinc	7440-66-6	427		4.70	25.0

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3551587-2	SDG:	L1239858
Client Sample ID:	SD	Collected Date/Time:	07/06/20 14:30
Lab File ID:	20200721062844	Received Date/Time:	07/15/20 08:30
Instrument ID:	ICP14	Preparation Date/Time:	07/20/20 00:27
Analytical Batch:	WG1510357	Analysis Date/Time:	07/21/20 06:28
Dilution Factor:	5	Prep Method:	3015
Analytical Method:	6010B	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	45 mL
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	U		0.352	1.00
Antimony	7440-36-0	U		0.0215	0.0500
Arsenic	7440-38-2	U		0.0220	0.0500
Barium	7440-39-3	0.00691		0.00448	0.0250
Beryllium	7440-41-7	U		0.00230	0.0100
Cadmium	7440-43-9	U		0.00282	0.0100
Calcium	7440-70-2	436	O1	1.95	5.00
Chromium	7440-47-3	U		0.0250	0.0500
Cobalt	7440-48-4	0.0123		0.00404	0.0500
Copper	7440-50-8	U		0.0235	0.0500
Iron	7439-89-6	8.88	O1	0.229	0.500
Lead	7439-92-1	U		0.0148	0.0300
Magnesium	7439-95-4	12.3	O1	0.555	5.00
Manganese	7439-96-5	1.66	O1	0.0164	0.0500
Nickel	7440-02-0	U		0.0149	0.0500
Potassium	7440-09-7	U		2.55	10.0
Selenium	7782-49-2	U		0.0368	0.0500
Silver	7440-22-4	U		0.00955	0.0250
Sodium	7440-23-5	9.45		7.00	15.0
Thallium	7440-28-0	U		0.0216	0.0500
Vanadium	7440-62-2	U		0.0317	0.100
Zinc	7440-66-6	U		0.0458	0.250



SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEETSAMPLE NO.:  
R3555593-3

Lab Sample ID: R3555593-3  
Client Sample ID: SD  
Lab File ID: 20200801104025  
Instrument ID: ICP12  
Analytical Batch: WG1518611  
Dilution Factor: 5  
Analytical Method: 6010B  
Matrix: GW  
Total Solids (%): \_\_\_\_\_

SDG: L1239858  
Collected Date/Time: 07/07/20 11:20  
Received Date/Time: 07/15/20 08:30  
Preparation Date/Time: 07/31/20 19:37  
Analysis Date/Time: 08/01/20 10:40  
Prep Method: 3015  
Sample Vol Used: \_\_\_\_\_  
Initial Wt/Vol: 45 mL  
Final Wt/Vol: 50 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Aluminum	7429-90-5	U		0.352	1.00
Antimony	7440-36-0	U		0.0215	0.0500
Arsenic	7440-38-2	U		0.0220	0.0500
Barium	7440-39-3	0.0120		0.00448	0.0250
Beryllium	7440-41-7	U		0.00230	0.0100
Cadmium	7440-43-9	U		0.00282	0.0100
Calcium	7440-70-2	U		1.95	5.00
Chromium	7440-47-3	U		0.0250	0.0500
Cobalt	7440-48-4	U		0.00404	0.0500
Copper	7440-50-8	U		0.0235	0.0500
Iron	7439-89-6	U		0.229	0.500
Lead	7439-92-1	0.121		0.0148	0.0300
Magnesium	7439-95-4	U		0.555	5.00
Manganese	7439-96-5	U		0.0164	0.0500
Nickel	7440-02-0	U		0.0149	0.0500
Potassium	7440-09-7	U		2.55	10.0
Selenium	7782-49-2	U		0.0368	0.0500
Silver	7440-22-4	U		0.00955	0.0250
Sodium	7440-23-5	29.3		7.00	15.0
Thallium	7440-28-0	U		0.0216	0.0500
Vanadium	7440-62-2	U		0.0317	0.100
Zinc	7440-66-6	U		0.0458	0.250

SDG:	L1239858	Calibration (begin) date/time:	07/18/20 06:25
Instrument ID:	ICP12	Calibration (end) date/time:	07/18/20 06:44
Analytical Method:	6010B	Analytical Run:	071820ICP12
Concentration Units:	mg/l		

Analyte	Sample ID:	ICV				ICVLL				CCV			
		ICP120718200647				ICP120718200658				ICP120718201025			
		True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD
ALUMINUM	10		9.914184	99.10	1.140000	0.20	0.1794111	89.70	7.080000	10	10.03845	100	0.552000
ANTIMONY	1		0.9798244	98	0.537000	0.01	0.007686156	76.90	11.800000	0.50	0.5048149	101	0.686000
ARSENIC	1		0.9455377	94.60	0.823000	0.01	0.009488826	94.90	56.900000	1	0.9919181	99.20	0.980000
BARIUM	1		1.02712	103	0.193000	0.0050	0.005274543	105	6.240000	0.50	0.5052145	101	0.390000
BERYLLIUM	1		1.00738	101	0.291000	0.0020	0.001970254	98.50	5.810000	0.20	0.1942666	97.10	0.076400
CADMIUM	1		0.9810474	98.10	0.266000	0.0020	0.001789547	89.50	11.100000	0.50	0.5029479	101	0.393000
CALCIUM	10		10.4986	105	0.526000	1	1.059975	106	0.112000	50	53.48234	107	0.128000
CHROMIUM	1		0.9748709	97.50	0.623000	0.01	0.009888409	98.90	6.420000	1	0.9243678	92.40	0.272000
COBALT	1		0.9933785	99.30	0.166000	0.01	0.009639371	96.40	6.410000	1	1.029219	103	0.318000
COPPER	1		1.001339	100	0.429000	0.01	0.0108116	108	6.280000	1	1.053536	105	0.486000
IRON	10		10.1021	101	0.258000	0.10	0.1043093	104	5.120000	10	10.05855	101	0.184000
LEAD	1		0.9643821	96.40	0.109000	0.0050	0.005355785	107	3.360000	0.50	0.4919914	98.40	0.345000
MAGNESIUM	10		10.46299	105	0.687000	1	1.067227	107	3.210000	10	10.68754	107	0.972000
MANGANESE	1		0.9644832	96.40	0.339000	0.01	0.009816671	98.20	1.570000	1	0.9132912	91.30	0.335000
NICKEL	1		0.9759598	97.60	0.338000	0.01	0.00955809	95.60	18.600000	1	1.005026	101	0.247000
POTASSIUM	10		9.770204	97.70	0.870000	1	1.05501	106	3.870000	50	49.2545	98.50	0.375000
SELENIUM	1		0.9556805	95.60	1.830000	0.01	0.009598908	96	50.400000	1	0.9808139	98.10	0.539000
SILVER	1		0.9523795	95.20	0.376000	0.0050	0.005116027	102	2.440000	0.50	0.477609	95.50	0.342000
SODIUM	10		10.37357	104	0.572000	1	1.051514	105	1.300000	50	50.84611	102	0.201000
THALLIUM	1		0.9732923	97.30	0.689000	0.01	0.01215191	122	16.300000	1	1.037735	104	2.530000
VANADIUM	1		1.021947	102	0.290000	0.02	0.01799823	90	13.400000	1	1.056435	106	0.868000
ZINC	1		0.9778069	97.80	0.228000	0.05	0.0482126	96.40	0.927000	1	0.9931632	99.30	0.374000

## 2-IN

## CALIBRATION VERIFICATION

**SDG:** L1239858  
**Instrument ID:** ICP12  
**Analytical Method:** 6010B  
**Concentration Units:** mg/l

**Calibration (begin) date/time:** 07/18/20 06:25  
**Calibration (end) date/time:** 07/18/20 06:44  
**Analytical Run:** 071820ICP12

Analyte	Sample ID:	CCV				CCV				CCVLL			
		ICP120718201056				ICP120718201123				ICP120718201420			
		True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD
ALUMINUM	10	9.968354	99.7 0	0.466000		10	9.970135	99.7 0	0.484000	0.20	0.2068586	103	24.600000
ANTIMONY	0.50	0.5159215	103	0.684000		0.50	0.5071444	101	1.360000	0.01	0.00553145	55.3 0	72.600000
ARSENIC	1	1.015715	102	0.949000		1	1.001468	100	1.490000	0.01	0.01033208	103	56.900000
BARIUM	0.50	0.5044951	101	0.132000		0.50	0.5061127	101	0.069500	0.0050	0.005675421	114	3.380000
BERYLLIUM	0.20	0.1930721	96.5 0	0.213000		0.20	0.193569	96.8 0	0.136000	0.0020	0.002158875	108	4.150000
CADMIUM	0.50	0.5132891	103	0.111000		0.50	0.5067669	101	0.169000	0.0020	0.00184292	92.10	12.000000
CALCIUM	50	53.23344	106	0.159000		50	53.59809	107	0.058900	1	1.207287	121	0.933000
CHROMIUM	1	0.9362369	93.6 0	0.569000		1	0.9255873	92.6 0	0.180000	0.01	0.009356102	93.6 0	4.330000
COBALT	1	1.030026	103	0.181000		1	1.037119	104	0.177000	0.01	0.01024045	102	4.270000
COPPER	1	1.052274	105	0.176000		1	1.065759	107	0.076300	0.01	0.01394037	139	2.370000
IRON	10	10.04911	100	0.122000		10	10.02703	100	0.446000	0.10	0.1262679	126	5.680000
LEAD	0.50	0.4892114	97.8 0	0.524000		0.50	0.4866705	97.3 0	0.363000	0.0050	0.00494990 3	99	9.200000
MAGNESIUM	10	10.5851	106	0.415000		10	10.65261	107	0.127000	1	1.171096	117	2.060000
MANGANESE	1	0.9108281	91.10	0.441000		1	0.9064579	90.6 0	0.208000	0.01	0.009859744	98.6 0	0.626000
NICKEL	1	1.005932	101	0.292000		1	1.00772	101	0.096700	0.01	0.009920515	99.2 0	5.250000
POTASSIUM	50	48.96014	97.9 0	0.089700		50	48.95926	97.9 0	0.076000	1	1.049548	105	6.890000
SELENIUM	1	0.9956024	99.6 0	0.751000		1	0.9830211	98.3 0	1.200000	0.01	0.01089426	109	33.800000
SILVER	0.50	0.4795588	95.9 0	0.741000		0.50	0.4790708	95.8 0	0.232000	0.0050	0.00507605 6	102	24.500000
SODIUM	50	50.88146	102	0.376000		50	50.727	101	1.660000	1	1.104364	110	0.478000
THALLIUM	1	1.062548	106	1.050000		1	1.05952	106	1.780000	0.01	0.007685037	76.9 0	95.400000
VANADIUM	1	1.061355	106	0.486000		1	1.053676	105	0.706000	0.02	0.02066984	103	28.300000
ZINC	1	1.013477	101	0.293000		1	1.000271	100	0.166000	0.05	0.05183202	104	0.968000

ICV Limits: 90 - 110

ICVLL Limits: 50 - 150

CCV Limits: 90 - 110

CCVLL Limits: 50 - 150

SDG:	L1239858	Calibration (begin) date/time:	08/01/20 07:54
Instrument ID:	ICP12	Calibration (end) date/time:	08/01/20 08:13
Analytical Method:	6010B	Analytical Run:	080120ICP12
Concentration Units:	mg/l		

Analyte	Sample ID:	ICV				ICVLL				CCV			
		ICP120801200816-2				ICP120801200826-2				ICP120801201026-2			
	True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD	
ALUMINUM	10	10.06587	101	0.830000	0.20	0.2327444	116	17.500000	10	9.78961	97.90	0.557000	
ANTIMONY	1	0.9791554	97.90	0.949000	0.01	0.0116563	117	23.600000	0.50	0.484931	97	0.918000	
ARSENIC	1	0.9497321	95	0.215000	0.01	0.009201697	92	4.170000	1	0.9838098	98.40	0.850000	
BARIUM	1	1.028174	103	0.189000	0.0050	0.005435366	109	3.390000	0.50	0.5034478	101	0.238000	
BERYLLIUM	1	0.9849136	98.50	0.449000	0.0020	0.001808061	90.40	7.910000	0.20	0.1861055	93.10	0.675000	
CADMIUM	1	1.023464	102	0.573000	0.0020	0.002196781	110	6.410000	0.50	0.5092935	102	0.034500	
CALCIUM	10	10.15779	102	0.245000	1	1.044364	104	0.738000	50	48.8506	97.70	0.228000	
CHROMIUM	1	1.017281	102	0.116000	0.01	0.01062163	106	2.950000	1	1.003468	100	0.266000	
COBALT	1	1.009893	101	0.174000	0.01	0.009571112	95.70	5.050000	1	0.9987525	99.90	0.173000	
COPPER	1	1.039485	104	0.219000	0.01	0.01017205	102	9.850000	1	1.054363	105	0.207000	
IRON	10	9.973331	99.70	0.306000	0.10	0.1049651	105	4.260000	10	9.671566	96.70	0.276000	
LEAD	1	0.9769069	97.70	0.583000	0.0050	0.004573576	91.50	57.300000	0.50	0.4819442	96.40	0.360000	
MAGNESIUM	10	10.48658	105	0.568000	1	1.089635	109	0.814000	10	10.0954	101	0.438000	
MANGANESE	1	0.9954443	99.50	0.271000	0.01	0.01010909	101	0.858000	1	0.9735012	97.40	0.284000	
NICKEL	1	0.9877517	98.80	0.353000	0.01	0.008702529	87	6.400000	1	0.9703391	97	0.181000	
POTASSIUM	10	9.982623	99.80	0.768000	1	1.039268	104	1.710000	50	48.5503	97.10	0.514000	
SELENIUM	1	0.9288275	92.90	0.986000	0.01	0.008208395	82.10	44.800000	1	0.9444114	94.40	0.101000	
SILVER	1	1.01682	102	0.165000	0.0050	0.005318045	106	22.000000	0.50	0.505515	101	0.547000	
SODIUM	10	10.12253	101	0.452000	1	1.054992	105	2.090000	50	48.29187	96.60	1.040000	
THALLIUM	1	0.9962107	99.60	0.460000	0.01	0.01097301	110	43.100000	1	0.9968064	99.70	0.636000	
VANADIUM	1	0.9962478	99.60	0.294000	0.02	0.020786	104	8.450000	1	0.9900461	99	0.328000	
ZINC	1	1.005512	101	0.526000	0.05	0.05106232	102	0.349000	1	0.9983281	99.80	0.121000	



SDG: L1239858  
 Instrument ID: ICP12  
 Analytical Method: 6010B  
 Concentration Units: mg/l

Calibration (begin) date/time: 08/01/20 07:54  
 Calibration (end) date/time: 08/01/20 08:13  
 Analytical Run: 080120ICP12

Analyte	Sample ID:	CCV				CCVLL			
		ICP120801201058				ICP120801201651-2			
	True	Found	%R	%RSD	True	Found	%R	%RSD	
ALUMINUM	10	9.797995	98	1.070000	0.20	0.208259	104	6.110000	
ANTIMONY	0.50	0.4903622	98.10	0.077500	0.01	0.008350307	83.50	72.500000	
ARSENIC	1	0.9817718	98.20	0.536000	0.01	0.00700114	70	84.300000	
BARIUM	0.50	0.5050838	101	0.109000	0.0050	0.00493557	98.70	6.280000	
BERYLLIUM	0.20	0.1867692	93.40	0.533000	0.0020	0.001641313	82.10	5.940000	
CADMIUM	0.50	0.5126396	103	0.276000	0.0020	0.002278798	114	10.200000	
CALCIUM	50	48.90952	97.80	0.185000	1	1.013204	101	0.587000	
CHROMIUM	1	1.005297	101	0.227000	0.01	0.01054898	105	8.770000	
COBALT	1	1.00714	101	0.224000	0.01	0.009709494	97.10	3.530000	
COPPER	1	1.057961	106	0.229000	0.01	0.0106798	107	2.410000	
IRON	10	9.775949	97.80	0.219000	0.10	0.1066192	107	3.900000	
LEAD	0.50	0.4804226	96.10	1.510000	0.0050	0.002502068	50	90.800000	
MAGNESIUM	10	10.05506	101	0.174000	1	1.058049	106	3.180000	
MANGANESE	1	0.9763527	97.60	0.310000	0.01	0.01023009	102	2.290000	
NICKEL	1	0.9714324	97.10	0.554000	0.01	0.009086036	90.90	2.900000	
POTASSIUM	50	48.39286	96.80	0.299000	1	1.006818	101	6.720000	
SELENIUM	1	0.9424523	94.20	0.195000	0.01	0.01201751	120	65.100000	
SILVER	0.50	0.5066329	101	0.495000	0.0050	0.005703568	114	18.600000	
SODIUM	50	48.5705	97.10	0.878000	1	1.036977	104	2.380000	
THALLIUM	1	1.003208	100	0.772000	0.01	0.007508588	75.10	147.000000	
VANADIUM	1	1.004539	100	0.255000	0.02	0.02030344	102	11.200000	
ZINC	1	1.00805	101	0.166000	0.05	0.05198382	104	0.783000	

ICV Limits: 90 - 110

ICVLL Limits: 50 - 150

CCV Limits: 90 - 110

CCVLL Limits: 50 - 150

SDG:	L1239858	Calibration (begin) date/time:	07/19/20 16:30
Instrument ID:	ICP13	Calibration (end) date/time:	07/19/20 16:50
Analytical Method:	6010B	Analytical Run:	071920ICP13
Concentration Units:	mg/l		

Analyte	Sample ID:	ICV				ICVLL				CCV			
		ICP130719201653				ICP130719201705				ICP130719201935			
		True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD
ALUMINUM	10		9.905343	99.10	0.194000	0.20	0.209035	105	7.540000	10	9.651676	96.50	0.270000
ANTIMONY	1		0.9441351	94.40	0.669000	0.01	0.0102137	102	15.600000	0.50	0.4690476	93.80	0.312000
ARSENIC	1		0.9487821	94.90	0.160000	0.01	0.009533689	95.30	31.500000	1	0.9796382	98	0.483000
BARIUM	1		1.02024	102	0.160000	0.0050	0.004774059	95.50	1.130000	0.50	0.4873531	97.50	0.087700
BERYLLIUM	1		1.010023	101	0.305000	0.0020	0.001962687	98.10	0.544000	0.20	0.192911	96.50	0.209000
CADMIUM	1		0.9634187	96.30	0.160000	0.0020	0.002103456	105	4.190000	0.50	0.4847474	96.90	0.110000
CALCIUM	10		10.19282	102	0.355000	1	0.9901454	99	0.616000	50	51.06503	102	0.153000
CHROMIUM	1		1.021282	102	0.432000	0.01	0.009924956	99.20	2.610000	1	0.9820563	98.20	0.337000
COBALT	1		1.022233	102	0.122000	0.01	0.009390557	93.90	0.826000	1	1.028719	103	0.110000
COPPER	1		0.9707919	97.10	0.547000	0.01	0.00880013	88	3.420000	1	0.9492687	94.90	0.197000
IRON	10		10.03043	100	0.464000	0.10	0.09572104	95.70	3.160000	10	9.698301	97	0.266000
LEAD	1		0.9794712	97.90	0.193000	0.0050	0.00409974	82	5.910000	0.50	0.4864939	97.30	0.177000
MAGNESIUM	10		9.949941	99.50	0.742000	1	0.9821127	98.20	2.130000	10	9.527303	95.30	0.799000
MANGANESE	1		1.004191	100	0.458000	0.01	0.009441026	94.40	1.280000	1	0.9447119	94.50	0.228000
NICKEL	1		1.00741	101	0.182000	0.01	0.009715368	97.20	4.300000	1	1.011543	101	0.264000
POTASSIUM	10		9.389461	93.90	0.437000	1	0.8885101	88.90	4.020000	50	46.58352	93.20	0.188000
SELENIUM	1		0.9315275	93.20	0.490000	0.01	0.008259808	82.60	47.000000	1	0.9440518	94.40	0.250000
SILVER	1		0.9439339	94.40	0.560000	0.0050	0.004377692	87.60	11.100000	0.50	0.4740116	94.80	0.364000
SODIUM	10		10.06995	101	0.303000	1	0.970909	97.10	0.733000	50	47.93582	95.90	0.779000
THALLIUM	1		0.9552993	95.50	0.182000	0.01	0.009181632	91.80	31.500000	1	0.9389907	93.90	0.544000
VANADIUM	1		1.023227	102	0.251000	0.02	0.0207529	104	3.350000	1	0.9858204	98.60	0.719000
ZINC	1		1.000317	100	0.189000	0.05	0.04797324	95.90	0.195000	1	0.971627	97.20	0.014200



SDG:	L1239858	Calibration (begin) date/time:	07/19/20 16:30
Instrument ID:	ICP13	Calibration (end) date/time:	07/19/20 16:50
Analytical Method:	6010B	Analytical Run:	071920ICP13
Concentration Units:	mg/l		

Sample ID:	CCV				CCV				CCV			
	ICP130719202037				ICP130719202112				ICP130719202352-2			
Analyte	True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD
ALUMINUM	10	9.623961	96.20	0.215000	10	9.626623	96.30	0.876000	10	9.701319	97	1.060000
ANTIMONY	0.50	0.4757839	95.20	0.542000	0.50	0.476306	95.30	0.991000	0.50	0.4730702	94.60	1.090000
ARSENIC	1	0.9886882	98.90	0.686000	1	0.9868568	98.70	0.457000	1	0.993207	99.30	0.463000
BARIUM	0.50	0.4882061	97.60	0.064300	0.50	0.4878149	97.60	0.162000	0.50	0.4878922	97.60	0.119000
BERYLLIUM	0.20	0.194427	97.20	0.066400	0.20	0.193374	96.70	0.128000	0.20	0.1943482	97.20	0.947000
CADMIUM	0.50	0.4856743	97.10	0.230000	0.50	0.4860123	97.20	0.047300	0.50	0.4846695	96.90	0.214000
CALCIUM	50	50.83843	102	0.066300	50	50.65859	101	0.211000	50	51.06209	102	1.280000
CHROMIUM	1	0.9673127	96.70	0.640000	1	0.9620511	96.20	0.331000	1	0.9567362	95.70	0.225000
COBALT	1	1.022664	102	0.144000	1	1.025079	103	0.240000	1	1.020977	102	0.326000
COPPER	1	0.9489047	94.90	0.831000	1	0.9494913	94.90	0.261000	1	0.9433284	94.30	0.572000
IRON	10	9.661859	96.60	0.060900	10	9.635658	96.40	0.495000	10	9.670209	96.70	1.390000
LEAD	0.50	0.4835344	96.70	0.698000	0.50	0.482241	96.40	0.574000	0.50	0.4815071	96.30	0.278000
MAGNESIUM	10	9.375991	93.80	0.889000	10	9.262081	92.60	0.485000	10	9.459438	94.60	1.140000
MANGANESE	1	0.9379252	93.80	0.833000	1	0.9326097	93.30	0.378000	1	0.9279379	92.80	0.298000
NICKEL	1	1.010325	101	0.316000	1	1.009608	101	0.229000	1	1.009557	101	0.080400
POTASSIUM	50	45.69641	91.40	0.133000	50	45.46944	90.90	0.127000	50	45.37658	90.80	1.310000
SELENIUM	1	0.9493746	94.90	0.319000	1	0.9466391	94.70	0.343000	1	0.9481706	94.80	0.472000
SILVER	0.50	0.4680966	93.60	0.790000	0.50	0.4669485	93.40	0.505000	0.50	0.4643858	92.90	0.669000
SODIUM	50	48.24675	96.50	0.310000	50	47.74965	95.50	0.589000	50	48.16685	96.30	1.250000
THALLIUM	1	0.9346084	93.50	0.145000	1	0.9326565	93.30	0.152000	1	0.9288037	92.90	0.032000
VANADIUM	1	0.9917474	99.20	0.125000	1	0.9836452	98.40	0.237000	1	0.9892597	98.90	0.952000
ZINC	1	0.9700796	97	0.025400	1	0.9628437	96.30	0.052800	1	0.9640212	96.40	0.163000

SDG:

Instrument ID:

Analytical Method:

Concentration Units:

L1239858  
ICP13  
6010B  
mg/l

Calibration (begin) date/time:

Calibration (end) date/time:

Analytical Run:

07/19/20 16:30  
07/19/20 16:50  
071920ICP13

Analyte	Sample ID:	CCV				CCV				CCVLL			
		ICP130720200026				ICP130720200155				ICP130720200408			
		True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD
ALUMINUM	10		9.656859	96.6 0	0.143000	10	9.637724	96.4 0	0.356000	0.20	0.19728	98.6 0	5.410000
ANTIMONY	0.50		0.4720783	94.4 0	0.938000	0.50	0.4755176	95.10	0.703000	0.01	0.008743904	87.4 0	15.500000
ARSENIC	1		0.9876743	98.8 0	0.170000	1	0.9960618	99.6 0	0.446000	0.01	0.009038218	90.4 0	28.900000
BARIUM	0.50		0.4878892	97.6 0	0.250000	0.50	0.4874518	97.5 0	0.089100	0.0050	0.004771429	95.4 0	1.190000
BERYLLIUM	0.20		0.1931048	96.6 0	0.042400	0.20	0.196094	98	0.252000	0.0020	0.001944811	97.2 0	2.340000
CADMIUM	0.50		0.4863929	97.3 0	0.058800	0.50	0.4874769	97.5 0	0.108000	0.0020	0.00197351	98.7 0	2.900000
CALCIUM	50		50.73766	101	0.092100	50	50.92726	102	0.237000	1	0.9867677	98.7 0	0.331000
CHROMIUM	1		0.9576752	95.8 0	0.422000	1	0.9647269	96.5 0	0.290000	0.01	0.00946399	94.6 0	0.913000
COBALT	1		1.022629	102	0.312000	1	1.01596	102	0.164000	0.01	0.009263895	92.6 0	2.440000
COPPER	1		0.9450686	94.5 0	0.189000	1	0.9569433	95.7 0	0.240000	0.01	0.008462623	84.6 0	6.120000
IRON	10		9.61783	96.2 0	0.302000	10	9.614857	96.10	0.211000	0.10	0.09985712	99.9 0	0.861000
LEAD	0.50		0.4806127	96.10	0.190000	0.50	0.4822315	96.4 0	0.596000	0.0050	0.004982997	99.7 0	16.000000
MAGNESIUM	10		9.355144	93.6 0	0.218000	10	9.312089	93.10	0.913000	1	0.9451857	94.5 0	0.616000
MANGANESE	1		0.9284208	92.8 0	0.439000	1	0.9438068	94.4 0	0.287000	0.01	0.009154038	91.50	1.690000
NICKEL	1		1.010525	101	0.262000	1	1.010435	101	0.159000	0.01	0.009390154	93.9 0	2.560000
POTASSIUM	50		45.16409	90.3 0	0.200000	50	44.81084	89.6 0	0.270000	1	0.9751545	97.5 0	4.850000
SELENIUM	1		0.9443628	94.4 0	0.329000	1	0.9504242	95	0.765000	0.01	0.008854192	88.5 0	33.700000
SILVER	0.50		0.4651486	93	0.258000	0.50	0.4676238	93.5 0	0.272000	0.0050	0.003978303	79.6 0	8.320000
SODIUM	50		47.89311	95.8 0	0.521000	50	48.18907	96.4 0	0.433000	1	0.918841	91.90	0.452000
THALLIUM	1		0.9297186	93	0.292000	1	0.9353582	93.5 0	0.608000	0.01	0.01057892	106	17.800000
VANADIUM	1		0.9816109	98.2 0	0.056200	1	0.9995583	100	0.123000	0.02	0.01854727	92.7 0	1.480000
ZINC	1		0.9626516	96.3 0	0.134000	1	0.9665787	96.7 0	0.145000	0.05	0.04575874	91.50	0.174000

ICV Limits: 90 - 110

ICVLL Limits: 50 - 150

CCV Limits: 90 - 110

CCVLL Limits: 50 - 150

2-IN

## CALIBRATION VERIFICATION

**SDG:** L1239858  
**Instrument ID:** ICP14  
**Analytical Method:** 6010B  
**Concentration Units:** mg/l

**Calibration (begin) date/time:** 07/16/20 19:46  
**Calibration (end) date/time:** 07/16/20 20:05  
**Analytical Run:** 071620ICP14A

Analyte	Sample ID:	ICV				ICVLL				CCV			
		ICP140716202008-2				ICP140716202018-2				ICP140716202346-2			
		True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD
ALUMINUM	10		9.572518	95.7 0	0.377000	0.20	0.1921326	96.10	9.030000	10	9.657837	96.6 0	0.627000
ANTIMONY	1		0.9610126	96.10	0.995000	0.01	0.01046183	105	29.600000	0.50	0.4902259	98	1.260000
ARSENIC	1		0.9507363	95.10	0.415000	0.01	0.008796034	88	11.600000	1	1.000862	100	0.779000
BARIUM	1		1.030454	103	0.865000	0.0050	0.00526306 2	105	4.120000	0.50	0.5037143	101	0.560000
BERYLLIUM	1		1.001915	100	0.285000	0.0020	0.00202425 3	101	1.840000	0.20	0.19738	98.7 0	0.195000
CADMIUM	1		0.9689344	96.9 0	1.000000	0.0020	0.001793217	89.7 0	2.840000	0.50	0.4968241	99.4 0	0.575000
CALCIUM	10		10.05097	101	0.096400	1	0.9793678	97.9 0	0.322000	50	50.67212	101	0.132000
CHROMIUM	1		0.9954252	99.5 0	0.525000	0.01	0.009679027	96.8 0	11.500000	1	0.9829533	98.3 0	0.057100
COBALT	1		0.9922867	99.2 0	0.913000	0.01	0.009628106	96.3 0	2.660000	1	1.009647	101	0.659000
COPPER	1		0.9709471	97.10	0.400000	0.01	0.008959816	89.6 0	3.370000	1	0.9742507	97.4 0	0.239000
IRON	10		9.930384	99.3 0	0.281000	0.10	0.09503808	95	0.809000	10	9.644856	96.4 0	0.330000
LEAD	1		0.9524252	95.2 0	0.901000	0.0050	0.004264837	85.3 0	30.400000	0.50	0.484605	96.9 0	0.150000
MAGNESIUM	10		10.05413	101	0.165000	1	1.003653	100	1.110000	10	9.670699	96.7 0	0.146000
MANGANESE	1		0.9788104	97.9 0	0.422000	0.01	0.009738543	97.4 0	0.210000	1	0.9547595	95.5 0	0.134000
NICKEL	1		0.9768681	97.7 0	0.730000	0.01	0.008664637	86.6 0	3.640000	1	0.9961502	99.6 0	0.364000
POTASSIUM	10		9.208557	92.10	0.308000	1	0.8955159	89.6 0	1.130000	50	46.17406	92.3 0	0.108000
SELENIUM	1		0.9538371	95.4 0	1.130000	0.01	0.008623118	86.2 0	45.700000	1	0.9762419	97.6 0	0.659000
SILVER	1		0.9851836	98.5 0	0.603000	0.0050	0.00466502 9	93.3 0	11.100000	0.50	0.4996772	99.9 0	0.231000
SODIUM	10		9.997567	100	0.108000	1	0.9438356	94.4 0	1.300000	50	48.34382	96.7 0	0.170000
THALLIUM	1		0.9819995	98.2 0	0.446000	0.01	0.01133476	113	18.900000	1	0.9839397	98.4 0	0.616000
VANADIUM	1		1.012329	101	0.280000	0.02	0.02141244	107	8.860000	1	1.013198	101	0.246000
ZINC	1		0.9810316	98.10	0.890000	0.05	0.0474094	94.8 0	0.362000	1	0.976059	97.6 0	0.529000

ICV Limits: 90 - 110

ICVLL Limits: 50 - 150

CCV Limits: 90 - 110

CCVLL Limits: 50 - 150

SDG:	L1239858	Calibration (begin) date/time:	07/16/20 19:46
Instrument ID:	ICP14	Calibration (end) date/time:	07/16/20 20:05
Analytical Method:	6010B	Analytical Run:	071620ICP14A
Concentration Units:	mg/l		

Analyte	Sample ID:	CCV				CCV				CCV			
		ICP140717200019				ICP140717200053				ICP140717200109			
		True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD
ALUMINUM	10		9.671807	96.7 0	0.437000	10	9.560967	95.6 0	0.468000	10	9.53257	95.3 0	0.570000
ANTIMONY	0.50		0.4807141	96.10	1.580000	0.50	0.4855031	97.10	0.654000	0.50	0.4898104	98	0.605000
ARSENIC	1		0.9852557	98.5 0	1.190000	1	0.9956364	99.6 0	1.090000	1	0.9903157	99	0.898000
BARIUM	0.50		0.4964768	99.3 0	1.120000	0.50	0.5028968	101	0.737000	0.50	0.5016833	100	0.726000
BERYLLIUM	0.20		0.1987001	99.4 0	0.130000	0.20	0.1961848	98.10	0.247000	0.20	0.1958144	97.9 0	0.369000
CADMIUM	0.50		0.488972	97.8 0	1.030000	0.50	0.4935688	98.7 0	0.915000	0.50	0.4943268	98.9 0	0.830000
CALCIUM	50		50.62359	101	0.045700	50	50.35382	101	0.177000	50	50.24834	100	0.367000
CHROMIUM	1		0.9815413	98.2 0	0.110000	1	0.9872755	98.7 0	0.527000	1	0.9782628	97.8 0	0.221000
COBALT	1		0.997702	99.8 0	1.050000	1	1.004336	100	0.959000	1	1.005111	101	0.679000
COPPER	1		0.9712466	97.10	0.060200	1	0.9713098	97.10	0.155000	1	0.9639337	96.4 0	0.359000
IRON	10		9.680995	96.8 0	0.155000	10	9.588707	95.9 0	0.192000	10	9.584191	95.8 0	0.300000
LEAD	0.50		0.477133	95.4 0	0.579000	0.50	0.4832299	96.6 0	0.428000	0.50	0.4831427	96.6 0	1.020000
MAGNESIUM	10		9.698933	97	0.130000	10	9.63392	96.3 0	0.384000	10	9.628048	96.3 0	0.466000
MANGANESE	1		0.9550371	95.5 0	0.082200	1	0.9553276	95.5 0	0.207000	1	0.9498005	95	0.099000
NICKEL	1		0.9841383	98.4 0	1.110000	1	0.9894076	98.9 0	0.727000	1	0.9909803	99.10	0.690000
POTASSIUM	50		46.24423	92.5 0	0.155000	50	45.82844	91.70	0.308000	50	45.6975	91.40	0.253000
SELENIUM	1		0.9614745	96.10	0.569000	1	0.9658971	96.6 0	0.943000	1	0.9659167	96.6 0	0.993000
SILVER	0.50		0.5018097	100	0.249000	0.50	0.5040751	101	0.275000	0.50	0.4995197	99.9 0	0.331000
SODIUM	50		48.56396	97.10	0.002820	50	48.24602	96.5 0	0.458000	50	47.97384	95.9 0	0.390000
THALLIUM	1		0.9699801	97	1.060000	1	0.9702819	97	1.230000	1	0.9774594	97.7 0	0.670000
VANADIUM	1		1.013873	101	0.077400	1	1.012207	101	0.531000	1	1.00701	101	0.816000
ZINC	1		0.9668839	96.7 0	1.310000	1	0.9834944	98.3 0	0.858000	1	0.9784346	97.8 0	0.852000



SDG: L1239858  
 Instrument ID: ICP14  
 Analytical Method: 6010B  
 Concentration Units: mg/l

Calibration (begin) date/time: 07/16/20 19:46  
 Calibration (end) date/time: 07/16/20 20:05  
 Analytical Run: 071620ICP14A

CCVLL				
Sample ID: ICP140717200115-2				
Analyte	True	Found	%R	%RSD
ALUMINUM	0.20	0.1806775	90.30	1.620000
ANTIMONY	0.01	0.01102136	110	17.200000
ARSENIC	0.01	0.009852135	98.50	24.700000
BARIUM	0.0050	0.00506193	101	2.520000
BERYLLIUM	0.0020	0.001879264	94	3.780000
CADMIUM	0.0020	0.001894073	94.70	19.200000
CALCIUM	1	0.9648318	96.50	1.020000
CHROMIUM	0.01	0.009612532	96.10	4.700000
COBALT	0.01	0.009490975	94.90	3.330000
COPPER	0.01	0.008974432	89.70	3.180000
IRON	0.10	0.09305804	93.10	3.530000
LEAD	0.0050	0.005135447	103	6.450000
MAGNESIUM	1	0.9664205	96.60	3.190000
MANGANESE	0.01	0.009654925	96.50	0.189000
NICKEL	0.01	0.008218902	82.20	4.320000
POTASSIUM	1	0.8743583	87.40	3.110000
SELENIUM	0.01	0.01054061	105	16.400000
SILVER	0.0050	0.004271173	85.40	10.500000
SODIUM	1	0.9264747	92.60	1.340000
THALLIUM	0.01	0.008088721	80.90	15.100000
VANADIUM	0.02	0.02098912	105	10.300000
ZINC	0.05	0.04571044	91.40	2.250000

SDG:	L1239858	Calibration (begin) date/time:	07/20/20 03:23
Instrument ID:	ICP14	Calibration (end) date/time:	07/20/20 03:42
Analytical Method:	6010B	Analytical Run:	072020ICP14
Concentration Units:	mg/l		

		ICV				ICVLL				CCV			
Sample ID:		ICP140720200345-3				ICP140720200356-3				ICP140720201132-2			
Analyte	True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD	
MANGANESE	1	0.9884166	98.80	0.177000	0.01	0.00970681	97.10	0.950000	1	0.9579901	95.80	0.163000	



SDG:	L1239858	Calibration (begin) date/time:	07/20/20 03:23
Instrument ID:	ICP14	Calibration (end) date/time:	07/20/20 03:42
Analytical Method:	6010B	Analytical Run:	072020ICP14
Concentration Units:	mg/l		

		CCV				CCVLL			
		ICP140720201148				ICP140720201255-3			
Analyte	Sample ID:	True	Found	%R	%RSD	True	Found	%R	%RSD
MANGANESE	1		0.9503601	95	0.593000	0.01	0.009648615	96.50	0.167000

**SDG:**  
**Instrument ID:**  
**Analytical Method:**  
**Concentration Units:**

L1239858  
ICP14  
6010B  
mg/l

**Calibration (begin) date/time:**  
**Calibration (end) date/time:**  
**Analytical Run:**

07/21/20 01:12  
07/21/20 01:31  
072120ICP14

Analyte	Sample ID:	ICV				ICVLL				CCV			
		ICP140721200134				ICP140721200145				ICP140721200514			
		True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD
ALUMINUM	10		9.840389	98.40	0.500000	0.20	0.225428	113	17.700000	10	9.879005	98.80	0.562000
ANTIMONY	1		0.9740212	97.40	0.914000	0.01	0.008781762	87.80	10.700000	0.50	0.4835619	96.70	0.128000
ARSENIC	1		0.958061	95.80	1.030000	0.01	0.01114797	111	9.760000	1	0.9967702	99.70	0.611000
BARIUM	1		1.04269	104	0.450000	0.0050	0.004951091	99	3.380000	0.50	0.5103194	102	0.423000
BERYLLIUM	1		1.015463	102	0.587000	0.0020	0.002129016	106	0.746000	0.20	0.2020261	101	0.677000
CADMIUM	1		0.9732392	97.30	0.462000	0.0020	0.001863937	93.20	15.900000	0.50	0.4907784	98.20	0.596000
CALCIUM	10		10.23465	102	0.161000	1	0.9845035	98.50	2.060000	50	51.66212	103	0.099200
CHROMIUM	1		1.009605	101	0.178000	0.01	0.009409135	94.10	10.600000	1	0.9949708	99.50	0.196000
COBALT	1		1.00684	101	0.462000	0.01	0.009952564	99.50	2.610000	1	1.019023	102	0.396000
COPPER	1		0.9862016	98.60	0.086700	0.01	0.009834593	98.30	4.570000	1	0.9801964	98	0.339000
IRON	10		10.06003	101	0.551000	0.10	0.09763203	97.60	4.180000	10	9.864809	98.60	0.525000
LEAD	1		0.9671817	96.70	0.294000	0.0050	0.004534241	90.70	11.600000	0.50	0.4843117	96.90	0.293000
MAGNESIUM	10		10.23566	102	0.263000	1	1.002893	100	2.790000	10	9.959698	99.60	0.301000
MANGANESE	1		0.9886293	98.90	0.261000	0.01	0.009615504	96.20	0.509000	1	0.9625681	96.30	0.233000
NICKEL	1		0.992596	99.30	0.450000	0.01	0.008726844	87.30	5.720000	1	1.005374	101	0.450000
POTASSIUM	10		9.593904	95.90	0.244000	1	0.9129038	91.30	0.166000	50	47.68974	95.40	0.255000
SELENIUM	1		0.9534131	95.30	0.631000	0.01	0.009869985	98.70	87.900000	1	0.9544589	95.40	0.732000
SILVER	1		0.957439	95.70	0.194000	0.0050	0.004240241	84.80	6.310000	0.50	0.4824708	96.50	0.279000
SODIUM	10		10.21529	102	0.227000	1	0.959263	95.90	2.060000	50	49.65427	99.30	0.830000
THALLIUM	1		0.9507309	95.10	0.499000	0.01	0.01073481	107	4.420000	1	0.9375676	93.80	0.195000
VANADIUM	1		1.020137	102	0.235000	0.02	0.01931596	96.60	14.500000	1	1.030069	103	0.280000
ZINC	1		0.990817	99.10	0.453000	0.05	0.04581216	91.60	0.925000	1	0.9883994	98.80	0.384000

ICV Limits: 90 - 110

ICVLL Limits: 50 - 150

CCV Limits: 90 - 110

CCVLL Limits: 50 - 150

2-IN

## CALIBRATION VERIFICATION

**SDG:** L1239858  
**Instrument ID:** ICP14  
**Analytical Method:** 6010B  
**Concentration Units:** mg/l

**Calibration (begin) date/time:** 07/21/20 01:12  
**Calibration (end) date/time:** 07/21/20 01:31  
**Analytical Run:** 072120ICP14

Analyte	Sample ID:	CCV				CCV				CCV			
		ICP140721200610				ICP140721200647				ICP140721200733			
		True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD
ALUMINUM	10	9.728292	97.3 0	0.234000	10	9.776181	97.8 0	0.726000	10	9.751531	97.5 0	0.195000	
ANTIMONY	0.50	0.4838211	96.8 0	1.060000	0.50	0.4851959	97	0.527000	0.50	0.4804625	96.10	2.010000	
ARSENIC	1	0.9922771	99.2 0	0.238000	1	0.9889534	98.9 0	0.233000	1	0.9917869	99.2 0	0.302000	
BARIUM	0.50	0.5057049	101	0.068900	0.50	0.5063396	101	0.326000	0.50	0.5053453	101	0.179000	
BERYLLIUM	0.20	0.1972773	98.6 0	0.079800	0.20	0.1986186	99.3 0	0.473000	0.20	0.1979586	99	0.263000	
CADMIUM	0.50	0.4963521	99.3 0	0.132000	0.50	0.4923968	98.5 0	0.339000	0.50	0.4952946	99.10	0.169000	
CALCIUM	50	50.86908	102	0.223000	50	51.07462	102	0.352000	50	51.09956	102	0.408000	
CHROMIUM	1	0.9944034	99.4 0	0.873000	1	0.9871108	98.7 0	0.065800	1	0.9885374	98.9 0	0.183000	
COBALT	1	1.016833	102	0.155000	1	1.013122	101	0.169000	1	1.016863	102	0.209000	
COPPER	1	0.9800309	98	0.667000	1	0.9723296	97.2 0	0.220000	1	0.9700867	97	0.102000	
IRON	10	9.665171	96.7 0	0.072600	10	9.684005	96.8 0	0.322000	10	9.743629	97.4 0	0.406000	
LEAD	0.50	0.4828404	96.6 0	0.152000	0.50	0.480688	96.10	0.404000	0.50	0.4840457	96.8 0	0.242000	
MAGNESIUM	10	9.796096	98	0.323000	10	9.804323	98	0.601000	10	9.859092	98.6 0	0.526000	
MANGANESE	1	0.9636849	96.4 0	0.806000	1	0.9551025	95.5 0	0.154000	1	0.9579206	95.8 0	0.221000	
NICKEL	1	1.004578	100	0.332000	1	1.001631	100	0.035300	1	1.00734	101	0.307000	
POTASSIUM	50	46.82986	93.7 0	0.218000	50	47.28874	94.6 0	0.239000	50	46.74878	93.5 0	0.226000	
SELENIUM	1	0.9605515	96.10	0.357000	1	0.9462498	94.6 0	1.750000	1	0.9563904	95.6 0	0.292000	
SILVER	0.50	0.4770746	95.4 0	0.855000	0.50	0.4769656	95.4 0	0.022900	0.50	0.4743977	94.9 0	0.220000	
SODIUM	50	48.54048	97.10	0.167000	50	49.01932	98	0.333000	50	48.73947	97.5 0	0.293000	
THALLIUM	1	0.9472046	94.7 0	0.820000	1	0.939991	94	0.106000	1	0.9423363	94.2 0	0.058400	
VANADIUM	1	1.011277	101	0.307000	1	1.01776	102	0.405000	1	1.01303	101	0.433000	
ZINC	1	0.9804535	98	0.157000	1	0.9786763	97.9 0	0.339000	1	0.9838969	98.4 0	0.079300	

ICV Limits: 90 - 110

ICVLL Limits: 50 - 150

CCV Limits: 90 - 110

CCVLL Limits: 50 - 150

**ACCOUNT:**  
Applied Intellect

**PROJECT:**  
EN 20-002

**SDG:**  
L1239858

**DATE/TIME:**  
08/03/20 13:02

**PAGE:**  
91 of 325

**SDG:**  
**Instrument ID:**  
**Analytical Method:**  
**Concentration Units:**

L1239858  
ICP14  
6010B  
mg/l

**Calibration (begin) date/time:**  
**Calibration (end) date/time:**  
**Analytical Run:**

07/21/20 01:12  
07/21/20 01:31  
072120ICP14

Analyte	Sample ID:	CCV				CCV				CCVLL			
		ICP140721201114				ICP140721201148-2				ICP140721201256			
		True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD
ALUMINUM	10		9.641924	96.4 0	0.461000	10	9.690476	96.9 0	0.311000	0.20	0.202974	101	11.900000
ANTIMONY	0.50		0.4852402	97	0.866000	0.50	0.4887293	97.7 0	1.100000	0.01	0.01059952	106	21.600000
ARSENIC	1		0.9943721	99.4 0	0.479000	1	0.98798	98.8 0	0.095100	0.01	0.01276475	128	17.200000
BARIUM	0.50		0.5072327	101	0.187000	0.50	0.5055584	101	0.318000	0.0050	0.005301229	106	1.530000
BERYLLIUM	0.20		0.1952702	97.6 0	0.249000	0.20	0.1943719	97.2 0	0.222000	0.0020	0.002044788	102	1.720000
CADMIUM	0.50		0.5005008	100	0.067100	0.50	0.4978075	99.6 0	0.437000	0.0020	0.00196489	98.2 0	13.500000
CALCIUM	50		50.47894	101	0.126000	50	50.57437	101	0.185000	1	1.009007	101	0.543000
CHROMIUM	1		0.9874219	98.7 0	0.172000	1	0.992898	99.3 0	0.335000	0.01	0.01032382	103	5.750000
COBALT	1		1.013608	101	0.140000	1	1.008091	101	0.226000	0.01	0.01019203	102	4.980000
COPPER	1		0.9708781	97.10	0.289000	1	0.97024	97	0.126000	0.01	0.01039317	104	2.240000
IRON	10		9.617182	96.2 0	0.176000	10	9.568083	95.7 0	0.132000	0.10	0.09772712	97.7 0	2.890000
LEAD	0.50		0.481735	96.3 0	0.775000	0.50	0.4777566	95.6 0	0.380000	0.0050	0.003981588	79.6 0	58.700000
MAGNESIUM	10		9.711268	97.10	0.348000	10	9.712289	97.10	0.826000	1	1.015055	102	1.560000
MANGANESE	1		0.9565885	95.7 0	0.187000	1	0.9547008	95.5 0	0.136000	0.01	0.009769444	97.7 0	0.391000
NICKEL	1		1.005831	101	0.110000	1	1.000961	100	0.515000	0.01	0.00979476	97.9 0	7.170000
POTASSIUM	50		46.12062	92.2 0	0.114000	50	46.1188	92.2 0	0.259000	1	0.8874992	88.7 0	2.560000
SELENIUM	1		0.9668165	96.7 0	0.806000	1	0.9599935	96	0.975000	0.01	0.008966051	89.7 0	28.000000
SILVER	0.50		0.4659379	93.2 0	0.153000	0.50	0.4659519	93.2 0	0.169000	0.0050	0.005127816	103	12.000000
SODIUM	50		48.61165	97.2 0	0.028100	50	48.5185	97	0.387000	1	0.9678173	96.8 0	1.230000
THALLIUM	1		0.9445427	94.5 0	0.821000	1	0.9364243	93.6 0	0.308000	0.01	0.01033159	103	23.500000
VANADIUM	1		1.006517	101	0.546000	1	1.002781	100	0.358000	0.02	0.02191823	110	13.500000
ZINC	1		0.9750839	97.5 0	0.125000	1	0.9714088	97.10	0.259000	0.05	0.04724263	94.5 0	0.186000



SDG: L1239858  
Instrument ID: ICP12  
Analytical Method: 6010B

Calibration (begin) date/time: 07/18/20 06:25  
Calibration (end) date/time: 07/18/20 06:44  
Analytical Run: 071820ICP12

	Sample ID:	ICB Result	ICB Qual	CCB Result	CCB Qual	BLANK Result	BLANK Qual	CCB Result	CCB Qual
	File ID:	20200718065002		20200718102759		20200718103046		20200718105935	
Analyte		mg/l		mg/l		mg/l		mg/l	
ALUMINUM		-0.05412677	U	-0.01897918	U	U		-0.005349639	U
ANTIMONY		-0.002713582	U	-0.001310033	U	U		-0.0003673446	U
ARSENIC		-0.006227446	U	-0.001513152	U	U		-0.00440942	U
BARIUM		0.0003470578	U	-0.0003125413	U	U		0.0004197135	U
BERYLLIUM		0.00008448836	U	0.00003538765	U	U		0.0001028442	U
CADMIUM		0.00004681694	U	-0.000463697	U	U		-0.0000531646 4	U
CALCIUM		-0.005079697	U	-0.009427801	U	U		-0.008087306	U
CHROMIUM		-0.0001128508	U	0.0001985654	U	U		0.0005480817	U
COBALT		-0.0003487473	U	0.0001646392	U	U		-0.0004386067	U
COPPER		0.00002644125	U	0.001267458	U	U		0.002299887	U
IRON		0.008382253	U	-0.005560105	U	U		0.001086639	U
LEAD		0.0007166988	U	0.0007080282	U	U		-0.001035459	U
MAGNESIUM		0.003974749	U	-0.003348959	U	U		-0.02178927	U
MANGANESE		0.00003572826	U	-0.00005165745	U	U		-0.0000594676 8	U
NICKEL		-0.0003750986	U	-0.0002377295	U	U		-0.000385329	U
POTASSIUM		-0.004634084	U	0.02230287	U	U		0.0005516966	U
SELENIUM		-0.002436331	U	0.003766672	U	U		-0.005041754	U
SILVER		0.0002852823	U	0.0004549108	U	U		0.0009071383	U
SODIUM		-0.02336614	U	-0.03828755	U	U		-0.03550077	U
THALLIUM		-0.01035894	U	0.00511833	U	U		-0.002502055	U
VANADIUM		-0.002256183	U	0.002290314	U	U		0.001575425	U
ZINC		-0.0003230439	U	-0.002514414	U	U		-0.002154091	U



**SDG:** L1239858  
**Instrument ID:** ICP12  
**Analytical Method:** 6010B

**Calibration (begin) date/time:** 07/18/20 06:25  
**Calibration (end) date/time:** 07/18/20 06:44  
**Analytical Run:** 071820ICP12

Sample ID: CCB Result		CCB Qual
File ID: 20200718112614		
Analyte	mg/l	
ALUMINUM	-0.02050216	U
ANTIMONY	0.001022347	U
ARSENIC	0.003844165	U
BARIUM	-0.0002343946	U
BERYLLIUM	0.00003710676	U
CADMIUM	-0.0003040979	U
CALCIUM	-0.006181207	U
CHROMIUM	0.00007932021	U
COBALT	-0.0002520882	U
COPPER	0.002153526	U
IRON	-0.002948333	U
LEAD	0.0004847892	U
MAGNESIUM	-0.0253295	U
MANGANESE	-0.00004495987	U
NICKEL	-0.001179565	U
POTASSIUM	0.06071705	U
SELENIUM	0.004279803	U
SILVER	0.0005499703	U
SODIUM	-0.03422484	U
THALLIUM	-0.003022468	U
VANADIUM	-0.001036602	U
ZINC	-0.002639159	U





SDG: L1239858  
Instrument ID: ICP12  
Analytical Method: 6010B

Calibration (begin) date/time: 08/01/20 07:54  
Calibration (end) date/time: 08/01/20 08:13  
Analytical Run: 080120ICP12

	Sample ID: ICB Result	ICB Qual	CCB Result	CCB Qual	BLANK Result	BLANK Qual	CCB Result	CCB Qual
	File ID: 20200801081850-2		20200801102937-2		20200801103225		20200801110126	
Analyte	mg/l		mg/l		mg/l		mg/l	
ALUMINIUM	-0.01451408	U	-0.04176683	U	U		-0.02257685	U
ANTIMONY	-0.003033937	U	-0.001261279	U	U		-0.0001173831	U
ARSENIC	0.002140505	U	0.003169945	U	U		0.00316496	U
BARIUM	-0.0001736739	U	-0.0000792098 4	U	U		0.0001170716	U
BERYLLIUM	-0.0001401152	U	-0.0002000464	U	U		-0.0000990738 8	U
CADMIUM	-0.00001762483	U	-0.0001079423	U	U		0.00008517005	U
CALCIUM	-0.0006365523	U	0.006359253	U	U		0.008929044	U
CHROMIUM	0.0006943388	U	0.0003910924	U	U		0.0002975447	U
COBALT	0.0001979755	U	0.0002090613	U	U		-0.0000626980 2	U
COPPER	-0.0001591971	U	0.00002413515	U	U		-0.0000070390 34	U
IRON	-0.0000063962 21	U	-0.002173197	U	U		-0.001075245	U
LEAD	0.00128173	U	-0.004307072	U	U		-0.002275875	U
MAGNESIUM	0.02524407	U	0.01970271	U	U		0.016168	U
MANGANESE	0.00005147456	U	0.00007613134	U	U		-0.0000026850 92	U
NICKEL	-0.0002818426	U	-0.001179448	U	U		0.0004975849	U
POTASSIUM	0.07447153	U	0.008737151	U	U		0.03153209	U
SELENIUM	0.001727133	U	0.002653566	U	U		0.001481749	U
SILVER	0.001612808	U	0.0008698792	U	U		0.001287026	U
SODIUM	-0.005582039	U	0.03236306	U	U		0.01078533	U
THALLIUM	0.004681515	U	0.002339229	U	U		0.003001869	U
VANADIUM	0.0001285645	U	0.002040805	U	U		0.00483149	U
ZINC	-0.0001009092	U	-0.0003057131	U	U		-0.0003088505	U



SDG: L1239858  
Instrument ID: ICP13  
Analytical Method: 6010B

Calibration (begin) date/time: 07/19/20 16:30  
Calibration (end) date/time: 07/19/20 16:50  
Analytical Run: 071920ICP13

	Sample ID: ICB Result	ICB Qual	CCB Result	CCB Qual	BLANK Result	BLANK Qual	CCB Result	CCB Qual
	File ID: 20200719165643		20200719193822		20200719200925		20200719204031	
Analyte	mg/l		mg/l		mg/kg		mg/l	
ALUMINUM	0.002447058	U	0.0124737	U	U		-0.002080683	U
ANTIMONY	0.004483707	U	0.003286385	U	U		0.003742312	U
ARSENIC	-0.0003564797	U	-0.0004323123	U	U		-0.0003991875	U
BARIUM	-0.0000798546 3	U	-0.0000908007 6	U	U		-0.0000393556 1	U
BERYLLIUM	0.00007863312	U	-0.00002110061	U	U		0.00003951697	U
CADMIUM	0.0000153116	U	0.0002468933	U	U		0.0001900614	U
CALCIUM	0.00207903	U	0.006811188	U	U		-0.001961489	U
CHROMIUM	-0.000128689	U	-0.000107169	U	U		0.00004316322	U
COBALT	-0.0000848954 7	U	-0.0003220451	U	U		-0.0001895768	U
COPPER	-0.0004637359	U	-0.001105322	U	U		-0.0003462034	U
IRON	0.00008495223	U	0.008619426	U	U		0.01104205	U
LEAD	-0.0005061938	U	0.0000299667	U	U		-0.0000977638 8	U
MAGNESIUM	-0.01177978	U	-0.02548142	U	U		-0.009135372	U
MANGANESE	0.00001374882	U	0.00004356449	U	U		0.0002675264	U
NICKEL	0.000345096	U	0.0002692683	U	U		0.000181622	U
POTASSIUM	-0.04630541	U	0.08375357	U	U		-0.001284242	U
SELENIUM	-0.002987281	U	0.003000792	U	U		0.001712412	U
SILVER	-0.0001796269	U	-0.0002128054	U	U		-0.0000234102 2	U
SODIUM	-0.03272323	U	0.01139683	U	U		-0.02713144	U
THALLIUM	0.000096122	U	-0.002514526	U	U		0.001570329	U
VANADIUM	-0.0004303752	U	0.002928509	U	U		-0.0002093171	U
ZINC	-0.00007151718	U	-0.0002203564	U	U		-0.000204954	U



SDG: L1239858  
 Instrument ID: ICP13  
 Analytical Method: 6010B

Calibration (begin) date/time: 07/19/20 16:30  
 Calibration (end) date/time: 07/19/20 16:50  
 Analytical Run: 071920ICP13

	Sample ID: CCB Result	CCB Qual	CCB Result	CCB Qual	CCB Result	CCB Qual	CCB Result	CCB Qual
	File ID: 20200719211515		20200719235521-2		20200720002937		20200720015827	
Analyte	mg/l		mg/l		mg/l		mg/l	
ALUMINIUM	-0.003709531	U	0.0005165924	U	-0.01478994	U	-0.01443314	U
ANTIMONY	0.006190434	U	0.003873588	U	0.004871798	U	0.003909575	U
ARSENIC	-0.001514583	U	-0.000600811	U	-0.0008000337	U	-0.001815674	U
BARIUM	-0.0000899089 3	U	-0.0001053291	U	-0.0001722659	U	-0.0002894866	U
BERYLLIUM	0.00001109423	U	0.0000256604 8	U	0.00000395718 4	U	0.00001618213	U
CADMIUM	0.0002357367	U	0.0001725999	U	0.0003368305	U	0.0002068604	U
CALCIUM	-0.002962471	U	0.004658724	U	-0.003218589	U	0.0009168875	U
CHROMIUM	0.0001626768	U	-0.000189569	U	0.0002660147	U	-0.000245774	U
COBALT	-0.0001402994	U	-0.0002662939	U	-0.0003661192	U	-0.000116382	U
COPPER	-0.0008239889	U	-0.0008335093	U	-0.0004575087	U	-0.0008397364	U
IRON	0.01267274	U	0.0001264476	U	0.001999362	U	0.0001383309	U
LEAD	-0.0001765683	U	-0.0002021296	U	-0.0000710484	U	-0.0004788229	U
MAGNESIUM	-0.008946879	U	-0.01856161	U	0.01403218	U	-0.04151837	U
MANGANESE	0.0001457847	U	-0.0000884989 7	U	-0.0001143884	U	-0.0000979681 6	U
NICKEL	0.0002484432	U	0.0001838148	U	0.0002452078	U	0.0005631291	U
POTASSIUM	0.06536929	U	0.02295487	U	0.02805054	U	-0.01824111	U
SELENIUM	-0.001691286	U	0.004942255	U	-0.0000579256 8	U	-0.0000319365 5	U
SILVER	-0.0001275776	U	-0.000263888	U	-0.0001477625	U	-0.0003128733	U
SODIUM	-0.02448244	U	-0.03343209	U	-0.0693461	U	-0.07084703	U
THALLIUM	-0.0007188947	U	-0.0006369472	U	-0.0005347813	U	-0.002351574	U
VANADIUM	-0.002821599	U	-0.0001310284	U	0.001028441	U	-0.00188178	U
ZINC	-0.0001942881	U	-0.00009745331	U	-0.0002090033	U	-0.0002498244	U



**SDG:** L1239858  
**Instrument ID:** ICP14  
**Analytical Method:** 6010B

**Calibration (begin) date/time:** 07/16/20 19:46  
**Calibration (end) date/time:** 07/16/20 20:05  
**Analytical Run:** 071620ICP14A

	Sample ID: ICB Result	ICB Qual	CCB Result	CCB Qual	CCB Result	CCB Qual	CCB Result	CCB Qual
	File ID: 20200716201050-2		20200716234900-2		20200717002242		20200717005557	
Analyte	mg/l		mg/l		mg/l		mg/l	
ALUMINUM	-0.005769605	U	-0.02314078	U	-0.006812411	U	-0.002779898	U
ANTIMONY	0.009005814	U	0.005443016	U	0.006517618	U	0.006429194	U
ARSENIC	-0.0007947134	U	-0.0007807281	U	-0.001409348	U	-0.001806664	U
BARIUM	-0.0000429355 8	U	0.00002816808	U	0.00008094447	U	-0.0000820536 4	U
BERYLLIUM	0.00009190363	U	-0.0000100867 5	U	-0.0000480796 9	U	-0.0000525069 3	U
CADMIUM	-0.0000088929 73	U	-0.0000099928 06	U	-0.0001221212	U	-0.0000554705 6	U
CALCIUM	-0.003191488	U	-0.007856423	U	-0.002423156	U	-0.003942828	U
CHROMIUM	-0.00005355411	U	0.0002198578	U	0.0003800508	U	0.0004853296	U
COBALT	0.0001253712	U	0.00000280178 3	U	0.0002478545	U	0.0002116248	U
COPPER	-0.0003382277	U	-0.0003165479	U	-0.0002199257	U	-0.0005430596	U
IRON	0.002128878	U	-0.0009842823	U	-0.0003368689	U	-0.001533541	U
LEAD	0.0001130004	U	0.001019392	U	0.0001658881	U	0.0002329008	U
MAGNESIUM	0.0004410736	U	0.007295048	U	0.0002178588	U	0.0004653198	U
MANGANESE	-0.0000581688 6	U	-0.0000426519 2	U	-0.00004766251	U	-0.00007630913	U
NICKEL	-0.0010415	U	-0.000849548	U	-0.001174369	U	-0.001022387	U
POTASSIUM	0.01457512	U	-0.009033147	U	0.002756768	U	-0.02460463	U
SELENIUM	-0.004091176	U	0.0002583444	U	0.003088414	U	0.002427193	U
SILVER	-0.0002200746	U	-0.0004386494	U	-0.0000683239 3	U	-0.0005658782	U
SODIUM	-0.02173247	U	-0.031266	U	-0.03352394	U	-0.03079425	U
THALLIUM	-0.002173697	U	0.001905219	U	-0.001664149	U	-0.002303351	U
VANADIUM	-0.0003977687	U	0.000369281	U	-0.0005951231	U	-0.0006671533	U
ZINC	-0.0004633015	U	-0.0009764299	U	-0.001405502	U	-0.001495129	U



SDG: L1239858  
Instrument ID: ICP14  
Analytical Method: 6010B

Calibration (begin) date/time: 07/16/20 19:46  
Calibration (end) date/time: 07/16/20 20:05  
Analytical Run: 071620ICP14A

Analyte	Sample ID: CCB Result	CCB Qual	BLANK Result	BLANK Qual
	File ID: 20200717011220 mg/l		20200716235149 mg/l	
ALUMINUM	0.008211496	U	U	
ANTIMONY	0.007783428	U	U	
ARSENIC	-0.0001279844	U	U	
BARIUM	-0.0000737368 7	U	U	
BERYLLIUM	0.00002430814	U	U	
CADMIUM	0.000004171446	U	U	
CALCIUM	-0.007263701	U	U	
CHROMIUM	0.0008445392	U	U	
COBALT	0.0004067766	U	U	
COPPER	-0.0006432523	U	U	
IRON	-0.001146948	U	U	
LEAD	0.0002837569	U	U	
MAGNESIUM	0.006250499	U	U	
MANGANESE	-0.0000154093 3	U	U	
NICKEL	-0.00108966	U	U	
POTASSIUM	-0.01338472	U	U	
SELENIUM	0.002315087	U	U	
SILVER	-0.0004205201	U	U	
SODIUM	-0.02323714	U	U	
THALLIUM	0.001740609	U	U	
VANADIUM	0.000479057	U	U	
ZINC	-0.001361551	U	U	

SDG:	L1239858	Calibration (begin) date/time:	07/20/20 03:23
Instrument ID:	ICP14	Calibration (end) date/time:	07/20/20 03:42
Analytical Method:	6010B	Analytical Run:	072020ICP14

	Sample ID:	ICB Result	ICB Qual	CCB Result	CCB Qual	CCB Result	CCB Qual
	File ID:	20200720034817-3		20200720113457-2		20200720115117	
Analyte		mg/l		mg/l		mg/l	
MANGANESE		0.00004384317	U	-0.0000359907 1	U	0.00004982781	U





**SDG:** L1239858  
**Instrument ID:** ICP14  
**Analytical Method:** 6010B

**Calibration (begin) date/time:** 07/21/20 01:12  
**Calibration (end) date/time:** 07/21/20 01:31  
**Analytical Run:** 072120ICP14

	Sample ID:	ICB Result	ICB Qual	CCB Result	CCB Qual	CCB Result	CCB Qual	BLANK Result	BLANK Qual
	File ID:	20200721013716		20200721051655		20200721061643		20200721062035	
Analyte		mg/l		mg/l		mg/l		mg/l	
ALUMINIUM		0.01062056	U	-0.003998847	U	0.023015	U	U	
ANTIMONY		0.002420924	U	-0.001282447	U	0.001526914	U	U	
ARSENIC		0.0020854	U	0.001617094	U	0.003135226	U	U	
BARIUM		-0.00000811907 4	U	-0.0001084045	U	-0.0000917680 4	U	U	
BERYLLIUM		0.00004092485	U	-0.00000117954 4	U	0.00008511789	U	U	
CADMIUM		0.0001049013	U	-0.0000729975 7	U	0.0001734458	U	U	
CALCIUM		0.001641056	U	-0.004402748	U	-0.01488536	U	U	
CHROMIUM		-0.0006070226	U	-0.0002705501	U	-0.0000270978 2	U	U	
COBALT		0.0002136756	U	0.0005714437	U	0.0002463206	U	U	
COPPER		-0.0002902811	U	0.0002307676	U	0.0001647474	U	U	
IRON		0.00137081	U	0.01012594	U	-0.0007060033	U	U	
LEAD		-0.0007031613	U	-0.0004919436	U	0.0002435609	U	U	
MAGNESIUM		0.003966186	U	0.002501913	U	-0.002484756	U	U	
MANGANESE		-0.0000500948 8	U	-0.0000084422 87	U	-0.0001094714	U	U	
NICKEL		-0.0007876326	U	-0.0008527212	U	-0.0004023706	U	U	
POTASSIUM		-0.0181077	U	0.1481428	U	-0.009918726	U	U	
SELENIUM		-0.00111674	U	-0.002550702	U	0.001576344	U	U	
SILVER		-0.0000744207 7	U	-0.0007150781	U	0.000475451	U	U	
SODIUM		-0.02433594	U	0.2786182	U	-0.004493299	U	U	
THALLIUM		-0.00037142	U	0.0007717774	U	-0.0005421686	U	U	
VANADIUM		-0.002569545	U	0.002151399	U	0.002457899	U	U	
ZINC		-0.0000423696 9	U	-0.001769032	U	-0.001421298	U	U	



SDG: L1239858  
Instrument ID: ICP14  
Analytical Method: 6010B

Calibration (begin) date/time: 07/21/20 01:12  
Calibration (end) date/time: 07/21/20 01:31  
Analytical Run: 072120ICP14

	Sample ID: CCB Result	CCB Qual	CCB Result	CCB Qual	CCB Result	CCB Qual	CCB Result	CCB Qual
	File ID: 20200721065005		20200721073641		20200721111722		20200721115124-2	
Analyte	mg/l		mg/l		mg/l		mg/l	
ALUMINIUM	0.006691466	U	0.03271923	U	0.01851886	U	-0.003988414	U
ANTIMONY	0.004242764	U	0.003020073	U	-0.001396924	U	-0.001366899	U
ARSENIC	0.0007100622	U	0.0001474294	U	0.00196707	U	-0.001066608	U
BARIUM	-0.0000766304 5	U	0.0000258920 6	U	0.0000252888 8	U	-0.0001144073	U
BERYLLIUM	0.0001391144	U	-0.0000005507 982	U	0.00001807163	U	0.000124554	U
CADMIUM	0.0000225208	U	0.00001164878	U	0.0002202369	U	-0.00009697136	U
CALCIUM	-0.008122623	U	-0.015105	U	0.001987741	U	-0.01224037	U
CHROMIUM	-0.0000529051 6	U	-0.0002564295	U	-0.000428318	U	0.0002584351	U
COBALT	-0.0000350664 3	U	0.0002161274	U	0.0002912433	U	0.0004231825	U
COPPER	0.0001178087	U	0.001559778	U	0.0002807764	U	0.0002388385	U
IRON	0.0001747629	U	0.03092491	U	0.005265763	U	-0.00007931989	U
LEAD	-0.001597857	U	-0.000314201	U	-0.0001637073	U	-0.0003925682	U
MAGNESIUM	-0.01071419	U	-0.006943459	U	-0.001865323	U	-0.01353498	U
MANGANESE	0.0002291243	U	-0.0000853058 6	U	0.0002865891	U	-0.0001041493	U
NICKEL	-0.0002357046	U	-0.0007389511	U	-0.0001197657	U	-0.0005896753	U
POTASSIUM	-0.02086745	U	-0.04566386	U	-0.05137929	U	-0.04537082	U
SELENIUM	-0.005796603	U	-0.001200092	U	0.0009093401	U	-0.0001320046	U
SILVER	0.0002176027	U	-0.0000532219	U	0.0006096628	U	0.000442777	U
SODIUM	-0.007050145	U	-0.02214153	U	-0.03430014	U	-0.04629972	U
THALLIUM	0.0001836319	U	0.00001758604	U	-0.0000890365 1	U	0.0001696105	U
VANADIUM	-0.0005113416	U	-0.001414873	U	-0.0007074614	U	0.002482521	U
ZINC	-0.001281074	U	-0.001349	U	-0.001236984	U	-0.001660106	U



4-IN

## INTERFERENCE CHECK SAMPLE

**SDG:** L1239858  
**Instrument ID:** ICP12  
**Instrument Run:** 071820ICP12

**Analytical Method:** 6010B  
**Date:** 07/18/20 07:06

Analyte	True	Found		True	Found	
	ICSA mg/l	ICSA mg/l	ICSA % Rec.	ICSAB mg/l	ICSAB mg/l	ICSAB % Rec.
ALUMINUM	500	521.9818	104	500	518.1979	104
ANTIMONY	0	-0.006432339		0.50	0.5367958	107
ARSENIC	0	-0.01693385		0.50	0.5011154	100
BARIUM	0	0.002672443		0.50	0.5186719	104
BERYLLIUM	0	-0.0001209202		0.50	0.5074739	101
BORON	0	-0.08769358		1	0.955337	95.50
CADMIUM	0	-0.00585468		1	1.076275	108
CALCIUM	500	523.8084	105	500	520.9476	104
CERIUM	0	4.928127		0	4.898676	
CHROMIUM	0	0.002954972		0.50	0.4818655	96.40
COBALT	0	0.0005767388		0.50	0.4946299	98.90
COPPER	0	-0.02796532		0.50	0.5372937	107
IRON	200	206.4009	103	200	204.9466	102
LANTHANUM	0	-0.01244644		0	-0.01085737	
LEAD	0	-0.04652923		1	0.9171071	91.70
LITHIUM	0	0.0762254		0	0.07227839	
MAGNESIUM	500	530.8521	106	500	525.775	105
MANGANESE	0	0.003386528		0.50	0.4724259	94.50
MOLYBDENUM	0	0.004930363		0.50	0.5206275	104
NICKEL	0	-0.001219633		1	0.972439	97.20
PHOSPHORUS	0	-0.008192257		0	-0.003048552	
POTASSIUM	0	-0.3893451		0	-0.3777446	
SELENIUM	0	-0.06020683		0.50	0.4900114	98
SILICON	0	0.001353018		1	1.048575	105
SILVER	0	0.0008657744		1	1.09984	110
SODIUM	0	-0.009468024		0	-0.01328385	
STRONTIUM	0	0.006035789		0	0.006547355	
SULFUR	0	-0.07494842		0	-0.06107646	
THALLIUM	0	0.009076154		0.50	0.4908354	98.20
TIN	0	-0.01580307		0.50	0.4763767	95.30
TITANIUM	0	-0.0007493459		0.50	0.5154466	103
VANADIUM	0	-0.006122034		0.50	0.511358	102
ZINC	0	0.003673378		1	0.9691872	96.90

ICSA Limits: 80 - 120

ICSAB Limits: 80 - 120



4-IN

## INTERFERENCE CHECK SAMPLE

**SDG:** L1239858  
**Instrument ID:** ICP12  
**Instrument Run:** 071820ICP12

**Analytical Method:** 6010B  
**Date:** 07/18/20 14:23

Analyte	True	Found		True	Found	
	ICSA mg/l	ICSA mg/l	ICSA % Rec.	ICSAB mg/l	ICSAB mg/l	ICSAB % Rec.
ALUMINUM	500	551.1165	110	500	542.1638	108
ANTIMONY	0	-0.003821461		0.50	0.5621467	112
ARSENIC	0	-0.02115689		0.50	0.5182128	104
BARIUM	0	0.002784723		0.50	0.5327248	107
BERYLLIUM	0	-0.00003217175		0.50	0.5298358	106
BORON	0	-0.09688199		1	1.017882	102
CADMIUM	0	-0.006999937		1	1.115382	112
CALCIUM	500	553.0754	111	500	544.2243	109
CERIUM	0	5.220444		0	5.37005	
CHROMIUM	0	0.00526624		0.50	0.4858632	97.20
COBALT	0	0.0001271438		0.50	0.5168253	103
COPPER	0	-0.02985808		0.50	0.583838	117
IRON	200	218.0841	109	200	215.2573	108
LANTHANUM	0	-0.01047913		0	-0.004623297	
LEAD	0	-0.05311252		1	0.9339208	93.40
LITHIUM	0	0.09025622		0	0.08727999	
MAGNESIUM	500	568.8836	114	500	558.6673	112
MANGANESE	0	0.003632292		0.50	0.4709274	94.20
MOLYBDENUM	0	0.005605439		0.50	0.5302472	106
NICKEL	0	-0.002520192		1	0.9999834	100
PHOSPHORUS	0	0.002367737		0	-0.002946963	
POTASSIUM	0	-0.4921445		0	-0.4637647	
SELENIUM	0	-0.05041843		0.50	0.5092318	102
SILICON	0	0.007815063		1	1.076716	108
SILVER	0	0.001131682		1	1.138773	114
SODIUM	0	-0.01148907		0	0.001661428	
STRONTIUM	0	0.007109924		0	0.007225055	
SULFUR	0	-0.05843402		0	-0.08276006	
THALLIUM	0	0.01327023		0.50	0.5233994	105
TIN	0	-0.01572712		0.50	0.4962723	99.30
TITANIUM	0	0.0003780475		0.50	0.5378559	108
VANADIUM	0	-0.01138235		0.50	0.5364752	107
ZINC	0	0.004417519		1	0.9880351	98.80

ICSA Limits: 80 - 120

ICSAB Limits: 80 - 120



4-IN

## INTERFERENCE CHECK SAMPLE

**SDG:** L1239858  
**Instrument ID:** ICP12  
**Instrument Run:** 080120ICP12

**Analytical Method:** 6010B  
**Date:** 08/01/20 08:33

Analyte	True	Found		True	Found	
	ICSA mg/l	ICSA mg/l	ICSA % Rec.	ICSAB mg/l	ICSAB mg/l	ICSAB % Rec.
ALUMINUM	500	519.457	104	500	521.7198	104
ANTIMONY	0	-0.0082538		0.50	0.5303472	106
ARSENIC	0	-0.007932517		0.50	0.5099742	102
BARIUM	0	0.002051988		0.50	0.5477571	110
BERYLLIUM	0	-0.00007210467		0.50	0.4923199	98.50
BORON	0	-0.08161381		1	0.9511435	95.10
CADMIUM	0	0.00007051526		1	1.125685	113
CALCIUM	500	524.8318	105	500	523.6005	105
CERIUM	0	0.3993687		0	0.414599	
CHROMIUM	0	0.003272422		0.50	0.527729	106
COBALT	0	-0.0002518883		0.50	0.5242996	105
COPPER	0	-0.04226875		0.50	0.5772993	115
IRON	200	209.6446	105	200	209.3077	105
LANTHANUM	0	-0.01182952		0	-0.01139591	
LEAD	0	-0.07905914		1	0.9505752	95.10
LITHIUM	0	0.03224983		0	0.03769294	
MAGNESIUM	500	520.9223	104	500	524.2581	105
MANGANESE	0	0.004409961		0.50	0.5067544	101
MOLYBDENUM	0	-0.00335601		0.50	0.5381806	108
NICKEL	0	-0.005792362		1	1.008925	101
PHOSPHORUS	0	0.01011834		0	0.00806787	
POTASSIUM	0	-0.4916404		0	-0.4511275	
SELENIUM	0	-0.0136518		0.50	0.4891772	97.80
SILICON	0	-0.003626272		1	1.067459	107
SILVER	0	-0.0004796084		1	1.183204	118
SODIUM	0	0.03171198		0	0.05467176	
STRONTIUM	0	0.00522039		0	0.005125091	
SULFUR	0	-0.004053481		0	-0.002337802	
THALLIUM	0	-0.01184691		0.50	0.5173376	103
TIN	0	-0.008678948		0.50	0.5112539	102
TITANIUM	0	-0.006237045		0.50	0.5085974	102
VANADIUM	0	-0.003732521		0.50	0.5020576	100
ZINC	0	0.003051743		1	0.9777778	97.80

ICSA Limits: 80 - 120

ICSAB Limits: 80 - 120



4-IN

## INTERFERENCE CHECK SAMPLE

**SDG:** L1239858  
**Instrument ID:** ICP12  
**Instrument Run:** 080120ICP12

**Analytical Method:** 6010B  
**Date:** 08/01/20 13:00

Analyte	True	Found		True	Found	
	ICSA mg/l	ICSA mg/l	ICSA % Rec.	ICSAB mg/l	ICSAB mg/l	ICSAB % Rec.
ALUMINUM	500	502.8046	101	500	504.5202	101
ANTIMONY	0	0.006818027		0.50	0.5252523	105
ARSENIC	0	0.0002305021		0.50	0.5212382	104
BARIUM	0	0.00155452		0.50	0.534939	107
BERYLLIUM	0	-0.0001858839		0.50	0.4737454	94.70
BORON	0	-0.08099		1	0.9223512	92.20
CADMIUM	0	-0.0005159354		1	1.113673	111
CALCIUM	500	507.0829	101	500	509.2393	102
CERIUM	0	0.3660806		0	0.4118275	
CHROMIUM	0	0.00346952		0.50	0.5175167	104
COBALT	0	0.0001150916		0.50	0.5145757	103
COPPER	0	-0.04033133		0.50	0.5615985	112
IRON	200	205.1228	103	200	204.0801	102
LANTHANUM	0	-0.01157991		0	-0.008521583	
LEAD	0	-0.07647217		1	0.9224688	92.20
LITHIUM	0	0.03199073		0	0.03821077	
MAGNESIUM	500	508.5085	102	500	511.119	102
MANGANESE	0	0.004451269		0.50	0.4970582	99.40
MOLYBDENUM	0	-0.001830566		0.50	0.5314119	106
NICKEL	0	-0.005343112		1	0.9858295	98.60
PHOSPHORUS	0	0.01097025		0	0.01334683	
POTASSIUM	0	-0.4556568		0	-0.4191122	
SELENIUM	0	-0.01725307		0.50	0.4849731	97
SILICON	0	-0.001574227		1	1.044121	104
SILVER	0	-0.0001017381		1	1.154256	115
SODIUM	0	0.004060165		0	0.02386406	
STRONTIUM	0	0.005278603		0	0.005001704	
SULFUR	0	0.003642235		0	-0.00009499444	
THALLIUM	0	-0.007529648		0.50	0.5215234	104
TIN	0	-0.01030555		0.50	0.4956417	99.10
TITANIUM	0	-0.00708236		0.50	0.4938541	98.80
VANADIUM	0	-0.006342281		0.50	0.4863309	97.30
ZINC	0	0.003682316		1	0.9736536	97.40

ICSA Limits: 80 - 120

ICSAB Limits: 80 - 120





4-IN

## INTERFERENCE CHECK SAMPLE

**SDG:** L1239858  
**Instrument ID:** ICP13  
**Instrument Run:** 071920ICP13

**Analytical Method:** 6010B  
**Date:** 07/19/20 17:27

Analyte	True	Found		True	Found	
	ICSA mg/l	ICSA mg/l	ICSA % Rec.	ICSAB mg/l	ICSAB mg/l	ICSAB % Rec.
ALUMINUM	500	498.056	99.60	500	497.8799	99.60
ANTIMONY	0	0.001768748		0.50	0.4823179	96.50
ARSENIC	0	-0.007909797		0.50	0.5122749	102
BARIUM	0	0.001186549		0.50	0.4935129	98.70
BERYLLIUM	0	0.0004742513		0.50	0.4939687	98.80
BORON	0	-0.09464995		1	0.9081731	90.80
CADMIUM	0	0.002257926		1	1.022021	102
CALCIUM	500	501.3487	100	500	500.7	100
CERIUM	0	-0.3088979		0	-0.2945582	
CHROMIUM	0	-0.003586342		0.50	0.4853605	97.10
COBALT	0	0.000004755572		0.50	0.5249545	105
COPPER	0	0.004137126		0.50	0.5067153	101
IRON	200	198.8406	99.40	200	198.4011	99.20
LANTHANUM	0	-0.00637013		0	-0.01376192	
LEAD	0	-0.03179846		1	0.9750528	97.50
LITHIUM	0	0.006258927		0	0.006354386	
MAGNESIUM	500	503.754	101	500	502.0524	100
MANGANESE	0	0.004692476		0.50	0.4823552	96.50
MOLYBDENUM	0	0.001560996		0.50	0.5004437	100
NICKEL	0	-0.002221547		1	1.036891	104
PHOSPHORUS	0	-0.0003764503		0	-0.002329445	
POTASSIUM	0	-0.09968267		0	-0.04611387	
SELENIUM	0	0.003148778		0.50	0.4960993	99.20
SILICON	0	0.009048311		1	0.9106903	91.10
SILVER	0	0.001233811		1	1.057487	106
SODIUM	0	-0.01372104		0	-0.005538356	
STRONTIUM	0	0.004402467		0	0.004513902	
SULFUR	0	-0.0492248		0	-0.05053977	
THALLIUM	0	-0.005712563		0.50	0.4622046	92.40
TIN	0	0.001915799		0.50	0.4513172	90.30
TITANIUM	0	0.009990933		0.50	0.5025756	101
VANADIUM	0	-0.004789344		0.50	0.4895676	97.90
ZINC	0	0.002005715		1	0.9535552	95.40

ICSA Limits: 80 - 120

ICSAB Limits: 80 - 120



4-IN

## INTERFERENCE CHECK SAMPLE

**SDG:** L1239858  
**Instrument ID:** ICP13  
**Instrument Run:** 071920ICP13

**Analytical Method:** 6010B  
**Date:** 07/20/20 02:01

Analyte	True	Found		True	Found	
	ICSA mg/l	ICSA mg/l	ICSA % Rec.	ICSAB mg/l	ICSAB mg/l	ICSAB % Rec.
ALUMINUM	500	500.2997	100	500	499.4475	99.90
ANTIMONY	0	-0.005781377		0.50	0.4811343	96.20
ARSENIC	0	-0.008494411		0.50	0.5142029	103
BARIUM	0	0.001515039		0.50	0.4950969	99
BERYLLIUM	0	0.0005841311		0.50	0.4970358	99.40
BORON	0	-0.09245996		1	0.9194331	91.90
CADMIUM	0	0.002177668		1	1.024598	102
CALCIUM	500	499.3978	99.90	500	496.8061	99.40
CERIUM	0	-0.6633081		0	-0.683519	
CHROMIUM	0	-0.003572432		0.50	0.4813762	96.30
COBALT	0	-0.0003134729		0.50	0.5210857	104
COPPER	0	0.003193467		0.50	0.5150064	103
IRON	200	198.0697	99	200	197.358	98.70
LANTHANUM	0	-0.007178976		0	-0.01351412	
LEAD	0	-0.02999429		1	0.9522034	95.20
LITHIUM	0	0.004083988		0	0.004666254	
MAGNESIUM	500	499.0141	99.80	500	497.0513	99.40
MANGANESE	0	0.004598098		0.50	0.4797822	96
MOLYBDENUM	0	0.001600494		0.50	0.4996401	99.90
NICKEL	0	-0.002055853		1	1.029069	103
PHOSPHORUS	0	-0.001629135		0	-0.003359191	
POTASSIUM	0	-0.06672347		0	-0.05553991	
SELENIUM	0	-0.007736807		0.50	0.5068837	101
SILICON	0	0.008831476		1	0.9132389	91.30
SILVER	0	0.001394499		1	1.066647	107
SODIUM	0	-0.04128478		0	-0.0502015	
STRONTIUM	0	0.004499124		0	0.004474453	
SULFUR	0	-0.04546558		0	-0.05699363	
THALLIUM	0	-0.01058282		0.50	0.4545554	90.90
TIN	0	0.005010857		0.50	0.437295	87.50
TITANIUM	0	0.008666346		0.50	0.5074593	101
VANADIUM	0	-0.003986375		0.50	0.4896806	97.90
ZINC	0	0.001578683		1	0.9247353	92.50

ICSA Limits: 80 - 120

ICSAB Limits: 80 - 120



4-IN

## INTERFERENCE CHECK SAMPLE

**SDG:** L1239858  
**Instrument ID:** ICP14  
**Instrument Run:** 071620ICP14A

**Analytical Method:** 6010B  
**Date:** 07/16/20 20:37

Analyte	True	Found		True	Found	
	ICSA mg/l	ICSA mg/l	ICSA % Rec.	ICSAB mg/l	ICSAB mg/l	ICSAB % Rec.
ALUMINUM	500	497.8507	99.60	500	497.3085	99.50
ANTIMONY	0	-0.03653169		0.50	0.4559799	91.20
ARSENIC	0	-0.002124013		0.50	0.5110555	102
BARIUM	0	0.002508059		0.50	0.4920327	98.40
BERYLLIUM	0	0.00003486686		0.50	0.4907446	98.10
BORON	0	0.0003930735		1	0.9902201	99
CADMIUM	0	0.002279377		1	1.035397	104
CALCIUM	500	492.9334	98.60	500	498.1303	99.60
CERIUM	0	-0.1775094		0	-0.1980907	
CHROMIUM	0	0.001472355		0.50	0.4796193	95.90
COBALT	0	-0.0001504266		0.50	0.5159898	103
COPPER	0	0.004069285		0.50	0.5239112	105
IRON	200	197.5584	98.80	200	197.5422	98.80
LANTHANUM	0	0.002284945		0	-0.007951247	
LEAD	0	-0.0409618		1	0.9507654	95.10
LITHIUM	0	0.001504152		0	0.002222764	
MAGNESIUM	500	499.9811	100	500	498.5121	99.70
MANGANESE	0	0.003456947		0.50	0.4746379	94.90
MOLYBDENUM	0	-0.00265369		0.50	0.4800114	96
NICKEL	0	0.008961885		1	1.028823	103
PHOSPHORUS	0	-0.009772507		0	-0.0107934	
POTASSIUM	0	-0.0588572		0	-0.02687835	
SELENIUM	0	0.007023797		0.50	0.5130909	103
SILICON	0	0.02625711		1	0.899417	89.90
SILVER	0	0.0003396949		1	1.124873	112
SODIUM	0	-0.008362029		0	-0.0118351	
STRONTIUM	0	0.002813419		0	0.002932639	
SULFUR	0	-0.1695363		0	-0.1772955	
THALLIUM	0	-0.01152145		0.50	0.487367	97.50
TIN	0	-0.0008077264		0.50	0.4250287	85
TITANIUM	0	0.01743141		0.50	0.5140137	103
VANADIUM	0	-0.0004913437		0.50	0.4836917	96.70
ZINC	0	-0.004042738		1	0.9066091	90.70

ICSA Limits: 80 - 120

ICSAB Limits: 80 - 120



4-IN

## INTERFERENCE CHECK SAMPLE

**SDG:** L1239858  
**Instrument ID:** ICP14  
**Instrument Run:** 071620ICP14A

**Analytical Method:** 6010B  
**Date:** 07/17/20 01:18

Analyte	True	Found		True	Found	
	ICSA mg/l	ICSA mg/l	ICSA % Rec.	ICSAB mg/l	ICSAB mg/l	ICSAB % Rec.
ALUMINUM	500	503.1192	101	500	499.566	99.90
ANTIMONY	0	-0.02734826		0.50	0.4556998	91.10
ARSENIC	0	-0.005307569		0.50	0.5155639	103
BARIUM	0	0.002903106		0.50	0.4991491	99.80
BERYLLIUM	0	0.0000533581		0.50	0.4921925	98.40
BORON	0	0.0002968121		1	0.9954554	99.50
CADMIUM	0	0.002823066		1	1.044591	104
CALCIUM	500	500.796	100	500	496.3775	99.30
CERIUM	0	-0.2525317		0	-0.2390584	
CHROMIUM	0	0.00130217		0.50	0.4819465	96.40
COBALT	0	0.0002208769		0.50	0.5179474	104
COPPER	0	0.003987836		0.50	0.5288673	106
IRON	200	199.4925	99.70	200	198.9458	99.50
LANTHANUM	0	-0.0005060367		0	-0.004762153	
LEAD	0	-0.0444513		1	0.9585936	95.90
LITHIUM	0	0.00231234		0	0.002830274	
MAGNESIUM	500	501.8979	100	500	499.9507	100
MANGANESE	0	0.003527783		0.50	0.4783459	95.70
MOLYBDENUM	0	-0.003416685		0.50	0.4833077	96.70
NICKEL	0	0.008173012		1	1.02838	103
PHOSPHORUS	0	-0.02188244		0	-0.01844088	
POTASSIUM	0	-0.04440364		0	-0.04787692	
SELENIUM	0	0.003632323		0.50	0.5100186	102
SILICON	0	-0.01278335		1	0.9128745	91.30
SILVER	0	0.002802759		1	1.153141	115
SODIUM	0	0.007017516		0	-0.006391629	
STRONTIUM	0	0.003030773		0	0.003052951	
SULFUR	0	-0.1314393		0	-0.1229763	
THALLIUM	0	-0.007577707		0.50	0.4800061	96
TIN	0	-0.00003121529		0.50	0.4288656	85.80
TITANIUM	0	0.01622397		0.50	0.5112417	102
VANADIUM	0	-0.001209876		0.50	0.4908399	98.20
ZINC	0	-0.001390412		1	0.9180398	91.80

ICSA Limits: 80 - 120

ICSAB Limits: 80 - 120



4-IN

## INTERFERENCE CHECK SAMPLE

**SDG:** L1239858  
**Instrument ID:** ICP14  
**Instrument Run:** 072020ICP14

**Analytical Method:** 6010B  
**Date:** 07/20/20 06:04

Analyte	True	Found		True	Found	
	ICSA mg/l	ICSA mg/l	ICSA % Rec.	ICSAB mg/l	ICSAB mg/l	ICSAB % Rec.
ALUMINUM	500	505.9039	101	500	505.8318	101
ANTIMONY	0	-0.01154392		0.50	0.4892089	97.80
ARSENIC	0	-0.004861874		0.50	0.5128508	103
BARIUM	0	0.002526651		0.50	0.5029554	101
BERYLLIUM	0	0.00008210768		0.50	0.5026405	101
BORON	0	-0.002294093		1	1.006732	101
CADMIUM	0	0.001202634		1	1.057582	106
CALCIUM	500	506.944	101	500	506.7497	101
CERIUM	0	-0.1817362		0	-0.1941047	
CHROMIUM	0	0.001256423		0.50	0.4853957	97.10
COBALT	0	-0.00006031753		0.50	0.5274584	105
COPPER	0	0.00419456		0.50	0.5361263	107
IRON	200	201.1777	101	200	201.1396	101
LANTHANUM	0	0.001744236		0	-0.005480865	
LEAD	0	-0.04578322		1	0.9675169	96.80
LITHIUM	0	0.002321488		0	0.002158181	
MAGNESIUM	500	510.6781	102	500	510.0952	102
MANGANESE	0	0.003700116		0.50	0.4838917	96.80
MOLYBDENUM	0	-0.00310305		0.50	0.4907283	98.10
NICKEL	0	0.00504833		1	1.047643	105
PHOSPHORUS	0	-0.01660578		0	-0.01625867	
POTASSIUM	0	-0.01309526		0	-0.001485059	
SELENIUM	0	-0.04406298		0.50	0.4867986	97.40
SILICON	0	0.02600877		1	0.9539782	95.40
SILVER	0	0.0009463005		1	1.097995	110
SODIUM	0	-0.0002825808		0	0.009346316	
STRONTIUM	0	0.003282913		0	0.003404163	
SULFUR	0	-0.1864494		0	-0.1929447	
THALLIUM	0	-0.01144298		0.50	0.4905885	98.10
TIN	0	0.0003080381		0.50	0.4375377	87.50
TITANIUM	0	0.01575121		0.50	0.5226033	105
VANADIUM	0	-0.004045646		0.50	0.4905577	98.10
ZINC	0	-0.002593919		1	0.9281659	92.80

ICSA Limits: 80 - 120

ICSAB Limits: 80 - 120

4-IN

## INTERFERENCE CHECK SAMPLE

SDG: L1239858  
Instrument ID: ICP14  
Instrument Run: 072020ICP14

Analytical Method: 6010B  
Date: 07/20/20 13:09

Analyte	True	Found		True	Found	
	ICSA mg/l	ICSA mg/l	ICSA % Rec.	ICSAB mg/l	ICSAB mg/l	ICSAB % Rec.
ALUMINUM	500	508.5824	102	500	505.0382	101
ANTIMONY	0	-0.01036791		0.50	0.4430835	88.60
ARSENIC	0	-0.009274697		0.50	0.4969994	99.40
BARIUM	0	0.002802935		0.50	0.4812122	96.20
BERYLLIUM	0	0.00009504718		0.50	0.4971988	99.40
BORON	0	-0.000615359		1	1.002076	100
CADMIUM	0	0.0008191652		1	1.009405	101
CALCIUM	500	504.1377	101	500	505.9723	101
CERIUM	0	-0.2827264		0	-0.3260064	
CHROMIUM	0	0.001639392		0.50	0.4724236	94.50
COBALT	0	0.000763124		0.50	0.4993087	99.90
COPPER	0	0.00409626		0.50	0.5303333	106
IRON	200	199.9195	100	200	198.6888	99.30
LANTHANUM	0	0.0004314743		0	-0.004638892	
LEAD	0	-0.04431595		1	0.9108807	91.10
LITHIUM	0	0.001675193		0	0.002187662	
MAGNESIUM	500	504.8982	101	500	500.8982	100
MANGANESE	0	0.003572413		0.50	0.4707268	94.10
MOLYBDENUM	0	-0.003467341		0.50	0.4676621	93.50
NICKEL	0	0.003529909		1	0.9897325	99
PHOSPHORUS	0	-0.02252008		0	-0.01681961	
POTASSIUM	0	-0.02120784		0	0.002210672	
SELENIUM	0	-0.02317622		0.50	0.4758747	95.20
SILICON	0	0.01496475		1	0.949622	95
SILVER	0	0.0004227927		1	1.077553	108
SODIUM	0	0.007645165		0	0.01168852	
STRONTIUM	0	0.003555552		0	0.003465215	
SULFUR	0	-0.1740373		0	-0.1825328	
THALLIUM	0	-0.01205396		0.50	0.4663889	93.30
TIN	0	-0.00112415		0.50	0.4094194	81.90
TITANIUM	0	0.01419266		0.50	0.52652	105
VANADIUM	0	-0.001696947		0.50	0.4902896	98.10
ZINC	0	-0.002676516		1	0.8711695	87.10

ICSA Limits: 80 - 120

ICSAB Limits: 80 - 120





4-IN

## INTERFERENCE CHECK SAMPLE

**SDG:** L1239858  
**Instrument ID:** ICP14  
**Instrument Run:** 072120ICP14

**Analytical Method:**  
**Date:**

6010B  
 07/21/20 01:54

Analyte	True	Found		True	Found	
	ICSA mg/l	ICSA mg/l	ICSA % Rec.	ICSAB mg/l	ICSAB mg/l	ICSAB % Rec.
ALUMINUM	500	505.1606	101	500	504.8561	101
ANTIMONY	0	-0.03688471		0.50	0.4601609	92
ARSENIC	0	-0.006024553		0.50	0.511169	102
BARIUM	0	0.001966212		0.50	0.4992339	99.80
BERYLLIUM	0	0.00005232988		0.50	0.4999836	100
BORON	0	-0.0444891		1	0.9620501	96.20
CADMIUM	0	0.002196394		1	1.032631	103
CALCIUM	500	505.4632	101	500	499.3119	99.90
CERIUM	0	-0.3263092		0	-0.3351468	
CHROMIUM	0	0.002430261		0.50	0.4841952	96.80
COBALT	0	0.0004771708		0.50	0.5226721	105
COPPER	0	0.004701993		0.50	0.5288061	106
IRON	200	200.061	100	200	200.9514	100
LANTHANUM	0	0.002827206		0	-0.007585736	
LEAD	0	-0.05664315		1	0.9533066	95.30
LITHIUM	0	0.001688985		0	0.002052571	
MAGNESIUM	500	503.7743	101	500	505.2314	101
MANGANESE	0	0.003490015		0.50	0.480434	96.10
MOLYBDENUM	0	-0.001002009		0.50	0.4910039	98.20
NICKEL	0	0.003988036		1	1.036801	104
PHOSPHORUS	0	-0.01621801		0	-0.01598052	
POTASSIUM	0	-0.07353203		0	-0.01174011	
SELENIUM	0	0.005394483		0.50	0.50864	102
SILICON	0	0.0005649756		1	0.9707405	97.10
SILVER	0	-0.0006817209		1	1.078177	108
SODIUM	0	-0.02451703		0	-0.01725207	
STRONTIUM	0	0.003199774		0	0.003151934	
SULFUR	0	-0.1643154		0	-0.1545851	
THALLIUM	0	-0.004413236		0.50	0.4636157	92.70
TIN	0	0.0004662001		0.50	0.4434316	88.70
TITANIUM	0	0.01828257		0.50	0.5205803	104
VANADIUM	0	-0.0004647527		0.50	0.4930378	98.60
ZINC	0	-0.003358138		1	0.9185816	91.90

ICSA Limits: 80 - 120

ICSAB Limits: 80 - 120



4-IN

## INTERFERENCE CHECK SAMPLE

**SDG:** L1239858  
**Instrument ID:** ICP14  
**Instrument Run:** 072120ICP14

**Analytical Method:** 6010B  
**Date:** 07/21/20 09:55

Analyte	True	Found		True	Found	
	ICSA mg/l	ICSA mg/l	ICSA % Rec.	ICSAB mg/l	ICSAB mg/l	ICSAB % Rec.
ALUMINUM	500	499.6011	99.90	500	500.3304	100
ANTIMONY	0	-0.04321434		0.50	0.469544	93.90
ARSENIC	0	-0.01064274		0.50	0.5101543	102
BARIUM	0	0.002444078		0.50	0.4979385	99.60
BERYLLIUM	0	0.000227088		0.50	0.4813739	96.30
BORON	0	-0.04088383		1	0.9499326	95
CADMIUM	0	0.00218186		1	1.065897	107
CALCIUM	500	498.04	99.60	500	490.8263	98.20
CERIUM	0	-0.128346		0	-0.163456	
CHROMIUM	0	0.001050523		0.50	0.491081	98.20
COBALT	0	0.0002447754		0.50	0.5236191	105
COPPER	0	0.005328468		0.50	0.5265718	105
IRON	200	198.0473	99	200	196.9824	98.50
LANTHANUM	0	0.001737304		0	-0.004988159	
LEAD	0	-0.0571161		1	0.9484716	94.80
LITHIUM	0	0.001568972		0	0.002957712	
MAGNESIUM	500	503.8517	101	500	500.9109	100
MANGANESE	0	0.003693685		0.50	0.4817578	96.40
MOLYBDENUM	0	-0.001181602		0.50	0.4968296	99.40
NICKEL	0	0.02491725		1	1.046976	105
PHOSPHORUS	0	-0.01119133		0	-0.01674634	
POTASSIUM	0	-0.04974291		0	-0.0340331	
SELENIUM	0	0.009237062		0.50	0.498753	99.80
SILICON	0	0.005058241		1	0.9582485	95.80
SILVER	0	0.0008359459		1	1.046667	105
SODIUM	0	-0.02292815		0	-0.02263197	
STRONTIUM	0	0.003088419		0	0.002839733	
SULFUR	0	-0.1396516		0	-0.1340045	
THALLIUM	0	-0.00611519		0.50	0.4718721	94.40
TIN	0	-0.0007094211		0.50	0.4452522	89.10
TITANIUM	0	0.02016282		0.50	0.5254157	105
VANADIUM	0	0.00143521		0.50	0.4805587	96.10
ZINC	0	-0.001825232		1	0.9149558	91.50

ICSA Limits: 80 - 120

ICSAB Limits: 80 - 120



4-IN

## INTERFERENCE CHECK SAMPLE

**SDG:** L1239858  
**Instrument ID:** ICP14  
**Instrument Run:** 072120ICP14

**Analytical Method:** 6010B  
**Date:** 07/21/20 13:07

Analyte	True	Found		True	Found	
	ICSA mg/l	ICSA mg/l	ICSA % Rec.	ICSAB mg/l	ICSAB mg/l	ICSAB % Rec.
ALUMINUM	500	501.5695	100	500	501.4541	100
ANTIMONY	0	-0.03490307		0.50	0.4681682	93.60
ARSENIC	0	-0.01049916		0.50	0.5044438	101
BARIUM	0	0.002540179		0.50	0.4947438	98.90
BERYLLIUM	0	0.0001344602		0.50	0.4759865	95.20
BORON	0	-0.03512964		1	0.9496594	95
CADMIUM	0	0.001604908		1	1.051755	105
CALCIUM	500	492.4053	98.50	500	496.0739	99.20
CERIUM	0	-0.4176376		0	-0.3926647	
CHROMIUM	0	0.0016823		0.50	0.4887566	97.80
COBALT	0	0.0007751916		0.50	0.5172645	103
COPPER	0	0.005633493		0.50	0.5272733	105
IRON	200	194.2773	97.10	200	194.4894	97.20
LANTHANUM	0	0.001655405		0	-0.006939507	
LEAD	0	-0.05814881		1	0.9409911	94.10
LITHIUM	0	0.0006504189		0	0.0003271401	
MAGNESIUM	500	492.3957	98.50	500	492.4471	98.50
MANGANESE	0	0.003869777		0.50	0.4767216	95.30
MOLYBDENUM	0	-0.001263302		0.50	0.492116	98.40
NICKEL	0	0.04564236		1	1.035426	104
PHOSPHORUS	0	-0.009180504		0	-0.01409761	
POTASSIUM	0	-0.0275753		0	-0.04152549	
SELENIUM	0	0.002120533		0.50	0.5038467	101
SILICON	0	0.003888965		1	0.9554378	95.50
SILVER	0	0.0009676725		1	1.044189	104
SODIUM	0	-0.01123108		0	-0.01258213	
STRONTIUM	0	0.003187783		0	0.00317527	
SULFUR	0	-0.1472306		0	-0.1405895	
THALLIUM	0	-0.002065579		0.50	0.4744708	94.90
TIN	0	-0.003264695		0.50	0.4414076	88.30
TITANIUM	0	0.01902662		0.50	0.5248265	105
VANADIUM	0	0.001186502		0.50	0.4845729	96.90
ZINC	0	-0.0008007036		1	0.9049655	90.50

ICSA Limits: 80 - 120

ICSAB Limits: 80 - 120



MATRIX SPIKE /  
MATRIX SPIKE DUPLICATE RECOVERY  
L1239858-07,09,11,14

SAMPLE NO.:

R3550332-4

R3550332-5

MS Sample / File ID: R3550332-4 / 20200717000242

MSD Sample / File ID: R3550332-5 / 20200717000524

OS Sample / File ID: L1239858-07 / 20200716235715

Instrument ID: ICP14

Analytical Method: 6010B

SDG: L1239858

Analytical Batch: WG1510345

Matrix: GW

Analyte	Spike Amount mg/l	OS Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	RPD %	RPD Limits %
Aluminum,Dissolved	10.0	U	9.66	9.55	96.6	95.5	1	75.0 - 125	1.21	20
Antimony,Dissolved	1.00	U	0.978	0.986	97.8	98.6	1	75.0 - 125	0.803	20
Arsenic,Dissolved	1.00	U	0.983	0.975	98.3	97.5	1	75.0 - 125	0.853	20
Barium,Dissolved	1.00	0.00524	0.979	0.977	97.3	97.2	1	75.0 - 125	0.151	20
Beryllium,Dissolved	1.00	U	0.995	0.985	99.5	98.5	1	75.0 - 125	1.04	20
Cadmium,Dissolved	1.00	U	0.977	0.976	97.7	97.6	1	75.0 - 125	0.117	20
Calcium,Dissolved	10.0	384	388	379	41.0*	0.000*	1	75.0 - 125	2.19	20
Chromium,Dissolved	1.00	U	0.970	0.963	97.0	96.3	1	75.0 - 125	0.748	20
Cobalt,Dissolved	1.00	0.00923	0.986	0.983	97.7	97.4	1	75.0 - 125	0.288	20
Copper,Dissolved	1.00	U	0.990	0.985	99.0	98.5	1	75.0 - 125	0.585	20
Iron,Dissolved	10.0	3.87	13.5	13.3	96.6	94.4	1	75.0 - 125	1.64	20
Lead,Dissolved	1.00	U	0.940	0.936	94.0	93.6	1	75.0 - 125	0.407	20
Magnesium,Dissolved	10.0	10.6	19.9	19.6	93.4	90.2	1	75.0 - 125	1.65	20
Manganese,Dissolved	1.00	1.29	2.23	2.21	93.5	91.8	1	75.0 - 125	0.782	20
Nickel,Dissolved	1.00	U	0.967	0.964	96.7	96.4	1	75.0 - 125	0.370	20
Potassium,Dissolved	10.0	1.08	10.7	10.5	95.9	94.2	1	75.0 - 125	1.66	20
Selenium,Dissolved	1.00	U	1.01	1.01	101	101	1	75.0 - 125	0.337	20
Silver,Dissolved	0.200	U	0.197	0.195	98.5	97.7	1	75.0 - 125	0.886	20
Sodium,Dissolved	10.0	8.38	18.7	18.5	103	101	1	75.0 - 125	1.27	20
Thallium,Dissolved	1.00	U	0.958	0.953	95.8	95.3	1	75.0 - 125	0.516	20
Vanadium,Dissolved	1.00	U	1.00	0.987	100	98.7	1	75.0 - 125	1.74	20
Zinc,Dissolved	1.00	0.0143	0.941	0.938	92.7	92.4	1	75.0 - 125	0.363	20

\*: Value outside the established quality control limits.

D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

MATRIX SPIKE /  
MATRIX SPIKE DUPLICATE RECOVERY  
L1239858-01,02,16,17,18,20

SAMPLE NO.:  
R3550925-4  
R3550925-5

**MS Sample / File ID:** R3550925-4 / 20200718104109  
**MSD Sample / File ID:** R3550925-5 / 20200718104338  
**OS Sample / File ID:** L1239886-02 / 20200718103557  
**Instrument ID:** ICP12  
**Analytical Method:** 6010B

**SDG:** L1239858  
**Analytical Batch:** WG1511061  
**Matrix:** GW

Analyte	Spike Amount mg/l	OS Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	RPD %	RPD Limits %
Aluminum	10.0	0.124	10.1	10.0	100	99.1	1	75.0 - 125	1.13	20
Antimony	1.00	U	1.01	0.978	101	97.8	1	75.0 - 125	3.51	20
Arsenic	1.00	U	0.953	0.942	95.3	94.2	1	75.0 - 125	1.15	20
Barium	1.00	0.0545	1.07	1.05	101	99.9	1	75.0 - 125	1.19	20
Beryllium	1.00	U	1.01	0.995	101	99.5	1	75.0 - 125	1.72	20
Cadmium	1.00	U	0.989	0.971	98.9	97.1	1	75.0 - 125	1.83	20
Calcium	10.0	2.93	13.6	13.4	107	105	1	75.0 - 125	1.48	20
Chromium	1.00	U	0.932	0.918	93.2	91.8	1	75.0 - 125	1.45	20
Cobalt	1.00	U	1.02	0.999	102	99.9	1	75.0 - 125	1.62	20
Copper	1.00	0.0199	1.06	1.04	104	102	1	75.0 - 125	1.70	20
Iron	10.0	0.134	10.2	10.2	101	100	1	75.0 - 125	0.831	20
Lead	1.00	0.0359	1.02	1.00	98.2	96.4	1	75.0 - 125	1.79	20
Magnesium	10.0	0.616	11.3	11.0	106	104	1	75.0 - 125	2.06	20
Manganese	1.00	0.0412	0.969	0.956	92.8	91.5	1	75.0 - 125	1.33	20
Nickel	1.00	U	0.996	0.987	99.6	98.7	1	75.0 - 125	0.944	20
Potassium	10.0	0.787	10.4	10.3	96.2	95.6	1	75.0 - 125	0.577	20
Selenium	1.00	U	0.973	0.952	97.3	95.2	1	75.0 - 125	2.21	20
Silver	0.200	U	0.181	0.177	90.4	88.7	1	75.0 - 125	1.97	20
Sodium	10.0	8.79	19.0	18.7	102	99.6	1	75.0 - 125	1.43	20
Thallium	1.00	U	1.05	1.01	105	101	1	75.0 - 125	3.30	20
Vanadium	1.00	U	1.03	1.01	103	101	1	75.0 - 125	1.75	20
Zinc	1.00	0.0789	1.06	1.05	98.4	97.3	1	75.0 - 125	1.05	20

\*: Value outside the established quality control limits.

D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

MATRIX SPIKE /  
MATRIX SPIKE DUPLICATE RECOVERY  
L1239858-03,04,05,15,21,22,23

MS Sample / File ID:	R3550996-11 / 20200720003234	SDG:	L1239858
MSD Sample / File ID:	R3550996-12 / 20200720003532	Analytical Batch:	WG1510526
OS Sample / File ID:	L1239858-03 / 20200720002102	Matrix:	Solid
Instrument ID:	ICP13		
Analytical Method:	6010B		

Analyte	Spike Amount <i>mg/kg</i>	OS Result <i>mg/kg</i>	MS Result <i>mg/kg</i>	MSD Result <i>mg/kg</i>	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	RPD %	RPD Limits %
Manganese	20.0	8590	8630	8660	39.1*	74.7*	5	75.0 - 125	0.412	20

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.



MATRIX SPIKE /  
MATRIX SPIKE DUPLICATE RECOVERY  
L1239858-03,04,05,15,21,22,23

SAMPLE NO.:  
R3550996-5  
R3550996-6

**MS Sample / File ID:** R3550996-5 / 20200719202351  
**MSD Sample / File ID:** R3550996-6 / 20200719202645  
**OS Sample / File ID:** L1239858-03 / 20200719201459  
**Instrument ID:** ICP13  
**Analytical Method:** 6010B

**SDG:** L1239858  
**Analytical Batch:** WG1510526  
**Matrix:** Solid

Analyte	Spike Amount mg/kg	OS Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	RPD %	RPD Limits %
Aluminum	1000	1370	2310	2390	94.1	102	1	75.0 - 125	3.35	20
Antimony	100	5.52	80.8	79.8	75.2	74.3*	1	75.0 - 125	1.17	20
Arsenic	100	31.7	125	121	93.4	89.3	1	75.0 - 125	3.31	20
Barium	100	28.0	122	122	94.4	94.1	1	75.0 - 125	0.276	20
Beryllium	100	1.83	97.5	97.0	95.7	95.2	1	75.0 - 125	0.490	20
Cadmium	100	3.14	96.0	95.7	92.9	92.5	1	75.0 - 125	0.399	20
Calcium	1000	8770	9750	9190	98.2	42.0*	1	75.0 - 125	5.93	20
Chromium	100	U	90.2	89.7	90.2	89.7	1	75.0 - 125	0.528	20
Cobalt	100	75.2	182	179	107	104	1	75.0 - 125	1.55	20
Copper	100	55.9	153	174	97.3	119	1	75.0 - 125	13.0	20
Iron	1000	144000	145000	130000	173*	0.000*	1	75.0 - 125	10.9	20
Lead	100	142	241	223	98.7	80.7	1	75.0 - 125	7.77	20
Magnesium	1000	146	1000	983	85.6	83.7	1	75.0 - 125	1.88	20
Nickel	100	U	105	104	105	104	1	75.0 - 125	0.499	20
Potassium	1000	102	980	976	87.8	87.4	1	75.0 - 125	0.423	20
Selenium	100	7.49	97.4	96.2	89.9	88.7	1	75.0 - 125	1.27	20
Silver	20.0	1.96	20.3	20.2	91.6	91.0	1	75.0 - 125	0.569	20
Sodium	1000	U	993	982	99.3	98.2	1	75.0 - 125	1.08	20
Thallium	100	U	84.5	83.9	84.5	83.9	1	75.0 - 125	0.769	20
Vanadium	100	3.37	96.8	95.6	93.4	92.3	1	75.0 - 125	1.20	20
Zinc	100	434	506	528	71.9*	93.8	1	75.0 - 125	4.23	20

\*: Value outside the established quality control limits.

D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

MATRIX SPIKE /  
MATRIX SPIKE DUPLICATE RECOVERY  
L1239858-03,04,05,15,21,22,23

SAMPLE NO.:  
R3550996-8  
R3550996-9

**MS Sample / File ID:** R3550996-8 / 20200719203456  
**MSD Sample / File ID:** R3550996-9 / 20200719204320  
**OS Sample / File ID:** L1239889-13 / 20200719202935  
**Instrument ID:** ICP13  
**Analytical Method:** 6010B

**SDG:** L1239858  
**Analytical Batch:** WG1510526  
**Matrix:** Solid

Analyte	Spike Amount mg/kg	OS Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	RPD %	RPD Limits %
Aluminum	1000	4310	8290	6840	398*	253*	1	75.0 - 125	19.2	20
Antimony	100	5.08	61.2	62.1	56.1*	57.0*	1	75.0 - 125	1.40	20
Arsenic	100	109	196	173	87.7	63.8*	1	75.0 - 125	12.9	20
Barium	100	587	642	556	55.5*	0.000*	1	75.0 - 125	14.4	20
Beryllium	100	0.146	100	100	100	100	1	75.0 - 125	0.122	20
Cadmium	100	U	95.9	96.1	95.9	96.1	1	75.0 - 125	0.201	20
Calcium	1000	150	1120	1070	97.5	91.5	1	75.0 - 125	5.41	20
Chromium	100	2.32	99.5	102	97.2	99.6	1	75.0 - 125	2.40	20
Cobalt	100	0.623	104	104	103	104	1	75.0 - 125	0.577	20
Copper	100	92.3	169	131	77.2	38.4*	1	75.0 - 125	25.9*	20
Iron	1000	42700	40000	31600	0.000*	0.000*	1	75.0 - 125	23.5*	20
Lead	100	137	265	225	128*	87.9	1	75.0 - 125	16.3	20
Magnesium	1000	1110	3350	2530	224*	142*	1	75.0 - 125	28.0*	20
Manganese	100	98.5	186	251	87.2	152*	1	75.0 - 125	29.8*	20
Nickel	100	U	102	103	102	103	1	75.0 - 125	0.575	20
Potassium	1000	1640	2830	2410	119	76.9	1	75.0 - 125	16.2	20
Selenium	100	3.25	97.6	97.2	94.3	94.0	1	75.0 - 125	0.355	20
Silver	20.0	2.66	20.0	20.9	86.5	91.1	1	75.0 - 125	4.49	20
Sodium	1000	41.7	1060	1020	101	98.0	1	75.0 - 125	3.30	20
Thallium	100	U	92.6	93.3	92.6	93.3	1	75.0 - 125	0.790	20
Vanadium	100	19.6	121	117	101	97.1	1	75.0 - 125	3.63	20
Zinc	100	18.4	160	112	142*	93.2	1	75.0 - 125	35.8*	20

\*: Value outside the established quality control limits.

D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

MATRIX SPIKE /  
MATRIX SPIKE DUPLICATE RECOVERY  
L1239858-06,08,10,12,13

SAMPLE NO.:

R3551587-3

R3551587-4

**MS Sample / File ID:** R3551587-3 / 20200721063127  
**MSD Sample / File ID:** R3551587-4 / 20200721063409  
**OS Sample / File ID:** L1239858-08 / 20200721062604  
**Instrument ID:** ICP14  
**Analytical Method:** 6010B

**SDG:** L1239858  
**Analytical Batch:** WG1510357  
**Matrix:** GW

Analyte	Spike Amount mg/l	OS Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	RPD %	RPD Limits %
Aluminum	10.0	U	9.49	9.66	94.9	96.6	1	75.0 - 125	1.71	20
Antimony	1.00	U	0.991	0.984	99.1	98.4	1	75.0 - 125	0.648	20
Arsenic	1.00	U	0.991	1.01	99.1	101	1	75.0 - 125	1.57	20
Barium	1.00	0.00553	0.994	1.00	98.8	99.5	1	75.0 - 125	0.734	20
Beryllium	1.00	U	0.964	0.974	96.4	97.4	1	75.0 - 125	1.12	20
Cadmium	1.00	U	0.992	1.00	99.2	100	1	75.0 - 125	0.937	20
Calcium	10.0	382	386	386	45.3*	38.5*	1	75.0 - 125	0.176	20
Chromium	1.00	U	0.958	0.974	95.8	97.4	1	75.0 - 125	1.65	20
Cobalt	1.00	0.0107	1.01	1.02	100	101	1	75.0 - 125	0.974	20
Copper	1.00	U	0.976	0.986	97.6	98.6	1	75.0 - 125	1.05	20
Iron	10.0	7.60	16.8	18.1	92.4	105	1	75.0 - 125	7.05	20
Lead	1.00	U	0.965	0.968	96.5	96.8	1	75.0 - 125	0.241	20
Magnesium	10.0	10.5	19.7	19.8	92.3	93.3	1	75.0 - 125	0.499	20
Manganese	1.00	1.44	2.35	2.36	91.9	92.4	1	75.0 - 125	0.225	20
Nickel	1.00	U	0.995	1.00	99.5	100	1	75.0 - 125	0.873	20
Potassium	10.0	1.15	10.5	10.7	93.5	95.1	1	75.0 - 125	1.47	20
Selenium	1.00	U	0.996	0.998	99.6	99.8	1	75.0 - 125	0.180	20
Silver	0.200	U	0.189	0.191	94.7	95.3	1	75.0 - 125	0.655	20
Sodium	10.0	8.32	18.1	18.2	97.6	99.2	1	75.0 - 125	0.847	20
Thallium	1.00	U	0.934	0.943	93.4	94.3	1	75.0 - 125	0.928	20
Vanadium	1.00	U	0.967	0.981	96.7	98.1	1	75.0 - 125	1.43	20
Zinc	1.00	0.0166	0.962	0.967	94.5	95.0	1	75.0 - 125	0.555	20

\*: Value outside the established quality control limits.

D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

MATRIX SPIKE /  
MATRIX SPIKE DUPLICATE RECOVERY  
L1239858-06,08,10,12,13

SAMPLE NO.:  
R3551587-5  
R3551587-6

**MS Sample / File ID:** R3551587-5 / 20200721063923  
**MSD Sample / File ID:** R3551587-6 / 20200721064155  
**OS Sample / File ID:** L1239886-12 / 20200721063651  
**Instrument ID:** ICP14  
**Analytical Method:** 6010B

**SDG:** L1239858  
**Analytical Batch:** WG1510357  
**Matrix:** GW

Analyte	Spike Amount mg/l	OS Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	RPD %	RPD Limits %
Aluminum	10.0	58.5	66.0	66.3	75.0	78.5	1	75.0 - 125	0.534	20
Antimony	1.00	U	0.922	0.919	92.2	91.9	1	75.0 - 125	0.371	20
Arsenic	1.00	0.0321	0.950	0.954	91.8	92.2	1	75.0 - 125	0.423	20
Barium	1.00	0.0579	1.00	1.01	94.3	95.0	1	75.0 - 125	0.678	20
Beryllium	1.00	0.0116	0.969	0.962	95.7	95.1	1	75.0 - 125	0.705	20
Cadmium	1.00	0.0828	1.03	1.03	94.3	94.9	1	75.0 - 125	0.622	20
Calcium	10.0	148	154	154	59.4*	59.3*	1	75.0 - 125	0.0111	20
Chromium	1.00	0.0267	0.949	0.949	92.2	92.2	1	75.0 - 125	0.00838	20
Cobalt	1.00	0.176	1.16	1.17	98.5	99.3	1	75.0 - 125	0.681	20
Copper	1.00	2.16	3.09	3.09	92.8	92.7	1	75.0 - 125	0.0578	20
Iron	10.0	183	189	190	62.3*	66.8*	1	75.0 - 125	0.242	20
Lead	1.00	0.128	1.07	1.08	94.4	95.1	1	75.0 - 125	0.669	20
Magnesium	10.0	40.7	49.2	49.3	85.1	85.2	1	75.0 - 125	0.0101	20
Manganese	1.00	23.2	23.5	23.4	33.5*	24.0*	1	75.0 - 125	0.407	20
Nickel	1.00	0.0952	1.08	1.08	98.1	98.6	1	75.0 - 125	0.396	20
Potassium	10.0	1.20	10.2	10.3	90.5	90.5	1	75.0 - 125	0.0173	20
Selenium	1.00	U	0.947	0.941	94.7	94.1	1	75.0 - 125	0.732	20
Silver	0.200	0.00482	0.191	0.189	92.9	92.1	1	75.0 - 125	0.808	20
Sodium	10.0	2.21	11.8	11.8	96.2	96.1	1	75.0 - 125	0.0960	20
Thallium	1.00	U	0.910	0.920	91.0	92.0	1	75.0 - 125	1.08	20
Vanadium	1.00	0.0150	0.955	0.955	94.1	94.0	1	75.0 - 125	0.0858	20
Zinc	1.00	15.5	16.1	16.1	51.8*	54.6*	1	75.0 - 125	0.169	20

\*: Value outside the established quality control limits.

D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

MATRIX SPIKE /  
MATRIX SPIKE DUPLICATE RECOVERY  
L1239858-19

SAMPLE NO.:

R3555593-4

R3555593-5

MS Sample / File ID: R3555593-4 / 20200801104255

MSD Sample / File ID: R3555593-5 / 20200801104524

OS Sample / File ID: L1239858-19 / 20200801103741

Instrument ID: ICP12

Analytical Method: 6010B

SDG: L1239858

Analytical Batch: WG1518611

Matrix: GW

Analyte	Spike Amount mg/l	OS Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	RPD %	RPD Limits %
Aluminum	10.0	0.127	9.94	10.1	98.1	99.4	1	75.0 - 125	1.26	20
Antimony	1.00	U	0.979	0.980	97.9	98.0	1	75.0 - 125	0.0582	20
Arsenic	1.00	U	0.960	0.956	96.0	95.6	1	75.0 - 125	0.448	20
Barium	1.00	0.0139	1.03	1.04	102	102	1	75.0 - 125	0.793	20
Beryllium	1.00	U	0.959	0.969	95.9	96.9	1	75.0 - 125	0.972	20
Cadmium	1.00	U	1.01	1.01	101	101	1	75.0 - 125	0.0587	20
Calcium	10.0	1.55	11.5	11.6	99.3	100	1	75.0 - 125	0.791	20
Chromium	1.00	U	1.00	1.01	100	101	1	75.0 - 125	0.462	20
Cobalt	1.00	U	1.00	1.00	100	100	1	75.0 - 125	0.0347	20
Copper	1.00	0.00653	1.03	1.03	102	103	1	75.0 - 125	0.496	20
Iron	10.0	0.261	10.1	10.3	98.8	101	1	75.0 - 125	1.81	20
Lead	1.00	0.136	1.12	1.17	98.7	104	1	75.0 - 125	4.50	20
Magnesium	10.0	0.195	10.3	10.4	101	102	1	75.0 - 125	1.15	20
Manganese	1.00	U	0.978	0.982	97.8	98.2	1	75.0 - 125	0.390	20
Nickel	1.00	U	0.972	0.980	97.2	98.0	1	75.0 - 125	0.802	20
Potassium	10.0	U	9.90	10.1	99.0	101	1	75.0 - 125	1.64	20
Selenium	1.00	U	0.969	0.969	96.9	96.9	1	75.0 - 125	0.0633	20
Silver	0.200	U	0.186	0.187	92.9	93.4	1	75.0 - 125	0.543	20
Sodium	10.0	31.9	40.5	40.9	86.4	90.0	1	75.0 - 125	0.877	20
Thallium	1.00	U	0.995	0.992	99.5	99.2	1	75.0 - 125	0.344	20
Vanadium	1.00	U	0.971	0.976	97.1	97.6	1	75.0 - 125	0.471	20
Zinc	1.00	0.0256	1.04	1.05	101	103	1	75.0 - 125	1.47	20

\*: Value outside the established quality control limits.

D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

POST-DIGESTION / DISTILLATION SPIKE  
SAMPLE RECOVERY  
L1239858-03,04,05,15,21,22,23

SAMPLE NO.:  
R3550996-4

**PS Sample / File ID:** R3550996-4 / 20200719202057  
**OS Sample / File ID:** L1239858-03 / 20200719201459  
**Instrument ID:** ICP13  
**Analytical Method:** 6010B

**SDG:** L1239858  
**Analytical Batch:** WG1510526  
**Dilution Factor:** 1  
**Matrix:** Solid

Analyte	Spike Amount mg/kg	OS Result mg/kg	PD Result mg/kg	DS Result	PD Rec. %	DS Rec. %	Dilution	Rec. Limits %	RPD mg/kg	RPD Limits mg/kg
Aluminum	1000	1370	2170		79.9*		1	80.0 - 120	*	
Antimony	100	5.52	84.7		79.2*		1	80.0 - 120	*	
Arsenic	100	31.7	112		80.3		1	80.0 - 120		
Barium	100	28.0	111		82.7		1	80.0 - 120		
Beryllium	100	1.83	85.5		83.7		1	80.0 - 120		
Cadmium	100	3.14	85.0		81.9		1	80.0 - 120		
Calcium	1000	8770	9430		65.6*		1	80.0 - 120	*	
Chromium	100	U	78.8		78.8*		1	80.0 - 120	*	
Cobalt	100	75.2	169		93.4		1	80.0 - 120		
Copper	100	55.9	141		85.1		1	80.0 - 120		
Iron	1000	144000	141000		0.000*		1	80.0 - 120	*	
Lead	100	142	227		84.7		1	80.0 - 120		
Magnesium	1000	146	899		75.3*		1	80.0 - 120	*	
Nickel	100	U	92.8		92.8		1	80.0 - 120		
Potassium	1000	102	890		78.9*		1	80.0 - 120	*	
Selenium	100	7.49	86.9		79.4*		1	80.0 - 120	*	
Silver	20.0	1.96	17.5		77.8*		1	80.0 - 120	*	
Sodium	1000	U	872		87.2		1	80.0 - 120		
Thallium	100	U	73.7		73.7*		1	80.0 - 120	*	
Vanadium	100	3.37	84.4		81.0		1	80.0 - 120		
Zinc	100	434	502		67.5*		1	80.0 - 120	*	

\*: Value outside the established quality control limits.

D: Surrogate recovery cannot be used for control limit evaluation due to dilution.



PS Sample / File ID:  
OS Sample / File ID:  
Instrument ID:  
Analytical Method:

R3550996-7 / 20200719203215  
L1239889-13 / 20200719202935  
ICP13  
6010B

SDG:  
Analytical Batch:  
Dilution Factor:  
Matrix:

L1239858  
WG1510526  
1  
Solid

Analyte	Spike Amount mg/kg	OS Result mg/kg	PD Result mg/kg	DS Result	PD Rec. %	DS Rec. %	Dilution	Rec. Limits %	RPD mg/kg	RPD Limits mg/kg
Aluminum	1000	4310	5170		86.3		1	80.0 - 120		
Antimony	100	5.08	92.7		87.7		1	80.0 - 120		
Arsenic	100	109	197		88.0		1	80.0 - 120		
Barium	100	587	664		77.9*		1	80.0 - 120	*	
Beryllium	100	0.146	94.5		94.3		1	80.0 - 120		
Cadmium	100	U	90.1		90.1		1	80.0 - 120		
Calcium	1000	150	1070		91.9		1	80.0 - 120		
Chromium	100	2.32	94.1		91.8		1	80.0 - 120		
Cobalt	100	0.623	98.1		97.5		1	80.0 - 120		
Copper	100	92.3	185		92.2		1	80.0 - 120		
Iron	1000	42700	42900		16.5*		1	80.0 - 120	*	
Lead	100	137	227		90.0		1	80.0 - 120		
Magnesium	1000	1110	1970		85.4		1	80.0 - 120		
Manganese	100	98.5	186		87.7		1	80.0 - 120		
Nickel	100	U	96.4		96.4		1	80.0 - 120		
Potassium	1000	1640	2490		85.4		1	80.0 - 120		
Selenium	100	3.25	92.8		89.5		1	80.0 - 120		
Silver	20.0	2.66	19.1		82.3		1	80.0 - 120		
Sodium	1000	41.7	968		92.6		1	80.0 - 120		
Thallium	100	U	87.6		87.6		1	80.0 - 120		
Vanadium	100	19.6	112		91.9		1	80.0 - 120		
Zinc	100	18.4	107		88.6		1	80.0 - 120		

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

LABORATORY CONTROL SAMPLE  
LABORATORY CONTROL SAMPLE DUPLICATE  
RECOVERY  
L1239858-07,09,11,14

SAMPLE NO.:  
R3550332-2

LCS Sample / File ID: R3550332-2 / 20200716235417

SDG: L1239858

LCSD Sample / File ID: \_\_\_\_\_

Analytical Batch: WG1510345

Instrument ID: ICP14

Dilution Factor: 1

Analytical Method: 6010B

Matrix: GW

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result	LCS Rec. %	LCSD Rec. %	Rec. Limits %	RPD %	RPD Limits %
Aluminum,Dissolved	10.0	9.47		94.7		80.0 - 120		
Antimony,Dissolved	1.00	0.944		94.4		80.0 - 120		
Arsenic,Dissolved	1.00	0.925		92.5		80.0 - 120		
Barium,Dissolved	1.00	0.982		98.2		80.0 - 120		
Beryllium,Dissolved	1.00	0.982		98.2		80.0 - 120		
Cadmium,Dissolved	1.00	0.937		93.7		80.0 - 120		
Calcium,Dissolved	10.0	9.78		97.8		80.0 - 120		
Chromium,Dissolved	1.00	0.970		97.0		80.0 - 120		
Cobalt,Dissolved	1.00	0.956		95.6		80.0 - 120		
Copper,Dissolved	1.00	0.956		95.6		80.0 - 120		
Iron,Dissolved	10.0	9.67		96.7		80.0 - 120		
Lead,Dissolved	1.00	0.937		93.7		80.0 - 120		
Magnesium,Dissolved	10.0	9.62		96.2		80.0 - 120		
Manganese,Dissolved	1.00	0.951		95.1		80.0 - 120		
Nickel,Dissolved	1.00	0.948		94.8		80.0 - 120		
Potassium,Dissolved	10.0	9.02		90.2		80.0 - 120		
Selenium,Dissolved	1.00	0.938		93.8		80.0 - 120		
Silver,Dissolved	0.200	0.187		93.4		80.0 - 120		
Sodium,Dissolved	10.0	9.70		97.0		80.0 - 120		
Thallium,Dissolved	1.00	0.974		97.4		80.0 - 120		
Vanadium,Dissolved	1.00	0.991		99.1		80.0 - 120		
Zinc,Dissolved	1.00	0.935		93.5		80.0 - 120		

\*: Value outside the established quality control limits.

D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

LABORATORY CONTROL SAMPLE  
LABORATORY CONTROL SAMPLE DUPLICATE  
RECOVERY  
L1239858-01,02,16,17,18,20

LCS Sample / File ID:	R3550925-2 / 20200718103316	SDG:	L1239858
LCSD Sample / File ID:		Analytical Batch:	WG1511061
Instrument ID:	ICP12	Dilution Factor:	1
Analytical Method:	6010B	Matrix:	GW

Analyte	Spike Amount <i>mg/l</i>	LCS Result <i>mg/l</i>	LCSD Result	LCS Rec. %	LCSD Rec. %	Rec. Limits %	RPD %	RPD Limits %
Aluminum	10.0	9.61		96.1		80.0 - 120		
Antimony	1.00	0.955		95.5		80.0 - 120		
Arsenic	1.00	0.922		92.2		80.0 - 120		
Barium	1.00	0.989		98.9		80.0 - 120		
Beryllium	1.00	0.975		97.5		80.0 - 120		
Cadmium	1.00	0.955		95.5		80.0 - 120		
Calcium	10.0	10.3		103		80.0 - 120		
Chromium	1.00	0.917		91.7		80.0 - 120		
Cobalt	1.00	0.985		98.5		80.0 - 120		
Copper	1.00	0.997		99.7		80.0 - 120		
Iron	10.0	9.78		97.8		80.0 - 120		
Lead	1.00	0.939		93.9		80.0 - 120		
Magnesium	10.0	10.2		102		80.0 - 120		
Manganese	1.00	0.904		90.4		80.0 - 120		
Nickel	1.00	0.964		96.4		80.0 - 120		
Potassium	10.0	9.54		95.4		80.0 - 120		
Selenium	1.00	0.941		94.1		80.0 - 120		
Silver	0.200	0.175		87.4		80.0 - 120		
Sodium	10.0	10.1		101		80.0 - 120		
Thallium	1.00	1.00		100		80.0 - 120		
Vanadium	1.00	0.992		99.2		80.0 - 120		
Zinc	1.00	0.947		94.7		80.0 - 120		

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

LABORATORY CONTROL SAMPLE  
LABORATORY CONTROL SAMPLE DUPLICATE  
RECOVERY  
L1239858-03,04,05,15,21,22,23

LCS Sample / File ID:	R3550996-2 / 20200719201159	SDG:	L1239858
LCSD Sample / File ID:		Analytical Batch:	WG1510526
Instrument ID:	ICP13	Dilution Factor:	1
Analytical Method:	6010B	Matrix:	Solid

Analyte	Spike Amount <i>mg/kg</i>	LCS Result <i>mg/kg</i>	LCSD Result	LCS Rec. %	LCSD Rec. %	Rec. Limits %	RPD %	RPD Limits %
Aluminum	1000	976		97.6		80.0 - 120		
Antimony	100	95.7		95.7		80.0 - 120		
Arsenic	100	95.2		95.2		80.0 - 120		
Barium	100	100		100		80.0 - 120		
Beryllium	100	101		101		80.0 - 120		
Cadmium	100	95.6		95.6		80.0 - 120		
Calcium	1000	997		99.7		80.0 - 120		
Chromium	100	98.5		98.5		80.0 - 120		
Cobalt	100	102		102		80.0 - 120		
Copper	100	97.0		97.0		80.0 - 120		
Iron	1000	983		98.3		80.0 - 120		
Lead	100	97.6		97.6		80.0 - 120		
Magnesium	1000	958		95.8		80.0 - 120		
Manganese	100	97.3		97.3		80.0 - 120		
Nickel	100	101		101		80.0 - 120		
Potassium	1000	910		91.0		80.0 - 120		
Selenium	100	94.1		94.1		80.0 - 120		
Silver	20.0	18.0		90.2		80.0 - 120		
Sodium	1000	991		99.1		80.0 - 120		
Thallium	100	96.5		96.5		80.0 - 120		
Vanadium	100	99.2		99.2		80.0 - 120		
Zinc	100	97.1		97.1		80.0 - 120		

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

LABORATORY CONTROL SAMPLE  
LABORATORY CONTROL SAMPLE DUPLICATE  
RECOVERY  
L1239858-06,08,10,12,13

LCS Sample / File ID:	R3551587-7 / 20200721112732	SDG:	L1239858
LCSD Sample / File ID:		Analytical Batch:	WG1510357
Instrument ID:	ICP14	Dilution Factor:	1
Analytical Method:	6010B	Matrix:	GW

Analyte	Spike Amount <i>mg/l</i>	LCS Result <i>mg/l</i>	LCSD Result	LCS Rec. %	LCSD Rec. %	Rec. Limits %	RPD %	RPD Limits %
Aluminum	10.0	9.54		95.4		80.0 - 120		
Antimony	1.00	0.964		96.4		80.0 - 120		
Arsenic	1.00	0.964		96.4		80.0 - 120		
Barium	1.00	1.02		102		80.0 - 120		
Beryllium	1.00	0.977		97.7		80.0 - 120		
Cadmium	1.00	0.987		98.7		80.0 - 120		
Calcium	10.0	9.86		98.6		80.0 - 120		
Chromium	1.00	0.983		98.3		80.0 - 120		
Cobalt	1.00	0.996		99.6		80.0 - 120		
Copper	1.00	0.969		96.9		80.0 - 120		
Iron	10.0	9.68		96.8		80.0 - 120		
Lead	1.00	0.972		97.2		80.0 - 120		
Magnesium	10.0	9.77		97.7		80.0 - 120		
Manganese	1.00	0.964		96.4		80.0 - 120		
Nickel	1.00	0.994		99.4		80.0 - 120		
Potassium	10.0	9.13		91.3		80.0 - 120		
Selenium	1.00	0.971		97.1		80.0 - 120		
Silver	0.200	0.186		92.9		80.0 - 120		
Sodium	10.0	9.76		97.6		80.0 - 120		
Thallium	1.00	0.977		97.7		80.0 - 120		
Vanadium	1.00	0.981		98.1		80.0 - 120		
Zinc	1.00	0.969		96.9		80.0 - 120		

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

LABORATORY CONTROL SAMPLE  
LABORATORY CONTROL SAMPLE DUPLICATE  
RECOVERY  
L1239858-19

LCS Sample / File ID:	R3555593-2 / 20200801103459	SDG:	L1239858
LCSD Sample / File ID:		Analytical Batch:	WG1518611
Instrument ID:	ICP12	Dilution Factor:	1
Analytical Method:	6010B	Matrix:	GW

Analyte	Spike Amount <i>mg/l</i>	LCS Result <i>mg/l</i>	LCSD Result	LCS Rec. %	LCSD Rec. %	Rec. Limits %	RPD %	RPD Limits %
Aluminum	10.0	9.85		98.5		80.0 - 120		
Antimony	1.00	0.961		96.1		80.0 - 120		
Arsenic	1.00	0.952		95.2		80.0 - 120		
Barium	1.00	1.01		101		80.0 - 120		
Beryllium	1.00	0.955		95.5		80.0 - 120		
Cadmium	1.00	0.991		99.1		80.0 - 120		
Calcium	10.0	9.94		99.4		80.0 - 120		
Chromium	1.00	0.994		99.4		80.0 - 120		
Cobalt	1.00	1.00		100		80.0 - 120		
Copper	1.00	1.00		100		80.0 - 120		
Iron	10.0	9.76		97.6		80.0 - 120		
Lead	1.00	0.966		96.6		80.0 - 120		
Magnesium	10.0	10.2		102		80.0 - 120		
Manganese	1.00	0.971		97.1		80.0 - 120		
Nickel	1.00	0.975		97.5		80.0 - 120		
Potassium	10.0	9.79		97.9		80.0 - 120		
Selenium	1.00	0.958		95.8		80.0 - 120		
Silver	0.200	0.185		92.3		80.0 - 120		
Sodium	10.0	10.0		100		80.0 - 120		
Thallium	1.00	0.987		98.7		80.0 - 120		
Vanadium	1.00	0.965		96.5		80.0 - 120		
Zinc	1.00	0.989		98.9		80.0 - 120		

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.



ICP AND ICP/MS  
SERIAL DILUTIONS  
L1239858-07,09,11,14

**SD Sample / File ID:** R3550332-3 / 20200716235957  
**OS Sample / File ID:** L1239858-07 / 20200716235715  
**Lab File ID:** 20200716235957  
**Instrument ID:** ICP14  
**Analytical Method:** 6010B

**SDG:** L1239858  
**Analytical Batch:** WG1510345  
**Dilution Factor:** 5  
**Matrix:** GW

Analyte	OS Result <i>mg/l</i>	SD Result <i>mg/l</i>	RPD %	RPD Limits %
Aluminum,Dissolved	U	U	0.000	10
Antimony,Dissolved	U	U	0.000	10
Arsenic,Dissolved	U	U	0.000	10
Barium,Dissolved	0.00524	0.00703	34.2	10
Beryllium,Dissolved	U	U	0.000	10
Cadmium,Dissolved	U	U	0.000	10
Calcium,Dissolved	384	356	7.05	10
Chromium,Dissolved	U	U	0.000	10
Cobalt,Dissolved	0.00923	0.0101	9.77	10
Copper,Dissolved	U	U	0.000	10
Iron,Dissolved	3.87	3.69	4.65	10
Lead,Dissolved	U	U	0.000	10
Magnesium,Dissolved	10.6	10.0	5.25	10
Manganese,Dissolved	1.29	1.23	4.31	10
Nickel,Dissolved	U	U	0.000	10
Potassium,Dissolved	1.08	U	0.000	10
Selenium,Dissolved	U	U	0.000	10
Silver,Dissolved	U	U	0.000	10
Sodium,Dissolved	8.38	7.46	11.0	10
Thallium,Dissolved	U	U	0.000	10
Vanadium,Dissolved	U	U	0.000	10
Zinc,Dissolved	0.0143	U	0.000	10

\*: Value outside the established quality control limits.

D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

ICP AND ICP/MS  
SERIAL DILUTIONS  
L1239858-01,02,16,17,18,20

**SD Sample / File ID:** R3550925-3 / 20200718103841  
**OS Sample / File ID:** L1239886-02 / 20200718103557  
**Lab File ID:** 20200718103841  
**Instrument ID:** ICP12  
**Analytical Method:** 6010B

**SDG:** L1239858  
**Analytical Batch:** WG1511061  
**Dilution Factor:** 5  
**Matrix:** GW

Analyte	OS Result <i>mg/l</i>	SD Result <i>mg/l</i>	RPD %	RPD Limits %
Aluminum	0.124	U	0.000	10
Antimony	U	U	0.000	10
Arsenic	U	U	0.000	10
Barium	0.0545	0.0537	1.54	10
Beryllium	U	U	0.000	10
Cadmium	U	U	0.000	10
Calcium	2.93	2.96	0.882	10
Chromium	U	U	0.000	10
Cobalt	U	U	0.000	10
Copper	0.0199	0.0301	0.000	10
Iron	0.134	U	0.000	10
Lead	0.0359	0.0327	9.11	10
Magnesium	0.616	U	100	10
Manganese	0.0412	0.0404	1.98	10
Nickel	U	U	0.000	10
Potassium	0.787	U	0.000	10
Selenium	U	U	0.000	10
Silver	U	U	0.000	10
Sodium	8.79	9.04	2.83	10
Thallium	U	U	0.000	10
Vanadium	U	U	0.000	10
Zinc	0.0789	0.0660	16.3	10

\*: Value outside the established quality control limits.

D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

ICP AND ICP/MS  
SERIAL DILUTIONS  
L1239858-03,04,05,15,21,22,23

SD Sample / File ID:	R3550996-10 / 20200720002400	SDG:	L1239858
OS Sample / File ID:	L1239858-03 / 20200720002102	Analytical Batch:	WG1510526
Lab File ID:	20200720002400	Dilution Factor:	25
Instrument ID:	ICP13	Matrix:	Solid
Analytical Method:	6010B		

Analyte	OS Result <i>mg/kg</i>	SD Result <i>mg/kg</i>	RPD %	RPD Limits %
Manganese	8590	9260	7.78	10

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

ICP AND ICP/MS  
SERIAL DILUTIONS  
L1239858-03,04,05,15,21,22,23

**SD Sample / File ID:** R3550996-3 / 20200719201804  
**OS Sample / File ID:** L1239858-03 / 20200719201459  
**Lab File ID:** 20200719201804  
**Instrument ID:** ICP13  
**Analytical Method:** 6010B

**SDG:** L1239858  
**Analytical Batch:** WG1510526  
**Dilution Factor:** 5  
**Matrix:** Solid

Analyte	OS Result <i>mg/kg</i>	SD Result <i>mg/kg</i>	RPD %	RPD Limits %
Aluminum	1370	1300	4.60	10
Antimony	5.52	5.34	3.20	10
Arsenic	31.7	28.8	9.31	10
Barium	28.0	26.1	6.52	10
Beryllium	1.83	1.73	5.49	10
Cadmium	3.14	2.82	10.4	10
Calcium	8770	7700	12.2*	10
Chromium	U	U	0.000	10
Cobalt	75.2	64.2	14.6*	10
Copper	55.9	51.1	8.54	10
Iron	144000	141000	1.55	10
Lead	142	123	13.3*	10
Magnesium	146	146	0.114	10
Nickel	U	U	0.000	10
Potassium	102	118	0.000	10
Selenium	7.49	6.83	8.81	10
Silver	1.96	1.72	12.5	10
Sodium	U	U	0.000	10
Thallium	U	U	0.000	10
Vanadium	3.37	U	0.000	10
Zinc	434	427	1.58	10

\*: Value outside the established quality control limits.

D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

ICP AND ICP/MS  
SERIAL DILUTIONS  
L1239858-06,08,10,12,13

**SD Sample / File ID:** R3551587-2 / 20200721062844  
**OS Sample / File ID:** L1239858-08 / 20200721062604  
**Lab File ID:** 20200721062844  
**Instrument ID:** ICP14  
**Analytical Method:** 6010B

**SDG:** L1239858  
**Analytical Batch:** WG1510357  
**Dilution Factor:** 5  
**Matrix:** GW

Analyte	OS Result <i>mg/l</i>	SD Result <i>mg/l</i>	RPD %	RPD Limits %
Aluminum	U	U	0.000	10
Antimony	U	U	0.000	10
Arsenic	U	U	0.000	10
Barium	0.00553	0.00691	25.0	10
Beryllium	U	U	0.000	10
Cadmium	U	U	0.000	10
Calcium	382	436	14.3*	10
Chromium	U	U	0.000	10
Cobalt	0.0107	0.0123	14.5	10
Copper	U	U	0.000	10
Iron	7.60	8.88	16.8*	10
Lead	U	U	0.000	10
Magnesium	10.5	12.3	17.1*	10
Manganese	1.44	1.66	15.8*	10
Nickel	U	U	0.000	10
Potassium	1.15	U	0.000	10
Selenium	U	U	0.000	10
Silver	U	U	0.000	10
Sodium	8.32	9.45	13.5	10
Thallium	U	U	0.000	10
Vanadium	U	U	0.000	10
Zinc	0.0166	U	0.000	10

\*: Value outside the established quality control limits.

D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

ICP AND ICP/MS  
SERIAL DILUTIONS  
L1239858-19

SAMPLE NO.:

R3555593-3

**SD Sample / File ID:** R3555593-3 / 20200801104025  
**OS Sample / File ID:** L1239858-19 / 20200801103741  
**Lab File ID:** 20200801104025  
**Instrument ID:** ICP12  
**Analytical Method:** 6010B

**SDG:** L1239858  
**Analytical Batch:** WG1518611  
**Dilution Factor:** 5  
**Matrix:** GW

Analyte	OS Result <i>mg/l</i>	SD Result <i>mg/l</i>	RPD %	RPD Limits %
Aluminum	0.127	U	0.000	10
Antimony	U	U	0.000	10
Arsenic	U	U	0.000	10
Barium	0.0139	0.0120	14.1	10
Beryllium	U	U	0.000	10
Cadmium	U	U	0.000	10
Calcium	1.55	U	0.000	10
Chromium	U	U	0.000	10
Cobalt	U	U	0.000	10
Copper	0.00653	U	0.000	10
Iron	0.261	U	100	10
Lead	0.136	0.121	10.8	10
Magnesium	0.195	U	0.000	10
Manganese	U	U	0.000	10
Nickel	U	U	0.000	10
Potassium	U	U	0.000	10
Selenium	U	U	0.000	10
Silver	U	U	0.000	10
Sodium	31.9	29.3	8.20	10
Thallium	U	U	0.000	10
Vanadium	U	U	0.000	10
Zinc	0.0256	U	0.000	10

\*: Value outside the established quality control limits.

D: Surrogate recovery cannot be used for control limit evaluation due to dilution.





Lab Sample IDs: L1239858-01,02,06,07,08,09,10,11,12,13,14,16,17,18,19,20 Analytical Method: 6010B  
 Matrix: GW Prep Method: 3015

Analyte	CAS	Wavelength	Mass	MDL mg/l	RDL mg/l
Beryllium	7440-41-7	189.0420	313.0420	0.000460	0.0020
Beryllium,Dissolved	7440-41-7	189.0420	313.0420	0.000460	0.0020
Cadmium	7440-43-9	189.0420	228.8020	0.000563	0.0020
Cadmium,Dissolved	7440-43-9	189.0420	228.8020	0.000563	0.0020
Calcium	7440-70-2	189.0420	317.9330	0.3890	1
Calcium,Dissolved	7440-70-2	189.0420	373.69	0.3890	1
Chromium	7440-47-3	189.0420	267.7160	0.0050	0.01
Chromium,Dissolved	7440-47-3	189.0420	267.7160	0.0050	0.01
Aluminum	7429-90-5	189.0420	308.2150	0.0704	0.20
Cobalt	7440-48-4	189.0420	228.6160	0.000807	0.01
Cobalt,Dissolved	7440-48-4	189.0420	228.6160	0.000807	0.01
Copper	7440-50-8	189.0420	324.7540	0.004690	0.01
Copper,Dissolved	7440-50-8	189.0420	324.7540	0.004690	0.01
Iron	7439-89-6	189.0420	259.94	0.0458	0.10
Iron,Dissolved	7439-89-6	189.0420	259.94	0.0458	0.10
Lead	7439-92-1	189.0420	220.3530	0.002950	0.0060
Lead,Dissolved	7439-92-1	189.0420	220.3530	0.002950	0.0060
Aluminum,Dissolved	7429-90-5	189.0420	308.2150	0.0704	0.20
Magnesium	7439-95-4	189.0420	279.0790	0.1110	1
Magnesium,Dissolved	7439-95-4	189.0420	279.0790	0.1110	1
Manganese	7439-96-5	189.0420	257.61	0.003270	0.01
Manganese,Dissolved	7439-96-5	189.0420	257.61	0.003270	0.01
Nickel	7440-02-0	189.0420	231.6040	0.002980	0.01
Nickel,Dissolved	7440-02-0	189.0420	231.6040	0.002980	0.01
Antimony	7440-36-0	189.0420	206.8330	0.0043	0.01
Potassium	7440-09-7	189.0420	766.49	0.51	2
Potassium,Dissolved	7440-09-7	189.0420	766.49	0.51	2
Selenium	7782-49-2	189.0420	196.09	0.007350	0.01
Selenium,Dissolved	7782-49-2	189.0420	196.09	0.007350	0.01
Silver	7440-22-4	189.0420	328.0680	0.001910	0.0050
Silver,Dissolved	7440-22-4	189.0420	328.0680	0.001910	0.0050
Sodium	7440-23-5	189.0420	589.5920	1.40	3
Sodium,Dissolved	7440-23-5	189.0420	589.5920	1.40	3
Antimony,Dissolved	7440-36-0	189.0420	206.8330	0.0043	0.01
Thallium	7440-28-0	189.0420	190.8560	0.004310	0.01
Thallium,Dissolved	7440-28-0	189.0420	190.8560	0.004310	0.01
Vanadium	7440-62-2	189.0420	292.4020	0.006340	0.02
Arsenic	7440-38-2	189.0420	189.0420	0.0044	0.01
Vanadium,Dissolved	7440-62-2	189.0420	292.4020	0.006340	0.02
Zinc	7440-66-6	189.0420	206.20	0.009160	0.05
Zinc,Dissolved	7440-66-6	189.0420	206.20	0.009160	0.05
Arsenic,Dissolved	7440-38-2	189.0420	189.0420	0.0044	0.01
Barium	7440-39-3	189.0420	233.5270	0.000895	0.0050
Barium,Dissolved	7440-39-3	189.0420	233.5270	0.000895	0.0050



**Lab Sample IDs:** L1239858-03,04,05,15,21,22,23  
**Matrix:** Solid

**Analytical Method:** 6010B  
**Prep Method:** 3050B

Analyte	CAS	Wavelength	Mass	MDL mg/kg	RDL mg/kg
Aluminum	7429-90-5	177.4950	308.2150	8.20	20
Cobalt	7440-48-4	177.4950	228.6160	0.23	1
Copper	7440-50-8	177.4950	324.7540	0.5060	2
Iron	7439-89-6	177.4950	271.4410	5	10
Lead	7439-92-1	177.4950	220.3530	0.2080	0.50
Magnesium	7439-95-4	177.4950	279.0790	20.50	100
Manganese	7439-96-5	177.4950	257.61	0.2450	1
Antimony	7440-36-0	177.4950	206.8330	0.50	2
Nickel	7440-02-0	177.4950	231.6040	0.49	2
Potassium	7440-09-7	177.4950	766.49	20.90	50
Selenium	7782-49-2	177.4950	196.09	0.6170	2
Silver	7440-22-4	177.4950	328.0680	0.2280	1
Sodium	7440-23-5	177.4950	589.5920	33.20	100
Arsenic	7440-38-2	177.4950	189.0420	0.46	2
Thallium	7440-28-0	177.4950	190.8560	0.3540	2
Vanadium	7440-62-2	177.4950	292.4020	0.6870	2
Zinc	7440-66-6	177.4950	206.20	0.9390	5
Barium	7440-39-3	177.4950	233.5270	0.24	0.50
Beryllium	7440-41-7	177.4950	313.0420	0.08	0.20
Cadmium	7440-43-9	177.4950	228.8020	0.0810	0.50
Calcium	7440-70-2	177.4950	317.9330	30	100
Chromium	7440-47-3	177.4950	267.7160	0.25	1

10A-IN

## INTERELEMENT CORRECTION FACTORS

**SDG:** L1239858  
**Instrument ID:** ICP12**Analytical Method:** 6010B  
**Date:** 01/25/20 14:08

Analyte	Wavelength nm	ARSENIC 189.0420	CALCIUM 317.9330	Ce 535.3530	CHROMIUM 267.7160	COBALT 228.6160	COPPER 324.7540	IRON 259.94
ALUMINUM	308.2150							
ANTIMONY	206.8330				-0.00074434			
ARSENIC	189.0420							
BARIUM	233.5270							-0.00011317
BERYLLIUM	313.0420							
CADMIUM	228.8020	-0.27876549						
COBALT	228.6160							
IRON	271.4410					-0.00018664		
LEAD	220.3530			-0.00067708			-0.00004335	
LITHIUM	670.7840		-0.00032182					
SELENIUM	196.09				-0.00001854			
THALLIUM	190.8560					-0.00016749		



SDG: L1239858

Analytical Method:

6010B

Instrument ID: ICP12

Date:

01/25/20 14:08

Analyte	Wavelength nm	La 333.7490	MOLYBDENUM 202.03	SILICON 251.6110	TITANIUM 334.9410	VANADIUM 292.4020
ALUMINUM	308.2150		-0.00106401			-0.00115081
ANTIMONY	206.8330					
ARSENIC	189.0420	-0.01388199	-0.00017103			
BARIUM	233.5270					
BERYLLIUM	313.0420					-0.02889282
CADMIUM	228.8020					
COBALT	228.6160				-0.00200552	
IRON	271.4410					
LEAD	220.3530	-0.00019448		-0.00011965		
LITHIUM	670.7840					
SELENIUM	196.09					
THALLIUM	190.8560					

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## INTERELEMENT CORRECTION FACTORS

<b>SDG:</b>	L1239858	<b>Analytical Method:</b>	6010B
<b>Instrument ID:</b>	ICP13	<b>Date:</b>	01/29/20 07:12

Analyte	Wavelength nm	ALUMINUM 308.2150	ARSENIC 189.0420	CHROMIUM 267.7160	COBALT 228.6160	IRON 271.4410	La 333.7490	MANGANESE 257.61
ALUMINUM	308.2150							
ANTIMONY	206.8330			-0.00062463		-0.00025835		
ARSENIC	189.0420						-0.00843397	
BERYLLIUM	313.0420							
CADMIUM	228.8020		-0.10431420			-0.00072864		
COBALT	228.6160							
LEAD	220.3530					-0.00044349		
NICKEL	231.6040					-0.00112257		
PHOSPHORUS	177.4950							
THALLIUM	190.8560	-0.00005577			-0.00016391			-0.00000470
TITANIUM	334.9410							

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## INTERELEMENT CORRECTION FACTORS

SDG: L1239858

Analytical Method:

6010B

Instrument ID: ICP13

Date:

01/29/20 07:12

Analyte	Wavelength nm	MOLYBDENUM 202.03	PHOSPHORUS 177.4950	SILICON 251.6110	SILVER 328.0680	TITANIUM 334.9410	VANADIUM 292.4020
ALUMINUM	308.2150						-0.00403999
ANTIMONY	206.8330						
ARSENIC	189.0420	-0.00019878					
BERYLLIUM	313.0420		-0.03986507				-0.01057157
CADMIUM	228.8020						
COBALT	228.6160					-0.00285615	
LEAD	220.3530						
NICKEL	231.6040						
PHOSPHORUS	177.4950			-0.00001698			-0.00005985
THALLIUM	190.8560						
TITANIUM	334.9410				-0.00249506		



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## INTERELEMENT CORRECTION FACTORS

SDG: L1239858

Analytical Method:

6010B

Instrument ID: ICP14

Date:

05/13/20 22:56

Analyte	Wavelength nm	ARSENIC 189.0420	Ce 535.3530	CHROMIUM 267.7160	COBALT 228.6160	COPPER 324.7540	La 333.7490	MANGANESE 257.61
ALUMINUM	308.2150							
ANTIMONY	206.8330			-0.00069044				
ARSENIC	189.0420						-0.02092717	
BERYLLIUM	313.0420							
CADMIUM	228.8020	-0.24050393						
COBALT	228.6160							
LEAD	220.3530		-0.00146841			-0.00001951	-0.00051088	
THALLIUM	190.8560				-0.00014477			-0.00000456

SDG:	L1239858	Analytical Method:	6010B
Instrument ID:	ICP14	Date:	05/13/20 22:56

Analyte	Wavelength nm	SILICON 251.6110	TITANIUM 334.9410	VANADIUM 292.4020
ALUMINUM	308.2150			-0.00542771
ANTIMONY	206.8330			
ARSENIC	189.0420			
BERYLLIUM	313.0420			-0.01066047
CADMIUM	228.8020			
COBALT	228.6160		-0.00531466	
LEAD	220.3530	-0.00005207		
THALLIUM	190.8560			



**SDG:** L1239858  
**Instrument ID:** ICP12

**Analytical Method:** 6010B  
**Date:** 03/25/20 13:32

Analyte	LDR <i>ppm</i>
ALUMINUM	500
ANTIMONY	10
ARSENIC	50
BARIUM	50
BERYLLIUM	10
BORON	50
CADMIUM	10
CALCIUM	1000
CHROMIUM	50
COBALT	50
COPPER	50
IRON	500
LEAD	100
LITHIUM	10
MAGNESIUM	1000
MANGANESE	20
MOLYBDENUM	20
NICKEL	50
PHOSPHORUS	100
POTASSIUM	500
SELENIUM	10
SILICON	10
SILVER	10
SODIUM	1000
STRONTIUM	20
SULFUR	200
THALLIUM	10
TIN	50
TITANIUM	50
VANADIUM	20
ZINC	20



**SDG:** L1239858  
**Instrument ID:** ICP13

**Analytical Method:** 6010B  
**Date:** 03/25/20 07:39

Analyte	LDR <i>ppm</i>
ALUMINUM	500
ANTIMONY	10
ARSENIC	50
BARIUM	50
BERYLLIUM	10
BORON	50
CADMIUM	10
CALCIUM	1000
CHROMIUM	50
COBALT	50
COPPER	50
IRON	500
LEAD	100
LITHIUM	10
MAGNESIUM	1000
MANGANESE	10
MOLYBDENUM	20
NICKEL	50
PHOSPHORUS	40
POTASSIUM	500
SELENIUM	10
SILICON	200
SILVER	10
SODIUM	1000
STRONTIUM	20
SULFUR	200
THALLIUM	10
TIN	50
TITANIUM	50
VANADIUM	20
ZINC	20



**SDG:** L1239858  
**Instrument ID:** ICP14

**Analytical Method:** 6010B  
**Date:** 03/25/20 07:48

Analyte	LDR <i>ppm</i>
ALUMINUM	500
ANTIMONY	10
ARSENIC	50
BARIUM	50
BERYLLIUM	10
BORON	50
CADMIUM	10
CALCIUM	1000
CHROMIUM	50
COBALT	50
COPPER	50
IRON	500
LEAD	100
LITHIUM	10
MAGNESIUM	1000
MANGANESE	20
MOLYBDENUM	20
NICKEL	50
PHOSPHORUS	40
POTASSIUM	500
SELENIUM	10
SILICON	10
SILVER	10
SODIUM	1000
STRONTIUM	20
SULFUR	200
THALLIUM	10
TIN	50
TITANIUM	50
VANADIUM	20
ZINC	20



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## ANALYSIS LOG

<b>SDG:</b>	L1239858	<b>Analytical Method:</b>	6010B
<b>Instrument ID:</b>	ICP12	<b>Calibration Start Date:</b>	07/18/20 06:25
<b>Analytical Run:</b>	071820ICP12	<b>Calibration End Date:</b>	07/18/20 06:44

Client Sample ID	Lab Sample ID	File ID	Analysis Date Time	Dilution	Batch
CALBLK	ICP120718200622	20200718062237	07/18/20 06:22		
CAL	STD1	20200718062522	07/18/20 06:25		
CAL	STD2	20200718062757	07/18/20 06:27		
CAL	STD3	20200718063027	07/18/20 06:30		
CAL	STD4	20200718063254	07/18/20 06:32		
CAL	STD5	20200718063533	07/18/20 06:35		
CAL	STD6	20200718063829	07/18/20 06:38		
CAL	STD7	20200718064134	07/18/20 06:41		
ICV	ICP120718200647	20200718064718	07/18/20 06:47		
ICB	ICP120718200650	20200718065002	07/18/20 06:50		
ICVLL	ICP120718200658	20200718065803	07/18/20 06:58		
ICSA	ICP120718200706	20200718070651	07/18/20 07:06		
ICSAB	ICP120718200709	20200718070936	07/18/20 07:09		
CCV	ICP120718201025	20200718102513	07/18/20 10:25		
CCB	ICP120718201027	20200718102759	07/18/20 10:27		
BLANK	R3550925-1	20200718103046	07/18/20 10:30	1	WG1511061
LCS	R3550925-2	20200718103316	07/18/20 10:33	1	WG1511061
OS	L1239886-02	20200718103557	07/18/20 10:35		
L1239886-02	L1239886-02	20200718103557	07/18/20 10:35	1	WG1511061
SD	R3550925-3	20200718103841	07/18/20 10:38	5	WG1511061
MS	R3550925-4	20200718104109	07/18/20 10:41	1	WG1511061
MSD	R3550925-5	20200718104338	07/18/20 10:43	1	WG1511061
ND2-SS-200-2	L1239858-01	20200718104621	07/18/20 10:46	1	WG1511061
ND2-SS-200-1	L1239858-02	20200718104902	07/18/20 10:49	1	WG1511061
ND2-SS-202-1	L1239858-16	20200718105139	07/18/20 10:51	1	WG1511061
ND2-SS-202-2	L1239858-17	20200718105420	07/18/20 10:54	1	WG1511061
CCV	ICP120718201056	20200718105650	07/18/20 10:56		
CCB	ICP120718201059	20200718105935	07/18/20 10:59		
ND2-SS-OND-2	L1239858-18	20200718110218	07/18/20 11:02	1	WG1511061
ND2-SS-OND-1	L1239858-19	20200718110501	07/18/20 11:05	1	WG1511061
ND2-SS-ONDBKG-1	L1239858-20	20200718110742	07/18/20 11:07	1	WG1511061
L1239882-02	L1239882-02	20200718111023	07/18/20 11:10	1	WG1511061
L1239884-07	L1239884-07	20200718111300	07/18/20 11:13	1	WG1511061
L1239884-10	L1239884-10	20200718111539	07/18/20 11:15	1	WG1511061
L1239889-01	L1239889-01	20200718111818	07/18/20 11:18	1	WG1511061
L1239889-05	L1239889-05	20200718112100	07/18/20 11:21	1	WG1511061
CCV	ICP120718201123	20200718112330	07/18/20 11:23		
CCB	ICP120718201126	20200718112614	07/18/20 11:26		
CCVLL	ICP120718201420	20200718142003	07/18/20 14:20		
ICSA	ICP120718201423	20200718142302	07/18/20 14:23		
ICSAB	ICP120718201425	20200718142548	07/18/20 14:25		





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## ANALYSIS LOG

<b>SDG:</b>	L1239858	<b>Analytical Method:</b>	6010B
<b>Instrument ID:</b>	ICP12	<b>Calibration Start Date:</b>	08/01/20 07:54
<b>Analytical Run:</b>	080120ICP12	<b>Calibration End Date:</b>	08/01/20 08:13

Client Sample ID	Lab Sample ID	File ID	Analysis Date Time	Dilution	Batch
CALBLK	ICP120801200751	20200801075135	08/01/20 07:51		
CAL	STD1	20200801075420	08/01/20 07:54		
CAL	STD2	20200801075655	08/01/20 07:56		
CAL	STD3	20200801075927	08/01/20 07:59		
CAL	STD4	20200801080154	08/01/20 08:01		
CAL	STD5	20200801080433	08/01/20 08:04		
CAL	STD6	20200801080721	08/01/20 08:07		
CAL	STD7	20200801081017	08/01/20 08:10		
ICV	ICP120801200816-2	20200801081606-2	08/01/20 08:16		
ICB	ICP120801200818-2	20200801081850-2	08/01/20 08:18		
ICVLL	ICP120801200826-2	20200801082648-2	08/01/20 08:26		
ICSA	ICP120801200833-2	20200801083334-2	08/01/20 08:33		
ICSAB	ICP120801200836-2	20200801083611-2	08/01/20 08:36		
CCV	ICP120801201026-2	20200801102652-2	08/01/20 10:26		
CCB	ICP120801201029-2	20200801102937-2	08/01/20 10:29		
BLANK	R3555593-1	20200801103225	08/01/20 10:32	1	WG1518611
LCS	R3555593-2	20200801103459	08/01/20 10:34	1	WG1518611
ND2-SS-OND-1	L1239858-19	20200801103741	08/01/20 10:37	1	WG1518611
SD	R3555593-3	20200801104025	08/01/20 10:40	5	WG1518611
MS	R3555593-4	20200801104255	08/01/20 10:42	1	WG1518611
MSD	R3555593-5	20200801104524	08/01/20 10:45	1	WG1518611
CCV	ICP120801201058	20200801105842	08/01/20 10:58		
CCB	ICP120801201101	20200801110126	08/01/20 11:01		
ICSA	ICP120801201300-2	20200801130021-2	08/01/20 13:00		
ICSAB	ICP120801201302-2	20200801130258-2	08/01/20 13:02		
CCVLL	ICP120801201651-2	20200801165119-2	08/01/20 16:51		



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## ANALYSIS LOG

<b>SDG:</b>	L1239858	<b>Analytical Method:</b>	6010B
<b>Instrument ID:</b>	ICP13	<b>Calibration Start Date:</b>	07/19/20 16:30
<b>Analytical Run:</b>	071920ICP13	<b>Calibration End Date:</b>	07/19/20 16:50

Client Sample ID	Lab Sample ID	File ID	Analysis Date Time	Dilution	Batch
CALBLK	ICP130719201627	20200719162734	07/19/20 16:27		
CAL	STD1	20200719163028	07/19/20 16:30		
CAL	STD2	20200719163309	07/19/20 16:33		
CAL	STD3	20200719163546	07/19/20 16:35		
CAL	STD4	20200719163820	07/19/20 16:38		
CAL	STD5	20200719164107	07/19/20 16:41		
CAL	STD6	20200719164424	07/19/20 16:44		
CAL	STD7	20200719164741	07/19/20 16:47		
ICV	ICP130719201653	20200719165346	07/19/20 16:53		
ICB	ICP130719201656	20200719165643	07/19/20 16:56		
ICVLL	ICP130719201705	20200719170512	07/19/20 17:05		
ICSA	ICP130719201727	20200719172757	07/19/20 17:27		
ICSAB	ICP130719201730	20200719173052	07/19/20 17:30		
CCV	ICP130719201935	20200719193524	07/19/20 19:35		
CCB	ICP130719201938	20200719193822	07/19/20 19:38		
BLANK	R3550996-1	20200719200925	07/19/20 20:09	1	WG1510526
LCS	R3550996-2	20200719201159	07/19/20 20:11	1	WG1510526
ND2-DP-100-1	L1239858-03	20200719201459	07/19/20 20:14	1	WG1510526
SD	R3550996-3	20200719201804	07/19/20 20:18	5	WG1510526
PS	R3550996-4	20200719202057	07/19/20 20:20	1	WG1510526
MS	R3550996-5	20200719202351	07/19/20 20:23	1	WG1510526
MSD	R3550996-6	20200719202645	07/19/20 20:26	1	WG1510526
OS	L1239889-13	20200719202935	07/19/20 20:29		
L1239889-13	L1239889-13	20200719202935	07/19/20 20:29	1	WG1510526
PS	R3550996-7	20200719203215	07/19/20 20:32	1	WG1510526
MS	R3550996-8	20200719203456	07/19/20 20:34	1	WG1510526
CCV	ICP130719202037	20200719203734	07/19/20 20:37		
CCB	ICP130719202040	20200719204031	07/19/20 20:40		
MSD	R3550996-9	20200719204320	07/19/20 20:43	1	WG1510526
ND2-SS-OND-1	L1239858-21	20200719205519	07/19/20 20:55	1	WG1510526
ND2-SS-OND-2	L1239858-22	20200719205807	07/19/20 20:58	1	WG1510526
ND2-SS-ONDBKG-1	L1239858-23	20200719210105	07/19/20 21:01	1	WG1510526
L1239889-02	L1239889-02	20200719210642	07/19/20 21:06	1	WG1510526
L1239889-03	L1239889-03	20200719210940	07/19/20 21:09	1	WG1510526
CCV	ICP130719202112	20200719211218	07/19/20 21:12		
CCB	ICP130719202115	20200719211515	07/19/20 21:15		
CCV	ICP130719202352-2	20200719235223-2	07/19/20 23:52		
CCB	ICP130719202355-2	20200719235521-2	07/19/20 23:55		
L1239884-09	L1239884-09	20200719235809	07/19/20 23:58	10	WG1511048
L1239884-09	L1239884-09	20200720000050	07/20/20 00:00	5	WG1511048
L1239884-01	L1239884-01	20200720000348	07/20/20 00:03	5	WG1511048
L1239884-02	L1239884-02	20200720000648	07/20/20 00:06	5	WG1511048
L1239884-08	L1239884-08	20200720000931	07/20/20 00:09	5	WG1511048
L1239884-11	L1239884-11	20200720001214	07/20/20 00:12	5	WG1511048
L1239885-08	L1239885-08	20200720001511	07/20/20 00:15	5	WG1511048
L1239886-11	L1239886-11	20200720001757	07/20/20 00:17	5	WG1511048
ND2-DP-100-1	L1239858-03	20200720002102	07/20/20 00:21	5	WG1510526
SD	R3550996-10	20200720002400	07/20/20 00:24	25	WG1510526
CCV	ICP130720200026	20200720002639	07/20/20 00:26		
CCB	ICP130720200029	20200720002937	07/20/20 00:29		
MS	R3550996-11	20200720003234	07/20/20 00:32	5	WG1510526



<b>SDG:</b>	L1239858	<b>Analytical Method:</b>	6010B
<b>Instrument ID:</b>	ICP13	<b>Calibration Start Date:</b>	07/19/20 16:30
<b>Analytical Run:</b>	071920ICP13	<b>Calibration End Date:</b>	07/19/20 16:50

Client Sample ID	Lab Sample ID	File ID	Analysis Date Time	Dilution	Batch
MSD	R3550996-12	20200720003532	07/20/20 00:35	5	WG1510526
ND2-DP2-100-1	L1239858-04	20200720003837	07/20/20 00:38	5	WG1510526
ND2-AP-100-1	L1239858-05	20200720004145	07/20/20 00:41	5	WG1510526
ND2-AP-102-1	L1239858-15	20200720004441	07/20/20 00:44	5	WG1510526
ND2-SS-OND-1	L1239858-21	20200720004724	07/20/20 00:47	5	WG1510526
ND2-SS-OND-2	L1239858-22	20200720005007	07/20/20 00:50	5	WG1510526
L1239885-07	L1239885-07	20200720005534	07/20/20 00:55	5	WG1510526
CCV	ICP130720200155	20200720015530	07/20/20 01:55		
CCB	ICP130720200158	20200720015827	07/20/20 01:58		
ICSA	ICP130720200201	20200720020139	07/20/20 02:01		
ICSAB	ICP130720200204	20200720020437	07/20/20 02:04		
CCVLL	ICP130720200408	20200720040847	07/20/20 04:08		



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## ANALYSIS LOG

<b>SDG:</b>	L1239858	<b>Analytical Method:</b>	6010B
<b>Instrument ID:</b>	ICP14	<b>Calibration Start Date:</b>	07/16/20 19:46
<b>Analytical Run:</b>	071620ICP14A	<b>Calibration End Date:</b>	07/16/20 20:05

Client Sample ID	Lab Sample ID	File ID	Analysis Date Time	Dilution	Batch
CALBLK	ICP140716201943	20200716194336	07/16/20 19:43		
ICV	ICP140716202008-2	20200716200804-2	07/16/20 20:08		
ICB	ICP140716202010-2	20200716201050-2	07/16/20 20:10		
ICVLL	ICP140716202018-2	20200716201846-2	07/16/20 20:18		
ICSA	ICP140716202037-2	20200716203734-2	07/16/20 20:37		
ICSAB	ICP140716202040-2	20200716204018-2	07/16/20 20:40		
CCV	ICP140716202346-2	20200716234615-2	07/16/20 23:46		
CCB	ICP140716202349-2	20200716234900-2	07/16/20 23:49		
BLANK	R3550332-1	20200716235149	07/16/20 23:51	1	WG1510345
LCS	R3550332-2	20200716235417	07/16/20 23:54	1	WG1510345
ND2-DWD-100-1	L1239858-07	20200716235715	07/16/20 23:57	1	WG1510345
SD	R3550332-3	20200716235957	07/16/20 23:59	5	WG1510345
MS	R3550332-4	20200717000242	07/17/20 00:02	1	WG1510345
MSD	R3550332-5	20200717000524	07/17/20 00:05	1	WG1510345
L1238732-01	L1238732-01	20200717000839	07/17/20 00:08	1	WG1510345
L1238732-02	L1238732-02	20200717001127	07/17/20 00:11	1	WG1510345
L1238732-03	L1238732-03	20200717001415	07/17/20 00:14	1	WG1510345
L1238732-04	L1238732-04	20200717001728	07/17/20 00:17	1	WG1510345
CCV	ICP140717200019	20200717001956	07/17/20 00:19		
CCB	ICP140717200022	20200717002242	07/17/20 00:22		
L1239847-01	L1239847-01	20200717002532	07/17/20 00:25	1	WG1510345
L1239847-02	L1239847-02	20200717002821	07/17/20 00:28	1	WG1510345
L1239847-03	L1239847-03	20200717003105	07/17/20 00:31	1	WG1510345
L1239847-04	L1239847-04	20200717003348	07/17/20 00:33	1	WG1510345
L1239847-05	L1239847-05	20200717003630	07/17/20 00:36	1	WG1510345
L1239847-10	L1239847-10	20200717003919	07/17/20 00:39	1	WG1510345
L1239847-11	L1239847-11	20200717004208	07/17/20 00:42	1	WG1510345
L1239847-12	L1239847-12	20200717004451	07/17/20 00:44	1	WG1510345
ND2-DWD-100-2	L1239858-09	20200717004747	07/17/20 00:47	1	WG1510345
ND2-AWD-100-1	L1239858-11	20200717005043	07/17/20 00:50	1	WG1510345
CCV	ICP140717200053	20200717005311	07/17/20 00:53		
CCB	ICP140717200055	20200717005557	07/17/20 00:55		
ND2-AWD-102-1	L1239858-14	20200717005837	07/17/20 00:58	1	WG1510345
L1240007-01	L1240007-01	20200717010126	07/17/20 01:01	1	WG1510345
L1240009-01	L1240009-01	20200717010417	07/17/20 01:04	1	WG1510345
L1240009-02	L1240009-02	20200717010707	07/17/20 01:07	1	WG1510345
CCV	ICP140717200109	20200717010935	07/17/20 01:09		
CCB	ICP140717200112	20200717011220	07/17/20 01:12		
CCVLL	ICP140717200115-2	20200717011506-2	07/17/20 01:15		
ICSA	ICP140717200118-2	20200717011804-2	07/17/20 01:18		
ICSAB	ICP140717200120-2	20200717012049-2	07/17/20 01:20		



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## ANALYSIS LOG

<b>SDG:</b>	L1239858	<b>Analytical Method:</b>	6010B
<b>Instrument ID:</b>	ICP14	<b>Calibration Start Date:</b>	07/20/20 03:23
<b>Analytical Run:</b>	072020ICP14	<b>Calibration End Date:</b>	07/20/20 03:42

Client Sample ID	Lab Sample ID	File ID	Analysis Date Time	Dilution	Batch
CALBLK	ICP140720200321	20200720032101	07/20/20 03:21		
CAL	STD1	20200720032347	07/20/20 03:23		
CAL	STD2	20200720032620	07/20/20 03:26		
CAL	STD3	20200720032848	07/20/20 03:28		
CAL	STD4	20200720033112	07/20/20 03:31		
ICV	ICP140720200345-3	20200720034532-3	07/20/20 03:45		
ICB	ICP140720200348-3	20200720034817-3	07/20/20 03:48		
ICVLL	ICP140720200356-3	20200720035617-3	07/20/20 03:56		
ICSA	ICP140720200604-3	20200720060459-3	07/20/20 06:04		
ICSAB	ICP140720200607-3	20200720060745-3	07/20/20 06:07		
CCV	ICP140720201132-2	20200720113212-2	07/20/20 11:32		
CCB	ICP140720201134-2	20200720113457-2	07/20/20 11:34		
ND2-DP-100-1	L1239858-03	20200720113745	07/20/20 11:37	10	WG1510526
ND2-DP2-100-1	L1239858-04	20200720114034	07/20/20 11:40	10	WG1510526
ND2-AP-102-1	L1239858-15	20200720114322	07/20/20 11:43	10	WG1510526
CCV	ICP140720201148	20200720114832	07/20/20 11:48		
CCB	ICP140720201151	20200720115117	07/20/20 11:51		
CCVLL	ICP140720201255-3	20200720125543-3	07/20/20 12:55		
ICSA	ICP140720201309-3	20200720130944-3	07/20/20 13:09		
ICSAB	ICP140720201312-3	20200720131231-3	07/20/20 13:12		



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## ANALYSIS LOG

<b>SDG:</b>	L1239858	<b>Analytical Method:</b>	6010B
<b>Instrument ID:</b>	ICP14	<b>Calibration Start Date:</b>	07/21/20 01:12
<b>Analytical Run:</b>	072120ICP14	<b>Calibration End Date:</b>	07/21/20 01:31

Client Sample ID	Lab Sample ID	File ID	Analysis Date Time	Dilution	Batch
CALBLK	ICP140721200110	20200721011001	07/21/20 01:10		
CAL	STD1	20200721011246	07/21/20 01:12		
CAL	STD2	20200721011518	07/21/20 01:15		
CAL	STD3	20200721011747	07/21/20 01:17		
CAL	STD4	20200721012012	07/21/20 01:20		
CAL	STD5	20200721012250	07/21/20 01:22		
CAL	STD6	20200721012546	07/21/20 01:25		
CAL	STD7	20200721012851	07/21/20 01:28		
ICV	ICP140721200134	20200721013432	07/21/20 01:34		
ICB	ICP140721200137	20200721013716	07/21/20 01:37		
ICVLL	ICP140721200145	20200721014517	07/21/20 01:45		
ICSA	ICP140721200154	20200721015448	07/21/20 01:54		
ICSAB	ICP140721200157	20200721015733	07/21/20 01:57		
CCV	ICP140721200514	20200721051409	07/21/20 05:14		
CCB	ICP140721200516	20200721051655	07/21/20 05:16		
CCV	ICP140721200610	20200721061022	07/21/20 06:10		
CCB	ICP140721200616	20200721061643	07/21/20 06:16		
BLANK	R3551587-1	20200721062035	07/21/20 06:20	1	WG1510357
ND2-DWT-100-2	L1239858-08	20200721062604	07/21/20 06:26	1	WG1510357
SD	R3551587-2	20200721062844	07/21/20 06:28	5	WG1510357
MS	R3551587-3	20200721063127	07/21/20 06:31	1	WG1510357
MSD	R3551587-4	20200721063409	07/21/20 06:34	1	WG1510357
OS	L1239886-12	20200721063651	07/21/20 06:36		
L1239886-12	L1239886-12	20200721063651	07/21/20 06:36	1	WG1510357
MS	R3551587-5	20200721063923	07/21/20 06:39	1	WG1510357
MSD	R3551587-6	20200721064155	07/21/20 06:41	1	WG1510357
ND2-DWT-100-1	L1239858-06	20200721064451	07/21/20 06:44	1	WG1510357
CCV	ICP140721200647	20200721064720	07/21/20 06:47		
CCB	ICP140721200650	20200721065005	07/21/20 06:50		
ND2-AWT-100-1	L1239858-10	20200721065304	07/21/20 06:53	1	WG1510357
ER-01	L1239858-12	20200721065551	07/21/20 06:55	1	WG1510357
ND2-AWT-102-1	L1239858-13	20200721065830	07/21/20 06:58	1	WG1510357
L1239859-01	L1239859-01	20200721070115	07/21/20 07:01	1	WG1510357
L1239859-05	L1239859-05	20200721070400	07/21/20 07:04	1	WG1510357
L1239884-04	L1239884-04	20200721072025	07/21/20 07:20	1	WG1510357
L1239884-06	L1239884-06	20200721072301	07/21/20 07:23	1	WG1510357
CCV	ICP140721200733	20200721073356	07/21/20 07:33		
CCB	ICP140721200736	20200721073641	07/21/20 07:36		
ICSA	ICP140721200955	20200721095530	07/21/20 09:55		
ICSAB	ICP140721200958	20200721095816	07/21/20 09:58		
CCV	ICP140721201114	20200721111436	07/21/20 11:14		
CCB	ICP140721201117	20200721111722	07/21/20 11:17		
BLANK	R3551586-1	20200721112213	07/21/20 11:22	1	WG1511785
L1241127-03	L1241127-03	20200721112502	07/21/20 11:25	1	WG1511768
LCS	R3551587-7	20200721112732	07/21/20 11:27	1	WG1510357
L1239886-12	L1239886-12	20200721113008	07/21/20 11:30	5	WG1510357
L1239885-01	L1239885-01	20200721113252	07/21/20 11:32	5	WG1510357
L1239885-03	L1239885-03	20200721113535	07/21/20 11:35	5	WG1510357
L1239885-05	L1239885-05	20200721113816	07/21/20 11:38	5	WG1510357
L1239886-14	L1239886-14	20200721114052	07/21/20 11:40	5	WG1510357
LCS	R3551586-2	20200721114322	07/21/20 11:43	1	WG1511785



SDG:	L1239858	Analytical Method:	6010B
Instrument ID:	ICP14	Calibration Start Date:	07/21/20 01:12
Analytical Run:	072120ICP14	Calibration End Date:	07/21/20 01:31

Client Sample ID	Lab Sample ID	File ID	Analysis Date Time	Dilution	Batch
OS	L1240490-03	20200721114609	07/21/20 11:46	1	WG1511785
L1240490-03	L1240490-03	20200721114609	07/21/20 11:46		
CCV	ICP140721201148-2	20200721114839-2	07/21/20 11:48		
CCB	ICP140721201151-2	20200721115124-2	07/21/20 11:51		
CCVLL	ICP140721201256	20200721125633	07/21/20 12:56		
ICSA	ICP140721201307	20200721130743	07/21/20 13:07		
ICSAB	ICP140721201310	20200721131028	07/21/20 13:10		



**SDG:** L1239858  
**Instrument ID:** ICP12  
**Analytical Method:** 6010B

**Calibration (begin) date/time:** 07/18/20 06:25  
**Calibration (end) date/time:** 07/18/20 06:44  
**Analytical Run:** 071820ICP12

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
ALUMINUM	0.20	.2114394	106			
ANTIMONY	0.01	.0102853	103	0.50	.486544	97.30
ARSENIC	0.01	.009934741	99.30	0.50	.4817021	96.30
BARIUM	0.0050	.005228301	105			
BERYLLIUM	0.0020	.001905512	95.30	0.50	.4806206	96.10
CADMIUM	0.0020	.001412784	70.60	0.50	.4890398	97.80
CALCIUM	1	1.004237	100			
CHROMIUM	0.01	.009490798	94.90	0.50	.4941279	98.80
COBALT	0.01	.009117447	91.20	0.50	.4950052	99
COPPER	0.01	.009167615	91.70	0.50	.4942694	98.90
IRON	0.10	.1023941	102	0.50	.4999401	100
LEAD	0.0050	.005885145	118	0.50	.4920636	98.40
MAGNESIUM	1	1.007495	101			
MANGANESE	0.01	.009669106	96.70	0.50	.4879379	97.60
NICKEL	0.01	.009469448	94.70	0.50	.4922215	98.40
POTASSIUM	1	.993328	99.30			
SELENIUM	0.01	.008974169	89.70	0.50	.4847116	96.90
SILVER	0.0050	.005541483	111	0.50	.4875734	97.50
SODIUM	1	1.007922	101			
THALLIUM	0.01	.009354537	93.50	0.50	.4906116	98.10
VANADIUM	0.02	.02011897	101	0.50	.4999909	100
ZINC	0.05	.04712011	94.20	0.50	.4884621	97.70
<b>File ID:</b>		20200718062522			20200718062757	



**SDG:** L1239858  
**Instrument ID:** ICP12  
**Analytical Method:** 6010B

**Calibration (begin) date/time:** 07/18/20 06:25  
**Calibration (end) date/time:** 07/18/20 06:44  
**Analytical Run:** 071820ICP12

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
ALUMINUM						
ANTIMONY	1	.9738534	97.40	2	2.016436	101
ARSENIC	1	.9680848	96.80	2	2.020532	101
BARIUM	1	1.017969	102	2	2.041333	102
BERYLLIUM	1	.9753544	97.50	2	2.017168	101
CADMIUM	1	.9754299	97.50	2	2.015026	101
CALCIUM				2	2.036996	102
CHROMIUM	1	.9683949	96.80	2	2.017273	101
COBALT	1	.9821846	98.20	2	2.010161	101
COPPER	1	.9895594	99	2	2.006657	100
IRON	1	.9908337	99.10	2	2.014526	101
LEAD	1	.9748021	97.50	2	2.014581	101
MAGNESIUM						
MANGANESE	1	.9772164	97.70	2	2.014409	101
NICKEL	1	.9765154	97.70	2	2.01369	101
POTASSIUM				2	1.946005	97.30
SELENIUM	1	.9629697	96.30	2	2.022342	101
SILVER	1	.9696492	97	2	2.018281	101
SODIUM				2	2.030895	102
THALLIUM	1	.9714861	97.10	2	2.016607	101
VANADIUM	1	.9938289	99.40	2	2.003087	100
ZINC	1	.972615	97.30	2	2.016649	101
<b>File ID:</b>		20200718063027			20200718063254	

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## INITIAL CALIBRATION RECOVERY

<b>SDG:</b>	L1239858	<b>Calibration (begin) date/time:</b>	07/18/20 06:25
<b>Instrument ID:</b>	ICP12	<b>Calibration (end) date/time:</b>	07/18/20 06:44
<b>Analytical Method:</b>	6010B	<b>Analytical Run:</b>	071820ICP12

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
ALUMINUM	10	9.678767	96.80	250	246.0867	98.40
ANTIMONY						
ARSENIC						
BARIUM	10	9.989936	99.90			
BERYLLIUM						
CADMIUM						
CALCIUM	10	9.992177	99.90			
CHROMIUM						
COBALT						
COPPER						
IRON	10	9.997991	100			
LEAD						
MAGNESIUM	10	10.17797	102	250	249.3255	99.70
MANGANESE						
NICKEL						
POTASSIUM	10	9.6583	96.60	50	49.4288	98.90
SELENIUM						
SILVER						
SODIUM	10	9.993029	99.90			
THALLIUM						
VANADIUM						
ZINC						
File ID:		20200718063533			20200718063829	

SDG:	L1239858	Calibration (begin) date/time:	07/18/20 06:25
Instrument ID:	ICP12	Calibration (end) date/time:	07/18/20 06:44
Analytical Method:	6010B	Analytical Run:	071820ICP12

Analyte	Std Conc mg/l	Result mg/l	Rec. %
ALUMINUM	500	501.9631	100
ANTIMONY			
ARSENIC			
BARIUM			
BERYLLIUM			
CADMIUM			
CALCIUM			
CHROMIUM			
COBALT			
COPPER			
IRON			
LEAD			
MAGNESIUM	500	500.3337	100
MANGANESE			
NICKEL			
POTASSIUM	100	100.3209	100
SELENIUM			
SILVER			
SODIUM			
THALLIUM			
VANADIUM			
ZINC			
File ID:	20200718064134		

SDG:	L1239858	Calibration (begin) date/time:	07/18/20 06:25
Instrument ID:	ICP12	Calibration (end) date/time:	07/18/20 06:44
Analytical Method:	6010B	Analytical Run:	071820ICP12

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
CALCIUM	10	10.04255	100	250	253.0946	101
IRON	10	10.53881	105	100	101.6972	102
SODIUM	10	10.01206	100	250	248.1322	99.30
File ID:		20200718063533			20200718063829	

SDG:	L1239858	Calibration (begin) date/time:	07/18/20 06:25
Instrument ID:	ICP12	Calibration (end) date/time:	07/18/20 06:44
Analytical Method:	6010B	Analytical Run:	071820ICP12

Analyte	Std Conc mg/l	Result mg/l	Rec. %
CALCIUM	500	498.4519	99.70
IRON	200	199.1245	99.60
SODIUM	500	500.9336	100
File ID:		20200718064134	





**SDG:** L1239858  
**Instrument ID:** ICP12  
**Analytical Method:** 6010B

**Calibration (begin) date/time:** 08/01/20 07:54  
**Calibration (end) date/time:** 08/01/20 08:13  
**Analytical Run:** 080120ICP12

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
ALUMINUM	0.20	.2286803	114			
ANTIMONY	0.01	.01232002	123	0.50	.4802242	96
ARSENIC	0.01	.009561435	95.60	0.50	.490875	98.20
BARIUM	0.0050	.004935943	98.70			
BERYLLIUM	0.0020	.001764597	88.20	0.50	.4633434	92.70
CADMIUM	0.0020	.001991812	99.60	0.50	.4996698	99.90
CALCIUM	1	1.034718	103			
CHROMIUM	0.01	.01042682	104	0.50	.4930745	98.60
COBALT	0.01	.0100491	100	0.50	.4921587	98.40
COPPER	0.01	.01051557	105	0.50	.4938694	98.80
IRON	0.10	.09953584	99.50	0.50	.4875846	97.50
LEAD	0.0050	.003869286	77.40	0.50	.4890031	97.80
MAGNESIUM	1	1.067907	107			
MANGANESE	0.01	.009832711	98.30	0.50	.4756638	95.10
NICKEL	0.01	.009537727	95.40	0.50	.4905545	98.10
POTASSIUM	1	1.043188	104			
SELENIUM	0.01	.01219398	122	0.50	.4922554	98.50
SILVER	0.0050	.005000689	100	0.50	.4907022	98.10
SODIUM	1	1.028525	103			
THALLIUM	0.01	.01002668	100	0.50	.4888571	97.80
VANADIUM	0.02	.01989655	99.50	0.50	.4922724	98.50
ZINC	0.05	.04967401	99.30	0.50	.4960731	99.20
<b>File ID:</b>		20200801075420			20200801075655	



**SDG:** L1239858  
**Instrument ID:** ICP12  
**Analytical Method:** 6010B

**Calibration (begin) date/time:** 08/01/20 07:54  
**Calibration (end) date/time:** 08/01/20 08:13  
**Analytical Run:** 080120ICP12

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
ALUMINUM						
ANTIMONY	1	.988591	98.90	2	2.010637	101
ARSENIC	1	1.004567	100			
BARIUM	1	1.011904	101	2	2.019269	101
BERYLLIUM	1	.984623	98.50	2	2.016853	101
CADMIUM	1	1.003316	100	2	1.998425	99.90
CALCIUM				2	2.062774	103
CHROMIUM	1	.9930796	99.30	2	2.005189	100
COBALT	1	1.004342	100	2	1.999789	100
COPPER	1	1.00245	100	2	2.000305	100
IRON	1	.9972164	99.70	2	2.016719	101
LEAD	1	1.003031	100	2	2.001237	100
MAGNESIUM						
MANGANESE	1	.979839	98	2	2.016165	101
NICKEL	1	1.000712	100	2	2.002008	100
POTASSIUM				2	1.99403	99.70
SELENIUM	1	1.00385	100			
SILVER	1	.9894382	98.90	2	2.007605	100
SODIUM				2	2.045091	102
THALLIUM	1	1.001977	100	2	2.001797	100
VANADIUM	1	.9912918	99.10	2	2.006287	100
ZINC	1	.9941293	99.40	2	2.003925	100
<b>File ID:</b>		20200801075927			20200801080154	



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## INITIAL CALIBRATION RECOVERY

<b>SDG:</b>	L1239858	<b>Calibration (begin) date/time:</b>	08/01/20 07:54
<b>Instrument ID:</b>	ICP12	<b>Calibration (end) date/time:</b>	08/01/20 08:13
<b>Analytical Method:</b>	6010B	<b>Analytical Run:</b>	080120ICP12

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
ALUMINUM	10	10.32428	103	250	246.0545	98.40
ANTIMONY						
ARSENIC						
BARIUM	10	9.994956	99.90			
BERYLLIUM						
CADMIUM						
CALCIUM	10	9.983973	99.80			
CHROMIUM						
COBALT						
COPPER						
IRON	10	9.99756	100			
LEAD						
MAGNESIUM	10	10.67257	107	250	250.0411	100
MANGANESE						
NICKEL						
POTASSIUM	10	10.11081	101	50	49.60803	99.20
SELENIUM						
SILVER						
SODIUM	10	9.988129	99.90			
THALLIUM						
VANADIUM						
ZINC						
<b>File ID:</b>		20200801080433			20200801080721	

SDG:	L1239858	Calibration (begin) date/time:	08/01/20 07:54
Instrument ID:	ICP12	Calibration (end) date/time:	08/01/20 08:13
Analytical Method:	6010B	Analytical Run:	080120ICP12

Analyte	Std Conc mg/l	Result mg/l	Rec. %
ALUMINIUM	500	501.9662	100
ANTIMONY			
ARSENIC			
BARIUM			
BERYLLIUM			
CADMIUM			
CALCIUM			
CHROMIUM			
COBALT			
COPPER			
IRON			
LEAD			
MAGNESIUM	500	499.9659	100
MANGANESE			
NICKEL			
POTASSIUM	100	100.1846	100
SELENIUM			
SILVER			
SODIUM			
THALLIUM			
VANADIUM			
ZINC			
File ID:	20200801081017		

SDG:	L1239858	Calibration (begin) date/time:	08/01/20 07:54
Instrument ID:	ICP12	Calibration (end) date/time:	08/01/20 08:13
Analytical Method:	6010B	Analytical Run:	080120ICP12

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
CALCIUM	10	10.60594	106	250	251.1201	100
IRON	10	10.96938	110	100	101.1759	101
SODIUM	10	10.79177	108	250	248.6566	99.50
File ID:		20200801080433			20200801080721	

SDG:	L1239858	Calibration (begin) date/time:	08/01/20 07:54
Instrument ID:	ICP12	Calibration (end) date/time:	08/01/20 08:13
Analytical Method:	6010B	Analytical Run:	080120ICP12

Analyte	Std Conc mg/l	Result mg/l	Rec. %
CALCIUM	500	499.4279	99.90
IRON	200	199.3636	99.70
SODIUM	500	500.6559	100
File ID:	20200801081017		



**SDG:** L1239858  
**Instrument ID:** ICP13  
**Analytical Method:** 6010B

**Calibration (begin) date/time:** 07/19/20 16:30  
**Calibration (end) date/time:** 07/19/20 16:50  
**Analytical Run:** 071920ICP13

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
ALUMINUM	0.20	.1850072	92.50			
ANTIMONY	0.01	.007501022	75	0.50	.4701238	94
ARSENIC	0.01	.009878862	98.80	0.50	.4751317	95
BARIUM	0.0050	.004890195	97.80	0.50	.5111225	102
BERYLLIUM	0.0020	.001942014	97.10	0.50	.4931435	98.60
CADMIUM	0.0020	.002075666	104	0.50	.4799107	96
CALCIUM	1	.9986233	99.90			
CHROMIUM	0.01	.009751417	97.50	0.50	.5045325	101
COBALT	0.01	.009339578	93.40	0.50	.4918002	98.40
COPPER	0.01	.00941093	94.10	0.50	.4892706	97.90
IRON	0.10	.09983076	99.80	0.50	.5032091	101
LEAD	0.0050	.00422781	84.60	0.50	.4867304	97.30
MAGNESIUM	1	.9798803	98			
MANGANESE	0.01	.009740176	97.40	0.50	.5005704	100
NICKEL	0.01	.009382147	93.80	0.50	.4891074	97.80
POTASSIUM	1	.9232689	92.30			
SELENIUM	0.01	.006298999	63	0.50	.459581	91.90
SILVER	0.0050	.004081684	81.60	0.50	.4792959	95.90
SODIUM	1	.9769918	97.70			
THALLIUM	0.01	.008599883	86	0.50	.4819182	96.40
VANADIUM	0.02	.02208252	110	0.50	.502815	101
ZINC	0.05	.04879461	97.60	0.50	.4915535	98.30
<b>File ID:</b>		20200719163028			20200719163309	





**SDG:** L1239858  
**Instrument ID:** ICP13  
**Analytical Method:** 6010B

**Calibration (begin) date/time:** 07/19/20 16:30  
**Calibration (end) date/time:** 07/19/20 16:50  
**Analytical Run:** 071920ICP13

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
ALUMINUM						
ANTIMONY	1	.9515033	95.20	2	2.03173	102
ARSENIC	1	.9605738	96.10	2	2.025931	101
BARIUM	1	1.008343	101	2	2.029499	101
BERYLLIUM	1	.9816419	98.20	2	2.010893	101
CADMIUM	1	.9610191	96.10	2	2.024513	101
CALCIUM	1	1.001097	100	2	2.024745	101
CHROMIUM	1	.994154	99.40	2	2.001791	100
COBALT	1	.9843645	98.40	2	2.009871	100
COPPER	1	.9778037	97.80	2	2.013783	101
IRON	1	.9948144	99.50	2	2.014803	101
LEAD	1	.9745741	97.50	2	2.016032	101
MAGNESIUM						
MANGANESE	1	.9913497	99.10	2	2.004184	100
NICKEL	1	.9815217	98.20	2	2.011965	101
POTASSIUM				2	1.865897	93.30
SELENIUM	1	.9380891	93.80	2	2.041079	102
SILVER	1	.9625785	96.30	2	2.023889	101
SODIUM	1	.9667559	96.70	2	2.003412	100
THALLIUM	1	.9696521	97	2	2.019701	101
VANADIUM	1	.9927777	99.30	2	2.002887	100
ZINC	1	.9753176	97.50	2	2.014483	101
<b>File ID:</b>		20200719163546			20200719163820	



**SDG:** L1239858  
**Instrument ID:** ICP13  
**Analytical Method:** 6010B

**Calibration (begin) date/time:** 07/19/20 16:30  
**Calibration (end) date/time:** 07/19/20 16:50  
**Analytical Run:** 071920ICP13

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
ALUMINUM	10	9.895582	99	250	247.7363	99.10
ANTIMONY						
ARSENIC						
BARIUM	10	9.99271	99.90			
BERYLLIUM						
CADMIUM						
CALCIUM	10	9.995079	100			
CHROMIUM						
COBALT						
COPPER						
IRON	10	9.997399	100			
LEAD						
MAGNESIUM	10	9.88018	98.80	250	248.7593	99.50
MANGANESE						
NICKEL						
POTASSIUM	10	9.405763	94.10	50	48.94151	97.90
SELENIUM						
SILVER						
SODIUM	10	10.00494	100			
THALLIUM						
VANADIUM						
ZINC						
<b>File ID:</b>		20200719164107			20200719164424	

SDG:	L1239858	Calibration (begin) date/time:	07/19/20 16:30
Instrument ID:	ICP13	Calibration (end) date/time:	07/19/20 16:50
Analytical Method:	6010B	Analytical Run:	071920ICP13

Analyte	Std Conc mg/l	Result mg/l	Rec. %
ALUMINUM	500	501.1339	100
ANTIMONY			
ARSENIC			
BARIUM			
BERYLLIUM			
CADMIUM			
CALCIUM			
CHROMIUM			
COBALT			
COPPER			
IRON			
LEAD			
MAGNESIUM	500	500.6228	100
MANGANESE			
NICKEL			
POTASSIUM	100	100.5921	101
SELENIUM			
SILVER			
SODIUM			
THALLIUM			
VANADIUM			
ZINC			
File ID:	20200719164741		

SDG:	L1239858	Calibration (begin) date/time:	07/19/20 16:30
Instrument ID:	ICP13	Calibration (end) date/time:	07/19/20 16:50
Analytical Method:	6010B	Analytical Run:	071920ICP13

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
CALCIUM	10	10.45889	105	250	252.4504	101
IRON	10	10.76935	108	100	101.9556	102
SODIUM	10	10.14727	101	250	248.8214	99.50
File ID:		20200719164107			20200719164424	

SDG:	L1239858	Calibration (begin) date/time:	07/19/20 16:30
Instrument ID:	ICP13	Calibration (end) date/time:	07/19/20 16:50
Analytical Method:	6010B	Analytical Run:	071920ICP13

Analyte	Std Conc mg/l	Result mg/l	Rec. %
CALCIUM	500	498.7656	99.80
IRON	200	198.9837	99.50
SODIUM	500	500.5863	100
File ID:		20200719164741	



**SDG:** L1239858  
**Instrument ID:** ICP14  
**Analytical Method:** 6010B

**Calibration (begin) date/time:** 07/16/20 19:46  
**Calibration (end) date/time:** 07/16/20 20:05  
**Analytical Run:** 071620ICP14A

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
ALUMINIUM	0.20	.1974379	98.70			
ANTIMONY	0.01	.009869142	98.70	0.50	.4782588	95.70
ARSENIC	0.01	.009034335	90.30	0.50	.4815257	96.30
BARIUM	0.0050	.005177363	104	0.50	.5164264	103
BERYLLIUM	0.0020	.001990329	99.50	0.50	.4925725	98.50
CADMIUM	0.0020	.001816195	90.80	0.50	.4837815	96.80
CALCIUM	1	.9798145	98			
CHROMIUM	0.01	.01014914	101	0.50	.4994049	99.90
COBALT	0.01	.009599335	96	0.50	.4884895	97.70
COPPER	0.01	.00951336	95.10	0.50	.4913044	98.30
IRON	0.10	.09483754	94.80	0.50	.4921332	98.40
LEAD	0.0050	.00543627	109	0.50	.4773546	95.50
MAGNESIUM	1	.9842901	98.40			
MANGANESE	0.01	.009595508	96	0.50	.4962033	99.20
NICKEL	0.01	.008426931	84.30	0.50	.4845704	96.90
POTASSIUM	1	.8906059	89.10			
SELENIUM	0.01	.009158938	91.60	0.50	.4748282	95
SILVER	0.0050	.004516941	90.30	0.50	.4978242	99.60
SODIUM	1	.9589132	95.90			
THALLIUM	0.01	.01157356	116	0.50	.4977388	99.50
VANADIUM	0.02	.02005214	100	0.50	.4974932	99.50
ZINC	0.05	.04780163	95.60	0.50	.4853007	97.10
<b>File ID:</b>		20200716194621			20200716194852	



**SDG:** L1239858  
**Instrument ID:** ICP14  
**Analytical Method:** 6010B

**Calibration (begin) date/time:** 07/16/20 19:46  
**Calibration (end) date/time:** 07/16/20 20:05  
**Analytical Run:** 071620ICP14A

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
ALUMINUM						
ANTIMONY	1	.9558022	95.60	2	2.027535	101
ARSENIC	1	.9629073	96.30	2	2.02317	101
BARIUM	1	1.015531	102	2	2.062234	103
BERYLLIUM	1	.9785052	97.90	2	2.012604	101
CADMIUM	1	.959659	96	2	2.024225	101
CALCIUM	1	.9845611	98.50	2	2.016249	101
CHROMIUM	1	.9862928	98.60	2	2.007002	100
COBALT	1	.9728658	97.30	2	2.016447	101
COPPER	1	.9771143	97.70	2	2.013619	101
IRON	1	.9839926	98.40	2	1.994573	99.70
LEAD	1	.9598031	96	2	2.025759	101
MAGNESIUM				2	2.051595	103
MANGANESE	1	.983078	98.30	2	2.009412	100
NICKEL	1	.9664368	96.60	2	2.020647	101
POTASSIUM				2	1.863604	93.20
SELENIUM	1	.9504691	95	2	2.031063	102
SILVER	1	1.00109	100			
SODIUM	1	.9546777	95.50	2	1.984131	99.20
THALLIUM	1	1.001115	100			
VANADIUM	1	.9934261	99.30	2	2.003913	100
ZINC	1	.9652085	96.50	2	2.021126	101
<b>File ID:</b>		20200716195119			20200716195344	



SDG:	L1239858	Calibration (begin) date/time:	07/16/20 19:46
Instrument ID:	ICP14	Calibration (end) date/time:	07/16/20 20:05
Analytical Method:	6010B	Analytical Run:	071620ICP14A

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
ALUMINUM	10	9.700447	97	250	245.3833	98.20
ANTIMONY						
ARSENIC						
BARIUM	10	9.985179	99.90			
BERYLLIUM						
CADMIUM						
CALCIUM	10	10.00031	100			
CHROMIUM						
COBALT						
COPPER						
IRON	10	10.00313	100			
LEAD						
MAGNESIUM	10	10.19896	102	250	247.0397	98.80
MANGANESE						
NICKEL						
POTASSIUM	10	9.3338	93.30	50	48.94841	97.90
SELENIUM						
SILVER						
SODIUM	10	10.01181	100			
THALLIUM						
VANADIUM						
ZINC						
File ID:		20200716195622			20200716195918	

SDG:	L1239858	Calibration (begin) date/time:	07/16/20 19:46
Instrument ID:	ICP14	Calibration (end) date/time:	07/16/20 20:05
Analytical Method:	6010B	Analytical Run:	071620ICP14A

Analyte	Std Conc mg/l	Result mg/l	Rec. %
ALUMINUM	500	502.3143	100
ANTIMONY			
ARSENIC			
BARIUM			
BERYLLIUM			
CADMIUM			
CALCIUM			
CHROMIUM			
COBALT			
COPPER			
IRON			
LEAD			
MAGNESIUM	500	501.476	100
MANGANESE			
NICKEL			
POTASSIUM	100	100.5962	101
SELENIUM			
SILVER			
SODIUM			
THALLIUM			
VANADIUM			
ZINC			
File ID:	20200716200223		

SDG:	L1239858	Calibration (begin) date/time:	07/16/20 19:46
Instrument ID:	ICP14	Calibration (end) date/time:	07/16/20 20:05
Analytical Method:	6010B	Analytical Run:	071620ICP14A

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
CALCIUM	10	10.18642	102	250	252.4679	101
IRON	10	10.97894	110	100	101.2942	101
SODIUM	10	10.4302	104	250	247.2996	98.90
File ID:		20200716195622			20200716195918	

SDG:	L1239858	Calibration (begin) date/time:	07/16/20 19:46
Instrument ID:	ICP14	Calibration (end) date/time:	07/16/20 20:05
Analytical Method:	6010B	Analytical Run:	071620ICP14A

Analyte	Std Conc mg/l	Result mg/l	Rec. %
CALCIUM	500	498.7623	99.80
IRON	200	199.3039	99.70
SODIUM	500	501.3416	100
File ID:	20200716200223		



**SDG:** L1239858  
**Instrument ID:** ICP14  
**Analytical Method:** 6010B

**Calibration (begin) date/time:** 07/21/20 01:12  
**Calibration (end) date/time:** 07/21/20 01:31  
**Analytical Run:** 072120ICP14

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
ALUMINUM	0.20	.2225866	111			
ANTIMONY	0.01	.007336254	73.40	0.50	.4840287	96.80
ARSENIC	0.01	.01072972	107	0.50	.4864268	97.30
BARIUM	0.0050	.004988564	99.80	0.50	.5191382	104
BERYLLIUM	0.0020	.002087587	104	0.50	.4951019	99
CADMIUM	0.0020	.001994493	99.70	0.50	.4890272	97.80
CALCIUM	1	1.010318	101			
CHROMIUM	0.01	.009693525	96.90	0.50	.5005723	100
COBALT	0.01	.009844472	98.40	0.50	.49557	99.10
COPPER	0.01	.01042222	104	0.50	.4966599	99.30
IRON	0.10	.09658241	96.60	0.50	.493378	98.70
LEAD	0.0050	.004620784	92.40	0.50	.4878787	97.60
MAGNESIUM	1	1.01895	102			
MANGANESE	0.01	.009784741	97.80	0.50	.4974419	99.50
NICKEL	0.01	.00925708	92.60	0.50	.4928242	98.60
POTASSIUM	1	.8917078	89.20			
SELENIUM	0.01	.0055598	55.60	0.50	.4819206	96.40
SILVER	0.0050	.004479262	89.60	0.50	.4825541	96.50
SODIUM	1	.9807765	98.10			
THALLIUM	0.01	.009846315	98.50	0.50	.4867213	97.30
VANADIUM	0.02	.02070214	104	0.50	.4999251	100
ZINC	0.05	.04758384	95.20	0.50	.4904864	98.10
<b>File ID:</b>		20200721011246			20200721011518	



**SDG:** L1239858  
**Instrument ID:** ICP14  
**Analytical Method:** 6010B

**Calibration (begin) date/time:** 07/21/20 01:12  
**Calibration (end) date/time:** 07/21/20 01:31  
**Analytical Run:** 072120ICP14

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
ALUMINUM						
ANTIMONY	1	.9779392	97.80	2	2.015037	101
ARSENIC	1	.9841228	98.40	2	2.011328	101
BARIUM	1	1.030541	103	2	2.045848	102
BERYLLIUM	1	.995014	99.50	2	2.003717	100
CADMIUM	1	.9825209	98.30	2	2.011483	101
CALCIUM	1	.9932931	99.30	2	2.016537	101
CHROMIUM	1	.995955	99.60	2	2.001881	100
COBALT	1	.9944017	99.40	2	2.003907	100
COPPER	1	.9896661	99	2	2.006	100
IRON	1	.9925895	99.30	2	1.986394	99.30
LEAD	1	.9849353	98.50	2	2.010564	101
MAGNESIUM				2	2.073351	104
MANGANESE	1	.9950994	99.50	2	2.003091	100
NICKEL	1	.9910037	99.10	2	2.006296	100
POTASSIUM				2	1.877025	93.90
SELENIUM	1	.9714041	97.10	2	2.01884	101
SILVER	1	.9751379	97.50	2	2.016794	101
SODIUM	1	.9693402	96.90	2	1.983639	99.20
THALLIUM	1	.9791548	97.90	2	2.013743	101
VANADIUM	1	1.003398	100	2	1.998312	99.90
ZINC	1	.9877195	98.80	2	2.008579	100
<b>File ID:</b>		20200721011747			20200721012012	

15-IN

## INITIAL CALIBRATION RECOVERY

**SDG:** L1239858  
**Instrument ID:** ICP14  
**Analytical Method:** 6010B

**Calibration (begin) date/time:** 07/21/20 01:12  
**Calibration (end) date/time:** 07/21/20 01:31  
**Analytical Run:** 072120ICP14

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
ALUMINUM	10	9.689723	96.90	250	244.6362	97.90
ANTIMONY						
ARSENIC						
BARIUM	10	9.986819	99.90			
BERYLLIUM						
CADMIUM						
CALCIUM	10	9.996331	100			
CHROMIUM						
COBALT						
COPPER						
IRON	10	10.00383	100			
LEAD						
MAGNESIUM	10	10.29475	103	250	248.7842	99.50
MANGANESE						
NICKEL						
POTASSIUM	10	9.549102	95.50	50	48.94677	97.90
SELENIUM						
SILVER						
SODIUM	10	10.00826	100			
THALLIUM						
VANADIUM						
ZINC						
<b>File ID:</b>		20200721012250			20200721012546	



SDG:	L1239858	Calibration (begin) date/time:	07/21/20 01:12
Instrument ID:	ICP14	Calibration (end) date/time:	07/21/20 01:31
Analytical Method:	6010B	Analytical Run:	072120ICP14

Analyte	Std Conc mg/l	Result mg/l	Rec. %
ALUMINIUM	500	502.6881	101
ANTIMONY			
ARSENIC			
BARIUM			
BERYLLIUM			
CADMIUM			
CALCIUM			
CHROMIUM			
COBALT			
COPPER			
IRON			
LEAD			
MAGNESIUM	500	500.6017	100
MANGANESE			
NICKEL			
POTASSIUM	100	100.5752	101
SELENIUM			
SILVER			
SODIUM			
THALLIUM			
VANADIUM			
ZINC			
File ID:	20200721012851		

SDG:	L1239858	Calibration (begin) date/time:	07/21/20 01:12
Instrument ID:	ICP14	Calibration (end) date/time:	07/21/20 01:31
Analytical Method:	6010B	Analytical Run:	072120ICP14

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
CALCIUM	10	10.14665	101	250	254.1933	102
IRON	10	10.93019	109	100	101.9907	102
SODIUM	10	10.46865	105	250	248.6714	99.50
File ID:		20200721012250			20200721012546	

SDG:	L1239858	Calibration (begin) date/time:	07/21/20 01:12
Instrument ID:	ICP14	Calibration (end) date/time:	07/21/20 01:31
Analytical Method:	6010B	Analytical Run:	072120ICP14

Analyte	Std Conc mg/l	Result mg/l	Rec. %
CALCIUM	500	497.9004	99.60
IRON	200	198.9581	99.50
SODIUM	500	500.655	100
File ID:		20200721012851	

SDG:	L1239858	Calibration (begin) date/time:	07/20/20 03:23
Instrument ID:	ICP14	Calibration (end) date/time:	07/20/20 03:42
Analytical Method:	6010B	Analytical Run:	072020ICP14

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
MANGANESE	0.01	.009891484	98.90	0.50	.4992087	99.80
File ID:		20200720032347			20200720032620	

SDG:	L1239858	Calibration (begin) date/time:	07/20/20 03:23
Instrument ID:	ICP14	Calibration (end) date/time:	07/20/20 03:42
Analytical Method:	6010B	Analytical Run:	072020ICP14

Analyte	Std Conc mg/l	Result mg/l	Rec. %	Std Conc mg/l	Result mg/l	Rec. %
MANGANESE	1	.9869457	98.70	2	2.006726	100
File ID:		20200720032848			20200720033112	



# INITIAL CALIBRATION

<b>SDG:</b>	L1239858	<b>Calibration (begin) date/time:</b>	07/18/20 06:25
<b>Instrument ID:</b>	ICP12	<b>Calibration (end) date/time:</b>	07/18/20 06:44
<b>Analytical Method:</b>	6010B	<b>Analytical Run:</b>	071820ICP12

Analyte	Wavelength	Cal. Type	Weightage	Corr.	Slope	Incpt
ALUMINUM	308.215	8	5	0.999951	117.3027	-3.140483
ANTIMONY	206.833	8	5	0.999799	163.3015	0.228299
ARSENIC	189.042	8	5	0.999686	122.1184	-0.527474
BARIUM	233.527	8	5	0.999985	3127.26	3.299126
BERYLLIUM	313.042	8	5	0.999775	33830.05	0.812768
CADMIUM	228.802	8	5	0.999832	3487.8	5.148639
CALCIUM	317.933	8	5	0.999988	1852.39	156.7564
CHROMIUM	267.716	8	5	0.999764	2725.644	13.99607
COBALT	228.616	8	5	0.99992	2636.562	4.164957
COPPER	324.754	8	5	0.999967	10946.5	129.8385
IRON	259.94	8	5	0.999998	399.7207	-2.49519
LEAD	220.353	8	5	0.999838	489.599	0.230029
MAGNESIUM	279.079	8	5	0.999999	171.4823	-1.000309
MANGANESE	257.61	8	5	0.999845	29771	20.10472
NICKEL	231.604	8	5	0.999858	914.7598	-0.168894
POTASSIUM	766.49	8	5	0.999967	293.2807	-55.71444
SELENIUM	196.09	8	5	0.999628	74.68308	-1.668257
SILVER	328.068	8	5	0.999751	9105.708	7.944724
SODIUM	589.592	8	5	0.999992	1182.863	-93.65057
THALLIUM	190.856	8	5	0.999791	60.03497	1.336335
VANADIUM	292.402	8	5	0.999991	744.3753	8.736507
ZINC	206.2	8	5	0.999789	1879.808	7.769427

## Calibration Type

8 = Linear Regression Forced through Blank

## Weightage

5 = None

INITIAL  
CALIBRATION

SDG:	L1239858	Calibration (begin) date/time:	07/18/20 06:25
Instrument ID:	ICP12	Calibration (end) date/time:	07/18/20 06:44
Analytical Method:	6010B	Analytical Run:	071820ICP12

Analyte	Wavelength	Cal. Type	Weightage	Corr.	Slope	Incpt
CALCIUM	373.69	8	5	0.999964	534.5439	9.547112
IRON	271.441	8	5	0.999924	34.74959	8.364583
SODIUM	818.326	8	5	0.999987	33.1121	75.7006

<b>Calibration Type</b>
8 = Linear Regression Forced through Blank
<b>Weightage</b>
5 = None





# INITIAL CALIBRATION

<b>SDG:</b>	L1239858	<b>Calibration (begin) date/time:</b>	08/01/20 07:54
<b>Instrument ID:</b>	ICP12	<b>Calibration (end) date/time:</b>	08/01/20 08:13
<b>Analytical Method:</b>	6010B	<b>Analytical Run:</b>	080120ICP12

Analyte	Wavelength	Cal. Type	Weightage	Corr.	Slope	Incpt
ALUMINUM	308.215	8	5	0.999951	77.72131	0.403172
ANTIMONY	206.833	8	5	0.999886	187.1189	0.983628
ARSENIC	189.042	8	5	0.999924	137.9151	-1.526585
BARIUM	233.527	8	5	0.999996	2725.584	3.821001
BERYLLIUM	313.042	8	5	0.999673	21331.45	3.1589
CADMIUM	228.802	8	5	0.999998	4347.604	6.655717
CALCIUM	317.933	8	5	0.999957	1143.888	64.59363
CHROMIUM	267.716	8	5	0.999978	5810.211	19.53689
COBALT	228.616	8	5	0.999986	2125.383	0.655643
COPPER	324.754	8	5	0.999992	7975.536	189.1636
IRON	259.94	8	5	0.999997	634.8655	2.616894
LEAD	220.353	8	5	0.999976	400.6987	-2.374395
MAGNESIUM	279.079	8	5	0.999999	105.02	-3.435052
MANGANESE	257.61	8	5	0.999777	19442.22	23.8625
NICKEL	231.604	8	5	0.999983	1019.339	-1.040488
POTASSIUM	766.49	8	5	0.999988	142.1491	-23.40889
SELENIUM	196.09	8	5	0.999942	117.7896	-0.599311
SILVER	328.068	8	5	0.999955	7169.429	1.135499
SODIUM	589.592	8	5	0.999976	661.4879	-35.47918
THALLIUM	190.856	8	5	0.999977	121.8806	-1.095229
VANADIUM	292.402	8	5	0.999969	514.5211	3.4459
ZINC	206.2	8	5	0.999988	2014.436	1.402044

## Calibration Type

8 = Linear Regression Forced through Blank

## Weightage

5 = None

INITIAL  
CALIBRATION

SDG:	L1239858	Calibration (begin) date/time:	08/01/20 07:54
Instrument ID:	ICP12	Calibration (end) date/time:	08/01/20 08:13
Analytical Method:	6010B	Analytical Run:	080120ICP12

Analyte	Wavelength	Cal. Type	Weightage	Corr.	Slope	Incpt
CALCIUM	373.69	8	5	0.999994	361.007	5.277023
IRON	271.441	8	5	0.999947	23.05241	8.314363
SODIUM	818.326	8	5	0.999992	20.54782	38.63241

<b>Calibration Type</b>
8 = Linear Regression Forced through Blank
<b>Weightage</b>
5 = None



## INITIAL CALIBRATION

<b>SDG:</b>	L1239858	<b>Calibration (begin) date/time:</b>	07/19/20 16:30
<b>Instrument ID:</b>	ICP13	<b>Calibration (end) date/time:</b>	07/19/20 16:50
<b>Analytical Method:</b>	6010B	<b>Analytical Run:</b>	071920ICP13

Analyte	Wavelength	Cal. Type	Weightage	Corr.	Slope	Incpt
ALUMINUM	308.215	8	5	0.999984	228.4059	10.12476
ANTIMONY	206.833	8	5	0.999255	478.4413	0.161104
ARSENIC	189.042	8	5	0.999499	396.4822	-0.687848
BARIUM	233.527	8	5	0.999993	9361.804	5.95018
BERYLLIUM	313.042	8	5	0.999911	79260.63	3.933721
CADMIUM	228.802	8	5	0.999557	13245.16	0.301577
CALCIUM	317.933	8	5	0.999995	1540.237	217.5535
CHROMIUM	267.716	8	5	0.99999	21887.86	-7.132709
COBALT	228.616	8	5	0.999927	8364.172	2.460009
COPPER	324.754	8	5	0.999858	27527.33	416.9442
IRON	259.94	8	5	0.999998	1240.187	-2.121245
LEAD	220.353	8	5	0.999809	1338.599	-2.268438
MAGNESIUM	279.079	8	5	0.999995	124.193	5.320277
MANGANESE	257.61	8	5	0.999983	88754.15	61.07636
NICKEL	231.604	8	5	0.999893	3817.29	-6.571406
POTASSIUM	766.49	8	5	0.999888	362.742	-93.73151
SELENIUM	196.09	8	5	0.998756	208.8069	-0.17395
SILVER	328.068	8	5	0.999578	27760.52	-6.533993
SODIUM	589.592	8	5	0.999988	1714.888	273.007
THALLIUM	190.856	8	5	0.999711	451.7421	1.27023
VANADIUM	292.402	8	5	0.999987	1820.983	14.28479
ZINC	206.2	8	5	0.999839	7273.135	-3.212613

### Calibration Type

8 = Linear Regression Forced through Blank

### Weightage

5 = None

INITIAL  
CALIBRATION

SDG:	L1239858	Calibration (begin) date/time:	07/19/20 16:30
Instrument ID:	ICP13	Calibration (end) date/time:	07/19/20 16:50
Analytical Method:	6010B	Analytical Run:	071920ICP13

Analyte	Wavelength	Cal. Type	Weightage	Corr.	Slope	Incpt
CALCIUM	373.69	8	5	0.999977	879.2161	12.52677
IRON	271.441	8	5	0.999895	73.52793	7.213545
SODIUM	818.326	8	5	0.999995	53.20817	-79.04788

<b>Calibration Type</b>
8 = Linear Regression Forced through Blank
<b>Weightage</b>
5 = None



# INITIAL CALIBRATION

**SDG:** L1239858  
**Instrument ID:** ICP14  
**Analytical Method:** 6010B

**Calibration (begin) date/time:** 07/16/20 19:46  
**Calibration (end) date/time:** 07/16/20 20:05  
**Analytical Run:** 071620ICP14A

Analyte	Wavelength	Cal. Type	Weightage	Corr.	Slope	Incpt
ALUMINUM	308.215	8	5	0.999932	127.5195	5.935335
ANTIMONY	206.833	8	5	0.99944	342.9641	-1.185119
ARSENIC	189.042	8	5	0.999602	274.9511	-0.484912
BARIUM	233.527	8	5	0.999969	5827.547	2.652545
BERYLLIUM	313.042	8	5	0.99988	67931.59	5.804221
CADMIUM	228.802	8	5	0.999565	6531.405	3.453872
CALCIUM	317.933	8	5	0.999993	1742.159	157.9208
CHROMIUM	267.716	8	5	0.999958	4347.125	-6.915807
COBALT	228.616	8	5	0.999798	4657.749	-0.918242
COPPER	324.754	8	5	0.99986	13474.08	195.5022
IRON	259.94	8	5	0.999997	1015.21	4.644056
LEAD	220.353	8	5	0.99951	884.3173	-1.050478
MAGNESIUM	279.079	8	5	0.999975	171.8037	-5.280153
MANGANESE	257.61	8	5	0.999931	38109.17	0.883271
NICKEL	231.604	8	5	0.999683	2341.814	6.97709
POTASSIUM	766.49	8	5	0.999883	616.369	-77.68574
SELENIUM	196.09	8	5	0.999289	164.7415	1.216232
SILVER	328.068	8	5	0.999996	11622.35	-3.470442
SODIUM	589.592	8	5	0.999969	1767.282	229.9957
THALLIUM	190.856	8	5	0.999994	284.3986	-0.945701
VANADIUM	292.402	8	5	0.999988	1414.289	-1.053191
ZINC	206.2	8	5	0.999662	3332.538	1.633816

## Calibration Type

8 = Linear Regression Forced through Blank

## Weightage

5 = None

INITIAL  
CALIBRATION

SDG:	L1239858	Calibration (begin) date/time:	07/16/20 19:46
Instrument ID:	ICP14	Calibration (end) date/time:	07/16/20 20:05
Analytical Method:	6010B	Analytical Run:	071620ICP14A

Analyte	Wavelength	Cal. Type	Weightage	Corr.	Slope	Incpt
CALCIUM	373.69	8	5	0.999977	556.8372	28.17661
IRON	271.441	8	5	0.99994	86.62362	-1.842814
SODIUM	818.326	8	5	0.999973	114.5307	201.5025

<b>Calibration Type</b>
8 = Linear Regression Forced through Blank
<b>Weightage</b>
5 = None



# INITIAL CALIBRATION

**SDG:** L1239858  
**Instrument ID:** ICP14  
**Analytical Method:** 6010B

**Calibration (begin) date/time:** 07/21/20 01:12  
**Calibration (end) date/time:** 07/21/20 01:31  
**Analytical Run:** 072120ICP14

Analyte	Wavelength	Cal. Type	Weightage	Corr.	Slope	Incpt
ALUMINUM	308.215	8	5	0.999909	103.066	18.39956
ANTIMONY	206.833	8	5	0.999827	312.8747	-1.16004
ARSENIC	189.042	8	5	0.9999	237.1043	-0.251316
BARIUM	233.527	8	5	0.999976	5243.446	2.83324
BERYLLIUM	313.042	8	5	0.999989	42037.19	-10.88929
CADMIUM	228.802	8	5	0.999901	7264.26	6.069134
CALCIUM	317.933	8	5	0.999997	1412.013	132.5211
CHROMIUM	267.716	8	5	0.999996	3899.861	-7.671661
COBALT	228.616	8	5	0.999988	4195.228	-2.116003
COPPER	324.754	8	5	0.999972	11820.91	171.5105
IRON	259.94	8	5	0.999998	845.1596	4.798008
LEAD	220.353	8	5	0.999914	805.6097	-0.85192
MAGNESIUM	279.079	8	5	0.999996	143.893	-5.579392
MANGANESE	257.61	8	5	0.999993	34149.76	-1.148112
NICKEL	231.604	8	5	0.999969	2083.336	5.744493
POTASSIUM	766.49	8	5	0.999899	606.9597	-60.38888
SELENIUM	196.09	8	5	0.999732	103.3123	1.323432
SILVER	328.068	8	5	0.999787	11317.28	-90.75903
SODIUM	589.592	8	5	0.999988	1371.235	217.2416
THALLIUM	190.856	8	5	0.999858	255.378	-0.956936
VANADIUM	292.402	8	5	0.999997	1155.058	-1.303236
ZINC	206.2	8	5	0.999942	3109.519	2.196343

## Calibration Type

8 = Linear Regression Forced through Blank

## Weightage

5 = None



INITIAL  
CALIBRATION

SDG:	L1239858	Calibration (begin) date/time:	07/21/20 01:12
Instrument ID:	ICP14	Calibration (end) date/time:	07/21/20 01:31
Analytical Method:	6010B	Analytical Run:	072120ICP14

Analyte	Wavelength	Cal. Type	Weightage	Corr.	Slope	Incpt
CALCIUM	373.69	8	5	0.999934	448.1448	33.70441
IRON	271.441	8	5	0.999885	72.91724	-1.324219
SODIUM	818.326	8	5	0.999993	90.60814	222.3316

<b>Calibration Type</b>
8 = Linear Regression Forced through Blank
<b>Weightage</b>
5 = None

INITIAL  
CALIBRATION

SDG:	L1239858	Calibration (begin) date/time:	07/20/20 03:23
Instrument ID:	ICP14	Calibration (end) date/time:	07/20/20 03:42
Analytical Method:	6010B	Analytical Run:	072020ICP14

Analyte	Wavelength	Cal. Type	Weightage	Corr.	Slope	Incpt
MANGANESE	257.61	8	5	0.999961	37054.82	-0.914897

Calibration Type
8 = Linear Regression Forced through Blank
Weightage
5 = None



7470A Mercury

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-01	SDG:	L1239858
Client Sample ID:	ND2-SS-200-2	Collected Date/Time:	07/06/20 15:20
Lab File ID:	20200720181937	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/17/20 12:46
Analytical Batch:	WG1510845	Analysis Date/Time:	07/20/20 18:19
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	U		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-02	SDG:	L1239858
Client Sample ID:	ND2-SS-200-1	Collected Date/Time:	07/06/20 14:40
Lab File ID:	20200720182137	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/17/20 12:46
Analytical Batch:	WG1510845	Analysis Date/Time:	07/20/20 18:21
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	U		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-06	SDG:	L1239858
Client Sample ID:	ND2-DWT-100-1	Collected Date/Time:	07/06/20 14:30
Lab File ID:	20200716194626	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 08:39
Analytical Batch:	WG1509755	Analysis Date/Time:	07/16/20 19:46
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	U		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-07	SDG:	L1239858
Client Sample ID:	ND2-DWD-100-1	Collected Date/Time:	07/06/20 14:30
Lab File ID:	20200717091502	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 19:00
Analytical Batch:	WG1509757	Analysis Date/Time:	07/17/20 09:15
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30.0 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury,Dissolved	7439-97-6	U		0.000100	0.000200



SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-08	SDG:	L1239858
Client Sample ID:	ND2-DWT-100-2	Collected Date/Time:	07/06/20 14:30
Lab File ID:	20200716185519	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 08:39
Analytical Batch:	WG1509755	Analysis Date/Time:	07/16/20 18:55
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	U		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-09	SDG:	L1239858
Client Sample ID:	ND2-DWD-100-2	Collected Date/Time:	07/06/20 14:30
Lab File ID:	20200717092653	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 19:00
Analytical Batch:	WG1509757	Analysis Date/Time:	07/17/20 09:26
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30.0 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury,Dissolved	7439-97-6	U		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-10	SDG:	L1239858
Client Sample ID:	ND2-AWT-100-1	Collected Date/Time:	07/06/20 15:45
Lab File ID:	20200716201607	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 08:36
Analytical Batch:	WG1509756	Analysis Date/Time:	07/16/20 20:16
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	U		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-11	SDG:	L1239858
Client Sample ID:	ND2-AWD-100-1	Collected Date/Time:	07/06/20 15:45
Lab File ID:	20200717092852	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 19:00
Analytical Batch:	WG1509757	Analysis Date/Time:	07/17/20 09:28
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30.0 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury,Dissolved	7439-97-6	U		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-12	SDG:	L1239858
Client Sample ID:	ER-01	Collected Date/Time:	07/07/20 08:30
Lab File ID:	20200716201805	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 08:36
Analytical Batch:	WG1509756	Analysis Date/Time:	07/16/20 20:18
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	U		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-13	SDG:	L1239858
Client Sample ID:	ND2-AWT-102-1	Collected Date/Time:	07/07/20 09:00
Lab File ID:	20200716202003	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 08:36
Analytical Batch:	WG1509756	Analysis Date/Time:	07/16/20 20:20
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	U		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-14	SDG:	L1239858
Client Sample ID:	ND2-AWD-102-1	Collected Date/Time:	07/07/20 09:00
Lab File ID:	20200717093644	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 19:00
Analytical Batch:	WG1509757	Analysis Date/Time:	07/17/20 09:36
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30.0 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury,Dissolved	7439-97-6	U		0.000100	0.000200



SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-16	SDG:	L1239858
Client Sample ID:	ND2-SS-202-1	Collected Date/Time:	07/07/20 09:15
Lab File ID:	20200720182335	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/17/20 12:46
Analytical Batch:	WG1510845	Analysis Date/Time:	07/20/20 18:23
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	_____
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):	_____	Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	0.000562		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-17	SDG:	L1239858
Client Sample ID:	ND2-SS-202-2	Collected Date/Time:	07/07/20 09:40
Lab File ID:	20200720182534	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/17/20 12:46
Analytical Batch:	WG1510845	Analysis Date/Time:	07/20/20 18:25
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	U		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-18	SDG:	L1239858
Client Sample ID:	ND2-SS-OND-2	Collected Date/Time:	07/07/20 12:00
Lab File ID:	20200720182730	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/17/20 12:46
Analytical Batch:	WG1510845	Analysis Date/Time:	07/20/20 18:27
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	U		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-19	SDG:	L1239858
Client Sample ID:	ND2-SS-OND-1	Collected Date/Time:	07/07/20 11:20
Lab File ID:	20200720182927	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/17/20 12:46
Analytical Batch:	WG1510845	Analysis Date/Time:	07/20/20 18:29
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	U		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-20	SDG:	L1239858
Client Sample ID:	ND2-SS-ONDBKG-1	Collected Date/Time:	07/07/20 12:55
Lab File ID:	20200720183123	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/17/20 12:46
Analytical Batch:	WG1510845	Analysis Date/Time:	07/20/20 18:31
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	U		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550296-1	SDG:	L1239858
Client Sample ID:	BLANK	Collected Date/Time:	
Lab File ID:	20200716185125	Received Date/Time:	
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 08:38
Analytical Batch:	WG1509755	Analysis Date/Time:	07/16/20 18:51
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	U		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550299-1	SDG:	L1239858
Client Sample ID:	BLANK	Collected Date/Time:	
Lab File ID:	20200716194823	Received Date/Time:	
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 08:35
Analytical Batch:	WG1509756	Analysis Date/Time:	07/16/20 19:48
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	U		0.000100	0.000200



SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550452-1	SDG:	L1239858
Client Sample ID:	BLANK	Collected Date/Time:	
Lab File ID:	20200717091106	Received Date/Time:	
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 19:00
Analytical Batch:	WG1509757	Analysis Date/Time:	07/17/20 09:11
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30.0 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury,Dissolved	7439-97-6	U		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3551348-1	SDG:	L1239858
Client Sample ID:	BLANK	Collected Date/Time:	
Lab File ID:	20200720175955	Received Date/Time:	
Instrument ID:	CVAA5	Preparation Date/Time:	07/17/20 12:44
Analytical Batch:	WG1510845	Analysis Date/Time:	07/20/20 17:59
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	U		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550296-2	SDG:	L1239858
Client Sample ID:	LCS	Collected Date/Time:	
Lab File ID:	20200716185322	Received Date/Time:	
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 08:38
Analytical Batch:	WG1509755	Analysis Date/Time:	07/16/20 18:53
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	0.00280		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550299-2	SDG:	L1239858
Client Sample ID:	LCS	Collected Date/Time:	
Lab File ID:	20200716195021	Received Date/Time:	
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 08:35
Analytical Batch:	WG1509756	Analysis Date/Time:	07/16/20 19:50
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	0.00295		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550452-2	SDG:	L1239858
Client Sample ID:	LCS	Collected Date/Time:	
Lab File ID:	20200717091304	Received Date/Time:	
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 19:00
Analytical Batch:	WG1509757	Analysis Date/Time:	07/17/20 09:13
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30.0 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury,Dissolved	7439-97-6	0.00305		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3551348-2	SDG:	L1239858
Client Sample ID:	LCS	Collected Date/Time:	
Lab File ID:	20200720180153	Received Date/Time:	
Instrument ID:	CVAA5	Preparation Date/Time:	07/17/20 12:44
Analytical Batch:	WG1510845	Analysis Date/Time:	07/20/20 18:01
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	0.00315		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550296-3	SDG:	L1239858
Client Sample ID:	MS	Collected Date/Time:	07/06/20 14:30
Lab File ID:	20200716185719	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 08:39
Analytical Batch:	WG1509755	Analysis Date/Time:	07/16/20 18:57
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	0.00309		0.000100	0.000200



SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550299-3	SDG:	L1239858
Client Sample ID:	MS	Collected Date/Time:	07/10/20 16:45
Lab File ID:	20200716195418	Received Date/Time:	07/15/20 18:44
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 08:36
Analytical Batch:	WG1509756	Analysis Date/Time:	07/16/20 19:54
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	0.00232		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550299-5	SDG:	L1239858
Client Sample ID:	MS	Collected Date/Time:	07/10/20 16:45
Lab File ID:	20200716200415	Received Date/Time:	07/15/20 18:44
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 08:36
Analytical Batch:	WG1509756	Analysis Date/Time:	07/16/20 20:04
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	0.00311		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550452-3	SDG:	L1239858
Client Sample ID:	MS	Collected Date/Time:	07/06/20 14:30
Lab File ID:	20200717091702	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 19:00
Analytical Batch:	WG1509757	Analysis Date/Time:	07/17/20 09:17
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30.0 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury,Dissolved	7439-97-6	0.00323		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550452-5	SDG:	L1239858
Client Sample ID:	MS	Collected Date/Time:	07/10/20 10:50
Lab File ID:	20200717092258	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 19:00
Analytical Batch:	WG1509757	Analysis Date/Time:	07/17/20 09:22
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30.0 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury,Dissolved	7439-97-6	0.00327		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3551348-3	SDG:	L1239858
Client Sample ID:	MS	Collected Date/Time:	07/10/20 10:15
Lab File ID:	20200720180548	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/17/20 12:46
Analytical Batch:	WG1510845	Analysis Date/Time:	07/20/20 18:05
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	0.00298		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3551348-5	SDG:	L1239858
Client Sample ID:	MS	Collected Date/Time:	07/09/20 16:15
Lab File ID:	20200720181142	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/17/20 12:46
Analytical Batch:	WG1510845	Analysis Date/Time:	07/20/20 18:11
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	0.00200	J6	0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550296-4	SDG:	L1239858
Client Sample ID:	MSD	Collected Date/Time:	07/06/20 14:30
Lab File ID:	20200716185916	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 08:39
Analytical Batch:	WG1509755	Analysis Date/Time:	07/16/20 18:59
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	0.00291		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550299-4	SDG:	L1239858
Client Sample ID:	MSD	Collected Date/Time:	07/10/20 16:45
Lab File ID:	20200716195616	Received Date/Time:	07/15/20 18:44
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 08:36
Analytical Batch:	WG1509756	Analysis Date/Time:	07/16/20 19:56
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	0.00277		0.000100	0.000200



SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550299-6	SDG:	L1239858
Client Sample ID:	MSD	Collected Date/Time:	07/10/20 16:45
Lab File ID:	20200716200612	Received Date/Time:	07/15/20 18:44
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 08:36
Analytical Batch:	WG1509756	Analysis Date/Time:	07/16/20 20:06
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	_____
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):	_____	Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	0.00288		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550452-4	SDG:	L1239858
Client Sample ID:	MSD	Collected Date/Time:	07/06/20 14:30
Lab File ID:	20200717091900	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 19:00
Analytical Batch:	WG1509757	Analysis Date/Time:	07/17/20 09:19
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30.0 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury,Dissolved	7439-97-6	0.00327		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550452-6	SDG:	L1239858
Client Sample ID:	MSD	Collected Date/Time:	07/10/20 10:50
Lab File ID:	20200717092455	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/16/20 19:00
Analytical Batch:	WG1509757	Analysis Date/Time:	07/17/20 09:24
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30.0 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury,Dissolved	7439-97-6	0.00324		0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3551348-4	SDG:	L1239858
Client Sample ID:	MSD	Collected Date/Time:	07/10/20 10:15
Lab File ID:	20200720180744	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/17/20 12:46
Analytical Batch:	WG1510845	Analysis Date/Time:	07/20/20 18:07
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	0.00217	J3 J6	0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3551348-6	SDG:	L1239858
Client Sample ID:	MSD	Collected Date/Time:	07/09/20 16:15
Lab File ID:	20200720181740	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/17/20 12:46
Analytical Batch:	WG1510845	Analysis Date/Time:	07/20/20 18:17
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	0.00524	J3	0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3551348-7	SDG:	L1239858
Client Sample ID:	PS	Collected Date/Time:	07/10/20 10:15
Lab File ID:	20200720191039	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/17/20 12:46
Analytical Batch:	WG1510845	Analysis Date/Time:	07/20/20 19:10
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	0.00374	O1	0.000100	0.000200

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3551348-8	SDG:	L1239858
Client Sample ID:	PS	Collected Date/Time:	07/09/20 16:15
Lab File ID:	20200720191238	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA5	Preparation Date/Time:	07/17/20 12:46
Analytical Batch:	WG1510845	Analysis Date/Time:	07/20/20 19:12
Dilution Factor:	1	Prep Method:	7470A
Analytical Method:	7470A	Sample Vol Used:	
Matrix:	GW	Initial Wt/Vol:	30 mL
Total Solids (%):		Final Wt/Vol:	30.0 mL

Analyte	CAS	Result <i>mg/l</i>	Qualifier	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6	0.00587	O1	0.000100	0.000200

SDG:	L1239858	Calibration (begin) date/time:	07/16/20 16:13
Instrument ID:	CVAA5	Calibration (end) date/time:	07/16/20 16:25
Analytical Method:	7470A	Analytical Run:	071620CVAA5 WB
Concentration Units:	mg/l		

Analyte	Sample ID:	ICV				ICVLL				CCVLL			
		CVAA50716201641				CVAA50716201649				CVAA50716201802			
		True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD
MERCURY		0.0050	0.0050532	101	0.593000	0.0002	0.0002128	106	0.057100	0.0002	0.0002272	114	0.283000



SDG:	L1239858	Calibration (begin) date/time:	07/16/20 16:13
Instrument ID:	CVAA5	Calibration (end) date/time:	07/16/20 16:25
Analytical Method:	7470A	Analytical Run:	071620CVAA5 WB
Concentration Units:	mg/l		

Analyte	Sample ID:	CCV				CCV				CCVLL			
		CVAA50716201847				CVAA50716201911-2				CVAA50716201915			
		True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD
MERCURY		0.0050	0.0049365	98.70	1.730000	0.0050	0.004950	99	0.476000	0.0002	0.0002177	109	0.533000

SDG:	L1239858	Calibration (begin) date/time:	07/16/20 16:13
Instrument ID:	CVAA5	Calibration (end) date/time:	07/16/20 16:25
Analytical Method:	7470A	Analytical Run:	071620CVAA5 WB
Concentration Units:	mg/l		

Analyte	Sample ID:	CCV				CCV				CCV			
		CVAA50716201936				CVAA50716202000				CVAA50716202023			
		True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD
MERCURY	0.0050	0.0050466	101	1.030000	0.0050	0.0049476	99	1.430000	0.0050	0.0049354	98.70	0.932000	

SDG:	L1239858	Calibration (begin) date/time:	07/16/20 16:13
Instrument ID:	CVAA5	Calibration (end) date/time:	07/16/20 16:25
Analytical Method:	7470A	Analytical Run:	071620CVAA5 WB
Concentration Units:	mg/l		

CCVLL				
Sample ID: CVAA50716202027				
Analyte	True	Found	%R	%RSD
MERCURY	0.0002	0.0002151	108	0.370000

SDG:	L1239858	Calibration (begin) date/time:	07/17/20 07:59
Instrument ID:	CVAA5	Calibration (end) date/time:	07/17/20 08:11
Analytical Method:	7470A	Analytical Run:	071720CVAA5 W
Concentration Units:	mg/l		

Analyte	Sample ID:	ICV				ICVLL				CCV			
		CVAA50717200814-2				CVAA50717200822-2				CVAA50717200907-2			
		True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD
MERCURY		0.0050	0.0048651	97.30	1.520000	0.0002	0.0002175	109	0.720000	0.0050	0.0048794	97.60	0.189000

SDG:	L1239858	Calibration (begin) date/time:	07/17/20 07:59
Instrument ID:	CVAA5	Calibration (end) date/time:	07/17/20 08:11
Analytical Method:	7470A	Analytical Run:	071720CVAA5 W
Concentration Units:	mg/l		

Analyte	Sample ID:	CCV				CCVLL				CCV			
		CVAA50717200930				CVAA50717200934-2				CVAA50717200956			
		True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD
MERCURY		0.0050	0.004966	99.30	0.289000	0.0002	0.0002223	111	1.770000	0.0050	0.0049491	99	1.640000

SDG:	L1239858	Calibration (begin) date/time:	07/17/20 07:59
Instrument ID:	CVAA5	Calibration (end) date/time:	07/17/20 08:11
Analytical Method:	7470A	Analytical Run:	071720CVAA5 W
Concentration Units:	mg/l		

CCVLL				
Sample ID: CVAA50717201047				
Analyte	True	Found	%R	%RSD
MERCURY	0.0002	0.0001566	78.30	0.777000

SDG:	L1239858	Calibration (begin) date/time:	07/20/20 16:46
Instrument ID:	CVAA5	Calibration (end) date/time:	07/20/20 16:57
Analytical Method:	7470A	Analytical Run:	072020CVAA5 WB
Concentration Units:	mg/l		

Analyte	Sample ID:	ICV				ICVLL				CCV			
		CVAA50720201716				CVAA50720201723				CVAA50720201745			
		True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD
MERCURY		0.0050	0.0048695	97.40	0.572000	0.0002	0.0001725	86.30	1.050000	0.0050	0.0051861	104	0.667000

SDG:	L1239858	Calibration (begin) date/time:	07/20/20 16:46
Instrument ID:	CVAA5	Calibration (end) date/time:	07/20/20 16:57
Analytical Method:	7470A	Analytical Run:	072020CVAA5 WB
Concentration Units:	mg/l		

Analyte	Sample ID:	CCV				CCV				CCVLL			
		CVAA50720201813				CVAA50720201837				CVAA50720201841			
		True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD
MERCURY		0.0050	0.0048708	97.40	0.461000	0.0050	0.0050316	101	0.419000	0.0002	0.0001927	96.40	1.090000



SDG:	L1239858	Calibration (begin) date/time:	07/20/20 16:46
Instrument ID:	CVAA5	Calibration (end) date/time:	07/20/20 16:57
Analytical Method:	7470A	Analytical Run:	072020CVAA5 WB
Concentration Units:	mg/l		

Analyte	Sample ID:	CCV				CCV				CCVLL			
		CVAA50720201902				CVAA50720201926				CVAA50720201936			
		True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD
MERCURY		0.0050	0.0048532	97.10	0.980000	0.0050	0.0050491	101	0.505000	0.0002	0.0001741	87.10	0.239000

SDG:	L1239858	Calibration (begin) date/time:	07/16/20 16:13
Instrument ID:	CVAA5	Calibration (end) date/time:	07/16/20 16:25
Analytical Method:	7470A	Analytical Run:	071620CVAA5 WB

	Sample ID:	ICB Result	ICB Qual	CCB Result	CCB Qual	BLANK Result	BLANK Qual	CCB Result	CCB Qual
	File ID:	20200716164340		20200716184924		20200716185125		20200716191303-2	
Analyte		mg/l		mg/l		mg/l		mg/l	
MERCURY		-0.0000001000	U	-0.000008000	U	U		-0.00002690	U

SDG:	L1239858	Calibration (begin) date/time:	07/16/20 16:13
Instrument ID:	CVAA5	Calibration (end) date/time:	07/16/20 16:25
Analytical Method:	7470A	Analytical Run:	071620CVAA5 WB

	Sample ID:	CCB Result	CCB Qual	BLANK Result	BLANK Qual	CCB Result	CCB Qual	CCB Result	CCB Qual
	File ID:	20200716193830		20200716194823		20200716200213		20200716202555	
Analyte		mg/l		mg/l		mg/l		mg/l	
MERCURY		-0.00001600	U	U		-0.00002770	U	-0.00003880	U

SDG:	L1239858	Calibration (begin) date/time:	07/17/20 07:59
Instrument ID:	CVAA5	Calibration (end) date/time:	07/17/20 08:11
Analytical Method:	7470A	Analytical Run:	071720CVAA5 W

	Sample ID:	ICB Result	ICB Qual	CCB Result	CCB Qual	CCB Result	CCB Qual	CCB Result	CCB Qual
	File ID:	20200717081604-2		20200717090905-2		20200717093246		20200717095815	
Analyte		mg/l		mg/l		mg/l		mg/l	
MERCURY		-0.000006500	U	-0.000006300	U	-0.00002410	U	-0.00001380	U

SDG:	L1239858	Calibration (begin) date/time:	07/17/20 07:59
Instrument ID:	CVAA5	Calibration (end) date/time:	07/17/20 08:11
Analytical Method:	7470A	Analytical Run:	071720CVAA5 W

	Sample ID: BLANK	Result	BLANK Qual
	File ID:	20200717091106	
Analyte		mg/l	
MERCURY		U	

SDG:	L1239858	Calibration (begin) date/time:	07/20/20 16:46
Instrument ID:	CVAA5	Calibration (end) date/time:	07/20/20 16:57
Analytical Method:	7470A	Analytical Run:	072020CVAA5 WB

	Sample ID:	ICB Result	ICB Qual	CCB Result	CCB Qual	BLANK Result	BLANK Qual	CCB Result	CCB Qual
	File ID:	20200720171802		20200720175203		20200720175955		20200720181539	
Analyte		mg/l		mg/l		mg/l		mg/l	
MERCURY		0.00001010	U	0.00001410	U	U		-0.00004570	U

SDG:	L1239858	Calibration (begin) date/time:	07/20/20 16:46
Instrument ID:	CVAA5	Calibration (end) date/time:	07/20/20 16:57
Analytical Method:	7470A	Analytical Run:	072020CVAA5 WB

	Sample ID:	CCB Result	CCB Qual	CCB Result	CCB Qual	CCB Result	CCB Qual
	File ID:	20200720183909		20200720190444		20200720192821	
Analyte		mg/l		mg/l		mg/l	
MERCURY		-0.000004300	U	0.000005400	U	-0.00001070	U

MATRIX SPIKE /  
MATRIX SPIKE DUPLICATE RECOVERY  
L1239858-06,08

MS Sample / File ID:	R3550296-3 / 20200716185719	SDG:	L1239858
MSD Sample / File ID:	R3550296-4 / 20200716185916	Analytical Batch:	WG1509755
OS Sample / File ID:	L1239858-08 / 20200716185519	Matrix:	GW
Instrument ID:	CVAA5		
Analytical Method:	7470A		

Analyte	Spike Amount <i>mg/l</i>	OS Result <i>mg/l</i>	MS Result <i>mg/l</i>	MSD Result <i>mg/l</i>	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	RPD %	RPD Limits %
Mercury	0.00300	U	0.00309	0.00291	103	97.1	1	75.0 - 125	5.83	20

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.



MATRIX SPIKE /  
MATRIX SPIKE DUPLICATE RECOVERY  
L1239858-10,12,13

MS Sample / File ID:	R3550299-3 / 20200716195418	SDG:	L1239858
MSD Sample / File ID:	R3550299-4 / 20200716195616	Analytical Batch:	WG1509756
OS Sample / File ID:	L1239882-05 / 20200716195218	Matrix:	GW
Instrument ID:	CVAA5		
Analytical Method:	7470A		

Analyte	Spike Amount <i>mg/l</i>	OS Result <i>mg/l</i>	MS Result <i>mg/l</i>	MSD Result <i>mg/l</i>	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	RPD %	RPD Limits %
Mercury	0.00300	U	0.00232	0.00277	77.5	92.2	1	75.0 - 125	17.4	20

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

MATRIX SPIKE /  
MATRIX SPIKE DUPLICATE RECOVERY  
L1239858-10,12,13

<b>MS Sample / File ID:</b>	R3550299-5 / 20200716200415	<b>SDG:</b>	L1239858
<b>MSD Sample / File ID:</b>	R3550299-6 / 20200716200612	<b>Analytical Batch:</b>	WG1509756
<b>OS Sample / File ID:</b>	L1239882-06 / 20200716195816	<b>Matrix:</b>	GW
<b>Instrument ID:</b>	CVAA5		
<b>Analytical Method:</b>	7470A		

Analyte	Spike Amount <i>mg/l</i>	OS Result <i>mg/l</i>	MS Result <i>mg/l</i>	MSD Result <i>mg/l</i>	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	RPD %	RPD Limits %
Mercury	0.00300	U	0.00311	0.00288	104	96.1	1	75.0 - 125	7.72	20

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

MATRIX SPIKE /  
MATRIX SPIKE DUPLICATE RECOVERY  
L1239858-07,09,11,14

MS Sample / File ID:	R3550452-3 / 20200717091702	SDG:	L1239858
MSD Sample / File ID:	R3550452-4 / 20200717091900	Analytical Batch:	WG1509757
OS Sample / File ID:	L1239858-07 / 20200717091502	Matrix:	GW
Instrument ID:	CVAA5		
Analytical Method:	7470A		

Analyte	Spike Amount <i>mg/l</i>	OS Result <i>mg/l</i>	MS Result <i>mg/l</i>	MSD Result <i>mg/l</i>	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	RPD %	RPD Limits %
Mercury,Dissolved	0.00300	U	0.00323	0.00327	108	109	1	75.0 - 125	1.29	20

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

MATRIX SPIKE /  
MATRIX SPIKE DUPLICATE RECOVERY  
L1239858-07,09,11,14

MS Sample / File ID:	R3550452-5 / 20200717092258	SDG:	L1239858
MSD Sample / File ID:	R3550452-6 / 20200717092455	Analytical Batch:	WG1509757
OS Sample / File ID:	L1239886-13 / 20200717092059	Matrix:	GW
Instrument ID:	CVAA5		
Analytical Method:	7470A		

Analyte	Spike Amount <i>mg/l</i>	OS Result <i>mg/l</i>	MS Result <i>mg/l</i>	MSD Result <i>mg/l</i>	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	RPD %	RPD Limits %
Mercury,Dissolved	0.00300	U	0.00327	0.00324	109	108	1	75.0 - 125	0.918	20

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

MATRIX SPIKE /  
MATRIX SPIKE DUPLICATE RECOVERY  
L1239858-01,02,16,17,18,19,20

MS Sample / File ID:	R3551348-3 / 20200720180548	SDG:	L1239858
MSD Sample / File ID:	R3551348-4 / 20200720180744	Analytical Batch:	WG1510845
OS Sample / File ID:	L1239886-02 / 20200720180349	Matrix:	GW
Instrument ID:	CVAA5		
Analytical Method:	7470A		

Analyte	Spike Amount <i>mg/l</i>	OS Result <i>mg/l</i>	MS Result <i>mg/l</i>	MSD Result <i>mg/l</i>	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	RPD %	RPD Limits %
Mercury	0.00300	U	0.00298	0.00217	99.3	72.4*	1	75.0 - 125	31.4*	20

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

MATRIX SPIKE /  
MATRIX SPIKE DUPLICATE RECOVERY  
L1239858-01,02,16,17,18,19,20

MS Sample / File ID:	R3551348-5 / 20200720181142	SDG:	L1239858
MSD Sample / File ID:	R3551348-6 / 20200720181740	Analytical Batch:	WG1510845
OS Sample / File ID:	L1239889-01 / 20200720180943	Matrix:	GW
Instrument ID:	CVAA5		
Analytical Method:	7470A		

Analyte	Spike Amount <i>mg/l</i>	OS Result <i>mg/l</i>	MS Result <i>mg/l</i>	MSD Result <i>mg/l</i>	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	RPD %	RPD Limits %
Mercury	0.00300	0.00153	0.00200	0.00524	15.7*	123	1	75.0 - 125	89.3*	20

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

POST-DIGESTION / DISTILLATION SPIKE  
SAMPLE RECOVERY  
L1239858-01,02,16,17,18,19,20

PS Sample / File ID:	R3551348-7 / 20200720191039	SDG:	L1239858
OS Sample / File ID:	L1239886-02 / 20200720180349	Analytical Batch:	WG1510845
Instrument ID:	CVAA5	Dilution Factor:	1
Analytical Method:	7470A	Matrix:	GW

Analyte	Spike Amount <i>mg/l</i>	OS Result <i>mg/l</i>	PD Result <i>mg/l</i>	DS Result	PD Rec. <i>%</i>	DS Rec. <i>%</i>	Dilution	Rec. Limits <i>%</i>	RPD <i>mg/l</i>	RPD Limits <i>mg/l</i>
Mercury	0.00300	U	0.00374		125*		1	80.0 - 120	*	

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

POST-DIGESTION / DISTILLATION SPIKE  
SAMPLE RECOVERY  
L1239858-01,02,16,17,18,19,20

PS Sample / File ID:	R3551348-8 / 20200720191238	SDG:	L1239858
OS Sample / File ID:	L1239889-01 / 20200720180943	Analytical Batch:	WG1510845
Instrument ID:	CVAA5	Dilution Factor:	1
Analytical Method:	7470A	Matrix:	GW

Analyte	Spike Amount <i>mg/l</i>	OS Result <i>mg/l</i>	PD Result <i>mg/l</i>	DS Result	PD Rec. <i>%</i>	DS Rec. <i>%</i>	Dilution	Rec. Limits <i>%</i>	RPD <i>mg/l</i>	RPD Limits <i>mg/l</i>
Mercury	0.00300	0.00153	0.00587		145*		1	80.0 - 120	*	

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.



LABORATORY CONTROL SAMPLE  
LABORATORY CONTROL SAMPLE DUPLICATE  
RECOVERY  
L1239858-06,08

LCS Sample / File ID:	R3550296-2 / 20200716185322	SDG:	L1239858
LCSD Sample / File ID:		Analytical Batch:	WG1509755
Instrument ID:	CVAA5	Dilution Factor:	1
Analytical Method:	7470A	Matrix:	GW

Analyte	Spike Amount <i>mg/l</i>	LCS Result <i>mg/l</i>	LCSD Result	LCS Rec. %	LCSD Rec. %	Rec. Limits %	RPD %	RPD Limits %
Mercury	0.00300	0.00280		93.4		80.0 - 120		

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

LABORATORY CONTROL SAMPLE  
LABORATORY CONTROL SAMPLE DUPLICATE  
RECOVERY  
L1239858-10,12,13

LCS Sample / File ID:	R3550299-2 / 20200716195021	SDG:	L1239858
LCSD Sample / File ID:		Analytical Batch:	WG1509756
Instrument ID:	CVAA5	Dilution Factor:	1
Analytical Method:	7470A	Matrix:	GW

Analyte	Spike Amount <i>mg/l</i>	LCS Result <i>mg/l</i>	LCSD Result	LCS Rec. %	LCSD Rec. %	Rec. Limits %	RPD %	RPD Limits %
Mercury	0.00300	0.00295		98.5		80.0 - 120		

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

LABORATORY CONTROL SAMPLE  
LABORATORY CONTROL SAMPLE DUPLICATE  
RECOVERY  
L1239858-07,09,11,14

LCS Sample / File ID:	R3550452-2 / 20200717091304	SDG:	L1239858
LCSD Sample / File ID:		Analytical Batch:	WG1509757
Instrument ID:	CVAA5	Dilution Factor:	1
Analytical Method:	7470A	Matrix:	GW

Analyte	Spike Amount <i>mg/l</i>	LCS Result <i>mg/l</i>	LCSD Result	LCS Rec. %	LCSD Rec. %	Rec. Limits %	RPD %	RPD Limits %
Mercury,Dissolved	0.00300	0.00305		102		80.0 - 120		

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

LABORATORY CONTROL SAMPLE  
LABORATORY CONTROL SAMPLE DUPLICATE  
RECOVERY  
L1239858-01,02,16,17,18,19,20

LCS Sample / File ID:	R3551348-2 / 20200720180153	SDG:	L1239858
LCSD Sample / File ID:		Analytical Batch:	WG1510845
Instrument ID:	CVAA5	Dilution Factor:	1
Analytical Method:	7470A	Matrix:	GW

Analyte	Spike Amount <i>mg/l</i>	LCS Result <i>mg/l</i>	LCSD Result	LCS Rec. %	LCSD Rec. %	Rec. Limits %	RPD %	RPD Limits %
Mercury	0.00300	0.00315		105		80.0 - 120		

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

Lab Sample IDs:	L1239858-01,02,06,07,08,09,10,11,12,13,14,16,17,18,19,20	Analytical Method:	7470A
Matrix:	GW	Prep Method:	7470A

Analyte	CAS	Wavelength	Mass	MDL <i>mg/l</i>	RDL <i>mg/l</i>
Mercury	7439-97-6		253.70	0.0001	0.0002
Mercury,Dissolved	7439-97-6		253.70	0.0001	0.0002

<b>SDG:</b>	L1239858	<b>Analytical Method:</b>	7470A
<b>Instrument ID:</b>	CVAA5	<b>Date:</b>	01/19/17 08:54

<b>Analyte</b>	<b>LDR</b> <i>ppm</i>
MERCURY	0.01



12-IN

## ANALYSIS LOG

<b>SDG:</b>	L1239858	<b>Analytical Method:</b>	7470A
<b>Instrument ID:</b>	CVAA5	<b>Calibration Start Date:</b>	07/16/20 16:13
<b>Analytical Run:</b>	071620CVAA5 WB	<b>Calibration End Date:</b>	07/16/20 16:25

Client Sample ID	Lab Sample ID	File ID	Analysis Date Time	Dilution	Batch
CAL	CAL BLANK	20200716161338	07/16/20 16:13		
CAL	STD1	20200716161536	07/16/20 16:15		
CAL	STD2	20200716161733	07/16/20 16:17		
CAL	STD3	20200716161930	07/16/20 16:19		
CAL	STD4	20200716162126	07/16/20 16:21		
CAL	STD5	20200716162322	07/16/20 16:23		
CAL	STD6	20200716162520	07/16/20 16:25		
ICV	CVAA50716201641	20200716164142	07/16/20 16:41		
ICB	CVAA50716201643	20200716164340	07/16/20 16:43		
ICVLL	CVAA50716201649	20200716164939	07/16/20 16:49		
CCVLL	CVAA50716201802	20200716180219	07/16/20 18:02		
CCV	CVAA50716201847	20200716184727	07/16/20 18:47		
CCB	CVAA50716201849	20200716184924	07/16/20 18:49		
BLANK	R3550296-1	20200716185125	07/16/20 18:51	1	WG1509755
LCS	R3550296-2	20200716185322	07/16/20 18:53	1	WG1509755
ND2-DWT-100-2	L1239858-08	20200716185519	07/16/20 18:55	1	WG1509755
MS	R3550296-3	20200716185719	07/16/20 18:57	1	WG1509755
MSD	R3550296-4	20200716185916	07/16/20 18:59	1	WG1509755
L1239818-02	L1239818-02	20200716190115	07/16/20 19:01	1	WG1509755
L1239818-03	L1239818-03	20200716190315	07/16/20 19:03	1	WG1509755
L1239818-04	L1239818-04	20200716190512	07/16/20 19:05	1	WG1509755
L1239818-05	L1239818-05	20200716190710	07/16/20 19:07	1	WG1509755
L1239818-06	L1239818-06	20200716190908	07/16/20 19:09	1	WG1509755
CCV	CVAA50716201911-2	20200716191107-2	07/16/20 19:11		
CCB	CVAA50716201913-2	20200716191303-2	07/16/20 19:13		
CCVLL	CVAA50716201915	20200716191505	07/16/20 19:15		
CCV	CVAA50716201936	20200716193633	07/16/20 19:36		
CCB	CVAA50716201938	20200716193830	07/16/20 19:38		
L1239818-17	L1239818-17	20200716194032	07/16/20 19:40	1	WG1509755
ND2-DWT-100-1	L1239858-06	20200716194626	07/16/20 19:46	1	WG1509755
BLANK	R3550299-1	20200716194823	07/16/20 19:48	1	WG1509756
LCS	R3550299-2	20200716195021	07/16/20 19:50	1	WG1509756
OS	L1239882-05	20200716195218	07/16/20 19:52		
L1239882-05	L1239882-05	20200716195218	07/16/20 19:52	1	WG1509756
MS	R3550299-3	20200716195418	07/16/20 19:54	1	WG1509756
MSD	R3550299-4	20200716195616	07/16/20 19:56	1	WG1509756
OS	L1239882-06	20200716195816	07/16/20 19:58		
L1239882-06	L1239882-06	20200716195816	07/16/20 19:58	1	WG1509756
CCV	CVAA50716202000	20200716200016	07/16/20 20:00		
CCB	CVAA50716202002	20200716200213	07/16/20 20:02		
MS	R3550299-5	20200716200415	07/16/20 20:04	1	WG1509756
MSD	R3550299-6	20200716200612	07/16/20 20:06	1	WG1509756
L1239687-01	L1239687-01	20200716200813	07/16/20 20:08	1	WG1509756
L1239704-02	L1239704-02	20200716201014	07/16/20 20:10	1	WG1509756
L1239704-03	L1239704-03	20200716201212	07/16/20 20:12	1	WG1509756
L1239704-05	L1239704-05	20200716201410	07/16/20 20:14	1	WG1509756
ND2-AWT-100-1	L1239858-10	20200716201607	07/16/20 20:16	1	WG1509756
ER-01	L1239858-12	20200716201805	07/16/20 20:18	1	WG1509756
ND2-AWT-102-1	L1239858-13	20200716202003	07/16/20 20:20	1	WG1509756
L1239882-07	L1239882-07	20200716202200	07/16/20 20:22	1	WG1509756
CCV	CVAA50716202023	20200716202358	07/16/20 20:23		

<b>SDG:</b>	L1239858	<b>Analytical Method:</b>	7470A		
<b>Instrument ID:</b>	CVAA5	<b>Calibration Start Date:</b>	07/16/20 16:13		
<b>Analytical Run:</b>	071620CVAA5 WB	<b>Calibration End Date:</b>	07/16/20 16:25		
<b>Client Sample ID</b>	<b>Lab Sample ID</b>	<b>File ID</b>	<b>Analysis Date Time</b>	<b>Dilution</b>	<b>Batch</b>
CCB	CVAA50716202025	20200716202555	07/16/20 20:25		
CCVLL	CVAA50716202027	20200716202756	07/16/20 20:27		





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## ANALYSIS LOG

<b>SDG:</b>	L1239858	<b>Analytical Method:</b>	7470A
<b>Instrument ID:</b>	CVAA5	<b>Calibration Start Date:</b>	07/17/20 07:59
<b>Analytical Run:</b>	071720CVAA5 W	<b>Calibration End Date:</b>	07/17/20 08:11

Client Sample ID	Lab Sample ID	File ID	Analysis Date Time	Dilution	Batch
ICV	CVAA50717200814-2	20200717081405-2	07/17/20 08:14		
ICB	CVAA50717200816-2	20200717081604-2	07/17/20 08:16		
ICVLL	CVAA50717200822-2	20200717082202-2	07/17/20 08:22		
CCV	CVAA50717200907-2	20200717090708-2	07/17/20 09:07		
CCB	CVAA50717200909-2	20200717090905-2	07/17/20 09:09		
BLANK	R3550452-1	20200717091106	07/17/20 09:11	1	WG1509757
LCS	R3550452-2	20200717091304	07/17/20 09:13	1	WG1509757
ND2-DWD-100-1	L1239858-07	20200717091502	07/17/20 09:15	1	WG1509757
MS	R3550452-3	20200717091702	07/17/20 09:17	1	WG1509757
MSD	R3550452-4	20200717091900	07/17/20 09:19	1	WG1509757
OS	L1239886-13	20200717092059	07/17/20 09:20		
L1239886-13	L1239886-13	20200717092059	07/17/20 09:20	1	WG1509757
MS	R3550452-5	20200717092258	07/17/20 09:22	1	WG1509757
MSD	R3550452-6	20200717092455	07/17/20 09:24	1	WG1509757
ND2-DWD-100-2	L1239858-09	20200717092653	07/17/20 09:26	1	WG1509757
ND2-AWD-100-1	L1239858-11	20200717092852	07/17/20 09:28	1	WG1509757
CCV	CVAA50717200930	20200717093050	07/17/20 09:30		
CCB	CVAA50717200932	20200717093246	07/17/20 09:32		
CCVLL	CVAA50717200934-2	20200717093447-2	07/17/20 09:34		
ND2-AWD-102-1	L1239858-14	20200717093644	07/17/20 09:36	1	WG1509757
L1239884-03	L1239884-03	20200717093841	07/17/20 09:38	1	WG1509757
L1239884-05	L1239884-05	20200717094038	07/17/20 09:40	1	WG1509757
L1239884-12	L1239884-12	20200717094236	07/17/20 09:42	1	WG1509757
L1239885-02	L1239885-02	20200717094434	07/17/20 09:44	1	WG1509757
L1239885-04	L1239885-04	20200717094632	07/17/20 09:46	1	WG1509757
L1239885-06	L1239885-06	20200717094830	07/17/20 09:48	1	WG1509757
L1239886-15	L1239886-15	20200717095027	07/17/20 09:50	1	WG1509757
L1239886-17	L1239886-17	20200717095224	07/17/20 09:52	1	WG1509757
L1239889-07	L1239889-07	20200717095421	07/17/20 09:54	1	WG1509757
CCV	CVAA50717200956	20200717095618	07/17/20 09:56		
CCB	CVAA50717200958	20200717095815	07/17/20 09:58		
CCVLL	CVAA50717201047	20200717104726	07/17/20 10:47		



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## ANALYSIS LOG

<b>SDG:</b>	L1239858	<b>Analytical Method:</b>	7470A
<b>Instrument ID:</b>	CVAA5	<b>Calibration Start Date:</b>	07/20/20 16:46
<b>Analytical Run:</b>	072020CVAA5 WB	<b>Calibration End Date:</b>	07/20/20 16:57

Client Sample ID	Lab Sample ID	File ID	Analysis Date Time	Dilution	Batch
CAL	CAL BLANK	20200720164618	07/20/20 16:46		
CAL	STD1	20200720164816	07/20/20 16:48		
CAL	STD2	20200720165013	07/20/20 16:50		
CAL	STD3	20200720165210	07/20/20 16:52		
CAL	STD4	20200720165406	07/20/20 16:54		
CAL	STD5	20200720165602	07/20/20 16:56		
CAL	STD6	20200720165759	07/20/20 16:57		
ICV	CVAA50720201716	20200720171604	07/20/20 17:16		
ICB	CVAA50720201718	20200720171802	07/20/20 17:18		
ICVLL	CVAA50720201723	20200720172359	07/20/20 17:23		
CCV	CVAA50720201745	20200720174531	07/20/20 17:45		
CCB	CVAA50720201752	20200720175203	07/20/20 17:52		
OS	L1239971-02	20200720175401	07/20/20 17:54		
L1239971-02	L1239971-02	20200720175401	07/20/20 17:54	1	WG1511756
MS	R3551347-3	20200720175559	07/20/20 17:55	1	WG1511756
MSD	R3551347-4	20200720175757	07/20/20 17:57	1	WG1511756
BLANK	R3551348-1	20200720175955	07/20/20 17:59	1	WG1510845
LCS	R3551348-2	20200720180153	07/20/20 18:01	1	WG1510845
OS	L1239886-02	20200720180349	07/20/20 18:03		
L1239886-02	L1239886-02	20200720180349	07/20/20 18:03	1	WG1510845
MS	R3551348-3	20200720180548	07/20/20 18:05	1	WG1510845
MSD	R3551348-4	20200720180744	07/20/20 18:07	1	WG1510845
OS	L1239889-01	20200720180943	07/20/20 18:09		
L1239889-01	L1239889-01	20200720180943	07/20/20 18:09	1	WG1510845
MS	R3551348-5	20200720181142	07/20/20 18:11	1	WG1510845
CCV	CVAA50720201813	20200720181341	07/20/20 18:13		
CCB	CVAA50720201815	20200720181539	07/20/20 18:15		
MSD	R3551348-6	20200720181740	07/20/20 18:17	1	WG1510845
ND2-SS-200-2	L1239858-01	20200720181937	07/20/20 18:19	1	WG1510845
ND2-SS-200-1	L1239858-02	20200720182137	07/20/20 18:21	1	WG1510845
ND2-SS-202-1	L1239858-16	20200720182335	07/20/20 18:23	1	WG1510845
ND2-SS-202-2	L1239858-17	20200720182534	07/20/20 18:25	1	WG1510845
ND2-SS-OND-2	L1239858-18	20200720182730	07/20/20 18:27	1	WG1510845
ND2-SS-OND-1	L1239858-19	20200720182927	07/20/20 18:29	1	WG1510845
ND2-SS-ONDBKG-1	L1239858-20	20200720183123	07/20/20 18:31	1	WG1510845
L1239882-02	L1239882-02	20200720183320	07/20/20 18:33	1	WG1510845
L1239884-07	L1239884-07	20200720183516	07/20/20 18:35	1	WG1510845
CCV	CVAA50720201837	20200720183712	07/20/20 18:37		
CCB	CVAA50720201839	20200720183909	07/20/20 18:39		
CCVLL	CVAA50720201841	20200720184110	07/20/20 18:41		
CCV	CVAA50720201902	20200720190247	07/20/20 19:02		
CCB	CVAA50720201904	20200720190444	07/20/20 19:04		
L1239977-02	L1239977-02	20200720190645	07/20/20 19:06	1	WG1511731
PS	R3551346-5	20200720190841	07/20/20 19:08	1	WG1511754
PS	R3551348-7	20200720191039	07/20/20 19:10	1	WG1510845
PS	R3551348-8	20200720191238	07/20/20 19:12	1	WG1510845
L1239977-04	L1239977-04	20200720191437	07/20/20 19:14	1	WG1511731
L1239977-06	L1239977-06	20200720191637	07/20/20 19:16	1	WG1511731
L1239985-01	L1239985-01	20200720191834	07/20/20 19:18	1	WG1511731
L1240075-01	L1240075-01	20200720192031	07/20/20 19:20	1	WG1511731
L1240214-02	L1240214-02	20200720192228	07/20/20 19:22	1	WG1511731

<b>SDG:</b>	L1239858	<b>Analytical Method:</b>	7470A
<b>Instrument ID:</b>	CVAA5	<b>Calibration Start Date:</b>	07/20/20 16:46
<b>Analytical Run:</b>	072020CVAA5 WB	<b>Calibration End Date:</b>	07/20/20 16:57

Client Sample ID	Lab Sample ID	File ID	Analysis Date Time	Dilution	Batch
L1240275-02	L1240275-02	20200720192427	07/20/20 19:24	1	WG1511731
CCV	CVAA50720201926	20200720192624	07/20/20 19:26		
CCB	CVAA50720201928	20200720192821	07/20/20 19:28		
CCVLL	CVAA50720201936	20200720193618	07/20/20 19:36		

SDG:	L1239858	Calibration (begin) date/time:	07/16/20 16:13
Instrument ID:	CVAA5	Calibration (end) date/time:	07/16/20 16:25
Analytical Method:	7470A	Analytical Run:	071620CVAA5 WB

Analyte	Std Conc	Result	Rec.	Std Conc	Result	Rec.
	PPB	PPB	%	PPB	PPB	%
MERCURY	0	.012843402		0.20	.223930005	112
File ID:		20200716161338			20200716161536	

SDG:	L1239858	Calibration (begin) date/time:	07/16/20 16:13
Instrument ID:	CVAA5	Calibration (end) date/time:	07/16/20 16:25
Analytical Method:	7470A	Analytical Run:	071620CVAA5 WB

Analyte	Std Conc	Result	Rec.	Std Conc	Result	Rec.
	PPB	PPB	%	PPB	PPB	%
MERCURY	0.40	.396871532	99.20	1	.961831036	96.20
File ID:		20200716161733			20200716161930	

SDG:	L1239858	Calibration (begin) date/time:	07/16/20 16:13
Instrument ID:	CVAA5	Calibration (end) date/time:	07/16/20 16:25
Analytical Method:	7470A	Analytical Run:	071620CVAA5 WB

Analyte	Std Conc	Result	Rec.	Std Conc	Result	Rec.
	PPB	PPB	%	PPB	PPB	%
MERCURY	2	1.984531452	99.20	5	4.961393802	99.20
File ID:		20200716162126			20200716162322	

SDG:	L1239858	Calibration (begin) date/time:	07/16/20 16:13
Instrument ID:	CVAA5	Calibration (end) date/time:	07/16/20 16:25
Analytical Method:	7470A	Analytical Run:	071620CVAA5 WB

Analyte	Std Conc PPB	Result PPB	Rec. %
MERCURY	10	10.025410378	100
File ID:		20200716162520	

SDG:	L1239858	Calibration (begin) date/time:	07/17/20 07:59
Instrument ID:	CVAA5	Calibration (end) date/time:	07/17/20 08:11
Analytical Method:	7470A	Analytical Run:	071720CVAA5 W

Analyte	Std Conc PPB	Result PPB	Rec. %	Std Conc PPB	Result PPB	Rec. %
MERCURY	0	.033212082		0.20	.210357487	105
File ID:		20200717075918			20200717080117	



SDG:	L1239858	Calibration (begin) date/time:	07/17/20 07:59
Instrument ID:	CVAA5	Calibration (end) date/time:	07/17/20 08:11
Analytical Method:	7470A	Analytical Run:	071720CVAA5 W

Analyte	Std Conc	Result	Rec.	Std Conc	Result	Rec.
	PPB	PPB	%	PPB	PPB	%
MERCURY	0.40	.415088894	104	1	.939493383	93.90
File ID:		20200717080315			20200717080511	

SDG:	L1239858	Calibration (begin) date/time:	07/17/20 07:59
Instrument ID:	CVAA5	Calibration (end) date/time:	07/17/20 08:11
Analytical Method:	7470A	Analytical Run:	071720CVAA5 W

Analyte	Std Conc	Result	Rec.	Std Conc	Result	Rec.
	PPB	PPB	%	PPB	PPB	%
MERCURY	2	1.943948397	97.20	10	10.027458336	100
File ID:		20200717080707			20200717081102	

SDG:	L1239858	Calibration (begin) date/time:	07/20/20 16:46
Instrument ID:	CVAA5	Calibration (end) date/time:	07/20/20 16:57
Analytical Method:	7470A	Analytical Run:	072020CVAA5 WB

Analyte	Std Conc	Result	Rec.	Std Conc	Result	Rec.
	PPB	PPB	%	PPB	PPB	%
MERCURY	0	.012881743		0.20	.175748327	87.90
File ID:		20200720164618			20200720164816	

SDG:	L1239858	Calibration (begin) date/time:	07/20/20 16:46
Instrument ID:	CVAA5	Calibration (end) date/time:	07/20/20 16:57
Analytical Method:	7470A	Analytical Run:	072020CVAA5 WB

Analyte	Std Conc	Result	Rec.	Std Conc	Result	Rec.
	PPB	PPB	%	PPB	PPB	%
MERCURY	0.40	.408765277	102	1	.922628972	92.30
File ID:		20200720165013			20200720165210	

SDG:	L1239858	Calibration (begin) date/time:	07/20/20 16:46
Instrument ID:	CVAA5	Calibration (end) date/time:	07/20/20 16:57
Analytical Method:	7470A	Analytical Run:	072020CVAA5 WB

Analyte	Std Conc	Result	Rec.	Std Conc	Result	Rec.
	PPB	PPB	%	PPB	PPB	%
MERCURY	2	1.917243427	95.90	5	5.225593555	105
File ID:		20200720165406			20200720165602	

SDG:	L1239858	Calibration (begin) date/time:	07/20/20 16:46
Instrument ID:	CVAA5	Calibration (end) date/time:	07/20/20 16:57
Analytical Method:	7470A	Analytical Run:	072020CVAA5 WB

Analyte	Std Conc PPB	Result PPB	Rec. %
MERCURY	10	9.904083349	99
File ID:		20200720165759	

INITIAL  
CALIBRATION

SDG:	L1239858	Calibration (begin) date/time:	07/16/20 16:13
Instrument ID:	CVAA5	Calibration (end) date/time:	07/16/20 16:25
Analytical Method:	7470A	Analytical Run:	071620CVAA5 WB

Analyte	Wavelength	Cal. Type	Weightage	Corr.	Slope	Incpt
MERCURY	253.7	0	5	0.999967	0.000258	0.026761
MERCURY	253.7	0	5	0.999967	0.000258	0.026761

Calibration Type
0 = Linear Regression
Weightage
5 = None

INITIAL  
CALIBRATION

SDG:	L1239858	Calibration (begin) date/time:	07/17/20 07:59
Instrument ID:	CVAA5	Calibration (end) date/time:	07/17/20 08:11
Analytical Method:	7470A	Analytical Run:	071720CVAA5 W

Analyte	Wavelength	Cal. Type	Weightage	Corr.	Slope	Incpt
MERCURY	253.7	0	5	0.999927	0.00027	0.03808

Calibration Type
0 = Linear Regression
Weightage
5 = None



INITIAL  
CALIBRATION

SDG:	L1239858	Calibration (begin) date/time:	07/20/20 16:46
Instrument ID:	CVAA5	Calibration (end) date/time:	07/20/20 16:57
Analytical Method:	7470A	Analytical Run:	072020CVAA5 WB

Analyte	Wavelength	Cal. Type	Weightage	Corr.	Slope	Incpt
MERCURY	253.7	0	5	0.999569	0.000245	0.036674

<b>Calibration Type</b>
0 = Linear Regression
<b>Weightage</b>
5 = None



7471A Mercury

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-03	SDG:	L1239858
Client Sample ID:	ND2-DP-100-1	Collected Date/Time:	07/06/20 16:30
Lab File ID:	20200717123849	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA7	Preparation Date/Time:	07/16/20 20:44
Analytical Batch:	WG1510525	Analysis Date/Time:	07/17/20 12:38
Dilution Factor:	1	Prep Method:	7471A
Analytical Method:	7471A	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.32 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Mercury	7439-97-6	U		0.0180	0.0400

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-04	SDG:	L1239858
Client Sample ID:	ND2-DP2-100-1	Collected Date/Time:	07/06/20 12:00
Lab File ID:	20200717125420	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA7	Preparation Date/Time:	07/16/20 20:44
Analytical Batch:	WG1510525	Analysis Date/Time:	07/17/20 12:54
Dilution Factor:	1	Prep Method:	7471A
Analytical Method:	7471A	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.32 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Mercury	7439-97-6	0.0200	J	0.0180	0.0400

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-05	SDG:	L1239858
Client Sample ID:	ND2-AP-100-1	Collected Date/Time:	07/06/20 16:45
Lab File ID:	20200717130159	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA7	Preparation Date/Time:	07/16/20 20:44
Analytical Batch:	WG1510525	Analysis Date/Time:	07/17/20 13:01
Dilution Factor:	1	Prep Method:	7471A
Analytical Method:	7471A	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.31 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Mercury	7439-97-6	U		0.0180	0.0400

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-15	SDG:	L1239858
Client Sample ID:	ND2-AP-102-1	Collected Date/Time:	07/07/20 09:15
Lab File ID:	20200717130435	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA7	Preparation Date/Time:	07/16/20 20:44
Analytical Batch:	WG1510525	Analysis Date/Time:	07/17/20 13:04
Dilution Factor:	1	Prep Method:	7471A
Analytical Method:	7471A	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.32 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Mercury	7439-97-6	U		0.0180	0.0400

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-21	SDG:	L1239858
Client Sample ID:	ND2-SS-OND-1	Collected Date/Time:	07/07/20 12:00
Lab File ID:	20200717130711	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA7	Preparation Date/Time:	07/16/20 20:44
Analytical Batch:	WG1510525	Analysis Date/Time:	07/17/20 13:07
Dilution Factor:	1	Prep Method:	7471A
Analytical Method:	7471A	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.30 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Mercury	7439-97-6	0.674		0.0180	0.0400

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-22	SDG:	L1239858
Client Sample ID:	ND2-SS-OND-2	Collected Date/Time:	07/07/20 11:20
Lab File ID:	20200717130946	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA7	Preparation Date/Time:	07/16/20 20:44
Analytical Batch:	WG1510525	Analysis Date/Time:	07/17/20 13:09
Dilution Factor:	1	Prep Method:	7471A
Analytical Method:	7471A	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.27 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Mercury	7439-97-6	0.606		0.0180	0.0400



SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	L1239858-23	SDG:	L1239858
Client Sample ID:	ND2-SS-ONDBKG-1	Collected Date/Time:	07/07/20 12:55
Lab File ID:	20200717131221	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA7	Preparation Date/Time:	07/16/20 20:44
Analytical Batch:	WG1510525	Analysis Date/Time:	07/17/20 13:12
Dilution Factor:	1	Prep Method:	7471A
Analytical Method:	7471A	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.29 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Mercury	7439-97-6	0.0289	J	0.0180	0.0400

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550537-1	SDG:	L1239858
Client Sample ID:	BLANK	Collected Date/Time:	
Lab File ID:	20200717123339	Received Date/Time:	
Instrument ID:	CVAA7	Preparation Date/Time:	07/16/20 20:43
Analytical Batch:	WG1510525	Analysis Date/Time:	07/17/20 12:33
Dilution Factor:	1	Prep Method:	7471A
Analytical Method:	7471A	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.30 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Mercury	7439-97-6	U		0.0180	0.0400

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550537-2	SDG:	L1239858
Client Sample ID:	LCS	Collected Date/Time:	
Lab File ID:	20200717123615	Received Date/Time:	
Instrument ID:	CVAA7	Preparation Date/Time:	07/16/20 20:43
Analytical Batch:	WG1510525	Analysis Date/Time:	07/17/20 12:36
Dilution Factor:	1	Prep Method:	7471A
Analytical Method:	7471A	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.30 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Mercury	7439-97-6	0.491		0.0180	0.0400

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550537-3	SDG:	L1239858
Client Sample ID:	MS	Collected Date/Time:	07/06/20 16:30
Lab File ID:	20200717124125	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA7	Preparation Date/Time:	07/16/20 20:43
Analytical Batch:	WG1510525	Analysis Date/Time:	07/17/20 12:41
Dilution Factor:	1	Prep Method:	7471A
Analytical Method:	7471A	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.31 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Mercury	7439-97-6	0.503		0.0180	0.0400

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550537-5	SDG:	L1239858
Client Sample ID:	MS	Collected Date/Time:	07/08/20 12:00
Lab File ID:	20200717124910	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA7	Preparation Date/Time:	07/16/20 20:43
Analytical Batch:	WG1510525	Analysis Date/Time:	07/17/20 12:49
Dilution Factor:	1	Prep Method:	7471A
Analytical Method:	7471A	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.31 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Mercury	7439-97-6	0.832	J6	0.0180	0.0400

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550537-4	SDG:	L1239858
Client Sample ID:	MSD	Collected Date/Time:	07/06/20 16:30
Lab File ID:	20200717124400	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA7	Preparation Date/Time:	07/16/20 20:43
Analytical Batch:	WG1510525	Analysis Date/Time:	07/17/20 12:44
Dilution Factor:	1	Prep Method:	7471A
Analytical Method:	7471A	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.33 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Mercury	7439-97-6	0.467		0.0180	0.0400

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550537-6	SDG:	L1239858
Client Sample ID:	MSD	Collected Date/Time:	07/08/20 12:00
Lab File ID:	20200717125144	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA7	Preparation Date/Time:	07/16/20 20:43
Analytical Batch:	WG1510525	Analysis Date/Time:	07/17/20 12:51
Dilution Factor:	1	Prep Method:	7471A
Analytical Method:	7471A	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.29 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Mercury	7439-97-6	1.00		0.0180	0.0400

SAMPLE RESULT SUMMARY  
INORGANIC ANALYSIS DATA SHEET

Lab Sample ID:	R3550537-7	SDG:	L1239858
Client Sample ID:	PS	Collected Date/Time:	07/08/20 12:00
Lab File ID:	20200717140851	Received Date/Time:	07/15/20 08:30
Instrument ID:	CVAA7	Preparation Date/Time:	07/16/20 20:44
Analytical Batch:	WG1510525	Analysis Date/Time:	07/17/20 14:08
Dilution Factor:	1	Prep Method:	7471A
Analytical Method:	7471A	Sample Vol Used:	
Matrix:	Solid	Initial Wt/Vol:	0.33 g
Total Solids (%):		Final Wt/Vol:	50 mL

Analyte	CAS	Result <i>mg/kg</i>	Qualifier	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Mercury	7439-97-6	0.783	O1	0.0180	0.0400



SDG:	L1239858	Calibration (begin) date/time:	07/17/20 07:39
Instrument ID:	CVAA7	Calibration (end) date/time:	07/17/20 07:52
Analytical Method:	7471A	Analytical Run:	071720CVAA7 S
Concentration Units:	mg/kg		

Analyte	Sample ID:	ICV				ICVLL				CCV			
		CVAA70717200801				CVAA70717200811				CVAA70717201226			
		True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD
MERCURY		0.0050	0.004793318	95.90	5.390000	0.0002	0.0002119338	106	3.050000	0.0050	0.004729776	94.60	2.250000

SDG:	L1239858	Calibration (begin) date/time:	07/17/20 07:39
Instrument ID:	CVAA7	Calibration (end) date/time:	07/17/20 07:52
Analytical Method:	7471A	Analytical Run:	071720CVAA7 S
Concentration Units:	mg/kg		

Analyte	Sample ID:	CCV				CCV				CCV			
		CVAA70717201256				CVAA70717201327				CVAA70717201358			
		True	Found	%R	%RSD	True	Found	%R	%RSD	True	Found	%R	%RSD
MERCURY		0.0050	0.00502957	101	1.390000	0.0050	0.00503666 6	101	0.815000	0.0050	0.00502700 4	101	1.540000

SDG:	L1239858	Calibration (begin) date/time:	07/17/20 07:39
Instrument ID:	CVAA7	Calibration (end) date/time:	07/17/20 07:52
Analytical Method:	7471A	Analytical Run:	071720CVAA7 S
Concentration Units:	mg/kg		

CCV				
Sample ID: CVAA70717201419				
Analyte	True	Found	%R	%RSD
MERCURY	0.0050	0.004986152	99.70	1.330000

SDG:	L1239858	Calibration (begin) date/time:	07/17/20 07:39
Instrument ID:	CVAA7	Calibration (end) date/time:	07/17/20 07:52
Analytical Method:	7471A	Analytical Run:	071720CVAA7 S

	Sample ID:	ICB Result	ICB Qual	CCB Result	CCB Qual	BLANK Result	BLANK Qual	CCB Result	CCB Qual
	File ID:	20200717080422		20200717122833		20200717123339		20200717125927	
Analyte		mg/kg		mg/kg		mg/kg		mg/kg	
MERCURY		0.00001135872	U	0.00001357662	U	U		0.00002436241	U

SDG:	L1239858	Calibration (begin) date/time:	07/17/20 07:39
Instrument ID:	CVAA7	Calibration (end) date/time:	07/17/20 07:52
Analytical Method:	7471A	Analytical Run:	071720CVAA7 S

	Sample ID:	CCB Result	CCB Qual	CCB Result	CCB Qual	CCB Result	CCB Qual
	File ID:	20200717133030		20200717140123		20200717142133	
Analyte		mg/kg		mg/kg		mg/kg	
MERCURY		0.00001801804	U	-0.000008860574	U	-0.000008439218	U

MATRIX SPIKE /  
MATRIX SPIKE DUPLICATE RECOVERY  
L1239858-03,04,05,15,21,22,23

MS Sample / File ID:	R3550537-3 / 20200717124125	SDG:	L1239858
MSD Sample / File ID:	R3550537-4 / 20200717124400	Analytical Batch:	WG1510525
OS Sample / File ID:	L1239858-03 / 20200717123849	Matrix:	Solid
Instrument ID:	CVAA7		
Analytical Method:	7471A		

Analyte	Spike Amount <i>mg/kg</i>	OS Result <i>mg/kg</i>	MS Result <i>mg/kg</i>	MSD Result <i>mg/kg</i>	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	RPD %	RPD Limits %
Mercury	0.500	U	0.503	0.467	101	93.4	1	75.0 - 125	7.47	20

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

MATRIX SPIKE /  
MATRIX SPIKE DUPLICATE RECOVERY  
L1239858-03,04,05,15,21,22,23

MS Sample / File ID:	R3550537-5 / 20200717124910	SDG:	L1239858
MSD Sample / File ID:	R3550537-6 / 20200717125144	Analytical Batch:	WG1510525
OS Sample / File ID:	L1239884-09 / 20200717124635	Matrix:	Solid
Instrument ID:	CVAA7		
Analytical Method:	7471A		

Analyte	Spike Amount <i>mg/kg</i>	OS Result <i>mg/kg</i>	MS Result <i>mg/kg</i>	MSD Result <i>mg/kg</i>	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	RPD %	RPD Limits %
Mercury	0.500	0.538	0.832	1.00	58.8*	92.3	1	75.0 - 125	18.3	20

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

POST-DIGESTION / DISTILLATION SPIKE  
SAMPLE RECOVERY  
L1239858-03,04,05,15,21,22,23

PS Sample / File ID:	R3550537-7 / 20200717140851	SDG:	L1239858
OS Sample / File ID:	L1239884-09 / 20200717124635	Analytical Batch:	WG1510525
Instrument ID:	CVAA7	Dilution Factor:	1
Analytical Method:	7471A	Matrix:	Solid

Analyte	Spike Amount <i>mg/kg</i>	OS Result <i>mg/kg</i>	PD Result <i>mg/kg</i>	DS Result	PD Rec. <i>%</i>	DS Rec. <i>%</i>	Dilution	Rec. Limits <i>%</i>	RPD <i>mg/kg</i>	RPD Limits <i>mg/kg</i>
Mercury	0.500	0.538	0.783		48.8*		1	80.0 - 120	*	

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.



LABORATORY CONTROL SAMPLE  
LABORATORY CONTROL SAMPLE DUPLICATE  
RECOVERY  
L1239858-03,04,05,15,21,22,23

LCS Sample / File ID:	R3550537-2 / 20200717123615	SDG:	L1239858
LCSD Sample / File ID:		Analytical Batch:	WG1510525
Instrument ID:	CVAA7	Dilution Factor:	1
Analytical Method:	7471A	Matrix:	Solid

Analyte	Spike Amount <i>mg/kg</i>	LCS Result <i>mg/kg</i>	LCSD Result	LCS Rec. %	LCSD Rec. %	Rec. Limits %	RPD %	RPD Limits %
Mercury	0.500	0.491		98.2		80.0 - 120		

\*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

Lab Sample IDs:	L1239858-03,04,05,15,21,22,23	Analytical Method:	7471A
Matrix:	Solid	Prep Method:	7471A

Analyte	CAS	Wavelength	Mass	MDL <i>mg/kg</i>	RDL <i>mg/kg</i>
Mercury	7439-97-6		253.70	0.0180	0.04

<b>SDG:</b>	L1239858	<b>Analytical Method:</b>	7471A
<b>Instrument ID:</b>	CVAA7	<b>Date:</b>	06/27/19 15:34

Analyte	LDR <i>ppm</i>
MERCURY	0.01



12-IN

## ANALYSIS LOG

<b>SDG:</b>	L1239858	<b>Analytical Method:</b>	7471A
<b>Instrument ID:</b>	CVAA7	<b>Calibration Start Date:</b>	07/17/20 07:39
<b>Analytical Run:</b>	071720CVAA7 S	<b>Calibration End Date:</b>	07/17/20 07:52

Client Sample ID	Lab Sample ID	File ID	Analysis Date Time	Dilution	Batch
CALBLK	CVAA70717200736	20200717073655	07/17/20 07:36		
CAL	STD 0.2	20200717073926	07/17/20 07:39		
CAL	STD 0.4	20200717074158	07/17/20 07:41		
CAL	STD 1.0	20200717074431	07/17/20 07:44		
CAL	STD 2.0	20200717074704	07/17/20 07:47		
CAL	STD 5.0	20200717074938	07/17/20 07:49		
CAL	STD 10.0	20200717075210	07/17/20 07:52		
ICV	CVAA70717200801	20200717080147	07/17/20 08:01		
ICB	CVAA70717200804	20200717080422	07/17/20 08:04		
ICVLL	CVAA70717200811	20200717081156	07/17/20 08:11		
CCV	CVAA70717201226	20200717122601	07/17/20 12:26		
CCB	CVAA70717201228	20200717122833	07/17/20 12:28		
L1239982-19	L1239982-19	20200717123105	07/17/20 12:31	1	WG1510532
BLANK	R3550537-1	20200717123339	07/17/20 12:33	1	WG1510525
LCS	R3550537-2	20200717123615	07/17/20 12:36	1	WG1510525
ND2-DP-100-1	L1239858-03	20200717123849	07/17/20 12:38	1	WG1510525
MS	R3550537-3	20200717124125	07/17/20 12:41	1	WG1510525
MSD	R3550537-4	20200717124400	07/17/20 12:44	1	WG1510525
OS	L1239884-09	20200717124635	07/17/20 12:46		
L1239884-09	L1239884-09	20200717124635	07/17/20 12:46	1	WG1510525
MS	R3550537-5	20200717124910	07/17/20 12:49	1	WG1510525
MSD	R3550537-6	20200717125144	07/17/20 12:51	1	WG1510525
ND2-DP2-100-1	L1239858-04	20200717125420	07/17/20 12:54	1	WG1510525
CCV	CVAA70717201256	20200717125655	07/17/20 12:56		
CCB	CVAA70717201259	20200717125927	07/17/20 12:59		
ND2-AP-100-1	L1239858-05	20200717130159	07/17/20 13:01	1	WG1510525
ND2-AP-102-1	L1239858-15	20200717130435	07/17/20 13:04	1	WG1510525
ND2-SS-OND-1	L1239858-21	20200717130711	07/17/20 13:07	1	WG1510525
ND2-SS-OND-2	L1239858-22	20200717130946	07/17/20 13:09	1	WG1510525
ND2-SS-ONDBKG-1	L1239858-23	20200717131221	07/17/20 13:12	1	WG1510525
L1239882-01	L1239882-01	20200717131456	07/17/20 13:14	1	WG1510525
L1239882-03	L1239882-03	20200717131732	07/17/20 13:17	1	WG1510525
L1239882-04	L1239882-04	20200717132008	07/17/20 13:20	1	WG1510525
L1239884-01	L1239884-01	20200717132244	07/17/20 13:22	1	WG1510525
L1239884-02	L1239884-02	20200717132520	07/17/20 13:25	1	WG1510525
CCV	CVAA70717201327	20200717132757	07/17/20 13:27		
CCB	CVAA70717201330	20200717133030	07/17/20 13:30		
CCV	CVAA70717201358	20200717135850	07/17/20 13:58		
CCB	CVAA70717201401	20200717140123	07/17/20 14:01		
PS	R3550489-5	20200717140617	07/17/20 14:06	1	WG1510527
PS	R3550537-7	20200717140851	07/17/20 14:08	1	WG1510525
L1239889-15	L1239889-15	20200717141354	07/17/20 14:13	20	WG1510527
L1239889-11	L1239889-11	20200717141627	07/17/20 14:16	2	WG1510527
CCV	CVAA70717201419	20200717141900	07/17/20 14:19		
CCB	CVAA70717201421	20200717142133	07/17/20 14:21		

SDG:	L1239858	Calibration (begin) date/time:	07/17/20 07:39
Instrument ID:	CVAA7	Calibration (end) date/time:	07/17/20 07:52
Analytical Method:	7471A	Analytical Run:	071720CVAA7 S

Analyte	Std Conc mg/kg	Result mg/kg	Rec. %	Std Conc mg/kg	Result mg/kg	Rec. %
MERCURY	0.0002	.0002138471	107	0.0004	.0004014407	100
File ID:		20200717073926			20200717074158	

SDG:	L1239858	Calibration (begin) date/time:	07/17/20 07:39
Instrument ID:	CVAA7	Calibration (end) date/time:	07/17/20 07:52
Analytical Method:	7471A	Analytical Run:	071720CVAA7 S

Analyte	Std Conc mg/kg	Result mg/kg	Rec. %	Std Conc mg/kg	Result mg/kg	Rec. %
MERCURY	0.0010	.001007319	101	0.0020	.00201061	101
File ID:		20200717074431			20200717074704	

SDG:	L1239858	Calibration (begin) date/time:	07/17/20 07:39
Instrument ID:	CVAA7	Calibration (end) date/time:	07/17/20 07:52
Analytical Method:	7471A	Analytical Run:	071720CVAA7 S

Analyte	Std Conc	Result	Rec.	Std Conc	Result	Rec.
	mg/kg	mg/kg	%	mg/kg	mg/kg	%
MERCURY	0.0050	.004925947	98.50	0.01	.01003384	100
File ID:		20200717074938			20200717075210	

INITIAL  
CALIBRATION

SDG:	L1239858	Calibration (begin) date/time:	07/17/20 07:39
Instrument ID:	CVAA7	Calibration (end) date/time:	07/17/20 07:52
Analytical Method:	7471A	Analytical Run:	071720CVAA7 S

Analyte	Wavelength	Cal. Type	Weightage	Corr.	Slope	Incpt
MERCURY	253.7	0	5	0.99995	17.38968	-0.000122

<b>Calibration Type</b>
0 = Linear Regression
<b>Weightage</b>
5 = None





## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

### Abbreviations and Definitions

Corr.	Correlation Coefficient.
Incpt	Intercept.
Mass	Mass of parameter.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Slope	Slope of calibration curve.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Wavelength	Wavelength of parameter.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.





Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

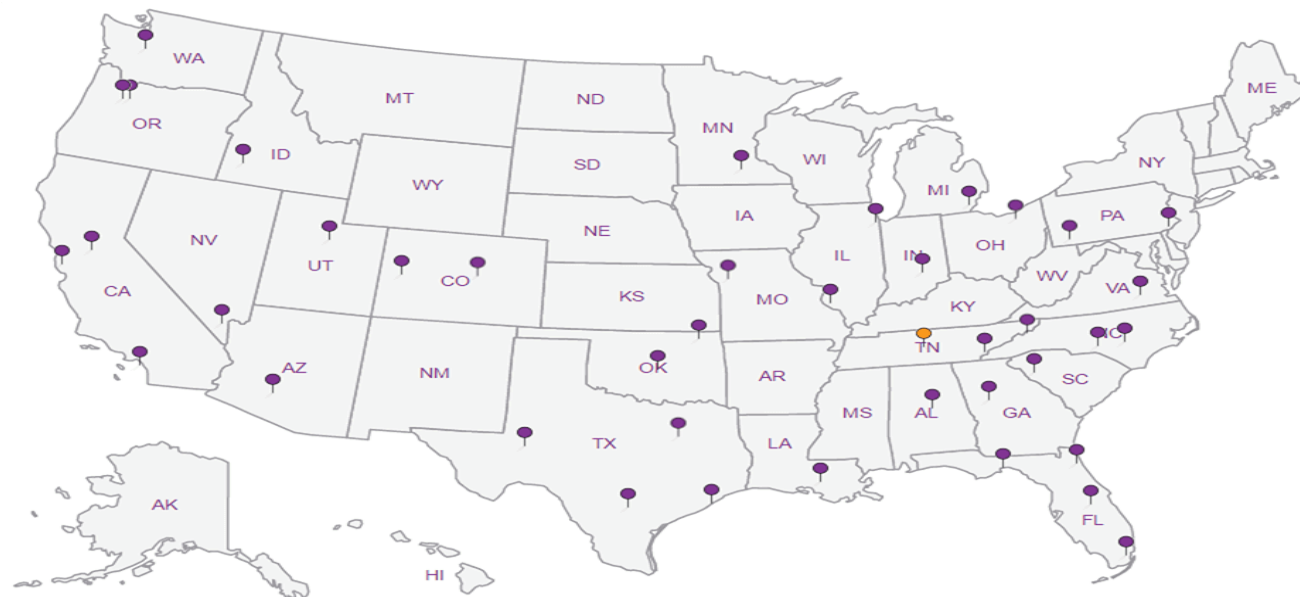
## Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

## Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.





## Applied Intellect

2801 Youngfield St., Ste 250  
Golden, CO 80401

Billing Information:

See N, Below

Pres  
Chk

Analysis / Container / Preservative

Chain of Custody Page \_\_\_\_ of \_\_\_\_

Report to:  
Jeff Hart; John DeAngelisEmail To:  
jeff.hart@ap-in.com; john.  
deangelis@ap-in.comProject  
Description: NEN DOMINIONCity/State  
Collected: Oshkosh, WIPhone: 720-884-7404  
Fax:Client Project #  
KW 200002

Lab Project #

Collected by (print):  
JEFF HART

Site/Facility ID #

P.O. #

Collected by (signature):  
Jeff Hart

Rush? (Lab MUST Be Notified)

☐ Same Day ☐ Five Day  
☐ Next Day ☐ 5 Day (Rad Only)  
☐ Two Day ☐ 10 Day (Rad Only)  
☐ Three Day

Quote #

Date Results Needed

Immediately  
Packed on ice N ☐ Y ☐No.  
of  
Cnts

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts	Diss. TAL Metals - 250ml HDPE w/HNO3	TAL Metals & Hardness - 250ml HDPE w/H+	SPLP TAL Metals - 8oz Soil jar	TAL Metals - 2oz Soil Jar	Remarks	Sample # (lab only)
ND2-SS-200-2	Comp	SS	0-0.5	7-6-20	15:20	1			X			-01
ND2-SS-200-1	Comp	SS	0-0.5	7-6-20	14:46	1			X			-02
ND2-DP-100-1	Grab	SED	NA	7-6-20	16:30	3				X	ms/msd	-03
ND2-DP2-160-1	Grab	SED		7-6-20	12:00	1			X			-04
ND2-AP-100-1	Grab	SED		7-6-20	16:45	1			X			-05
ND2-DWT-100-1	Grab	W		7-6-20	14:30	5		X				-06
ND2-DWD-100-1	Grab			7-6-20	14:30	38	X				ms/msd	-07
ND2-DWT-100-2	Grab			7-6-20	14:30	1	X				ms/msd	-08
ND2-DWD-100-2	Grab			7-6-20	14:30	1	X					-09
ND2-AWT-100-1	Grab			7-6-20	15:45	1	X					-10

\* Matrix:

SS - Soil AIR - Air F - Filter  
GW - Groundwater B - Bioassay  
WW - Waste Water  
DW - Drinking Water  
OT - Other

Remarks: Samples Hand-delivered to Pace Dist. Cent., Lehigh, CO

Samples returned via:

UPS FedEx Courier

Tracking # 1790 3033 6785

Relinquished by: (Signature)

Date: 7-14-20 Time: 1300

Received by: (Signature)

Trip Blank Received: Yes/No  
HCL / MeOH  
TBR

Relinquished by: (Signature)

Date: 7/14/20 Time: 1730

Received by: (Signature)

Temp: 11-15.0°C Bottles Received:

Relinquished by: (Signature)

Date: Time:

Received for lab by: (Signature)

Date: 7-15-20 Time: 0830

Sample Receipt Checklist

COC Seal Present/Intact: ☐ NP ☐ Y ☐ N

COC Signed/Accurate: ☐ Y ☐ N

Bottles arrive intact: ☐ Y ☐ N

Correct bottles used: ☐ Y ☐ N

Sufficient volume sent: ☐ Y ☐ N

If Applicable

VOA Zero Headspace: ☐ Y ☐ N

Preservation Correct/Checked: ☐ Y ☐ N

If preservation required by Login: Date/Time

Hold:

Condition:  
NCF / OK













## **Appendix C**

### **Laboratory Data Reports- Data Validation**

Applied Intellect, LLC, 2020

## **Appendix C -LABORATORY DATA VALIDATION REVIEW**

### **C.1. LABORATORY METHODS AND GENERAL QA/QC REVIEW**

Pace Analytical Laboratory (Pace) analyzed total analyte list (TAL) metals in all collected soil, precipitate, adit water, and synthetic precipitation leaching procedure (SPLP) soil samples by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES) USEPA Method 6010B and cold vapor technique USEPA Method 7471/7470 (mercury).

Preparation methods were as follows for each of the sampled media:

- Soil and precipitate digestion: USEPA Method 3050B
- Total adit water digestion: USEPA Method 3015A
- SPLP: USEPA Method 1312

Results from Pace were provided in a single Level III laboratory data package dated August 3, 2020 (see Appendix D). Results from Pace are used to estimate health-based risk to human health and ecological receptors and are quantitative in nature and requirement.

#### **C.1.1 Sample holding times**

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method-specified holding times.

#### **C.1.2 Initial and continuing calibration verification (Accuracy)**

All ICP-AES initial and continuing calibration verification recoveries were within control ranges ( $\pm 10\%$ )

#### **C.1.3 Laboratory Control Sample Recoveries (Accuracy)**

All laboratory control sample (LCS) recoveries for aqueous and solid matrices were within the QA/QC control range of 80-120%.

#### **C.1.4 Equipment Rinsate Analytical Results (Accuracy)**

All TAL metals results from the equipment rinsate samples were below laboratory method detection limits (MDLs), with the exception of iron and manganese, which were present at J-qualified/estimated concentrations below the reported detection limits (RDL).

### **C.2 SOIL AND PRECIPITATE QA/QC REVIEW**

#### **C.2.1 Detection Limits**

As noted in the Applied Intellect (AI) Field Sampling Plan/Quality Assurance Project Plan (AI, 2020), USEPA Method 6010B method detection limits (MDLs) exceeded project screening levels (PSLs) for the following analytes in soil:



- Antimony (PSL = 0.27 mg/kg, MDL = 0.5 mg/kg)

Laboratory-provided MDLs were corrected for dilution in the provided analytical results. With the exception of antimony, dilution did not result in MDLs that exceeded PSLs for non-detectable analytes.

### C.2.2. Matrix Spike/Matrix Spike Duplicate Recoveries and Relative Percent Difference (Accuracy, Precision, and Matrix Interference)

Field samples for matrix spike/matrix spike duplicate (MS/MSD) analysis were run for the following precipitate sample:

- ND2-DP-100-1

Concentrations of several TAL metals in the original field sample exceeded 4x the MS/MSD spike concentration, which interferes with accurate spike recoveries and relative percent difference (RPD) between MS and MSD recoveries. These analytes are flagged with a “V” qualifier in the laboratory data report and are listed in Table E-1, below. Out of control range MS/MSD recoveries for V-qualified analytes are a function of high concentrations in the original sample and do not, therefore, change the overall findings of this assessment.

**Table C-1. V-qualified MS/MSD recoveries, field sample ND2-DP-100-1**

Analyte	Spike Amt (mg/kg)	OS Result (mg/kg)	MS Result (mg/kg)	MSD Result (mg/kg)	MS Rec (%)	MSD Rec (%)	RPD (%)
Calcium	1000	8770	9750	9190	98.2	42	5.93
Iron	1000	144000	145000	130000	173	0	10.9
Manganese	20	8590	8630	8660	39.1	74.7	0.412
Zinc	100	434	506	528	71.9	93.8	4.23

Among non-V-qualified analytes, MS/MSD results for field sample ND2-DP-100-1 indicate lead had an MSD recovery of 74.3%, slightly outside of the 75-125% quality control range, indicating inaccuracy (see Table C-2).

**Table C-2. Non-V-qualified analytes out of MS/MSD and/or RPD control range, field sample ND2-DP-100-1**

Analyte	MS Rec (%)	MSD Rec (%)	RPD (%)
Antimony	75.2	74.3	12

Because the MS/MSD recovery for this analyte was only slightly out of established quality control ranges, it is not considered significant enough to change the findings of this assessment.

### C.2.3. Field Duplicate Samples (Precision)

Field duplicates were collected for the following soil and precipitate samples:

- ND2-SS-OND-1/ND2-SS-OND-2
- ND2-DP-100-1/ND2-DP2-100-1

The relative percent difference (RPD) for comparison of duplicate samples was calculated as follows:

$$\% RPD = \frac{\text{Difference of duplicate results}}{\text{Average of duplicate results}} * 100$$

When an analyte concentration was less than the MDL in one duplicate, the MDL for that duplicate was used to calculate the RPD. RPDs were not calculated for analytes that were below the MDL in both duplicates. RPDs < 30% are considered correlative for soils, given the inherent heterogeneity of this matrix.

Field duplicate samples with calculated RPDs > 30% are shown in Table C-3, below. Note that RPDs > 30% were not present for duplicate precipitate samples ND2-DP-100-1/ND2-DP2-100-1.

**Table C-3. Field duplicate soil samples with RPD > 30%**

Analyte	Sample ID	Result (mg/kg)	Qualifier	RPD (%)
Cadmium	ND2-SS-OND-1	0.266	J	152%
	ND2-SS-OND-2	1.99		
Zinc	ND2-SS-OND-1	84.9		126%
	ND2-SS-OND-2	376		

Cadmium concentrations in both duplicate samples were low (1.99 mg/kg and 0.266 mg/kg, respectively), and one of the samples was present at a concentration was below the reported detection limit (RDL) and could not, therefore, be quantified. For this reason, out of control range RPDs for cadmium in field duplicates are believed to be associated with the low measured concentration of cadmium and the inherent heterogeneity in the collected soil sample and are not expected to change the findings of this PA/SI.

Zinc concentrations in both duplicate soil samples were well above the MDL, with a duplicate RPD of 126%. While this result suggests imprecision in analytical results for zinc in soil, measured zinc concentrations in soil and precipitate were orders of magnitude lower than human-health based screening levels (SLs). Therefore, RPDs > 30% for this analyte are not expected to change the findings of this PA/SI, which did not identify human health SL exceedances for zinc.

Zinc was identified as a COPEC in this PA/SI, based on exceedances of ecological SLs. While RPDs > 30% in soil field duplicates indicates potential inaccuracies in analytical results for zinc, it was retained as a COPEC in order to preserve the most conservative scenario. Therefore, RPDs > 30% for this analyte in soil did not change the findings of this PA/SI.

### **C.3 ADIT WATER RESULTS - TAL METALS**

#### **C.3.1 Detection Limits**

As noted in the AI Field Sampling Plan/Quality Assurance Project Plan (AI, 2020), USEPA Method 6010B method detection limits (MDLs) exceeded project screening levels (PSLs) for the following analytes in water samples:

- Arsenic (PSL = 0.000052 mg/L, MDL = 0.0044 mg/L)
- Thallium (PSL = 0.0002 mg/L, MDL = 0.00431 mg/L)

Laboratory-provided MDLs were corrected for dilution in the provided analytical results. Adit water samples were not diluted; therefore, corrected MDLs were not required.

### C.3.2 Matrix Spike/Matrix Spike Duplicate Recoveries and Relative Percent Difference (Accuracy, Precision, and Matrix Interference)

Field samples for matrix spike/matrix spike duplicate (MS/MSD) analysis were run for the following adit water samples:

- ND2-DWD-100-1
- ND2-DWT-100-2

Concentrations of calcium in the adit water field samples submitted for MS/MSD analysis exceeded 4x the MS/MSD spike concentration, which interferes with accurate spike recoveries and relative percent difference (RPD) between MS and MSD recoveries. These analytes are flagged with a “V” qualifier in the laboratory data report and are listed in Table C-4, below. Out of control range MS/MSD recoveries and RPDs for V-qualified analytes are a function of high concentrations in the original sample and do not, therefore, change the overall findings of this assessment.

**Table C-4. V-qualified MS/MSD recoveries, field MS/MSD adit water samples**

Sample ID	Analyte	Spike Amt (mg/kg)	OS Result (mg/kg)	MS Result (mg/kg)	MSD Result (mg/kg)	MS Rec. (%)	MSD Rec. (%)	RPD (%)
ND2-DWD-100-1	Calcium, Dissolved	10	384	388	379	41	0	2.19
ND2-DWT-100-2	Calcium	10	382	386	386	45.3	38.5	0.176

Among non-V-qualified analytes, no MS/MSD recoveries were outside of quality control range for field adit water samples submitted for MS/MSD analysis (defined as 75-125%); therefore, matrix interference is not suspected for adit water samples. Additionally, RPDs > 20% were not identified between MS/MSD samples; therefore, imprecision is not suggested for adit water samples.

### C.2.3. Field Duplicate Samples (Precision)

Field duplicate samples were collected for the following adit water samples:

- ND2-DWD-100-1/ND2-DWD-100-2 (dissolved metals analysis)
- ND2-DWT-100-1/ND2-DWT-100-2 (total metal analysis)

The relative percent difference (RPD) for comparison of duplicate samples was calculated as follows:

$$\% RPD = \frac{\text{Difference of duplicate results}}{\text{Average of duplicate results}} * 100$$

When an analyte concentration was less than the MDL in one duplicate, the MDL for that duplicate was used to calculate the MDL. RPDs were not calculated for analytes that were below the MDL in both duplicates. RPDs < 20% are considered correlative for water samples. Field duplicate adit water samples with calculated RPDs > 20% are shown in Table C-5, below. Note that no RPDs > 20% were identified in duplicate adit water samples (ND2-DWD-100-1/ND2-DWD-100-2 (dissolved metals analysis)

**Table C-5. Field duplicate soil samples with RPD > 30%**

Analyte	Sample ID	Result (mg/L)	Qualifier	RPD (%)
Arsenic	ND2-DWT-100-1	0.00604	J	31.4%
	ND2-DWT-100-1	< 0.0044	U	
Iron	ND2-DWT-100-1	4.85		44.1%
	ND2-DWT-100-1	7.6		
Zinc	ND2-DWT-100-1	0.0313	J	61.4%
	ND2-DWT-100-1	0.0166	J	

Arsenic concentrations in both duplicate adit water samples were low (0.0064 mg/L (estimated) and <0.0044, respectively). Further, arsenic was present in one of the duplicate samples at an estimated concentration below the reported detection limit (RDL) and in the other duplicate sample at a concentration below the MDL. For this reason, out of control range RPDs for arsenic in adit water field duplicates are believed to be associated with the low concentrations of arsenic in adit water and are not expected to change the findings of this PA/SI.

Likewise, zinc concentrations in both duplicate adit water samples were low (0.0313 mg/L (estimated) and 0.0166 mg/L (estimated)), and both measured results were estimated due to being present at a concentration below the RDL. Based on the low, estimated concentrations of zinc in adit water, an RPD > 20% is not expected to change the findings of this PA/SI.

Iron concentrations were well above MDLs in both duplicate adit water samples and had an RPD of 44.1%. While this RPD exceeds the quality control range of 20% and suggests imprecision in analytical results for this analyte, measured concentrations of iron were either well below or well above established SLs. For instance, the highest measured concentration of iron in adit water was 54% of the Tapwater SL established by USEPA, while iron concentration in both duplicate adit water samples exceeded secondary maximum contaminant levels (SMCLs) established by USEPA by more than an order of magnitude. (An MCL has not been promulgated for iron, and there are no established ecological SLs for this analyte.) Based on measured concentrations of iron being well above or well below established SLs for the analyte, the degree of imprecision suggested by an RPD of 44.1% is not expected to change the findings of this PA/SI.

### C.3 SPLP SOIL RESULTS - TAL METALS

#### C.3.1 Detection Limits

As noted in the AI Field Sampling Plan/Quality Assurance Project Plan (AI, 2020), USEPA Method 6010B method detection limits (MDLs) exceeded project screening levels (PSLs) for the following analytes in aqueous samples:

- Arsenic (PSL = 0.000052 mg/L, MDL = 0.0044 mg/L)

- Thallium (PSL = 0.0002 mg/L, MDL = 0.00431 mg/L)

Laboratory-provided MDLs were corrected for dilution in the provided analytical results. SPLP soil samples were not diluted; therefore, corrected MDLs were not required.

### C.3.2 Matrix Spike/Matrix Spike Duplicate Recoveries and Relative Percent Difference (Accuracy, Precision, and Matrix Interference)

Field samples for matrix spike/matrix spike duplicate (MS/MSD) analysis were run for the following SPLP soil samples:

- ND2-SS-OND-1

None of the original sample results for field SPLP soil samples ND2-SS-OND-1 exceeded 4x the MS/MSD spike amount; therefore, no V-qualified analytes were identified. Additionally, no MS/MSD recoveries or RPDs between MS and MSD samples were outside of quality control range for field SPLP soil samples submitted for MS/MSD analysis (defined as 75-125% for MS/MSD recoveries and 20% for RPDs).

### C.2.3. Field Duplicate Samples (Precision)

Field duplicate samples were collected for the following SPLP soil samples:

- ND2-SS-OND-1/ND2-SS-OND-1

The relative percent difference (RPD) for comparison of duplicate samples was calculated as follows:

$$\% RPD = \frac{\text{Difference of duplicate results}}{\text{Average of duplicate results}} * 100$$

When an analyte concentration was less than the MDL in one duplicate, the MDL for that duplicate was used to calculate the MDL. RPDs were not calculated for analytes that were below the MDL in both duplicates. RPDs < 20% are considered correlative for aqueous samples. Field duplicate SPLP soil samples with calculated RPDs > 20% are shown in Table C-6, below.

**Table c6. Field duplicate SPLP soil samples with RPD > 30%**

Analyte	Sample ID	Result (mg/L)	Qualifier	RPD (%)
Aluminum	ND2-SS-OND-2	< 0.0704	U	57.3
	ND2-SS-OND-1	0.127	J	
Barium	ND2-SS-OND-2	0.0248		56.3
	ND2-SS-OND-1	0.0139		
Calcium	ND2-SS-OND-2	2.07		28.7
	ND2-SS-OND-1	1.55		
Iron	ND2-SS-OND-2	0.0633	J	122
	ND2-SS-OND-1	0.261		
Lead	ND2-SS-OND-2	0.016		158
	ND2-SS-OND-1	0.136		
Magnesium	ND2-SS-OND-2	0.552	J	95.6

	ND2-SS-OND-1	0.195	J	
Manganese	ND2-SS-OND-2	0.011		108
	ND2-SS-OND-1	< 0.00327	U	
Potassium	ND2-SS-OND-2	1.03	J	67.5
	ND2-SS-OND-1	< 0.51	U	
Sodium	ND2-SS-OND-2	6.39		133
	ND2-SS-OND-1	31.9		
Zinc	ND2-SS-OND-2	0.0109	J	80.5
	ND2-SS-OND-1	0.0256	J	

Concentrations of aluminum, magnesium, potassium, and zinc were below MDLs or were estimated concentrations below the RDL in one or both duplicates; based on the low concentrations of these analytes, RPDs > 20% are not expected to change the findings of this PA/SI.

Barium, calcium, iron, manganese, and sodium were either present in duplicate SPLP soil samples at concentrations more than an order of magnitude lower than 20x the USEPA Tapwater RSL established as an SL for SPLP samples, or no USEPA Tapwater RSL has been established for the analyte. For this reason, RPDs > 20% for these analytes are not expected to change the findings of this PA/SI.

Lead concentrations in duplicate SPLP soil samples ND2-SS-OND-1 and ND2-SS-OND-2 indicated an RPD of 158%. Based on the variation identified in measured concentration of this analyte between duplicate samples, the higher value (0.136 mg/L) was retained in a comparison of SPLP soil results with applicable regulatory SLs (20x USEPA Tapwater RSLs) to evaluate the most conservative scenario. Lead SPLP soil results in the duplicate sample with the higher measured concentration were less than 50% of 20x the USEPA Tapwater RSL; therefore the elevated RPD for this analyte is not expected to change the findings of this PA/SI.



## **Appendix D**

### **Waste Pile Volume Estimates**

Applied Intellect, LLC, 2020

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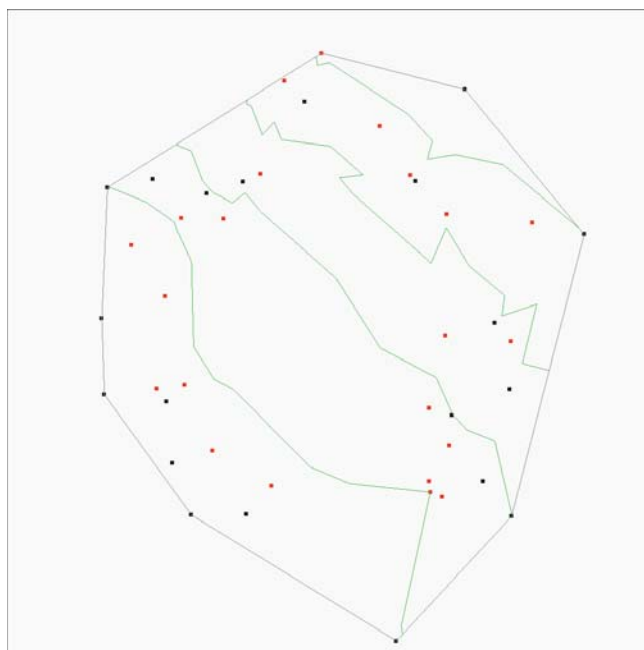
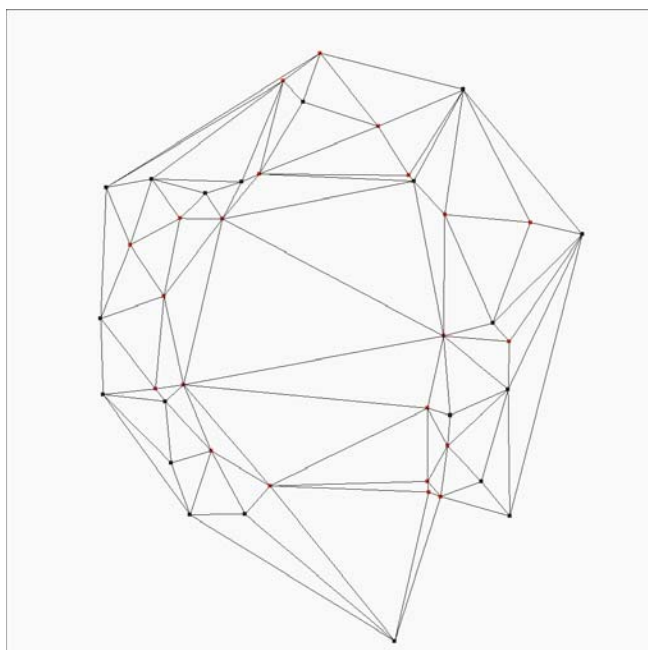
Weight: 0.00 pounds

Material type:

Method: Volume with Azimuth

Units: Feet

Note:





in				e
1	0.00	0.00	0.00	Origin
2	15.22	-23.00	-0.91	Base
3	-14.80	-5.15	-1.15	Base
4	-28.97	28.77	0.14	Base
5	2.56	-37.58	-1.03	Pile
6	-25.64	-37.88	-0.97	Pile
7	-35.26	-11.39	-1.74	Pile
8	-38.28	20.18	-0.47	Pile
9	-24.06	47.83	-3.05	Traverse
10	-43.34	26.64	-16.40	Base
11	-38.97	74.09	-6.08	Base
12	-70.02	23.70	-11.99	Pile
13	-71.32	62.73	-5.75	Pile
14	-23.19	103.07	6.27	Traverse
15	-56.23	100.29	-10.29	Base
16	-30.86	113.94	5.87	Base
17	-68.47	129.74	3.35	Pile
18	-45.15	134.08	11.07	Pile
19	6.57	118.95	25.50	Traverse
20	-9.07	113.72	15.71	Base
21	9.79	136.66	29.63	Base
22	0.67	132.52	34.14	Pile
23	-17.66	126.64	22.02	Pile
24	32.27	162.59	51.00	Traverse
25	22.01	184.29	55.00	Base
26	40.92	198.62	65.41	Base
27	32.09	173.70	59.55	Pile
28	78.81	124.08	46.51	Traverse
29	70.49	161.00	53.88	Base
30	86.23	135.95	50.41	Base
31	104.57	115.96	45.35	Base
32	114.08	179.87	83.99	Pile
33	88.68	132.94	57.53	Pile
34	113.05	58.58	32.76	Traverse
35	148.36	111.92	48.39	Base
36	137.66	50.82	33.55	Base
37	174.88	105.68	62.92	Pile
38	129.10	60.32	42.13	Pile
39	89.96	19.06	20.73	Traverse
40	103.96	53.71	31.59	Base
41	106.05	-2.60	17.25	Base
42	102.52	-28.49	13.29	Base

in				e
43	136.99	26.43	40.02	Pile
44	85.89	-1.87	12.67	Traverse
45	95.77	16.63	17.88	Base
46	96.37	-26.20	3.69	Base
47	107.34	13.09	23.43	Pile
48	137.84	-38.65	23.36	Pile
49	82.71	-26.69	5.26	Traverse
50	95.86	-20.65	8.33	Base
51	123.24	-20.78	11.05	Pile
52	47.77	-30.49	1.41	Traverse
53	79.05	-102.43	2.53	Pile
54	100.27	-76.61	1.26	Traverse

**File name:** nd□□□.ms4d

Volume: 1962.98 yd<sup>3</sup>

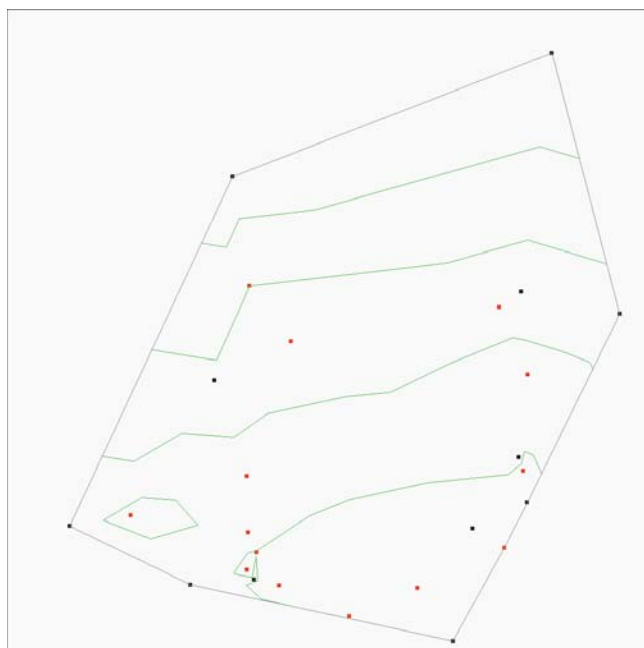
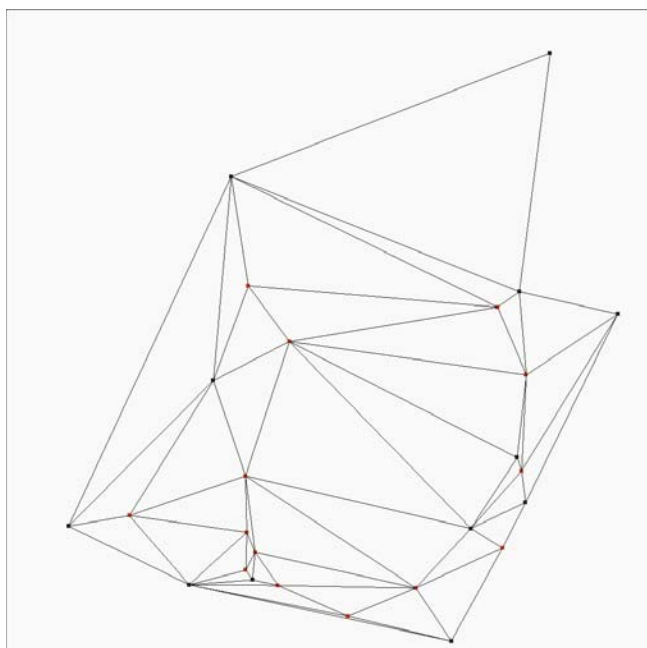
Weight: 0.00 pounds

Material type:

Method: Volume with Azimuth

Units: Feet

Note:



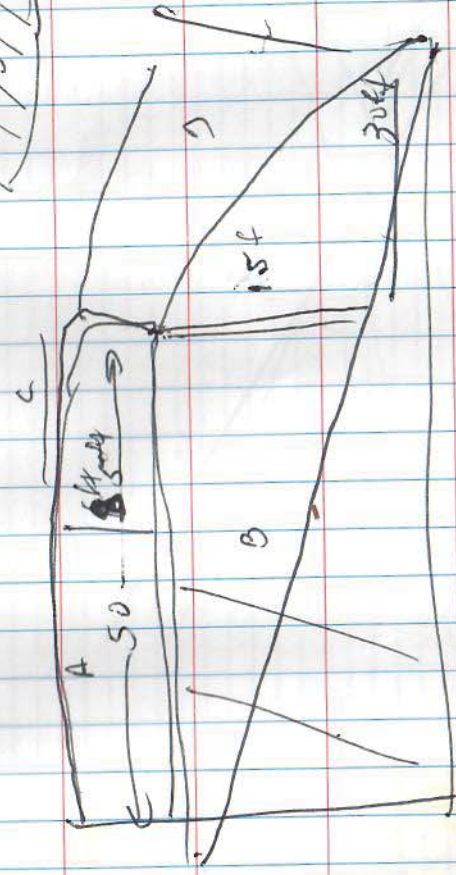
# SITE 02 VOLUME ESTIMATE 7/1/2020



$$\begin{aligned}
 A &= 50 \times 4 \times 15 \times 0.12 \\
 &= 55 - 45 \\
 B+C &= 40 + 40 = 80 \\
 D &= 15 \times 30 \times 0.5 \times \\
 &= 30 \times 0.5 \\
 &= 125 \text{ cy} \\
 &= 140
 \end{aligned}$$

$$\begin{aligned}
 A+B+C+D &= \\
 55 + 80 + 125 \\
 &= 260 - 260
 \end{aligned}$$

TOTAL 650 - 920 cy

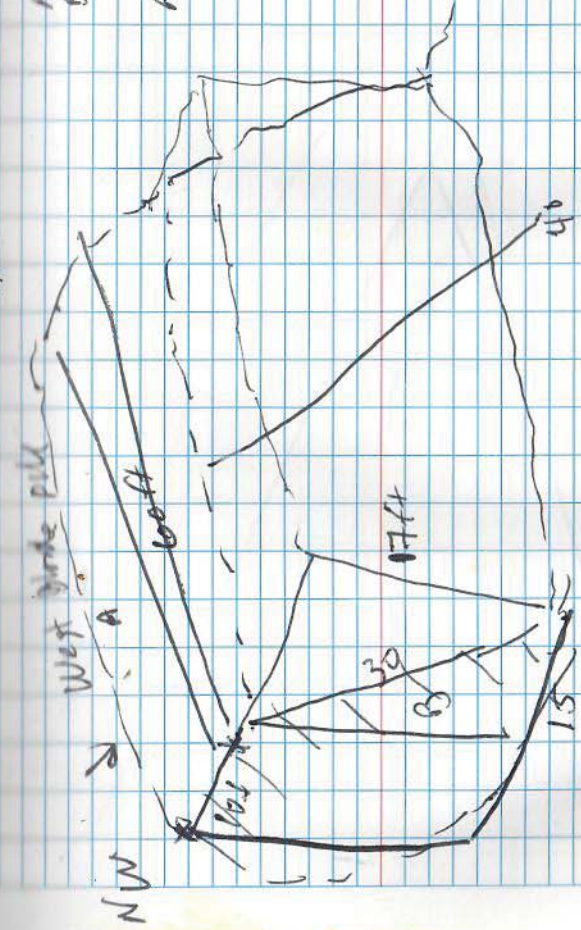


# SITE 02 VOLUME ESTIMATE

7/1/2020

$$\begin{aligned}
 A &= 10 \times 60 \times 17 = 380 \text{ cy} \\
 B &= 15 \times 17 \times 10 \times 0.5 \\
 &= 280 - 200
 \end{aligned}$$

$$A+B = 450 - 660$$





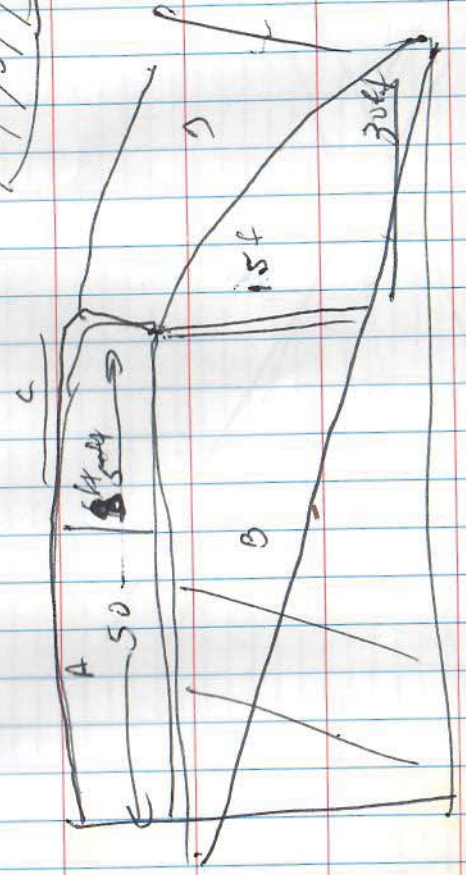
# SITE 02 VOLUME ESTIMATE 7/1/2020



$$\begin{aligned}
 A &= 50 \times 4 \times 15 \times 0.12 \\
 &= 55 - 45 \\
 B+C &= 40 + 40 = 80 \\
 D &= 15 \times 30 \times 0.5 \times \\
 &= 30 \times 0.5 \\
 &= 125 \text{ cy} \\
 &= 140
 \end{aligned}$$

$$\begin{aligned}
 A+B+C+D &= \\
 55 + 80 + 125 \\
 &= 260 - 260
 \end{aligned}$$

TOTAL 650 - 920 cy

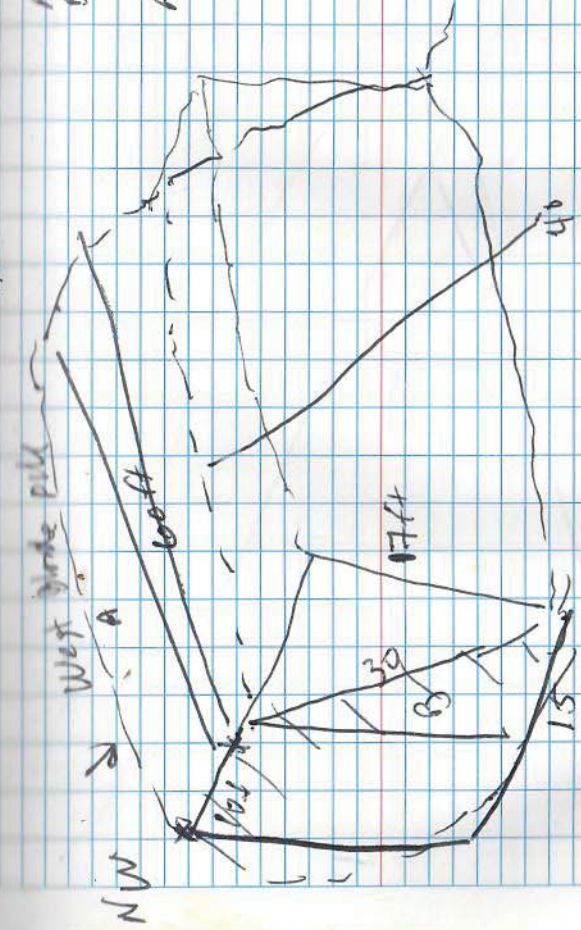


# SITE 02 VOLUME ESTIMATE

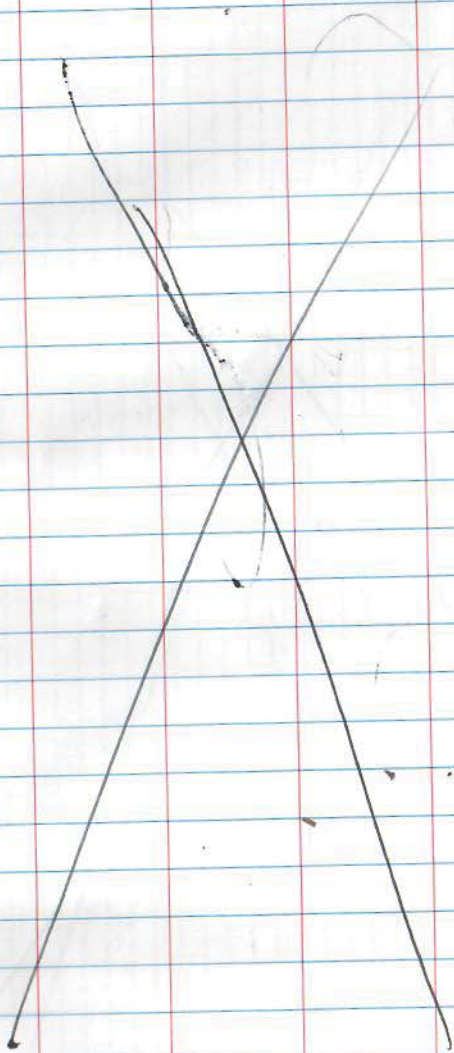
7/1/2020

$$\begin{aligned}
 A &= 10 \times 60 \times 17 = 3840 \text{ yd} \\
 B &= 15 \times 17 \times 10 \times 0.5 \\
 &= 285 - 200
 \end{aligned}$$

$$A+B = 450 - 660$$







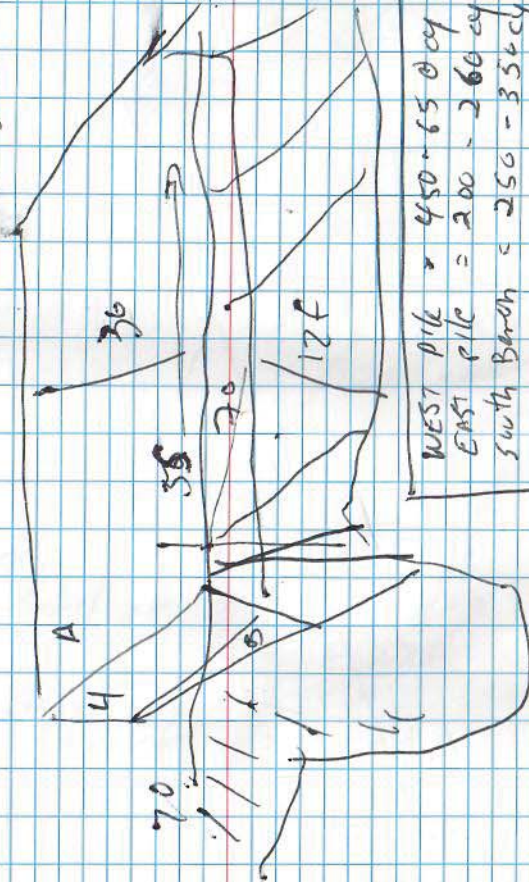
Gutter Bend

$$A = 30 \times 35 \times 4 = 4200$$

$$B = 30 \times 35 \times 8 \times 0.5 = 4200$$

$$C = 35 \times 10 \times 12 \times 0.5 = 2100$$

$$A+B+C = 4200 + 4200 + 2100 = 10500$$



SITE 02  
VOLUME  
ESTIMATE

WEST PILE = 450 - 650 cy  
EAST PILE = 200 - 260 cy  
South Bend = 250 - 350 cy  
900 - 1260 cy

7/10/02



## **Appendix E**

### **Threatened and Endangered Species Review Information for Planning and Consultation (IPaC) US Fish and Wildlife Service**

Applied Intellect, LLC, 2020

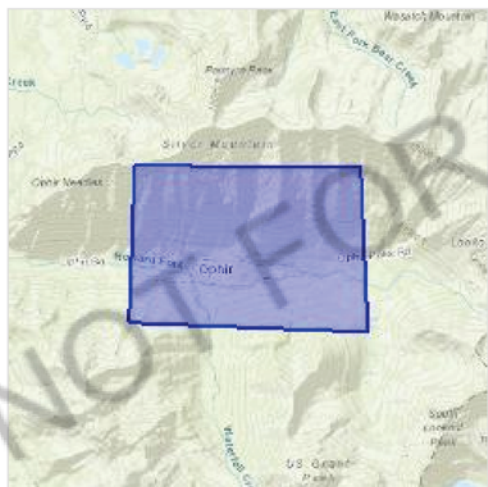
# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

San Miguel County, Colorado



## Local office

Western Colorado Ecological Services Field Office

☎ (970) 628-7180

📠 (970) 245-6933

445 West Gunnison Avenue, Suite 240  
Grand Junction, CO 81501-5711

<http://www.fws.gov/mountain-prairie/es/Colorado/>

<http://www.fws.gov/platterriver/>



# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

## Mammals

NAME

STATUS

Canada Lynx *Lynx canadensis*

Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/3652>

## Birds

NAME

STATUS

Mexican Spotted Owl *Strix occidentalis lucida*

Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/8196>

## Fishes

NAME

STATUS

Bonytail *Gila elegans*

Endangered

This species only needs to be considered if the following condition applies:

- Water depletions in the upper Colorado River basin adversely affect this species and its critical habitat. This species does not need to be considered if the project is outside of its occupied habitat and does not deplete water from the basin.

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/1377>

Colorado Pikeminnow (=squawfish) *Ptychocheilus lucius*

Endangered

This species only needs to be considered if the following condition applies:

- Water depletions in the upper Colorado River basin adversely affect this species and its critical habitat. This species does not need to be considered if the project is outside of its occupied habitat and does not deplete water from the basin.

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/3531>

Humpback Chub *Gila cypha*

Endangered

This species only needs to be considered if the following condition applies:

- Water depletions in the upper Colorado River basin adversely affect this species and its critical habitat. This species does not need to be considered if the project is outside of its occupied habitat and does not deplete water from the basin.

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/3930>

Razorback Sucker *Xyrauchen texanus*

Endangered

This species only needs to be considered if the following condition applies:

- Water depletions in the upper Colorado River basin adversely affect this species and its critical habitat. This species does not need to be considered if the project is outside of its occupied habitat and does not deplete water from the basin.

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/530>

## Insects

NAME	STATUS
Uncompahgre Fritillary Butterfly <i>Boloria acrocnema</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/4419">https://ecos.fws.gov/ecp/species/4419</a>	Endangered

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

MIGRATORY BIRD INFORMATION IS NOT AVAILABLE AT THIS TIME

**Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.**

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

**What does IPaC use to generate the migratory birds potentially occurring in my specified location?**

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

**What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.



## How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

## What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

## Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

## What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

## Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting

point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

## Facilities

### National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

### Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

### Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM1Eb](#)

[PEM1B](#)

[PEM1D](#)

[PEM1C](#)

FRESHWATER FORESTED/SHRUB WETLAND

[PSS1B](#)

[PSS1Eb](#)

## FRESHWATER POND

[PABGb](#)[PABGh](#)[PABG](#)

## RIVERINE

[R3UBH](#)[R4SBC](#)[R5UBH](#)[R3USA](#)[R3UBF](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

**Data limitations**

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

**Data exclusions**

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

**Data precautions**

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.



## **Appendix F**

### **Photo-Documentation, New Dominion Mine EE/CA Field Investigation Applied Intellect, LLC**








## **Appendix F**

### **Photo-Documentation, New Dominion Mine EE/CA Field Investigation** Applied Intellect, LLC

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 A photograph showing a large pile of reddish-brown dirt or gravel in a forest. In the background, there are green trees and snow-capped mountains under a blue sky with clouds.	<p>Location: OND Site New Dominion Mine, Ophir, Colorado</p> <p>View: Looking South from north on upper bench on Town of Ophir</p> <p>Activity: Site Visit</p> <p>Date: June 12, 2020</p>
 A photograph showing a dirt pile in a forest. The view is looking east from the toe of the pile, near a USFS SW boundary marker. There are trees and a wooden post visible.	<p>Location: OND Site New Dominion Mine, Ophir, Colorado</p> <p>View: Looking east from toe of pile, near USFS SW boundary marker on Forest</p> <p>Activity: Site Visit</p> <p>Date: June 12, 2020</p>
 A close-up photograph of a cobble-armed toe of a pile. The ground is covered with dark rocks and fallen leaves. A red flag is visible in the background.	<p>Location: OND Site New Dominion Mine, Ophir, Colorado</p> <p>View: Looking east from cobble- armored toe of pile, at USFS SW boundary marker.</p> <p>Activity: Site Visit</p> <p>Date: June 12, 2020</p>








	<p>Location: OND Site New Dominion Mine, Ophir, Colorado</p> <p>View: Looking east at historic ore chute on Town of Ophir</p> <p>Activity: Site Visit</p> <p>Date: June 12, 2020</p>
	<p>Location: OND Site New Dominion Mine, Ophir, Colorado</p> <p>View: Looking south at historic ore chute on Town of Ophir</p> <p>Activity: Site Visit</p> <p>Date: June 12, 2020</p>
	<p>Location: OND Site New Dominion Mine, Ophir, Colorado</p> <p>View: Looking east at collapsed adit location on Town of Ophir</p> <p>Activity: Site Visit</p> <p>Date: June 12, 2020</p>





	<p>Location: OND Site                  New Dominion Mine,                  Ophir, Colorado</p> <p>View: Detail, near collapsed adit location on Town of Ophir</p> <p>Activity: Site Visit</p> <p>Date: June 12, 2020</p>
	<p>Location: 02 Site                  New Dominion Mine,                  Ophir, Colorado</p> <p>View: Looking northwest, near collapsed draining adit location on Forest</p> <p>Activity: Site Visit</p> <p>Date: June 12, 2020</p>
	<p>Location: 02 Site                  New Dominion Mine,                  Ophir, Colorado</p> <p>View: Looking north, near collapsed draining adit location on Forest</p> <p>Activity: Preparation to Sample Adit Water</p> <p>Date: July 7, 2020</p>





Location: 02 Site  
New Dominion Mine,  
Ophir, Colorado

View: Looking north,  
downgradient of draining adit  
location on Forest

Activity: Preparation estimate  
flow with 5-gallon bucket

Date: July 7, 2020



Location: 02 Site  
New Dominion Mine,  
Ophir, Colorado




View: Detail, downgradient of  
draining adit location on Forest

Activity: Preparation estimate  
flow with Baski Flume

Date: July 7, 2020





	<p>Location: 02 Site New Dominion Mine, Ophir, Colorado</p> <p>View: Looking north at blond upper bench WP on Forest</p> <p>Activity: Preparation to sample</p> <p>Date: July 7, 2020</p>
	<p>Location: 02 Site New Dominion Mine, Ophir, Colorado</p> <p>View: Looking northeast at blond overlap of red pile, upper bench on Forest</p> <p>Activity: Preparation to sample</p> <p>Date: July 7, 2020</p>
	<p>Location: 02 Site New Dominion Mine, Ophir, Colorado</p> <p>View: Looking northeast red pile, upper bench on Forest</p> <p>Activity: Preparation to sample</p> <p>Date: July 7, 2020</p>







	<p>Location: 02 Site New Dominion Mine, Ophir, Colorado</p> <p>View: Looking northeast red pile, upper bench on Forest</p> <p>Activity: Preparation to sample</p> <p>Date: July 7, 2020</p>
	<p>Location: 02 Site New Dominion Mine, Ophir, Colorado</p> <p>View: Detail of sieved sampled material from blond and red piles, upper bench on Forest</p> <p>Activity: Sample collection</p> <p>Date: July 7, 2020</p>
	<p>Location: 02 Site New Dominion Mine, Ophir, Colorado</p> <p>View: Detail of sieved sampled material from red piles, upper bench on Forest</p> <p>Activity: Sample collection</p> <p>Date: July 7, 2020</p>







	<p>Location: 00 Site New Dominion Mine, Ophir, Colorado</p> <p>View: Looking north, near collapsed draining adit location on Forest</p> <p>Activity: Preparation to Sample Adit Water</p> <p>Date: July 7, 2020</p>
	<p>Location: 00 Site New Dominion Mine, Ophir, Colorado</p> <p>View: Looking north, near collapsed draining adit location on Forest</p> <p>Activity: Sampling Adit Water</p> <p>Date: July 7, 2020</p>









	<p>Location: 00 Site New Dominion Mine, Ophir, Colorado</p> <p>View: Looking north, near collapsed draining adit location on Forest</p> <p>Activity: Preparation to measure flow with 5-gallon bucket</p> <p>Date: July 7, 2020</p>
	<p>Location: 00 Site New Dominion Mine, Ophir, Colorado</p> <p>View: Detail, hoof prints in iron- rich precipitate on saturated waste pile location on Forest</p> <p>Activity: Preparation to sample precipitate</p> <p>Date: July 7, 2020</p>





	<p>Location: 00 Site New Dominion Mine, Ophir, Colorado</p> <p>View: Looking southwest off unsaturated waste pile bench including sample flags location on Forest</p> <p>Activity: Preparation to sample surface soil</p> <p>Date: July 7, 2020</p>
	<p>Location: 00 Site New Dominion Mine, Ophir, Colorado</p> <p>View: east off saturated waste pile bench at remnant access road location on Forest</p> <p>Activity: Preparation to sample surface soil</p> <p>Date: July 7, 2020</p>
	<p>Location: 00 Site New Dominion Mine, Ophir, Colorado</p> <p>View: Looking south off unsaturated waste pile bench including sample flags location on Forest</p> <p>Activity: Preparation to sample surface soil</p> <p>Date: July 7, 2020</p>



 A photograph showing a large, reddish-brown, rocky waste pile bench in a forest. The bench is in the foreground, sloping upwards. In the background, there are green trees and a dirt path.	<p>Location: 00 Site New Dominion Mine, Ophir, Colorado</p> <p>View: Looking west off unsaturated waste pile bench including sample flags location on Forest</p> <p>Activity: Preparation to sample surface soil</p> <p>Date: July 7, 2020</p>
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## **Appendix G**

### **Stakeholder Comment Responsiveness Summary**

US Forest Service, Uncompahgre National Forest





## **Stakeholder Comment Responsiveness Summary**

### **Public Comment Period, March 1, 2021 through March 31, 2021**

The US Forest Service submitted the Draft Final EE/CA Report to the Administrative Record files for public review and comment between March 1, 2021 and March 31, 2021 and conducted a public meeting on March 16, 2021. The meeting was conducted utilizing MS Teams teleconferencing tools and attendees were provided a summary presentation of the New Dominion EE/CA and a description of the proposed remedy, including access to the Draft Final EE/CA report and fact sheet. Stakeholders were invited to provide comments on the EE/CA during the public comment period and those comments have been compiled and addressed in this Responsiveness Summary.

Stakeholder comments are compiled below along with US Forest Service responses describing how each comment and concern will be addressed. Documentation of Stakeholder comments are provided after the responsiveness summary.

#### **Monica Carey, Chair, Ophir Environmental Committee, Town of Ophir (Letter received via email on 12/29/2021)**

Tentative agreement with proposed preferred alternative. Four areas of concern:

1. Requested inclusion of Ophir Cemetery in site map, and agreement that cemetery will not be disturbed.

Response: The USFS has added the Ophir Cemetery to the Site Map (Figure 2-3 of the EE/CA Report) and will work with the Town of Ophir to ensure the cemetery will not be disturbed during the non-time critical removal activities.

2. Request further details regarding surface water controls and beaver ponds.

Response: The USFS will provide details of the surface water controls and beaver pond impacts to the Town of Ophir during the removal design phase of the non-time critical removal action. The USFS has added the beaver pond to the Site Map and Site 00 sampling location map (Figures 2-3 and of the EE/CA Report)

3. Request that only existing roads be used.

Response: The USFS will work with the Town of Ophir to use existing access roads during the non-time critical removal action, though excavators will likely need access to portions of the AOCs that do not have existing roads.

4. Request tree cutting be minimized.

Response: The USFS will work with the Town of Ophir during the removal design phase to minimize tree cutting during the non-time critical removal action.



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**Kaye Simonson, Director, Planning, San Miguel County (Received during public meeting on 3/16/2021)**

Verbally provided concern regarding “volume of traffic on County roads” and “source of borrow material”. Ms. Simonson also emphasized the importance of minimizing disturbance of historic resources.

Response: The USFS will work with the community to minimize the impact of additional traffic on County Roads and minimize disturbances of historic resources during the design and removal action phases of the non-time critical removal action.

**Janet Kask, Director, Parks and Open Space, San Miguel County (Received via email on 3/18/2021)**

Submitted an inquiry about site historical assets and a potential future request for a site visit.  
Response: the US Forest Service replied and provided SHPO concurrence letter via email.

**San Miguel County Board of Commissioners (Letter received via email on 3/30/2021)**

Letter generally offers support for the proposed preferred alternative.  
Response: Acknowledged.

End of stakeholder comments and US Forest Service responses to address the comments.

---



## BOARD OF COMMISSIONERS

HILARY COOPER KRIS HOLSTROM LANCE WARING

March 30, 2021

Curtis Cross [curtis.cross@usda.gov](mailto:curtis.cross@usda.gov)  
Seth Ehret [Seth.Ehret@usda.gov](mailto:Seth.Ehret@usda.gov)  
Megan Eno [megan.eno@usda.gov](mailto:megan.eno@usda.gov) US Forest Service  
216 North Colorado St.  
Gunnison, CO. 81230

To Whom It May Concern:

San Miguel County supports the proposed cleanup actions being recommended in Alternative #2 of the New Dominion Mine EECA draft document. We support the creation of clean water diversions around the mine waste rock piles (tailings) and the capping or covering of those tailings to prevent further water infiltration to reduce the generation of acid mine drainage (AMD).

Please contact us if you have any questions about our position.

Sincerely,  
San Miguel County  
Board of Commissioners

Lance Waring, Chair

Kris Holstrom, Vice Chair

Hilary Cooper, Commissioner

Cc: Corinne Platt, Town of Ophir  
Ken Haynes, Town of Ophir





Monica Carey  
PO Box 683  
Ophir, CO 81426

December 29, 2020

Curtis Cross [curtis.cross@usda.gov](mailto:curtis.cross@usda.gov)  
Seth Ehret [Seth.Ehret@usda.gov](mailto:Seth.Ehret@usda.gov)  
Megan Eno [megan.eno@usda.gov](mailto:megan.eno@usda.gov)  
US Forest Service  
216 North Colorado St.  
Gunnison, CO 81230

To Whom It May Concern:

The Town of Ophir appreciates the opportunity offered by Chris Cross on November 5, 2020, to submit comments on the New Dominion EECA Draft 9-24-20 prior to a more prepared release for public comment.

The document is very informative and, while more in-depth than we are able to fully absorb, we would like to express our tentative agreement with the solution referred to as Alternative 2. We agree that covering waste piles is preferable to removing such to be a problem elsewhere.

We do have several concerns to share:

- A. Please include a map that clarifies for all parties that the Ophir Cemetery will be entirely undisturbed and outside of any work envelope. Please refer to the "Cemetery" figure below.
- B. There is no mention of any "settling pond" design and, perhaps because the plan is preliminary, there is no acknowledgement of the significant beaver activity that continues to reoccur on the north side of the Ophir Pass just at the base of the waste piles. The San Miguel County Road & Bridge, under the auspices of the USFS, periodically swipes through the beaver-engineered "settling pond" that is inevitably built and re-built in that area. The surface water controls must be accomplished in such a way that neither beavers nor man with machines can be destructive or re-formative. Please refer to "Beaver" figure below.
- C. The community is of the strong opinion that only existing roads be used.
- D. The community requests that tree cutting be minimized.

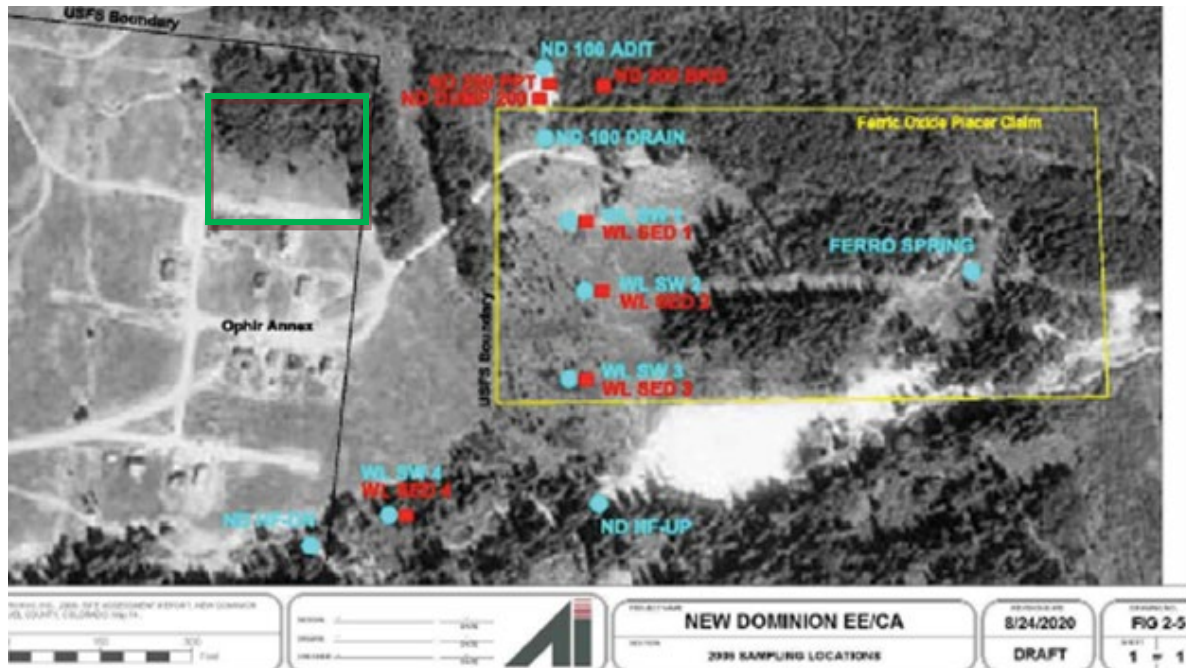
We believe it would be of benefit to create a hydrology project in association with the redirected water. We assume this is an unlikely direction for the USFS, but it would be of interest to the Town of Ophir to understand how the clean up and a hydrology project might link up.

Thank you for prioritizing this project that will serve to protect the flora and fauna in this special valley.

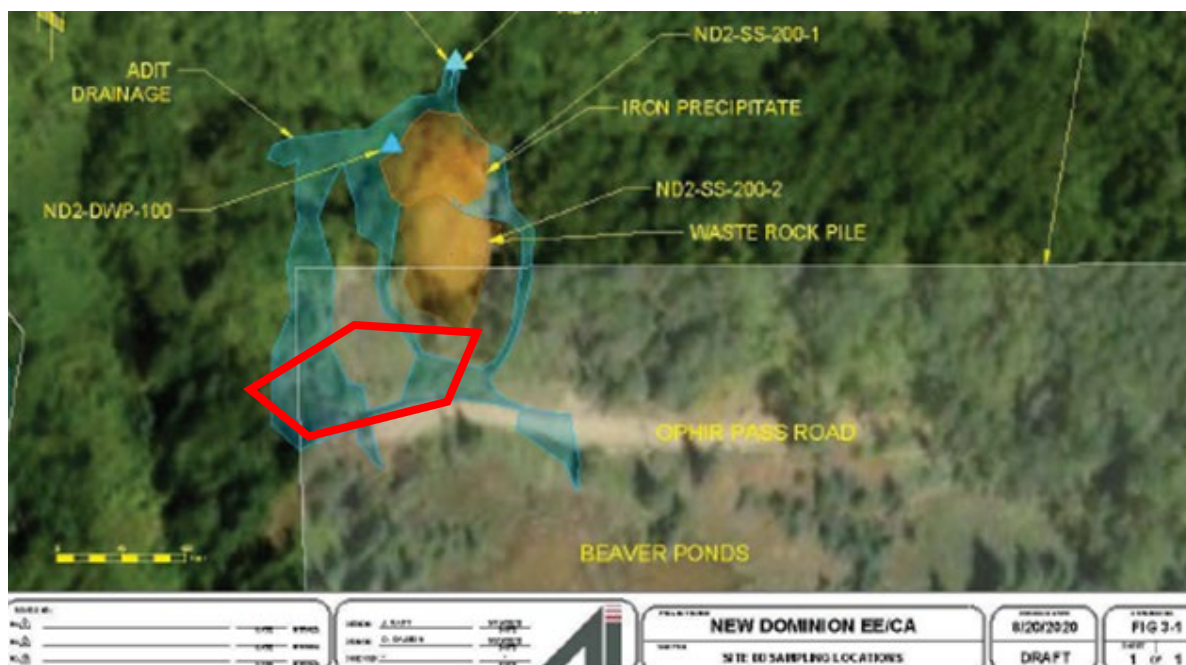
Sincerely,

Monica Carey [oc@ophir.us](mailto:oc@ophir.us)  
Chair, Ophir Environmental Committee

CC: Corinne Platt [mayor@ophir.us](mailto:mayor@ophir.us), Ken Haynes [manager@ophir.us](mailto:manager@ophir.us)






Cemetery









**Beaver**

-  Ehret, Seth - FS joined the meeting.
-  Ehret, Seth - FS added Cross, Curtis -FS and 2 others to the chat.
-  Ehret, Seth - FS named the meeting to New Dominion Mine EE/CA Public Presentation.

March 16, 2021

-  Meeting started 3/16 2:51 PM
-  Jeff Hart was invited to the meeting.
-  Raymond Miskines was invited to the meeting.
-  Sandoval, Joni was invited to the meeting.


3/16 2:58 PM

Please contact Seth Ehret with questions and/or comments: [seth.ehret@usda.gov](mailto:seth.ehret@usda.gov) or 970-874-6644

[Link to New Dominion Draft EE/CA: New Dominion Mine Engineering Evaluation/Cost Analysis](#)




Fact Sheet New Dominion Mine.... [...](#)

-  Kaye Simonson (Guest) was invited to the meeting.
-  Janet Kask (Guest) was invited to the meeting.

3/16 3:26 PM

Hello Ms. Kask. Thank you for joining us. This meeting is being recorded. We are asking attendees to submit questions to the Meeting Chat or save questions for the end of the presentation. Seth

 Sandoval, Joni (Guest) 3/16 3:36 PM  
Thanks for sharing this.

 Janet Kask (Guest) 3/16 3:38 PM  
I don't have a mic on my computer.

Sorry - this is Janet Kask. I'll touch base with the County Historical Commission.

 Kaye Simonson (Guest) 3/16 3:40 PM  
Thanks!

**Ms. Simonson's comments can be heard in the recorded meeting at 33:20**

Type a new message



**From:** [Janet Kask](#)  
**To:** [Cross, Curtis -FS](#)  
**Cc:** [Ehret, Seth - FS](#)  
**Subject:** Re: [External Email]For Immediate Release: GMUG Seeks Comment on New Dominion Mine Engineering Evaluation and  
**Date:** Thursday, March 18, 2021 1:29:08 PM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.png](#)  
[image005.png](#)  
[image006.png](#)

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Thanks Curtis!  
This is very helpful information.  
Janet

On Thu, Mar 18, 2021 at 1:21 PM Cross, Curtis -FS <[curtis.cross@usda.gov](mailto:curtis.cross@usda.gov)> wrote:

Janet,

Attached are relevant documents and photos for the New Dominion site.

Let me know if you have any other questions.

Thanks,

---

**From:** Janet Kask <[janetk@sanmiguelcountyco.gov](mailto:janetk@sanmiguelcountyco.gov)>

**Sent:** Thursday, March 18, 2021 11:32 AM

**To:** Cross, Curtis -FS <[curtis.cross@usda.gov](mailto:curtis.cross@usda.gov)>

**Cc:** Ehret, Seth - FS <[Seth.Ehret@usda.gov](mailto:Seth.Ehret@usda.gov)>

**Subject:** Re: [External Email]For Immediate Release: GMUG Seeks Comment on New Dominion Mine Engineering Evaluation and

Hi Curtis,

Thanks for your quick response.

No need searching for my comments, as they were very

brief and I stated I'd consult with the County's HC.

I'm not familiar with the shed. Was it deemed historic?

Do you have photos? Thanks.

Janet

On Thu, Mar 18, 2021 at 11:30 AM Cross, Curtis -FS <[curtis.cross@usda.gov](mailto:curtis.cross@usda.gov)> wrote:

Janet,

There are plans to demolish the cabin but we have gotten concurrence from SHPO. The town has requested it be removed. The site is accessible to the public. We could arrange to meet out there if needed.

I'll check with Seth to make sure he got the comments.

Thanks,

---

**From:** Janet Kask <[janetk@sanmiguelcountyco.gov](mailto:janetk@sanmiguelcountyco.gov)>  
**Sent:** Thursday, March 18, 2021 11:23 AM  
**To:** Cross, Curtis -FS <[curtis.cross@usda.gov](mailto:curtis.cross@usda.gov)>; Cross, Curtis -FS <[curtis.cross@usda.gov](mailto:curtis.cross@usda.gov)>  
**Subject:** [External Email]For Immediate Release: GMUG Seeks Comment on New Dominion Mine Engineering Evaluation and

**[External Email]**

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Use caution before clicking links or opening attachments.  
Please send any concerns or suspicious messages to: [Spam.Abuse@usda.gov](mailto:Spam.Abuse@usda.gov)

Hi Curtis,

I participated in the 3/16 meeting call, but logged in late and missed some of the details. I was also on a PC without a camera or mic. so I typed in my brief comments.

It sounds as if the USFS will leave historic assets intact.

I looped in the County's Historical Commission and members asked if it was possible to visit the site. Not sure how many would actually want to go, but please let me know either way.

Thanks.

Janet

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**From:** Phillips, Kim- FS <[Kimberlee.Phillips@usda.gov](mailto:Kimberlee.Phillips@usda.gov)>

**Sent:** Thursday, February 25, 2021 9:20 AM  
**Subject:** For Immediate Release: GMUG Seeks Comment on New Dominion Mine Engineering Evaluation and  
**Importance:** High



Forest Service  
U.S. DEPARTMENT OF AGRICULTURE

Grand Mesa, Uncompahgre and Gunnison National Forests

## Forest Service News Release

Public Affairs Officer: Kimberlee Phillips

(970) 874-6717

[kimberlee.phillips@usda.gov](mailto:kimberlee.phillips@usda.gov)

[www.fs.usda.gov/gmug](http://www.fs.usda.gov/gmug)



### GMUG Seeks Comment on New Dominion Mine Engineering Evaluation and Cost Analysis (EE/CA)

*Public Comment Period: March 1 through March 30, 2021*

**Delta, Colorado, February 25, 2021** — The Grand Mesa, Uncompahgre and Gunnison (GMUG) National Forests' Norwood Ranger District is seeking public comment during the 30-day public comment period, on the EE/CA for the New Dominion Mine located approximately 700 feet northeast of the Town of Ophir, near National Forest System Road #630 (Ophir Pass Road). The GMUG is evaluating a non-time critical removal action (NTCRA) to address mine waste rock, mill tailings and mine runoff that contain concentrations of metals that may be hazardous to human health and the environment, in accordance with the Comprehensive Environmental Response Compensation and Liability Act (CERCLA).

The New Dominion Mine site contains remnants of former mill and load out structures, one closed dry adit, two collapsed adits from which water flows year-round, and three distinct deposits of waste rock and tailings. Runoff from the middle adit flows through and around the middle waste rock-tailings deposit. Runoff from the lower adit flows through and around the lower waste rock-tailings deposit, through adjacent beaver ponds, across Ophir Pass Road, and into the existing wetlands. The waste rock-tailings deposits associated with the upper and lower adits are located partially on the National Forest System lands and partially on Town of Ophir property.

A two-part Environmental Site Assessment (ESA) was completed in 2005 and 2006. A preliminary Analysis/Site Inspection (PA/SI) was completed in 2006. The PA/SI included sampling and chemical analyses of waste rock, tailings, surface water and sediment. The results of the ESA and PA/SI are incorporated into the EE/CA report, along with results from chemical analysis of samples collected in 2020. The objective of the EE/CA is to evaluate and select the removal action alternative that reduces the potential for exposure to acceptable levels, and to reduce the potential for contaminants to migrate or be released.

A virtual public meeting is planned to present the EE/CA report and discuss the evaluated removal action alternatives:

- Date and Time: March 16, 2021, 3 p.m. to 4 p.m.
- Meeting Location: Microsoft Teams Video Conference—[Click here to join the meeting](#)
- The EE/CA report is available for review at: [New Dominion Mine Engineering Evaluation/Cost Analysis](#).
- For further information, contact Curtis Cross, Forest Engineer, at (970) 874-6667, [curtis.cross@usda.gov](mailto:curtis.cross@usda.gov).

All comments regarding the EE/CA report must be received by the USDA Forest Service by March 30, 2021.

Comments may be:

- Mailed to: GMUG Supervisor's Office, Attn: Curtis Cross, 2250 South Main Street, Delta, CO 81416.
- Emailed to: [curtis.cross@usda.gov](mailto:curtis.cross@usda.gov).

For additional information contact Seth Ehret (970) 874-6644, or [seth.ehret@usda.gov](mailto:seth.ehret@usda.gov).

####



**Kimberlee J Phillips**  
Public Affairs Officer  
Forest Service

**Grand Mesa, Uncompahgre and Gunnison National Forests**

**Supervisors Office**

p: 970-874-6717

c: 970-589-0842

[kimberlee.phillips@usda.gov](mailto:kimberlee.phillips@usda.gov)

2250 S. Main St. Delta Co 81416

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**Janet Kask**, Director

Parks & Open Space, San Miguel County

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Phone: (970)369-5469, Fax: (970)728-3718

[janetk@sanmiguelcountyco.gov](mailto:janetk@sanmiguelcountyco.gov)





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