Final

2013 Seep Sampling and Waste Rock Dump Monitoring Data and Analysis Report, Faro Mine Remediation Project

Prepared for

Government of Yukon and Government of Canada as represented by Aboriginal Affairs and Northern Development Canada

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CH2MHILL®

Suite 301 309 Strickland St.
Whitehorse, YT Y1A 2J9
Canada

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Acronyms and Abbreviations

>	greater than
≤	less than or equal to
ALS	ALS Laboratory Group
AMD	Acid Mine Drainage
AP	acid potential
CH2M HILL	CH2M HILL Canada Limited
cm	centimetre
CO_2	carbon dioxide
ETA	Emergency Tailings Area
FMC	Faro Mine Complex
FSP	Field Sampling Plan
FY	Fiscal Year
GPS	global positioning system
GSC	Grum Sulphide Cell
He	Helium
ID Pond	Intermediate Dam Pond
km	kilometre
km^2	square kilometre
Laberge	Laberge Environmental Services
LCP	Little Creek Pond
m	metre
masl	metre above mean sea level
mbgs	metre below ground surface
mg/L	milligram per litre
Mm^3	million cubic metres
Mt	million tonnes
NFRC	North Fork Rose Creek
NP	neutralization potential
O_2	oxygen
PAG	potentially acid-generating
RCD	Rose Creek Diversion
RCTA	Rose Creek Tailing Area
redox	reduction/oxidation

RGC	Robertson GeoConsultants
SRK	SRK Consulting Inc.
SOP	Standard Operating Procedure
TAR	Task Authorization Request
WRD	waste rock dump

SECTION 1

Introduction

The Government of Yukon and the Government of Canada as represented by Aboriginal Affairs and Northern Development Canada retained CH2M HILL Canada Limited (CH2M HILL) to conduct remedial investigations and associated activities at the Faro Mine Complex (FMC). These phased activities are taking place to support the overall long-term goal of remediating the FMC and reducing environmental impacts, including those associated with acid rock drainage (ARD) entering nearby watercourses.

1.1 Site Description

The FMC is located at 62°18'39.74"N and 133°18'18.06"W in south-central Yukon, 15 kilometres (km) north of the Town of Faro and nearly 200 km northeast of the City of Whitehorse (Figure 1-1). It has a footprint of over 25 square kilometres (km^2) and consists of three distinct areas:

1. The Faro Mine Area, which includes the Faro Pit and surrounding waste dumps, a mill and associated buildings
2. The Rose Creek Tailing Area (RCTA) and its impoundments, which are located in Rose Creek Valley
3. The Vangorda/Grum Area, which is located on the Vangorda Plateau and includes the Grum and Vangorda Pits, as well as surrounding Waste Dumps

A 10-km heavy-duty haul road connects the Faro Mine Area with the Vangorda/Grum Area. During mining operations, staff used this road to truck ore from the Vangorda and Grum Pits to the Faro Mill for processing. The lead and zinc concentrates that the FMC produced were then were shipped to international smelters via Skagway, Alaska. These included economic quantities of silver and gold (CH2M HILL, 2012a).

The Faro Mine Area includes the Faro Pit, the Faro Valley Waste Dump, various Waste Dumps, the Faro Mill, and associated buildings (Figure 1-2). The Faro Pit is approximately 1,675 metres (m) long by 975 m wide, and covers an area of 1.06 km^2. The bottom of the Faro Pit is 975 m above mean sea level (masl), 335 m lower than the highest point of the western pit wall. The Waste Dumps amount to over 260 Mt of material covering approximately 1.06 km^2 (106 hectares). Faro Creek currently flows around the northeastern edge of the pit, via the Faro Creek Diversion. The former mill and associated buildings are located to the south of the pit (CH2M HILL, 2012a).

The RCTA includes the Rose Creek tailings impoundment, which is located at the base of Rose Creek Valley, about 2.5 km southwest of the Faro Mine Area. The impoundment contains more than 55 million tonnes (Mt) of tailings within an unlined containment area. The containment area, which is approximately 4 km long by 1 km wide, holds tailings deposited between 1969 and 1992. A series of three dams hold the tailings in place within three staged impoundments: (1) the Intermediate Impoundment, (2) the Secondary Impoundment, and (3) the Primary Impoundment. Rose Creek flows around the RCTA in the rock-lined Rose Creek Diversion (RCD) (CH2M HILL, 2012a).

The Vangorda/Grum Area consists of two open pits on the Vangorda Plateau approximately 10 km southeast of the Faro Pit at the opposite end of the connecting haul road (Figure 1-3). The Vangorda Pit is approximately 1,150 m long and 200 to 350 m wide. It is oriented in a northwest/southeast direction along its longitudinal axis. The pit depth varies from 50 m to 150 m (CH2M HILL, 2012a).

The Vangorda Waste Dump is located south of the Vangorda Pit. It covers an area of approximately 0.47 km^2, with an elevation ranging from approximately 1,120 masl to 1,180 masl along its southern toe. The Vangorda Waste Dump was built on a low-permeability layer (till) with drains that direct seepage into Little Creek Pond (LCP) (CH2M HILL, 2012a).

The Grum Pit is located approximately 2 km northwest of the Vangorda Pit. The Grum Pit is approximately 1,100 m long, 700 m wide, and a maximum of 200 m deep. Two dumps surround the Grum Pit: (1) the Grum Waste Dump, which contains 28 Mt of waste rock, covering approximately 1.28 km^2, and (2) the Grum

Overburden Dump, which contains about 22 to 24 Mt of pit overburden material and covers approximately 0.46 km^2 (CH2M HILL, 2012a).

The Grum Overburden Dump abuts the southeastern edge of the Grum Pit and has a footprint of approximately 0.50 km^2. Elevation ranges from approximately 1,300 masl in the northwest corner of the dump to 1,220 masl at the base the southwestern toe. The Grum Waste Dumps stand southwest of the Grum Pit and cover an area of approximately 1.28 km^2. Its approximate elevations range from 1,320 masl at the north end to 1,120 masl at their southern toe (CH2M HILL Canada Ltd. 2012).

1.2 Purpose

This report presents the results of CH2M HILL's 2013 seep sampling and Waste Dump monitoring programs, as well as CH2M HILL's interpretations of those results.

The objectives of the seep sampling and Waste Dump monitoring programs were to gather the following information:

1. Geochemical characteristics throughout the FMC, including the nature and rate of geochemical reactions in the waste rock
2. Groundwater elevations and hydraulic gradient seasonal variabilities within and beneath the Waste Dumps
3. Site groundwater quality, including seasonal variations and potential impacts to underlying alluvial sediments and bedrock groundwater quality

This information serves a variety of purposes:

1. Support site-wide geochemical, hydrogeological, and water balance modelling
2. Allow CH2M HILL to refine these models, to develop the basis of design for site closure engineering activities
3. Support the monitoring of discharge to receiving areas
4. Make it possible to compare current conditions with historical data sets

1.3 Scope

The scope of the work is defined in Task Authorization Request (TAR) 007(I), Fiscal Year (FY) 2013-2014 Field Investigation (CH2M HILL, 2013a) and TAR 006(F) Site-Wide Engineering FY 2013-2014 (CH2M HILL, 2013b), with details provided in TA007 Activity SW-015 Field Sampling Plan (FSP) (CH2M HILL, 2013c) and TA007 Activity SW-014 FSP (CH2M HILL, 2013d). The scope of the work includes the following activities:

- Collect vertical profile Waste Dump-gas measurements (from the Waste Dump-gas probes at each monitoring well location) and temperature measurements (using a portable thermistor string with beads 5 m from the bottom, then every 2.5 m thereafter) at the 6 Waste Dump monitoring wells installed in 2012. Collect Waste Dump-gas and temperature measurements three times a year: During freshet (late May), late summer (September), and late-winter (April).
- Sample groundwater at five Waste Dump monitoring wells (one well is dry), three times a year: during freshet (late May), late summer (September), and late-winter (April).
- Collect a continuous record of water level elevation measurements at five Waste Dump monitoring wells using pressure transducer/data loggers in each monitoring well. Download data during each monitoring event.
- Locate and evaluate conditions at 156 historical seep locations, twice a year: during freshet (late May) and late summer (September).
- Collect 59 seep water samples for laboratory analysis twice a year: during freshet (late May) and late summer (September).
- Establish new sampling stations where the data set needs to be augmented.

- Collect seep samples from up to 25 boat-accessible pit seep locations.
- Measure geochemical field parameter depth profiles in the Faro, Grum, and Vangorda Pit lakes.
- Collect a Faro Pit lake water sample from a depth of 80 m to replace a leaked sample collected in 2012 for sludge stability testing.
- Prepare a Waste Dump Monitoring Field Data and Analysis Report.
- Prepare a Seepage Monitoring Field Data and Analysis Report.

The following sections describe this work in detail. Note: the February 2014 data will follow in a separate document.

1.3.1 Deviations from Initial Scope of Work

While executing the field work, the activities deviated from the original Statement of Work:

- The spring Waste Dump monitoring event (gas monitoring and groundwater sampling) scheduled to take place during Freshet was completed in July, because the rental gas monitor malfunctioned. Before the gas monitor failed, soil gas samples were collected from CH12-014-MW003 and CH12-014-MW005, and groundwater samples were collected from CH12-014-MW003 and CH12-014-MW007. The other soil gas and groundwater samples associated with the spring monitoring event were collected between July 2 and July 8, after the replacement gas monitor arrived onsite.
- During each sampling event, some of the seeps targeted for sampling were not flowing, so alternative sampling locations were selected where viable or the seep was simply not sampled.
- The seepage and Waste Dump monitoring field data reports were combined into this single report.

1.4 Background

About 300 Mt (about 154 million cubic metres [Mm^3]) of waste rock are located in waste rock dumps (Waste Dump) adjacent to the three open pits across the FMC in the Faro Mine and Vangorda/Grum Areas (Figures 1-2 and 1-3). Historical borehole samples and other data indicate these Waste Dumps are underlain by thin colluvium and low-permeability bedrock (Robertson GeoConsultants [RGC], 1996). Underlying the Faro Mine Area and Grum Waste Dumps are former drainage channels that contain a concentration of higher permeability alluvial materials and may serve as preferential groundwater flow pathways (e.g., the original alignment of the Faro Creek Channel focusing Waste Dump seepage to X23). About 30 separate Waste Dumps surround the Faro Pit. These contain segregated and non-segregated waste rock, spread across approximately 3.4 km^2 (SRK Consulting Engineers and Scientists [SRK], 2010a). Historically, the mined waste rock in the Faro Mine Area did not undergo rigorous segregation; therefore, the individual waste rock dumps in that area could result in poor-quality drainage (SRK, 2010a). Immediately west and south of the Grum Pit, about 28 Mt (14.4 Mm^3) of waste rock cover 1.48 km^2 of surface area. South/southwest of the Vangorda Pit, approximately 16 Mt (8.2 Mm^3) of waste rock occupy about 0.4 km^2. Waste rock from the Vangorda deposit had a higher percentage of sulphide-bearing minerals than the other two deposits (SRK, 2004a). More rigorous segregation practices were followed when the Grum and Vangorda Pits were mined (SRK, 2004a).

1.4.1 Acid Mine Drainage

Within the Faro and Grum/Vangorda Areas, the main contaminant source is sulphide-containing waste rock stored in the Waste Dumps. Oxygenated water infiltrates the Waste Dumps and causes the metal sulphides to oxidize, generating sulphate-rich water and dissolved hydrolysable metals (e.g., ferric iron), which in turn generates acidity. The increased acidity lowers the pH and dissolves metals, which contribute to increased metal concentrations in Waste Dump porewater. The mobilized sulphate and metals then travel to the surrounding environment. This process generates ARD.

Drainage monitoring at the Waste Dumps indicates the seepage water ranges from non-acidic to highly acidic. Most seepage often contains elevated concentrations of sulphate, magnesium, zinc, and cadmium (CH2M HILL, 2013e).

Alkaline mineral phases (i.e., neutralization potential [NP]) temper sulphide mineral oxidation by buffering the solution at a more neutral pH. Acid released during the oxidation process will partially dissolve carbonate minerals, and the released bicarbonate ions will help to maintain the pH at near-neutral values according to the following reaction:

$$3Me^{+2} + Ca(HCO_3)_2 + O_2 + 2H_2O \rightarrow 3Me(OH)_2 + Ca^{+2} + 2CO_2$$

For this reason, carbonate minerals (such as calcite and dolomite) are the most important of these minerals at the FMC. As oxidation proceeds in the exposed natural rock and in the waste materials, the carbonates buffer the pH (and, in turn, the metal mobility) to maintain a chemical semi-steady condition. For most Waste Dumps at the FMC, the acid potential (AP) of the waste materials is greater than the NP of the carbonates. At some point, the NP will be depleted, the pH will drop, and metal concentrations will rise.

There are several stages of seep development. In general, as neutralizing agents are consumed and hydrolysable metals increase, the pH decreases. The decreasing pH allows metals dissolution and mobilization to increase. The adsorptive capacity of the Waste Dump and surrounding environment decreases as the pH is depressed, further decreasing the attenuation of ARD constituents. Eventually, acid generation and metal mobilization will peak and as the sulphide minerals are exhausted or armoured, metal and sulphate concentrations will decrease and pH will begin to increase.

CH2M HILL developed geochemical reactive mixing models of key areas within the FMC to support the calibration of the site-wide water quality model (the GoldSim model). Although the GoldSim model is a useful tool for assessing the site-wide water balance, the geochemical reactions imbedded in the current version overestimate some water quality constituent concentrations, such as iron and zinc, in several key locations (CH2M HILL, 2013f). This is partly because the GoldSim model does not account for geochemical processes and reactions that take place during mixing and movement through the aquifer, such as reduction/oxidation (redox), mineral precipitation, and adsorption. These result in a fraction of the dissolved constituents being removed from solution, as well as adjustments to pH and acidity. The GoldSim model also underestimates some constituent concentrations, possibly because of uncertainty associated with averaging highly variable component water chemistries. Based on these inconsistencies and the independent peer review panel's recommendation to account for reactive transport in the model, CH2M HILL applied an external reactive mixing model, PHREEQC (Parkhurst and Appelo, 1999), to the catchment-level mixing of Waste Dump drainage and the Faro Pit Lake mixing. The purpose was to improve the agreement of GoldSim model and observed sampling results.

Seepage water quality data for the Waste Dumps provided input to the reactive mixing models to simulate the chemical loading contributions from individual Waste Dumps at the catchment level (i.e. X23). CH2M HILL assigned seepage chemistries to each hydraulic input and mixed these in relative proportion to the flows that report to the discharge node (i.e., X23). The reactive mixing model also simulated mineral precipitation and sorption processes that were expected to be in effect in the FMC mine waters. CH2M HILL then compared the model results with actual water-quality, measured at the catchment node (i.e., X23). CH2M HILL (2013f) describes the results of these simulations.

1.4.2 Previous Investigations

Numerous investigations have taken place for Waste Dump drainage and geochemical evolution at the FMC, during and following mining operations. These investigations included short-term targeted investigations to characterize water qualities discharging from specific areas of the FMC (e.g., S-wells investigations, Zone II wells, etc.), as well as long -term annual site-wide monitoring programs administered by site operators and owners (e.g., Denison Environmental Services and Tlicho Engineering and Environmental Services water licence monitoring and SRK seep monitoring). Waste Dump discharge water quality monitoring has consisted of groundwater and seep sampling. Historical Waste Dump characterization investigations have also included a limited soil gas and temperature monitoring program. The following paragraphs summarize previous Waste Dump drainage water quality investigations and Waste Dump soil gas and temperature characterizations. These include a summary of previous pit lake investigations. This report does not summarize the results of these previous investigations, which are located in the original investigation reports referenced herein.

1.4.3 Seep Sampling

SRK Consulting Inc. initiated the first documented seep sampling investigation was initiated in 1987 (SRK, 1989). This investigation consisted of six separate sampling events between September 1987 and October 1988. During that time, approximately 100 seeps and surface water sites were sampled within the Faro Pit and surrounding Waste Dumps. For approximately 10 years after this study, annual seep sampling took place around the FMC, with a primary focus on sampling drainage from the rock dumps (RGC, 1996). Following site closure in 1998, routine sampling continued for seepage locations, as part of the water licence monitoring activities. Tlicho Engineering and Environmental Services currently performs this routine sampling under the site care and maintenance contract. In 2002, SRK initiated a comprehensive seep sampling program that covered a broader range of sampling sites (SRK, 2003. This program continued from 2002 until 2010, with spring and autumn sampling events. Results were reported on an annual basis. The frequency of sampling varied by location, depending on the flow rate. Some seeps flowed during every sampling event and were therefore sampled twice-yearly throughout the program. Other seeps were sampled only occasionally because they flowed intermittently. SRK identified and sampled more than 170 distinct sites between 2002 and 2010 (SRK, 2010a).

In addition to the SRK seep sampling program and the ongoing care and maintenance sampling, RGC established seven sampling locations (FCS-1 through FCS-7) along the Faro Creek Canyon from the Emergency Tailings Area (ETA) to the Intermediate Dam Pond (ID Pond) (RGC, 2005). These sampling locations provide geochemical data to evaluate Waste Dump loading to the RCTA.

In 2012, CH2M HILL completed a site-wide seep sampling investigation consisting of a spring sampling event (late May) and an autumn event (September) (CH2M HILL, 2013f). A total of 109 distinct seep locations were sampled. Among these, 68 locations were historical stations and the other 41 locations were assigned new location identifiers.

1.4.4 Waste Rock Dump Drainage Groundwater Monitoring

Since approximately 1975, numerous groundwater monitoring wells and piezometers have been installed and monitored within and around the Waste Dumps to characterize the local hydrogeological conditions and Waste Dump drainage water quality (RGC, 1996). The following list summarizes these installations:

- In 1975 and 1976, 6 piezometers were installed through the Faro Valley Waste Dump (PH-1 through PH-6) (RGC, 1996).
- In 1978, 11 inclined drainholes were installed in the overburden material beneath the Faro Valley Waste Dump. They were drilled from the Faro Pit 4030 Bench along nearly horizontal inclinations (RGC, 1996).
- In 1989, 3 monitoring wells (S1A/B, S2A/B and S3) were installed southeast of the Intermediate Dump in the location now identified as the S-Wells area (SRK, 1992).
- In 1990, 41 test pits were excavated around the Main Dump and Northwest, Intermediate, Zone II, and Northeast Waste Dumps, and were completed as piezometers (WE1 through WE19, WS1 through WS18, and WW1 through WW14) (SRK, 1992).
- In 1990, 4 monitoring wells (BH1, BH2, BH3, and BH4) were installed in the Zone II Outwash area (RGC, 1996).
- In 1991, 1 pumping well (X26) was installed in the backfilled Zone II Pit (RGC, 1996).
- In 1994, 12 monitoring wells were installed in the area west of North Fork Rose Creek (NFRC) (SRK, 1994):
  - Two nested wells between the Northeast Waste Dump and Zone II Pits (BH16A/B/C and BH15A/B/C)
  - Three wells around the downgradient rim of the Zone II Pit (BH8, BH9, BH11)
  - Three nested wells along the toe of the Northeast Waste Dump (BH12A/B, BH13A/B, BH14A/B)
  - Four wells in the Zone II Outwash area (BH5,BH6, BH7, BH10)
- In 1994, 14 monitoring wells and monitoring well clusters were installed in and around the toe of the Vangorda Waste Dump (P94-01A/B, P94-02A/B/C, P94-03A/B, P94-04A/B, and GW-94-01 through GW-94-05).

(SRK-Robinson Inc., 1994) These wells are also identified as groundwater sampling stations V34 through V47 (RGC, 1996).

- In 1996, 4 monitoring wells were installed around the Faro Waste Dumps (RGC, 1996):
  - One nested well south of the Main Dump in the area of the former Faro Creek alignment (P96-8A/B)
  - Two monitoring wells at the toe of the Intermediate Waste Dump (P97-7, P96-6)
  - One nested well downgradient from the Grum Waste Dump (P96-9A/B)
- In 2001, 2 monitoring wells were installed west of the toe of the Vangorda Waste Dump (P2001-2A/B and P20013) (Gartner Lee Limited, 2001).
- In 2004, 1 monitoring well was installed in the S-Wells area (SRK04-2A/B), 2 monitoring wells were installed in the ETA (SRK04-3A/B and SRK04-4), and 1 monitoring well was installed downstream from the Grum Waste Dump (SRK04-5a/b) (SRK and RGC, 2006).
- In 2004 and 2005, 3 monitoring wells (BGC04-01, FC02, and FC03) were installed near the southwest wall of the Faro Pit in the area of the former alignment of Faro Creek (BGC Engineering, 2006).
- In 2005, 6 monitoring wells (SRK05-SP01 through SRK05-SP06) were installed in the S-Wells area and 4 drivepoints (SRK05-DP1 through SRK05-DP4) were installed in the adjacent reach of NFRC (SRK and RGC, 2006).
- In 2005, 6 monitoring wells were installed downstream from the Grum Waste Dump (P96-9B(R), SRK05-5C, and SRK05-6 through SRK05-9) (SRK and RGC, 2006).
- In 2005, 7 monitoring wells were installed in the ETA (ETA05-01 through ETA05-05, SRK05-ETA-BR1, and SRK05-ETA-BR2) (SRK and RGC, 2006).
- In 2005, 3 monitoring wells (PW3, P05-04 and BH05-01) were installed in the Zone II Outwash area, and 2 drive points (DP-5 and DP-6) were installed in the adjacent reach of NFRC (SRK and RGC, 2007).
- In 2008, 8 monitoring wells (SRK08-SP7a/b, SRK08-SP8a/b, and SRK08-BR1 through SRK08-BR4) and 3 pumping wells (SPW1, SPW2, and SPW4) were installed in the S-Wells area (SRK 2009 – Faro Mine complex 2008 S-Cluster groundwater Investigation and Option Assessment) (SRK, 2009a).
- In 2008, 2 well clusters were installed in the Zone II Outwash area (SRK08-P12A/B and SRK08-P13A/B), 1 monitoring well was installed at the toe of the Faro Main Dump (SRK08-P09), 1 well cluster was installed downgradient from the Faro Mill (SRK08-P10A/B), and 3 monitoring wells were installed at the two of the Grum Waste Dump (SRK08-P14 through SRK08-P16) (SRK, 2008a).
- In 2009, 6 monitoring wells were installed in the S-Wells area (P09-SIS1 through P09-SIS6), and 2 monitoring wells were installed at the toe of Grum Dump West (P09-GW1 and P09-GW3) (SRK, 2010b).
- In 2010, 5 monitoring wells were installed in the Vangorda Waste Dump (PW-10-01 through PW-10-05) and a replacement pumping well was installed in the buried Zone II Pit (PW-10-06) (SRK, 2011).

The majority of these locations have been sampled routinely since they were installed and comprise critical elements of the current site-wide routine groundwater monitoring schedule (CH2M HILL, 2013c). Historical water quality datasets are available for most of these locations and can be accessed through the Environmental Quality Information System (EQuIS) database.

In 2012, CH2M HILL installed six Waste Dump monitoring wells:

- One in the Faro Main Waste Dump, within the historical Faro Creek Channel
- One in the Outer Haul Road West Waste Dump, within a former tributary in the S-Wells area, just downgradient from the installation
- One in the Zone II Waste Dump

- Two in the Grum Waste Dump (one in historical Grum Creek northeast of the Grum Sulphide Cell [GSC] and one immediately downgradient from the GSC)
- One in the Vangorda Waste Dump Sulphide Cell

Each installation included up to six soil-gas probes, a thermistor access port, and a groundwater monitoring well. Monitoring well CH12-014-MW005 was completed in the Waste Dump and shallow underlying alluvium. It did not extend to bedrock, because of issues encountered during drilling. The monitoring well was dry when it was installed, and no water has been detected during subsequent monitoring events; however, gas and temperature are monitored at this location. Single-well aquifer tests took place at all wells (except for CH12-014-MW005) to estimate the hydraulic conductivity of the underlying alluvial aquifers. Pressure transducers were installed at all monitoring wells; these were programmed to record water levels daily throughout the year to assist in understanding the seasonal groundwater fluctuations below the Waste Dumps. Each well was monitored twice following installation: once immediately following installation and development (September and October, 2012); and once in late February or early March, 2013 (CH2M HILL, 2013g). The following section summarizes the monitoring results.

1.4.5 Waste Rock Dump Temperature Profile and Soil Gas Monitoring

SRK conducted a Waste Dump temperature profile and soil gas monitoring program between 2002 and 2010. Seven Waste Dump boreholes were advanced in 2002 (SRK, 2004a):

- Two at the Intermediate Waste Dump
- Three at the Grum Waste Dump
- Two at the Vangorda Waste Dump

These boreholes were completed with monitoring wells, soil-gas monitoring tubes, and thermistors. Locations were monitored three times a year from 2003 until 2009. Results from SRK's monitoring program indicate that, in general, thermal convection is the primary mechanism for oxygen entry into the Faro and Vangorda Waste Dumps. However, the results for the GSC suggest oxygen may be limited by diffusion where there is a smaller temperature gradient. Based on temperature trends, reaction rates in the waste rock with the highest sulphur contents at both Faro and Vangorda Waste Dumps may be decreasing and similar rates in more typical waste rock at both Faro and Vangorda may be increasing (SRK, 2004b). At the Grum Waste Dump, temperatures appear to be stable, which indicates oxidation rates remain constant. Seasonal monitoring has been important to demonstrate the changes in air flow through waste rock, depending on seasonal temperatures; in particular, the results in the Faro Mine Area show evidence of stronger convection during the cold months (SRK, 2010a).

1.4.6 Summary of CH2M HILL 2012 Waste Dump Field Investigations

After the CH2M HILL Waste Dump monitoring wells were installed, temperature and soil gas monitoring took place three times: once immediately following installation; once in September 2012 and once in February or March 2013. Results gathered from these events indicate the influx of oxygen is diffusion limited, especially in the Grum Waste Dump (CH2M HILL, 2013h). It is unclear if this can be attributed to low-permeability bulk waste rock, or low-permeability compacted surface material. This raises concerns about the temporary reactivity of the Waste Dumps when they are regraded for cap placement during closure (since the waste rock will be temporariliy exposed to oxygen). It also suggests a proper capping system can limit the reactivity of high-sulphide areas by limiting oxygen flow through the waste rock.

Following the 2012 field season, CH2M HILL developed a report that analyzed the 2012 data in detail, and offered the following conclusions (CH2M HILL, 2013g):

- Most Waste Dump seeps were non-acidic-to mildly acidic and contained elevated cadmium and zinc. When compared with historical seep data, pH and alkalinity values seemed to be decreasing, while concentrations of sulphate and zinc were increasing.
- The Faro and Vangorda Waste Dumps are potentially acid-generating (PAG) and will likely become acidic in the future. The Grum Waste Dump was non-PAG, except for the GSC, which is known to be acid-generating.

This does not mean the Grum Waste Dump will not generate net acidic water in the future, but the amount and degree of acidification is likely to be much lower than either the Vangorda or Faro Valley Waste Dumps.

- The hydraulic gradient indicated by local monitoring wells suggests water under the Waste Dumps flows along the pre-mining drainage paths.
- Geochemical changes are noted between the Waste Dump monitoring wells and the downstream corresponding seepage locations; however, long-term monitoring will be required to establish significant trends in the data set.
- The range of hydraulic conductivity values obtained for alluvial materials beneath the Waste Dump were between $1x10^{-5}$ m/s and $5.8x10^{-5}$ m/s; Values for weathered bedrock were approximately $1.2x10^{-7}$ m/s.

1.4.7 Pit Lake Investigations

A pit lake biological treatment investigation was initiated in 2004 and continued through 2011 (Nordin, 2011). The investigation involved adding doses of fertilizer to the Faro and Grum Pit lakes to promote algal growth, and monitoring the water quality and physical limnology within the Faro, Grum, and Vangorda Pit lakes. The water quality and limnology monitoring consisted of periodically measuring geochemical field parameter depth profiles and collecting water quality samples from various depths within each pit lake (SRK, 2008b).

Results of water quality monitoring at the Faro Pit indicated that biological treatment effectively reduced zinc concentrations, but the biomass generated inhibited precipitate settling in the water treatment plant. As a result, fertilizer addition in Faro Pit was halted in July 2005 (SRK, 2006a). Using data from 2004 until 2008, it was estimated that net zinc loadings to the Faro Pit were 47 tonnes per year (on average), and net sulphate loadings were 827 tonnes per year (on average) (SRK, 2010c). About 25 percent of the zinc load was attributed to influent from the Zone II Pit pumping well, and the remaining 75 percent was attributed to the pit wall rock and seepage from waste rock dumps within the pit lake catchment (SRK, 2010c). Field parameter depth profiles indicated a thermocline developed at 5-6 metres below ground surface (mbgs) annually during the open water months, and a chemocline persisted year-round between 15 and 30 mbgs (SRK, 2010c)

Results of water quality monitoring at the Grum Pit indicated that the biological treatment effectively reduced zinc concentrations. It was estimated that the zinc removal associated with biological treatment decreased the volume-weighted zinc concentration in the Grum Pit Lake from greater than 10 milligrams per litre (mg/L) in 2005 to about 4.8 mg/L in 2009. Using data from 2004 to 2008, it was estimated that net zinc loadings to the Grum Pit were between 3 and 4 tonnes per year (on average), and net sulphate loadings were between of 110 and 120 tonnes per annum (on average) (SRK, 2010c). The zinc loading appeared to be associated predominantly with wall rock runoff, and to a lesser extent with solute release from wall rock as the pit lake water level rose (SRK, 2010c). Field parameter depth profiles indicated that a strong thermocline and chemocline developed in upper 10 m of the pit lake during the open-water months, while deeper profiles were more uniform. It was surmised that mixing within the upper 15 m of the pit lake typically took place annually, in late autumn (SRK, 2010c).

Although the Vangorda Pit was deemed potentially suitable for biological treatment in (Lorax Environmental, 2004), no records indicate fertilizer was added to the pit. Using data from 2004 to 2008 data, it was estimated that net zinc loading to the Vangorda Pit lake was 70 tonnes per year (on average), and net sulphate loading was 447 tonnes per year (on average). Before 2008, solute loading was attributed to dissolution of metals present in treatment sludges that were previously deposited in the pit, as well as influent seepage from wall rocks and in-pit waste rock dumps. In 2008, it was concluded that all the treatment sludges had been dissolved, and that further increases in solute concentrations would be attributed solely to influent seepage from wall rocks and in-pit waste rock dumps. Field parameter depth profiles from the Vangorda Pit lake exhibited strong pH and conductivity stratification from 2004 through 2007 (SRK, 2008c). During 2008 and 2009, the water within Vangorda pit became well-mixed across the entire water column (SRK, 2010c).

In 2012, CH2M HILL contracted Laberge environmental to collect water samples from 10-m and 80-m depths within Faro Pit lake for sludge stability testing. The sludge stability testing was to involve mixing quantities of WTP sludge produced by pilot-scale WTPs (CH2M HILL 2012b) with water collected from depth in the Faro Pit to

evaluate how well the sludge constituents would remain immobilized if the sludge were deposited in Faro Pit. The sample bag containing the 80-m depth sample leaked before it could be analyzed, so the test was cancelled.

1.5 Water Quality Classification

This report describes water quality characteristics by the relative level of contamination (impact) based on concentrations of sulphate, zinc, and pH. Sulphate and zinc are used as indicator parameters for ARD. Sulphate is used because it is a conservative and abundant constituent that is generally a good indicator for acid rock drainage. Zinc is used as an indicator representing other trace metals that are released during acid rock drainage production because it soluble over a wide pH and is present in higher concentrations than other trace metals. Therefore, it provides a better resolution for analytical testing and trend analysis.

The following sections characterize geochemical conditions based on the system outlined in the *Conceptual Site Model Report* (CH2M HILL, 2012a):

- Not impacted or minimally impacted: sulphate less than or equal to (≤) 40 mg/L and zinc ≤0.05 mg/L
- Slightly impacted: sulphate greater than (>) 40 mg/L and ≤400 mg/L, and zinc >0.05 mg/L and ≤0.5 mg/L
- Moderately impacted: sulphate >400 mg/L and ≤4,000 mg/L, and zinc >0.5 mg/L and ≤5 mg/L
- Highly impacted: sulphate >4,000 mg/L, and zinc >5 mg/L

The pH is classified as follows:

- acidic : <6.5
- near-neutral: >6.5 and <7.5
- alkaline: >7.5

1.6 Screening Criteria

CH2M HILL compared the water quality analytical results provided in Tables 1-1 and 1-2 with relevant screening criteria to provide a level of comparison for data collected across the FMC. These criteria were used for comparison purposes and were not used to identify regulatory exceedances. The following subsections describe these screening criteria.

1.6.1 Groundwater

Groundwater analytical results were compared with the *Federal Interim Groundwater Quality Guidelines for the Protection of Aquatic Life* assuming Industrial Land Use (Environment Canada, 2010). The Federal Interim Groundwater Quality Guidelines are based on the assumption that there is at least a 10-m flow path between the sample location and the nearest surface water body, which prevents exposure to freshwater aquatic life.

Certain parameters depend on other measured criteria (i.e., hardness and pH). These the Canadian Council of Ministers of the Environment's Canadian Environmental Quality Guidelines for freshwater aquatic life (2007) to provide a screening level.

1.6.2 Seep Water

Seepage water analytical results in this report were compared with the Canadian Council of Ministers of the Environment's *Canadian Environmental Quality Guidelines for Freshwater Aquatic life* (2007).

The Canadian Water Quality Guidelines are intended to protect freshwater and marine life from anthropogenic stressors such as chemical inputs or changes to physical components. Guidelines are numerical limits or narrative statements based on the most current, scientifically defensible toxicological data available for the parameter of interest (CCME, 1999).

The *Water Quality Guidelines for the Protection of Aquatic Life* specify short-term and long-term toxicity values for parameters including chloride, nitrate, boron, and uranium (Environment Canada, 2010). For this report, long-term toxicity values were used as the screening level for these parameters. For this report, Oligotrophic was chosen as the trophic status to screen phosphorus in surface water samples.

1.7 Trend Analysis

Trends in seepage chemistry are evaluated for key parameters in targeted seeps with sufficient data sets. CH2M HILL used time-series plots (Figures 1-4 to 1-13) and a Mann-Kendall analysis (Figure 1-14) to evaluate these changes over time.

A Mann-Kendall analysis was used to identify statistically significant trends in water quality parameters in samples collected from the Faro, Grum, and Vangorda seeps over the entire period of record. The Mann-Kendall analysis was performed using the Microsoft Excel platform to compute a nonparametric correlation coefficient, tau, and its test of significance. The analysis requires at least 10 measured (detectable) readings, assumes no distribution, does not require a regular sampling interval, and is capable calculating results based on incomplete datasets (Gilbert, 1987). The Mann-Kendall test was performed as follows:

1. Chose significance levels.
2. List the data in temporal order.
3. Compare each data point to the points that follow in time.
4. Compare the number of times the data increase to the number of times the data decrease.

   Note: The greater the number of increases or decreases, the more evidence there is for an upward or downward trend.

Only trends above a 95 percent significance level were considered. Ten detectable concentrations were required in the data set. If there were more than 10 detectable concentrations, one-half of the method detection limit was used as the assumed value for non-detects. The analysis was used to evaluate trends in pH, alkalinity, sulphate, iron, zinc and magnesium (Figure 1-14).

SECTION 2

Field Investigation Activities

2.1 Summary

The field investigation consisted of the following activities. Subsequent sections describe each activity in greater detail.

- Spring event (June 11 to July 14, 2013):
  - Collected groundwater samples from 5 CH2M HILL Waste Dump wells following Standard Operating Procedure (SOP) MSR029 (CH2M HILL, 2013i).
  - Monitored oxygen (O_2) and carbon dioxide (CO_2) Waste Dump pore gas concentrations at six CH2M HILL Waste Dump wells following SMP012 (CH2M HILL, 2013d). Cracks were discovered in the polyvinyl chloride fittings at the top of the gas probes at multiple installations. These cracks were repaired with epoxy.
  - Collected Waste Dump temperature profiles at six CH2M HILL Waste Dump wells following SOP IN001 (CH2M HILL, 2013j).
  - Downloaded water level data from dataloggers at four CH2M HILL Waste Dump wells following SOP MSR004 (CH2M HILL, 2013k).
  - 153 seep locations were visited and observed. Field parameters were collected at each flowing location.
  - Of the 153 seep locations, 48 seeps were sampled for laboratory analysis.
- Fall event (September 12 to September 18, 2013)
  - Collected groundwater samples from five CH2M HILL Waste Dump wells following SOP MSR029 (CH2M HILL, 2013i).
  - Monitored O_2 and CO_2 Waste Dump pore gas concentrations at six CH2M HILL Waste Dump wells following SMP012 (CH2M HILL, 2013l).
  - Collected Waste Dump temperature profiles at six CH2M HILL Waste Dump wells following SOP IN001 (CH2M HILL, 2013j).
  - Downloaded water level data from dataloggers at four CH2M HILL Waste Dump wells following SOP MSR004 (CH2M HILL, 2013k).
  - Visited and observed 134 seep locations. Measured field parameters at each flowing location.
  - Of the 134 seep locations, sampled 48 seeps sampled for laboratory analysis.
  - Visited and observed 25 boat access pit seep location. Measured field parameters and collected samples for laboratory analysis from 12 locations.
  - Collected pit lake geochemical profile data in the Vangorda, Grum, and Faro Pit lakes.
  - Collected a water sample from a depth of 80 m within the Faro Pit lake.

2.2 Electronic Data Collection

The field measurements and observations gathered during the 2013 Waste Dump monitoring and seep sampling events performed by CH2M HILL were recorded electronically using Samsung Galaxy Tab 2 10.1 tablets with Android operating systems. The seep sampling, soil gas sampling and thermistor monitoring field data were recorded in electronic forms generated using the application Memento Database. These forms included fields for text, numbers, and Boolean entry, as well as photograph capture and global positioning system (GPS) coordinate

capture functions. The groundwater purge data were recorded using spreadsheet-based forms with the application Kingsoft Office. The collected data were uploaded to the project SharePoint site daily.

2.2.1 Groundwater Level Monitoring

Continuous groundwater level monitoring was carried out according to SOP MSR004, *Continuous Water-Level Monitoring SOP* (CH2M HILL, 2013k) using In-Situ Inc. Level TROLL 700 Instruments programmed to record daily pressure measurements. The readings were calibrated to discrete water level measurements taken before the data logger was removed during each download event.

Continuous water-level measurements were logged at five of the Waste Dump monitoring wells from October 10, 2012 through September 16, 2013). Water level measurements were not collected at CH12-014-MW005 because the well was dry. The data logger deployed in CH12-014-MW012 failed in December 2012 and was replaced in November 2013. As a result, the continuous water level measurement data set from CH12-014-MW012 only spans from September 2012 to December 2012, with periodic manual readings between March 2013 and November 2013.

Field personnel noted that the fixtures used to suspend the data-loggers in the wells allowed the loggers' vertical position to inadvertently shift within the wells during download and groundwater purge activities, creating the possibility for errors. CH2M HILL recommends the datalogger cables be marked where they align with the top of the well casing during future monitoring events, so they are consistently returned to the same position on re-installation.

Figure 2-1 shows the results of the water level monitoring.

2.2.2 Groundwater Sampling

Low-flow groundwater purging and sampling took place at five CH2M HILL Waste Dump wells (CH12-014-MW003, CH12-014-MW007, CH12-014-MW011, CH12-014-MW012 and CH12-014-MW013) during the spring and fall of 2013 according to SOP MSR009 (CH2M HILL, 2013i). A sixth monitoring well, CH12-014-MW005, was not sampled because it was dry. Wells were purged at low-flow rates, using a submersible centrifugal pump. During the spring monitoring event, all wells were purged with a Proactive MegaMonsoon SS pump. During the fall monitoring event, the same pump was used to purge CH12-014-MW003 and CH12-014-MW011. After encountering difficulties purging water from some of the deeper depths, CH12-014-MW007 was purged with a Geosub Geopump, and CH12-014-MW012 and CH12-014-MW013 were purged with a Grundfos Redi-flo2. Field parameters were measured using a YSI 6820 V2 multiparameter probe with a flow-through cell. The sonde was calibrated daily according to SOP MSR003 (CH2M HILL, 2013m). After field parameters stabilized to within acceptable criteria or three well volumes had been removed, groundwater samples were collected for laboratory analysis. This process followed SOP MSR001 (CH2M HILL, 2013i).

Appendix A provides a photograph log from the groundwater sampling events. Table 1-2 provides the analytical results.

2.2.3 Thermistor

Thermistor monitoring took place at the six CH2M HILL Waste Dump wells in the spring and fall of 2013 according to the procedures provided in SOP INL001*, Thermistor Installation and Monitoring* (CH2M HILL, 2013j). An RST thermistor string was deployed by lowering it into the 1-inch polyvinyl chloride thermistor port at each monitoring installation until the lowest bead rested against the bottom of the port. The string was left deployed for at least 1 hour to allow temperatures to stabilize. Multiple temperature readings from all beads along the length of the string were measured at intervals of at least 10 minutes to confirm temperatures at each bead were stabilized to within +/- 0.1 degree Celsius for 10 consecutive minutes.

Appendix A provides photographs from the thermistor monitoring. Table 2-1 provides analytical results. Figures 2-2 and 2-3 present plotted temperature depth profiles.

2.2.4 Soil-gas

Soil-gas monitoring was conducted at the six CH2M HILL Waste Dump wells in the spring and fall of 2013 according to the procedures provided in SOP SMP012, *Waste Dump Gas Monitoring Installations* (CH2M HILL, 2013l). At each installation, a gas purging manifold assembled from stainless steel ball valves, Swagelock compression fittings, nylon tubing, and Bios Air Calibrator flow rate meters were connected to the monitoring well gas probes and the vacuum pump, gas detector, and manometer. Figure 2-4 provides a labelled photograph of the assembled apparatus. The configuration of valves allowed all probes to be purged simultaneously and allowed each probe to be isolated during sampling. Air was purged using a Gilian GilAir 5 vacuum pump. Vacuum pressures were measured with a Dwyer digital manometer. Because some probes were screened in more permeable material than others, an attempt was made to balance the flow rate between probes by opening or closing manifold valves, based on the relative permeability of the material in the sampling interval. A volume of air equivalent to at least three well volumes, including sand pack void space, was purged from each probe.

During each sampling event, gas concentrations were measured using either an RKI Eagle-2 gas detector equipped to measure O_2 and CO_2, or a GEM Landfill Gas Monitor. The GEM Landfill Gas Monitor was used during the spring sampling event because the CO_2 sensor on the RKI Eagle-2 failed. The monitoring instruments were calibrated at the equipment supplier laboratory before they were used. O_2 and CO_2 values were also zeroed to atmospheric conditions (20.9 and 0.0 percent volume, respectively) before each measurement. Gas measurements were recorded periodically during the purging process.

Table 2-2 provides final stabilized gas measurement readings and analytical results. Appendix A provides photographs from the gas monitoring events. Figures 2-2 and 2-3 present plotted gas concentration depth profiles.

2.2.5 Leak Testing

Before sampling each well, a Helium (He) gas leak check was performed. The gas probe caps and tubing were isolated from the atmosphere by placing a plastic bag over the system and attaching it to the well casing with tape. The bag was then filled with He gas and the pump was activated. A Radio Detection MGD2002 He detector was then used to measure the He concentration at the pump outlet to determine whether the system was leaking. Readings from the pump exhaust did not exceed zero parts per million. Therefore, leaks did not appear to be influencing the results.

2.2.6 Seep Sampling

The 2013 spring seep sampling event took place between June 10 and July 14, and the fall seep sampling event took place between September 11 and September 19. These events followed FSP SW-015 (CH2M HILL, 2013c) and SOP SMP015 (CH2M HILL, 2013n). Seep locations were surveyed with a tablet with a built-in GPS unit; coordinates were measured to an accuracy of approximately ± 5 m. Seep stations were photographed to document general appearance. A stake with pink and green survey flagging was placed near the sampling location and labelled with the station identifier.

After identifying the seep sample locations, samples were collected using techniques described in SOP SMP015 (CH2M HILL, 2013n). Field parameters were measured using a YSI 556 handheld multiparameter probe that was calibrated daily according to SOP MSR003 (CH2M HILL, 2014). Most seep discharge rates were measured by observing the time required to fill or partly fill a container with calibrated volume markings. Some seeps could not be captured in a container, so flow rates were visually estimated.

At locations selected for laboratory analysis, sample bottles were filled using one of the following methods:

- Where channel or pool depths allowed, sample bottles were filled either by immersing the bottles directly in the flow or by using one of the smaller bottles as a dipper to fill each bottle.
- Where seepage channels were too shallow to use these methods, bottles were filled either by placing them at the flowing spout of a funnel placed in the seepage flow, or by using a syringe to draw water from the seepage flow and discharge it to the bottles.

A total of 156 previously established seep stations were targeted for monitoring in 2013. Field parameters and observations were collected at all locations and a smaller subset was targeted for sampling. Seeps were selected for analytical sampling based on frequency of historical sampling, geochemical modelling needs, and environmental monitoring needs. New sampling locations were established where data gaps were identified. During the spring sampling event 151 seeps were visited, 48 of which were sampled. During the fall sampling event, 134 seeps were visited, 50 of which were sampled.

CH2M HILL, 2013g describes seep locations visited in 2012. The following list describes seep monitoring locations established in 2013:

- Monitoring locations RCTA-01 and RCTA-02 were established during the spring sampling event. These are at two locations where culverts' direct surface water flows from the north slope of the Rose Creek Valley beneath the road just north of the Rotator the Intermediate Impoundment. Both of these locations were dry during spring and fall sampling events. Staining along flowpaths indicated evidence of flows. These locations will continue to be monitored during future seep sampling events.
- Monitoring locations CH-RCTA-08 and CH-RCTA-04 were established during the spring sampling event at the southeast corner of the Intermediate Impoundment. These are located at two points along the path of a large seepage flow that originates below the RCD fuse plug and travels west over the tailings surface. Flow at these locations persisted throughout the summer. The flowpath is characterized by prevalent iron precipitate. It is believed that this flow is a mix of impacted pore water seepage from the Secondary Tailings and non-impacted water seeping from the RCD through the fuse plug. RGC (1996) indicates surface monitoring location X1, identified in the text as "Old Tailings Pond decant", existed in the same area where the observed seepage flows daylight. These locations will only be monitored for field parameters during future seep sampling events.
- Monitoring locations CH-RCTA-07 and CH-RCTA-03 were established during the spring and fall sampling events. These are located at two points along the south slope of the Secondary Tailings where seepage contributes to the channel that was sampled at CH-RCTA-08 and CH-RCTA-04. A broad seepage trickle emanates along the base of this slope, along an approximately 200-m long reach of the channel downstream of the fuse plug. These seeps contribute the majority of the contaminant loading observed in the channel at CH-RCTA-08 and CH-RCTA-04. These seeps will continue to be sampled for laboratory analysis during future seep sampling events.
- Monitoring location CH-RCTA-06 was established during the spring sampling event. It is located at a large pool with dark red sediment at the south edge of the Intermediate Impoundment. Water was present at this location during both spring and fall sampling events, but was stagnant on both occasions. This location will not be sampled or monitored in future seep sampling events.
- Monitoring location CH-RCTA-05 was established during the spring sampling event at the south edge of the Intermediate Impoundment, where a small seep emerges from the north slope of the RCD dike. It is assumed that this water leaks out of the RCD. This location may be periodically monitored for field parameters during future seep sampling events.
- Monitoring location CH-FD-66 was established during the spring sampling event. It is located approximately 16 m southwest of location SRK-FD38, where a small trickle emerged from the west bank of Low Grade Stockpile C. This trickle pooled and infiltrated upgradient of SRK-FD38, but within the same ditch. This location will continue to be monitored during future seep sampling events.
- Monitoring location CH-FD-67 was established during the spring sampling event at the southeast edge of the Oxide Fines Pile, on the edge of the haul road. The water was a shallow pool with no observable flow. This location may be periodically monitored for field parameters during future seep sampling events.
- Monitoring location CH-FD-68 was established approximately 18 m southeast and upgradient of location SRK-FD21. At this location, a small trickle emerged from the north edge of the Lower Northeast Dump in a

ditch at the side of the road, and flowed toward the FCD. This location will continue to be monitored during future seep sampling events.

- Monitoring location CH-FD-69 was established during the spring sampling event. It is located approximately 20 m southeast of SRK-FD26 at a small pool that abuts the northwest toe of the Zone II Waste Dump. No flow was detected at this location in 2013, but it may be hydraulically connected to CH-FD-70 and SRK-FD26 during higher flow conditions. This location will continue to be monitored during future seep sampling events.
- Monitoring location CH-FD-70 was established during the spring sampling event. It is located upstream from SRK-FD-26 along the same flowpath at the point where the flow emerges from the toe of the Lower Northeast Dump. This location will continue to be monitored during future seep sampling events.
- Monitoring location CH-FD-71 was established during the fall sampling event. It is located within a small, defined channel in the ETA approximately 8 m northwest of CH-FD-64 and just downstream from the confluence point from several small tributary seeps that each originate at the north edge of the ETA. Flows from this location travel southwest across the tailings surface. This location will continue to be monitored during future seep sampling events.
- Monitoring location CH-FD-72 was established during the fall sampling event. It is located in the S-Wells area where water emerges from the base of the haul road, approximately 7 m northwest of CH-FD-56. This location will continue to be monitored during future seep sampling events.
- Monitoring location CH-MILL-04 was established at the base of a concrete footwall east of the Mill Building, approximately 60 m north and upstream of CH-MILL-03. Seepage at this location emerged at the base of the footwall and migrated south over the ground surface. This location will continue to be monitored during future seep sampling events.
- Monitoring location CH-FP-39 was established during the fall sampling event. It is located in a seep that flows east along the 4030 Bench of the Faro Pit and converges with flow from SRK-FD40. The flow at CH-FP-39 originates from one of the Faro Valley overburden drainhole installations described in (Piteau & Associates, 1978). This location will continue to be monitored during future seep sampling events.
- Monitoring location CH-FP-40 was established during the fall sampling event. It is located downstream from SRK-FD40 and upstream from CH-FP-36, on the 4030 Bench of the Faro Pit. This location was mistaken for CH-FP-36 when it was established. It will not be sampled or monitored during future seep sampling events.
- Four new monitoring locations (CH-FP-33, CH-FP-34, CH-FP-35, and CH-FP-36) were established during the spring sampling event. They are located along the north wall of the Faro Pit, where seepage flowpaths cross the 4030 Bench before discharging to the Faro Pit lake. Location CH-FP-33 is downstream from existing seepage monitoring station CH-FP-26 and upstream from the boat-accessible pit seep location FP15. Station CH-FP-34 is located downstream from existing seepage monitoring station CH-FP-22. Location CH-FP-36 was established where flows from SRK-FD40 and CH-FP-39 converge before pouring over the edge of the 4030 Bench to the Faro Pit lake. It appears that CH-FP-36 is the located where RGC (1996) describes and maps the original A30 collection sump. The current routine monitoring station A30 is located approximately 100 m upstream from this location along a distinct flowpath. Maps from RGC (1996) indicate this flowpath was formerly diverted to the A30 sump. This location will continue to be monitored during future seep sampling events.
- In September 2013, two new monitoring locations (CH-FP-38 and CH-FP-41) were established at the southeast wall of the Faro Pit. These are located at two flowpaths downstream from seeps SRK-FD24 and CH-FD-59. During the 2012 and spring 2013 monitoring events, seepage in this area was monitored at location CH-FP-23. In 2013, the water treatment plant did not operate, and as a result, water levels in the Faro Pit rose, and in September CH-FP-23 was submerged. CH-FP-38 was selected as an alternate monitoring point on the slope

above CH-FP-23. Monitoring point CH-FP-41 was established approximately 70 m north of CH-FP-23, where a separate branch of the seepage from SRK-FD24 and CH-FD-59 discharges to the Faro Pit.

  - Location CH-FP-41 will continue to be monitored during future seep sampling events.
  - Location CH-FP-38 will continue to be monitored during future seep sampling events, unless the water level in the Faro Pit drops sufficiently to expose the previous monitoring location CH-FP-23, in which case the previous location will be monitored.

- Monitoring location CH-GP-27 was established during the spring sampling event. It is located at the north wall of the Grum Pit in a ditch flow at the north edge of the pit ramp road that drains the combined flows from seeps GP04 through GP10 to the Grum Pit Lake. This location replaced sampling location CH-GP-21 after it was noted that the lower portion of the Grum Pit ramp had been reconfigured sometime after the September 2012 seep sampling event and a culvert had been installed at former CH-GP-21 location. This location will continue to be monitored during future seep sampling events. CH-GP-21 will no longer be monitored.
- Monitoring location CH-GP-29 was established during the fall sampling event. It is located upstream from CH-GP-27 in the northeast corner of a bench that runs along the northwestern edge of the Grum Pit. Water at this location consists of the combined seepage from nearby locations GP04 and GP05. This location will continue to be monitored during future seep sampling events.
- Monitoring location CH-GP-28 was established during the spring sampling event. It is located where a seep emerges at the north edge of the Slot Cut in Grum Pit, just above the Grum Pit lake surface. This location is approximately halfway between monitoring locations GP12 and GP14. This location will continue to be monitored during future seep sampling events.
- Monitoring location CH-GP-30 was established during the fall sampling event. It is located approximately 4 m east of GP12, where seepage emerges and flows toward the Grum Pit lake along a flowpath distinct from and parallel to GP12. The flowpath appearance is characterized by prominent iron oxide precipitate. This location will continue to be monitored in future seep sampling events.
- Monitoring location CH-VP-21 was established during the spring sampling event. It is located at the top of the Vangorda in-Pit Waste Dump southeast of the pit ramp (Identified as “VPL1” in site-wide water quality modelling reports, including Gomm Environmental Engineering Consulting [2010]). This location will continue to be monitored during future seep sampling events.

Tables 2-3 and 1-2 provide the results of the 2013 seep monitoring program. Table 2-3 summarizes the seeps monitored in spring and fall and lists the coordinates for each location. Table 1-2 provides measured field parameters and analytical data from monitored locations. Figures 2-5 through 2-10 show the locations of the seeps visited in 2013. Appendix A contains photographs of the seep locations visited in 2013.

2.2.7 Pit Lake Seep Sampling

Laberge Environmental Services (Laberge) sampled seep, at boat-accessible locations for all three pits from September 14 to September 15 2013. A total of 25 locations were visited and 12 seeps were sampled, including 9 from Faro Pit, 2 from Grum pit, and 1 from the Vangorda Pit. Seeps were located using printed maps and a handheld Garmin GPS unit uploaded with historical seep location coordinates. Field parameters were measured using a YSI 600 XLM water sonde. Samples were collected and submitted to ALS Laboratory Group (ALS) for analysis. Appendix B provides the field summary report for these activities. Table 1-2 provides the analytical results.

2.2.8 Pit Lake Profiles

During September 2013, Laberge completed Profiles for the Faro, Grum, and Vangorda Pit lakes. To do so, they used a 600 XLM YSI water sonde and a Seabird CTD deployed from surface. Appendix B provides the field summary report for these activities.

2.2.9 Replacement Faro Pit Lake Sample

On September 14, 2013 Laberge collected two replacement water samples and duplicates from a depth of 80 m, within the Faro Pit lake. These samples were collected to replace a sample collected from 80-m depth within the Faro Pit Lake from September 2012 that leaked before it was shipped (the leaked sample could not be used for sludge stability testing, so a replacement sample was required). Laberge collected the replacement samples from a boat moored to a sampling buoy at the deepest part of the pit. The samples were sent to ALS. Laberge also collected a 10-litre water sample from the Faro Pit for sludge stability testing, using an evacuated Teflon sample bag. It was subsequently determined that the pilot WTP sludge produced in 2012 (CH2M HILL, 2012b) had been disposed of by ASL laboratories earlier in 2013, so the sludge stability testing was cancelled. WTP sludge stability within Faro Pit will be evaluated using geochemical modelling. Appendix B provides the field summary report for these activities.

2.2.10 Laboratory Testing

ALS completed laboratory testing for seep and Waste Dump groundwater samples in accordance with the Quality Assurance Plan, and the Seep and Waste Dump Monitoring FSPs. (CH2M HILL, 2012c, 2013c and 2013d). A total of 121 water samples, 15 duplicates, and 10 equipment blanks were collected between June 10 and September 19, 2013 and submitted to ALS Whitehorse and ALS Vancouver for the following parameters:

- Dissolved (filtered) metals (field filtered with 0.45-micrometre inline filter), including aluminum, antimony, arsenic, barium, beryllium, boron, calcium, cadmium, chromium, cobalt, copper, iron, lead, lithium, magnesium, manganese, mercury, molybdenum, nickel, potassium, selenium, silica, silver, sodium, strontium, sulphur, thallium, titanium, uranium, and zinc
- Unfiltered free cyanide (only sampled for seeps flowing to the receiving environment)
- Acidity (American Public Health Association Method 2310 (1998)) on samples with > 10 mg/L hydrolysable metals (i.e., aluminum, iron, and manganese) or pH < 7.5. For samples with > 15 mg/L iron or pH < 5, the Hot Peroxide Acidity method (American Public Health Association Method 2320 [1998]) was used.
- Ferrous iron testing followed the Ferrozine method adapted from Ball et al. (1999)
- General chemistry parameters:
  - Alkalinity (including calculated carbonate and bicarbonate) on samples with pH > 4.5
  - Anions (sulphate, chloride, fluoride, and nitrate and nitrite, ortho-phosphate)
  - Dissolved organic carbon (field-filtered with 0.45-micrometre inline filter)
  - Total suspended solids
  - Total dissolved solids

Table 1-1 presents analytical results for the groundwater sampling. Table 1-2 presents analytical results for the seep sampling.

2.2.11 Quality Assurance/Quality Control

Data Quality Evaluation Reports were generated for the 2013 spring and fall Waste Dump and seep sampling events. The reports present general data quality assessments that summarize validation methodologies, issues encountered, and flags assigned to data.

No samples were rejected, but some samples were flagged because they exceeded short holding times and sample temperature acceptance criteria. The holding time and temperature exceedances were a result of the FMC's remote location, insufficient ice, and laboratory capacity shortages. Corrective actions were taken to prevent time and temperature exceedances from happening again. The overall quality of the analytical program and laboratory met the standards of 90 percent completeness set out the Quality Assurance Plan (CH2M HILL, 2012c).

Appendix C provides complete Data Quality Evaluation Reports.

2.2.11.1 Deviations

- During the spring 2013 monitoring event, cracks were observed in the 1-inch polyvinyl chloride female threaded couplers at the top of the gas ports at installations CH12-014-MW003, CH12-014-MW007, CH12-014-MW011, CH12-014-MW012, and CH2M-014-MW013. The cracks ran along fittings' longitudinal axes and allowed atmospheric air to enter the ports. It is assumed that these cracks were caused by torque transferred to the male national pipe thread fitting while connecting the probes to the gas sampling manifold. The damaged port fittings were repaired by applying epoxy over the cracks on the outside surface of the female fitting and by reassembling the male and female fittings with a layer of epoxy applied to their mating surfaces, thereby permanently fixing them together. The epoxy used for these repairs was West System G-flex 655. At CH12-014-MW003, the cracks were not observed until several days after the thermistor and gas measurements had been performed. The helium leak testing performed during gas purge did not reveal leaks at this installation, but subsequent examination of the collected data revealed anomalously high oxygen concentrations measured at gas port CH12-014-MW003B, compared with previous monitoring events. This indicated a likely atmospheric gas leak, so the data from this port was discarded. This leak may not have been detected by the helium leak test because the test may have been concluded prematurely. Subsequent leak tests were performed according to the modified procedure described herein.
- The helium leak test procedure outlined in SOP SMP012*, Waste Rock Dump Gas Monitoring* (CH2M HILL, 2013l) was found to be cumbersome and difficult to implement in the field. The procedure involved balancing the assembled gas manifold and tubing within the top of the well casing. This sometimes caused the tubing to kink, and made it difficult to seal the garbage bag over the assembly. This procedure was modified so the gas port connections at the well head were sealed and tested separately from the manifold. First, a garbage bag was sealed over the well head and filled with helium. The vacuum pump exhaust was monitored for helium detection for at least 1 minute, using an MGD Radiometrics Helium detector. After this test was complete and discovered leaks had been remedied, a second garbage bag was sealed over the gas manifold and filled with helium. This procedure also improved the original procedure because the manifold valve assembly remained accessible while the gas port connections were tested for leaks, which allowed individual gas probes to be easily isolated. This made it easier to locate the source of detected leaks.
- The electronic record of the field parameters measured at monitoring well CH12-014-MW012 on July 4, 2013 was mistakenly overwritten. Attempts to recover the data were unsuccessful. Corrective actions were taken so that collected data were uploaded to the project SharePoint site daily, so original records were preserved. An SOP for electronic data capture will be developed. It will require that final stabilized field parameter measurements are recoded on a hard copy within field logbooks, in addition to the electronic copy.

SECTION 3

Data Analysis

3.1 Groundwater Levels

3.1.1 Faro Mine Area

Monitoring well CH12-014-MW003 is installed through the north edge of the Main Dump and is screened in underlying bedrock and alluvium in the area of the historical Faro Creek Channel. The results from continuous water level monitoring are plotted in Figure 2-1. The water level at CH12-014-MW003 remained stable from October 2012 throughout the winter and rose sharply starting on May 21, concomitant with the onset of freshet. The water level peaked on June 4, approximately 35 centimetres (cm) higher than the average winter level. The water level fell sharply after June 4 and eventually stabilized in early August, approximately 25 cm below the June peak water levels, but still higher than the winter level. Throughout August, the water level rose again. This increase coincided with the increase in Faro Pit lake water level, which resulted from shutting down the water treatment plant and not pumping the pit during 2013. The water level in CH12-014-MW003 still appeared to be rising on September 12 when the last measurement was taken; the water level was measured just 15 cm below the June 4 peak water level. Throughout the monitoring period, the potentiometric surface elevation fluctuated between approximately 10 cm and 50 cm below the bedrock surface elevation indicated on the borehole log for CH12-014-MW003 (1,153.26 mbgs).

Monitoring well CH12-014-MW007 is installed through the Outer Haul Road East Dump directly upgradient from the S-Wells seepage interception system. The well is screened in underlying alluvium at a point generally coincident with a historical creek depicted on pre-mining topographic maps (RGC, 1996) The historical creek drained an area beneath the current Intermediate Dump where a marsh and small pond were located. These flowed through the S-Wells area to the NFRC. The results from continuous water level monitoring are plotted in Figure 2-1. The water level in CH12-014-MW007 rose steadily starting on May 10 2013 and was measured at roughly 20 cm above the average winter water level on June 11. The water level dropped by 10 cm between June 11 and 12, apparently due to drawdown during the spring groundwater sampling event on June 11. The water level began to rise again after June 12 and continued to rise throughout the summer. Groundwater levels still appeared to be rising when the last measurement was recorded on September 12, 2013. At that time, groundwater was roughly 45 cm above the average winter water level. The rising water level at CH12-014-MW007 may be attributed to the increasing water levels in the Faro Pit because Faro Pit appears to be the only possible source of significant groundwater recharge upgradient from CH12-014-MW007. All other upgradient flowpaths are interrupted by the Zone II pumping well (to the northeast) and a drainage divide (to the northwest). The potentiometric surface elevation at CH12-014-MW007 fluctuated within the native alluvium, varying between approximately 15 cm and 80 cm below the native surface contact elevation indicated on the borehole log for CH12-014-MW007 (1,109.66 mbgs).

3.1.2 Grum/Vangorda

Monitoring well CH12-014-MW011 was installed through the eastern edge of the Grum Waste Dump. It is screened in the underlying bedrock and alluvium at a point that coincident with the historical alignment of Grum Creek depicted on pre-mining topographic maps (Steffen Robertson and Kirsten [B.C.] Inc. 1989). The results from continuous water level monitoring are plotted in Figure 2-1. The water level at this location steadily decreased from October 2012 to May 2013, with a total elevation loss of roughly 180 cm. The water level started to rise abruptly on May 16, 2013 and rose approximately 220 cm before it peaked in early July. The water level declined steadily throughout late July and August and was measured approximately 140 cm above the May 16 elevation when the on September 13, 2013. Throughout the monitoring period, the potentiometric surface elevation fluctuated within the native alluvium, varying between approximately 15 cm and 240 cm below the native surface contact elevation indicated on the borehole log for CH12-014-MW011 (1,210.5 mbgs).

Monitoring well CH12-014-MW012 was installed through the south portion of the Grum Main Dump, downgradient of the GSC. The well is screened in alluvium. During the March 2012, July 2013, and September 2013 monitoring events, an error was encountered while attempting to connect the dataloggger to a computer. As a result, it was not possible to download data during those events. The device was returned to the manufacturer for service under warranty in September 2013. In October 2013 the manufacturer reported the device was damaged and provided a replacement unit and a file containing data recovered from the faulty device. The data file contained measurements from October 10, 2012 through December 18, 2012. Figure 2-1 shows daily water levels measured at CH12-014-MW012 through December 18, 2012 and four static water level measurements recorded throughout 2013. Peak water level elevation was measured on October 16, 2012. Water levels began to drop on November 1 and lost approximately 60 cm of elevation from the peak level before the transducer failed on December 19. A subsequent static measurement on March 2, 2013 indicated the water level dropped another 17 cm. Static water level measurements on July 4 and September 14, 2013 were within 2 cm of the March 2, 2013 measurement. A measurement from July 15 was 10 cm higher than the July 4 measurement. Throughout the monitoring period the potentiometric surface elevation fluctuated within the lower Waste Dump material, varying between approximately 85 cm and 105 cm above the native surface contact elevation indicated on the borehole log for CH12-014-MW012 (1,152.54 mbgs).

The monitoring well CH12-014-MW013 was installed through the Vangorda Waste Dump Sulphide Cell and is screened in underlying alluvium. The results from continuous water level monitoring are plotted in Figure 2-1. Water levels measured from this monitoring well show much greater short-term variability than the other Waste Dump monitoring installations. Beginning approximately mid-December 2012, the water level decreased throughout the winter, losing approximately 50 cm of elevation. The water began to rise in mid-June 2013, and still appeared to be rising as of September 16, 2013 when the peak water level was measured. At this time, it was approximately 75 cm above the early-June water levels. Throughout the monitoring period the potentiometric surface elevation fluctuated within the native alluvium, varying between approximately 315 cm and 400 cm below the native surface contact elevation indicated on the borehole log for CH12-014-MW013 (1,135.07 mbgs).

3.2 Waste Rock Dump Soil-gas and Temperature Profiles

Figures 2-2 and 2-3 provide plots showing the temperature versus depth profiles, and O_2 and CO_2 gas concentrations versus depth profiles measured at each installation during the 2012 and 2013 monitoring events. The temperature plots also depict solid sulphide mass percentages at sampled depths in each borehole. This way, temperature, soil-gas measurements and sulphide concentrations can be compared. The sulphide concentrations were gathered from *Compilation of Available Acid-Base Accounting Data for the Characterization of Rock Type and Waste Dump Properties* (CH2M HILL, 2013o).

The temperature profiles from all installations demonstrate seasonal variation within the shallowest 10-m depths, and relatively stable temperatures throughout the year at greater depths. Measured oxygen concentrations show much more variability between different sampling events, though no seasonal trends are discerned. The following subsections discuss temperature and soil-gas depth profiles observed at each installation.

3.2.1 Faro Mine Area

The temperatures measured at CH12-014-MW003 were relatively moderate compared to the other installations. Temperature profile data for the uppermost 10 m of the borehole show normal temporal variation with seasonal highs and lows. The maximum temperature measured below depths influenced by surface temperatures was 7.64 degrees Celsius at 17.77 mbgs. Oxygen concentrations were depleted at all sampled depths, with a maximum concentration of 12.3 percent measured at 5.27 mbgs and a minimum concentration of 3.3 percent measured at 15.27 mbgs. Oxygen concentrations measured at CH12-014-MW003 showed a maximum seasonal variability of 6.4 percent at 15.27 mbgs, and smaller variabilities of less than 2.3 percent at the shallowest (11.6 mbgs) and deepest (20.27 mbgs) intervals. The temperature and gas profile data for CH12-014-MW003 does not provide substantial evidence of advective air flow through the Main Dump West (MDW).

The temperatures measured at CH12-014-MW005 were relatively moderate compared to other installations. The maximum temperature measured below depths influenced by surface temperatures was 7.87 degrees Celsius at

23.956 mbgs. Oxygen concentrations ranged from atmospheric (20.9 percent O_2), measured at 10 mbgs and 18.96 mbgs, to a minimum of 0.3 percent O_2 measured at 23.96 mbgs. Oxygen measurements were very consistent from season to season among the shallowest 3 intervals, with a maximum seasonal variation of 1.5 percent at 18.96 mbgs. More pronounced seasonal variations were observed in the deepest interval (23.96 mbgs), with a seasonal variation of 8.8 percent. Increased O_2 concentrations with depths to 20 mbgs indicate advective air flow through the Northeast Lower Waste Dumps. They also indicate active oxidation processes are occurring.

The temperatures measured at CH12-014-MW007 were the warmest of all installations monitored in 2012 and 2013. Below the uppermost 10 m, where temporal variation was observed, temperature increased throughout the depth of the installation, with a maximum temperature of 20.37 degrees Celsius at 40 mbgs. Conversely, oxygen concentrations ranged from atmospheric (20.9 percent O_2) at 5.21 mbgs to a minimum of 1.1 percent O_2 at 40.21 mbgs. Oxygen measurement variability between sampling events ranged from 1.5 percent at 5.21 mbgs to 7.3 percent at 12.71 mbgs. Although the Intermediate Dam is generating a lot of heat with depth, low concentrations of oxygen are limiting the oxidative processes within the Waste Dump.

3.2.2 Vangorda/Grum Area

The temperatures measured at CH12-014-MW011 were relatively cool compared to the other installations. The maximum temperature measured below depths influenced by surface temperatures was 3.90 degrees Celsius at 10.41 mbgs. Sampling port CH12-014-MW011E appears to have become plugged sometime before the February 28, 2013 sampling event, as evidenced by very high vacuum readings (>50 in H_2O at a flow rate of .75 litres per minute), and anomalously low oxygen measurements (12.1 percent O_2) compared to the initial measurement (19.3 percent O_2 on September 27, 2012). Measurements from CH12-014-MW011E have been discarded for February 28, 2013 onward. Oxygen concentrations at CH12-014-MW011 ranged from atmospheric (20.9 percent O_2) at 5.41 mbgs and 10.41 mbgs, to a minimum of 18.5 percent O_2 at 15.41 mbgs. This indicates minimal oxygen depletion throughout the sampled intervals. The small decrease in oxygen concentrations at 15.41 mbgs appears to coincide with a minor elevation in sulphide concentration (0.56 percent) calculated at 15.2 mbgs. Oxygen measurements from all flowing ports at CH12-014-MW011 were very consistent between each sampling event, with a maximum variation of 2.0 percent at 15.41 mbgs. The consistent values of temperature and O_2 with depth suggest advective processes are dominant within the Grum Waste Dump.

Similar to CH12-014-MW011, the temperatures at CH12-014-MW012 were relatively cool compared to the other installations. The maximum temperature measured below depths influenced by surface temperatures was 4.98 degrees Celsius at 17.5 mbgs. High vacuum readings were measured at port CH12-014-MW013D during each monitoring event, ranging from 23 to 75 in H_2O at flow rates of <0.5 litres per minute. This likely indicated the port was plugged. Measurements from CH12-014-MW012D were discarded for March 1, 2013 onward. Oxygen concentrations at CH12-014-MW012 were depleted throughout the sampled depths and decreased dramatically from a maximum of 12.7 percent at 5 mbgs to a minimum of 0.9 percent at 10 mbgs. The pronounced O_2 gradient without a corresponding spike in temperature suggests a possible physical barrier (finer grained or well-consolidated material) that limits the flow of oxygen to the midpoint of the borehole. However, the uppermost 10 m of each borehole is generally considered highly variable, and these data may just be a reflection of localized variation in the uppermost material of the Grum Waste Dump. Oxygen measurements from all flowing ports at CH12-014-MW012 exhibited similar variations between each sampling event, with a maximum variation of 3.8 percent at 10 mbgs and 12.75 mbgs.

The temperatures at CH12-014-MW013 were relatively warm compared to the other installations. The maximum temperature measured below depths influenced by surface temperatures was 17.17 degrees Celsius at 12.45 mbgs. Unlike the other installations, the temperatures below 10 mbgs show variability between sampling events (maximum variability of 2.67 percent at 17.45 mbgs), as well as consistent non-linear temperature variation with depth. This variation at depths between 10 and 25 mbgs may suggest localized variation in advection processes in the Waste Dump. Oxygen concentrations at CH12-014-MW013 ranged from atmospheric (20.9 percent O_2) at 4.95 mbgs to a minimum of 0.0 percent O_2 measured at 24.95 mbgs. However, O_2 concentrations with depth remained near saturated with atmospheric oxygen to depths of approximately

20 mbgs, suggesting advective circulation within the uppermost 20 m of the Waste Dump. Oxygen measurement variability between sampling events ranged from 1.4 percent at 24.95 mbgs to 3.1 percent at 14.95 mbgs.

3.3 Groundwater Monitoring

Based on the characterization guidelines listed in *Water Quality Classification* section of this document, the following subsections describe the water quality observed in the CH2M HILL Waste Dump monitoring wells. Time series plots were generated for Waste Dump wells (Figure 3-1). There is insufficient historical data to establish statistically significant temporal trends.

3.3.1 Faro Mine Area

Monitoring well CH12-014-MW003 is screened in bedrock at a point approximately coincident with the historical alignment of Faro Creek, and downgradient from Low Grade Stockpiles A and C. Samples collected from this monitoring well have a near-neutral pH (6.17 to 6.62), moderately impacted sulphate concentration (1890 mg/L to 2260 mg/L), and slightly impacted zinc concentration (.281 mg/L to 1.24 mg/L). These suggest the surrounding Waste Dumps have had a limited effect on the water quality at this location.

Samples from monitoring well CH12-014-MW007 have an acidic pH (5.63 to 6.1) and highly impacted sulphate and zinc concentrations (6,110 mg/L to 15,200 mg/L sulphate and 317 mg/L to 1530 mg/L zinc). There was a marked increase in ARD constituents at this site between the spring and fall 2013 sampling events (7,125 mg/L to 15,200 mg/L sulphate and 369 mg/L to 1,530 mg/L zinc). This increase in ARD constituents is concurrent with the increasing water level within this well and increasing Faro Pit lake levels; as such, there may be a relationship between these observations, however, the exact cause of the increase is not known at this time. This increase in ARD constituents may corroborate the increase in zinc concentrations in NFRC reported by Tlicho Environmental Engineering Services in November 2013 (Parkin, Personal Communication, 2013) in NFRC.

3.3.2 Vangorda/Grum Area

The water quality beneath the Grum Waste Dump is monitored at CH12-014-MW011 and CH12-014-MW012. Samples from CH12-014-MW011 have a near-neutral pH (6.49 to 6.99) with moderately impacted sulphate (1450 mg/L to 2270 mg/L) and zinc (0.0937 mg/L to 1.75 mg/L) concentrations. Samples from monitoring well CH12-014-MW012 have a near-neutral pH (7.40 to 7.44) with moderately impacted sulphate concentrations (586 mg/L to 851 mg/L) and non-impacted zinc concentrations (0.0095 mg/L to 0.0362 mg/L). Monitoring well CH12-014-MW013 is screened in the alluvium below the Vangorda Waste Dump sulphate cell. The water from this location has an acidic pH (6.16 to 6.35) with moderately impacted sulphate concentrations (2,530 mg/L to) and highly impacted zinc concentrations (8.15 to 8.58 mg/L).

3.4 Seep Monitoring

Based on the characterization guidelines listed in *Water Quality Classification section of this document*, the following subsections describe the water quality observed in each Waste Dump area investigated during the 2013 seep monitoring events. They also summarize observed time trends.

Monitoring locations were selected for analysis based on the extent of their historical datasets and their locations relative to upgradient Waste Dumps. Time series plots were generated (Figures 1-4 to 1-13) and Mann-Kendall trend analyses (Figure 1-14) were performed for select locations. Additionally, water quality data from local routine monitoring stations were overlayed on the time series figures to provide enhanced temporal resolution and historical data before 2002. Groundwater monitoring data from the CH2M HILL Waste Dump monitoring wells were also overlayed on the time series figures for comparison purposes.

3.4.1 Rose Creek Tailings Area

CH2M HILL initiated seep sampling in the RCTA in the spring of 2013. As a result, there are insufficient data points to perform Mann-Kendall trend Analysis or generate time series plots. Seven RCTA locations were monitored in 2013. Table 1-2 provides the results. The locations of these seeps are shown in Figure 2-5.

Samples from locations CH-RCTA-03 and CH-RCTA-07 characterize pore water drainage from the Secondary Tailings and have an acidic to alkaline pH (5.67 to 7.9), moderately to highly impacted sulphate concentrations (645 mg/L to 1890 mg/L), and highly impacted zinc concentrations (11.8 mg/L to 41.9 mg/L). A sample from CH-RCTA-07 collected in the spring had a ferrous iron concentration of 210 mg/L, and an iron concentration of 1,370 mg/L. Samples collected from CH-RCTA-03 and CH-RCTA-07 in the fall had ferrous iron concentrations of 497 mg/L and 139 mg/L, respectively, and iron concentrations of 451 mg/L and 147 mg/L, respectively.

Sampling locations CH-RCTA-04, and CH-RCTA-08 are surface water sampling points in the Intermediate Impoundment that characterize a mixture of seepage from the Secondary Tailings and seepage from the RCD fuse plug. They, too, are characterized by an acidic pH (6.18 to 6.36), moderately impacted sulphate concentrations (1070 mg/L), and highly impacted zinc concentrations (10.1 mg/L). A ferrous iron concentration of 213 mg/L, and dissolved iron concentration of 187 mg/L was measured from CH-RCTA-04 in the spring. The ferrous iron concentrations measured at CH-RCTA-04 and CH-RCTA-07 in the spring were quite similar (213 mg/L and 210 mg/L, respectively).

Location CH-RCTA-06 was a highly acidic stagnant pool, likely from accumulated precipitation, and confirmed to not be associated with seepage. The pool had a very acidic pH (2.23), with a specific conductivity of 2.265 microSiemens per centimetre. No samples were collected from CH-RCTA-06.

Location CH-RCTA-05 likely originates from the RCD and is not impacted by contact with tailings material. Water at this location had a near-neutral pH (7.10-7.19), and minimally impacted sulphate (28.1 mg/L) and zinc (<.0014 mg/L) concentrations.

3.4.2 Faro Mine Area

3.4.2.1 Northwest Faro Dumps and Parking Lot Dumps:

Multiple seep monitoring locations exist within the Upper and Lower Guardhouse Creek drainages in the area of the Northwest Waste Dumps and Parking Lot Dumps. Water chemistries vary between these locations, which is likely the result of varying degrees of contact with waste rock along each flowpath and varying types of waste rock within each Waste Dump. From this area, monitoring locations SRK-FD18, SRK-FD19, and SRK-FD01 were selected for trend analysis. Time series plots of water quality from these locations are presented in Figure 1-7. Mann-Kendall analysis results are presented in Figure 1-14. The locations of the seeps are shown in Figure 2-6.

SRK-FD18 is a seepage point located at the toe of the western edge of the Upper Northwest Faro Dump, adjacent to Upper-Guardhouse Creek (Figure 2-6). Flow at this station likely originates from Upper Guardhouse Creek immediately upstream from the Upper Northwest Faro Dump and is approximately 150 m north of the sampling location. Flows experience relatively brief contact with waste rock material. The water quality is characterized as slightly impacted with a pH ranging from acidic to alkaline (3.17 to 7.55) (Table 1-2). Water chemistry from this location shows no significant changes over time, except for alkalinity, which has increased since sampling began in 2002 (Figures 1-14 and 1-8).

Location SRK-FD19 is located at the southern toe of the Lower Northwest Dump (Figure 2-6), downgradient of the Upper, Middle, and Lower Northwest Dumps. The water quality at this seep has a pH ranging from acidic to alkaline (5.36 to 7.6) with highly impacted sulphate (3,070 mg/L to 6,300 mg/L) and zinc concentrations (36.3 mg/L to 269 mg/L) (Table 1-2). Since monitoring began in 2002, the pH has decreased significantly, while sulphate, zinc, iron, and magnesium have increased (Figures 1-14 and 1-13).

SRK-FD01 is a monitoring point within a series of seeps that emerge from the north bank of a drainage ditch midway along its length and contributes almost all of the flow within the ditch. This seep is located downgradient from the Lower Parking Lot Dump and Northwest Dumps (Figure 2-6). The water quality at SRK-FD01 is characterized as an acidic to near-neutral pH (5.66 to 7.32) with moderately impacted sulphate (1,070 mg/L to 3,900 mg/L) and highly impacted zinc (13.6 mg/L to 119 mg/L) (Table 1-2). Since sampling began in 2002, SRK-FD01 has experienced a significant decrease in pH and increases in sulphate, zinc, and magnesium (Figures 1-14 and 2-6).

3.4.2.2 Faro Main Dumps, Ore Stockpiles, and Oxide Fines Stockpile

Based on the underlying native surface topography, drainage from a number of distinct Waste Dumps in the Faro Mine Area is understood to report to monitoring station X23, where seepage emergent from the western toe of the Main dump within the original alignment of Faro Creek converges. These dumps include the Low Grade Ore stockpiles A and C, Medium Grade Ore Stockpile, Fuel Tank Dumps, Ranch Dump, the eastern portion of the Oxide Fines Pile and the majority of the Main Dump (Gomm Environmental Engineering Consulting 2010). Water at X23 is highly impacted and has some of the highest concentrations of mine-impacted constituents in the FMC. From this area, monitoring locations SRK-FD09, SRK-FD31 SRK-FD37, and SRK-FD38 were selected for trend analysis. Monitoring location SRK-FD30, located in a separate drainage at the south edge of the Main Waste Dump, was also included in the analysis. Time series plots of water quality from these locations are presented in Figure 1-4. Mann-Kendall analysis results are presented in Figure 1-14. Additionally, groundwater quality data points from CH12-014-MW003 are plotted on the time series figures for comparison purposes. The locations of the seeps are shown in Figure 2-6.

Seep monitoring locations SRK-FD31 and SRK-FD09 are both sampling stations upstream of X23 at the northern and southern limits of an approximately 50-m-wide area of seepage emergence from the base of the Faro Main Waste Dump, respectively. The water quality at SRK-FD31, SRK-FD09 and X23 is highly impacted and exhibits decreasing alkalinity and pH and increasing ARD constituent concentrations across the period of record.

Seep monitoring location SRK-FD37 exists where water drains directly from the south edge of the Medium Grade Ore Stockpile. Water quality at this location is the most heavily impacted of all the seepage locations monitored within the Faro Waste Dumps (sulphate ranging from 13,200 mg/L to 113,000 mg/L, zinc ranging from 6,130 mg/L to 36,400 mg/L). The pH has consistently been between 0.9 and 5.11, and thus, no alkalinity has been detected. ARD constituent concentrations increased throughout the period of record.

Seep monitoring location SRK-FD38 consists of water draining from the western edge of Low Grade Stockpile C. In 2013, SRK-FD38 was dry, so an alternative sample location, CH-FD-66, was established to the south where water emerges from the same dump. The water quality at SRK-FD38 has a pH ranging from acidic to neutral (2.34 to 7) with highly impacted sulphate concentrations (1690 mg/L to 26800 mg/L) and zinc concentrations (287 mg/L to 8090 mg/L). The time series plots (Figure 1-4) show increasing ARD constituent concentrations at SRK-FD38 across the period of record. The water quality at CH-FD-66 is very similar to SRK-FD38; it has an acidic pH (1.95 to 2.64), highly impacted sulphate concentrations (47200 mg/L), and highly impacted zinc concentrations (12700 mg/L).

Seep monitoring location SRK-FD30 is located at the south edge of the Main Waste Dump, downgradient of the Main Dump Sulphide Cell in an area of native ground isolated between the Main Waste Dump and the Outer Haul Road West Waste Dump. Water emerges from the Main Dump and then disappears under the Outer Haul Road West Waste Dump. CH2M HILL assumes the water ultimately flows from this area as groundwater and reports to the NFRC, upstream from X2. Water quality at this location exhibits highly impacted zinc concentrations (5.46 mg/L to 53.2 mg/L), moderately impacted sulphate (960 mg/L to 2670 mg/L), and acidic to near-neutral pH (5.45 to 6.57). ARD constituent concentrations at SRK-FD30 are orders of magnitude lower than the seeps within the X23 drainage just to the west, and no increasing or decreasing trends are discerned across the period of record. This suggests the water quality measured at X23 may be driven primarily by drainage from the Medium Grade Ore Pile, Oxide Fines Pile, and Low Grade Ore stockpiles, with relatively little impact from the Main Waste Dump Sulphide Cell.

Water quality measured upgradient at monitoring well CH12-014-MW003 shows relatively little mine-related impact compared to water quality measured in the seepage from the surrounding Waste Dumps, both downstream (for example, SRK-FD31), and upstream (for example, SRK-FD38). While pH measurements are comparable to X23 and SRK-FD30, and most ARD constituent concentrations are comparable to those of FD30, alkalinity is much higher and zinc concentrations are much lower than those of the upgradient and downgradient seeps examined. The dissimilarity between the groundwater chemistry as measured in CH12-0140-MW003 and the chemistry of the surrounding Waste Dump seeps is likely due to a larger input of unimpacted or mildly impacted groundwater flowing toward the historical Faro Creek Channel, relative to the higher-impacted seep water slowly percolating through the Waste Dumps.

3.4.2.3 Intermediate Waste Rock Dump

From the Intermediate Waste Dump, seepage monitoring locations SRK-FD13 and SRK-FD54 were selected for trend analysis. Time series plots of water quality from these locations are presented in Figure 1-5. Mann-Kendall analysis results are presented in Figure 1-14. Additionally, groundwater quality data points from CH12-014-MW007, the S-Wells seepage interception system sump SRK08-SPW3, and downgradient S-Cluster monitoring wells S2A (shallow) and S2B (deep) are plotted on the time series figures for comparison purposes. The locations of the seeps are shown in Figure 2-6.

Location SRK-FD13 is monitored where a small trickle emerges from a localized area of damp soil at the northern edge of Intermediate Dump. Water quality at SRK-FD13 exhibits the highest contaminant concentrations of all Intermediate Dump drainage monitoring locations and is characterized by acidic to near-neutral pH (1.6 to 7.59) and highly impacted sulphate (2635 mg/L to 3532 mg/L) and zinc concentrations (59.4 mg/L to 5040 mg/L). A decrease in pH and large increases in ARD constituent concentrations are noted at this location throughout the period of record.

Location SRK-FD54 is one of several seeps that emerge from the southern toe of the Outer Haul Road West Waste Dump immediately upgradient of the S-Wells seepage interception system and downgradient from CH12-014-MW007. However, the Intermediate Waste Dump likely has the greatest contribution to the contaminant loading at SRK-FD-54. The water quality at this location is characterized by acidic to near-neutral pH (5.7 to 6.85) and highly impacted sulphate (7,900 mg/L to 13,400 mg/L) and zinc concentrations (612 mg/L to 1280 mg/L). While only a limited number of data points exist for this location (too few for Mann-Kendall analysis), the time series plots appear to suggest decreasing alkalinity and increasing ARD constituent concentrations. This is particularly the case between fall 2012 and fall 2013 monitoring events.

Water quality within the S-Wells seepage interception system sump SRK08-SPW3 and the downgradient deep aquifer monitoring well S2B have similar chemistries, characterized by acidic to alkaline pH (5.61 to 7.77), slightly impacted to highly impacted sulphate (17 mg/L to 10,300 mg/L) and non-impacted to highly impacted zinc concentrations (0.01 mg/L to 664 mg/L). Water quality at these locations has exhibited significant decreases in alkalinity and increases in sulphate, zinc, and magnesium concentrations throughout their periods of record. Water quality in the S-Cluster shallow monitoring well S2A shows a reduction in ARD constituents and corresponding increase in alkalinity starting in spring 2009. This corresponds with the commencement of pumping from the S-Wells SIS in March 2009.

The alkalinity concentrations from CH12-014-MW007 were notably higher during all 2012 and 2013 monitoring events than those measured at downgradient monitoring locations (SRK-FD54, SRK08-SPW3, and S2A/B).The 2012 and spring 2013 water quality at CH12-014-MW007 showed ARD constituent concentrations similar to those measured downgradient at SRK08-SPW3. However, water quality measured at CH12-014-MW007 in September 2013 exhibited sulphate, magnesium, and zinc concentrations that exceeded those measured at the downgradient groundwater and seepage monitoring locations (SRK-FD54, SRK08-SPW3, and S2A/B) by a factor of up to 280 percent.

3.4.2.4 Faro Valley Dump

Monitoring locations A30 and SRK-FD40 are sampling points along the two largest seepage flows from the base of the Faro Valley Dumps on the north wall of the Faro Pit (Figure 2-8). Water at these locations consists of leakage from the FCD that migrates beneath the Faro Valley Dumps near the historical alignment of Faro Creek. Time series plots of water quality from these locations are presented in Figure 1-6. Mann-Kendall analysis results are presented in Figure 1-14. The locations of the seeps are shown in Figure 2-6 and Figure 2-8.

Historical records (RGC, 1996) indicate monitoring location A30 was originally a seepage collection sump installed on the 4030 Bench of the Faro Pit. It intercepted seepage from the Faro Valley Dumps to assist with pit dewatering during mine operations. This sump was pumped from 1987 through to the summer 1992, when dewatering operations ceased. Throughout this period, the monitoring station IDs A30 and X22A were used interchangeably to denote water pumped from the A30 sump. Based on historical maps and field observations of remnants of a concrete structure, it appears that the sump was located close to the current seep monitoring

location CH-FP-36. Monitoring location A30 has since moved, and is now sampled approximately 94 m northeast of the inferred location of the original sump. The timing and rationale for this change are not known.

The water quality at A30 and SRK-FD40 displays similar characteristics and is characterized by acidic to alkaline pH (1.84 to 8.07) with slightly to moderately impacted sulphate (112 mg/L to 2,000 mg/L) and moderately to highly impacted zinc concentrations (2.36 mg/L to 199 mg/L) (Table 1-2). ARD characteristics have varied throughout their respective records; as such, the only significant trend identified is decreasing alkalinity (Figure 1-14).

3.4.2.5 The Northeast, Zone II, and Ramp Zone Waste Rock Dumps

The Northeast Waste Dumps, the Zone II Waste Dumps, and the Ramp Zone Waste Dump are situated east, southeast, and south of the Faro Pit, respectively. Drainage from these dumps reports to either the NFRC, the Faro Pit, or the Zone II Pit based on the pre-mining, native surface topography underlying the Waste Dumps, as well as current surface drainage patterns. From this area, monitoring locations SRK-FD05, SRK-FD14, SRK-FD21, SRK-FD24, and SRK-FD26 were selected for trend analysis. Time series plots of water quality from these locations are presented in Figure 1-7. Mann-Kendall analysis results are presented in Figure 1-14. Additionally, groundwater quality data from the Zone II pumping well (X26) is plotted on the time series figures for comparison purposes. The locations of the seeps are shown in Figure 2-6 and Figure 2-8.

Apart from a small contribution from the Intermediate Waste Dump, the majority of water received by the Zone II Pit drains from the Northeast Waste Dumps, the Zone II Waste Dumps, and the Ramp Zone Waste Dump (Gomm Environmental Engineering Consulting 2010). Mann-Kendall trend analysis determined that sulphate, zinc, iron, and magnesium concentrations at X26 have increased significantly through the period of record, while alkalinity has decreased significantly (Figure 1-14). Compared to the seeps analyzed, water quality at X26 exhibits higher concentrations of iron, sulphate, magnesium, and zinc, as well as higher total alkalinity (Figure 1-7). This indicates that water quality within the buried Zone II Pit is more impacted than the drainage from the Waste Dumps that drain to the pit. The increased contamination is likely because of residual ore material remaining interacting in the former pit wall, as well as with the waste rock stored within the Zone II Pit, itself.

Seep monitoring location SRK-FD05 is a sampling point at the eastern edge of the Northeast Waste Dump, where a wide perennial seepage flow emerges from the toe of the Waste Dump and migrates toward the NFRC. Given the large amount of water observed at this site year-round, the water in this seepage likely originates as leakage from the FCD, which migrates beneath the Upper and Lower Northeast Waste Dumps. Water quality at SRK-FD05 is characterized by a near-neutral to alkaline pH (6.86 to 7.87), non-impacted to moderately impacted sulphate (17.7 mg/L to 904 mg/L), and non-impacted to highly impacted zinc concentrations (.001 mg/L to 9.8 mg/L) (Table 1-2). The targeted parameters have shown no significant changes at SRK-FD05 during the period of record (Figures 1-14 and 1-7).

Station SRK-FD26 is a sampling point along a diversion ditch that directs seepage from the base of the lower Northeast Waste Dump to the Faro Pit. This monitoring location is downgradient from the Upper and Lower Northeast Waste Dumps and the Northeast Sulphide Cell. It is the same sampling location as the Care and Maintenance sampling point SP5-6. Water quality at SRK-FD26 is characterized by an acidic to alkaline pH (5.41 to 7.75), slightly to moderately impacted sulphate (298 mg/L to 1350 mg/L), and moderately to highly impacted zinc concentrations (1.28 mg/L to 20.4 mg/L) (Table 1-2). Mann-Kendall trend analysis determined that sulphate, zinc, and magnesium have been significantly increasing (Figure 1-14).

SRK-FD24 is located at the base of a slope of the Lower Northeast Waste Dump on the east wall of the Faro Pit. This monitoring location is downgradient from the Upper Northeast Waste Dump on the western slope of the lower Northeast Waste Dump. The water quality at SRK-FD24 is characterized by acidic to neutral pH (2.46 to 7) with slightly to moderately impacted sulphate concentrations (345 mg/L to 2370 mg/L) and highly impacted zinc concentrations (9.7 mg/L to 160 mg/L) (Table 1-2). Mann-Kendall trend analysis reveals significant increases in sulphate, zinc, iron, and magnesium concentrations and decreases in pH and alkalinity throughout the period of record (Figure 1-14).

Seep sampling station SRK-FD21 is located near a drainage ditch along the north edge of the Lower Northeast Waste Dump. Seepage at this location likely originates from local infiltration within the Lower Northeast Waste

Dump, and seems to be unaffected by leakage from the FCD. Water at this location shows no significant change since the inception of sampling (Figure 1-14) and is characterized by acidic to near-neutral pH (3.56 to 7.16) with moderately impacted sulphate concentration (810 mg/L to 4620 mg/L) and moderately to highly impacted zinc concentration (4.13 mg/L to 67.8 mg/L) (Table 1-2).

Monitoring location SRK-FD14 is a small trickle that emanates from an east-facing slope of the Ramp Zone Dump Waste Dump in the southeast Faro Pit ramp area. Water quality at this location is characterized by an acidic to alkaline pH (6.02 to 8.17), moderately impacted sulphate (513 mg/L to 2667 mg/L) concentrations, and moderately to highly impacted zinc concentrations (1.01 mg/L to 11.2 mg/L). No increasing or decreasing trends have been discerned in the trend analysis across the period of record.

3.4.2.6 Faro Pit

From 1987 to 1992, the Faro pit was dewatered by continually pumping accumulated water from sump A8 at the bottom of the pit and from the A30 collection sump on the northeast wall of the pit (RGC, 1996). Discharge from the A8 and A30 collection sumps were also identified as water licence monitoring stations X22 and X22A, respectively. Water quality from these pumped discharges was monitored monthly. Dewatering operations ceased in 1992, when the Faro Pit became a repository for tailings and the pit was allowed to fill with water. Subsequent water quality monitoring of Faro Pit lake has been conducted at location X22B, which is currently sampled from the Faro Pit pumping barge near the southwest pit ramp. The following influent seeps were analyzed for the Faro Pit:

- Seepage from the Faro Valley Dumps, monitored at A30/X22A
- Seepage from native material in the northwest corner of the pit, monitored at FP05
- Seepage from the Northeast Waste Dumps monitored at FP10 and FP20, and their recent substitutes, CH-FP-23 and CH-FP-38, all located at the southeast wall of the pit

Figure 1-11 presents time series plots of water quality for these locations. Figure 1-14 presents Mann-Kendall analysis results. The locations of these seeps are shown in Figure 2-8.

The water quality at A30 is characterized by acidic to alkaline pH (2.35 to 8.07) with slightly to moderately impacted sulphate (112 mg/L to 1410 mg/L) and moderately to highly impacted zinc concentrations (2.36 mg/L to 109 mg/L) (Table 1-2). The only significant trend identified is decreasing alkalinity (Figure 1-14).

At the northwest wall of the Faro Pit, several seepage flows daylight on the surface and lower slope of the uppermost pit bench and pour down the pit walls to the pit lake. These seeps have been observed flowing in spring, summer, and fall. These seeps originate as groundwater leakage from the native overburden and bedrock north of the pit; therefore, the water quality is inferred to represent background groundwater with some limited impact from brief local contact with the pit wall slopes. FP05 is a monitoring point located where the flowpath of the most prominent seep in this area crosses the 4030 Bench. The water quality at FP05 is characterized by concentrations (0.005 mg/L to 1.26 mg/L). The only significant trend identified is decreasing alkalinity (Figure 1-14).

At the southeast wall of the Faro Pit, seepage from the Northeast Waste Dumps converges and discharges to the Faro Pit at two distinct adjacent areas. Flows from the base of the Lower Northeast Waste Dump (monitored upstream at SRK-FD26 / SP5-6) are directed to the Faro Pit via a lined diversion, which discharges to the pit at monitoring location FP10. The water quality at FP10 is characterized by variable pH ranging from acid to alkaline (4.49 to 8.32), with highly impacted sulphate concentrations (437 mg/L to 1,300 mg/L) and zinc concentrations (1.55 mg/L to 60.1 mg/L). A significant trend of increasing magnesium was identified (Figure 1-14). Seepage from the Upper Northeast Waste Dump (monitored upstream at SRK-FD24 and CH-FD-59) discharges to the Faro Pit approximately 380 m north of FP10. It has been monitored at locations FP20, CH-FP-23, and CH-FP-38. This flow appears to have shifted from location FP20 to CH-FP-23 sometime during the SRK seep monitoring program. In 2013, rising water levels in the Faro Pit caused CH-FP-23 to be submerged. As a result, an alternate location, CH-FP-38, was established approximately 50 m upstream of CH-FP-23. Water quality at these locations is characterized by variable pH ranging from acidic to alkaline (6.11 to 8.32) with highly impacted sulphate

concentrations (710 mg/L to 1,980 mg/L) and zinc concentrations (27.2 mg/L to 90.6 mg/L). There were not enough data points to establish significant trends.

Water quality monitored at X22B is characterized by acidic to alkaline pH (2.6 to 8.33), slightly to moderately impacted sulphate concentrations (35.3 mg/L to 741 mg/L), and moderately to highly impacted zinc concentrations (0.52 mg/L to 44.7 mg/L). Trend analysis revealed significant decreasing trends in pH and total alkalinity, and increasing magnesium and zinc concentrations.

3.4.3 Vangorda/Grum Area

3.4.3.1 Grum Waste Dump

Within the Grum Waste Dump area, seepage monitoring locations SRK-GD01, SRK-GD05, SRK-GD13, and routine monitoring location V15 were selected for trend analysis. Time series plots of water quality from these locations are presented in Figure 1-9. Mann-Kendall analysis results are presented in Figure 1-14. Additionally, groundwater quality data points from CH12-014-MW011 and CH12-014-MW012 are plotted on the time series figures for comparison purposes. The locations of the seeps are shown in Figure 2-7.

SRK-GD01 is one of two seeps (the other being SRK-GD02) that emerge at the eastern toe of the Grum Main Waste Dump. They are located approximately 15 m apart in the area of the former Grum Creek channel. The historical channel drained a small lake and marshy area where Grum Pit now exists (Steffen Robertson and Kirsten (B.C.) Inc. 1989). This location is situated downgradient from the eastern portion of the Grum Main Waste Dump and monitoring well CH12-014-MW011. The water at this location has an acidic to alkaline pH (6.4 to 7.79),moderately to highly impacted zinc concentrations (0.01 mg/L to 17.2 mg/L), and moderately impacted sulphate concentrations (890 mg/L to 2,000 mg/L) (Table 1-2). Mann-Kendall trend analysis found significant increases in sulphate and magnesium and decreases in zinc (Figure 1-14).

SRK-GD05 is located at the southern toe of the Grum Waste Dump. This seep has a near-neutral to alkaline pH (7.32 to 8.17), moderately impacted sulphate concentrations (1,080 mg/L to 2,500 mg/L) and moderately to highly impacted zinc concentrations (1.16 mg/L to 5.37 mg/L) (Table 1-2). Mann-Kendall trend analysis found no significant trends among pH, alkalinity, zinc, and iron concentrations, while sulphate and magnesium concentrations showed significant increasing trends (Figure 1-14).

Seep SRK-GD13 is located at the western toe of the Grum South West Dump. Flows from this location travel westward through a marshy area toward a tributary of Vangorda Creek that is monitored at station VW2. Water at this location has a near-neutral to alkaline pH (6.73 to 7.93), slightly to moderately impacted sulphate (313 mg/L to 1290 mg/L), and non-impacted to moderately impacted zinc concentrations (.007 mg/L to .731 mg/L) (Table 1-2). Mann-Kendall trend analysis revealed significant increasing trends in alkalinity, sulphate, and magnesium concentrations (Figure 1-14).

Location V15 is a routine surface water monitoring station, downstream from the southern toe of the Grum Waste Dump. The surface water at V15 is fed by several upgradient seeps (for example, GD-04, GD-21) as well as inputs from Grum Creek (measured upstream at GD01 and GD02). The water quality at this is location is characterized by an acidic to alkaline pH (6.3 to 8.48), moderately impacted sulphate concentrations (1,900 mg/L to 2,000 mg/L) and non-impacted to moderately impacted zinc concentrations (0.001 mg/L to 4.17 mg/L). Mann-Kendall analysis shows significantly decreasing pH and increasing sulphate and zinc concentrations, though the time series plots (Figure 1-9) suggest this increase took place between 1997 and 2010, and have actually reversed between 2010 and 2013. This could indicate a change in ARD generation upgradient of this area (i.e., the GSC).

The water quality at CH12-014-MW012 does not appear to be impacted by drainage from the GSC relative to other downstream locations (V15, SRK-GD05). This may be a result of the GSC cover installed in 2010. The higher contaminant load observed downstream seeps (V15, SRK-GD05) could be residual loading that was released from the GSC before the cover was installed. The less impacted water immediately downgradient of the GSC at CH12-014-MW012 could reflect a significant reduction in ARD from the GSC. CH2M HILL recommends additional monitoring of this well and the downgradient sampling points.

3.4.3.2 Grum Pit

For the Grum Pit area, seepage monitoring locations GP02, GP09, and GP12 were selected for trend analysis. Time series plots of water quality from these locations are presented in Figure 1-12. Mann-Kendall analysis results are presented in Figure 1-14. Additionally, water quality data points from the Grum Pit lake surface, measured at V23, are plotted on the time series figures for comparison purposes. The locations of the seeps are shown in Figure 2-9.

Seep GP02 is located on the southeast wall of Grum pit, and is attributed to groundwater leakage from the native till material east of Grum Pit. GP02 is downgradient from the Grum Overburden dump and the Vangorda Water Treatment Plant Sludge Pond, although it is unclear whether it receives drainage from either. Water quality at GP02 is characterized by alkaline pH (7.8 to 8.59), slightly impacted sulphate concentrations (112 mg/L to 439 mg/L) and minimally impacted zinc concentrations (0.001 mg/L to 0.0106 mg/L). Trend analysis revealed no significant increasing or decreasing trends throughout the period of record.

Seep GP09 is located northwest of Grum Pit, where water emerges from a blasted slope above a broad pit bench. GP09 is one of seven seeps that emerge along the width of this slope. Among the seeps in this area that are frequently found flowing, GP09 typically exhibits the highest specific conductivity measurements. Seepage at this location is attributed to groundwater leakage from the native overburden and bedrock northwest of Grum Pit. There are no Waste Dumps upgradient of GP09; contaminant loading is attributed to interaction with upgradient native material and local contact with exposed bedrock material in the pit wall slopes and benches. Water quality at GP09 is characterized by variable pH ranging from neutral to alkaline (7.23 to 8.75), slightly impacted to moderately impacted sulphate concentrations (250 mg/L to 832 mg/L), and minimally impacted to slightly impacted zinc concentrations (0.0018 mg/L to 0.0663 mg/L). Trend analysis revealed significantly increasing zinc concentrations.

Seep GP12 is located on the south wall of Grum Pit where water emerges from the pit wall slope in a distinct-orange stained flowpath. Seepage at this location is attributed to groundwater leakage from the native overburden and bedrock southwest of Grum Pit. The source of contaminant loading at GP12 is unclear since there are no Waste Dumps directly upgradient of GP12, but the Grum Waste Dump is located nearby, across slope and indirectly upgradient to the west. Water quality at GP12 is characterized by variable pH ranging from acidic to alkaline (5.52 to 7.96), moderately impacted sulphate concentrations (250 mg/L to 832 mg/L), and slightly impacted to highly impacted zinc concentrations (0.301 mg/L to 129 mg/L). Trend analysis revealed significantly decreasing magnesium and sulphate concentrations.

Water quality in Grum Pit monitored at V23 is characterized by acidic to alkaline pH (6.34 to 9), slightly to moderately impacted sulphate concentrations (9 mg/L to 419 mg/L) and moderately to highly impacted zinc concentrations (0.01 mg/L to 9.836 mg/L). Trend analysis revealed significantly increasing magnesium and zinc concentrations.

3.4.3.3 Vangorda Waste Dump

At the Vangorda Waste Dump, most of the seepage occurs at five transverse drains installed beneath the waste rock (SRK-VD02, SRK-VD03, SRK-VD04, SRK-VD05, and SRK-VD10). During mining operations, the drains were engineered to direct seepage into a collection ditch that runs around the western perimeter of the Waste Dump, directing flows to LCP). The water at all of the Vangorda Waste Dump seeps is classified as highly impacted with acidic pH (Table 1-2). Time series plots indicate that pH and alkalinity are decreasing while dissolved sulphate, iron, magnesium, and zinc concentrations are increasing (Figure 1-10). Seeps SRK-VD04 and SRK-VD05 are located downgradient from the Vangorda Pit Sulphide Cell and had some of the highest sulphate concentrations onsite in fall 2013 (85,200 and 87,400 mg/L, respectively). The locations of the seeps are shown in Figure 2-7.

Water quality at monitoring well CH12-014-MW013 exhibits much lower ARD impacts than the seeps from the Vangorda Waste Dump - particularly seeps SRK-VD04 and SRK-VD05, which are located directly downgradient. For instance, the total alkalinity at CH12-014-MW013 in 2012 and 2013 ranged from 1,060 mg/L to 1,190 mg/L while the total alkalinity results from SRK-VD04 and SRK-VD05 were less than the detection limit (<1 mg/L). Sulphate concentrations at SRK-VD04 and SRK-VD05 ranged from 14 to 26 times the concentrations measured at CH12-014-MW013. Zinc concentrations at SRK-VD04 and SRK-VD05 ranged from 100 to 10,000 times the

concentrations at CH12-014-MW013. The time series plots show similar discrepancies in dissolved magnesium and dissolved iron concentrations (Figure 1-10). This may indicate that drainage from the Vangorda Pit Sulphide Cell has a substantial impact on downgradient water quality at SRK-VD04 and SRK-VD05, but has comparably little impact on the water quality directly beneath the cell, monitored at CH12-014-MW013. Water quality beneath the cell may be driven by drainage from upgradient waste rock with lower sulphide content.

3.4.3.4 Vangorda Pit

For the Vangorda Pit area, seeps CH-VP-17 and CH-VP-18 were selected for analysis. These seeps are sampling points within seepage flows in the ditches on either side of the Vangorda Pit ramp road, shortly upstream from where the ditches discharge to the Vangorda Pit lake. The water at CH-VP-17 and CH-VP-18 consists of the combined flows from various individual seeps on the east and west sides of the pit ramp, respectively. Time series plots of water quality from these locations are presented in Figure 1-13. Mann-Kendall analysis results are presented in Figure 1-13. Additionally, water quality data points from the Vangorda Pit lake surface, measured at V22, are plotted on the time series figures for comparison purposes. The locations of the seeps are shown in Figure 2-10.

Water quality at CH-VP-17 and CH-VP-18 is characterized by acidic pH (2.94 to 4.86), moderately to highly impacted sulphate concentrations (3,700 mg/L to 5,610 mg/L), and highly impacted zinc concentrations (568 mg/L to 735 mg/L). There were not enough data points to establish significant trends.

Water quality monitored at V22 is characterized by acidic to alkaline pH (2.12 to 9.05), moderately impacted sulphate concentrations (98 mg/L to 3020 mg/L), and non-impacted to highly impacted zinc concentrations (0.005 mg/L to 236 mg/L). Trend analysis revealed significant decreasing trends in total alkalinity and pH, and increasing trends in zinc, sulphate, magnesium, and iron concentrations.

SECTION 4

Summary and Recommendations

This investigation further characterizes the Waste Dump drainage water quality and geochemical characteristics, as well as the hydraulic characteristics within and beneath the Waste Dumps. During the 2013 field season the following field work was completed at the FMC:

- Vertical profile Waste Dump-gas measurements and temperature measurements were collected at the six CH2M HILL Waste Dump monitoring wells installed in 2012. Measurements were collected twice: In June or July and in September.
- Groundwater samples were collected from five CH2M HILL Waste Dump monitoring wells twice: in June and September.
- Continuous water level data recorded by pressure transducers installed at five Waste Dump monitoring wells were downloaded during each monitoring event.
- A total of 151 historical seep locations were monitored during two seep sampling events: one in June and July and one in September. Water samples were collected from 48 locations during the spring monitoring event, and from 50 locations during the fall monitoring event. A total of 31 new seep monitoring locations were established.
- A total of eleven boat access seeps were sampled in September, including eight seeps in the Faro Pit, two seeps in the Grum Pit and one seep in Vangorda Pit.
- Geochemical field parameter depth profiles were measured in the Faro, Grum, and Vangorda Pit Lakes.
- A replacement sample of water was collected from a depth of 80 m in the Faro Pit.

The following list summarizes the findings of the 2013 Seepage and Waste Dump Monitoring program:

- The potentiometric surface monitored within wells CH12-014-MW007, CH12-014-MW011, and CH12-014-MW013 varied within the alluvium unit underlying the Waste Dumps throughout the monitoring period. The potentiometric surface monitored within CH12-014-MW003 varied within weathered bedrock underlying the alluvium and Waste Dump. The potentiometric surface monitored within well CH12-014-MW011 varied within waste rock material.
- A peak water level corresponding with spring freshet was only present in the data collected from CH12-014-MW003 and CH12-MW011. No clear peaks associated with spring freshet were observed in the data gathered from the other installations.
- Records indicate that when the latest data were collected in September 2013, water levels were still rising within CH12-014-MW003, CH12-014-MW007 and CH12-014-MW013, concurrent with the rising water levels in the Faro Pit lake.
- Waste Dump temperatures remained constant throughout the year at depths greater than approximately 10 mbgs at the CH2M HILL Waste Dump monitoring installations. The exception was CH12-014-MW013, where temperatures declined slightly from September 2012. Temperature profile data for the uppermost 10 mbgs show normal temporal variation with seasonal highs and lows.
- With the exception of location CH12-014-MW013, no relationship was discerned between oxygen concentration or temperature depth profiles and solid sulphide concentration depth profiles from borehole waste rock samples.
- Seepage monitoring results indicate increasing ARD constituents from the Northwest Waste Dumps, Intermediate Waste Dump, Medium Grade Ore Pile, Low Grade Ore Stockpile C, Grum Waste Dump, Vangorda Waste Dump, or the portions of the Northeast Waste Dump that drain to the Faro Pit and the Zone II Pit.

- No significant increasing or decreasing trends in ARD constituents were observed from the Faro Valley Waste Dump, the Ramp Zone Dump Waste Dump, or the portions of the Northeast Waste Dump that drain toward NFRC.

CH2M HILL recommends the following future investigation activities:

- Continue the current seepage monitoring program, including spring and fall monitoring events targeting all Waste Dump, RCTA, and ETA locations for field parameter monitoring, with select locations targeted for sampling. The list of seep-targeted sampling should be updated to include additional sites within the NFRC area.
- Discontinue monitoring at the following seep locations for the reasons stated herein:
  - CH-GP-21 - this location no longer exists.
  - SRK-GD17 - this location is in an area that would have been disturbed during construction of the Grum Sulphide Cell cover and it very likely no longer exists. It has not been sampled since the GSC Cover was constructed and no evidence of previous seepage has been observed in this area.
  - CH-VD-14 - this location is a pool of surface water that only develops during spring snowmelt; therefore, it is not a seep.
  - CH-VD-13 - this location is a pool of surface water that only develops during spring snowmelt; therefore, it is not a seep.
  - CH-FP-40 - this location is redundant - a preferred sample location, CH-FP-36, exists just downstream, along the same flowpath.
  - CH-FP-42 - this location is redundant - a preferred sample location, CH-FP-30, exists just downstream, along the same flowpath.
  - CH-FP-22 - this location is redundant - a preferred sample location, CH-FP-35, exists just downstream, along the same flowpath.
  - CH-FP-26 - this location is redundant - a preferred sample location, CH-FP-34, exists just downstream along the same flowpath.
  - CH-FP-27 - this location is unsafe to access.
  - CH-RCTA-06 - this location is not affected by waste rock or tailings contact and appears to simply consist of leakage from the RCD.
  - CH-GP-20 - this location has been submerged within the Grum Pit Lake.
- Install continuous water level and conductivity data-logging instruments at the Waste Dump drainage monitoring locations SRK-FD19, SRK-FD-26, X23, SRK-VD05, and V15 to enhance the understanding of seasonal flow rate and ARD variations.
- Continue the current Waste Dump groundwater, gas, and temperature monitoring program, and incorporate gas and thermistor monitoring at SRK installations 60M-1, 30M-1,
- Place markings on each of the cables that suspend the water level dataloggers within the Waste Dump monitoring wells, so dataloggers are consistently returned to the same elevations after each download or groundwater purge event.

SECTION 5

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Tables

TABLE 1-1
Groundwater Analytical Results
Faro Mine Remediation Project

Analyte		Location	CH12-014-MW003								CH12-014-MW012		CH12-014-MW013	
		Sample ID	CH12-014-MW003_GW0613	CH12-014-MW003_GW0913	CH12-014-MW903_GW0913	CH12-014-MW007_GW0613	CH12-014-MW907_GW0613	CH12-014-MW007_GW0913	CH12-014-MW011_GW0613	CH12-014-MW011_GW0913	CH12-014-MW012_GW0613	CH12-014-MW012_GW0913	CH12-014-MW013_GW0613	CH12-014-MW013_GW0913
		Sample Date	6/11/2013	9/13/2013	9/13/2013	6/11/2013	6/11/2013	9/12/2013	7/2/2013	9/14/2013	7/4/2013	9/16/2013	7/8/2013	9/17/2013
Field Parameters														
pH, Field	pH Units		NA	NA	NA	**6.1**	NA	**5.63**	**6.57**	**6.63**	NA	**7.44**	**6.21**	**6.18**
Conductivity, Field	mS / cm / Degree Celcius		NA	NA	NA	**7.416**	NA	**16.02**	**3.952**	**3.585**	NA	**1.881**	**5.655**	**5.749**
Temperature, Field	Degree Celcius		NA	NA	NA	**15.79**	NA	**16.95**	**5.45**	**5.59**	NA	**6.77**	**12.74**	**13.7**
Oxidation Reduction Potential	mV		NA	NA	NA	**72.5**	NA	**133.2**	**98.5**	**153.1**	NA	**-124.7**	**-6.4**	**-12.7**
Dissolved Oxygen (DO)	mg/L		NA	NA	NA	**2.47**	NA	**0.72**	**9.39**	**3.03**	NA	**0.26**	**1.65**	**0.84**
Turbidity, Field	NTU		NA	NA	NA	**-49.5**	NA	**5.2**	**0.9**	< 0	NA	**557.2**	**22.7**	**8.3**
Dissolved Metals														
Aluminum, dissolved	mg/L	0.005 to 0.1 [a]	< 0.005	**0.0147**	**0.0137**	< 0.05	< 0.05	**2.38**	< 0.002	< 0.0021	**0.0672**	**0.919**	**0.0123**	< 0.005
Antimony, dissolved	mg/L	1.6	< 0.0005	< 0.0005	< 0.0005	< 0.005	< 0.005	< 0.02	**0.00055**	**0.00029**	< 0.0001	< 0.0001	< 0.0005	< 0.0005
Arsenic, dissolved	mg/L	0.005	< 0.0005	< 0.0005	< 0.0005	< 0.005	< 0.005	**0.02**	**0.00028**	**0.00027**	**0.0155**	**0.0154**	**0.00122**	**0.00114**
Barium, dissolved	mg/L	2.3	**0.0348**	**0.0295**	**0.0295**	**0.0249**	**0.0264**	**0.048**	**0.0187**	**0.0164**	**0.0456**	**0.059**	**0.0168**	**0.016**
Beryllium, dissolved	mg/L	0.0053	< 0.0005	< 0.0005	< 0.0005	< 0.005	< 0.005	< 0.02	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0005	< 0.0005
Boron, dissolved	mg/L		< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	< 2	< 0.02	< 0.02	< 0.01	< 0.01	< 0.05	< 0.05
Cadmium, dissolved	mg/L	0.000017	**0.000657**	**0.00691**	**0.0059**	**0.444**	**0.459**	**1.75**	**0.000127**	**0.00203**	< 0.000012	**0.000054**	**0.00592**	**0.00501**
Calcium, dissolved	mg/L		**734**	**682**	**676**	**540**	**538**	**491**	**472**	**429**	**303**	**284**	**703**	**666**
Chromium, dissolved	mg/L	0.0089	< 0.0005	**0.00108 J**	**0.00074 J**	< 0.005	< 0.005	< 0.02	**0.00046**	**0.00061**	**0.00492**	**0.00277**	< 0.0005	**0.00088**
Cobalt, dissolved	mg/L		**0.0169**	**0.0122**	**0.012**	**1.56**	**1.65**	**5.15**	**0.0197**	**0.00189**	**0.00068**	**0.00221**	**0.042**	**0.0379**
Copper, dissolved	mg/L	0.002	**0.0011**	**0.0519 J**	**0.0266 J**	< 0.01	< 0.01	**0.129**	**0.0013**	**0.00273**	**0.00049**	**0.00262**	**0.0058**	**0.0077**
Ferrous Iron, dissolved	mg/L		**1.96**	**3.38**	**3.2**	**0.246**	**0.247**	**0.53**	**0.076**	< 0.02	**8**	**7.2**	**7.33**	**8.2**
Iron, dissolved	mg/L	0.3	**1.47**	**2.69**	**2.68**	**0.34**	**0.336**	**2.48**	**0.07**	< 0.03	**7.28**	**7.67**	**6.64**	**6.12**
Lead, dissolved	mg/L	0.001	< 0.00025	< 0.00027	< 0.0003	< 0.0025	< 0.0025	< 0.01	**0.00016**	< 0.00011	**0.00184**	**0.00746**	**0.0105**	**0.011**
Lithium, dissolved	mg/L		**0.0618**	**0.054**	**0.0521**	**0.122**	**0.134**	**0.15**	**0.0356**	**0.0295**	**0.0149**	**0.0165**	**0.033**	**0.0303**
Magnesium, dissolved	mg/L		**165**	**147**	**147**	**1220**	**1160**	**2810**	**388**	**343**	**118**	**115**	**599**	**623**
Manganese, dissolved	mg/L		**3.91**	**4.13**	**4.09**	**104**	**109**	**313**	**0.909**	**0.214**	**0.351**	**0.472**	**11.3**	**10.5**
Mercury, dissolved	mg/L	0.000026	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum, dissolved	mg/L	0.073	**0.00055**	**0.00053**	**0.00054**	< 0.0025	< 0.0025	< 0.01	**0.00062**	**0.00051**	**0.00177**	**0.00149**	**0.00156**	**0.00162**
Nickel, dissolved	mg/L	0.025	**0.084**	**0.0632**	**0.0596**	**3.13**	**3.3**	**10.2**	**0.171**	**0.121**	**0.00486**	**0.00522**	**0.113**	**0.105**
Potassium, dissolved	mg/L		**10.8**	**9.91**	**9.76**	**13.1**	**13.4**	**22**	**6.98**	**6.88**	**3.25**	**3.27**	**3.4**	**3.02**
Selenium, dissolved	mg/L	0.001	**0.00111**	< 0.0005	< 0.0005	< 0.005	< 0.005	< 0.02	**0.00027**	**0.00021**	< 0.0001	< 0.0001	< 0.0005	< 0.0005
Silicon, dissolved	mg/L		**9.37**	**8.71**	**8.8**	**14**	**13.2**	**16.3**	**4.3**	**4.06**	**5.46**	**8.26**	**11.5**	**11**
Silver, dissolved	mg/L	0.0001	< 0.00005	< 0.00005	< 0.00005	< 0.0005	< 0.0005	< 0.002	< 0.00002	< 0.00002	< 0.00001	**0.000021**	< 0.00005	< 0.00005
Sodium, dissolved	mg/L		**32.7**	**29.1**	**29**	**17.6**	**18.3**	**25**	**10.5**	**10.2**	**7.58**	**7.54**	**16.2**	**11.9**
Strontium, dissolved	mg/L		**2.4**	**2.29**	**2.3**	**1.76**	**1.87**	**1.49**	**1.18**	**1.16**	**1.81**	**1.69**	**2.07**	**2**
Thallium, dissolved	mg/L	0.0008	**0.000071**	< 0.00005	< 0.00005	< 0.0005	< 0.0005	< 0.002	< 0.00002	< 0.00002	< 0.00001	**0.000033**	**0.000175**	**0.000195**
Titanium, dissolved	mg/L	0.1	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	< 2	< 0.02	< 0.02	< 0.01	**0.036**	< 0.05	< 0.05
Uranium, dissolved	mg/L	0.3	**0.0176**	**0.0112**	**0.0109**	**0.0497**	**0.0526**	**0.0313**	**0.0519**	**0.0476**	**0.0219**	**0.0231**	**0.0824**	**0.0861**
Vanadium, dissolved	mg/L		< 0.005	< 0.005	< 0.005	< 0.05	< 0.05	< 0.2	< 0.002	< 0.002	< 0.001	**0.0021**	< 0.005	< 0.005
Zinc, dissolved	mg/L	0.03	**0.647**	**0.327**	**0.29**	**358**	**380**	**1530**	**1.75**	**1.11**	< 0.0095	**0.0233**	**8.15**	**8.58**
GENCHEM (mg/l)														
Acidity (CaCO3)	mg/L	--	**51.4**	**49**	**47.6**	**645**	**636**	**2160**	**49.2**	**45.3**	**13.8**	**15**	**181**	**112**
Alkalinity, Bicarbonate	mg/L	--	**626**	**486**	**488**	**628**	**703**	**271**	**646**	**558**	**382**	**373**	**1190**	**1190**
Alkalinity, Total	mg/L	--	**626**	**486**	**488**	**628**	**703**	**271**	**646**	**558**	**382**	**373**	**1190**	**1190**
Alkalinity: Carbonate As CaCO3	mg/L	--	< 20	< 2	< 2	< 20	< 20	< 2	< 20	< 20	< 2	< 2	< 20	< 20
Alkalinity: Hydroxide	mg/L	--	< 20	< 2	< 2	< 20	< 20	< 2	< 20	< 20	< 2	< 2	< 20	< 20
Ammonia-N	mg/L	4.84	**0.0702**	**0.0667**	**0.0694**	**0.229**	**0.221**	**0.9**	**0.0601**	**0.0055**	**0.0473**	**0.0667**	**0.0701**	**0.0666**
Chloride	mg/L	230	**20**	**20**	**21**	< 25	< 25	< 25	**1.04**	< 10	< 5	< 5	< 10	< 10
Dissolved organic carbon	mg/L	0.12	**3.9**	**2.83**	**2.48**	**9.56**	**9.61**	**15.5**	**2.97**	**2.87**	**1.12**	**2.07**	**12.4**	**11.1**
Fluoride	mg/L	--	< 0.4	< 0.4	< 0.4	**1.3**	**1.2**	**3.3**	**0.113**	< 0.4	< 0.2	**0.24**	< 0.4	< 0.4
Free Cyanide	mg/L	0.005	< 0.02	< 0.005	< 0.005	< 0.01	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Hardness (total CaCO3)	mg/L	--	**2510**	**2310**	**2300**	**6380**	**6100**	**12800**	**2780**	**2480**	**1240**	**1180**	**4220**	**4230**
Nitrate-N	mg/L	13	**5**	< 0.1	< 0.1	**0.7**	**0.73**	**1.37 J**	**7.58**	**3.91**	< 0.05	< 0.05	< 0.1	< 0.1
Nitrite as N	mg/L	0.06	< 0.02	< 0.02	< 0.02	**0.303**	**0.275**	**0.509 J**	< 0.02	< 0.02	< 0.01	< 0.01	< 0.02	< 0.02
ortho-Phosphate, dissolved	mg/L	--	< 0.001	< 0.001	< 0.001	**0.0011**	< 0.001	**0.0137 J**	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
pH	pH Units	--	**7.52 J**	**7.63 J**	**7.47 J**	**6.87 J**	**7 J**	**6.51 J**	**7.46 J**	**7.61 J**	**7.83 J**	**7.82 J**	**7.08 J**	**7.57 J**
Phosphorus, dissolved	mg/L	--	< 0.3	< 0.3	< 0.3	< 0.9	< 0.9	< 1.5	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Silica, dissolved	mg/L	--	**20**	**18.6**	**18.8**	**29.9**	**28.2**	**34.9**	**9.2**	**8.69**	**11.7**	**17.7**	**24.7**	**23.5**
Sulfate	mg/L	100	**2260**	**1890**	**1880**	**7190**	**7060**	**15200**	**2270**	**1990**	**851**	**817**	**3560**	**3370**
Sulfur, dissolved	mg/L	--	**645**	**569**	**575**	**2090**	**2050**	**4950**	**673**	**594**	**268**	**262**	**972**	**994**
Total Dissolved Solids	mg/L	--	**3530**	**3540**	**3530**	**9950**	**10300**	**24400**	**3930**	**3430**	**1560**	**1290**	**6530**	**6120**
Total Suspended Solids	mg/L	--	**13.4**	**11.7**	**10.6**	**17.4 J**	**11.8 J**	**14.5**	**3.9**	**1.5**	**151**	**2040**	**31**	**29**

a CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

Notes:
- = no guideline
Bold indicates the analyte was detected
CaCO3 = calcium carbonate
ID = Idenification
J = analyte was present but the reported value may not be accurate or precise
mg/L = miligram per liter
mS/cm/degree Celcuis = miliseimens per centimeter per degree celciu
mV = milivolts
NA = Not analyzed
NTU= Nephelometric Turbidity Units
Shading indicates the result exceeded screening criteria
U = analyte was analyzed for but not detected at the specified detection limit

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Location	A30		CH-ETA-01	CH-ETA-02	CH-FD-56			CH-FD-59	
		Sample ID	A30-SESP13	A30_SEFL13	CH-ETA-01-SESP13	CH-ETA-02-SESP13	SRK-FD56_SESP13	SRK-FD956_SESP13	SRK-FD56_SEFL13	CH-FD-59-SESP13	CH-FD-59-SEFL13
		Sample Date	6/12/2013	9/13/2013	6/11/2013	6/11/2013	6/11/2013	6/11/2013	9/17/2013	6/12/2013	9/17/2013
		Screening Level									
Field Parameters											
Conductivity, Field		mS / cm / Degree Celcius	**1.808**	**1.129**	**6.879**	**2.646**	**9.509**	NA	**11.65**	**1.444**	**1.459**
pH, Field		pH Units	**2.36**	**3.13**	**6.7**	**6.65**	**3.9**	NA	**3.99**	**5.29**	**5.8**
Temperature, Field		Degree Celcius	**6.31**	**8.13**	**6.64**	**5.35**	**2.38**	NA	**4.37**	**3.61**	**7.23**
Oxidation Reduction Potential		mV	**581.7**	**529.1**	**161.2**	**151.1**	**295.6**	NA	**280**	**123.3**	**77.2**
Dissolved Oxygen (DO)		mg/L	**10.48**	**10.55**	**9.12**	**8.78**	**11.13**	NA	**4.13**	**5.89**	**3.89**
Dissolved Oxygen (percentage)		%	**84.4**	**89.5**	**76.7**	**69.9**	**89.1**	NA	**33.2**	**44.8**	**32.3**
Flow		L/S	**40**	**3**	**10.7**	**44.3**	**0.2**	NA	**0.044**	**0.2**	**0.1**
Dissolved Metals			NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L	NA	**8.53**	NA	NA	**12**	**11.5**	**6.1**	NA	NA
Antimony, dissolved	--	mg/L	NA	< 0.0005	NA	NA	< 0.01	< 0.01	< 0.01	NA	NA
Arsenic, dissolved	0.005	mg/L	NA	< 0.0005	NA	NA	< 0.01	< 0.01	< 0.01	NA	NA
Barium, dissolved	--	mg/L	NA	**0.0216**	NA	NA	**0.0325**	**0.0343**	**0.0213**	NA	NA
Beryllium, dissolved	--	mg/L	NA	**0.00387**	NA	NA	< 0.01	< 0.01	< 0.01	NA	NA
Bismuth, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L	NA	< 0.05	NA	NA	< 1	< 1	< 1	NA	NA
Cadmium, dissolved	Variable [b]	mg/L	NA	**0.0766**	NA	NA	**0.393**	**0.395**	**0.485**	NA	NA
Calcium, dissolved	--	mg/L	NA	**57.7**	NA	NA	**445**	**433**	**463**	NA	NA
Chromium, dissolved	0.0089	mg/L	NA	**0.00423**	NA	NA	< 0.01	< 0.01	< 0.01	NA	NA
Cobalt, dissolved	--	mg/L	NA	**0.12**	NA	NA	**2.12**	**2.07**	**2.61**	NA	NA
Copper, dissolved	0.002	mg/L	NA	**0.88**	NA	NA	**0.53**	**0.482**	**0.109**	NA	NA
Ferrous Iron, dissolved	--	mg/L	NA	**0.372**	NA	NA	**44**	**43.8**	**290**	NA	NA
Iron, dissolved	0.3	mg/L	NA	**2.08**	NA	NA	**42.9**	**43.2**	**294**	NA	NA
Lead, dissolved	0.001	mg/L	NA	**0.35**	NA	NA	**0.259**	**0.248**	**0.237**	NA	NA
Lithium, dissolved	--	mg/L	NA	**0.0388**	NA	NA	**0.273**	**0.274**	**0.264**	NA	NA
Magnesium, dissolved	--	mg/L	NA	**56.9**	NA	NA	**1600**	**1580**	**2000**	NA	NA
Manganese, dissolved	--	mg/L	NA	**3.16**	NA	NA	**119**	**117**	**154**	NA	NA
Mercury, dissolved	0.000026	mg/L	NA	< 0.00001	NA	NA	**0.00003 J**	**0.000019 J**	< 0.00001	NA	NA
Molybdenum, dissolved	0.073	mg/L	NA	< 0.00025	NA	NA	< 0.005	< 0.005	< 0.005	NA	NA
Nickel, dissolved	0.025	mg/L	NA	**0.146**	NA	NA	**3.19**	**3.13**	**3.99**	NA	NA
Potassium, dissolved	--	mg/L	NA	**1.67**	NA	NA	**19.3**	**18.7**	**15.2**	NA	NA
Selenium, dissolved	0.001	mg/L	NA	< 0.0005	NA	NA	< 0.01	< 0.01	< 0.01	NA	NA
Silicon, dissolved	--	mg/L	NA	**13.2**	NA	NA	**6.96**	**6.79**	**7.78**	NA	NA
Silver, dissolved	0.0001	mg/L	NA	**0.000635**	NA	NA	< 0.001	< 0.001	< 0.001	NA	NA
Sodium, dissolved	--	mg/L	NA	**3.92**	NA	NA	**76.3**	**75**	**81.3**	NA	NA
Strontium, dissolved	--	mg/L	NA	**0.253**	NA	NA	**2.08**	**2.04**	**1.79**	NA	NA
Thallium, dissolved	0.0008	mg/L	NA	**0.000191**	NA	NA	**0.0055**	**0.0054**	**0.0067**	NA	NA
Tin, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L	NA	< 0.05	NA	NA	< 1	< 1	< 1	NA	NA
Uranium, dissolved	0.015	mg/L	NA	**0.00952**	NA	NA	**0.0209**	**0.0205**	**0.0485**	NA	NA
Vanadium, dissolved	--	mg/L	NA	< 0.005	NA	NA	< 0.1	< 0.1	< 0.1	NA	NA
Zinc, dissolved	0.03	mg/L	NA	**47.3**	NA	NA	**662**	**648**	**952**	NA	NA
Zirconium hydride, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	A30		CH-ETA-01	CH-ETA-02	CH-FD-56			CH-FD-59	
		Sample ID	A30-SESP13	A30_SEFL13	CH-ETA-01-SESP13	CH-ETA-02-SESP13	SRK-FD56_SESP13	SRK-FD956_SESP13	SRK-FD56_SEFL13	CH-FD-59-SESP13	CH-FD-59-SEFL13
		Sample Date	6/12/2013	9/13/2013	6/11/2013	6/11/2013	6/11/2013	6/11/2013	9/17/2013	6/12/2013	9/17/2013
Analyte	**Screening Level**	**Screening Level**									
General Chemistry											
Acidity (CaCO3)	--	mg/L	NA	**149**	NA	NA	NA	NA	NA	NA	NA
Acidity, hot peroxide	--	mg/L	NA	NA	NA	NA	**1600**	**1220**	**2350**	NA	NA
Alkalinity, Bicarbonate	--	mg/L	NA	NA	NA	NA	< 1	< 1	NA	NA	NA
Alkalinity, Total	--	mg/L	NA	NA	NA	NA	< 1	< 1	NA	NA	NA
Alkalinity: Carbonate As Caco3	--	mg/L	NA	NA	NA	NA	< 1	< 1	NA	NA	NA
Alkalinity: Hydroxide		mg/L	NA	NA	NA	NA	< 1	< 1	NA	NA	NA
Ammonia-N	0.019	mg/L	NA	**0.0142**	NA	NA	**1.23**	**1.21**	**1.23**	NA	NA
Chloride	120	mg/L	NA	**< 5**	NA	NA	**< 25**	**< 25**	**< 25**	NA	NA
Dissolved organic carbon	--	mg/L	NA	**1.56**	NA	NA	**< 7.25**	**< 7.26**	**5.57**	NA	NA
Fluoride	0.12	mg/L	NA	**0.57**	NA	NA	**2.8**	**2.7**	**4.8**	NA	NA
Free Cyanide	0.005	mg/L	NA	**NA**	NA	NA	**< 0.01**	**< 0.01**	**NA**	NA	NA
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	NA	**0.266**	NA	NA	**1.2**	**1.1**	**0.57**	NA	NA
Nitrite as N	0.06	mg/L	NA	**< 0.01**	NA	NA	**< 0.05**	**< 0.05**	**< 0.05**	NA	NA
ortho-Phosphate, dissolved	--	mg/L	NA	**0.0029 J**	NA	NA	**< 0.001**	**< 0.001**	**< 0.001**	NA	NA
pH		pH Units	NA	**NA**	NA	NA	**3.6 J**	**3.56 J**	**NA**	NA	NA
Phosphorus, dissolved	0.01	mg/L	NA	**< 0.3**	NA	NA	**< 1.5**	**< 1.5**	**< 1.5**	NA	NA
Silica, dissolved	--	mg/L	NA	**28.3**	NA	NA	**14.9**	**14.5**	**16.6**	NA	NA
Sulfate	--	mg/L	NA	**505**	NA	NA	**9340**	**9380**	**11500**	NA	NA
Sulfate, dissolved		mg/L	NA	**NA**	NA	NA	**NA**	**NA**	**NA**	NA	NA
Sulfur, dissolved	--	mg/L	NA	**167**	NA	NA	**2910**	**2880**	**3900**	NA	NA
Temperature, Lab		Degree Celcius	NA	**NA**	NA	NA	**NA**	**NA**	**NA**	NA	NA
Total Dissolved Solids	--	mg/L	NA	**892**	NA	NA	**13500**	**13500**	**17800**	NA	NA
Total Suspended Solids	--	mg/L	NA	**15.7**	NA	NA	**36.8**	**36**	**34.1**	NA	NA

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	CH-FD-60		CH-FD-61		CH-FD-62	CH-FD-63		CH-FD-64
		Sample ID	CH-FD-60-SESP13	CH-FD-60-SEFL13	CH-FD-61-SESP13	CH-FD-61-SEFL13	CH-FD-62-SEFL13	CH-FD-63-SESP13	CH-FD-63-SEFL13	CH-FD-64-SEFL13
		Sample Date	6/12/2013	9/17/2013	6/12/2013	9/17/2013	9/17/2013	6/12/2013	9/17/2013	9/12/2013
Analyte	**Screening Level**	**Screening Level**								
Field Parameters										
Conductivity, Field		mS / cm / Degree Celcius	**2.423**	**0.788**	**2.217**	**1.328**	**2.377**	**2.268**	**1.543**	**12.68**
pH, Field		pH Units	**4.04**	**5.18**	**5.97**	**6.9**	**3.07**	**5.22**	**6.95**	**4.61**
Temperature, Field		Degree Celcius	**-0.1**	**3.46**	**4.06**	**3.34**	**5.75**	**4.73**	**5.29**	**3.7**
Oxidation Reduction Potential		mV	**310.8**	**184.2**	**219.8**	**107**	**402.7**	**262.4**	**117.3**	**130.5**
Dissolved Oxygen (DO)		mg/L	**8.89**	**3.06**	**3.87**	**10.07**	**9.3**	**7.12**	**8.67**	**4.13**
Dissolved Oxygen (percentage)		%	**61.1**	**23.2**	**29.8**	**75.6**	**74.5**	**55.6**	**68.6**	**32.7**
Flow		L/S	**0.3**	**0.13**	**0.5**	**0.23**	**0.095**	**0.2**	**0.034**	**0.67**
Dissolved Metals			NA	NA	NA	NA	NA	NA	NA	NA
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Antimony, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic, dissolved	0.005	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Barium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Bismuth, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium, dissolved	Variable [b]	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Calcium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, dissolved	0.0089	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Copper, dissolved	0.002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Ferrous Iron, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Iron, dissolved	0.3	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Lead, dissolved	0.001	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Lithium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Manganese, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Mercury, dissolved	0.000026	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum, dissolved	0.073	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Nickel, dissolved	0.025	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Potassium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Selenium, dissolved	0.001	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Silicon, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Silver, dissolved	0.0001	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Sodium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Strontium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Thallium, dissolved	0.0008	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Tin, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Uranium, dissolved	0.015	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Zinc, dissolved	0.03	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Zirconium hydride, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	CH-FD-60		CH-FD-61		CH-FD-62	CH-FD-63		CH-FD-64
		Sample ID	CH-FD-60-SESP13	CH-FD-60-SEFL13	CH-FD-61-SESP13	CH-FD-61-SEFL13	CH-FD-62-SEFL13	CH-FD-63-SESP13	CH-FD-63-SEFL13	CH-FD-64-SEFL13
		Sample Date	6/12/2013	9/17/2013	6/12/2013	9/17/2013	9/17/2013	6/12/2013	9/17/2013	9/12/2013
Analyte	**Screening Level**	**Screening Level**								
General Chemistry										
Acidity (CaCO3)	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Acidity, hot peroxide	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Bicarbonate	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity: Carbonate As Caco3	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity: Hydroxide		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Ammonia-N	0.019	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	120	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved organic carbon	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Free Cyanide	0.005	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite as N	0.06	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
ortho-Phosphate, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
pH		pH Units	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus, dissolved	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Silica, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Sulfur, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Temperature, Lab		Degree Celcius	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Total Suspended Solids	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Screening Level	Location	CH-FD-65		CH-FD-66		CH-FD-67	CH-FD-67	CH-FD-68	CH-FD-68
			Sample ID	CH-FD-65-SESP13	CH-FD-65-SEFL13	CH-FD-66_SESP13	CH-FD-66-SEFL13	CH-FD-67_SESP13	CH-FD-67_SEFL13	CH-FD-68_SESP13	CH-FD-68_SEFL13
			Sample Date	6/10/2013	9/11/2013	6/14/2013	9/12/2013	6/14/2013	9/11/2013	6/12/2013	9/17/2013
Field Parameters											
Conductivity, Field		mS / cm / Degree Celcius		**4.548**	**4.373**	**28.84**	**1.879**	**46.69**	**51.7**	**2.919**	**4.625**
pH, Field		pH Units		**6.66**	**6.44**	**1.95**	**2.64**	**2.11**	**2.18**	**4.26**	**4.51**
Temperature, Field		Degree Celcius		**5.07**	**4.18**	**13.71**	**4.83**	**14.44**	**12.99**	**18.18**	**7.99**
Oxidation Reduction Potential		mV		**85.7**	**208.8**	**404.1**	**497.9**	**405.7**	**405.9**	**318.4**	**207.4**
Dissolved Oxygen (DO)		mg/L		**8.49**	**0.27**	**1.38**	**9.03**	**0.95**	**2.93**	**3.35**	**10.36**
Dissolved Oxygen (percentage)		%		**67.7**	**1.9**	**14**	**71.1**	**11.1**	**34.2**	**36.4**	**88.5**
Flow		L/S		**30**	**0.01**	NA	**0**	**0**	**0**	NA	**0**
Dissolved Metals				NA	NA	NA	NA	NA	NA	NA	NA
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L		NA	NA	**612**	NA	NA	NA	NA	**18**
Antimony, dissolved	--	mg/L		NA	NA	< 0.2	NA	NA	NA	NA	< 0.0005
Arsenic, dissolved	0.005	mg/L		NA	NA	**21.3**	NA	NA	NA	NA	**0.00291**
Barium, dissolved	--	mg/L		NA	NA	< 0.1	NA	NA	NA	NA	**0.0123**
Beryllium, dissolved	--	mg/L		NA	NA	**0.32**	NA	NA	NA	NA	**0.00636**
Bismuth, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L		NA	NA	< 20	NA	NA	NA	NA	< 0.05
Cadmium, dissolved	Variable [b]	mg/L		NA	NA	**17.7**	NA	NA	NA	NA	**0.121**
Calcium, dissolved	--	mg/L		NA	NA	**529**	NA	NA	NA	NA	**376**
Chromium, dissolved	0.0089	mg/L		NA	NA	**0.51**	NA	NA	NA	NA	**0.00052**
Cobalt, dissolved	--	mg/L		NA	NA	**11.2**	NA	NA	NA	NA	**0.191**
Copper, dissolved	0.002	mg/L		NA	NA	**337**	NA	NA	NA	NA	**1.5**
Ferrous Iron, dissolved	--	mg/L		NA	NA	**5360 J**	NA	NA	NA	NA	**0.158**
Iron, dissolved	0.3	mg/L		NA	NA	**11700**	NA	NA	NA	NA	**0.099**
Lead, dissolved	0.001	mg/L		NA	NA	**0.26**	NA	NA	NA	NA	**0.15**
Lithium, dissolved	--	mg/L		NA	NA	< 1	NA	NA	NA	NA	**0.0759**
Magnesium, dissolved	--	mg/L		NA	NA	**786**	NA	NA	NA	NA	**565**
Manganese, dissolved	--	mg/L		NA	NA	**249**	NA	NA	NA	NA	**5.07**
Mercury, dissolved	0.000026	mg/L		NA	NA	**0.000201**	NA	NA	NA	NA	< 0.00001
Molybdenum, dissolved	0.073	mg/L		NA	NA	< 0.1	NA	NA	NA	NA	< 0.00025
Nickel, dissolved	0.025	mg/L		NA	NA	**6.7**	NA	NA	NA	NA	**0.492**
Potassium, dissolved	--	mg/L		NA	NA	< 100	NA	NA	NA	NA	**11.2**
Selenium, dissolved	0.001	mg/L		NA	NA	< 0.2	NA	NA	NA	NA	**0.00227**
Silicon, dissolved	--	mg/L		NA	NA	**111**	NA	NA	NA	NA	**6.7**
Silver, dissolved	0.0001	mg/L		NA	NA	< 0.02	NA	NA	NA	NA	**0.000064**
Sodium, dissolved	--	mg/L		NA	NA	< 100	NA	NA	NA	NA	**10.2**
Strontium, dissolved	--	mg/L		NA	NA	**1.2**	NA	NA	NA	NA	**1.53**
Thallium, dissolved	0.0008	mg/L		NA	NA	< 0.02	NA	NA	NA	NA	**0.000147**
Tin, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L		NA	NA	< 20	NA	NA	NA	NA	< 0.05
Uranium, dissolved	0.015	mg/L		NA	NA	**1.2**	NA	NA	NA	NA	**0.0288**
Vanadium, dissolved	--	mg/L		NA	NA	< 2	NA	NA	NA	NA	< 0.005
Zinc, dissolved	0.03	mg/L		NA	NA	**12700**	NA	NA	NA	NA	**45.4**
Zirconium hydride, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Screening Level	Location	CH-FD-65		CH-FD-66		CH-FD-67	CH-FD-67	CH-FD-68	CH-FD-68
			Sample ID	CH-FD-65-SESP13	CH-FD-65-SEFL13	CH-FD-66_SESP13	CH-FD-66-SEFL13	CH-FD-67_SESP13	CH-FD-67_SEFL13	CH-FD-68_SESP13	CH-FD-68_SEFL13
			Sample Date	6/10/2013	9/11/2013	6/14/2013	9/12/2013	6/14/2013	9/11/2013	6/12/2013	9/17/2013
General Chemistry											
Acidity (CaCO3)	--	mg/L		NA	NA	NA	NA	NA	NA	NA	**214**
Acidity, hot peroxide	--	mg/L		NA	NA	**36400 J**	NA	NA	NA	NA	NA
Alkalinity, Bicarbonate	--	mg/L		NA	NA	NA	NA	NA	NA	NA	**11.3**
Alkalinity, Total	--	mg/L		NA	NA	NA	NA	NA	NA	NA	**11.3**
Alkalinity: Carbonate As Caco3	--	mg/L		NA	NA	NA	NA	NA	NA	NA	< 2
Alkalinity: Hydroxide		mg/L		NA	NA	NA	NA	NA	NA	NA	< 2
Ammonia-N	0.019	mg/L		NA	NA	< 0.005	NA	NA	NA	NA	< 0.005
Chloride	120	mg/L		NA	NA	< 50	NA	NA	NA	NA	< 10
Dissolved organic carbon	--	mg/L		NA	NA	31.7 J	NA	NA	NA	NA	**1.37**
Fluoride	0.12	mg/L		NA	NA	41.8 J	NA	NA	NA	NA	**2.05**
Free Cyanide	0.005	mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Total Hardness (CaCO3)		mg/L		NA	NA	NA	NA	NA	NA	NA	**3270**
Nitrate-N	13	mg/L		NA	NA	< 0.5	NA	NA	NA	NA	**0.68**
Nitrite as N	0.06	mg/L		NA	NA	< 0.1	NA	NA	NA	NA	< 0.02
ortho-Phosphate, dissolved	--	mg/L		NA	NA	1.11 J	NA	NA	NA	NA	< 0.001 J
pH		pH Units		NA	NA	NA	NA	NA	NA	NA	**4.6 J**
Phosphorus, dissolved	0.01	mg/L		NA	NA	8	NA	NA	NA	NA	< 0.6
Silica, dissolved	--	mg/L		NA	NA	236	NA	NA	NA	NA	**14.3**
Sulfate	--	mg/L		NA	NA	47200 J	NA	NA	NA	NA	**3370**
Sulfate, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Sulfur, dissolved	--	mg/L		NA	NA	17500	NA	NA	NA	NA	**1110**
Temperature, Lab		Degree Celcius		NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	--	mg/L		NA	NA	77100 J	NA	NA	NA	NA	**5260**
Total Suspended Solids	--	mg/L		NA	NA	325 J	NA	NA	NA	NA	**493**

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Screening Level	Location	CH-FD-69	CH-FD-70	CH-FD-70	CH-FD-71	CH-FD-72	CH-FP-23	CH-FP-25	
			Sample ID	CH-FD-69_SESP13	CH-FD-70_SESP13	CH-FD-70_SEFL13	CH-FD-71_SEFL13	CH-FD-71_SEFL13	CH-FP-23-SESP13	CH-FP-25-SESP13	CH-FP-25-SEFL13
			Sample Date	6/12/2013	6/12/2013	9/11/2013	9/12/2013	9/17/2013	6/12/2013	6/10/2013	9/12/2013
Field Parameters											
Conductivity, Field		mS / cm / Degree Celcius		**1.813**	**1.201**	**1.742**	**9.55**	**11.01**	**1.943**	**1.908**	**2.59**
pH, Field		pH Units		**6.63**	**6.24**	**6.74**	**2.35**	**3.94**	**6.34**	**6.7**	**6.35**
Temperature, Field		Degree Celcius		**1.5**	**8.2**	**2.82**	**7.25**	**4.28**	**16.5**	**3.82**	**8.16**
Oxidation Reduction Potential		mV		**318.4**	**198.1**	**105**	**393.2**	**309.8**	**157**	**88.5**	**51.1**
Dissolved Oxygen (DO)		mg/L		**6.95**	**5.08**	**10.56**	**2.85**	**5.42**	**3.81**	**7.4**	**4.38**
Dissolved Oxygen (percentage)		%		**49.7**	**44.7**	**78.4**	**24.5**	**43.2**	**39.8**	**57.7**	**37.4**
Flow		L/S		**0**	**35**	**15**	**0.033**	**0.001**	**0.05**	**1**	**0.75**
Dissolved Metals				NA	NA	NA	NA	NA	NA	NA	NA
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L		NA	NA	NA	NA	**21.2**	NA	NA	NA
Antimony, dissolved	--	mg/L		NA	NA	NA	NA	< 0.01	NA	NA	NA
Arsenic, dissolved	0.005	mg/L		NA	NA	NA	NA	**0.029**	NA	NA	NA
Barium, dissolved	--	mg/L		NA	NA	NA	NA	**0.0328**	NA	NA	NA
Beryllium, dissolved	--	mg/L		NA	NA	NA	NA	**0.012**	NA	NA	NA
Bismuth, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L		NA	NA	NA	NA	< 1	NA	NA	NA
Cadmium, dissolved	Variable [b]	mg/L		NA	NA	NA	NA	**0.399**	NA	NA	NA
Calcium, dissolved	--	mg/L		NA	NA	NA	NA	**464**	NA	NA	NA
Chromium, dissolved	0.0089	mg/L		NA	NA	NA	NA	< 0.01	NA	NA	NA
Cobalt, dissolved	--	mg/L		NA	NA	NA	NA	**3.28**	NA	NA	NA
Copper, dissolved	0.002	mg/L		NA	NA	NA	NA	**0.173**	NA	NA	NA
Ferrous Iron, dissolved	--	mg/L		NA	NA	NA	NA	**146**	NA	NA	NA
Iron, dissolved	0.3	mg/L		NA	NA	NA	NA	**126**	NA	NA	NA
Lead, dissolved	0.001	mg/L		NA	NA	NA	NA	**0.0471**	NA	NA	NA
Lithium, dissolved	--	mg/L		NA	NA	NA	NA	**0.383**	NA	NA	NA
Magnesium, dissolved	--	mg/L		NA	NA	NA	NA	**2170**	NA	NA	NA
Manganese, dissolved	--	mg/L		NA	NA	NA	NA	**163**	NA	NA	NA
Mercury, dissolved	0.000026	mg/L		NA	NA	NA	NA	< 0.00001	NA	NA	NA
Molybdenum, dissolved	0.073	mg/L		NA	NA	NA	NA	< 0.005	NA	NA	NA
Nickel, dissolved	0.025	mg/L		NA	NA	NA	NA	**4.54**	NA	NA	NA
Potassium, dissolved	--	mg/L		NA	NA	NA	NA	**16.1**	NA	NA	NA
Selenium, dissolved	0.001	mg/L		NA	NA	NA	NA	< 0.01	NA	NA	NA
Silicon, dissolved	--	mg/L		NA	NA	NA	NA	**11.7**	NA	NA	NA
Silver, dissolved	0.0001	mg/L		NA	NA	NA	NA	< 0.001	NA	NA	NA
Sodium, dissolved	--	mg/L		NA	NA	NA	NA	**73.7**	NA	NA	NA
Strontium, dissolved	--	mg/L		NA	NA	NA	NA	**2.23**	NA	NA	NA
Thallium, dissolved	0.0008	mg/L		NA	NA	NA	NA	**0.0043**	NA	NA	NA
Tin, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L		NA	NA	NA	NA	< 1	NA	NA	NA
Uranium, dissolved	0.015	mg/L		NA	NA	NA	NA	**0.0047**	NA	NA	NA
Vanadium, dissolved	--	mg/L		NA	NA	NA	NA	< 0.1	NA	NA	NA
Zinc, dissolved	0.03	mg/L		NA	NA	NA	NA	**901**	NA	NA	NA
Zirconium hydride, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Screening Level	Location	CH-FD-69	CH-FD-70	CH-FD-70	CH-FD-71	CH-FD-72	CH-FP-23	CH-FP-25	
			Sample ID	CH-FD-69_SESP13	CH-FD-70_SESP13	CH-FD-70_SEFL13	CH-FD-71_SEFL13	CH-FD-71_SEFL13	CH-FP-23-SESP13	CH-FP-25-SESP13	CH-FP-25-SEFL13
			Sample Date	6/12/2013	6/12/2013	9/11/2013	9/12/2013	9/17/2013	6/12/2013	6/10/2013	9/12/2013
General Chemistry											
Acidity (CaCO3)	--	mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Acidity, hot peroxide	--	mg/L		NA	NA	NA	NA	**2040**	NA	NA	NA
Alkalinity, Bicarbonate	--	mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total	--	mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity: Carbonate As Caco3	--	mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity: Hydroxide		mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Ammonia-N	0.019	mg/L		NA	NA	NA	NA	**1.31**	NA	NA	NA
Chloride	120	mg/L		NA	NA	NA	NA	< 25	NA	NA	NA
Dissolved organic carbon	--	mg/L		NA	NA	NA	NA	**9.56**	NA	NA	NA
Fluoride	0.12	mg/L		NA	NA	NA	NA	**5.9**	NA	NA	NA
Free Cyanide	0.005	mg/L		NA	NA	NA	NA	< 0.05	NA	NA	NA
Total Hardness (CaCO3)		mg/L		NA	NA	NA	NA	**10100**	NA	NA	NA
Nitrate-N	13	mg/L		NA	NA	NA	NA	< 0.25	NA	NA	NA
Nitrite as N	0.06	mg/L		NA	NA	NA	NA	< 0.05	NA	NA	NA
ortho-Phosphate, dissolved	--	mg/L		NA	NA	NA	NA	< 0.001 J	NA	NA	NA
pH		pH Units		NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus, dissolved	0.01	mg/L		NA	NA	NA	NA	< 1.5	NA	NA	NA
Silica, dissolved	--	mg/L		NA	NA	NA	NA	**24.9**	NA	NA	NA
Sulfate	--	mg/L		NA	NA	NA	NA	**12000**	NA	NA	NA
Sulfate, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Sulfur, dissolved	--	mg/L		NA	NA	NA	NA	**4080**	NA	NA	NA
Temperature, Lab		Degree Celcius		NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	--	mg/L		NA	NA	NA	NA	**18600**	NA	NA	NA
Total Suspended Solids	--	mg/L		NA	NA	NA	NA	**34.9**	NA	NA	NA

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Screening Level	Location	CH-FP-28		CH-FP-29		CH-FP-30		CH-FP-31		CH-FP-32
			Sample ID	CH-FP-28-SESP13	CH-FP-28-SEFL13	CH-FP-29-SESP13	CH-FP-29-SEFL13	CH-FP-30-SESP13	CH-FP-30_SEFL13	CH-FP-31-SESP13	CH-FP-31-SEFL13	CH-FP-32-SESP13
			Sample Date	6/10/2013	9/12/2013	6/12/2013	9/13/2013	6/12/2013	9/13/2013	6/12/2013	9/13/2013	6/10/2013
Field Parameters												
Conductivity, Field		mS / cm / Degree Celcius		**3.97**	**2.349**	**1.787**	**1.332**	**0.137**	**0.177**	**0.738**	**0.799**	**4.787**
pH, Field		pH Units		**6.83**	**6.31**	**2.36**	**2.65**	**7.21**	**5.45**	**6.12**	**5.92**	**3.49**
Temperature, Field		Degree Celcius		**5.7**	**9.19**	**1.77**	**5.77**	**5.61**	**7.4**	**5.97**	**7.39**	**13.69**
Oxidation Reduction Potential		mV		**11.4**	**163.8**	**595.2**	**539.2**	**254.1**	**223.6**	**287.1**	**289.1**	**392.9**
Dissolved Oxygen (DO)		mg/L		**9.71**	**2.2**	**9.31**	**9**	**9.92**	**11.56**	**6.6**	**10.33**	**6.94**
Dissolved Oxygen (percentage)		%		**78.5**	**19.1**	**67.2**	**72.1**	**78.8**	**91.9**	**53.1**	**86.1**	**68.3**
Flow		L/S		**20**	**0.015**	**5**	**0.5**	**5**	**2.5**	**1.1**	**1.75**	**4**
Dissolved Metals				NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L		NA	NA	NA	NA	NA	< 0.001	NA	NA	NA
Antimony, dissolved	--	mg/L		NA	NA	NA	NA	NA	< 0.0001	NA	NA	NA
Arsenic, dissolved	0.005	mg/L		NA	NA	NA	NA	NA	**0.00012**	NA	NA	NA
Barium, dissolved	--	mg/L		NA	NA	NA	NA	NA	**0.0193**	NA	NA	NA
Beryllium, dissolved	--	mg/L		NA	NA	NA	NA	NA	< 0.0001	NA	NA	NA
Bismuth, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L		NA	NA	NA	NA	NA	< 0.01	NA	NA	NA
Cadmium, dissolved	Variable [b]	mg/L		NA	NA	NA	NA	NA	< 0.00001	NA	NA	NA
Calcium, dissolved	--	mg/L		NA	NA	NA	NA	NA	**21.6**	NA	NA	NA
Chromium, dissolved	0.0089	mg/L		NA	NA	NA	NA	NA	**0.00038**	NA	NA	NA
Cobalt, dissolved	--	mg/L		NA	NA	NA	NA	NA	< 0.0001	NA	NA	NA
Copper, dissolved	0.002	mg/L		NA	NA	NA	NA	NA	< 0.0002	NA	NA	NA
Ferrous Iron, dissolved	--	mg/L		NA	NA	NA	NA	NA	< 0.02	NA	NA	NA
Iron, dissolved	0.3	mg/L		NA	NA	NA	NA	NA	< 0.03	NA	NA	NA
Lead, dissolved	0.001	mg/L		NA	NA	NA	NA	NA	**0.000051**	NA	NA	NA
Lithium, dissolved	--	mg/L		NA	NA	NA	NA	NA	**0.00878**	NA	NA	NA
Magnesium, dissolved	--	mg/L		NA	NA	NA	NA	NA	**4.08**	NA	NA	NA
Manganese, dissolved	--	mg/L		NA	NA	NA	NA	NA	**0.000102**	NA	NA	NA
Mercury, dissolved	0.000026	mg/L		NA	NA	NA	NA	NA	< 0.00001	NA	NA	NA
Molybdenum, dissolved	0.073	mg/L		NA	NA	NA	NA	NA	**0.001**	NA	NA	NA
Nickel, dissolved	0.025	mg/L		NA	NA	NA	NA	NA	< 0.0005	NA	NA	NA
Potassium, dissolved	--	mg/L		NA	NA	NA	NA	NA	**0.691**	NA	NA	NA
Selenium, dissolved	0.001	mg/L		NA	NA	NA	NA	NA	**0.00029**	NA	NA	NA
Silicon, dissolved	--	mg/L		NA	NA	NA	NA	NA	**6.44**	NA	NA	NA
Silver, dissolved	0.0001	mg/L		NA	NA	NA	NA	NA	< 0.00001	NA	NA	NA
Sodium, dissolved	--	mg/L		NA	NA	NA	NA	NA	**2.49**	NA	NA	NA
Strontium, dissolved	--	mg/L		NA	NA	NA	NA	NA	**0.0983**	NA	NA	NA
Thallium, dissolved	0.0008	mg/L		NA	NA	NA	NA	NA	< 0.00001	NA	NA	NA
Tin, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L		NA	NA	NA	NA	NA	< 0.01	NA	NA	NA
Uranium, dissolved	0.015	mg/L		NA	NA	NA	NA	NA	**0.00228**	NA	NA	NA
Vanadium, dissolved	--	mg/L		NA	NA	NA	NA	NA	< 0.001	NA	NA	NA
Zinc, dissolved	0.03	mg/L		NA	NA	NA	NA	NA	< 0.001	NA	NA	NA
Zirconium hydride, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	CH-FP-28		CH-FP-29		CH-FP-30		CH-FP-31		CH-FP-32
		Sample ID	CH-FP-28-SESP13	CH-FP-28-SEFL13	CH-FP-29-SESP13	CH-FP-29-SEFL13	CH-FP-30-SESP13	CH-FP-30_SEFL13	CH-FP-31-SESP13	CH-FP-31-SEFL13	CH-FP-32-SESP13
		Sample Date	6/10/2013	9/12/2013	6/12/2013	9/13/2013	6/12/2013	9/13/2013	6/12/2013	9/13/2013	6/10/2013
Analyte	**Screening Level**	**Screening Level**									
General Chemistry											
Acidity (CaCO3)	--	mg/L	NA	NA	NA	NA	NA	**1.7**	NA	NA	NA
Acidity, hot peroxide	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Bicarbonate	--	mg/L	NA	NA	NA	NA	NA	**60.7**	NA	NA	NA
Alkalinity, Total	--	mg/L	NA	NA	NA	NA	NA	**60.7**	NA	NA	NA
Alkalinity: Carbonate As Caco3	--	mg/L	NA	NA	NA	NA	NA	< 2	NA	NA	NA
Alkalinity: Hydroxide		mg/L	NA	NA	NA	NA	NA	< 2	NA	NA	NA
Ammonia-N	0.019	mg/L	NA	NA	NA	NA	NA	< 0.005	NA	NA	NA
Chloride	120	mg/L	NA	NA	NA	NA	NA	< 0.5	NA	NA	NA
Dissolved organic carbon	--	mg/L	NA	NA	NA	NA	NA	0.79	NA	NA	NA
Fluoride	0.12	mg/L	NA	NA	NA	NA	NA	0.3	NA	NA	NA
Free Cyanide	0.005	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	NA	NA	NA	NA	NA	0.231	NA	NA	NA
Nitrite as N	0.06	mg/L	NA	NA	NA	NA	NA	< 0.001	NA	NA	NA
ortho-Phosphate, dissolved	--	mg/L	NA	NA	NA	NA	NA	0.0073 J	NA	NA	NA
pH		pH Units	NA	NA	NA	NA	NA	7.88 J	NA	NA	NA
Phosphorus, dissolved	0.01	mg/L	NA	NA	NA	NA	NA	< 0.3	NA	NA	NA
Silica, dissolved	--	mg/L	NA	NA	NA	NA	NA	13.8	NA	NA	NA
Sulfate	--	mg/L	NA	NA	NA	NA	NA	27.6	NA	NA	NA
Sulfate, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfur, dissolved	--	mg/L	NA	NA	NA	NA	NA	6.27	NA	NA	NA
Temperature, Lab		Degree Celcius	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	--	mg/L	NA	NA	NA	NA	NA	107	NA	NA	NA
Total Suspended Solids	--	mg/L	NA	NA	NA	NA	NA	3.9	NA	NA	NA

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

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J = analyte was present but the reported value may not be accurate or precise

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mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Screening Level	Location	CH-FP-33		CH-FP-34			CH-FP-35		CH-FP-36	CH-FP-37
			Sample ID	CH-FP-33-SESP13	CH-FP-33-SEFL13	CH-FP-34-SESP13	CH-FP-34_SEFL13	CH-FP-934_SEFL13	CH-FP-35-SESP13	CH-FP-35_SEFL13	CH-FP-36-SESP13	CH-FP-37-SESP13
			Sample Date	6/12/2013	9/13/2013	6/12/2013	9/13/2013	9/13/2013	6/12/2013	9/19/2013	6/12/2013	6/12/2013
Field Parameters												
Conductivity, Field		mS / cm / Degree Celcius		**0.555**	**0.662**	**0.234**	**0.662**	NA	**1.072**	**1.605**	**1.23**	**2.443**
pH, Field		pH Units		**7.49**	**7.2**	**7.49**	**7**	NA	**6.66**	**4.61**	**3.24**	**7.02**
Temperature, Field		Degree Celcius		**14.23**	**6.22**	**5.24**	**4.77**	NA	**10.84**	**4.75**	**1.23**	**11.19**
Oxidation Reduction Potential		mV		**159.1**	**-48.5**	**106.8**	**145.1**	NA	**175.4**	**350**	**539.3**	**3.9**
Dissolved Oxygen (DO)		mg/L		**6.14**	**10.38**	**6.97**	**11.74**	NA	**5.96**	**11.85**	**6.3**	**7.7**
Dissolved Oxygen (percentage)		%		**59.7**	**83.9**	NA	**91.7**	NA	**54**	**92.6**	**51.2**	**70.7**
Flow		L/S		**0.852**	**0.355**	**2**	**2.22**	NA	**0.31**	NA	**40**	**0**
Dissolved Metals				NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L		NA	NA	NA	< 0.0763	< 0.0619	NA	**7.76**	NA	NA
Antimony, dissolved	--	mg/L		NA	NA	NA	< 0.0002	< 0.0002	NA	< 0.002	NA	NA
Arsenic, dissolved	0.005	mg/L		NA	NA	NA	< 0.0002	< 0.0002	NA	< 0.002	NA	NA
Barium, dissolved	--	mg/L		NA	NA	NA	**0.0296**	**0.0279**	NA	**0.013**	NA	NA
Beryllium, dissolved	--	mg/L		NA	NA	NA	**0.00052**	**0.00048**	NA	**0.0078**	NA	NA
Bismuth, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L		NA	NA	NA	< 0.02	< 0.02	NA	< 0.2	NA	NA
Cadmium, dissolved	Variable [b]	mg/L		NA	NA	NA	**0.0282**	**0.0267**	NA	**0.164**	NA	NA
Calcium, dissolved	--	mg/L		NA	NA	NA	**72.5**	**73.1**	NA	**139**	NA	NA
Chromium, dissolved	0.0089	mg/L		NA	NA	NA	< 0.0002	**0.00024**	NA	< 0.002	NA	NA
Cobalt, dissolved	--	mg/L		NA	NA	NA	**0.0298**	**0.0288**	NA	**0.198**	NA	NA
Copper, dissolved	0.002	mg/L		NA	NA	NA	**0.111**	**0.107**	NA	**1.12**	NA	NA
Ferrous Iron, dissolved	--	mg/L		NA	NA	NA	< 0.02	< 0.02	NA	**0.022**	NA	NA
Iron, dissolved	0.3	mg/L		NA	NA	NA	< 0.03	< 0.03	NA	< 0.03	NA	NA
Lead, dissolved	0.001	mg/L		NA	NA	NA	< 0.00068	< 0.00038	NA	**0.0249**	NA	NA
Lithium, dissolved	--	mg/L		NA	NA	NA	**0.0208**	**0.0201**	NA	**0.043**	NA	NA
Magnesium, dissolved	--	mg/L		NA	NA	NA	**26.8**	**26.6**	NA	**104**	NA	NA
Manganese, dissolved	--	mg/L		NA	NA	NA	**1.52**	**1.51**	NA	**9.41**	NA	NA
Mercury, dissolved	0.000026	mg/L		NA	NA	NA	< 0.00001	< 0.00001	NA	< 0.00001	NA	NA
Molybdenum, dissolved	0.073	mg/L		NA	NA	NA	**0.00034**	**0.00032**	NA	< 0.001	NA	NA
Nickel, dissolved	0.025	mg/L		NA	NA	NA	**0.0663**	**0.0649**	NA	**0.381**	NA	NA
Potassium, dissolved	--	mg/L		NA	NA	NA	**1.46**	**1.44**	NA	**2.7**	NA	NA
Selenium, dissolved	0.001	mg/L		NA	NA	NA	< 0.0002	**0.0002**	NA	< 0.002	NA	NA
Silicon, dissolved	--	mg/L		NA	NA	NA	**9.47**	**9.47**	NA	**16.8**	NA	NA
Silver, dissolved	0.0001	mg/L		NA	NA	NA	< 0.00002	< 0.00002	NA	< 0.0002	NA	NA
Sodium, dissolved	--	mg/L		NA	NA	NA	**4.89**	**4.57**	NA	**6**	NA	NA
Strontium, dissolved	--	mg/L		NA	NA	NA	**0.247**	**0.242**	NA	**0.416**	NA	NA
Thallium, dissolved	0.0008	mg/L		NA	NA	NA	< 0.00002	< 0.00002	NA	< 0.0002	NA	NA
Tin, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L		NA	NA	NA	< 0.02	< 0.02	NA	< 0.2	NA	NA
Uranium, dissolved	0.015	mg/L		NA	NA	NA	**0.00161**	**0.00141**	NA	**0.00614**	NA	NA
Vanadium, dissolved	--	mg/L		NA	NA	NA	< 0.002	< 0.002	NA	< 0.02	NA	NA
Zinc, dissolved	0.03	mg/L		NA	NA	NA	**16.8**	**16.7**	NA	**97.1**	NA	NA
Zirconium hydride, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	CH-FP-33		CH-FP-34			CH-FP-35		CH-FP-36	CH-FP-37
		Sample ID	CH-FP-33-SESP13	CH-FP-33-SEFL13	CH-FP-34-SESP13	CH-FP-34_SEFL13	CH-FP-934_SEFL13	CH-FP-35-SESP13	CH-FP-35_SEFL13	CH-FP-36-SESP13	CH-FP-37-SESP13
		Sample Date	6/12/2013	9/13/2013	6/12/2013	9/13/2013	9/13/2013	6/12/2013	9/19/2013	6/12/2013	6/12/2013
Analyte	**Screening Level**	**Screening Level**									
General Chemistry											
Acidity (CaCO3)	--	mg/L	NA	NA	NA	**25.3**	**26**	NA	**240**	NA	NA
Acidity, hot peroxide	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Bicarbonate	--	mg/L	NA	NA	NA	**82.1**	**83.2**	NA	**5.9**	NA	NA
Alkalinity, Total	--	mg/L	NA	NA	NA	**82.1**	**83.2**	NA	**5.9**	NA	NA
Alkalinity: Carbonate As Caco3	--	mg/L	NA	NA	NA	< 2	< 2	NA	< 2	NA	NA
Alkalinity: Hydroxide		mg/L	NA	NA	NA	< 2	< 2	NA	< 2	NA	NA
Ammonia-N	0.019	mg/L	NA	NA	NA	< 0.005	< 0.005	NA	< 0.005	NA	NA
Chloride	120	mg/L	NA	NA	NA	< 0.5	< 0.5	NA	< 5	NA	NA
Dissolved organic carbon	--	mg/L	NA	NA	NA	0.72	0.74	NA	0.71	NA	NA
Fluoride	0.12	mg/L	NA	NA	NA	0.404	0.406	NA	1.63	NA	NA
Free Cyanide	0.005	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	NA	NA	NA	0.208	0.208	NA	0.407	NA	NA
Nitrite as N	0.06	mg/L	NA	NA	NA	< 0.001	< 0.001	NA	< 0.01	NA	NA
ortho-Phosphate, dissolved	--	mg/L	NA	NA	NA	< 0.001	< 0.001	NA	< 0.001	NA	NA
pH		pH Units	NA	NA	NA	7.49 J	7.65 J	NA	4.85 J	NA	NA
Phosphorus, dissolved	0.01	mg/L	NA	NA	NA	< 0.3	< 0.3	NA	< 0.3	NA	NA
Silica, dissolved	--	mg/L	NA	NA	NA	20.3	20.3	NA	35.9	NA	NA
Sulfate	--	mg/L	NA	NA	NA	232	233	NA	993	NA	NA
Sulfate, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfur, dissolved	--	mg/L	NA	NA	NA	79.2	79.3	NA	319	NA	NA
Temperature, Lab		Degree Celcius	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	--	mg/L	NA	NA	NA	459	457	NA	1580	NA	NA
Total Suspended Solids	--	mg/L	NA	NA	NA	4.2 J	2.2 J	NA	14.4	NA	NA

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Screening Level	Location	CH-FP-40	CH-GP-19			CH-GP-22		CH-GP-23	
			Sample ID	CH-FP-40-SEFL13	CH-GP-19_SESP13	CH-GP-19_SEFL13	CH-GP-919_SEFL13	CH-GP-22_SESP13	CH-GP-22-SEFL13	CH-GP-23-SESP13	CH-GP-23-SEFL13
			Sample Date	6/12/2013	6/13/2013	9/14/2013	9/14/2013	6/13/2013	9/14/2013	6/13/2013	9/14/2013
Field Parameters											
Conductivity, Field		mS / cm / Degree Celcius		NA	**1.392**	**3.384**	NA	**1.006**	**0.9**	**0.473**	**0.625**
pH, Field		pH Units		NA	**7.15**	**7.39**	NA	**8.09**	**8.25**	**7.99**	**8.01**
Temperature, Field		Degree Celcius		NA	**10.7**	**7.82**	NA	**10.75**	**6.97**	**6.27**	**4.28**
Oxidation Reduction Potential		mV		NA	**-105.6**	**-140.2**	NA	**128.2**	**143.6**	**138.2**	**133.5**
Dissolved Oxygen (DO)		mg/L		NA	**10.56**	**8.48**	NA	**11.39**	**10.17**	**10.33**	**8.12**
Dissolved Oxygen (percentage)		%		NA	**95.5**	**84.5**	NA	**102.9**	**83.9**	**83.6**	**62.4**
Flow		L/S		NA	**0.301**	**0.088**	NA	**10**	**0.824**	**5**	**0.53**
Dissolved Metals				NA	NA	NA	NA	NA	NA	NA	NA
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L		NA	**0.121**	< 0.0148	< 0.0186	**0.0025**	NA	NA	NA
Antimony, dissolved	--	mg/L		NA	< 0.0002	< 0.0005	< 0.0005	**0.00065**	NA	NA	NA
Arsenic, dissolved	0.005	mg/L		NA	**0.00239**	**0.00155**	**0.00181**	**0.00084**	NA	NA	NA
Barium, dissolved	--	mg/L		NA	**0.0939**	**0.126**	**0.129**	**0.0507**	NA	NA	NA
Beryllium, dissolved	--	mg/L		NA	< 0.0002	< 0.0005	< 0.0005	< 0.0001	NA	NA	NA
Bismuth, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L		NA	< 0.02	< 0.05	< 0.05	< 0.01	NA	NA	NA
Cadmium, dissolved	Variable [b]	mg/L		NA	**0.000441**	< 0.000206	< 0.000218	< 0.000076	NA	NA	NA
Calcium, dissolved	--	mg/L		NA	**202**	**321**	**308**	**221**	NA	NA	NA
Chromium, dissolved	0.0089	mg/L		NA	**0.0004**	< 0.0005	< 0.0005	< 0.0001	NA	NA	NA
Cobalt, dissolved	--	mg/L		NA	**0.0198**	**0.0286**	**0.0295**	**0.00026**	NA	NA	NA
Copper, dissolved	0.002	mg/L		NA	**0.00407**	< 0.001	< 0.001	**0.00125**	NA	NA	NA
Ferrous Iron, dissolved	--	mg/L		NA	**10.9 J**	**6.92 J**	**13 J**	< 0.02	NA	NA	NA
Iron, dissolved	0.3	mg/L		NA	**8.6**	**9.34**	**12.4**	< 0.03	NA	NA	NA
Lead, dissolved	0.001	mg/L		NA	**0.00384**	< 0.00025	< 0.00025	< 0.000153	NA	NA	NA
Lithium, dissolved	--	mg/L		NA	< 0.001	< 0.0025	< 0.0025	**0.00554**	NA	NA	NA
Magnesium, dissolved	--	mg/L		NA	**59.5**	**120**	**114**	**51.6**	NA	NA	NA
Manganese, dissolved	--	mg/L		NA	**17.5**	**21.5**	**21.9**	**0.132**	NA	NA	NA
Mercury, dissolved	0.000026	mg/L		NA	< 0.00001	< 0.00001	< 0.00001	< 0.00001	NA	NA	NA
Molybdenum, dissolved	0.073	mg/L		NA	**0.00191**	**0.00207**	**0.00217**	**0.00317**	NA	NA	NA
Nickel, dissolved	0.025	mg/L		NA	**0.0094**	**0.0162**	**0.0153**	**0.00249**	NA	NA	NA
Potassium, dissolved	--	mg/L		NA	**2.94**	**4.51**	**4.2**	**5.75**	NA	NA	NA
Selenium, dissolved	0.001	mg/L		NA	< 0.0002	< 0.0005	< 0.0005	**0.00496**	NA	NA	NA
Silicon, dissolved	--	mg/L		NA	**4.86**	**6.18**	**6.11**	**2.68**	NA	NA	NA
Silver, dissolved	0.0001	mg/L		NA	< 0.00002	< 0.00005	< 0.00005	< 0.00001	NA	NA	NA
Sodium, dissolved	--	mg/L		NA	**11.2**	**18.7**	**17.9**	**15.3**	NA	NA	NA
Strontium, dissolved	--	mg/L		NA	**0.756**	**1.08**	**1.05**	**0.649**	NA	NA	NA
Thallium, dissolved	0.0008	mg/L		NA	**0.000084**	**0.000057**	**0.000067**	**0.000023**	NA	NA	NA
Tin, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L		NA	< 0.02	< 0.05	< 0.05	< 0.01	NA	NA	NA
Uranium, dissolved	0.015	mg/L		NA	**0.0339**	**0.0395**	**0.042**	**0.0658**	NA	NA	NA
Vanadium, dissolved	--	mg/L		NA	< 0.002	< 0.005	< 0.005	< 0.001	NA	NA	NA
Zinc, dissolved	0.03	mg/L		NA	**0.0774**	< 0.0233	< 0.0258	< 0.0028	NA	NA	NA
Zirconium hydride, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	CH-FP-40	CH-GP-19			CH-GP-22		CH-GP-23	
		Sample ID	CH-FP-40-SEFL13	CH-GP-19_SESP13	CH-GP-19_SEFL13	CH-GP-919_SEFL13	CH-GP-22_SESP13	CH-GP-22-SEFL13	CH-GP-23-SESP13	CH-GP-23-SEFL13
		Sample Date	6/12/2013	6/13/2013	9/14/2013	9/14/2013	6/13/2013	9/14/2013	6/13/2013	9/14/2013
Analyte	**Screening Level**	**Screening Level**								
General Chemistry										
Acidity (CaCO3)	--	mg/L	NA	**11.9**	**10**	NA	**2.1**	NA	NA	NA
Acidity, hot peroxide	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Bicarbonate	--	mg/L	NA	**342 J**	**470**	**476**	**155 J**	NA	NA	NA
Alkalinity, Total	--	mg/L	NA	**342 J**	**470**	**476**	**155 J**	NA	NA	NA
Alkalinity: Carbonate As Caco3	--	mg/L	NA	< 2	< 1	< 1	< 2	NA	NA	NA
Alkalinity: Hydroxide		mg/L	NA	< 2	< 1	< 1	< 2	NA	NA	NA
Ammonia-N	0.019	mg/L	NA	**0.366 J**	**0.519**	**0.479**	**0.0665 J**	NA	NA	NA
Chloride	120	mg/L	NA	**< 5**	**< 10**	**< 10**	**< 5**	NA	NA	NA
Dissolved organic carbon	--	mg/L	NA	**7.73 J**	**9.99**	**10.8**	**< 2.41**	NA	NA	NA
Fluoride	0.12	mg/L	NA	**< 0.2**	**< 0.4**	**< 0.4**	**0.33 J**	NA	NA	NA
Free Cyanide	0.005	mg/L	NA	**NA**	**NA**	**NA**	**NA**	NA	NA	NA
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	NA	**< 0.05**	**< 0.1**	**< 0.1**	**0.175 J**	NA	NA	NA
Nitrite as N	0.06	mg/L	NA	**< 0.01**	**< 0.02**	**< 0.02**	**< 0.01**	NA	NA	NA
ortho-Phosphate, dissolved	--	mg/L	NA	**< 0.001**	**< 0.001**	**< 0.001**	**0.0021 J**	NA	NA	NA
pH		pH Units	NA	**7.9 J**	**8.09 J**	**7.96 J**	**8.21 J**	NA	NA	NA
Phosphorus, dissolved	0.01	mg/L	NA	**< 0.3**	**< 0.3**	**< 0.3**	**< 0.3**	NA	NA	NA
Silica, dissolved	--	mg/L	NA	**10.4**	**13.2**	**13.1**	**5.73**	NA	NA	NA
Sulfate	--	mg/L	NA	**433 J**	**868**	**852**	**632 J**	NA	NA	NA
Sulfate, dissolved		mg/L	NA	**NA**	**NA**	**NA**	**NA**	NA	NA	NA
Sulfur, dissolved	--	mg/L	NA	**150**	**280**	**263**	**205**	NA	NA	NA
Temperature, Lab		Degree Celcius	NA	**NA**	**NA**	**NA**	**NA**	NA	NA	NA
Total Dissolved Solids	--	mg/L	NA	**1020 J**	**1770**	**1760**	**1050 J**	NA	NA	NA
Total Suspended Solids	--	mg/L	NA	**88.4 J**	**36.1**	**31.7**	**2230 J**	NA	NA	NA

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	CH-GP-24		CH-GP-25		CH-GP-26		CH-GP-27	
		Sample ID	CH-GP-24-SESP13	CH-GP-24-SEFL13	CH-GP-25-SESP13	CH-GP-25-SEFL13	CH-GP-26-SESP13	CH-GP-26-SEFL13	CH-GP-27_SESP13	CH-GP-27_SEFL13
		Sample Date	6/13/2013	9/14/2013	6/13/2013	9/14/2013	6/13/2013	9/14/2013	6/13/2013	9/14/2013
Analyte	**Screening Level**	**Screening Level**								
Field Parameters										
Conductivity, Field		mS / cm / Degree Celcius	**0.33**	**0.403**	**1.083**	**1.473**	**1.041**	**5.334**	**0.735**	**1.556**
pH, Field		pH Units	**7.76**	**7.86**	**6.27**	**6.75**	**3.12**	**3.22**	**8.36**	**8.26**
Temperature, Field		Degree Celcius	**2.86**	**2.7**	**2.63**	**4.02**	**7.73**	**7.96**	**16.85**	**8.63**
Oxidation Reduction Potential		mV	**142.1**	**126.2**	**23.3**	**-77**	**398.6**	**324.7**	**161.3**	**50.6**
Dissolved Oxygen (DO)		mg/L	**6.14**	**8.06**	**7.54**	**1.36**	**6.96**	**3.65**	**11.29**	**10.05**
Dissolved Oxygen (percentage)		%	**45.5**	**59.2**	**55.9**	**10.3**	**58.6**	**31.2**	**115.4**	**86.5**
Flow		L/S	**3**	**1.54**	**2.03**	**0.174**	**2.03**	**0.023**	**1.04**	**2**
Dissolved Metals			NA	NA	NA	NA	NA	NA	NA	NA
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L	NA	NA	NA	NA	NA	NA	**0.0164**	< 0.0013
Antimony, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	**0.00465**	**0.00358**
Arsenic, dissolved	0.005	mg/L	NA	NA	NA	NA	NA	NA	**0.00189**	**0.00163**
Barium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	**0.0188**	**0.0137**
Beryllium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	< 0.0001	< 0.0001
Bismuth, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L	NA	NA	NA	NA	NA	NA	< 0.01	< 0.01
Cadmium, dissolved	Variable [b]	mg/L	NA	NA	NA	NA	NA	NA	**0.000738**	**0.00151**
Calcium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	**110**	**127**
Chromium, dissolved	0.0089	mg/L	NA	NA	NA	NA	NA	NA	< 0.0001	< 0.0001
Cobalt, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	**0.0102**	**0.00274**
Copper, dissolved	0.002	mg/L	NA	NA	NA	NA	NA	NA	**0.00162**	**0.00064**
Ferrous Iron, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	< 0.02	< 0.02
Iron, dissolved	0.3	mg/L	NA	NA	NA	NA	NA	NA	< 0.03	< 0.03
Lead, dissolved	0.001	mg/L	NA	NA	NA	NA	NA	NA	**0.00515**	**0.00384**
Lithium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	**0.0263**	**0.036**
Magnesium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	**121**	**172**
Manganese, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	**0.0415**	< 0.00673
Mercury, dissolved	0.000026	mg/L	NA	NA	NA	NA	NA	NA	< 0.00001	< 0.00001
Molybdenum, dissolved	0.073	mg/L	NA	NA	NA	NA	NA	NA	**0.00157**	**0.00185**
Nickel, dissolved	0.025	mg/L	NA	NA	NA	NA	NA	NA	**0.0832**	**0.0809**
Potassium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	**2.6**	**3.12**
Selenium, dissolved	0.001	mg/L	NA	NA	NA	NA	NA	NA	**0.00046**	**0.00032**
Silicon, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	**1.15**	**1.49**
Silver, dissolved	0.0001	mg/L	NA	NA	NA	NA	NA	NA	< 0.00001	< 0.00001
Sodium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	**2.74**	**4.09**
Strontium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	**0.67**	**0.694**
Thallium, dissolved	0.0008	mg/L	NA	NA	NA	NA	NA	NA	**0.00066**	**0.00137**
Tin, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	< 0.01	< 0.01
Uranium, dissolved	0.015	mg/L	NA	NA	NA	NA	NA	NA	**0.0135**	**0.0157**
Vanadium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	< 0.001	< 0.001
Zinc, dissolved	0.03	mg/L	NA	NA	NA	NA	NA	NA	**0.828**	**2.33**
Zirconium hydride, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	CH-GP-24		CH-GP-25		CH-GP-26		CH-GP-27	
		Sample ID	CH-GP-24-SESP13	CH-GP-24-SEFL13	CH-GP-25-SESP13	CH-GP-25-SEFL13	CH-GP-26-SESP13	CH-GP-26-SEFL13	CH-GP-27_SESP13	CH-GP-27_SEFL13
		Sample Date	6/13/2013	9/14/2013	6/13/2013	9/14/2013	6/13/2013	9/14/2013	6/13/2013	9/14/2013
Analyte	**Screening Level**	**Screening Level**								
General Chemistry										
Acidity (CaCO3)	--	mg/L	NA	NA	NA	NA	NA	NA	< 1	NA
Acidity, hot peroxide	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Bicarbonate	--	mg/L	NA	NA	NA	NA	NA	NA	**265 J**	**336**
Alkalinity, Total	--	mg/L	NA	NA	NA	NA	NA	NA	**269 J**	**338**
Alkalinity: Carbonate As Caco3	--	mg/L	NA	NA	NA	NA	NA	NA	**4 J**	**2.4**
Alkalinity: Hydroxide		mg/L	NA	NA	NA	NA	NA	NA	< 1	< 1
Ammonia-N	0.019	mg/L	NA	NA	NA	NA	NA	NA	**< 0.0073**	**< 0.005**
Chloride	120	mg/L	NA	NA	NA	NA	NA	NA	**< 5**	**< 5**
Dissolved organic carbon	--	mg/L	NA	NA	NA	NA	NA	NA	**< 1.25**	**0.58**
Fluoride	0.12	mg/L	NA	NA	NA	NA	NA	NA	**< 0.2**	**< 0.2**
Free Cyanide	0.005	mg/L	NA	NA	NA	NA	NA	NA	**NA**	**NA**
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	NA	NA	NA	NA	NA	NA	**0.344 J**	**0.414**
Nitrite as N	0.06	mg/L	NA	NA	NA	NA	NA	NA	**< 0.01**	**< 0.01**
ortho-Phosphate, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	**< 0.001**	**< 0.001**
pH		pH Units	NA	NA	NA	NA	NA	NA	**8.44 J**	**8.39 J**
Phosphorus, dissolved	0.01	mg/L	NA	NA	NA	NA	NA	NA	**< 0.3**	**< 0.3**
Silica, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	**2.47**	**3.18**
Sulfate	--	mg/L	NA	NA	NA	NA	NA	NA	**420 J**	**639**
Sulfate, dissolved		mg/L	NA	NA	NA	NA	NA	NA	**NA**	**NA**
Sulfur, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA	**159**	**213**
Temperature, Lab		Degree Celcius	NA	NA	NA	NA	NA	NA	**NA**	**NA**
Total Dissolved Solids	--	mg/L	NA	NA	NA	NA	NA	NA	**963 J**	**1320**
Total Suspended Solids	--	mg/L	NA	NA	NA	NA	NA	NA	**70.8 J**	**2.6**

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Location / Sample ID / Sample Date / Screening Level	CH-GP-28 CH-GP-28-SESP13 6/13/2013	CH-GP-29 CH-GP-29-SESP13 9/14/2013	CH-GP-30 CH-GP-30-SESP13 9/14/2013	CH-MILL-01 CH-MILL-01-SEFL13 9/11/2013	CH-MILL-02 CH-MILL-02-SESP13 6/10/2013	 CH-MILL-02-SEFL13 9/11/2013
Field Parameters								
Conductivity, Field		mS / cm / Degree Celcius	**0.641**	**1.836**	**4.556**	**3.949**	**2.606**	**4.772**
pH, Field		pH Units	**7.11**	**7.75**	**5.72**	**7**	**6.45**	**7.57**
Temperature, Field		Degree Celcius	**10.12**	**7.91**	**6.88**	**11.69**	**22.52**	**6.98**
Oxidation Reduction Potential		mV	**218.4**	**115.6**	**4.6**	**51.4**	**1.13**	**48.9**
Dissolved Oxygen (DO)		mg/L	**10.93**	**10.66**	**3.55**	**7.45**	**5.56**	**9.42**
Dissolved Oxygen (percentage)		%	**97**	**90**	**29.3**	**69.5**	**65.5**	**78.7**
Flow		L/S	**0.48**	**1**	**0.013**	**0.012**	**0.5**	**0.05**
Dissolved Metals			NA	NA	NA	NA	NA	NA
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L	NA	NA	NA	NA	NA	NA
Antimony, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA
Arsenic, dissolved	0.005	mg/L	NA	NA	NA	NA	NA	NA
Barium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA
Beryllium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA
Bismuth, dissolved		mg/L	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L	NA	NA	NA	NA	NA	NA
Cadmium, dissolved	Variable [b]	mg/L	NA	NA	NA	NA	NA	NA
Calcium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA
Chromium, dissolved	0.0089	mg/L	NA	NA	NA	NA	NA	NA
Cobalt, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA
Copper, dissolved	0.002	mg/L	NA	NA	NA	NA	NA	NA
Ferrous Iron, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA
Iron, dissolved	0.3	mg/L	NA	NA	NA	NA	NA	NA
Lead, dissolved	0.001	mg/L	NA	NA	NA	NA	NA	NA
Lithium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA
Magnesium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA
Manganese, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA
Mercury, dissolved	0.000026	mg/L	NA	NA	NA	NA	NA	NA
Molybdenum, dissolved	0.073	mg/L	NA	NA	NA	NA	NA	NA
Nickel, dissolved	0.025	mg/L	NA	NA	NA	NA	NA	NA
Potassium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA
Selenium, dissolved	0.001	mg/L	NA	NA	NA	NA	NA	NA
Silicon, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA
Silver, dissolved	0.0001	mg/L	NA	NA	NA	NA	NA	NA
Sodium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA
Strontium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA
Thallium, dissolved	0.0008	mg/L	NA	NA	NA	NA	NA	NA
Tin, dissolved		mg/L	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA
Uranium, dissolved	0.015	mg/L	NA	NA	NA	NA	NA	NA
Vanadium, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA
Zinc, dissolved	0.03	mg/L	NA	NA	NA	NA	NA	NA
Zirconium hydride, dissolved		mg/L	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	CH-GP-28	CH-GP-29	CH-GP-30	CH-MILL-01	CH-MILL-02	
		Sample ID	CH-GP-28-SESP13	CH-GP-29-SESP13	CH-GP-30-SESP13	CH-MILL-01-SEFL13	CH-MILL-02-SESP13	CH-MILL-02-SEFL13
		Sample Date	6/13/2013	9/14/2013	9/14/2013	9/11/2013	6/10/2013	9/11/2013
Analyte	**Screening Level**	**Screening Level**						
General Chemistry								
Acidity (CaCO3)	--	mg/L	NA	NA	NA	NA	NA	NA
Acidity, hot peroxide	--	mg/L	NA	NA	NA	NA	NA	NA
Alkalinity, Bicarbonate	--	mg/L	NA	NA	NA	NA	NA	NA
Alkalinity, Total	--	mg/L	NA	NA	NA	NA	NA	NA
Alkalinity: Carbonate As Caco3	--	mg/L	NA	NA	NA	NA	NA	NA
Alkalinity: Hydroxide		mg/L	NA	NA	NA	NA	NA	NA
Ammonia-N	0.019	mg/L	NA	NA	NA	NA	NA	NA
Chloride	120	mg/L	NA	NA	NA	NA	NA	NA
Dissolved organic carbon	--	mg/L	NA	NA	NA	NA	NA	NA
Fluoride	0.12	mg/L	NA	NA	NA	NA	NA	NA
Free Cyanide	0.005	mg/L	NA	NA	NA	NA	NA	NA
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	NA	NA	NA	NA	NA	NA
Nitrite as N	0.06	mg/L	NA	NA	NA	NA	NA	NA
ortho-Phosphate, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA
pH		pH Units	NA	NA	NA	NA	NA	NA
Phosphorus, dissolved	0.01	mg/L	NA	NA	NA	NA	NA	NA
Silica, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA
Sulfate	--	mg/L	NA	NA	NA	NA	NA	NA
Sulfate, dissolved		mg/L	NA	NA	NA	NA	NA	NA
Sulfur, dissolved	--	mg/L	NA	NA	NA	NA	NA	NA
Temperature, Lab		Degree Celcius	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	--	mg/L	NA	NA	NA	NA	NA	NA
Total Suspended Solids	--	mg/L	NA	NA	NA	NA	NA	NA

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Screening Level	Location	CH-MILL-03		CH-MILL-04		CH-RCTA-03	CH-RCTA-04
			Sample ID	CH-MILL-03_SESP13	CH-MILL-903_SESP13	CH-MILL-03_SEFL13	CH-MILL-04-SESP13	CH-MILL-04-SEFL13	CH-RCTA-03_SEFL13	CH-RCTA-04-SESP13
			Sample Date	6/11/2013	6/11/2013	9/11/2013	6/11/2013	9/11/2013	9/12/2013	6/12/2013
Field Parameters										
Conductivity, Field		mS / cm / Degree Celcius		**10.48**	NA	**9.349**	**8.453**	**8.549**	**1.984**	**1.824**
pH, Field		pH Units		**2.57**	NA	**5.14**	**2.69**	**4.62**	**7.9**	**6.18**
Temperature, Field		Degree Celcius		**8.07**	NA	**12.27**	**6.71**	**10.38**	**3.84**	**10.33**
Oxidation Reduction Potential		mV		**340.8**	NA	**116.8**	**340.5**	**148.6**	**-90.4**	**-38.7**
Dissolved Oxygen (DO)		mg/L		**7.66**	NA	**6.01**	**8.57**	**7.87**	**0.15**	**5.03**
Dissolved Oxygen (percentage)		%		**67.4**	NA	**58**	**72.2**	**72.5**	**1.2**	**45.2**
Flow		L/S		**0.35**	NA	**0.028**	**0.3**	**20**	**0.01**	**150**
Dissolved Metals				NA	NA	NA	NA	NA	NA	NA
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L		**127**	**136**	< 0.5	NA	NA	**0.663**	**0.0131**
Antimony, dissolved	--	mg/L		< 0.05	< 0.05	< 0.05	NA	NA	< 0.0005	< 0.0005
Arsenic, dissolved	0.005	mg/L		**1.54 J**	**0.088 J**	< 0.05	NA	NA	**0.00124**	< 0.0005
Barium, dissolved	--	mg/L		< 0.025	< 0.025	< 0.025	NA	NA	**0.0154**	**0.0295**
Beryllium, dissolved	--	mg/L		< 0.05	< 0.05	< 0.05	NA	NA	< 0.0005	< 0.0005
Bismuth, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L		< 5	< 5	< 5	NA	NA	< 0.05	< 0.05
Cadmium, dissolved	Variable [b]	mg/L		**2.53**	**2.56**	**0.411**	NA	NA	**0.00226**	**0.000841**
Calcium, dissolved	--	mg/L		**378**	**367**	**402**	NA	NA	**408**	**224**
Chromium, dissolved	0.0089	mg/L		**0.11**	**0.1**	< 0.05	NA	NA	< 0.0005	< 0.0005
Cobalt, dissolved	--	mg/L		**3.14**	**3.27**	**2.76**	NA	NA	**0.185**	**0.0898**
Copper, dissolved	0.002	mg/L		**4.04**	**3.89**	< 0.1	NA	NA	**0.0049**	**0.0013**
Ferrous Iron, dissolved	--	mg/L		**1650**	**1700**	**780**	NA	NA	**497**	**213**
Iron, dissolved	0.3	mg/L		**1840**	**1770**	**694**	NA	NA	**451**	**187**
Lead, dissolved	0.001	mg/L		**1.17**	**1.21**	**0.047**	NA	NA	< 0.00303	**0.00378**
Lithium, dissolved	--	mg/L		< 0.25	< 0.25	< 0.25	NA	NA	**0.0311**	**0.0115**
Magnesium, dissolved	--	mg/L		**499**	**495**	**660**	NA	NA	**52.4**	**36.9**
Manganese, dissolved	--	mg/L		**143**	**148**	**149**	NA	NA	**32**	**21.5**
Mercury, dissolved	0.000026	mg/L		**0.000489**	**0.000381**	**0.000074**	NA	NA	< 0.00001	< 0.00001
Molybdenum, dissolved	0.073	mg/L		< 0.025	< 0.025	< 0.025	NA	NA	< 0.00025	< 0.00025
Nickel, dissolved	0.025	mg/L		**3.11**	**3.14**	**3.21**	NA	NA	**0.172**	**0.0669**
Potassium, dissolved	--	mg/L		< 25	< 25	< 25	NA	NA	**5.33**	**3.14**
Selenium, dissolved	0.001	mg/L		< 0.05	< 0.05	< 0.05	NA	NA	< 0.0005	< 0.0005
Silicon, dissolved	--	mg/L		**31.3**	**30.4**	**11.1**	NA	NA	**10**	**5.76**
Silver, dissolved	0.0001	mg/L		< 0.005	< 0.005	< 0.005	NA	NA	< 0.00005	< 0.00005
Sodium, dissolved	--	mg/L		**110**	**119**	**115**	NA	NA	**13.6**	**10**
Strontium, dissolved	--	mg/L		**1.4**	**1.4**	**2.59**	NA	NA	**1.13**	**0.579**
Thallium, dissolved	0.0008	mg/L		**0.0107**	**0.0124**	< 0.005	NA	NA	**0.000117**	**0.000077**
Tin, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L		< 5	< 5	< 5	NA	NA	< 0.05	< 0.05
Uranium, dissolved	0.015	mg/L		**0.0339**	**0.0326**	< 0.005	NA	NA	**0.00352**	**0.000751**
Vanadium, dissolved	--	mg/L		< 0.5	< 0.5	< 0.5	NA	NA	< 0.005	< 0.005
Zinc, dissolved	0.03	mg/L		**2360**	**2460**	**1880**	NA	NA	**17.9**	**10.1**
Zirconium hydride, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Screening Level	Location	CH-MILL-03			CH-MILL-04		CH-RCTA-03	CH-RCTA-04
			Sample ID	CH-MILL-03_SESP13	CH-MILL-903_SESP13	CH-MILL-03_SEFL13	CH-MILL-04-SESP13	CH-MILL-04-SEFL13	CH-RCTA-03_SEFL13	CH-RCTA-04-SESP13
			Sample Date	6/11/2013	6/11/2013	9/11/2013	6/11/2013	9/11/2013	9/12/2013	6/12/2013
General Chemistry										
Acidity (CaCO3)	--	mg/L		NA	NA	NA	NA	NA	NA	NA
Acidity, hot peroxide	--	mg/L		**7330**	**7340**	**4230 J**	NA	NA	**606 J**	**221**
Alkalinity, Bicarbonate	--	mg/L		< 2	< 2	**16.3**	NA	NA	**16.3**	**6.6 J**
Alkalinity, Total	--	mg/L		< 2	< 2	**16.3**	NA	NA	**16.3**	**6.6 J**
Alkalinity: Carbonate As Caco3	--	mg/L		< 2	< 2	< 2	NA	NA	< 2	< 2 J
Alkalinity: Hydroxide		mg/L		< 2	< 2	< 2	NA	NA	< 2	< 2 J
Ammonia-N	0.019	mg/L		**0.266**	**0.264**	0.345	NA	NA	**0.217**	**0.23**
Chloride	120	mg/L		**< 25**	**< 25**	< 25	NA	NA	< 10	< 5
Dissolved organic carbon	--	mg/L		**11.2**	**11.4**	8.07	NA	NA	**1.29**	< 1.85
Fluoride	0.12	mg/L		**5.9**	**5.9**	1.5	NA	NA	< 0.4	< 0.2
Free Cyanide	0.005	mg/L		**< 0.02**	**< 0.02**	< 0.02	NA	NA	< 0.005	< 0.01 J
Total Hardness (CaCO3)		mg/L		NA	NA	NA	NA	NA	**1230**	**710**
Nitrate-N	13	mg/L		**< 0.25**	**< 0.25**	< 0.25	NA	NA	< 0.1 J	**0.087**
Nitrite as N	0.06	mg/L		**< 0.05**	**< 0.05**	< 0.05	NA	NA	< 0.02 J	< 0.01
ortho-Phosphate, dissolved	--	mg/L		**0.0071 J**	**0.0048 J**	< 0.001	NA	NA	< 0.001 J	< 0.001
pH		pH Units		**3.18 J**	**3.17 J**	4.59 J	NA	NA	**5.79 J**	**5.63 J**
Phosphorus, dissolved	0.01	mg/L		**< 1.5**	**< 1.5**	< 1.5	NA	NA	< 0.3	< 0.3
Silica, dissolved	--	mg/L		**66.8**	**64.9**	23.8	NA	NA	**21.4**	**12.3**
Sulfate	--	mg/L		**12000**	**12100**	8700	NA	NA	**1890**	**1070**
Sulfate, dissolved		mg/L		**NA**	**NA**	NA	NA	NA	NA	NA
Sulfur, dissolved	--	mg/L		**3660**	**3640**	2800	NA	NA	**614**	**345**
Temperature, Lab		Degree Celcius		**NA**	**NA**	NA	NA	NA	NA	NA
Total Dissolved Solids	--	mg/L		**19200**	**19300**	14900	NA	NA	**3160**	**1740**
Total Suspended Solids	--	mg/L		**15.2 J**	**27.2 J**	130	NA	NA	**163**	**114**

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Screening Level	Location	CH-RCTA-05		CH-RCTA-06	CH-RCTA-07		CH-RCTA-08	CH-VD-14
			Sample ID	CH-RCTA-05-SESP13	CH-RCTA-05-SEFL13	CH-RCTA-06_SESP13	CH-RCTA-07_SESP13	CH-RCTA-07_SEFL13	CH-RCTA-03_SESP13	CH-VD-14-SESP13
			Sample Date	6/12/2013	9/12/2013	9/12/2013	7/3/2013	9/12/2013	9/12/2013	6/13/2013
Field Parameters										
Conductivity, Field		mS / cm / Degree Celcius		**0.488**	**0.448**	**2.265**	**5.625**	**1.382**	**2.063**	**1.652**
pH, Field		pH Units		**7.19**	**7.1**	**2.23**	**5.88**	**5.67**	**6.36**	**2.6**
Temperature, Field		Degree Celcius		**3.71**	**4.4**	**16.02**	**7.58**	**5.08**	**7.3**	**12.24**
Oxidation Reduction Potential		mV		**51.4**	**84.8**	**491.5**	**-71.6**	**-44.3**	**-65.3**	**488.6**
Dissolved Oxygen (DO)		mg/L		**5.79**	**6.36**	**5.68**	**5.13**	**1.19**	**5.33**	**9.5**
Dissolved Oxygen (percentage)		%		**44.6**	**49.1**	**57.9**	**42.2**	**9.3**	**44.1**	**89.1**
Flow		L/S		**0.095**	**0.578**	**0**	**0.001**	**0.008**	**149.3**	**0**
Dissolved Metals				NA	NA	NA	NA	NA	NA	NA
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L		NA	< 0.001	NA	**0.198**	**0.352**	NA	NA
Antimony, dissolved	--	mg/L		NA	**0.00016**	NA	< 0.001	< 0.0002	NA	NA
Arsenic, dissolved	0.005	mg/L		NA	**0.00022**	NA	**0.0015**	< 0.0002	NA	NA
Barium, dissolved	--	mg/L		NA	**0.0873**	NA	**0.0211**	**0.0227**	NA	NA
Beryllium, dissolved	--	mg/L		NA	< 0.0001	NA	< 0.001	< 0.0002	NA	NA
Bismuth, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L		NA	< 0.01	NA	< 0.1	< 0.02	NA	NA
Cadmium, dissolved	Variable [b]	mg/L		NA	< 0.000015	NA	**0.00127**	**0.00491**	NA	NA
Calcium, dissolved	--	mg/L		NA	**78**	NA	**380**	**174**	NA	NA
Chromium, dissolved	0.0089	mg/L		NA	**0.00011**	NA	< 0.001	< 0.0002	NA	NA
Cobalt, dissolved	--	mg/L		NA	< 0.0001	NA	**0.0924**	**0.0252**	NA	NA
Copper, dissolved	0.002	mg/L		NA	**0.00077**	NA	< 0.002	**0.00466**	NA	NA
Ferrous Iron, dissolved	--	mg/L		NA	< 0.02	NA	**210**	**139**	NA	NA
Iron, dissolved	0.3	mg/L		NA	< 0.03	NA	**1370**	**147**	NA	NA
Lead, dissolved	0.001	mg/L		NA	< 0.000058	NA	**0.00096**	< 0.00115	NA	NA
Lithium, dissolved	--	mg/L		NA	**0.00675**	NA	**0.027**	**0.0129**	NA	NA
Magnesium, dissolved	--	mg/L		NA	**18.6**	NA	**92.2**	**22.1**	NA	NA
Manganese, dissolved	--	mg/L		NA	< 0.000514	NA	**39.4**	**4.6**	NA	NA
Mercury, dissolved	0.000026	mg/L		NA	< 0.00001	NA	< 0.00001	**0.00001**	NA	NA
Molybdenum, dissolved	0.073	mg/L		NA	**0.000519**	NA	< 0.0005	< 0.0001	NA	NA
Nickel, dissolved	0.025	mg/L		NA	< 0.0005	NA	**0.0766**	**0.0255**	NA	NA
Potassium, dissolved	--	mg/L		NA	**1.68**	NA	**6.3**	**3.37**	NA	NA
Selenium, dissolved	0.001	mg/L		NA	**0.00065**	NA	< 0.001	< 0.0002	NA	NA
Silicon, dissolved	--	mg/L		NA	**4.59**	NA	**8.77**	**5.45**	NA	NA
Silver, dissolved	0.0001	mg/L		NA	< 0.00001	NA	< 0.0001	< 0.00002	NA	NA
Sodium, dissolved	--	mg/L		NA	**1.72**	NA	**17.4**	**3.65**	NA	NA
Strontium, dissolved	--	mg/L		NA	**0.274**	NA	**1.16**	**0.579**	NA	NA
Thallium, dissolved	0.0008	mg/L		NA	< 0.00001	NA	**0.00036**	**0.000049**	NA	NA
Tin, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L		NA	< 0.01	NA	< 0.1	< 0.02	NA	NA
Uranium, dissolved	0.015	mg/L		NA	**0.00302**	NA	**0.00567**	**0.00347**	NA	NA
Vanadium, dissolved	--	mg/L		NA	< 0.001	NA	< 0.01	< 0.002	NA	NA
Zinc, dissolved	0.03	mg/L		NA	< 0.0014	NA	**41.9**	**11.8**	NA	NA
Zirconium hydride, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	CH-RCTA-05		CH-RCTA-06	CH-RCTA-07		CH-RCTA-08	CH-VD-14
		Sample ID	CH-RCTA-05-SESP13	CH-RCTA-05-SEFL13	CH-RCTA-06_SESP13	CH-RCTA-07_SESP13	CH-RCTA-07_SEFL13	CH-RCTA-03_SESP13	CH-VD-14-SESP13
		Sample Date	6/12/2013	9/12/2013	9/12/2013	7/3/2013	9/12/2013	9/12/2013	6/13/2013
Analyte	**Screening Level**	**Screening Level**							
General Chemistry									
Acidity (CaCO3)	--	mg/L	NA	**3.5**	NA	NA	NA	NA	NA
Acidity, hot peroxide	--	mg/L	NA	NA	NA	**2070**	**153 J**	NA	NA
Alkalinity, Bicarbonate	--	mg/L	NA	**249**	NA	**18.9**	**26.2**	NA	NA
Alkalinity, Total	--	mg/L	NA	**249**	NA	**18.9**	**26.2**	NA	NA
Alkalinity: Carbonate As Caco3	--	mg/L	NA	< 2	NA	< 2	< 2	NA	NA
Alkalinity: Hydroxide		mg/L	NA	< 2	NA	< 2	< 2	NA	NA
Ammonia-N	0.019	mg/L	NA	< 0.005	NA	**0.716**	**0.0177**	NA	NA
Chloride	120	mg/L	NA	< 0.5	NA	**< 10**	**< 5**	NA	NA
Dissolved organic carbon	--	mg/L	NA	**2.99**	NA	**3.25**	**1.31**	NA	NA
Fluoride	0.12	mg/L	NA	**0.263**	NA	**< 0.4**	**< 0.2**	NA	NA
Free Cyanide	0.005	mg/L	NA	< 0.005	NA	**< 0.02**	**< 0.005**	NA	NA
Total Hardness (CaCO3)		mg/L	NA	**271**	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	NA	**0.0666 J**	NA	**0.2**	**< 0.05**	NA	NA
Nitrite as N	0.06	mg/L	NA	< 0.001 J	NA	**< 0.02**	**< 0.01**	NA	NA
ortho-Phosphate, dissolved	--	mg/L	NA	< 0.001 J	NA	**< 0.001**	**< 0.001**	NA	NA
pH		pH Units	NA	**8.07 J**	NA	**5.2 J**	**6.17 J**	NA	NA
Phosphorus, dissolved	0.01	mg/L	NA	< 0.3	NA	**< 0.6**	**< 0.3**	NA	NA
Silica, dissolved	--	mg/L	NA	**9.81**	NA	**18.8**	**11.6**	NA	NA
Sulfate	--	mg/L	NA	**28.1**	NA	**4420**	**645**	NA	NA
Sulfate, dissolved		mg/L	NA	NA	NA	**NA**	**NA**	NA	NA
Sulfur, dissolved	--	mg/L	NA	**9.46**	NA	**1290**	**208**	NA	NA
Temperature, Lab		Degree Celcius	NA	NA	NA	**NA**	**NA**	NA	NA
Total Dissolved Solids	--	mg/L	NA	**289**	NA	**6790**	**1090**	NA	NA
Total Suspended Solids	--	mg/L	NA	< 1	NA	**2200**	**107**	NA	NA

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	CH-VP-17		CH-VP-18	CH-VP-20		FCS-2	FCS-4	
		Sample ID	CH-VP-17_SESP13	CH-VP-17_SEFL13	CH-VP-18_SESP13	CH-VP-20_SESP13	CH-VP-20_SEFL13	FCS-2_SESP13	FCS-4_SESP13	FCS-94_SESP13
		Sample Date	6/13/2013	9/17/2013	6/13/2013	6/13/2013	9/17/2013	6/11/2013	6/11/2013	6/11/2013
Analyte	**Screening Level**	**Screening Level**								
Field Parameters										
Conductivity, Field		mS / cm / Degree Celcius	**6.339**	**6.264**	**5.601**	**5.136**	**4.905**	**9.353**	**9.487**	NA
pH, Field		pH Units	**3.08**	**3.09**	**2.94**	**3.11**	**4.97**	**4.49**	**4.79**	NA
Temperature, Field		Degree Celcius	**10.81**	**5.02**	**11.7**	**9.73**	**4.58**	**10.67**	**12.33**	NA
Oxidation Reduction Potential		mV	**348.4**	**351.6**	**345.1**	**315.2**	**111.7**	**196.2**	**152.4**	NA
Dissolved Oxygen (DO)		mg/L	**9.85**	NA	**9.76**	**5.52**	**8.57**	**9.35**	**9.3**	NA
Dissolved Oxygen (percentage)		%	**91**	NA	**91.7**	**9.5**	**67.7**	**87.1**	**90.6**	NA
Flow		L/S	**20**	**8**	**0.15**	**0.5**	NA	**7**	**10**	NA
Dissolved Metals			NA	NA	NA	NA	NA	NA	NA	NA
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L	**28.2**	**18.2**	**16.4**	**13**	**3.89**	**23.8**	**8.79**	**9.72**
Antimony, dissolved	--	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.02	< 0.02	< 0.02
Arsenic, dissolved	0.005	mg/L	**0.143**	**1.14**	**0.035**	**0.015**	**0.0489**	**0.022**	< 0.02	< 0.02
Barium, dissolved	--	mg/L	**0.0086**	**0.0079**	**0.0189**	**0.01**	**0.004**	**0.027**	**0.025**	**0.031**
Beryllium, dissolved	--	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.02	< 0.02	< 0.02
Bismuth, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L	< 1	< 1	< 1	< 1	< 0.5	< 2	< 2	< 2
Cadmium, dissolved	Variable [b]	mg/L	**1.15**	**0.756**	**0.575**	**0.636**	**0.451**	**0.993**	**0.693**	**0.72**
Calcium, dissolved	--	mg/L	**284**	**250**	**318**	**253**	**217**	**435**	**453**	**452**
Chromium, dissolved	0.0089	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.02	< 0.02	< 0.02
Cobalt, dissolved	--	mg/L	**3.18**	**2.9**	**3.05**	**2.18**	**2.01**	**2.68**	**2.25**	**2.28**
Copper, dissolved	0.002	mg/L	**9.85**	**4.91**	**0.601**	**4.04**	**0.372**	**1.27**	**0.893**	**0.84**
Ferrous Iron, dissolved	--	mg/L	**1000 J**	**479**	**472 J**	**689 J**	**599**	**581**	**774**	**778**
Iron, dissolved	0.3	mg/L	**1010**	**1280**	**467**	**750**	**1170**	**537**	**707**	**707**
Lead, dissolved	0.001	mg/L	**1.43**	**1.26**	**1.12**	**1.56**	**1.19**	**0.477**	**0.312**	**0.328**
Lithium, dissolved	--	mg/L	**0.09**	**0.098**	**0.053**	< 0.05	**0.063**	**0.21**	**0.16**	**0.17**
Magnesium, dissolved	--	mg/L	**269**	**259**	**322**	**179**	**172**	**1270**	**1150**	**1160**
Manganese, dissolved	--	mg/L	**188**	**185**	**121**	**161**	**141**	**163**	**145**	**149**
Mercury, dissolved	0.000026	mg/L	**0.000012**	< 0.00001	**0.000045**	< 0.00001	< 0.00005	**0.000037**	**0.000014**	**0.000014**
Molybdenum, dissolved	0.073	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0025	< 0.01	< 0.01	< 0.01
Nickel, dissolved	0.025	mg/L	**1.86**	**1.56**	**2.45**	**1.2**	**0.9**	**2.76**	**2.32**	**2.37**
Potassium, dissolved	--	mg/L	< 5	< 5	< 5	< 5	< 2.5	**18**	**18**	**18**
Selenium, dissolved	0.001	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.02	< 0.02	< 0.02
Silicon, dissolved	--	mg/L	**14.3**	**12.9**	**8.97**	**12**	**9.72**	**15.9**	**15**	**15**
Silver, dissolved	0.0001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.002	< 0.002	< 0.002
Sodium, dissolved	--	mg/L	< 5	< 5	< 5	< 5	< 2.5	**57**	**62**	**64**
Strontium, dissolved	--	mg/L	**0.745**	**0.81**	**1.07**	**0.568**	**0.62**	**3.85**	**3.91**	**4.04**
Thallium, dissolved	0.0008	mg/L	**0.0052**	**0.0041**	**0.0011**	**0.006**	**0.00486**	**0.0021**	**0.0021**	< 0.002
Tin, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L	< 1	< 1	< 1	< 1	< 0.5	< 2	< 2	< 2
Uranium, dissolved	0.015	mg/L	**0.0409**	**0.0261**	**0.0287**	**0.022**	**0.00765**	**0.0317**	**0.0194**	**0.0188**
Vanadium, dissolved	--	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.2	< 0.2	< 0.2
Zinc, dissolved	0.03	mg/L	**735**	**630**	**568**	**419**	**333**	**1380**	**1080**	**1140**
Zirconium hydride, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	CH-VP-17		CH-VP-18	CH-VP-20		FCS-2	FCS-4	
		Sample ID	CH-VP-17_SESP13	CH-VP-17_SEFL13	CH-VP-18_SESP13	CH-VP-20_SESP13	CH-VP-20_SEFL13	FCS-2_SESP13	FCS-4_SESP13	FCS-94_SESP13
		Sample Date	6/13/2013	9/17/2013	6/13/2013	6/13/2013	9/17/2013	6/11/2013	6/11/2013	6/11/2013
Analyte	**Screening Level**	**Screening Level**								
General Chemistry										
Acidity (CaCO3)	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Acidity, hot peroxide	--	mg/L	**2900 J**	**3980**	**1980 J**	**2200 J**	**3260**	**3550**	**2830**	**2940**
Alkalinity, Bicarbonate	--	mg/L	NA	NA	NA	NA	< 1	< 1	< 1	< 1
Alkalinity, Total	--	mg/L	NA	NA	NA	NA	< 1	< 1	< 1	< 1
Alkalinity: Carbonate As Caco3	--	mg/L	NA	NA	NA	NA	< 1	< 1	< 1	< 1
Alkalinity: Hydroxide		mg/L	NA	NA	NA	NA	< 1	< 1	< 1	< 1
Ammonia-N	0.019	mg/L	**0.198 J**	**0.271**	**0.145 J**	**0.0807 J**	**0.161**	**0.668**	**0.724**	0.737
Chloride	120	mg/L	**< 10**	**< 10**	**< 10**	**< 10**	**< 10**	**< 25**	**< 25**	< 25
Dissolved organic carbon	--	mg/L	**< 2.41**	**1.7**	**< 1.97**	**< 2.11**	**1.42**	**< 7.99**	**< 7.86**	< 7.85
Fluoride	0.12	mg/L	**3.52 J**	**2.49**	**2.19 J**	**2.04 J**	**1.29**	**2.3**	**1.8**	2.4
Free Cyanide	0.005	mg/L	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	NA
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	**< 0.1**	**< 0.1**	**< 0.1**	**< 0.1**	**< 0.1**	**1.84**	**1.16**	1.18
Nitrite as N	0.06	mg/L	**< 0.02**	**< 0.02**	**< 0.02**	**< 0.02**	**< 0.02**	**< 0.05**	**< 0.05**	< 0.05
ortho-Phosphate, dissolved	--	mg/L	**0.0024 J**	**0.0652 J**	**< 0.001**	**< 0.001**	**< 0.001**	**< 0.001**	**< 0.001**	< 0.001
pH		pH Units	**NA**	**NA**	**NA**	**NA**	**3.88 J**	**3.92 J**	**4.1 J**	4.15 J
Phosphorus, dissolved	0.01	mg/L	**< 0.6**	**< 0.6**	**< 0.6**	**< 0.6**	**< 0.6**	**< 1.5**	**< 1.5**	< 1.5
Silica, dissolved	--	mg/L	**30.5**	**27.5**	**19.2**	**25.7**	**20.8**	**34.1**	**32**	32.1
Sulfate	--	mg/L	**5610 J**	**5340**	**3700 J**	**4350 J**	**3880**	**10500**	**9640**	9740
Sulfate, dissolved		mg/L	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	NA
Sulfur, dissolved	--	mg/L	**1680**	**1800**	**1340**	**1170**	**1340**	**3270**	**3010**	3030
Temperature, Lab		Degree Celcius	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	NA
Total Dissolved Solids	--	mg/L	**9100 J**	**8960**	**7180 J**	**6930 J**	**7060**	**16100**	**15000**	14700
Total Suspended Solids	--	mg/L	**66.4 J**	**97.6**	**149 J**	**310 J**	**63.4**	**67.8**	**136**	139

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Screening Level	Location	FCS-5		FP02	FP05	FP06	FP08	FP09	FP10	FP11		FP12	FP13
			Sample ID	FCS-5_SESP13	FCS-5-SEFL13	FP02_SEFL13	FP05_SEFL13	FP06_SEFL13	FP08-SESP13	FP09_SEFL13	FP10-SESP13	FP11-SESP13	FP11-SEFL13	FP12_SEFL13	FP13_SEFL13
			Sample Date	6/12/2013	9/12/2013	9/14/2013	9/13/2013	9/14/2013	6/12/2013	9/14/2013	6/12/2013	6/12/2013	9/13/2013	9/14/2013	9/14/2013
Field Parameters															
Conductivity, Field		mS / cm / Degree Celcius		**2.591**	**8.02**	**0.779**	**0.373**	**0.422**	**0.602**	**0.46**	**1.124**	**4.91**	**3.751**	**0.715**	**0.415**
pH, Field		pH Units		**4.45**	**5.03**	**8.26**	**8.04**	**8.41**	**6.03**	**6.79**	**6.89**	**5.7**	**6.17**	**7.93**	**8.23**
Temperature, Field		Degree Celcius		**10.45**	**12.24**	**9.35**	**9.59**	**8.88**	**19.8**	**6.93**	**14.35**	**4**	**5.47**	**8.9**	**8.46**
Oxidation Reduction Potential		mV		**233.4**	**105**	**133**	**269.4**	**136**	**275.6**	**194**	**151.8**	**39.3**	**23.2**	**266**	**159**
Dissolved Oxygen (DO)		mg/L		**7.93**	**8.63**	**9.97**	**10.3**	**9.81**	**3.22**	**10.62**	**6.89**	**10.37**	**10.24**	**10.11**	**10.21**
Dissolved Oxygen (percentage)		%		**72.4**	**82.8**	**87.2**	**90.4**	**84.7**	**35.2**	**87.5**	**67.8**	**108.1**	**81.5**	**87.4**	**87.3**
Flow		L/S		**40**	**20**	**0.16**	**8**	**0.2**	**0.5**	**6.9**	**3**	**0.03**	**0.005**	**0.54**	**2.68**
Dissolved Metals				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L		**5.9**	NA	**0.003**	**0.0022**	**0.0023**	NA	**0.0448**	NA	NA	NA	< 0.001	< 0.001
Antimony, dissolved	--	mg/L		< 0.005	NA	< 0.0001	< 0.0001	**0.00011**	NA	< 0.0002	NA	NA	NA	< 0.0001	< 0.0001
Arsenic, dissolved	0.005	mg/L		< 0.005	NA	< 0.0001	**0.00018**	**0.00036**	NA	< 0.0002	NA	NA	NA	< 0.0001	< 0.0001
Barium, dissolved	--	mg/L		**0.0176**	NA	**0.0434**	**0.0205**	**0.0298**	NA	**0.0238**	NA	NA	NA	**0.0527**	**0.0927**
Beryllium, dissolved	--	mg/L		< 0.005	NA	< 0.0001	< 0.0001	< 0.0001	NA	**0.00032**	NA	NA	NA	< 0.0001	< 0.0001
Bismuth, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L		< 0.5	NA	**0.01**	< 0.01	< 0.01	NA	< 0.02	NA	NA	NA	< 0.01	< 0.01
Cadmium, dissolved	Variable [b]	mg/L		**0.227**	NA	< 0.00001	**0.00322**	**0.000025**	NA	**0.0263**	NA	NA	NA	**0.0013**	**0.000022**
Calcium, dissolved	--	mg/L		**241**	NA	**81.9**	**116**	**55.5**	NA	**37.2**	NA	NA	NA	**85.1**	**57**
Chromium, dissolved	0.0089	mg/L		< 0.005	NA	< 0.0001	< 0.0001	< 0.0001	NA	**0.00052**	NA	NA	NA	< 0.0001	< 0.0001
Cobalt, dissolved	--	mg/L		**0.7**	NA	< 0.0001	< 0.0001	< 0.0001	NA	**0.0422**	NA	NA	NA	**0.00058**	< 0.0001
Copper, dissolved	0.002	mg/L		**0.359**	NA	< 0.0002	**0.00152**	**0.0011**	NA	**0.102**	NA	NA	NA	**0.0006**	**0.00028**
Ferrous Iron, dissolved	--	mg/L		**320**	NA	< 0.02	< 0.02	< 0.02	NA	**0.027**	NA	NA	NA	< 0.02	< 0.02
Iron, dissolved	0.3	mg/L		**215**	NA	< 0.03	< 0.03	< 0.03	NA	**0.033**	NA	NA	NA	< 0.03	< 0.03
Lead, dissolved	0.001	mg/L		**0.626**	NA	< 0.00005	**0.00013**	**0.000169**	NA	**0.0131**	NA	NA	NA	**0.00066**	**0.000269**
Lithium, dissolved	--	mg/L		**0.062**	NA	**0.0482**	**0.0257**	**0.0259**	NA	**0.0196**	NA	NA	NA	**0.0391**	**0.0174**
Magnesium, dissolved	--	mg/L		**361**	NA	**49.5**	**115**	**22.4**	NA	**23.1**	NA	NA	NA	**39.2**	**17.8**
Manganese, dissolved	--	mg/L		**55.7**	NA	**0.000249**	**0.000931**	**0.000614**	NA	**1.07**	NA	NA	NA	**0.0385**	**0.000731**
Mercury, dissolved	0.000026	mg/L		**0.000106**	NA	< 0.00001	< 0.00001	< 0.00001	NA	< 0.00001	NA	NA	NA	< 0.00001	< 0.00001
Molybdenum, dissolved	0.073	mg/L		< 0.0025	NA	**0.00094**	**0.00013**	**0.00129**	NA	**0.00047**	NA	NA	NA	**0.000564**	**0.000683**
Nickel, dissolved	0.025	mg/L		**0.703**	NA	< 0.0005	**0.0444**	**0.00101**	NA	**0.0511**	NA	NA	NA	**0.00078**	< 0.0005
Potassium, dissolved	--	mg/L		**7.2**	NA	**4.68**	**3.57**	**2.17**	NA	**1.07**	NA	NA	NA	**3.07**	**2.34**
Selenium, dissolved	0.001	mg/L		< 0.005	NA	**0.00019**	**0.00224**	**0.00059**	NA	**0.00025**	NA	NA	NA	**0.00013**	**0.00012**
Silicon, dissolved	--	mg/L		**7.52**	NA	**0.999**	**5.29**	**5.23**	NA	**8.46**	NA	NA	NA	**1.54**	**2.06**
Silver, dissolved	0.0001	mg/L		< 0.0005	NA	< 0.00001	< 0.00001	< 0.00001	NA	**0.000118**	NA	NA	NA	< 0.00001	< 0.00001
Sodium, dissolved	--	mg/L		**21**	NA	**20.8**	**6.12**	**3.2**	NA	**3.24**	NA	NA	NA	**5.6**	**5.93**
Strontium, dissolved	--	mg/L		**1.35**	NA	**1.88**	**0.453**	**0.441**	NA	**0.158**	NA	NA	NA	**1.58**	**0.716**
Thallium, dissolved	0.0008	mg/L		**0.00125**	NA	**0.000112**	**0.000137**	**0.000029**	NA	**0.000058**	NA	NA	NA	**0.000335**	**0.000069**
Tin, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L		< 0.5	NA	< 0.01	< 0.01	< 0.01	NA	< 0.02	NA	NA	NA	< 0.01	< 0.01
Uranium, dissolved	0.015	mg/L		**0.0103**	NA	**0.00438**	**0.0089**	**0.0131**	NA	**0.00037**	NA	NA	NA	**0.00348**	**0.00149**
Vanadium, dissolved	--	mg/L		< 0.05	NA	< 0.001	< 0.001	< 0.001	NA	< 0.002	NA	NA	NA	< 0.001	< 0.001
Zinc, dissolved	0.03	mg/L		**361**	NA	**0.0017**	**5.64**	**0.0024**	NA	**16.2**	NA	NA	NA	**0.985**	**0.0149**
Zirconium hydride, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	FCS-5		FP02	FP05	FP06	FP08	FP09	FP10	FP11		FP12	FP13
		Sample ID	FCS-5_SESP13	FCS-5-SEFL13	FP02_SEFL13	FP05_SEFL13	FP06_SEFL13	FP08-SESP13	FP09_SEFL13	FP10-SESP13	FP11-SESP13	FP11-SEFL13	FP12_SEFL13	FP13_SEFL13
		Sample Date	6/12/2013	9/12/2013	9/14/2013	9/13/2013	9/14/2013	6/12/2013	9/14/2013	6/12/2013	6/12/2013	9/13/2013	9/14/2013	9/14/2013
Analyte	**Screening Level**	**Screening Level**												
General Chemistry														
Acidity (CaCO3)	--	mg/L	NA	NA	NA	**8.7**	NA	NA	**29.6**	NA	NA	NA	NA	NA
Acidity, hot peroxide	--	mg/L	**1030**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Bicarbonate	--	mg/L	< 1	NA	**302**	**176**	**200**	NA	**25.1**	NA	NA	NA	**291**	**199**
Alkalinity, Total	--	mg/L	< 1	NA	**302**	**176**	**206**	NA	**25.1**	NA	NA	NA	**297**	**199**
Alkalinity: Carbonate As Caco3	--	mg/L	< 1	NA	< 1	< 2	**5.7**	NA	< 2	NA	NA	NA	**6.4**	< 1
Alkalinity: Hydroxide		mg/L	< 1	NA	< 1	< 2	< 1	NA	< 2	NA	NA	NA	< 1	< 1
Ammonia-N	0.019	mg/L	**0.295**	NA	**< 0.005**	**< 0.005**	**< 0.005**	NA	**0.0062**	NA	NA	NA	**< 0.005**	**< 0.005**
Chloride	120	mg/L	**< 25**	NA	**< 0.5**	**< 5**	**< 0.5**	NA	**< 0.5**	NA	NA	NA	**< 0.5**	**< 0.5**
Dissolved organic carbon	--	mg/L	**< 3.07**	NA	**0.92**	**2.57**	**2.32**	NA	**0.69**	NA	NA	NA	**0.91**	**0.85**
Fluoride	0.12	mg/L	**1.9**	NA	**0.548**	**0.33**	**0.98**	NA	**0.348**	NA	NA	NA	**0.362**	**0.296**
Free Cyanide	0.005	mg/L	**< 0.02**	NA	**NA**	**NA**	**NA**	NA	**NA**	NA	NA	NA	**NA**	**NA**
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	**0.82**	NA	**0.0496**	**10.1**	**0.0073**	NA	**0.195**	NA	NA	NA	**0.0074**	**0.0091**
Nitrite as N	0.06	mg/L	**< 0.05**	NA	**< 0.001**	**< 0.01**	**< 0.001**	NA	**< 0.001**	NA	NA	NA	**< 0.001**	**< 0.001**
ortho-Phosphate, dissolved	--	mg/L	**0.0025**	NA	**< 0.001**	**< 0.001**	**< 0.001**	NA	**< 0.001**	NA	NA	NA	**< 0.001**	**< 0.001**
pH		pH Units	**4.38 J**	NA	**8.28 J**	**8 J**	**8.51 J**	NA	**6.48 J**	NA	NA	NA	**8.46 J**	**8.35 J**
Phosphorus, dissolved	0.01	mg/L	**< 0.3**	NA	**< 0.3**	**< 0.3**	**< 0.3**	NA	**< 0.3**	NA	NA	NA	**< 0.3**	**< 0.3**
Silica, dissolved	--	mg/L	**16.1**	NA	**2.14**	**11.3**	**11.2**	NA	**18.1**	NA	NA	NA	**3.29**	**4.41**
Sulfate	--	mg/L	**7430**	NA	**122**	**573**	**24.9**	NA	**198**	NA	NA	NA	**91.1**	**23.4**
Sulfate, dissolved		mg/L	**NA**	NA	**NA**	**NA**	**NA**	NA	**NA**	NA	NA	NA	**NA**	**NA**
Sulfur, dissolved	--	mg/L	**978**	NA	**41.6**	**181**	**8.4**	NA	**65.8**	NA	NA	NA	**30.5**	**7.83**
Temperature, Lab		Degree Celcius	**NA**	NA	**NA**	**NA**	**NA**	NA	**NA**	NA	NA	NA	**NA**	**NA**
Total Dissolved Solids	--	mg/L	**5120**	NA	**449**	**1090**	**244**	NA	**365**	NA	NA	NA	**417**	**222**
Total Suspended Solids	--	mg/L	**377**	NA	**402**	**104**	**9.9**	NA	**23.1**	NA	NA	NA	**14**	**37.6**

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Screening Level	Location	FP14	FP15	FP16	GP02		GP03		GP04	GP06	
			Sample ID	FP14_SEFL13	FP15_SEFL13	FP16_SEFL13	GP02_SESP13	GP02_SEFL13	GP03_SEFL13	GP903_SEFL13	GP04-SESP13	GP06-SESP13	GP06-SEFL13
			Sample Date	9/14/2013	9/14/2013	9/14/2013	6/13/2013	9/14/2013	9/15/2013	9/15/2013	6/13/2013	6/13/2013	9/14/2013
Field Parameters													
Conductivity, Field		mS / cm / Degree Celcius		**2.858**	**0.772**	**1.137**	**0.715**	**2.094**	**0.402**	NA	**1.713**	**1.237**	**1.565**
pH, Field		pH Units		**2.79**	**7.65**	**3.76**	**7.98**	**8.1**	**8.29**	NA	**7.71**	**7.4**	**7.94**
Temperature, Field		Degree Celcius		**9.82**	**9.93**	**7.77**	**7.49**	**5.04**	**6.48**	NA	**4.54**	**15.89**	**9.48**
Oxidation Reduction Potential		mV		**513**	**112**	**463**	**113.4**	**146.9**	**70**	NA	**198.5**	**201.5**	**120**
Dissolved Oxygen (DO)		mg/L		**9.7**	**9.59**	**10.55**	**12.96**	**10.7**	**11.48**	NA	**13.83**	**10.1**	**8.98**
Dissolved Oxygen (percentage)		%		**86.4**	**85**	**88.9**	**107.5**	**84.7**	**93.5**	NA	**107**	**94.9**	**78.9**
Flow		L/S		**0.18**	**3**	**4.31**	**5**	**0.1**	**0.31**	NA	**0**	**1**	**0**
Dissolved Metals				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L		**2.6**	**0.009**	**5.09**	**0.002**	**0.007**	**0.0017 J**	**0.0034 J**	NA	NA	NA
Antimony, dissolved	--	mg/L		< 0.005	< 0.0001	< 0.0005	**0.00129**	**0.00014**	**0.00014**	**0.00013**	NA	NA	NA
Arsenic, dissolved	0.005	mg/L		**0.0078**	< 0.0001	< 0.0005	**0.00264**	**0.00082**	**0.00142**	**0.00149**	NA	NA	NA
Barium, dissolved	--	mg/L		**0.0033**	**0.0125**	**0.014**	**0.0274**	**0.11**	**0.0747**	**0.0769**	NA	NA	NA
Beryllium, dissolved	--	mg/L		**0.0063**	< 0.0001	**0.00294**	< 0.0001	< 0.0001	< 0.0001	< 0.0001	NA	NA	NA
Bismuth, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L		< 0.5	< 0.01	< 0.05	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Cadmium, dissolved	Variable [b]	mg/L		**0.286**	**0.00157**	**0.0683**	< 0.00001	**0.00005**	**0.000012**	**0.000015**	NA	NA	NA
Calcium, dissolved	--	mg/L		**134**	**101**	**94.8**	**128**	**189**	**51.9**	**53.8**	NA	NA	NA
Chromium, dissolved	0.0089	mg/L		< 0.005	< 0.0001	**0.00253**	< 0.0001	**0.00021**	**0.00012**	< 0.0001	NA	NA	NA
Cobalt, dissolved	--	mg/L		**0.37**	**0.0008**	**0.0882**	**0.00023**	**0.0001**	< 0.0001	< 0.0001	NA	NA	NA
Copper, dissolved	0.002	mg/L		**1.53**	**0.00252**	**0.608**	**0.00035**	**0.00179**	**0.00027**	**0.00032**	NA	NA	NA
Ferrous Iron, dissolved	--	mg/L		**9.7**	< 0.02	**0.314**	**0.027 J**	< 0.02	< 0.02	< 0.02	NA	NA	NA
Iron, dissolved	0.3	mg/L		**154**	< 0.03	**2.79**	< 0.03	< 0.03	< 0.03	< 0.03	NA	NA	NA
Lead, dissolved	0.001	mg/L		**1.05**	**0.00291**	**0.176**	< 0.000086	**0.000202**	< 0.00005	**0.0003 J**	NA	NA	NA
Lithium, dissolved	--	mg/L		**0.043**	**0.025**	**0.0318**	**0.00225**	**0.00057**	**0.00352**	**0.00356**	NA	NA	NA
Magnesium, dissolved	--	mg/L		**134**	**38.1**	**68.4**	**24.8**	**50.5**	**12.9**	**13.3**	NA	NA	NA
Manganese, dissolved	--	mg/L		**19**	**0.0114**	**2.72**	**0.0574**	**0.00598**	**0.00271**	**0.00342**	NA	NA	NA
Mercury, dissolved	0.000026	mg/L		**0.000015**	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	NA	NA	NA
Molybdenum, dissolved	0.073	mg/L		< 0.0025	**0.000088**	< 0.00025	**0.00272**	**0.000429**	**0.00169**	**0.00174**	NA	NA	NA
Nickel, dissolved	0.025	mg/L		**0.363**	**0.00678**	**0.154**	**0.0018**	**0.00191**	< 0.0005	< 0.0005	NA	NA	NA
Potassium, dissolved	--	mg/L		< 2.5	**2.51**	**1.79**	**2.67**	**2.17**	**1.32**	**1.37**	NA	NA	NA
Selenium, dissolved	0.001	mg/L		< 0.005	**0.00012**	< 0.0005	**0.00067**	**0.00015**	**0.0042**	**0.00427**	NA	NA	NA
Silicon, dissolved	--	mg/L		**3.86**	**4.61**	**12.1**	**3.55**	**7.26**	**6.07**	**6.22**	NA	NA	NA
Silver, dissolved	0.0001	mg/L		< 0.0005	< 0.00001	**0.000171**	< 0.00001	< 0.00001	< 0.00001	< 0.00001	NA	NA	NA
Sodium, dissolved	--	mg/L		**3.9**	**5.22**	**4.44**	**7.63**	**14.3**	**7.14**	**7.21**	NA	NA	NA
Strontium, dissolved	--	mg/L		**0.409**	**0.296**	**0.284**	**0.373**	**0.701**	**0.295**	**0.303**	NA	NA	NA
Thallium, dissolved	0.0008	mg/L		**0.00804**	**0.000661**	**0.00017**	< 0.00001	< 0.00001	< 0.00001	< 0.00001	NA	NA	NA
Tin, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L		< 0.5	< 0.01	< 0.05	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA
Uranium, dissolved	0.015	mg/L		**0.016**	**0.000619**	**0.00461**	**0.0234**	**0.018**	**0.0108**	**0.0116**	NA	NA	NA
Vanadium, dissolved	--	mg/L		< 0.05	< 0.001	< 0.005	**0.001**	< 0.001	< 0.001	< 0.001	NA	NA	NA
Zinc, dissolved	0.03	mg/L		**237**	**0.813**	**45.9**	< 0.001	**0.0106**	< 0.001	**0.0038**	NA	NA	NA
Zirconium hydride, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	FP14	FP15	FP16	GP02		GP03		GP04	GP06	
		Sample ID	FP14_SEFL13	FP15_SEFL13	FP16_SEFL13	GP02_SESP13	GP02_SEFL13	GP03_SEFL13	GP903_SEFL13	GP04-SESP13	GP06-SESP13	GP06-SEFL13
		Sample Date	9/14/2013	9/14/2013	9/14/2013	6/13/2013	9/14/2013	9/15/2013	9/15/2013	6/13/2013	6/13/2013	9/14/2013
Analyte	**Screening Level**	**Screening Level**										
General Chemistry												
Acidity (CaCO3)	--	mg/L	NA	NA	**132**	< 1	< 1	< 1	< 1	NA	NA	NA
Acidity, hot peroxide	--	mg/L	**1020 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Bicarbonate	--	mg/L	NA	**79.4**	NA	**186 J**	**252**	**149**	**142**	NA	NA	NA
Alkalinity, Total	--	mg/L	NA	**79.4**	NA	**186 J**	**252**	**149**	**142**	NA	NA	NA
Alkalinity: Carbonate As Caco3	--	mg/L	NA	< 2	NA	< 1	< 2	< 1	< 1	NA	NA	NA
Alkalinity: Hydroxide		mg/L	NA	< 2	NA	< 1	< 2	< 1	< 1	NA	NA	NA
Ammonia-N	0.019	mg/L	**< 0.005**	**< 0.005**	**0.0122**	< 0.0339	0.0054	0.0059	0.0058	NA	NA	NA
Chloride	120	mg/L	**< 10**	**< 0.5**	**< 5**	< 0.5	< 5	< 0.5	< 0.5	NA	NA	NA
Dissolved organic carbon	--	mg/L	**0.85**	**0.57**	**0.88**	< 2.88	5.12	0.83 J	1.55 J	NA	NA	NA
Fluoride	0.12	mg/L	**0.51**	**0.329**	**0.61**	0.243 J	< 0.2	0.352	0.352	NA	NA	NA
Free Cyanide	0.005	mg/L	**NA**	**NA**	**NA**	NA	NA	NA	NA	NA	NA	NA
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	**< 0.1**	**0.0141**	**0.431**	0.13 J	0.051	0.0227	0.0226	NA	NA	NA
Nitrite as N	0.06	mg/L	**< 0.02**	**< 0.001**	**< 0.01**	0.0011 J	< 0.01	< 0.001	< 0.001	NA	NA	NA
ortho-Phosphate, dissolved	--	mg/L	**0.0171**	**< 0.001**	**< 0.001**	0.0023 J	< 0.001	0.0079 J	0.0079 J	NA	NA	NA
pH		pH Units	**NA**	**8.05 J**	**NA**	8.29 J	8.26 J	8.4 J	8.4 J	NA	NA	NA
Phosphorus, dissolved	0.01	mg/L	**< 0.3**	**< 0.3**	**< 0.3**	< 0.3	< 0.3	< 0.3	< 0.3	NA	NA	NA
Silica, dissolved	--	mg/L	**8.26**	**9.87**	**25.9**	7.6	15.5	13	13.3	NA	NA	NA
Sulfate	--	mg/L	**1780**	**315**	**621**	227 J	439	64.1	64	NA	NA	NA
Sulfate, dissolved		mg/L	**NA**	**NA**	**NA**	NA	NA	NA	NA	NA	NA	NA
Sulfur, dissolved	--	mg/L	**568**	**107**	**204**	76.2	142	20.9	21.3	NA	NA	NA
Temperature, Lab		Degree Celcius	**NA**	**NA**	**NA**	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	--	mg/L	**2990**	**580**	**1020**	526 J	951	252	256	NA	NA	NA
Total Suspended Solids	--	mg/L	**2.4**	**1.4**	**34.4**	9800 J	82.3	44.2	58.3	NA	NA	NA

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Screening Level	Location	GP07		GP08		GP09		GP10		GP12		GP14	
			Sample ID	GP07-SESP13	GP07-SEFL13	GP08-SESP13	GP08-SEFL13	GP09_SESP13	GP09_SEFL13	GP10-SESP13	GP10-SEFL13	GP12_SESP13	GP12_SEFL13	GP14-SESP13	GP14-SEFL13
			Sample Date	6/13/2013	9/14/2013	6/13/2013	9/14/2013	6/13/2013	9/14/2013	6/13/2013	9/14/2013	6/13/2013	9/13/2013	6/13/2013	9/14/2013
Field Parameters															
Conductivity, Field		mS / cm / Degree Celcius		**1.702**	**2.215**	**1.219**	**1.39**	**1.583**	**1.687**	**1.684**	**1.303**	**1.147**	**2.035**	**0.724**	**1.865**
pH, Field		pH Units		**7.27**	**7.31**	**7.57**	**7.88**	**7.41**	**7.76**	**8.24**	**7.99**	**5.52**	**6.26**	**7.19**	**8.12**
Temperature, Field		Degree Celcius		**10.61**	**8.77**	**2.22**	**5.49**	**4.66**	**7.93**	**14.78**	**7.69**	**6.54**	**6.06**	**7.98**	**7.34**
Oxidation Reduction Potential		mV		**216.8**	**123.9**	**187.1**	**108.4**	**201.6**	**120.6**	**201.9**	**113.8**	**128.8**	**16**	**75**	**123.3**
Dissolved Oxygen (DO)		mg/L		**6.25**	**11.53**	**13.39**	**9.92**	**7.28**	**6.24**	**11.99**	**11.01**	**13.59**	**10.18**	**10.77**	**9.89**
Dissolved Oxygen (percentage)		%		**56.3**	**95.1**	**97.9**	**78.6**	**55.6**	**52.3**	**118.1**	**92.9**	**110**	**82.4**	**91.6**	**82.5**
Flow		L/S		**0**	**0**	**1**	**0.015**	**2**	**0.015**	**5**	**0.033**	**4.05**	**0.177**	**1**	**0.02**
Dissolved Metals				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L		NA	NA	NA	NA	**0.0052**	< 0.0014	NA	NA	**0.484**	**0.0074**	NA	NA
Antimony, dissolved	--	mg/L		NA	NA	NA	NA	**0.00021**	**0.00027**	NA	NA	**0.00515**	**0.0112**	NA	NA
Arsenic, dissolved	0.005	mg/L		NA	NA	NA	NA	**0.00043**	**0.00055**	NA	NA	**0.249**	**0.184**	NA	NA
Barium, dissolved	--	mg/L		NA	NA	NA	NA	**0.0316**	**0.0177**	NA	NA	**0.0199**	**0.012**	NA	NA
Beryllium, dissolved	--	mg/L		NA	NA	NA	NA	< 0.0001	< 0.0001	NA	NA	< 0.0005	< 0.0005	NA	NA
Bismuth, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L		NA	NA	NA	NA	< 0.01	< 0.01	NA	NA	< 0.05	< 0.05	NA	NA
Cadmium, dissolved	Variable [b]	mg/L		NA	NA	NA	NA	**0.000147**	< 0.000059	NA	NA	**0.0373**	**0.0168**	NA	NA
Calcium, dissolved	--	mg/L		NA	NA	NA	NA	**115**	**129**	NA	NA	**112**	**111**	NA	NA
Chromium, dissolved	0.0089	mg/L		NA	NA	NA	NA	< 0.0001	< 0.0001	NA	NA	< 0.0005	< 0.0005	NA	NA
Cobalt, dissolved	--	mg/L		NA	NA	NA	NA	**0.00033**	**0.00066**	NA	NA	**0.132**	**0.0994**	NA	NA
Copper, dissolved	0.002	mg/L		NA	NA	NA	NA	**0.00114**	< 0.0002	NA	NA	**0.329**	**0.007**	NA	NA
Ferrous Iron, dissolved	--	mg/L		NA	NA	NA	NA	< 0.02	**0.021**	NA	NA	**55.2 J**	**44**	NA	NA
Iron, dissolved	0.3	mg/L		NA	NA	NA	NA	< 0.03	< 0.03	NA	NA	**47.7**	**53**	NA	NA
Lead, dissolved	0.001	mg/L		NA	NA	NA	NA	**0.000643**	< 0.00105	NA	NA	**0.157**	**0.00106**	NA	NA
Lithium, dissolved	--	mg/L		NA	NA	NA	NA	**0.0288**	**0.0396**	NA	NA	**0.0095**	**0.0145**	NA	NA
Magnesium, dissolved	--	mg/L		NA	NA	NA	NA	**157**	**192**	NA	NA	**45.1**	**49.1**	NA	NA
Manganese, dissolved	--	mg/L		NA	NA	NA	NA	**0.0069**	< 0.0152	NA	NA	**7.05**	**3.78**	NA	NA
Mercury, dissolved	0.000026	mg/L		NA	NA	NA	NA	< 0.00001	< 0.00001	NA	NA	< 0.00001	< 0.00001	NA	NA
Molybdenum, dissolved	0.073	mg/L		NA	NA	NA	NA	**0.00149**	**0.00145**	NA	NA	< 0.00025	**0.0017**	NA	NA
Nickel, dissolved	0.025	mg/L		NA	NA	NA	NA	**0.0147**	**0.0205**	NA	NA	**0.125**	**0.0656**	NA	NA
Potassium, dissolved	--	mg/L		NA	NA	NA	NA	**2.88**	**3.75**	NA	NA	**1.75**	**1.41**	NA	NA
Selenium, dissolved	0.001	mg/L		NA	NA	NA	NA	**0.00042**	**0.00036**	NA	NA	< 0.0005	< 0.0005	NA	NA
Silicon, dissolved	--	mg/L		NA	NA	NA	NA	**1.14**	**1.58**	NA	NA	**3.48**	**4.67**	NA	NA
Silver, dissolved	0.0001	mg/L		NA	NA	NA	NA	< 0.00001	< 0.00001	NA	NA	< 0.00005	< 0.00005	NA	NA
Sodium, dissolved	--	mg/L		NA	NA	NA	NA	**3.08**	**3.46**	NA	NA	**6.73**	**15.6**	NA	NA
Strontium, dissolved	--	mg/L		NA	NA	NA	NA	**0.531**	**0.614**	NA	NA	**0.369**	**0.48**	NA	NA
Thallium, dissolved	0.0008	mg/L		NA	NA	NA	NA	**0.000114**	**0.000144**	NA	NA	**0.011**	**0.00391**	NA	NA
Tin, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L		NA	NA	NA	NA	< 0.01	< 0.01	NA	NA	< 0.05	< 0.05	NA	NA
Uranium, dissolved	0.015	mg/L		NA	NA	NA	NA	**0.0206**	**0.0243**	NA	NA	**0.00131**	**0.00256**	NA	NA
Vanadium, dissolved	--	mg/L		NA	NA	NA	NA	< 0.001	< 0.001	NA	NA	< 0.005	< 0.005	NA	NA
Zinc, dissolved	0.03	mg/L		NA	NA	NA	NA	**0.0663**	< 0.0385	NA	NA	**34**	**18.3**	NA	NA
Zirconium hydride, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	GP07		GP08		GP09		GP10		GP12		GP14	
		Sample ID	GP07-SESP13	GP07-SEFL13	GP08-SESP13	GP08-SEFL13	GP09_SESP13	GP09_SEFL13	GP10-SESP13	GP10-SEFL13	GP12_SESP13	GP12_SEFL13	GP14-SESP13	GP14-SEFL13
		Sample Date	6/13/2013	9/14/2013	6/13/2013	9/14/2013	6/13/2013	9/14/2013	6/13/2013	9/14/2013	6/13/2013	9/13/2013	6/13/2013	9/14/2013
Analyte	**Screening Level**	**Screening Level**												
General Chemistry														
Acidity (CaCO3)	--	mg/L	NA	NA	NA	NA	**4**	NA	NA	NA	NA	NA	NA	NA
Acidity, hot peroxide	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	**138 J**	< 25	NA	NA
Alkalinity, Bicarbonate	--	mg/L	NA	NA	NA	NA	**349 J**	**381**	NA	NA	< 2	**24**	NA	NA
Alkalinity, Total	--	mg/L	NA	NA	NA	NA	**349 J**	**381**	NA	NA	< 2	**24**	NA	NA
Alkalinity: Carbonate As Caco3	--	mg/L	NA	NA	NA	NA	< 2	< 1	NA	NA	< 2	< 1	NA	NA
Alkalinity: Hydroxide		mg/L	NA	NA	NA	NA	< 2	< 1	NA	NA	< 2	< 1	NA	NA
Ammonia-N	0.019	mg/L	NA	NA	NA	NA	**< 0.0089**	**0.0053**	NA	NA	**0.116 J**	**0.287**	NA	NA
Chloride	120	mg/L	NA	NA	NA	NA	**< 5**	**< 5**	NA	NA	**< 5**	**< 5**	NA	NA
Dissolved organic carbon	--	mg/L	NA	NA	NA	NA	**< 0.67**	**0.55**	NA	NA	**< 0.87**	**0.66**	NA	NA
Fluoride	0.12	mg/L	NA	NA	NA	NA	**0.21 J**	**0.25**	NA	NA	**0.31 J**	**0.63**	NA	NA
Free Cyanide	0.005	mg/L	NA	NA	NA	NA	**NA**	**NA**	NA	NA	**NA**	**NA**	NA	NA
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	NA	NA	NA	NA	**0.502 J**	**1.07**	NA	NA	**< 0.05**	**< 0.05**	NA	NA
Nitrite as N	0.06	mg/L	NA	NA	NA	NA	**< 0.01**	**< 0.01**	NA	NA	**< 0.01**	**< 0.01**	NA	NA
ortho-Phosphate, dissolved	--	mg/L	NA	NA	NA	NA	**< 0.001**	**< 0.001**	NA	NA	**< 0.001**	**< 0.001**	NA	NA
pH		pH Units	NA	NA	NA	NA	**8.16 J**	**8.08 J**	NA	NA	**3.29 J**	**6.33 J**	NA	NA
Phosphorus, dissolved	0.01	mg/L	NA	NA	NA	NA	**< 0.3**	**< 0.3**	NA	NA	**< 0.3**	**< 0.3**	NA	NA
Silica, dissolved	--	mg/L	NA	NA	NA	NA	**2.43**	**3.38**	NA	NA	**7.44**	**9.99**	NA	NA
Sulfate	--	mg/L	NA	NA	NA	NA	**570 J**	**703**	NA	NA	**605 J**	**523**	NA	NA
Sulfate, dissolved		mg/L	NA	NA	NA	NA	**NA**	**NA**	NA	NA	**NA**	**NA**	NA	NA
Sulfur, dissolved	--	mg/L	NA	NA	NA	NA	**187**	**230**	NA	NA	**196**	**172**	NA	NA
Temperature, Lab		Degree Celcius	NA	NA	NA	NA	**NA**	**NA**	NA	NA	**NA**	**NA**	NA	NA
Total Dissolved Solids	--	mg/L	NA	NA	NA	NA	**1200 J**	**1440**	NA	NA	**909 J**	**874**	NA	NA
Total Suspended Solids	--	mg/L	NA	NA	NA	NA	**70.7 J**	**30.8**	NA	NA	**171 J**	**115**	NA	NA

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Screening Level	Location	GP17	NE1		SRK-FD01		SRK-FD04		SRK-FD05	
			Sample ID	GP17_SEFL13	NE1-SESP13	NE1-SEFL13	SRK-FD01_SESP13	SRK-FD01_SEFL13	SRK-FD04-SESP13	SRK-FD04-SEFL13	SRK-FD05-SESP13	SRK-FD05_SEFL13
			Sample Date	9/15/2013	6/13/2013	9/13/2013	6/10/2013	9/11/2013	6/11/2013	9/11/2013	6/13/2013	9/13/2013
Field Parameters												
Conductivity, Field		mS / cm / Degree Celcius		**261**	**0.378**	**0.567**	**4.95**	**4.57**	**4.729**	**7.319**	**1.911**	**1.3454**
pH, Field		pH Units		**8.32**	**6.75**	**6.94**	**6.55**	**6.3**	**2.01**	**2.1**	**6.86**	**6.97**
Temperature, Field		Degree Celcius		**5.56**	**3.13**	**3.66**	**4.96**	**2.8**	**12.8**	**11**	**1.72**	**3.02**
Oxidation Reduction Potential		mV		**45**	**233.8**	**228.2**	**89.1**	**77.8**	**488.2**	**505**	**235.2**	**195.5**
Dissolved Oxygen (DO)		mg/L		**11.76**	**11.27**	**9.89**	**10.74**	**7.6**	**6.19**	**1.24**	**11.7**	**10.27**
Dissolved Oxygen (percentage)		%		**93.5**	**84.1**	**74.7**	**85.6**	**56**	**59.6**	**11.8**	**84.5**	**76.9**
Flow		L/S		**1.63**	**8**	**0.037**	**0.033**	**0.064**	**0**	**0**	**0.25**	**0.074**
Dissolved Metals				NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L		**0.0011**	NA	NA	**0.167**	**0.069**	NA	NA	NA	< 0.001
Antimony, dissolved	--	mg/L		< 0.0001	NA	NA	< 0.002	< 0.001	NA	NA	NA	< 0.0001
Arsenic, dissolved	0.005	mg/L		**0.00129**	NA	NA	< 0.002	< 0.001	NA	NA	NA	< 0.0001
Barium, dissolved	--	mg/L		**0.0955**	NA	NA	**0.0288**	**0.0276**	NA	NA	NA	**0.0918**
Beryllium, dissolved	--	mg/L		< 0.0001	NA	NA	< 0.002	< 0.001	NA	NA	NA	< 0.0001
Bismuth, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L		< 0.01	NA	NA	< 0.2	< 0.1	NA	NA	NA	< 0.01
Cadmium, dissolved	Variable [b]	mg/L		< 0.00001	NA	NA	**0.0861**	**0.06**	NA	NA	NA	< 0.00001
Calcium, dissolved	--	mg/L		**38.5**	NA	NA	**533**	**460**	NA	NA	NA	**54.9**
Chromium, dissolved	0.0089	mg/L		**0.00018**	NA	NA	< 0.002	< 0.001	NA	NA	NA	< 0.0001
Cobalt, dissolved	--	mg/L		< 0.0001	NA	NA	**0.0788**	**0.0548**	NA	NA	NA	< 0.0001
Copper, dissolved	0.002	mg/L		**0.00024**	NA	NA	**0.0761**	**0.0601**	NA	NA	NA	**0.0002**
Ferrous Iron, dissolved	--	mg/L		< 0.02	NA	NA	**4.26**	**2.62**	NA	NA	NA	< 0.02
Iron, dissolved	0.3	mg/L		< 0.03	NA	NA	**4.47**	**2.23**	NA	NA	NA	< 0.03
Lead, dissolved	0.001	mg/L		< 0.00005	NA	NA	< 0.0016	**0.00821**	NA	NA	NA	< 0.00005
Lithium, dissolved	--	mg/L		**0.00297**	NA	NA	**0.046**	**0.04**	NA	NA	NA	**0.0119**
Magnesium, dissolved	--	mg/L		**7.18**	NA	NA	**471**	**442**	NA	NA	NA	**15.8**
Manganese, dissolved	--	mg/L		**0.00082**	NA	NA	**9.72**	**5.94**	NA	NA	NA	**0.000156**
Mercury, dissolved	0.000026	mg/L		< 0.00001	NA	NA	< 0.00001	< 0.00001	NA	NA	NA	< 0.00001
Molybdenum, dissolved	0.073	mg/L		**0.000612**	NA	NA	< 0.001	< 0.0005	NA	NA	NA	**0.000768**
Nickel, dissolved	0.025	mg/L		< 0.0005	NA	NA	**0.309**	**0.257**	NA	NA	NA	< 0.0005
Potassium, dissolved	--	mg/L		**0.826**	NA	NA	**9.2**	**8.75**	NA	NA	NA	**2.04**
Selenium, dissolved	0.001	mg/L		**0.00292**	NA	NA	**0.0035**	**0.0017**	NA	NA	NA	**0.00011**
Silicon, dissolved	--	mg/L		**6**	NA	NA	**5.13**	**5.37**	NA	NA	NA	**2.17**
Silver, dissolved	0.0001	mg/L		< 0.00001	NA	NA	< 0.0002	< 0.0001	NA	NA	NA	< 0.00001
Sodium, dissolved	--	mg/L		**3.38**	NA	NA	**26**	**27**	NA	NA	NA	**2.75**
Strontium, dissolved	--	mg/L		**0.23**	NA	NA	**2.9**	**2.78**	NA	NA	NA	**0.595**
Thallium, dissolved	0.0008	mg/L		< 0.00001	NA	NA	**0.0006**	**0.00049**	NA	NA	NA	**0.000017**
Tin, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L		< 0.01	NA	NA	< 0.2	< 0.1	NA	NA	NA	< 0.01
Uranium, dissolved	0.015	mg/L		**0.00462**	NA	NA	**0.00704**	**0.00547**	NA	NA	NA	**0.00136**
Vanadium, dissolved	--	mg/L		< 0.001	NA	NA	< 0.02	< 0.01	NA	NA	NA	< 0.001
Zinc, dissolved	0.03	mg/L		< 0.001	NA	NA	**116**	**87.7**	NA	NA	NA	< 0.001
Zirconium hydride, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	GP17	NE1		SRK-FD01		SRK-FD04		SRK-FD05	
		Sample ID	GP17_SEFL13	NE1-SESP13	NE1-SEFL13	SRK-FD01_SESP13	SRK-FD01_SEFL13	SRK-FD04-SESP13	SRK-FD04-SEFL13	SRK-FD05-SESP13	SRK-FD05_SEFL13
		Sample Date	9/15/2013	6/13/2013	9/13/2013	6/10/2013	9/11/2013	6/11/2013	9/11/2013	6/13/2013	9/13/2013
Analyte	**Screening Level**	**Screening Level**									
General Chemistry											
Acidity (CaCO3)	--	mg/L	< 1	NA	NA	**201**	**215**	NA	NA	NA	**30**
Acidity, hot peroxide	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Bicarbonate	--	mg/L	**129**	NA	NA	**205**	**224**	NA	NA	NA	**188**
Alkalinity, Total	--	mg/L	**129**	NA	NA	**205**	**224**	NA	NA	NA	**188**
Alkalinity: Carbonate As Caco3	--	mg/L	< 1	NA	NA	< 2	< 2	NA	NA	NA	< 2
Alkalinity: Hydroxide		mg/L	< 1	NA	NA	< 2	< 2	NA	NA	NA	< 2
Ammonia-N	0.019	mg/L	0.0051	NA	NA	**< 0.0259**	**0.0118**	NA	NA	NA	**< 0.005**
Chloride	120	mg/L	< 0.5	NA	NA	**< 10**	**< 10**	NA	NA	NA	**< 0.5**
Dissolved organic carbon	--	mg/L	0.92	NA	NA	**< 6.56**	**4.7**	NA	NA	NA	**1.03**
Fluoride	0.12	mg/L	0.436	NA	NA	**< 0.4**	**< 0.4**	NA	NA	NA	**0.273**
Free Cyanide	0.005	mg/L	NA	NA	NA	**< 0.005**	**< 0.005**	NA	NA	NA	**< 0.005**
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	0.085	NA	NA	**1.58 J**	**1.12**	NA	NA	NA	**0.0067**
Nitrite as N	0.06	mg/L	< 0.001	NA	NA	**< 0.02**	**< 0.02**	NA	NA	NA	**< 0.001**
ortho-Phosphate, dissolved	--	mg/L	0.0107 J	NA	NA	**< 0.001**	**< 0.001**	NA	NA	NA	**< 0.001**
pH		pH Units	8.36 J	NA	NA	**7.32 J**	**6.87 J**	NA	NA	NA	**8.04 J**
Phosphorus, dissolved	0.01	mg/L	< 0.3	NA	NA	**< 0.6**	**< 0.3**	NA	NA	NA	**< 0.3**
Silica, dissolved	--	mg/L	12.8	NA	NA	**11**	**11.5**	NA	NA	NA	**4.64**
Sulfate	--	mg/L	11.5	NA	NA	**3630**	**3020**	NA	NA	NA	**17.7**
Sulfate, dissolved		mg/L	NA	NA	NA	**NA**	**NA**	NA	NA	NA	**NA**
Sulfur, dissolved	--	mg/L	3.85	NA	NA	**1050**	**914**	NA	NA	NA	**5.99**
Temperature, Lab		Degree Celcius	NA	NA	NA	**NA**	**NA**	NA	NA	NA	**NA**
Total Dissolved Solids	--	mg/L	166	NA	NA	**5150**	**4920**	NA	NA	NA	**205**
Total Suspended Solids	--	mg/L	43.2	NA	NA	**77.4**	**13**	NA	NA	NA	**15.5**

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Location	SRK-FD06		SRK-FD09		SRK-FD10	SRK-FD12	SRK-FD13		SRK-FD14
		Sample ID	SRK-FD06-SESP13	SRK-FD06-SEFL13	SRK-FD09_SESP13	SRK-FD09-SEFL13	SRK-FD10-SESP13	SRK-FD12-SESP13	SRK-FD13_SESP13	SRK-FD13_SEFL13	SRK-FD14_SEFL13
		Sample Date	6/13/2013	9/13/2013	6/11/2013	9/12/2013	6/11/2013	6/11/2013	6/11/2013	9/12/2013	9/11/2013
Analyte	**Screening Level**	**Screening Level**									
Field Parameters											
Conductivity, Field		mS / cm / Degree Celcius	**2.036**	**1.725**	**10.28**	**10.99**	**10.7**	**11.11**	**2.62**	**22.41**	**3.393**
pH, Field		pH Units	**7.21**	**7.28**	**4.6**	**5.54**	**4.81**	**5.07**	**1.6**	**2.23**	**7.35**
Temperature, Field		Degree Celcius	**2.5**	**2.49**	**1.89**	**6.38**	**6.24**	**4.42**	**3.94**	**9.99**	**9.09**
Oxidation Reduction Potential		mV	**2.8**	**150.7**	**104**	**25.3**	**113.5**	**86.3**	**436**	**440.3**	**141.4**
Dissolved Oxygen (DO)		mg/L	**13.14**	**12.18**	**0.31**	**2.72**	**1.75**	**3.58**	**2.3**	**3.13**	NA
Dissolved Oxygen (percentage)		%	**96**	**89.9**	**2.1**	**23**	**14.7**	**28.8**	**19.2**	**30**	NA
Flow		L/S	**0.093**	**2.5**	**0.075**	NA	**18.67**	**18.67**	**0.38**	**0.004**	**0.003**
Dissolved Metals			NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L	NA	NA	**0.83**	< 0.2	NA	NA	**484**	**380**	**0.0051**
Antimony, dissolved	--	mg/L	NA	NA	< 0.02	< 0.02	NA	NA	< 0.1	< 0.05	**0.00065**
Arsenic, dissolved	0.005	mg/L	NA	NA	< 0.02	< 0.02	NA	NA	**3.44**	**4.59**	< 0.0002
Barium, dissolved	--	mg/L	NA	NA	**0.022**	**0.017**	NA	NA	**0.641**	**0.028**	**0.00702**
Beryllium, dissolved	--	mg/L	NA	NA	< 0.02	< 0.02	NA	NA	**0.2**	**0.133**	< 0.0002
Bismuth, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L	NA	NA	< 2	< 2	NA	NA	< 10	< 5	< 0.02
Cadmium, dissolved	Variable [b]	mg/L	NA	NA	**0.969**	**0.632**	NA	NA	**6.3**	**4.75**	**0.00813**
Calcium, dissolved	--	mg/L	NA	NA	**332**	**455**	NA	NA	**400**	**409**	**239**
Chromium, dissolved	0.0089	mg/L	NA	NA	< 0.02	< 0.02	NA	NA	**0.55**	**0.524**	< 0.0002
Cobalt, dissolved	--	mg/L	NA	NA	**2.02**	**2.29**	NA	NA	**11.7**	**8.64**	**0.00021**
Copper, dissolved	0.002	mg/L	NA	NA	< 0.113	< 0.04	NA	NA	**63.1**	**54.4**	**0.00136**
Ferrous Iron, dissolved	--	mg/L	NA	NA	**560**	< 1000	NA	NA	**2550**	**2880**	< 0.02
Iron, dissolved	0.3	mg/L	NA	NA	**600**	**632**	NA	NA	**4030**	**4800**	< 0.03
Lead, dissolved	0.001	mg/L	NA	NA	**0.218**	< 0.01	NA	NA	**0.625**	**0.113**	**0.00966**
Lithium, dissolved	--	mg/L	NA	NA	**0.14**	**0.26**	NA	NA	**0.85**	**1.13**	**0.17**
Magnesium, dissolved	--	mg/L	NA	NA	**950**	**1400**	NA	NA	**3460**	**2820**	**354**
Manganese, dissolved	--	mg/L	NA	NA	**118**	**146**	NA	NA	**495**	**379**	**0.019**
Mercury, dissolved	0.000026	mg/L	NA	NA	< 0.00001	< 0.00001	NA	NA	**0.0001**	**0.000093**	< 0.00001
Molybdenum, dissolved	0.073	mg/L	NA	NA	< 0.01	< 0.01	NA	NA	< 0.05	< 0.025	**0.00181**
Nickel, dissolved	0.025	mg/L	NA	NA	**2.23**	**2.58**	NA	NA	**18.4**	**13.6**	**0.0793**
Potassium, dissolved	--	mg/L	NA	NA	**17**	**17**	NA	NA	< 50	< 25	**19.2**
Selenium, dissolved	0.001	mg/L	NA	NA	< 0.02	< 0.02	NA	NA	< 0.1	< 0.05	**0.00314**
Silicon, dissolved	--	mg/L	NA	NA	**7.02**	**8.28**	NA	NA	**33.1**	**43.1**	**0.646**
Silver, dissolved	0.0001	mg/L	NA	NA	< 0.002	< 0.002	NA	NA	< 0.01	< 0.005	**0.00002**
Sodium, dissolved	--	mg/L	NA	NA	**45**	**67**	NA	NA	< 50	< 25	**113**
Strontium, dissolved	--	mg/L	NA	NA	**2.59**	**3.95**	NA	NA	**0.94**	**0.58**	**3.3**
Thallium, dissolved	0.0008	mg/L	NA	NA	**0.0022**	**0.0027**	NA	NA	< 0.01	< 0.005	**0.00112**
Tin, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L	NA	NA	< 2	< 2	NA	NA	< 10	< 5	< 0.02
Uranium, dissolved	0.015	mg/L	NA	NA	**0.0064**	**0.0129**	NA	NA	**0.526**	**0.384**	**0.12**
Vanadium, dissolved	--	mg/L	NA	NA	< 0.2	< 0.2	NA	NA	< 1	< 0.5	< 0.002
Zinc, dissolved	0.03	mg/L	NA	NA	**1220**	**1280**	NA	NA	**5040**	**4010**	**3.33**
Zirconium hydride, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	SRK-FD06		SRK-FD09		SRK-FD10	SRK-FD12	SRK-FD13		SRK-FD14
		Sample ID	SRK-FD06-SESP13	SRK-FD06-SEFL13	SRK-FD09_SESP13	SRK-FD09-SEFL13	SRK-FD10-SESP13	SRK-FD12-SESP13	SRK-FD13_SESP13	SRK-FD13_SEFL13	SRK-FD14_SEFL13
		Sample Date	6/13/2013	9/13/2013	6/11/2013	9/12/2013	6/11/2013	6/11/2013	6/11/2013	9/12/2013	9/11/2013
Analyte	**Screening Level**	**Screening Level**									
General Chemistry											
Acidity (CaCO3)	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	**17.3**
Acidity, hot peroxide	--	mg/L	NA	NA	**2740**	**3080 J**	NA	NA	**19500**	**20400 J**	NA
Alkalinity, Bicarbonate	--	mg/L	NA	NA	< 1	**122**	NA	NA	< 1	NA	**141**
Alkalinity, Total	--	mg/L	NA	NA	< 1	**122**	NA	NA	< 1	NA	**141**
Alkalinity: Carbonate As Caco3	--	mg/L	NA	NA	< 1	< 2	NA	NA	< 1	NA	< 2
Alkalinity: Hydroxide		mg/L	NA	NA	< 1	< 2	NA	NA	< 1	NA	< 2
Ammonia-N	0.019	mg/L	NA	NA	**0.407**	**0.678**	NA	NA	< 0.005	< 0.005	**0.0166**
Chloride	120	mg/L	NA	NA	**< 25**	**< 25**	NA	NA	< 50	< 50	**< 10**
Dissolved organic carbon	--	mg/L	NA	NA	**< 6.52**	**7.29**	NA	NA	12.9	14.9	**< 0.5**
Fluoride	0.12	mg/L	NA	NA	**1.6**	**1.3**	NA	NA	45.9	44.5	**3.3**
Free Cyanide	0.005	mg/L	NA	NA	**< 0.02**	**< 0.01**	NA	NA	NA	NA	**NA**
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	NA	NA	**2.72**	**7.03**	NA	NA	3.39	1.14	**0.25**
Nitrite as N	0.06	mg/L	NA	NA	**0.067**	**< 0.05**	NA	NA	< 0.1	< 0.1	**< 0.02**
ortho-Phosphate, dissolved	--	mg/L	NA	NA	**< 0.001**	**< 0.001**	NA	NA	1.85	2.06 J	**< 0.001**
pH		pH Units	NA	NA	**4.38 J**	**5.43 J**	NA	NA	2.6 J	NA	**7.93 J**
Phosphorus, dissolved	0.01	mg/L	NA	NA	**< 1.5**	**< 1.5**	NA	NA	< 6	7.3	**< 0.3**
Silica, dissolved	--	mg/L	NA	NA	**15**	**17.7**	NA	NA	70.8	92.2	**1.38**
Sulfate	--	mg/L	NA	NA	**7210**	**10400**	NA	NA	37400	33300	**2170**
Sulfate, dissolved		mg/L	NA	NA	**NA**	**NA**	NA	NA	NA	NA	**NA**
Sulfur, dissolved	--	mg/L	NA	NA	**2600**	**3290**	NA	NA	11300	10400	**676**
Temperature, Lab		Degree Celcius	NA	NA	**NA**	**NA**	NA	NA	NA	NA	**NA**
Total Dissolved Solids	--	mg/L	NA	NA	**11600**	**17500**	NA	NA	60800 J	58500 J	**3340**
Total Suspended Solids	--	mg/L	NA	NA	**81.4**	**131**	NA	NA	72	295	**273**

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	SRK-FD16		SRK-FD17		SRK-FD18		SRK-FD19	
		Sample ID	SRK-FD16-SESP13	SRK-FD16-SEFL13	SRK-FD17-SESP13	SRK-FD17-SEFL13	SRK-FD18_SESP13	SRK-FD18_SEFL13	SRK-FD19_SESP13	SRK-FD19_SEFL13
		Sample Date	6/12/2013	9/13/2013	6/12/2013	9/13/2013	6/12/2013	9/13/2013	6/11/2013	9/19/2013
Analyte	**Screening Level**	**Screening Level**								
Field Parameters										
Conductivity, Field		mS / cm / Degree Celcius	**0.083**	**0.119**	**0.12**	**0.143**	**0.205**	**0.187**	**6.828**	**7.586**
pH, Field		pH Units	**7.34**	**6.85**	**7.28**	**6.78**	**6.98**	**6.75**	**6.03**	**5.36**
Temperature, Field		Degree Celcius	**1.78**	**4.67**	**1.05**	**4.23**	**1.85**	**4.21**	**0.01**	**0.12**
Oxidation Reduction Potential		mV	**48.4**	**40.5**	**76**	**121.6**	**114.7**	**150**	**188**	**235.4**
Dissolved Oxygen (DO)		mg/L	**10.95**	**11.6**	**10.59**	**10.69**	**8.53**	**8.59**	**10.53**	**13.01**
Dissolved Oxygen (percentage)		%	**78.6**	**90.1**	**74.5**	**81.6**	**62.5**	**65.7**	**73.9**	**88.7**
Flow		L/S	**30**	**10**	**0.5**	**0.033**	**0.03**	**0.08**	**0.5**	NA
Dissolved Metals			NA	NA	NA	NA	NA	NA	NA	NA
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L	NA	NA	NA	NA	**0.0165**	< 0.0039	**2.48**	**1.96**
Antimony, dissolved	--	mg/L	NA	NA	NA	NA	< 0.0001	< 0.0001	< 0.005	< 0.005
Arsenic, dissolved	0.005	mg/L	NA	NA	NA	NA	**0.0002**	**0.00012**	**0.0069**	< 0.005
Barium, dissolved	--	mg/L	NA	NA	NA	NA	**0.071**	**0.0679**	**0.0396**	**0.0427**
Beryllium, dissolved	--	mg/L	NA	NA	NA	NA	< 0.0001	< 0.0001	< 0.005	< 0.005
Bismuth, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L	NA	NA	NA	NA	< 0.01	< 0.01	< 0.5	< 0.5
Cadmium, dissolved	Variable [b]	mg/L	NA	NA	NA	NA	< 0.000264	**0.000239**	**0.239**	**0.217**
Calcium, dissolved	--	mg/L	NA	NA	NA	NA	**32.9**	**28.9**	**499**	**563**
Chromium, dissolved	0.0089	mg/L	NA	NA	NA	NA	< 0.0001	< 0.0001	< 0.005	< 0.005
Cobalt, dissolved	--	mg/L	NA	NA	NA	NA	< 0.0001	< 0.0001	**0.86**	**0.877**
Copper, dissolved	0.002	mg/L	NA	NA	NA	NA	**0.00598**	**0.00306**	**0.884**	**1**
Ferrous Iron, dissolved	--	mg/L	NA	NA	NA	NA	**0.056**	< 0.02	**0.612**	**1.1**
Iron, dissolved	0.3	mg/L	NA	NA	NA	NA	**0.047**	< 0.03	**0.698**	**1.69**
Lead, dissolved	0.001	mg/L	NA	NA	NA	NA	**0.00299**	< 0.000954	**0.0192**	**0.0026**
Lithium, dissolved	--	mg/L	NA	NA	NA	NA	**0.00219**	**0.00249**	**0.066**	**0.069**
Magnesium, dissolved	--	mg/L	NA	NA	NA	NA	**5.54**	**4.83**	**957**	**1040**
Manganese, dissolved	--	mg/L	NA	NA	NA	NA	< 0.00328	< 0.00134	**61.6**	**61.4**
Mercury, dissolved	0.000026	mg/L	NA	NA	NA	NA	**0.000027**	< 0.00001	< 0.00001	< 0.00001
Molybdenum, dissolved	0.073	mg/L	NA	NA	NA	NA	**0.000949**	**0.000826**	< 0.0025	< 0.0025
Nickel, dissolved	0.025	mg/L	NA	NA	NA	NA	**0.00109**	**0.00063**	**1.13**	**1.07**
Potassium, dissolved	--	mg/L	NA	NA	NA	NA	**1.21**	**1.19**	**11**	**9.4**
Selenium, dissolved	0.001	mg/L	NA	NA	NA	NA	**0.00019**	< 0.0001	**0.0075**	< 0.005
Silicon, dissolved	--	mg/L	NA	NA	NA	NA	**5.08**	**6.21**	**6.05**	**7.13**
Silver, dissolved	0.0001	mg/L	NA	NA	NA	NA	< 0.00001	< 0.00001	< 0.0005	< 0.0005
Sodium, dissolved	--	mg/L	NA	NA	NA	NA	**1.86**	**1.98**	**22.3**	**20**
Strontium, dissolved	--	mg/L	NA	NA	NA	NA	**0.0975**	**0.0955**	**3.14**	**3.14**
Thallium, dissolved	0.0008	mg/L	NA	NA	NA	NA	**0.000077**	**0.000058**	< 0.0005	< 0.0005
Tin, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L	NA	NA	NA	NA	< 0.01	< 0.01	< 0.5	< 0.5
Uranium, dissolved	0.015	mg/L	NA	NA	NA	NA	**0.000892**	**0.000606**	**0.0159**	**0.00968**
Vanadium, dissolved	--	mg/L	NA	NA	NA	NA	< 0.001	< 0.001	< 0.05	< 0.05
Zinc, dissolved	0.03	mg/L	NA	NA	NA	NA	< 0.109	< 0.0899	**269**	**257**
Zirconium hydride, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	SRK-FD16		SRK-FD17		SRK-FD18		SRK-FD19	
		Sample ID	SRK-FD16-SESP13	SRK-FD16-SEFL13	SRK-FD17-SESP13	SRK-FD17-SEFL13	SRK-FD18_SESP13	SRK-FD18_SEFL13	SRK-FD19_SESP13	SRK-FD19_SEFL13
		Sample Date	6/12/2013	9/13/2013	6/12/2013	9/13/2013	6/12/2013	9/13/2013	6/11/2013	9/19/2013
Analyte	**Screening Level**	**Screening Level**								
General Chemistry										
Acidity (CaCO3)	--	mg/L	NA	NA	NA	NA	**2.7**	**30**	**457**	**456**
Acidity, hot peroxide	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Bicarbonate	--	mg/L	NA	NA	NA	NA	**61.4**	**77.8**	**189**	**151**
Alkalinity, Total	--	mg/L	NA	NA	NA	NA	**61.4**	**77.8**	**189**	**151**
Alkalinity: Carbonate As Caco3	--	mg/L	NA	NA	NA	NA	< 2	< 2	< 2	< 2
Alkalinity: Hydroxide		mg/L	NA	NA	NA	NA	< 2	< 2	< 2	< 2
Ammonia-N	0.019	mg/L	NA	NA	NA	NA	**< 0.01**	**< 0.005**	0.12	0.141
Chloride	120	mg/L	NA	NA	NA	NA	**< 0.5**	**< 0.5**	< 25	< 25
Dissolved organic carbon	--	mg/L	NA	NA	NA	NA	**< 6.6**	**2.74**	< 8.24	6.28
Fluoride	0.12	mg/L	NA	NA	NA	NA	**0.116**	**0.123**	1.1	1
Free Cyanide	0.005	mg/L	NA	NA	NA	NA	**NA**	**NA**	NA	NA
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	NA	NA	NA	NA	**0.0632**	**0.0531**	1.84	1.62
Nitrite as N	0.06	mg/L	NA	NA	NA	NA	**< 0.001**	**< 0.001**	< 0.05	< 0.05
ortho-Phosphate, dissolved	--	mg/L	NA	NA	NA	NA	**< 0.001**	**< 0.001**	< 0.001	< 0.001
pH		pH Units	NA	NA	NA	NA	**8.09 J**	**7.7 J**	7.07 J	6.81 J
Phosphorus, dissolved	0.01	mg/L	NA	NA	NA	NA	**< 0.3**	**< 0.3**	< 0.9	< 0.9
Silica, dissolved	--	mg/L	NA	NA	NA	NA	**11.1**	**13.3**	12.9	15.3
Sulfate	--	mg/L	NA	NA	NA	NA	**35.5**	**20.1**	5840	6300
Sulfate, dissolved		mg/L	NA	NA	NA	NA	**NA**	**NA**	NA	NA
Sulfur, dissolved	--	mg/L	NA	NA	NA	NA	**10.9**	**6.76**	1760	1990
Temperature, Lab		Degree Celcius	NA	NA	NA	NA	**NA**	**NA**	NA	NA
Total Dissolved Solids	--	mg/L	NA	NA	NA	NA	**138**	**124**	8540	9490
Total Suspended Solids	--	mg/L	NA	NA	NA	NA	**43.2**	**1.1**	40.6	139

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Screening Level	Location	SRK-FD23		SRK-FD24		SRK-FD26		SRK-FD30	
			Sample ID	SRK-FD23-SESP13	SRK-FD23-SEFL13	SRK-FD24_SESP13	SRK-FD24_SEFL13	SRK-FD26-SESP13	SRK-FD26_SEFL13	SRK-FD30_SESP13	SRK-FD30_SEFL13
			Sample Date	6/12/2013	9/17/2013	6/11/2013	9/17/2013	6/12/2013	9/11/2013	6/12/2013	9/17/2013
Field Parameters											
Conductivity, Field		mS / cm / Degree Celcius		**2.101**	**0.826**	**1.706**	**1.625**	**1.109**	**1.757**	**2.483**	**1.69**
pH, Field		pH Units		**3.73**	**3.8**	**2.46**	**4.23**	**6.16**	**7.3**	**6.57**	**5.98**
Temperature, Field		Degree Celcius		**15.6**	**12.83**	**22.76**	**8.21**	**6.05**	**4.06**	**4.01**	**6.89**
Oxidation Reduction Potential		mV		**215.4**	**281.1**	**470.4**	**334.5**	**154.3**	**25.5**	**361.5**	**200**
Dissolved Oxygen (DO)		mg/L		**4.32**	**7.66**	**2.37**	**9.93**	**8.9**	**11.74**	**7.01**	**1.88**
Dissolved Oxygen (percentage)		%		**43.7**	**72.7**	**27.7**	**83**	**71.9**	**90.2**	**53.5**	**15.5**
Flow		L/S		**0**	**0**	**1.67**	**0.381**	**46.67**	**2.5**	NA	**0**
Dissolved Metals				NA	NA	NA	NA	NA	NA	NA	NA
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L		NA	NA	**10.9**	**3.69**	NA	**0.0946**	**0.0917**	**0.525**
Antimony, dissolved	--	mg/L		NA	NA	< 0.001	< 0.0005	NA	< 0.0001	**0.00016**	< 0.0005
Arsenic, dissolved	0.005	mg/L		NA	NA	< 0.0036	**0.00085**	NA	**0.00016**	**0.00062**	**0.00132**
Barium, dissolved	--	mg/L		NA	NA	**0.00843**	**0.00824**	NA	**0.0225**	**0.0152**	**0.0182**
Beryllium, dissolved	--	mg/L		NA	NA	**0.0042**	**0.00178**	NA	< 0.0001	< 0.0001	**0.00062**
Bismuth, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L		NA	NA	< 0.1	< 0.05	NA	< 0.01	< 0.01	< 0.05
Cadmium, dissolved	Variable [b]	mg/L		NA	NA	**0.124**	**0.0512**	NA	**0.00666**	**0.0063**	**0.0087**
Calcium, dissolved	--	mg/L		NA	NA	**235**	**156**	NA	**153**	**130**	**131**
Chromium, dissolved	0.0089	mg/L		NA	NA	**0.0055**	**0.0008**	NA	< 0.0001	< 0.0001	**0.00104**
Cobalt, dissolved	--	mg/L		NA	NA	**0.331**	**0.18**	NA	**0.0288**	**0.0292**	**0.15**
Copper, dissolved	0.002	mg/L		NA	NA	**1.01**	**0.401**	NA	**0.0107**	**0.00194**	**0.008**
Ferrous Iron, dissolved	--	mg/L		NA	NA	**10**	**13.3**	NA	**0.277**	**0.076**	**0.371**
Iron, dissolved	0.3	mg/L		NA	NA	**16.8**	**10.8**	NA	**0.309**	**0.128**	**6.48**
Lead, dissolved	0.001	mg/L		NA	NA	**1.03**	**0.724**	NA	**0.000269**	**0.00311**	**0.00811**
Lithium, dissolved	--	mg/L		NA	NA	**0.0849**	**0.0567**	NA	**0.0363**	**0.07**	**0.105**
Magnesium, dissolved	--	mg/L		NA	NA	**223**	**128**	NA	**149**	**212**	**171**
Manganese, dissolved	--	mg/L		NA	NA	**13.4**	**7.29**	NA	**0.899**	**0.77**	**8.83**
Mercury, dissolved	0.000026	mg/L		NA	NA	< 0.00001	< 0.00001	NA	< 0.00001	< 0.00001	< 0.00001
Molybdenum, dissolved	0.073	mg/L		NA	NA	< 0.0005	< 0.00025	NA	< 0.00005	**0.000666**	< 0.00025
Nickel, dissolved	0.025	mg/L		NA	NA	**0.431**	**0.208**	NA	**0.068**	**0.0693**	**0.381**
Potassium, dissolved	--	mg/L		NA	NA	**5.21**	**4.39**	NA	**4.47**	**13.3**	**6.77**
Selenium, dissolved	0.001	mg/L		NA	NA	< 0.001	< 0.0005	NA	**0.00071**	**0.00108**	< 0.0005
Silicon, dissolved	--	mg/L		NA	NA	**8.38**	**6.94**	NA	**5.76**	**0.575**	**2.78**
Silver, dissolved	0.0001	mg/L		NA	NA	**0.00016**	**0.000073**	NA	< 0.00001	< 0.00001	< 0.00005
Sodium, dissolved	--	mg/L		NA	NA	**5.83**	**4.66**	NA	**8.16**	**2.48**	**9.25**
Strontium, dissolved	--	mg/L		NA	NA	**0.682**	**0.455**	NA	**0.611**	**0.386**	**0.847**
Thallium, dissolved	0.0008	mg/L		NA	NA	**0.00251**	**0.00176**	NA	**0.000069**	**0.000876**	**0.000386**
Tin, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L		NA	NA	< 0.1	< 0.05	NA	< 0.01	< 0.01	< 0.05
Uranium, dissolved	0.015	mg/L		NA	NA	**0.00832**	**0.00312**	NA	**0.00675**	**0.00299**	**0.000394**
Vanadium, dissolved	--	mg/L		NA	NA	< 0.01	< 0.005	NA	< 0.001	< 0.001	< 0.005
Zinc, dissolved	0.03	mg/L		NA	NA	**89.9**	**40**	NA	**5.66**	**5.46**	**32.8**
Zirconium hydride, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	SRK-FD23		SRK-FD24		SRK-FD26		SRK-FD30	
		Sample ID	SRK-FD23-SESP13	SRK-FD23-SEFL13	SRK-FD24_SESP13	SRK-FD24_SEFL13	SRK-FD26-SESP13	SRK-FD26_SEFL13	SRK-FD30_SESP13	SRK-FD30_SEFL13
		Sample Date	6/12/2013	9/17/2013	6/11/2013	9/17/2013	6/12/2013	9/11/2013	6/12/2013	9/17/2013
Analyte	**Screening Level**	**Screening Level**								
General Chemistry										
Acidity (CaCO3)	--	mg/L	NA	NA	NA	**148**	NA	**23.2**	**6.3**	**88**
Acidity, hot peroxide	--	mg/L	NA	NA	**249**	NA	NA	NA	NA	NA
Alkalinity, Bicarbonate	--	mg/L	NA	NA	< 2	NA	NA	**207**	**189**	**35.6**
Alkalinity, Total	--	mg/L	NA	NA	< 2	NA	NA	**207**	**189**	**35.6**
Alkalinity: Carbonate As Caco3	--	mg/L	NA	NA	< 2	NA	NA	< 2	< 2	< 2
Alkalinity: Hydroxide		mg/L	NA	NA	< 2	NA	NA	< 2	< 2	< 2
Ammonia-N	0.019	mg/L	NA	NA	**0.0487**	**0.0435**	NA	**0.0062**	**< 0.0056**	**0.0168**
Chloride	120	mg/L	NA	NA	**< 10**	**< 5**	NA	**< 5**	**< 5**	**< 5**
Dissolved organic carbon	--	mg/L	NA	NA	**< 2.39**	**1.16**	NA	**2.19**	**< 1.22**	**2.24**
Fluoride	0.12	mg/L	NA	NA	**0.87**	**0.37**	NA	**0.33**	**2.13**	**1.34**
Free Cyanide	0.005	mg/L	NA	NA	**NA**	**NA**	NA	**NA**	**< 0.01**	**< 0.005**
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	NA	NA	**0.81**	**0.072**	NA	**4.06**	**< 0.05**	**< 0.05**
Nitrite as N	0.06	mg/L	NA	NA	**< 0.02**	**< 0.01**	NA	**< 0.01**	**< 0.01**	**< 0.01**
ortho-Phosphate, dissolved	--	mg/L	NA	NA	**< 0.001**	**< 0.001**	NA	**< 0.001**	**0.0012**	**< 0.001**
pH		pH Units	NA	NA	**3.38 J**	**NA**	NA	**7.85 J**	**8.11 J**	**6.74 J**
Phosphorus, dissolved	0.01	mg/L	NA	NA	**< 0.3**	**< 0.3**	NA	**< 0.3**	**< 0.3**	**< 0.3**
Silica, dissolved	--	mg/L	NA	NA	**17.9**	**14.8**	NA	**12.3**	**1.23**	**5.94**
Sulfate	--	mg/L	NA	NA	**2370**	**1060**	NA	**806**	**1010**	**1190**
Sulfate, dissolved		mg/L	NA	NA	**NA**	**NA**	NA	**NA**	**NA**	**NA**
Sulfur, dissolved	--	mg/L	NA	NA	**548**	**342**	NA	**255**	**315**	**356**
Temperature, Lab		Degree Celcius	NA	NA	**NA**	**NA**	NA	**NA**	**NA**	**NA**
Total Dissolved Solids	--	mg/L	NA	NA	**2740**	**1580**	NA	**1470**	**1530**	**1380**
Total Suspended Solids	--	mg/L	NA	NA	**9.8**	**24.1**	NA	**12.5**	**36.8**	**20.2**

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	SRK-FD31		SRK-FD32	SRK-FD35	SRK-FD37	
		Sample ID	SRK-FD31_SESP13	SRK-FD31_SEFL13	SRK-FD32-SESP13	SRK-FD35-SEFL13	SRK-FD37_SESP13	SRK-FD37_SEFL13
		Sample Date	6/11/2013	9/12/2013	6/11/2013	9/11/2013	6/10/2013	9/11/2013
Analyte	**Screening Level**	**Screening Level**						
Field Parameters								
Conductivity, Field		mS / cm / Degree Celcius	**10.82**	**10.62**	**10.67**	**7.575**	**41.39**	**47.85**
pH, Field		pH Units	**4.88**	**5.62**	**2.51**	**3.87**	**2.41**	**1.85**
Temperature, Field		Degree Celcius	**6.45**	**7.7**	**11.58**	**13.6**	**6.93**	**12.33**
Oxidation Reduction Potential		mV	**124.6**	**38.4**	**354.7**	**262.3**	**399.4**	**416**
Dissolved Oxygen (DO)		mg/L	**2.77**	**3.89**	**7**	**0.72**	**11.75**	**0.5**
Dissolved Oxygen (percentage)		%	**23.4**	**33.8**	**66.7**	**7**	**114.8**	**5.7**
Flow		L/S	**18.67**	NA	**0.1**	**0**	**0.0073**	**0.015**
Dissolved Metals			NA	NA				
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L	**5.09**	**0.34**	NA	NA	**940**	**1040**
Antimony, dissolved	--	mg/L	< 0.02	< 0.02	NA	NA	**1.71**	**2.04**
Arsenic, dissolved	0.005	mg/L	< 0.02	< 0.02	NA	NA	**385**	**352**
Barium, dissolved	--	mg/L	**0.027**	**0.019**	NA	NA	< 0.25	< 0.25
Beryllium, dissolved	--	mg/L	< 0.02	< 0.02	NA	NA	< 0.5	< 0.5
Bismuth, dissolved		mg/L	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L	< 2	< 2	NA	NA	< 50	< 50
Cadmium, dissolved	Variable [b]	mg/L	**1.31**	**0.63**	NA	NA	**60.9**	**62.6**
Calcium, dissolved	--	mg/L	**502**	**479**	NA	NA	**360**	**423**
Chromium, dissolved	0.0089	mg/L	< 0.02	< 0.02	NA	NA	**0.92**	**0.92**
Cobalt, dissolved	--	mg/L	**2.91**	**2.26**	NA	NA	**22.5**	**23.1**
Copper, dissolved	0.002	mg/L	**1.73**	**0.208**	NA	NA	**1100**	**1030**
Ferrous Iron, dissolved	--	mg/L	**912**	**700**	NA	NA	**7290**	**10500**
Iron, dissolved	0.3	mg/L	**821**	**579**	NA	NA	**10400**	**13000**
Lead, dissolved	0.001	mg/L	**0.042**	< 0.01	NA	NA	**4.98**	**2.62**
Lithium, dissolved	--	mg/L	**0.13**	**0.22**	NA	NA	**2.6**	< 2.5
Magnesium, dissolved	--	mg/L	**1470**	**1390**	NA	NA	**1110**	**1370**
Manganese, dissolved	--	mg/L	**169**	**142**	NA	NA	**841**	**837**
Mercury, dissolved	0.000026	mg/L	**0.000024**	< 0.00001	NA	NA	**0.000056**	**0.00338**
Molybdenum, dissolved	0.073	mg/L	< 0.01	< 0.01	NA	NA	< 0.25	< 0.25
Nickel, dissolved	0.025	mg/L	**3.35**	**2.69**	NA	NA	**19.7**	**18.2**
Potassium, dissolved	--	mg/L	**16**	**16**	NA	NA	< 250	< 250
Selenium, dissolved	0.001	mg/L	< 0.02	< 0.02	NA	NA	< 0.5	< 0.5
Silicon, dissolved	--	mg/L	**12.1**	**9.52**	NA	NA	**47**	**64.3**
Silver, dissolved	0.0001	mg/L	< 0.002	< 0.002	NA	NA	< 0.05	< 0.05
Sodium, dissolved	--	mg/L	**56**	**53**	NA	NA	< 250	< 250
Strontium, dissolved	--	mg/L	**3.96**	**3.79**	NA	NA	**3.3**	**1.1**
Thallium, dissolved	0.0008	mg/L	**0.0028**	**0.0024**	NA	NA	< 0.05	< 0.05
Tin, dissolved		mg/L	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L	< 2	< 2	NA	NA	< 50	< 50
Uranium, dissolved	0.015	mg/L	**0.0252**	**0.0124**	NA	NA	**2.6**	**2.98**
Vanadium, dissolved	--	mg/L	< 0.2	< 0.2	NA	NA	< 5	< 5
Zinc, dissolved	0.03	mg/L	**1690**	**1260**	NA	NA	**35400**	**35800**
Zirconium hydride, dissolved		mg/L	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	SRK-FD31		SRK-FD32	SRK-FD35	SRK-FD37	
		Sample ID	SRK-FD31_SESP13	SRK-FD31_SEFL13	SRK-FD32-SESP13	SRK-FD35-SEFL13	SRK-FD37_SESP13	SRK-FD37_SEFL13
		Sample Date	6/11/2013	9/12/2013	6/11/2013	9/11/2013	6/10/2013	9/11/2013
Analyte	**Screening Level**	**Screening Level**						
General Chemistry								
Acidity (CaCO3)	--	mg/L	NA	NA	NA	NA	NA	NA
Acidity, hot peroxide	--	mg/L	**4090**	**2920 J**	NA	NA	**67600**	**86300 J**
Alkalinity, Bicarbonate	--	mg/L	< 1	**44.4**	NA	NA	NA	NA
Alkalinity, Total	--	mg/L	< 1	**44.4**	NA	NA	NA	NA
Alkalinity: Carbonate As Caco3	--	mg/L	< 1	< 2	NA	NA	NA	NA
Alkalinity: Hydroxide		mg/L	< 1	< 2	NA	NA	NA	NA
Ammonia-N	0.019	mg/L	**0.673**	**0.724**	NA	NA	< 0.0123	0.0141
Chloride	120	mg/L	**< 25**	**< 25**	NA	NA	< 50	< 50
Dissolved organic carbon	--	mg/L	**< 8.76**	**6.7**	NA	NA	28.7	43.9
Fluoride	0.12	mg/L	**2.6**	**1.4**	NA	NA	16.1	25.1
Free Cyanide	0.005	mg/L	**< 0.02**	**< 0.005**	NA	NA	< 0.02	< 0.5
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	**2.6**	**2.45**	NA	NA	< 0.5	< 0.5
Nitrite as N	0.06	mg/L	**< 0.05**	**< 0.05**	NA	NA	< 0.1	< 0.1
ortho-Phosphate, dissolved	--	mg/L	**< 0.001**	**< 0.001**	NA	NA	47.7 J	47 J
pH		pH Units	**4.05 J**	**5.11 J**	NA	NA	NA	NA
Phosphorus, dissolved	0.01	mg/L	**< 1.5**	**< 3**	NA	NA	19	19
Silica, dissolved	--	mg/L	**25.8**	**20.4**	NA	NA	100	137
Sulfate	--	mg/L	**12400**	**9920**	NA	NA	89800	104000
Sulfate, dissolved		mg/L	**NA**	**NA**	NA	NA	NA	NA
Sulfur, dissolved	--	mg/L	**3850**	**3230**	NA	NA	27800	33500
Temperature, Lab		Degree Celcius	**NA**	**NA**	NA	NA	NA	NA
Total Dissolved Solids	--	mg/L	**19500**	**16300**	NA	NA	146000	191000 J
Total Suspended Solids	--	mg/L	**160**	**196**	NA	NA	213	134

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Screening Level	Location	SRK-FD40			SRK-FD44	SRK-FD49		SRK-FD51	
			Sample ID	SRK-FD40-SESP13	SRK-FD40_SEFL13	SRK-FD940_SEFL13	SRK-FD44-SESP13	SRK-FD49-SESP13	SRK-FD49_SESP13	SRK-FD51-SESP13	SRK-FD51_SEFL13
			Sample Date	6/12/2013	9/13/2013	9/13/2013	6/10/2013	6/14/2013	7/3/2013	6/12/2013	9/17/2013
Field Parameters											
Conductivity, Field		mS / cm / Degree Celcius		**2.064**	**1.594**	NA	**3.064**	**3.994**	3.416	**1.187**	**0.681**
pH, Field		pH Units		**1.84**	**2.62**	NA	**7.86**	NA	6.49	**2.94**	**4.2**
Temperature, Field		Degree Celcius		**1.01**	**7.03**	NA	**17.04**	**12.68**	9.67	**13.19**	**11.25**
Oxidation Reduction Potential		mV		**652.4**	**584.4**	NA	**205.8**	**387.4**	211.2	**489.5**	**266.6**
Dissolved Oxygen (DO)		mg/L		**11.94**	**9.89**	NA	**7.25**	**10.26**	NA	**6.13**	**9.95**
Dissolved Oxygen (percentage)		%		**84.6**	**81.9**	NA	**75.6**	**97.9**	NA	**58.6**	**90.9**
Flow		L/S		**0.48**	**10**	NA	**2**	**0.025**	0.00002	**0.1**	**0.025**
Dissolved Metals											
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L		NA	**10.1**	**10.2**	NA	NA	**0.0485**	NA	**0.0514**
Antimony, dissolved	--	mg/L		NA	< 0.001	< 0.001	NA	NA	< 0.0002	NA	< 0.0001
Arsenic, dissolved	0.005	mg/L		NA	< 0.001	< 0.001	NA	NA	< 0.0002	NA	**0.00018**
Barium, dissolved	--	mg/L		NA	**0.0193**	**0.0195**	NA	NA	**0.0186**	NA	**0.019**
Beryllium, dissolved	--	mg/L		NA	**0.0041**	**0.0039**	NA	NA	< 0.0002	NA	< 0.0001
Bismuth, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L		NA	< 0.1	< 0.1	NA	NA	< 0.02	NA	< 0.01
Cadmium, dissolved	Variable [b]	mg/L		NA	**0.0854**	**0.0867**	NA	NA	**0.00256**	NA	**0.00718**
Calcium, dissolved	--	mg/L		NA	**56.9**	**55.9**	NA	NA	**229**	NA	**72.4**
Chromium, dissolved	0.0089	mg/L		NA	**0.0078**	**0.0083**	NA	NA	< 0.0002	NA	< 0.0001
Cobalt, dissolved	--	mg/L		NA	**0.186**	**0.189**	NA	NA	**0.0187**	NA	**0.00644**
Copper, dissolved	0.002	mg/L		NA	**1.26**	**1.28**	NA	NA	**0.0009**	NA	**0.0705**
Ferrous Iron, dissolved	--	mg/L		NA	**1.32 J**	**0.4 J**	NA	NA	**0.212**	NA	**0.069**
Iron, dissolved	0.3	mg/L		NA	**13.8**	**13.6**	NA	NA	< 0.03	NA	**0.075**
Lead, dissolved	0.001	mg/L		NA	**0.328**	**0.329**	NA	NA	**0.00085**	NA	**0.0416**
Lithium, dissolved	--	mg/L		NA	**0.0378**	**0.0378**	NA	NA	**0.156**	NA	**0.0271**
Magnesium, dissolved	--	mg/L		NA	**65.6**	**65.4**	NA	NA	**500**	NA	**28.8**
Manganese, dissolved	--	mg/L		NA	**4.32**	**4.27**	NA	NA	**1.25**	NA	**0.0305**
Mercury, dissolved	0.000026	mg/L		NA	< 0.00001	**0.000053 J**	NA	NA	< 0.00001	NA	< 0.00001
Molybdenum, dissolved	0.073	mg/L		NA	< 0.0005	< 0.0005	NA	NA	< 0.0001	NA	< 0.00005
Nickel, dissolved	0.025	mg/L		NA	**0.155**	**0.154**	NA	NA	**0.131**	NA	**0.0119**
Potassium, dissolved	--	mg/L		NA	**1.16**	**1.19**	NA	NA	**10.1**	NA	**2.55**
Selenium, dissolved	0.001	mg/L		NA	< 0.001	< 0.001	NA	NA	**0.00178**	NA	**0.00025**
Silicon, dissolved	--	mg/L		NA	**9.48**	**9.29**	NA	NA	**1.75**	NA	**5.98**
Silver, dissolved	0.0001	mg/L		NA	**0.00047**	**0.00051**	NA	NA	< 0.00002	NA	**0.000059**
Sodium, dissolved	--	mg/L		NA	**3.87**	**4.3**	NA	NA	**7.42**	NA	**3.39**
Strontium, dissolved	--	mg/L		NA	**0.257**	**0.266**	NA	NA	**0.615**	NA	**0.259**
Thallium, dissolved	0.0008	mg/L		NA	**0.00048**	**0.00048**	NA	NA	**0.000246**	NA	**0.000366**
Tin, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L		NA	< 0.1	< 0.1	NA	NA	< 0.02	NA	< 0.01
Uranium, dissolved	0.015	mg/L		NA	**0.00903**	**0.00898**	NA	NA	**0.000036**	NA	**0.000138**
Vanadium, dissolved	--	mg/L		NA	< 0.01	< 0.01	NA	NA	< 0.002	NA	< 0.001
Zinc, dissolved	0.03	mg/L		NA	**51.8**	**52.7**	NA	NA	**1.81**	NA	**2.18**
Zirconium hydride, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	SRK-FD40			SRK-FD44	SRK-FD49		SRK-FD51	
		Sample ID	SRK-FD40-SESP13	SRK-FD40_SEFL13	SRK-FD940_SEFL13	SRK-FD44-SESP13	SRK-FD49-SESP13	SRK-FD49_SESP13	SRK-FD51-SESP13	SRK-FD51_SEFL13
		Sample Date	6/12/2013	9/13/2013	9/13/2013	6/10/2013	6/14/2013	7/3/2013	6/12/2013	9/17/2013
Analyte	**Screening Level**	**Screening Level**								
General Chemistry										
Acidity (CaCO3)	--	mg/L	NA	**232**	**273**	NA	NA	NA	NA	**9.7**
Acidity, hot peroxide	--	mg/L	NA	NA	NA	NA	NA	< 25	NA	NA
Alkalinity, Bicarbonate	--	mg/L	NA	NA	NA	NA	NA	**34.7**	NA	NA
Alkalinity, Total	--	mg/L	NA	NA	NA	NA	NA	**34.7**	NA	NA
Alkalinity: Carbonate As Caco3	--	mg/L	NA	NA	NA	NA	NA	< 2	NA	NA
Alkalinity: Hydroxide		mg/L	NA	NA	NA	NA	NA	< 2	NA	NA
Ammonia-N	0.019	mg/L	NA	**0.0308**	**0.0299**	NA	NA	**< 0.005**	NA	**< 0.005**
Chloride	120	mg/L	NA	**< 5**	**< 5**	NA	NA	**< 10**	NA	**0.73**
Dissolved organic carbon	--	mg/L	NA	**1.28**	**1.26**	NA	NA	**2.29**	NA	**1.27**
Fluoride	0.12	mg/L	NA	**0.6**	**0.59**	NA	NA	**< 0.4**	NA	**0.287**
Free Cyanide	0.005	mg/L	NA	**NA**	**NA**	NA	NA	**< 0.005**	NA	**NA**
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	NA	**0.162**	**0.157**	NA	NA	**< 0.1**	NA	**0.161**
Nitrite as N	0.06	mg/L	NA	**< 0.01**	**< 0.01**	NA	NA	**< 0.02**	NA	**< 0.001**
ortho-Phosphate, dissolved	--	mg/L	NA	**0.0019 J**	**0.0019 J**	NA	NA	**< 0.001**	NA	**< 0.001**
pH		pH Units	NA	**NA**	**NA**	NA	NA	**7.49 J**	NA	**NA**
Phosphorus, dissolved	0.01	mg/L	NA	**< 0.3**	**< 0.3**	NA	NA	**< 0.3**	NA	**< 0.3**
Silica, dissolved	--	mg/L	NA	**20.3**	**19.9**	NA	NA	**3.74**	NA	**12.8**
Sulfate	--	mg/L	NA	**647**	**647**	NA	NA	**2450**	NA	**274**
Sulfate, dissolved		mg/L	NA	**NA**	**NA**	NA	NA	**NA**	NA	**NA**
Sulfur, dissolved	--	mg/L	NA	**215**	**212**	NA	NA	**828**	NA	**91.1**
Temperature, Lab		Degree Celcius	NA	**NA**	**NA**	NA	NA	**NA**	NA	**NA**
Total Dissolved Solids	--	mg/L	NA	**1040**	**1040**	NA	NA	**3960**	NA	**484**
Total Suspended Solids	--	mg/L	NA	**12.4 J**	**129 J**	NA	NA	**254**	NA	**9.9**

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Location	SRK-FD52	SRK-FD53	SRK-FD54		SRK-FD55	SRK-GD01	
		Sample ID	SRK-FD52-SESP13	SRK-FD53-SESP13	SRK-FD54-SESP13	SRK-FD54_SEFL13	SRK-FD55-SESP13	SRK-GD01_SESP13	SRK-GD01_SEFL13
		Sample Date	6/11/2013	6/14/2013	6/11/2013	9/17/2013	6/11/2013	6/13/2013	9/14/2013
		Screening Level							
Field Parameters									
Conductivity, Field		mS / cm / Degree Celcius	**8.347**	**1.057**	**10.63**	**12.89**	**1.945**	**1.12**	**5.879**
pH, Field		pH Units	**6.57**	**6.57**	**6**	**5.7**	**6.89**	NA	**6.98**
Temperature, Field		Degree Celcius	**8.65**	**10.04**	**8.97**	**5.5**	**15.9**	NA	**3.36**
Oxidation Reduction Potential		mV	**172**	**42**	**193**	**120.1**	**173.3**	**143.3**	**75.9**
Dissolved Oxygen (DO)		mg/L	**5.17**	**6.05**	**6.78**	**4.14**	**7.42**	**0.83**	**6.23**
Dissolved Oxygen (percentage)		%	**45.9**	**52**	**60.8**	**34.4**	**74.9**	**11.8**	**47.7**
Flow		L/S	**0**	**0.1**	**5**	**0.215**	**0**	3	NA
Dissolved Metals									
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L	NA	NA	NA	**0.3**	NA	< 0.0109	< 0.002
Antimony, dissolved	--	mg/L	NA	NA	NA	< 0.02	NA	**0.00064**	**0.00076**
Arsenic, dissolved	0.005	mg/L	NA	NA	NA	< 0.02	NA	< 0.00156	**0.00268**
Barium, dissolved	--	mg/L	NA	NA	NA	**0.025**	NA	**0.0359**	**0.0275**
Beryllium, dissolved	--	mg/L	NA	NA	NA	< 0.02	NA	< 0.0001	< 0.0002
Bismuth, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L	NA	NA	NA	< 2	NA	< 0.01	< 0.02
Cadmium, dissolved	Variable [b]	mg/L	NA	NA	NA	**0.815**	NA	< 0.00317	**0.00106**
Calcium, dissolved	--	mg/L	NA	NA	NA	**503**	NA	**284**	**341**
Chromium, dissolved	0.0089	mg/L	NA	NA	NA	< 0.02	NA	< 0.0001	< 0.0002
Cobalt, dissolved	--	mg/L	NA	NA	NA	**3.53**	NA	< 0.00272	**0.00109**
Copper, dissolved	0.002	mg/L	NA	NA	NA	< 0.04	NA	< 0.00229	**0.00151**
Ferrous Iron, dissolved	--	mg/L	NA	NA	NA	< 0.2	NA	< 0.044	< 0.02
Iron, dissolved	0.3	mg/L	NA	NA	NA	< 0.15	NA	< 0.03	< 0.03
Lead, dissolved	0.001	mg/L	NA	NA	NA	< 0.01	NA	< 0.00086	**0.00106**
Lithium, dissolved	--	mg/L	NA	NA	NA	**0.22**	NA	**0.0228**	**0.0308**
Magnesium, dissolved	--	mg/L	NA	NA	NA	**2370**	NA	**208**	**309**
Manganese, dissolved	--	mg/L	NA	NA	NA	**322**	NA	< 0.065	**0.046**
Mercury, dissolved	0.000026	mg/L	NA	NA	NA	< 0.00001	NA	< 0.00001	< 0.00001
Molybdenum, dissolved	0.073	mg/L	NA	NA	NA	< 0.01	NA	**0.000722**	**0.00083**
Nickel, dissolved	0.025	mg/L	NA	NA	NA	**8**	NA	**0.198**	**0.229**
Potassium, dissolved	--	mg/L	NA	NA	NA	**16**	NA	**4.78**	**6.5**
Selenium, dissolved	0.001	mg/L	NA	NA	NA	< 0.02	NA	**0.00054**	**0.00056**
Silicon, dissolved	--	mg/L	NA	NA	NA	**18.7**	NA	**3.21**	**3.85**
Silver, dissolved	0.0001	mg/L	NA	NA	NA	< 0.002	NA	< 0.00001	< 0.00002
Sodium, dissolved	--	mg/L	NA	NA	NA	**34**	NA	**5.54**	**8.53**
Strontium, dissolved	--	mg/L	NA	NA	NA	**2.34**	NA	**0.871**	**1.2**
Thallium, dissolved	0.0008	mg/L	NA	NA	NA	< 0.002	NA	**0.000751**	**0.00028**
Tin, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L	NA	NA	NA	< 2	NA	< 0.01	< 0.02
Uranium, dissolved	0.015	mg/L	NA	NA	NA	< 0.002	NA	**0.0245**	**0.0457**
Vanadium, dissolved	--	mg/L	NA	NA	NA	< 0.2	NA	< 0.001	< 0.002
Zinc, dissolved	0.03	mg/L	NA	NA	NA	**1280**	NA	< 6.64	**2.25**
Zirconium hydride, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	SRK-FD52	SRK-FD53	SRK-FD54		SRK-FD55	SRK-GD01	
		Sample ID	SRK-FD52-SESP13	SRK-FD53-SESP13	SRK-FD54-SESP13	SRK-FD54_SEFL13	SRK-FD55-SESP13	SRK-GD01_SESP13	SRK-GD01_SEFL13
		Sample Date	6/11/2013	6/14/2013	6/11/2013	9/17/2013	6/11/2013	6/13/2013	9/14/2013
Analyte	**Screening Level**	**Screening Level**							
General Chemistry									
Acidity (CaCO3)	--	mg/L	NA	NA	NA	**1830**	NA	**26.8**	**36.1**
Acidity, hot peroxide	--	mg/L	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Bicarbonate	--	mg/L	NA	NA	NA	**164**	NA	**359 J**	**585**
Alkalinity, Total	--	mg/L	NA	NA	NA	**164**	NA	**359 J**	**585**
Alkalinity: Carbonate As Caco3	--	mg/L	NA	NA	NA	< 2	NA	< 2	< 20
Alkalinity: Hydroxide		mg/L	NA	NA	NA	< 2	NA	< 2	< 20
Ammonia-N	0.019	mg/L	NA	NA	NA	1.56	NA	**< 0.0107**	**< 0.005**
Chloride	120	mg/L	NA	NA	NA	< 25	NA	**< 10**	**< 10**
Dissolved organic carbon	--	mg/L	NA	NA	NA	15.6	NA	**< 3.64**	**2.71**
Fluoride	0.12	mg/L	NA	NA	NA	1.6	NA	**< 0.4**	**< 0.4**
Free Cyanide	0.005	mg/L	NA	NA	NA	< 0.05	NA	**< 0.01**	**< 0.005**
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	NA	NA	NA	0.64	NA	**5.79 J**	**5.76**
Nitrite as N	0.06	mg/L	NA	NA	NA	< 0.05	NA	**< 0.02**	**< 0.02**
ortho-Phosphate, dissolved	--	mg/L	NA	NA	NA	0.0021 J	NA	**< 0.001**	**< 0.001**
pH		pH Units	NA	NA	NA	6.79 J	NA	**7.59 J**	**7.77 J**
Phosphorus, dissolved	0.01	mg/L	NA	NA	NA	< 1.5	NA	**< 0.3**	**< 0.3**
Silica, dissolved	--	mg/L	NA	NA	NA	40	NA	**6.87**	**8.24**
Sulfate	--	mg/L	NA	NA	NA	13400	NA	**1260 J**	**1570**
Sulfate, dissolved		mg/L	NA	NA	NA	NA	NA	**NA**	**NA**
Sulfur, dissolved	--	mg/L	NA	NA	NA	4470	NA	**388**	**496**
Temperature, Lab		Degree Celcius	NA	NA	NA	NA	NA	**NA**	**NA**
Total Dissolved Solids	--	mg/L	NA	NA	NA	21200	NA	**2190 J**	**2990**
Total Suspended Solids	--	mg/L	NA	NA	NA	387	NA	**3.2 J**	**11**

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Location	SRK-GD02		SRK-GD04	SRK-GD05		SRK-GD06		
		Sample ID	SRK-GD02-SESP13	SRK-GD02-SEFL13	SRK-GD04-SESP13	SRK-GD05_SESP13	SRK-GD05-SEFL13	SRK-GD06_SESP13	SRK-GD06_SEFL13	SRK-GD906_SEFL13
		Sample Date	6/13/2013	9/14/2013	6/13/2013	6/13/2013	9/16/2013	6/13/2013	9/16/2013	9/16/2013
		Screening Level								
Field Parameters										
Conductivity, Field		mS / cm / Degree Celcius	**1.615**	**6.26**	**1.529**	**2.082**	**3.619**	**1.804**	**3.389**	NA
pH, Field		pH Units	NA	**7.02**	NA	NA	**7.97**	NA	**7.56**	NA
Temperature, Field		Degree Celcius	NA	**4.96**	NA	NA	**4.28**	NA	**3.52**	NA
Oxidation Reduction Potential		mV	**137.2**	**85.5**	**120.9**	**107.3**	**57.7**	**120.5**	**83.7**	NA
Dissolved Oxygen (DO)		mg/L	**0.71**	**4.97**	**0.96**	**1.67**	**10.39**	**0.93**	**9.69**	NA
Dissolved Oxygen (percentage)		%	**9.8**	**39.8**	**12.7**	**21.3**	**80.7**	**13.5**	**73.9**	NA
Flow		L/S	3	**0.029**	0.05	0.5	**0.045**	0.24	**0.091**	NA
Dissolved Metals										
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L	NA	NA	NA	< 0.0076	NA	< 0.0066	**0.0048 J**	**0.0021 J**
Antimony, dissolved	--	mg/L	NA	NA	NA	**0.00126**	NA	**0.00103**	**0.00074**	**0.00082**
Arsenic, dissolved	0.005	mg/L	NA	NA	NA	< 0.0043	NA	< 0.00395	**0.00343**	**0.00341**
Barium, dissolved	--	mg/L	NA	NA	NA	**0.0228**	NA	**0.0168**	**0.0148**	**0.015**
Beryllium, dissolved	--	mg/L	NA	NA	NA	< 0.0002	NA	< 0.0002	< 0.0002	< 0.0002
Bismuth, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L	NA	NA	NA	< 0.02	NA	< 0.02	< 0.02	< 0.02
Cadmium, dissolved	Variable [b]	mg/L	NA	NA	NA	< 0.00165	NA	< 0.00248	**0.00179**	**0.00179**
Calcium, dissolved	--	mg/L	NA	NA	NA	**439**	NA	**444**	**405**	**402**
Chromium, dissolved	0.0089	mg/L	NA	NA	NA	< 0.0002	NA	< 0.0002	< 0.0002	< 0.0002
Cobalt, dissolved	--	mg/L	NA	NA	NA	< 0.00281	NA	< 0.00126	**0.00079**	**0.00082**
Copper, dissolved	0.002	mg/L	NA	NA	NA	< 0.0019	NA	< 0.00179	**0.00146**	**0.00151**
Ferrous Iron, dissolved	--	mg/L	NA	NA	NA	< 0.02	NA	< 0.02	< 0.02	< 0.2
Iron, dissolved	0.3	mg/L	NA	NA	NA	< 0.03	NA	< 0.03	< 0.03	< 0.03
Lead, dissolved	0.001	mg/L	NA	NA	NA	< 0.00168	NA	< 0.00235	**0.00111**	**0.00101**
Lithium, dissolved	--	mg/L	NA	NA	NA	**0.0458**	NA	**0.0517**	**0.0405**	**0.039**
Magnesium, dissolved	--	mg/L	NA	NA	NA	**401**	NA	**388**	**333**	**327**
Manganese, dissolved	--	mg/L	NA	NA	NA	< 0.0618	NA	< 0.082	**0.0106**	**0.00965**
Mercury, dissolved	0.000026	mg/L	NA	NA	NA	< 0.00001	NA	< 0.00001	< 0.00001	< 0.00001
Molybdenum, dissolved	0.073	mg/L	NA	NA	NA	**0.00094**	NA	**0.00079**	**0.00042**	**0.00051**
Nickel, dissolved	0.025	mg/L	NA	NA	NA	**0.377**	NA	**0.619**	**0.47**	**0.473**
Potassium, dissolved	--	mg/L	NA	NA	NA	**7.51**	NA	**7.81**	**7.15**	**7.13**
Selenium, dissolved	0.001	mg/L	NA	NA	NA	**0.00053**	NA	**0.00025**	< 0.0002	< 0.0002
Silicon, dissolved	--	mg/L	NA	NA	NA	**4.72**	NA	**4.04**	**4.89**	**4.92**
Silver, dissolved	0.0001	mg/L	NA	NA	NA	< 0.00002	NA	< 0.00002	< 0.00002	< 0.00002
Sodium, dissolved	--	mg/L	NA	NA	NA	**13.9**	NA	**15.3**	**12.8**	**12.9**
Strontium, dissolved	--	mg/L	NA	NA	NA	**1.63**	NA	**1.87**	**1.59**	**1.59**
Thallium, dissolved	0.0008	mg/L	NA	NA	NA	**0.00049**	NA	**0.000563**	**0.000543**	**0.000537**
Tin, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L	NA	NA	NA	< 0.02	NA	< 0.02	< 0.02	< 0.02
Uranium, dissolved	0.015	mg/L	NA	NA	NA	**0.0588**	NA	**0.0664**	**0.0596**	**0.0573**
Vanadium, dissolved	--	mg/L	NA	NA	NA	< 0.002	NA	< 0.002	< 0.002	< 0.002
Zinc, dissolved	0.03	mg/L	NA	NA	NA	< 2.95	NA	< 4.08	**3.15**	**3.07**
Zirconium hydride, dissolved		mg/L	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	SRK-GD02		SRK-GD04	SRK-GD05		SRK-GD06		
		Sample ID	SRK-GD02-SESP13	SRK-GD02-SEFL13	SRK-GD04-SESP13	SRK-GD05_SESP13	SRK-GD05-SEFL13	SRK-GD06_SESP13	SRK-GD06_SEFL13	SRK-GD906_SEFL13
		Sample Date	6/13/2013	9/14/2013	6/13/2013	6/13/2013	9/16/2013	6/13/2013	9/16/2013	9/16/2013
Analyte	**Screening Level**	**Screening Level**								
General Chemistry										
Acidity (CaCO3)	--	mg/L	NA	NA	NA	**16.6**	NA	**24.6**	**5.9**	**4.8**
Acidity, hot peroxide	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Bicarbonate	--	mg/L	NA	NA	NA	**807 J**	NA	**779 J**	**643**	**659**
Alkalinity, Total	--	mg/L	NA	NA	NA	**807 J**	NA	**779 J**	**643**	**659**
Alkalinity: Carbonate As Caco3	--	mg/L	NA	NA	NA	< 20	NA	< 20	< 20	< 20
Alkalinity: Hydroxide		mg/L	NA	NA	NA	< 20	NA	< 20	< 20	< 20
Ammonia-N	0.019	mg/L	NA	NA	NA	**< 0.005**	NA	**< 0.0062**	**< 0.005**	**< 0.005**
Chloride	120	mg/L	NA	NA	NA	**< 10**	NA	**< 10**	**< 10**	**< 10**
Dissolved organic carbon	--	mg/L	NA	NA	NA	**< 3.59**	NA	**8.84 J**	**2.9**	**2.81**
Fluoride	0.12	mg/L	NA	NA	NA	**< 0.4**	NA	**< 0.4**	**< 0.4**	**< 0.4**
Free Cyanide	0.005	mg/L	NA	NA	NA	**< 0.01**	NA	**< 0.01**	**< 0.005**	**< 0.005**
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	NA	NA	NA	**10.2 J**	NA	**12.5 J**	**6.15**	**6.1**
Nitrite as N	0.06	mg/L	NA	NA	NA	**< 0.02**	NA	**< 0.02**	**< 0.02**	**< 0.02**
ortho-Phosphate, dissolved	--	mg/L	NA	NA	NA	**0.0033 J**	NA	**0.0011 J**	**< 0.001**	**0.0011**
pH		pH Units	NA	NA	NA	**8.09 J**	NA	**8.03 J**	**8.21 J**	**8.23 J**
Phosphorus, dissolved	0.01	mg/L	NA	NA	NA	**< 0.3**	NA	**< 0.3**	**< 0.3**	**< 0.3**
Silica, dissolved	--	mg/L	NA	NA	NA	**10.1**	NA	**8.64**	**10.5**	**10.5**
Sulfate	--	mg/L	NA	NA	NA	**2330 J**	NA	**2260 J**	**1860**	**1830**
Sulfate, dissolved		mg/L	NA	NA	NA	**NA**	NA	**NA**	**NA**	**NA**
Sulfur, dissolved	--	mg/L	NA	NA	NA	**686**	NA	**667**	**568**	**561**
Temperature, Lab		Degree Celcius	NA	NA	NA	**NA**	NA	**NA**	**NA**	**NA**
Total Dissolved Solids	--	mg/L	NA	NA	NA	**4230 J**	NA	**3950 J**	**3430**	**3480**
Total Suspended Solids	--	mg/L	NA	NA	NA	**4.4 J**	NA	**3.2 J**	**2.4**	**< 1**

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Screening Level	Location	SRK-GD07		SRK-GD09	SRK-GD10		SRK-GD11	
			Sample ID	SRK-GD07-SESP13	SRK-GD07-SEFL13	SRK-GD09_SESP13	SRK-GD10-SESP13	SRK-GD10-SEFL13	SRK-GD11_SESP13	SRK-GD911_SESP13
			Sample Date	6/14/2013	9/16/2013	6/13/2013	6/14/2013	9/14/2013	6/13/2013	6/13/2013
Field Parameters										
Conductivity, Field		mS / cm / Degree Celcius		**1.157**	**1.467**	**0.589**	**0.36**	**0.504**	**0.799**	NA
pH, Field		pH Units		**7.16**	**7.3**	**7.45**	**7.67**	**7.92**	NA	NA
Temperature, Field		Degree Celcius		**1.9**	**5.2**	**7.9**	**3.9**	**5.86**	NA	NA
Oxidation Reduction Potential		mV		**622.4**	**-88.1**	**202.5**	NA	**163.4**	**174.5**	NA
Dissolved Oxygen (DO)		mg/L		**2.43**	**3.88**	**7.65**	**3.3**	**9.7**	**6.42**	NA
Dissolved Oxygen (percentage)		%		**29.9**	**22.7**	**64.8**	**41.4**	**76.6**	**8**	NA
Flow		L/S		**0**	**0**	**8**	**1**	**0**	3	NA
Dissolved Metals										
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L		NA	NA	< 0.0119	NA	NA	< 0.0047	< 0.005
Antimony, dissolved	--	mg/L		NA	NA	< 0.0001	NA	NA	**0.00064**	**0.00066**
Arsenic, dissolved	0.005	mg/L		NA	NA	< 0.00035	NA	NA	< 0.00085	< 0.00083
Barium, dissolved	--	mg/L		NA	NA	**0.0618**	NA	NA	**0.0158**	**0.0171**
Beryllium, dissolved	--	mg/L		NA	NA	< 0.0001	NA	NA	< 0.0001	< 0.0001
Bismuth, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L		NA	NA	< 0.01	NA	NA	< 0.01	< 0.01
Cadmium, dissolved	Variable [b]	mg/L		NA	NA	< 0.000021	NA	NA	< 0.00536	< 0.00527
Calcium, dissolved	--	mg/L		NA	NA	**92**	NA	NA	**195**	**191**
Chromium, dissolved	0.0089	mg/L		NA	NA	**0.00013**	NA	NA	< 0.0001	< 0.0001
Cobalt, dissolved	--	mg/L		NA	NA	< 0.0001	NA	NA	**0.0471**	**0.0465**
Copper, dissolved	0.002	mg/L		NA	NA	< 0.0004	NA	NA	< 0.0914	< 0.0904
Ferrous Iron, dissolved	--	mg/L		NA	NA	< 0.02	NA	NA	< 0.027	< 0.02
Iron, dissolved	0.3	mg/L		NA	NA	< 0.03	NA	NA	< 0.03	< 0.033
Lead, dissolved	0.001	mg/L		NA	NA	< 0.000278	NA	NA	< 0.00246	< 0.00281
Lithium, dissolved	--	mg/L		NA	NA	**0.00111**	NA	NA	**0.0157**	**0.0171**
Magnesium, dissolved	--	mg/L		NA	NA	**37.8**	NA	NA	**161**	**162**
Manganese, dissolved	--	mg/L		NA	NA	< 0.00159	NA	NA	**1.17**	**1.15**
Mercury, dissolved	0.000026	mg/L		NA	NA	< 0.00001	NA	NA	< 0.00001	< 0.00001
Molybdenum, dissolved	0.073	mg/L		NA	NA	**0.000075**	NA	NA	**0.00056**	**0.000567**
Nickel, dissolved	0.025	mg/L		NA	NA	< 0.0005	NA	NA	**0.243**	**0.238**
Potassium, dissolved	--	mg/L		NA	NA	**0.342**	NA	NA	**2.97**	**2.95**
Selenium, dissolved	0.001	mg/L		NA	NA	**0.00031**	NA	NA	**0.00098**	**0.00091**
Silicon, dissolved	--	mg/L		NA	NA	**2.1**	NA	NA	**2.55**	**2.48**
Silver, dissolved	0.0001	mg/L		NA	NA	< 0.00001	NA	NA	< 0.00001	< 0.00001
Sodium, dissolved	--	mg/L		NA	NA	**1.06**	NA	NA	**3.56**	**3.26**
Strontium, dissolved	--	mg/L		NA	NA	**0.271**	NA	NA	**0.703**	**0.725**
Thallium, dissolved	0.0008	mg/L		NA	NA	< 0.00001	NA	NA	**0.00051**	**0.000574**
Tin, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L		NA	NA	< 0.01	NA	NA	< 0.01	< 0.01
Uranium, dissolved	0.015	mg/L		NA	NA	**0.00112**	NA	NA	**0.0122**	**0.0129**
Vanadium, dissolved	--	mg/L		NA	NA	< 0.001	NA	NA	< 0.001	< 0.001
Zinc, dissolved	0.03	mg/L		NA	NA	< 0.0101	NA	NA	< 7.29	< 7.17
Zirconium hydride, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	SRK-GD07		SRK-GD09	SRK-GD10		SRK-GD11	
		Sample ID	SRK-GD07-SESP13	SRK-GD07-SEFL13	SRK-GD09_SESP13	SRK-GD10-SESP13	SRK-GD10-SEFL13	SRK-GD11_SESP13	SRK-GD911_SESP13
		Sample Date	6/14/2013	9/16/2013	6/13/2013	6/14/2013	9/14/2013	6/13/2013	6/13/2013
Analyte	**Screening Level**	**Screening Level**							
General Chemistry									
Acidity (CaCO3)	--	mg/L	NA	NA	< 1	NA	NA	**26.1**	**27.5**
Acidity, hot peroxide	--	mg/L	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Bicarbonate	--	mg/L	NA	NA	**223 J**	NA	NA	**373 J**	**371 J**
Alkalinity, Total	--	mg/L	NA	NA	**223 J**	NA	NA	**373 J**	**371 J**
Alkalinity: Carbonate As Caco3	--	mg/L	NA	NA	< 1	NA	NA	< 2	< 2
Alkalinity: Hydroxide		mg/L	NA	NA	< 1	NA	NA	< 2	< 2
Ammonia-N	0.019	mg/L	NA	NA	< 0.005	NA	NA	**< 0.0067**	**< 0.0069**
Chloride	120	mg/L	NA	NA	< 0.5	NA	NA	**< 5**	**< 5**
Dissolved organic carbon	--	mg/L	NA	NA	< 4.01	NA	NA	**< 2.78**	**< 2.89**
Fluoride	0.12	mg/L	NA	NA	0.119 J	NA	NA	**< 0.2**	**0.21 J**
Free Cyanide	0.005	mg/L	NA	NA	< 0.005	NA	NA	**< 0.01**	**< 0.01**
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	NA	NA	1.86 J	NA	NA	**4.91 J**	**4.94 J**
Nitrite as N	0.06	mg/L	NA	NA	< 0.001	NA	NA	**< 0.01**	**< 0.01**
ortho-Phosphate, dissolved	--	mg/L	NA	NA	< 0.001	NA	NA	**< 0.001**	**< 0.001**
pH		pH Units	NA	NA	8.34 J	NA	NA	**7.62 J**	**7.69 J**
Phosphorus, dissolved	0.01	mg/L	NA	NA	< 0.3	NA	NA	**< 0.3**	**< 0.3**
Silica, dissolved	--	mg/L	NA	NA	4.48	NA	NA	**5.46**	**5.31**
Sulfate	--	mg/L	NA	NA	150 J	NA	NA	**805 J**	**805 J**
Sulfate, dissolved		mg/L	NA	NA	NA	NA	NA	**NA**	**NA**
Sulfur, dissolved	--	mg/L	NA	NA	49.1	NA	NA	**251**	**256**
Temperature, Lab		Degree Celcius	NA	NA	NA	NA	NA	**NA**	**NA**
Total Dissolved Solids	--	mg/L	NA	NA	460 J	NA	NA	**1540 J**	**1530 J**
Total Suspended Solids	--	mg/L	NA	NA	18.6 J	NA	NA	**1.4 J**	**2 J**

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Screening Level	Location	SRK-GD12		SRK-GD13		SRK-GD19	SRK-GD20	SRK-GD23	
			Sample ID	SRK-GD12-SESP13	SRK-GD12_SEFL13	SRK-GD13_SESP13	SRK-GD13_SEFL13	SRK-GD19_SESP13	SRK-GD20-SESP13	SRK-GD23-SESP13	SRK-GD23-SEFL13
			Sample Date	6/14/2013	9/16/2013	6/14/2013	9/14/2013	6/13/2013	6/13/2013	6/13/2013	9/16/2013
Field Parameters											
Conductivity, Field		mS / cm / Degree Celcius		**0.51**	**0.637**	**0.729**	**2.374**	**1.618**	**1.392**	**1.064**	**1.981**
pH, Field		pH Units		**7.79**	**7.74**	**7.52**	**7.7**	NA	NA	**6.76**	**6.36**
Temperature, Field		Degree Celcius		**4.9**	**3.94**	**4.7**	**2.53**	NA	NA	**2.32**	**1.66**
Oxidation Reduction Potential		mV		NA	**125.5**	NA	**34**	**110**	**9.2**	**292.3**	**230.8**
Dissolved Oxygen (DO)		mg/L		**3.08**	**8.5**	**3.09**	**12.66**	**0.95**	**0.82**	**12.51**	**9.57**
Dissolved Oxygen (percentage)		%		**38**	**64.8**	**39.3**	**92.4**	**144**	**12.4**	**91.5**	**69.1**
Flow		L/S		**3**	**0.5**	**0.5**	**1**	0.2	0.3	**0**	**0**
Dissolved Metals											
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L		NA	**0.0021**	< 0.0025	< 0.0097	< 0.01	NA	NA	NA
Antimony, dissolved	--	mg/L		NA	< 0.0001	**0.00043**	**0.00041**	< 0.001	NA	NA	NA
Arsenic, dissolved	0.005	mg/L		NA	**0.00064**	< 0.00331	**0.00248**	< 0.0019	NA	NA	NA
Barium, dissolved	--	mg/L		NA	**0.0861**	**0.0302**	**0.0276**	**0.0121**	NA	NA	NA
Beryllium, dissolved	--	mg/L		NA	< 0.0001	< 0.0001	< 0.0002	< 0.001	NA	NA	NA
Bismuth, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L		NA	< 0.01	< 0.01	< 0.02	< 0.1	NA	NA	NA
Cadmium, dissolved	Variable [b]	mg/L		NA	< 0.00001	< 0.000089	< 0.000089	**0.107**	NA	NA	NA
Calcium, dissolved	--	mg/L		NA	**77.8**	**296**	**304**	**362**	NA	NA	NA
Chromium, dissolved	0.0089	mg/L		NA	< 0.0001	< 0.0001	< 0.0002	< 0.001	NA	NA	NA
Cobalt, dissolved	--	mg/L		NA	< 0.0001	< 0.00062	**0.00044**	**0.603**	NA	NA	NA
Copper, dissolved	0.002	mg/L		NA	**0.00077**	< 0.00142	**0.00145**	< 0.0059	NA	NA	NA
Ferrous Iron, dissolved	--	mg/L		NA	< 0.02	**0.031 J**	**0.042**	**9.81 J**	NA	NA	NA
Iron, dissolved	0.3	mg/L		NA	< 0.03	< 0.03	**0.035**	**9.15**	NA	NA	NA
Lead, dissolved	0.001	mg/L		NA	< 0.00005	< 0.000156	< 0.00149	< 0.0005	NA	NA	NA
Lithium, dissolved	--	mg/L		NA	**0.0019**	**0.0138**	**0.0147**	**0.0437**	NA	NA	NA
Magnesium, dissolved	--	mg/L		NA	**41.5**	**218**	**229**	**258**	NA	NA	NA
Manganese, dissolved	--	mg/L		NA	**0.00116**	< 0.00715	< 0.0104	**10.6**	NA	NA	NA
Mercury, dissolved	0.000026	mg/L		NA	< 0.00001	< 0.00001	< 0.00001	< 0.00001	NA	NA	NA
Molybdenum, dissolved	0.073	mg/L		NA	**0.000149**	**0.00114**	**0.00141**	< 0.0005	NA	NA	NA
Nickel, dissolved	0.025	mg/L		NA	**0.00108**	**0.12**	**0.0945**	**1.57**	NA	NA	NA
Potassium, dissolved	--	mg/L		NA	**0.465**	**3.29**	**3.28**	**5.4**	NA	NA	NA
Selenium, dissolved	0.001	mg/L		NA	< 0.0001	**0.00339**	**0.00248**	**0.0028**	NA	NA	NA
Silicon, dissolved	--	mg/L		NA	**4.15**	**4.22**	**4.8**	**2.42**	NA	NA	NA
Silver, dissolved	0.0001	mg/L		NA	< 0.00001	< 0.00001	< 0.00002	< 0.0001	NA	NA	NA
Sodium, dissolved	--	mg/L		NA	**1.37**	**5.48**	**5.57**	**4.12**	NA	NA	NA
Strontium, dissolved	--	mg/L		NA	**0.315**	**1.09**	**1.14**	**1.19**	NA	NA	NA
Thallium, dissolved	0.0008	mg/L		NA	< 0.00001	**0.000073**	**0.000063**	**0.0091**	NA	NA	NA
Tin, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L		NA	< 0.01	< 0.01	< 0.02	< 0.1	NA	NA	NA
Uranium, dissolved	0.015	mg/L		NA	**0.00146**	**0.0274**	**0.0333**	**0.00219**	NA	NA	NA
Vanadium, dissolved	--	mg/L		NA	< 0.001	< 0.001	< 0.002	< 0.01	NA	NA	NA
Zinc, dissolved	0.03	mg/L		NA	**0.0016**	< 0.301	< 0.231	**84**	NA	NA	NA
Zirconium hydride, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	SRK-GD12		SRK-GD13		SRK-GD19	SRK-GD20	SRK-GD23	
		Sample ID	SRK-GD12-SESP13	SRK-GD12_SEFL13	SRK-GD13_SESP13	SRK-GD13_SEFL13	SRK-GD19_SESP13	SRK-GD20-SESP13	SRK-GD23-SESP13	SRK-GD23-SEFL13
		Sample Date	6/14/2013	9/16/2013	6/14/2013	9/14/2013	6/13/2013	6/13/2013	6/13/2013	9/16/2013
Analyte	**Screening Level**	**Screening Level**								
General Chemistry										
Acidity (CaCO3)	--	mg/L	NA	< 1	**8.3 J**	NA	**130**	NA	NA	NA
Acidity, hot peroxide	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Bicarbonate	--	mg/L	NA	**265**	**418 J**	**453**	**133 J**	NA	NA	NA
Alkalinity, Total	--	mg/L	NA	**265**	**418 J**	**453**	**133 J**	NA	NA	NA
Alkalinity: Carbonate As Caco3	--	mg/L	NA	< 1	< 2	< 2	< 2	NA	NA	NA
Alkalinity: Hydroxide		mg/L	NA	< 1	< 2	< 2	< 2	NA	NA	NA
Ammonia-N	0.019	mg/L	NA	< 0.005	**< 0.005**	**< 0.005**	**< 0.024**	NA	NA	NA
Chloride	120	mg/L	NA	< 0.5	**< 10**	**< 10**	**< 10**	NA	NA	NA
Dissolved organic carbon	--	mg/L	NA	3.85	**< 5.24**	**3.73**	**< 2.08**	NA	NA	NA
Fluoride	0.12	mg/L	NA	0.122	**< 0.4**	**< 0.4**	**< 0.4**	NA	NA	NA
Free Cyanide	0.005	mg/L	NA	< 0.005	**< 0.01**	**< 0.005**	**< 0.01**	NA	NA	NA
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	NA	0.273	**20.1 J**	**19.8**	**0.38 J**	NA	NA	NA
Nitrite as N	0.06	mg/L	NA	< 0.001	**< 0.02**	**< 0.02**	**< 0.02**	NA	NA	NA
ortho-Phosphate, dissolved	--	mg/L	NA	0.0015	**0.0041 J**	**0.002**	**< 0.001**	NA	NA	NA
pH		pH Units	NA	8.34 J	**8.13 J**	**8.14 J**	**7.4 J**	NA	NA	NA
Phosphorus, dissolved	0.01	mg/L	NA	< 0.3	**< 0.3**	**< 0.3**	**< 0.3**	NA	NA	NA
Silica, dissolved	--	mg/L	NA	8.88	**8.7**	**10.3**	**5.19**	NA	NA	NA
Sulfate	--	mg/L	NA	91	**1110 J**	**1140**	**2130 J**	NA	NA	NA
Sulfate, dissolved		mg/L	NA	NA	**NA**	**NA**	**NA**	NA	NA	NA
Sulfur, dissolved	--	mg/L	NA	31	**357**	**372**	**667**	NA	NA	NA
Temperature, Lab		Degree Celcius	NA	NA	**NA**	**NA**	**NA**	NA	NA	NA
Total Dissolved Solids	--	mg/L	NA	421	**1860 J**	**2080**	**3230 J**	NA	NA	NA
Total Suspended Solids	--	mg/L	NA	< 1	**5.8 J**	**3.1**	**176 J**	NA	NA	NA

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Screening Level	Location	SRK-GD24	SRK-VD01	SRK-VD02		SRK-VD03		SRK-VD04	
			Sample ID	SRK-GD24-SESP13	SRK-VD01_SESP13	SRK-VD02_SESP13	SRK-VD02-SEFL13	SRK-VD03_SESP13	SRK-VD03_SEFL13	SRK-VD04_SESP13	SRK-VD04_SEFL13
			Sample Date	6/13/2013	6/14/2013	6/13/2013	9/16/2013	6/13/2013	9/16/2013	6/14/2013	9/16/2013
Field Parameters											
Conductivity, Field		mS / cm / Degree Celcius		**2.625**	**2.335**	**2.167**	**5.702**	**5.932**	**9.325**	**21.1**	**46.52**
pH, Field		pH Units		NA	**4.14**	**6.22**	**6.58**	**0.44**	**6.17**	**2.49**	**2.9**
Temperature, Field		Degree Celcius		NA	**10.38**	**12.11**	**7.91**	**5.86**	**5.03**	**13.9**	**6.87**
Oxidation Reduction Potential		mV		**90.5**	**280.4**	**52.6**	**-6.3**	**59.2**	**29.9**	NA	**303**
Dissolved Oxygen (DO)		mg/L		**0.42**	**9.07**	**4.56**	**2.92**	**2.63**	**2.86**	**2.8**	**2.92**
Dissolved Oxygen (percentage)		%		**5.5**	**81.6**	**42.7**	**25.1**	**21.5**	**22.8**	**37.1**	**29**
Flow		L/S		0.1	**0.5**	**0.05**	**0**	**0.2**	**0.149**	**0**	**0**
Dissolved Metals											
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L		NA	**2.49**	**0.105**	NA	**0.31**	**0.3**	**605**	**1050**
Antimony, dissolved	--	mg/L		NA	< 0.001	< 0.001	NA	< 0.01	< 0.01	< 0.1	< 0.2
Arsenic, dissolved	0.005	mg/L		NA	**0.0037**	**0.0052**	NA	**0.11**	**0.137**	**0.3**	< 0.2
Barium, dissolved	--	mg/L		NA	**0.0088**	**0.0585**	NA	**0.0184**	**0.0115**	**0.058**	< 0.1
Beryllium, dissolved	--	mg/L		NA	< 0.001	< 0.001	NA	< 0.01	< 0.01	< 0.1	< 0.2
Bismuth, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L		NA	< 0.1	< 0.1	NA	< 1	< 1	< 10	< 20
Cadmium, dissolved	Variable [b]	mg/L		NA	**0.135**	**0.0643**	NA	**0.248**	**0.197**	**8.76**	**20.7**
Calcium, dissolved	--	mg/L		NA	**182**	**466**	NA	**378**	**435**	**433**	**519**
Chromium, dissolved	0.0089	mg/L		NA	< 0.001	< 0.001	NA	< 0.01	< 0.01	< 0.1	< 0.2
Cobalt, dissolved	--	mg/L		NA	**0.374**	**0.522**	NA	**3.44**	**4.82**	**17.7**	**35.6**
Copper, dissolved	0.002	mg/L		NA	**0.422**	**0.0111**	NA	< 0.02	< 0.02	**3.2**	< 0.4
Ferrous Iron, dissolved	--	mg/L		NA	**10.8 J**	**8.9 J**	NA	**279 J**	< 20	**4180 J**	**12500**
Iron, dissolved	0.3	mg/L		NA	**10.1**	**8.11**	NA	**241**	**415**	**5230**	**11300**
Lead, dissolved	0.001	mg/L		NA	**0.417**	**0.0209**	NA	**0.0057**	**0.0064**	**0.34**	**0.36**
Lithium, dissolved	--	mg/L		NA	**0.0369**	**0.0454**	NA	**0.076**	**0.063**	< 0.5	**1.9**
Magnesium, dissolved	--	mg/L		NA	**262**	**231**	NA	**715**	**1200**	**3210**	**7620**
Manganese, dissolved	--	mg/L		NA	**22**	**29.9**	NA	**205**	**289**	**2500**	**5770**
Mercury, dissolved	0.000026	mg/L		NA	< 0.00001	**0.000014**	NA	< 0.00001	< 0.00001	**0.000086**	**0.000029**
Molybdenum, dissolved	0.073	mg/L		NA	< 0.0005	< 0.0005	NA	**0.0077**	< 0.005	< 0.05	< 0.1
Nickel, dissolved	0.025	mg/L		NA	**0.803**	**1.27**	NA	**5.1**	**7.25**	**12**	**23.5**
Potassium, dissolved	--	mg/L		NA	**2.39**	**9.04**	NA	**6.1**	**11.3**	< 50	< 100
Selenium, dissolved	0.001	mg/L		NA	**0.0017**	< 0.001	NA	< 0.01	< 0.01	< 0.1	< 0.2
Silicon, dissolved	--	mg/L		NA	**2.7**	**5.3**	NA	**7.12**	**8.7**	**23**	**34.3**
Silver, dissolved	0.0001	mg/L		NA	< 0.0001	< 0.0001	NA	< 0.001	< 0.001	< 0.01	< 0.02
Sodium, dissolved	--	mg/L		NA	**1.38**	**5.25**	NA	**9.4**	**12.5**	< 50	< 100
Strontium, dissolved	--	mg/L		NA	**0.78**	**1.5**	NA	**1.38**	**1.86**	**1.26**	**1.26**
Thallium, dissolved	0.0008	mg/L		NA	**0.00202**	**0.0011**	NA	**0.0028**	**0.0031**	< 0.01	< 0.02
Tin, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L		NA	< 0.1	< 0.1	NA	< 1	< 1	< 10	< 20
Uranium, dissolved	0.015	mg/L		NA	**0.00647**	**0.0107**	NA	**0.0047**	**0.0093**	**1.13**	**2.58**
Vanadium, dissolved	--	mg/L		NA	< 0.01	< 0.01	NA	< 0.1	< 0.1	< 1	< 2
Zinc, dissolved	0.03	mg/L		NA	**87.3**	**75.2**	NA	**659**	**731**	**7890**	**17300**
Zirconium hydride, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	SRK-GD24	SRK-VD01	SRK-VD02		SRK-VD03		SRK-VD04	
		Sample ID	SRK-GD24-SESP13	SRK-VD01_SESP13	SRK-VD02_SESP13	SRK-VD02-SEFL13	SRK-VD03_SESP13	SRK-VD03_SEFL13	SRK-VD04_SESP13	SRK-VD04_SEFL13
		Sample Date	6/13/2013	6/14/2013	6/13/2013	9/16/2013	6/13/2013	9/16/2013	6/14/2013	9/16/2013
Analyte	**Screening Level**	**Screening Level**								
General Chemistry										
Acidity (CaCO3)	--	mg/L	NA	NA	**147**	NA	NA	NA	NA	NA
Acidity, hot peroxide	--	mg/L	NA	**268 J**	NA	NA	**1440 J**	**1760**	**28000 J**	**46800**
Alkalinity, Bicarbonate	--	mg/L	NA	NA	**292 J**	NA	**43.8 J**	**158**	NA	NA
Alkalinity, Total	--	mg/L	NA	NA	**292 J**	NA	**43.8 J**	**158**	NA	NA
Alkalinity: Carbonate As Caco3	--	mg/L	NA	NA	< 2	NA	< 2	< 2	NA	NA
Alkalinity: Hydroxide		mg/L	NA	NA	< 2	NA	< 2	< 2	NA	NA
Ammonia-N	0.019	mg/L	NA	**< 0.009**	**1.19 J**	NA	**2.1 J**	**4.54**	0.812 J	0.188
Chloride	120	mg/L	NA	**< 10**	**< 10**	NA	**< 25**	**< 25**	< 50	< 50
Dissolved organic carbon	--	mg/L	NA	**< 1.41**	**< 2.86**	NA	**< 3.9**	**6.89**	24.7 J	39.7
Fluoride	0.12	mg/L	NA	**0.4 J**	**< 0.4**	NA	**1.1 J**	**< 1**	40.7 J	59.2
Free Cyanide	0.005	mg/L	NA	**< 0.01**	**< 0.01**	NA	**< 0.02**	**< 0.01**	< 0.1	< 0.5
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	NA	**< 0.1**	**0.45 J**	NA	**< 0.25**	**< 0.25**	< 0.5	< 0.5
Nitrite as N	0.06	mg/L	NA	**< 0.02**	**< 0.02**	NA	**< 0.05**	**< 0.05**	< 0.1	< 0.1
ortho-Phosphate, dissolved	--	mg/L	NA	**< 0.001**	**< 0.001**	NA	**< 0.001**	**< 0.001**	< 0.1	0.0087
pH		pH Units	NA	**NA**	**7.31 J**	NA	**6.41 J**	**6.25 J**	NA	NA
Phosphorus, dissolved	0.01	mg/L	NA	**< 0.3**	**< 0.3**	NA	**< 0.6**	**< 1.5**	< 6	< 15
Silica, dissolved	--	mg/L	NA	**5.78**	**11.3**	NA	**15.2**	**18.6**	49.2	73.5
Sulfate	--	mg/L	NA	**1740 J**	**2140 J**	NA	**6200 J**	**8190**	49100 J	85200
Sulfate, dissolved		mg/L	NA	**NA**	**NA**	NA	**NA**	**NA**	NA	NA
Sulfur, dissolved	--	mg/L	NA	**575**	**690**	NA	**1750**	**2740**	14100	30700
Temperature, Lab		Degree Celcius	NA	**NA**	**NA**	NA	**NA**	**NA**	NA	NA
Total Dissolved Solids	--	mg/L	NA	**1100 J**	**3450 J**	NA	**9350 J**	**13900**	89100 J	161000 J
Total Suspended Solids	--	mg/L	NA	**162 J**	**626 J**	NA	**55.5 J**	**39**	262 J	26.1

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Screening Level	Location	SRK-VD05				SRK-VD06	SRK-VD07	SRK-VD09	
			Sample ID	SRK-VD05_SESP13	SRK-VD905_SESP13	SRK-VD05_SEFL13	SRK-VD905_SEFL13	SRK-VD06-SESP13	SRK-VD07-SESP13	SRK-VD09_SESP13	SRK-VD09_SEFL13
			Sample Date	6/14/2013	6/14/2013	9/16/2013	9/16/2013	6/14/2013	6/14/2013	6/13/2013	9/16/2013
Field Parameters											
Conductivity, Field		mS / cm / Degree Celcius		**26.99**	NA	**46.69**	NA	**1.448**	**5.982**	**4.709**	**6.323**
pH, Field		pH Units		**4.62**	NA	**4.39**	NA	**6.09**	**2.19**	**2.71**	**3.68**
Temperature, Field		Degree Celcius		**7.11**	NA	**8.85**	NA	**6.43**	**15**	**10.52**	**6.55**
Oxidation Reduction Potential		mV		**126.3**	NA	**163.3**	NA	**279.8**	**555.6**	**399.1**	**297.5**
Dissolved Oxygen (DO)		mg/L		**6.66**	NA	**4.14**	NA	**62.7**	**8.56**	**3.91**	**6.6**
Dissolved Oxygen (percentage)		%		**60.8**	NA	**43.31**	NA	**7.69**	**85.8**	**37.1**	**55**
Flow		L/S		**0.25**	NA	**0.177**	NA	**0**	**0**	**0.2**	**0.001**
Dissolved Metals											
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L		**670**	**624**	**587**	**583**	NA	NA	**54.1**	**55.8**
Antimony, dissolved	--	mg/L		< 0.1	< 0.1	< 0.2	< 0.2	NA	NA	< 0.005	< 0.01
Arsenic, dissolved	0.005	mg/L		**0.21**	**0.1**	< 0.2	< 0.2	NA	NA	**0.0178**	**0.017**
Barium, dissolved	--	mg/L		**0.082**	**0.085**	< 0.1	< 0.1	NA	NA	**0.0178**	**0.0182**
Beryllium, dissolved	--	mg/L		< 0.1	< 0.1	< 0.2	< 0.2	NA	NA	**0.0094**	< 0.01
Bismuth, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L		< 10	< 10	< 20	< 20	NA	NA	< 0.5	< 1
Cadmium, dissolved	Variable [b]	mg/L		**8.83**	**8.64**	**11.7**	**11.6**	NA	NA	**0.521**	**0.622**
Calcium, dissolved	--	mg/L		**430**	**409**	**513**	**517**	NA	NA	**419**	**435**
Chromium, dissolved	0.0089	mg/L		< 0.1	< 0.1	< 0.2	< 0.2	NA	NA	**0.0054**	< 0.01
Cobalt, dissolved	--	mg/L		**19.5**	**18.5**	**28.8**	**28.7**	NA	NA	**1.91**	**2.74**
Copper, dissolved	0.002	mg/L		**8.94**	**8.31**	**2.98**	**2.92**	NA	NA	**2.5**	**0.182**
Ferrous Iron, dissolved	--	mg/L		**7850 J**	**7890 J**	**13500**	**13400**	NA	NA	**130 J**	< 20
Iron, dissolved	0.3	mg/L		**8700**	**8270**	**11800**	**11900**	NA	NA	**132**	**474**
Lead, dissolved	0.001	mg/L		**2.45**	**2.37**	**3.79**	**3.85**	NA	NA	**1.35**	**1.05**
Lithium, dissolved	--	mg/L		**0.55**	**0.69**	**2.3**	**2.1**	NA	NA	**0.168**	**0.222**
Magnesium, dissolved	--	mg/L		**6950**	**6620**	**8910**	**8950**	NA	NA	**301**	**619**
Manganese, dissolved	--	mg/L		**3690**	**3470**	**5280**	**5190**	NA	NA	**76.6**	**167**
Mercury, dissolved	0.000026	mg/L		< 0.00001	< 0.00001	**0.000042**	**0.000038**	NA	NA	**0.000041**	**0.000021**
Molybdenum, dissolved	0.073	mg/L		< 0.05	< 0.05	< 0.1	< 0.1	NA	NA	< 0.0025	< 0.005
Nickel, dissolved	0.025	mg/L		**16.6**	**15.9**	**23.8**	**23.4**	NA	NA	**2.43**	**3.9**
Potassium, dissolved	--	mg/L		< 50	< 50	< 100	< 100	NA	NA	< 2.5	< 5
Selenium, dissolved	0.001	mg/L		< 0.1	< 0.1	< 0.2	< 0.2	NA	NA	< 0.005	< 0.01
Silicon, dissolved	--	mg/L		**10.2**	**10.6**	**16.4**	**16.6**	NA	NA	**12.6**	**19.7**
Silver, dissolved	0.0001	mg/L		< 0.01	< 0.01	< 0.02	< 0.02	NA	NA	< 0.0005	< 0.001
Sodium, dissolved	--	mg/L		< 50	< 50	< 100	< 100	NA	NA	< 2.5	< 5
Strontium, dissolved	--	mg/L		**1.92**	**1.77**	**2.4**	**2.45**	NA	NA	**1.28**	**1.52**
Thallium, dissolved	0.0008	mg/L		< 0.01	< 0.01	< 0.02	< 0.02	NA	NA	**0.00279**	**0.0025**
Tin, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L		< 10	< 10	< 20	< 20	NA	NA	< 0.5	< 1
Uranium, dissolved	0.015	mg/L		**1.69**	**1.64**	**1.61**	**1.62**	NA	NA	**0.0823**	**0.0873**
Vanadium, dissolved	--	mg/L		< 1	< 1	< 2	< 2	NA	NA	< 0.05	< 0.1
Zinc, dissolved	0.03	mg/L		**9770**	**9880**	**14600**	**14300**	NA	NA	**401**	**607**
Zirconium hydride, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	SRK-VD05				SRK-VD06	SRK-VD07	SRK-VD09	
		Sample ID	SRK-VD05_SESP13	SRK-VD905_SESP13	SRK-VD05_SEFL13	SRK-VD905_SEFL13	SRK-VD06-SESP13	SRK-VD07-SESP13	SRK-VD09_SESP13	SRK-VD09_SEFL13
		Sample Date	6/14/2013	6/14/2013	9/16/2013	9/16/2013	6/14/2013	6/14/2013	6/13/2013	9/16/2013
Analyte	**Screening Level**	**Screening Level**								
General Chemistry										
Acidity (CaCO3)	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Acidity, hot peroxide	--	mg/L	**29300 J**	**28500 J**	**40600**	**41300**	NA	NA	**1390 J**	**2370**
Alkalinity, Bicarbonate	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity: Carbonate As Caco3	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity: Hydroxide		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Ammonia-N	0.019	mg/L	2.8 J	2.72 J	0.488	0.444	NA	NA	**< 0.0065**	**< 0.005**
Chloride	120	mg/L	< 50	< 50	< 50	< 50	NA	NA	**< 10**	**< 25**
Dissolved organic carbon	--	mg/L	33.4 J	33.2 J	38.2	37.7	NA	NA	**< 2.34**	**2.49**
Fluoride	0.12	mg/L	39.1 J	40.6 J	45.9	43.5	NA	NA	**1.79 J**	**5.3**
Free Cyanide	0.005	mg/L	< 0.1	< 0.1	< 0.5	< 0.5	NA	NA	**NA**	**NA**
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	< 0.5	< 0.5	< 0.5	< 0.5	NA	NA	**< 0.1**	**< 0.25**
Nitrite as N	0.06	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	NA	NA	**< 0.02**	**< 0.05**
ortho-Phosphate, dissolved	--	mg/L	0.41 J	0.007 J	0.0104	0.009	NA	NA	**< 0.001**	**0.0047**
pH		pH Units	NA	NA	NA	NA	NA	NA	**NA**	**NA**
Phosphorus, dissolved	0.01	mg/L	< 15	< 15	< 15	< 15	NA	NA	**< 0.6**	**< 0.9**
Silica, dissolved	--	mg/L	21.8	22.7	35	35.5	NA	NA	**27**	**42.2**
Sulfate	--	mg/L	60000 J	62700 J	87400	83900	NA	NA	**3470 J**	**6120**
Sulfate, dissolved		mg/L	NA	NA	NA	NA	NA	NA	**NA**	**NA**
Sulfur, dissolved	--	mg/L	23300	22100	29700	30000	NA	NA	**1150**	**1970**
Temperature, Lab		Degree Celcius	NA	NA	NA	NA	NA	NA	**NA**	**NA**
Total Dissolved Solids	--	mg/L	106000 J	103000 J	153000 J	155000 J	NA	NA	**5630 J**	**9790**
Total Suspended Solids	--	mg/L	604 J	485 J	30.4 J	68 J	NA	NA	**59.4 J**	**90.1**

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

Analyte	Screening Level	Screening Level	Location	SRK-VD10		SRK-VD12	VP03	VP07		VP09		VP10	X23	WTA02
			Sample ID	SRK-VD10_SESP13	SRK-VD10_SEFL13	SRK-VD12_SESP13	VP03_SEFL13	VP07-SESP13	VP07-SEFL13	VP09-SESP13	VP09-SEFL13	VP10-SESP13	X23_SEFL13	WTA02-SESP13
			Sample Date	6/14/2013	9/16/2013	6/14/2013	9/15/2013	6/13/2013	9/17/2013	6/13/2013	9/17/2013	6/13/2013	9/12/2013	6/14/2013
Field Parameters														
Conductivity, Field		mS / cm / Degree Celcius		**11.23**	**14.12**	**12.5**	**1579**	**1.059**	**1.205**	**6.809**	**5.709**	**4.94**	**10.5**	**0.394**
pH, Field		pH Units		**4.65**	**5.66**	**2.44**	**2.96**	**6.25**	**6.46**	**2.95**	**4.46**	**2.43**	**6.04**	**6.64**
Temperature, Field		Degree Celcius		**6.3**	**6.84**	**10.03**	**10.16**	**6.1**	**4.99**	**7.76**	**3.98**	**10**	**6.85**	**2**
Oxidation Reduction Potential		mV		**383.7**	**78.6**	**464.6**	**486**	**108.5**	**83.6**	**326**	**183.4**	**447.1**	**1**	**231.1**
Dissolved Oxygen (DO)		mg/L		**6.69**	**0.8**	**5.87**	**10.69**	**90.5**	**12.45**	**4.95**	**9.89**	**10.54**	**7.85**	**10.68**
Dissolved Oxygen (percentage)		%		**7.9**	**7.1**	**54.4**	**95.6**	**10.7**	**97.8**	**42.6**	**76.9**	**95.6**	**67**	**77.3**
Flow		L/S		**0.1**	**0.039**	**0**	**0.06**	**0.05**	**0.023**	**0.025**	**0**	**0.025**	**6.104**	**20**
Dissolved Metals														
Aluminum, dissolved	0.005 to 0.1 [a]	mg/L		**6.42**	**9.71**	**131**	**5.71**	NA	NA	NA	NA	NA	NA	NA
Antimony, dissolved	--	mg/L		< 0.02	< 0.02	< 0.02	< 0.002	NA	NA	NA	NA	NA	NA	NA
Arsenic, dissolved	0.005	mg/L		< 0.02	< 0.02	**5.13**	**0.0055**	NA	NA	NA	NA	NA	NA	NA
Barium, dissolved	--	mg/L		**0.016**	**0.011**	**0.143**	**0.0143**	NA	NA	NA	NA	NA	NA	NA
Beryllium, dissolved	--	mg/L		< 0.02	< 0.02	< 0.02	< 0.002	NA	NA	NA	NA	NA	NA	NA
Bismuth, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron, dissolved	1.5	mg/L		< 2	< 2	< 2	< 0.2	NA	NA	NA	NA	NA	NA	NA
Cadmium, dissolved	Variable [b]	mg/L		**0.161**	**0.1**	**1.37**	**0.143**	NA	NA	NA	NA	NA	NA	NA
Calcium, dissolved	--	mg/L		**455**	**426**	**345**	**84.9**	NA	NA	NA	NA	NA	NA	NA
Chromium, dissolved	0.0089	mg/L		< 0.02	< 0.02	**0.115**	**0.0053**	NA	NA	NA	NA	NA	NA	NA
Cobalt, dissolved	--	mg/L		**6.53**	**7.54**	**6.45**	**0.189**	NA	NA	NA	NA	NA	NA	NA
Copper, dissolved	0.002	mg/L		< 0.054	< 0.04	**12.8**	**0.564**	NA	NA	NA	NA	NA	NA	NA
Ferrous Iron, dissolved	--	mg/L		**1290 J**	**2370**	**166 J**	**7**	NA	NA	NA	NA	NA	NA	NA
Iron, dissolved	0.3	mg/L		**1390**	**1940**	**748**	**34.2**	NA	NA	NA	NA	NA	NA	NA
Lead, dissolved	0.001	mg/L		< 0.01	< 0.01	**0.3**	**0.53**	NA	NA	NA	NA	NA	NA	NA
Lithium, dissolved	--	mg/L		< 0.1	< 0.1	< 0.1	**0.028**	NA	NA	NA	NA	NA	NA	NA
Magnesium, dissolved	--	mg/L		**1710**	**2000**	**977**	**45.6**	NA	NA	NA	NA	NA	NA	NA
Manganese, dissolved	--	mg/L		**830**	**972**	**250**	**7.8**	NA	NA	NA	NA	NA	NA	NA
Mercury, dissolved	0.000026	mg/L		< 0.00001	< 0.00001	**0.000091**	< 0.00001	NA	NA	NA	NA	NA	NA	NA
Molybdenum, dissolved	0.073	mg/L		< 0.01	< 0.01	< 0.01	< 0.001	NA	NA	NA	NA	NA	NA	NA
Nickel, dissolved	0.025	mg/L		**4.62**	**4.66**	**9.38**	**0.329**	NA	NA	NA	NA	NA	NA	NA
Potassium, dissolved	--	mg/L		< 10	< 10	< 10	< 1	NA	NA	NA	NA	NA	NA	NA
Selenium, dissolved	0.001	mg/L		< 0.02	< 0.02	< 0.02	< 0.002	NA	NA	NA	NA	NA	NA	NA
Silicon, dissolved	--	mg/L		**12.7**	**15.3**	**14**	**10.9**	NA	NA	NA	NA	NA	NA	NA
Silver, dissolved	0.0001	mg/L		< 0.002	< 0.002	< 0.002	< 0.0002	NA	NA	NA	NA	NA	NA	NA
Sodium, dissolved	--	mg/L		**16**	**16**	< 10	**2.5**	NA	NA	NA	NA	NA	NA	NA
Strontium, dissolved	--	mg/L		**2.08**	**2**	**1.06**	**0.312**	NA	NA	NA	NA	NA	NA	NA
Thallium, dissolved	0.0008	mg/L		**0.004**	**0.003**	< 0.002	**0.00184**	NA	NA	NA	NA	NA	NA	NA
Tin, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Titanium, dissolved	--	mg/L		< 2	< 2	< 2	< 0.2	NA	NA	NA	NA	NA	NA	NA
Uranium, dissolved	0.015	mg/L		**0.0043**	**0.008**	**0.241**	**0.0112**	NA	NA	NA	NA	NA	NA	NA
Vanadium, dissolved	--	mg/L		< 0.2	< 0.2	< 0.2	< 0.02	NA	NA	NA	NA	NA	NA	NA
Zinc, dissolved	0.03	mg/L		**1470**	**1730**	**1230**	**92.2**	NA	NA	NA	NA	NA	NA	NA
Zirconium hydride, dissolved		mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1-2

WSEEP Raw Analytical Results, December 2013

Faro Mine Remediation Project

		Location	SRK-VD10		SRK-VD12	VP03	VP07		VP09		VP10	X23	WTA02
		Sample ID	SRK-VD10_SESP13	SRK-VD10_SEFL13	SRK-VD12_SESP13	VP03_SEFL13	VP07-SESP13	VP07-SEFL13	VP09-SESP13	VP09-SEFL13	VP10-SESP13	X23_SEFL13	WTA02-SESP13
		Sample Date	6/14/2013	9/16/2013	6/14/2013	9/15/2013	6/13/2013	9/17/2013	6/13/2013	9/17/2013	6/13/2013	9/12/2013	6/14/2013
Analyte	**Screening Level**	**Screening Level**											
General Chemistry													
Acidity (CaCO3)	--	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acidity, hot peroxide	--	mg/L	**4450 J**	**6900**	**5250 J**	**306 J**	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Bicarbonate	--	mg/L	**28.6 J**	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total	--	mg/L	**28.6 J**	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity: Carbonate As Caco3	--	mg/L	< 2	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity: Hydroxide		mg/L	< 2	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ammonia-N	0.019	mg/L	**6.18 J**	**5.96**	0.68 J	**0.0287**	NA	NA	NA	NA	NA	NA	NA
Chloride	120	mg/L	**< 25**	**< 25**	< 25	**< 5**	NA	NA	NA	NA	NA	NA	NA
Dissolved organic carbon	--	mg/L	**15.4 J**	**18.3**	6.53 J	**< 0.5**	NA	NA	NA	NA	NA	NA	NA
Fluoride	0.12	mg/L	**3.6 J**	**2.9**	5 J	**0.81**	NA	NA	NA	NA	NA	NA	NA
Free Cyanide	0.005	mg/L	**< 0.02**	**< 0.2**	< 0.02	**NA**	NA	NA	NA	NA	NA	NA	NA
Total Hardness (CaCO3)		mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	13	mg/L	**< 0.25**	**< 0.25**	5.84 J	**< 0.05**	NA	NA	NA	NA	NA	NA	NA
Nitrite as N	0.06	mg/L	**< 0.05**	**< 0.05**	< 0.05	**< 0.01**	NA	NA	NA	NA	NA	NA	NA
ortho-Phosphate, dissolved	--	mg/L	**< 0.001**	**< 0.001**	2.86 J	**0.0014 J**	NA	NA	NA	NA	NA	NA	NA
pH		pH Units	**5.06 J**	**3.58 J**	NA	**NA**	NA	NA	NA	NA	NA	NA	NA
Phosphorus, dissolved	0.01	mg/L	**< 3**	**< 3**	4.3	**< 0.3**	NA	NA	NA	NA	NA	NA	NA
Silica, dissolved	--	mg/L	**27.1**	**32.7**	29.8	**23.2**	NA	NA	NA	NA	NA	NA	NA
Sulfate	--	mg/L	**14100 J**	**17000**	8730 J	**734**	NA	NA	NA	NA	NA	NA	NA
Sulfate, dissolved		mg/L	**NA**	**NA**	NA	**NA**	NA	NA	NA	NA	NA	NA	NA
Sulfur, dissolved	--	mg/L	**4590**	**5680**	3200	**244**	NA	NA	NA	NA	NA	NA	NA
Temperature, Lab		Degree Celcius	**NA**	**NA**	NA	**NA**	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	--	mg/L	**22600 J**	**27700**	15100 J	**1170**	NA	NA	NA	NA	NA	NA	NA
Total Suspended Solids	--	mg/L	**146 J**	**95.6**	140 J	**104**	NA	NA	NA	NA	NA	NA	NA

[a] CCME guideline is pH dependent; 0.005 mg/L if pH < 6.5, 0.1 mg/L if pH ≥ 6.5

[b] CCME guideline is hardness dependent; cadmium concentration = $10^{0.86[\log10(\text{hardness})]-3.2}$ / 1000 mg/L

Notes:

- = no guideline

Bold indicates the analyte was detected

CaCO3 = calcium carbonate

ID = Idenification

J = analyte was present but the reported value may not be accurate or precise

mg/L = miligram per liter

mS/cm/degree Celcuis = miliseimens per centimeter per degree celcius

mV = milivolts

NA = Not analyzed

NTU= Nephelometric Turbidity Units

Shading indicates the result exceeded screening criteria

TABLE 2-1a

Waste Rock Dump Temperature Monitoring

Faro Mine Remediation Project

Faro WD						Grum WD				Vangorda WD	
CH12-014-MW003-T		CH12-014-MW005-T		CH12-014-MW007-T		CH12-014-MW0011-T		CH12-014-MW0012-T		CH12-014-MW0013-T	
Date	6/11/2013		6/10/2013		7/1/2013		7/2/2013		7/7/2013		7/14/2013
	Temp (°C)		Temp (°C)		Temp (°C)		Temp (°C)		Temp (°C)		Temp (°C)
Time	14:37		16:48		12:14		17:00		13:48		16:00
Bead Depth	Temp	Bead Depth	Temp	Bead Depth	Temp	Bead Depth	Temp	Bead Depth	Temp	Bead Depth	Temp
mbgs	°C	mbgs	°C	mbgs	°C	mbgs	°C	mbgs	°C	mbgs	°C
25.27	6.89	28.956	7.71	40.21	19.73	22.91	3.56	17.5	5.08	24.95	15.59
20.27	7.40	23.956	7.87	35.21	19.5	17.91	3.87	12.5	4.78	19.95	16.73
17.77	7.51	21.456	7.87	32.71	18.96	15.41	3.91	10	4.37	17.45	15.69
15.27	7.47	18.956	7.87	30.21	18.35	12.91	3.77	7.5	3.67	14.95	15.03
12.77	7.05	16.456	7.84	27.71	17.84	10.41	3.38	5	2.84	12.45	16.5
10.27	6.63	13.956	7.89	25.21	17.72	7.91	2.62	2.5	5.66	9.95	14.7
7.77	5.90	11.456	7.62	22.71	18.02	5.41	1.51	0.0	14.05	7.45	11.47
5.27	4.16	8.956	6.98	20.21	18.06	2.91	3.09			4.95	10.89
2.77	2.37	6.456	6.15	17.71	17.57	0.41	14.23			2.45	14.13
0.27	8.79	3.956	4.60	15.21	16.84						
		1.456	2.59	12.71	15.55						
				10.21	13.11						
				7.71	8.96						
				5.21	5.97						
				2.71	6.33						
				0.21	16.71						

Notes:

Portable thermistor used to measure temperatures at all locations using access port. Measurements made after at lest 1 hour of equilibration at each location.

Bead depth values of 0 indicate beads at surface. Temperature readings at surface are the average ambient temperature

mbgs = metres below ground surface

NR = no reading

WD = waste dump

°C = degree celcius

TABLE 2-1b

Waste Rock Dump Temperature Monitoring

Faro Mine Remediation Project

Faro WD						Grum WD				Vangorda WD	
CH12-014-MW003-T		CH12-014-MW005-T		CH12-014-MW007-T		CH12-014-MW0011-T		CH12-014-MW0012-T		CH12-014-MW0013-T	
	9/13/2013		9/13/2013		9/12/2013		9/14/2013		9/14/2013		9/17/2013
	Temp (°C)		Temp (°C)		Temp (°C)		Temp (°C)		Temp (°C)		Temp (°C)
Date											
Time	15:28		15:05		13:08		14:26		16:45		11:13
Bead Depth	Temp	Bead Depth	Temp	Bead Depth	Temp	Bead Depth	Temp	Bead Depth	Temp	Bead Depth	Temp
mbgs	°C	mbgs	°C	mbgs	°C	mbgs	°C	mbgs	°C	mbgs	°C
25.27	6.97	28.956	7.76	40.21	20.38	22.91	3.77	17.5	4.98	24.95	13.96
20.27	7.6	23.956	7.87	35.21	19.75	17.91	3.56	12.5	4.61	19.95	14.85
17.77	7.63	21.456	7.86	32.71	19.3	15.41	3.31	10	4.32	17.45	14.13
15.27	7.42	18.956	7.83	30.21	18.8	12.91	3.28	7.5	4.43	14.95	13.65
12.77	7.03	16.456	7.84	27.71	18.36	10.41	3.23	5	6.21	12.45	15.06
10.27	6.46	13.956	7.52	25.21	18.14	7.91	4.60	2.5	9.31	9.95	14.27
7.77	5.97	11.456	6.83	22.71	18.27	5.41	8.48	0.0	11.36	7.45	13.16
5.27	6.34	8.956	6.19	20.21	18.14	2.91	9.43			4.95	12.84
2.77	8.79	6.456	5.83	17.71	17.58	0.41	11.64			2.45	13.03
0.27	9.33	3.956	7.38	15.21	16.7						
		1.456	9.82	12.71	15.34						
				10.21	13.2						
				7.71	10.65						
				5.21	10.15						
				2.71	11.55						
				0.21	10.18						
	2.38										

Notes:

Portable thermistor used to measure temperatures at all locations using access port. Measurements made after at lest 1 hour of equilibration at each location.

Bead depth values of 0 indicate beads at surface. Temperature readings at surface are the average ambient temperature

mbgs = metres below ground surface

NR = no reading

WD = waste dump

°C = degree celcius

TABLE 2-2a

Waste Rock Dump Soil Gas Monitoring

Faro Mine Remediation Project

Location ID	Screen Centre Depth (mbgs)	Sand pack length (m)	Date Sampled	Time Sampled	Vacuum During Sampling		Stabilized Readings[a]		Notes
					Vacuum (in.W.C.)	Flow Rate (L/min)	O_2 (% Vol)	CO_2 (% Vol)	
CH12-014-MW003-A	5.03	0.61	11-Jun-13	13:13	1.8	0.75	9.2	5.2	Gas port B readings were discarded after a crack in the pvc port fitting was discovered.
CH12-014-MW003-B	10.06	0.61	11-Jun-13	13:15	2.8	4.5	20.9	0	
CH12-014-MW003-C	14.94	0.61	11-Jun-13	13:18	3.1	4.5	6.7	7.6	
CH12-014-MW003-D	19.96	0.61	11-Jun-13	13:22	5.1	4.5	7.6	10.2	
CH12-014-MW005-A	10.06	2.44	11-Jun-13	10:10	3.2	4.5	20.9	0	
CH12-014-MW005-B	15.85	2.44	11-Jun-13	10:12	6.9	4.5	17.5	3	
CH12-014-MW005-C	20.57	2.13	11-Jun-13	10:13	3.3	4.5	20.9	0	
CH12-014-MW005-D	38.56	16.76	11-Jun-13	10:14	3.6	4.5	8.2	14.6	
CH12-014-MW007-A	4.57	1.22	2-Jul-13	15:16	2.5	5	20.9	0.2	
CH12-014-MW007-B	12.19	0.61	2-Jul-13	15:19	1.8	0.5	9.3	13.9	
CH12-014-MW007-C	19.81	0.61	2-Jul-13	15:21	3.2	5	13.6	4.3	
CH12-014-MW007-D	29.87	0.61	2-Jul-13	15:23	0.3	0.5	18	1.9	
CH12-014-MW007-E	39.93	0.61	2-Jul-13	15:24	2.5	4.5	6.7	12.6	
CH12-014-MW0011-A	4.88	0.61	2-Jul-13	18:10	5.8	4	20.9	0.2	
CH12-014-MW0011-B	9.75	0.61	2-Jul-13	18:10	2.7	4	20.9	0.4	
CH12-014-MW0011-C	14.94	0.61	2-Jul-13	18:11	2.3	4	19.4	1.4	
CH12-014-MW0011-D	19.81	0.61	2-Jul-13	18:13	5.8	4	19.7	1.1	
CH12-014-MW0011-E	22.86	0.61	2-Jul-13						Port E: Plugged
CH12-014-MW0012-A	4.27	0.61	4-Jul-13	14:24	4.9	4.5	12.7	9.9	
CH12-014-MW0012-B	9.14	0.61	4-Jul-13	0:26	4.5	0.5	4.7	12.6	
CH12-014-MW0012-C	14.02	0.61	4-Jul-13	14:28	0.9	0.5	6.6	13.7	
CH12-014-MW0012-D	17.37	0.61	4-Jul-13						Port D: Plugged
CH12-014-MW0013-A	4.88	0.61	14-Jul-13	18:13	2.9	5	19.7	0.1	
CH12-014-MW0013-B	9.75	0.61	14-Jul-13	18:14	3.2	6	18.2	0.8	
CH12-014-MW0013-C	14.94	0.61	14-Jul-13	18:15	3.2	6	17.5	1.1	
CH12-014-MW0013-D	19.81	0.61	14-Jul-13	18:15	8.1	6	17.5	1.2	
CH12-014-MW0013-E	24.69	0.61	14-Jul-13	18:16	1.5	0.3	1.5	17.4	

Notes:

[a] For reference, ambient air readings should read: O_2 = 20.9 % Vol. and CO_2 = 0.0 % Vol.

% Vol. = Percent Volume

CO_2 = Carbon Dioxide

in.W.C = inch water column

L/min = Litre per minute

mbgs = metre below ground surface

NA = Data not available

O_2 = Oxygen

ppm = parts per million

PVC = polyvinyl chloride

TABLE 2-2b

Waste Rock Dump Soil Gas Monitoring

Faro Mine Remediation Project

Location ID	Screen Centre Depth (mbgs)	Sand pack length (m)	Date Sampled	Time Sampled	Vacuum During Sampling		Stabilized Readings[a]		Notes
					Vacuum (in.W.C.)	Flow Rate (L/min)	O_2 (% Vol)	CO_2 (% Vol)	
CH12-014-MW003-A	5.029	0.61	13-Sep-13	17:31	5.5	0.6	11.6	7.2	
CH12-014-MW003-B	10.058	0.61	13-Sep-13	17:33	7.271	4	6.1	8.5	
CH12-014-MW003-C	14.935	0.61	13-Sep-13	17:34	5.029	4	3.3	11.2	
CH12-014-MW003-D	19.964	0.61	13-Sep-13	17:36	1.068	0.6	6	11.7	
CH12-014-MW005-A	10.058	2.44	13-Sep-13	15:13	5.172	4.5	20.6	0.4	
CH12-014-MW005-B	15.85	2.44	13-Sep-13	15:20	1.078	0.75	17.8	2.5	
CH12-014-MW005-C	20.574	2.13	13-Sep-13	15:22	6.008	4.5	19.5	0.8	
CH12-014-MW005-D	38.557	16.76	13-Sep-13	15:23	1.16	0.75	9.1	12.8	
CH12-014-MW007-A	4.572	1.22	12-Sep-13	14:48	6	4.25	20.9	0.1	Manometer Battery died before final gas measurement collected. The vacuum and flow rates provided are from an earlier measurement on 9/12/2013 at 14:34 through 14:40.
CH12-014-MW007-B	12.192	0.61	12-Sep-13	14:37	3.481	0.5	5.1	11.5	
CH12-014-MW007-C	19.812	0.61	12-Sep-13	14:52	6.889	4.25	13.7	4.5	
CH12-014-MW007-D	29.87	0.61	12-Sep-13	14:54	1.318	0.65	16.3	3.1	
CH12-014-MW007-E	39.929	0.61	12-Sep-13	14:56	5.85	4.25	1.2	11.5	
CH12-014-MW0011-A	4.877	0.61	14-Sep-13	14:13	1.476	0.75	20.9	0	
CH12-014-MW0011-B	9.754	0.61	14-Sep-13	14:15	3.623	4.5	0.3	20.9	
CH12-014-MW0011-C	14.935	0.61	14-Sep-13	14:17	3.217	4.5	0.7	20.3	
CH12-014-MW0011-D	19.812	0.61	14-Sep-13	14:18	5.123	5	0.5	20.8	
CH12-014-MW0011-E	22.86	0.61	14-Sep-13	14:19					Port E: Plugged
CH12-014-MW0012-A	4.267	0.61	14-Sep-13	16:29	1.377	0.75	11	9.4	
CH12-014-MW0012-B	9.144	0.61	14-Sep-13	16:33	11.2	0.75	2.1	9.3	
CH12-014-MW0012-C	14.021	0.61	14-Sep-13	16:35	2.88	0.75	4.9	10.2	
CH12-014-MW0012-D	17.374	0.61	14-Sep-13	16:35					Port D: Plugged
CH12-014-MW0013-A	4.877	0.61	17-Sep-13	12:24	4.064	4	20.9	0	Manometer Battery died before final gas measurement collected. The vacuum and flow rates provided are from an earlier measurement on 9/17/2013 at 10:57 through 11:03.
CH12-014-MW0013-B	9.754	0.61	17-Sep-13	12:25	4.42	3.75	20.8	0.4	
CH12-014-MW0013-C	14.935	0.61	17-Sep-13	12:26	4.13	3.5	20.9	0.4	
CH12-014-MW0013-D	19.812	0.61	17-Sep-13	12:27	0.663	0.6	18.5	1.4	
CH12-014-MW0013-E	24.689	0.61	17-Sep-13	12:30	3.745	0.75	1.2	12.9	

Notes:

*Out of gas detector range

a For reference, ambient air readings should read: O2 = 20.9 % Vol. and CO2, CH4, H2S = 0.0 % Vol.

% Vol. = Percent Volume

CO2 = Carbon Dioxide

in.W.C = inch water column

L/min = Litre per minute

mbgs = metre below ground surface

NA = Data not available

O2 = Oxygen

ppm = parts per million

PVC = polyvinyl chloride

NR = no reading

TABLE 2-3

Seep Sampling Summary

Faro Mine Remediation Project

	Spring Monitoring Event		Fall Monitoring Event			
Location ID	**Seep Condition**	**Monitoring Activity**	**Seep Condition**	**Monitoring Activity**	**X[a]**	**Y[a]**
A30	Flowing	Sampled	Flowing	Sampled	584546.2	6915450.7
CH-ETA-01	Flowing	Field Parameters			582809.33	6913964.88
CH-ETA-02	Flowing	Field Parameters			582778.93	6913972.93
CH-FD-56	Flowing	Sampled	Flowing	Sampled	584514.65	6913149.42
CH-FD-57	Dry		Dry		583780.61	6914474.52
CH-FD-58	Dry		Dry		583248.03	6914434.93
CH-FD-59	Flowing	Field Parameters	Flowing	Field Parameters	585009.73	6914599.91
CH-FD-60	Flowing	Field Parameters	Flowing	Field Parameters	585026.96	6914578.06
CH-FD-61	Flowing	Field Parameters	Flowing	Field Parameters	585029.87	6914534.77
CH-FD-62			Flowing	Field Parameters	585031.86	6914581.08
CH-FD-63	Flowing	Field Parameters	Flowing	Field Parameters	585029.02	6914556.04
CH-FD-64	Dry		Flowing	Field Parameters	583074.88	6914155.68
CH-FD-65	Flowing	Field Parameters	Flowing	Field Parameters	582889	6914584.06
CH-FD-66	Flowing	Sampled	Stagnant Pool	Field Parameters	584172.11	6914532.15
CH-FD-67	Stagnant Pool	Field Parameters	Stagnant Pool	Field Parameters	583432.95	6914382.36
CH-FD-68	Flowing	Field Parameters	Flowing	Sampled	585426.9	6914513.23
CH-FD-69	Stagnant Pool	Field Parameters			585101.33	6914205.35
CH-FD-70	Flowing	Field Parameters	Flowing	Field Parameters	585121.03	6914282.09
CH-FD-71			Flowing	Field Parameters	583071	6914163
CH-FD-72			Flowing	Sampled	584510.03	6913154.04
CH-FP-23	Flowing	Sampled			584944.68	6914659.22
CH-FP-24	Dry		Dry		584166.9	6914936.93
CH-FP-25	Flowing	Field Parameters	Flowing	Field Parameters	584805.95	6914401.04
CH-FP-28	Flowing	Field Parameters	Flowing	Field Parameters	584784.23	6914377.08
CH-FP-29	Flowing	Field Parameters	Flowing	Field Parameters	584551.38	6915567.92
CH-FP-30	Flowing	Sampled			584584.52	6915435.95
CH-FP-31	Flowing	Field Parameters	Flowing	Field Parameters	584499.55	6915422.09
CH-FP-32	Flowing	Field Parameters	Dry		584742.92	6914372.13
CH-FP-33	Flowing	Field Parameters	Flowing	Field Parameters	584343.98	6915475.82
CH-FP-34	Flowing	Sampled	Flowing	Sampled	584375.57	6915466.12
CH-FP-35	Flowing	Sampled	Flowing	Sampled	584416.13	6915435.73
CH-FP-36	Flowing	Field Parameters			584456.09	6915414.86
CH-FP-37	Stagnant Pool	Sampled			583986	6915352.33
CH-FP-38			Flowing	Sampled	584934	6914645
CH-FP-39			Flowing	Sampled	584447	6915426
CH-FP-40			Flowing	Field Parameters	584457	6915431
CH-FP-41			Flowing	Sampled	584948	6914682
CH-FP-42			Flowing	Sampled	584581	6915459
CH-GP-19	Flowing	Sampled	Flowing	Sampled	592642.56	6904505.42
CH-GP-22	Flowing	Sampled	Flowing	Sampled	592552.87	6905071.16
CH-GP-23	Flowing	Field Parameters	Flowing	Field Parameters	592526	6905288.07
CH-GP-24	Flowing	Field Parameters	Flowing	Field Parameters	592515.55	6905329.74
CH-GP-25	Flowing	Field Parameters	Flowing	Field Parameters	592359.43	6904832.12
CH-GP-26	Flowing	Field Parameters	Flowing	Field Parameters	592362.49	6904832.69
CH-GP-27	Flowing	Sampled	Flowing	Sampled	592205.52	6905413.99
CH-GP-28	Flowing	Field Parameters			592409.99	6904860.1
CH-GP-29			Flowing	Field Parameters	592197	6905468
CH-GP-30			Flowing	Field Parameters	592363	6904841
CH-MILL-01	Dry		Flowing	Field Parameters	582982.23	6914167.65

TABLE 2-3

Seep Sampling Summary

Faro Mine Remediation Project

	Spring Monitoring Event		Fall Monitoring Event			
Location ID	**Seep Condition**	**Monitoring Activity**	**Seep Condition**	**Monitoring Activity**	**X[a]**	**Y[a]**
CH-MILL-02	Flowing	Field Parameters	Flowing	Field Parameters	582899.5	6914576.07
CH-MILL-03	Flowing	Sampled	Flowing	Sampled	583045.87	6914266.75
CH-MILL-04	Flowing	Field Parameters	Flowing	Field Parameters	583038.31	6914322.73
CH-RCTA-01	Dry		Dry		581437.74	6914176.62
CH-RCTA-02	Dry		Dry		581174.56	6914223.52
CH-RCTA-03			Flowing	Sampled	582210	6913055
CH-RCTA-04	Flowing	Sampled			581962.57	6913198.67
CH-RCTA-05	Flowing	Field Parameters	Flowing	Sampled	581331	6913392
CH-RCTA-06	Stagnant Pool	Field Parameters			581345.12	6913421.89
CH-RCTA-07	Flowing	Sampled	Flowing	Sampled	582321	6913024
CH-RCTA-08	Flowing	Field Parameters			582210	6913054
CH-VD-13	Dry				593849.87	6902874.33
CH-VD-14	Stagnant Pool	Field Parameters			593894	6902952.86
CH-VP-17	Flowing	Sampled	Flowing	Sampled	594032.71	6903423.98
CH-VP-18	Flowing	Sampled	Dry		593954.83	6903344.78
CH-VP-19	Dry				593767.81	6903707.05
CH-VP-20	Flowing	Sampled	Flowing	Sampled	594293.56	6903058.9
CH-VP-21	Flowing	Field Parameters			594401.5	6903025.94
FCS-2	Flowing	Sampled			582845.55	6913951.73
FCS-3	Dry				582798	6913978.97
FCS-4	Flowing	Sampled			582686.31	6913788.42
FCS-5	Flowing	Sampled	Flowing	Field Parameters	581974.26	6913822.99
FP02			Flowing	Sampled	584127	6915471
FP05			Flowing	Field Parameters	584047.89	6915526.97
FP06			Flowing	Sampled	584772	6915207
FP07	Dry		Dry		583976.72	6915396.12
FP08	Flowing	Field Parameters	Dry		585143.97	6914759.02
FP09			Flowing	Sampled	584570	6915325
FP10	Flowing	Sampled			584927.38	6914548.78
FP11	Flowing	Field Parameters	Flowing		583995.26	6915488.87
FP12			Flowing	Sampled	584071	6915456
FP13			Flowing	Sampled	584077	6915473
FP14			Flowing	Sampled	584064	6915407
FP15			Flowing	Sampled	584299	6915412
FP16			Flowing	Sampled	584437	6915337
GDHSECK	Flowing	Field Parameters			581679.94	6914050.81
GP02	Flowing	Sampled	Flowing	Field Parameters	592592.98	6904925.07
GP03			Flowing	Sampled	592496	6905246
GP04	Dry		Dry		592180.28	6905492.4
GP05	Dry		Dry		592167.56	6905484.58
GP06	Flowing	Field Parameters	Stagnant Pool	Field Parameters	592109.55	6905414.33
GP07	Stagnant Pool	Field Parameters	Stagnant Pool	Field Parameters	592133.6	6905444.64
GP08	Flowing	Field Parameters	Flowing	Field Parameters	592031.75	6905317.68
GP09	Flowing	Sampled	Flowing	Sampled	591981.29	6905257.89
GP10	Flowing	Field Parameters	Flowing	Field Parameters	591963.23	6905219.81
GP12	Flowing	Sampled	Flowing	Field Parameters	592358.17	6904841.68
GP14	Flowing	Field Parameters	Flowing	Field Parameters	592462.96	6904882.15
GP17			Flowing	Sampled	592460	6905302
GP18			Dry		592411	6905337

TABLE 2-3

Seep Sampling Summary

Faro Mine Remediation Project

	Spring Monitoring Event		Fall Monitoring Event			
Location ID	**Seep Condition**	**Monitoring Activity**	**Seep Condition**	**Monitoring Activity**	**X[a]**	**Y[a]**
NE1	Flowing	Field Parameters	Flowing	Field Parameters	585987.38	6914352.93
SRK-FD01	Flowing	Sampled	Flowing	Sampled	582868.12	6914588.56
SRK-FD02	Dry				583013.63	6914626.93
SRK-FD04	Stagnant Pool	Field Parameters	Stagnant Pool	Field Parameters	583308.13	6914410.15
SRK-FD05	Flowing	Sampled	Flowing	Sampled	585750.04	6914242.08
SRK-FD06	Flowing	Field Parameters	Flowing	Field Parameters	585717.92	6914197.9
SRK-FD07	Dry		Dry		585159.12	6913849.21
SRK-FD08	Dry		Dry		584929.93	6913419.16
SRK-FD09	Flowing	Sampled	Flowing	Sampled	583280.83	6914066.07
SRK-FD10	Flowing	Field Parameters			583269.71	6914094.32
SRK-FD12	Flowing	Field Parameters			583273.93	6914079.04
SRK-FD13	Flowing	Sampled	Flowing	Sampled	584520	6914062
SRK-FD14	Dry		Flowing	Sampled	584839.98	6914188.13
SRK-FD16	Flowing	Field Parameters	Flowing	Field Parameters	583224.68	6915455.13
SRK-FD17	Flowing	Field Parameters	Flowing	Field Parameters	583233.73	6915430.72
SRK-FD18	Flowing	Sampled	Flowing	Sampled	583245.67	6915410.51
SRK-FD19	Flowing	Sampled	Flowing	Sampled	583392.22	6914738.77
SRK-FD21	Dry		Dry		585412.23	6914523.89
SRK-FD22	Dry		Dry		585170.94	6914671.99
SRK-FD23	Stagnant Pool	Field Parameters	Stagnant Pool	Field Parameters	585091.88	6914717.91
SRK-FD24	Flowing	Sampled	Flowing	Sampled	585017.81	6914587.63
SRK-FD26	Flowing	Sampled	Flowing	Sampled	585083.3	6914215.59
SRK-FD30	Flowing	Sampled	Stagnant Pool	Sampled	584053.44	6913542.38
SRK-FD31	Flowing	Sampled	Flowing	Sampled	583263.06	6914107.64
SRK-FD32	Flowing	Field Parameters	Dry		583093.04	6914198.15
SRK-FD35	Dry		Stagnant Pool	Field Parameters	583017.07	6914248.09
SRK-FD36	Dry				584052.67	6914573.73
SRK-FD37	Flowing	Sampled	Flowing	Sampled	583475.67	6914407.72
SRK-FD38	Dry		Dry		584181.83	6914545.1
SRK-FD40	Flowing	Sampled	Flowing	Sampled	584499.85	6915551.5
SRK-FD44	Flowing	Field Parameters	Dry		584775.96	6913992.03
SRK-FD46	Dry				583083.85	6914163.93
SRK-FD47	Dry				584422.94	6913333.94
SRK-FD49	Flowing	Sampled	Dry		584168.54	6913196.53
SRK-FD50	Dry				585044.26	6914031.83
SRK-FD51	Flowing	Field Parameters	Flowing	Sampled	585109.57	6914763.27
SRK-FD52	Stagnant Pool	Field Parameters	Dry		584555.16	6913141.53
SRK-FD53	Flowing	Field Parameters	Dry		584054.78	6913415.52
SRK-FD54	Flowing	Field Parameters	Flowing	Sampled	584528.04	6913140.28
SRK-FD55	Stagnant Pool	Field Parameters	Dry		584376.98	6913184.51
SRK-GD01	Flowing	Sampled	Flowing	Sampled	592599.66	6903996.67
SRK-GD02	Flowing	Field Parameters	Flowing	Field Parameters	592596.53	6903984.1
SRK-GD04	Flowing	Field Parameters	Dry		592577.07	6903437.75
SRK-GD05	Flowing	Field Parameters	Flowing	Field Parameters	592454	6903279.27
SRK-GD06	Flowing	Sampled	Flowing	Sampled	592401.04	6903262.04
SRK-GD07	Stagnant Pool	Field Parameters	Stagnant Pool	Field Parameters	591899.53	6904748.97
SRK-GD08	Dry		Dry		591482.63	6905029.61
SRK-GD09	Flowing	Sampled	Dry		591367.48	6904775.03
SRK-GD10	Flowing	Field Parameters	Flowing	Field Parameters	591483.53	6904532.75

TABLE 2-3

Seep Sampling Summary

Faro Mine Remediation Project

	Spring Monitoring Event		Fall Monitoring Event			
Location ID	**Seep Condition**	**Monitoring Activity**	**Seep Condition**	**Monitoring Activity**	**X[a]**	**Y[a]**
SRK-GD11	Flowing	Sampled			592035.59	6904422.55
SRK-GD12	Flowing	Field Parameters	Flowing	Field Parameters	591492.14	6904558.07
SRK-GD13	Flowing	Sampled	Flowing	Sampled	591012.5	6904388
SRK-GD16	Dry		Dry		592297.87	6903247.05
SRK-GD17	Dry				591947.44	6903829.52
SRK-GD18	Stagnant Pool		Dry		591082.27	6904265.72
SRK-GD19	Flowing	Sampled	Dry		592364.5	6904400.59
SRK-GD20	Flowing	Field Parameters	Dry		592368.07	6904393.33
SRK-GD21	Dry		Dry		592538.03	6903383.17
SRK-GD22	Dry				591895.86	6903822.87
SRK-GD23	Stagnant Pool	Field Parameters	Stagnant Pool	Field Parameters	592031.45	6905965.36
SRK-GD24	Flowing	Field Parameters	Dry		592167.77	6903366.98
SRK-VD01	Flowing	Sampled	Dry		593864.19	6902622.07
SRK-VD02	Flowing	Sampled	Stagnant Pool	Field Parameters	593465.61	6902506.9
SRK-VD03	Flowing	Sampled	Flowing	Sampled	593208.6	6902579.68
SRK-VD04	Stagnant Pool	Sampled	Stagnant Pool	Sampled	593422.86	6903046.52
SRK-VD05	Flowing	Sampled	Flowing	Sampled	593510.32	6903086.17
SRK-VD06	Stagnant Pool	Field Parameters	Dry		593535.76	6903004.16
SRK-VD07	Stangant Pool	Field Parameters			593929	6902628.3
SRK-VD08	Dry				593927.25	6902863.79
SRK-VD09	Flowing	Sampled	Flowing	Sampled	593920.26	6902991.71
SRK-VD10	Flowing	Sampled	Flowing	Sampled	593314.17	6902990.44
SRK-VD12	Stangant Pool	Sampled	Dry		593783.79	6902517.72
VP01			Dry		593745	6903519
VP02			Flowing	Inaccessible	593760	6903590
VP03			Flowing	Sampled	593810	6903644
VP04			Dry		593898	6903644
VP05			flowing	Inaccessible	593932	6903597
VP06			flowing	Inaccessible	593953	6903552
VP07	Flowing	Field Parameters	Flowing	Field Parameters	594058.42	6903411.44
VP09	Flowing	Field Parameters	Flowing	Field Parameters	594286.31	6903070.84
VP10	Flowing	Field Parameters			594162.5	6903194.58
VP12			Flowing	Inaccessible	593783	6903627
VP13			Flowing	Inaccessible	593861	6903659
VP14			Flowing	Inaccessible	593966	6903517
VP15			Flowing	Inaccessible	593959	6903536
VP16			Flowing	Inaccessible	593975	6903499
WTA02	Flowing	Field Parameters			591811.83	6903040.92
X23	Flowing		Flowing	Field Parameters	583227.55	6914085.65

* coordinate system is NAD83 CSRS

Notes:

ID = Identification

X = Easting

Y = Northing

Figures

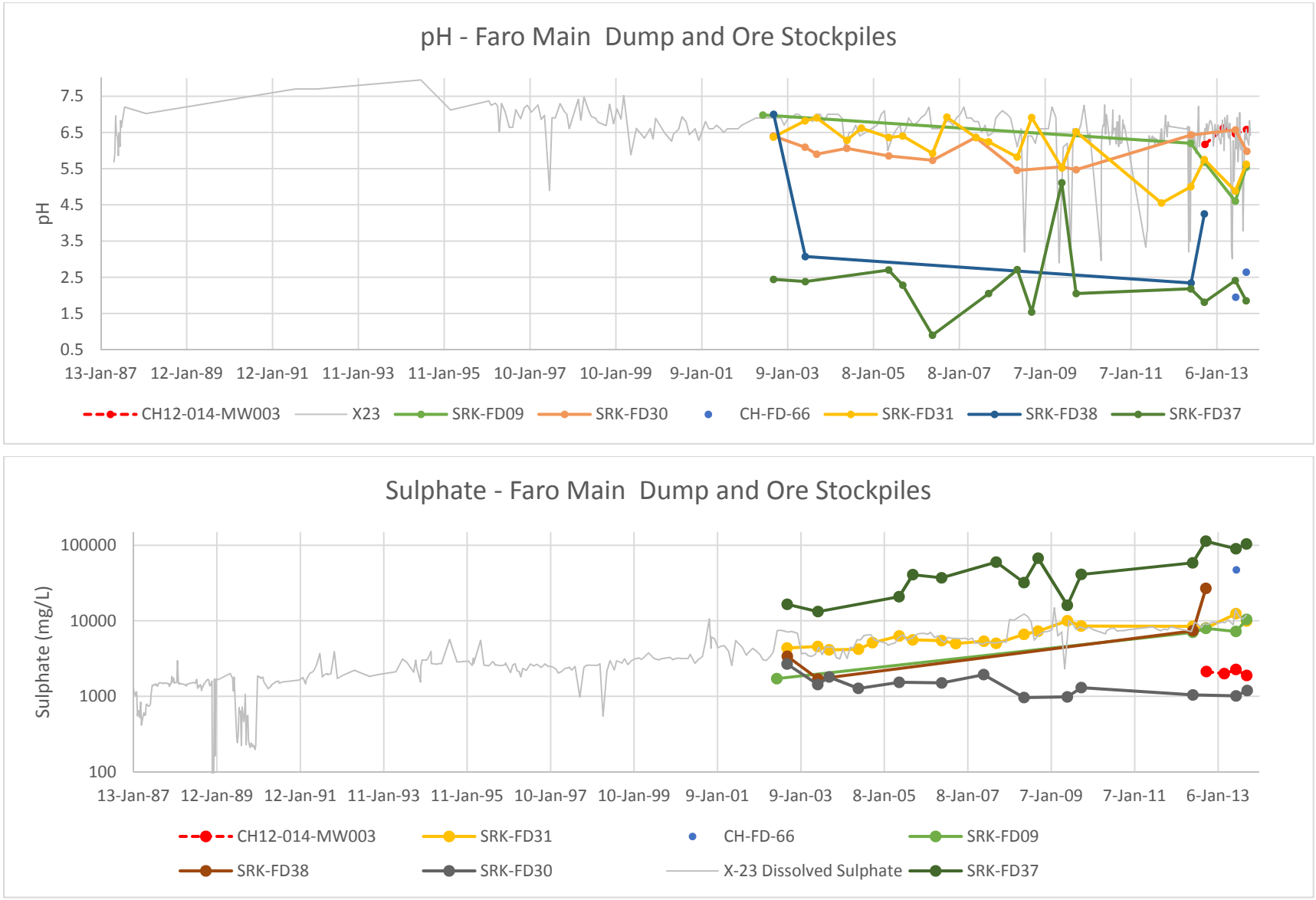
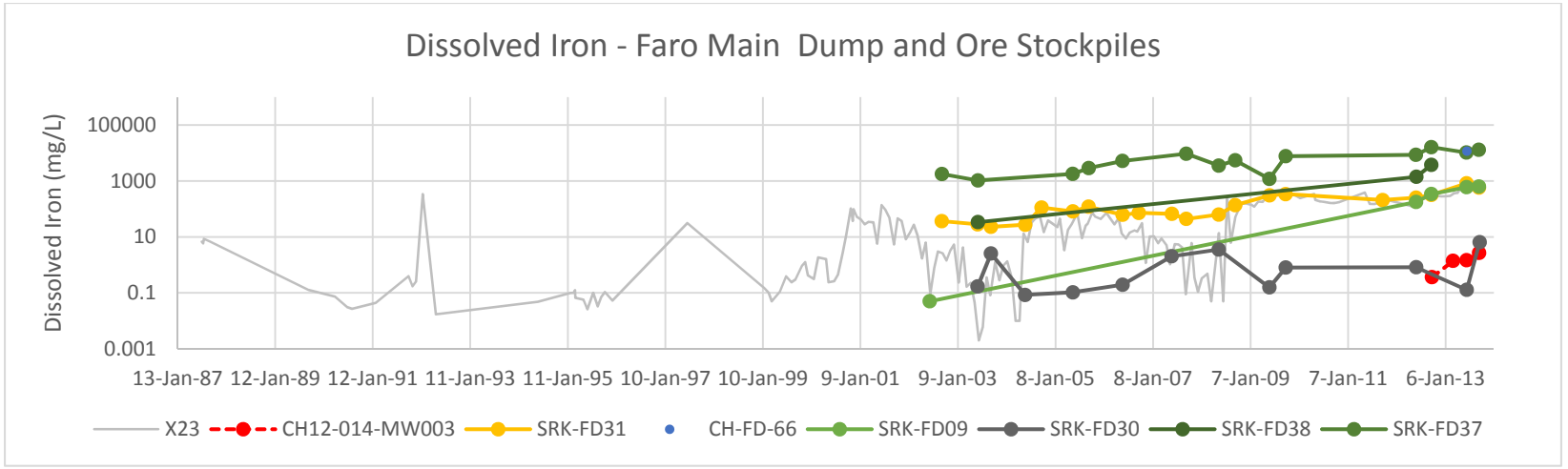


FIGURE 1-4
Faro Main Dump and Ore Stockpiles Water Quality Time Series Plot
Faro Mine Remediation Project



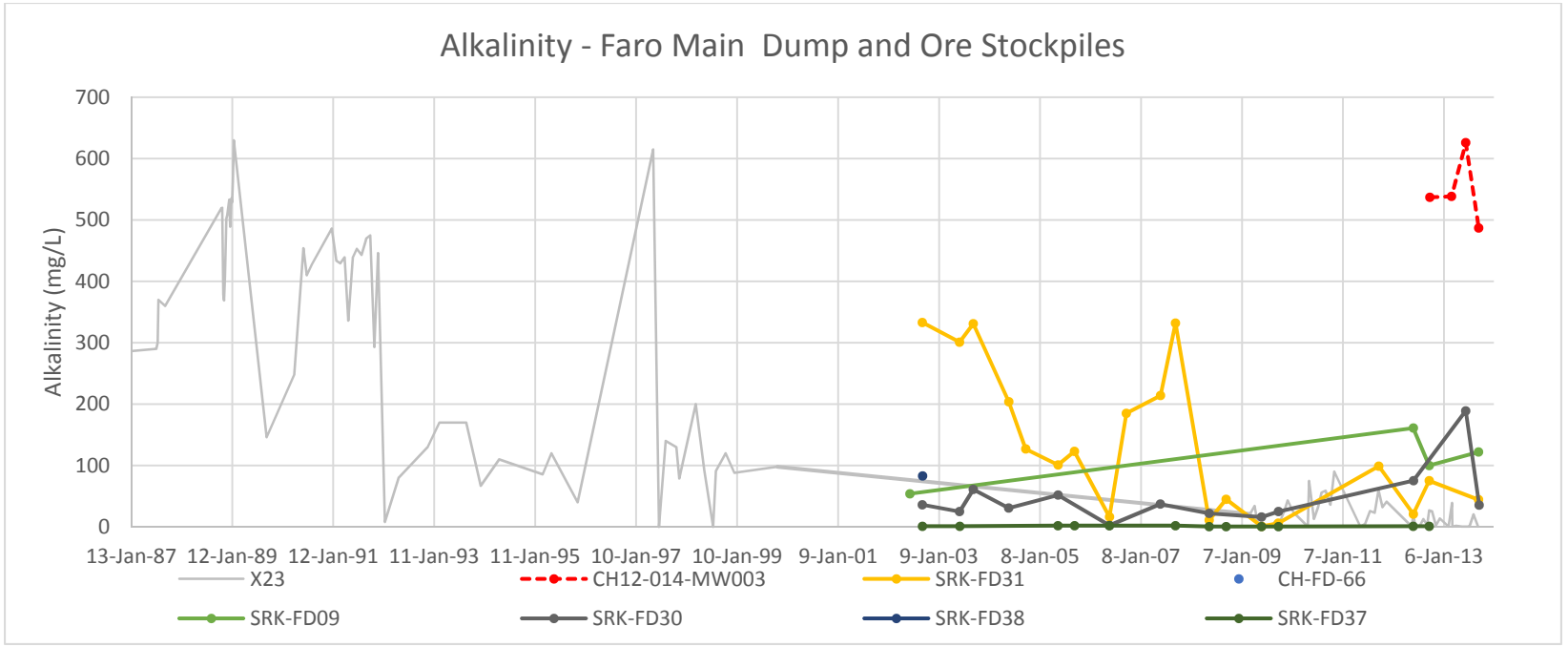
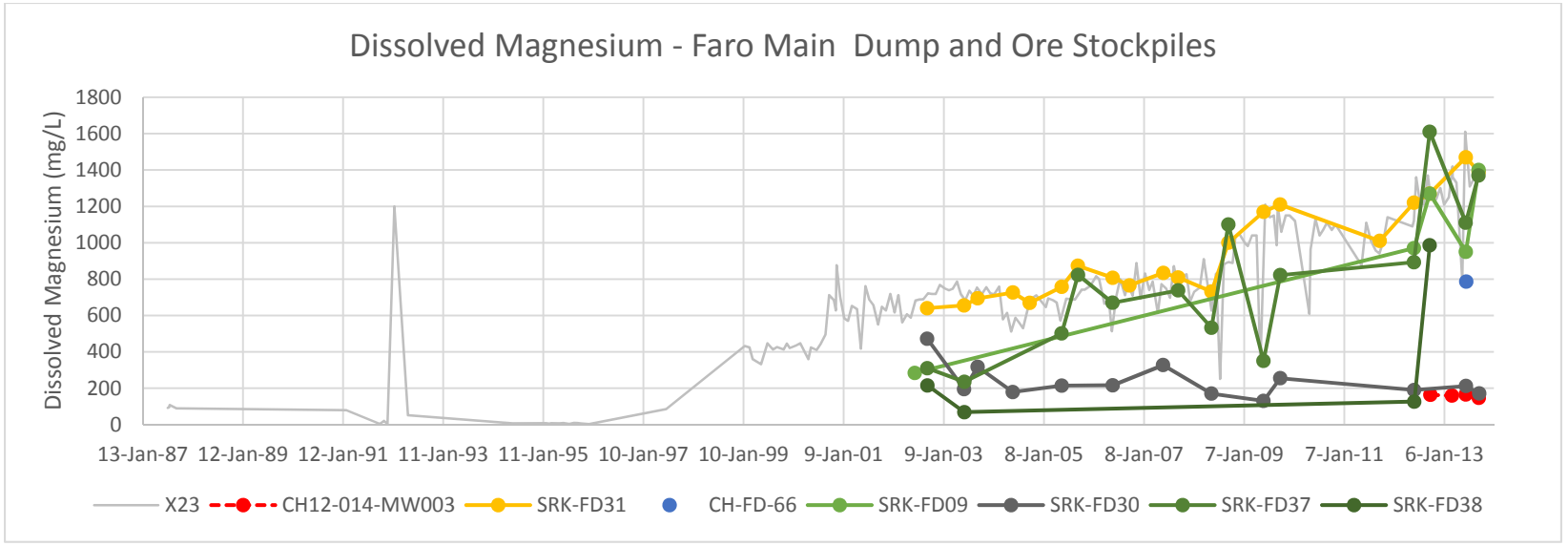


FIGURE 1-4 (CONTINUED)
Faro Main Dump and Ore Stockpiles Water Quality Time Series Plot
Faro Mine Remediation Project



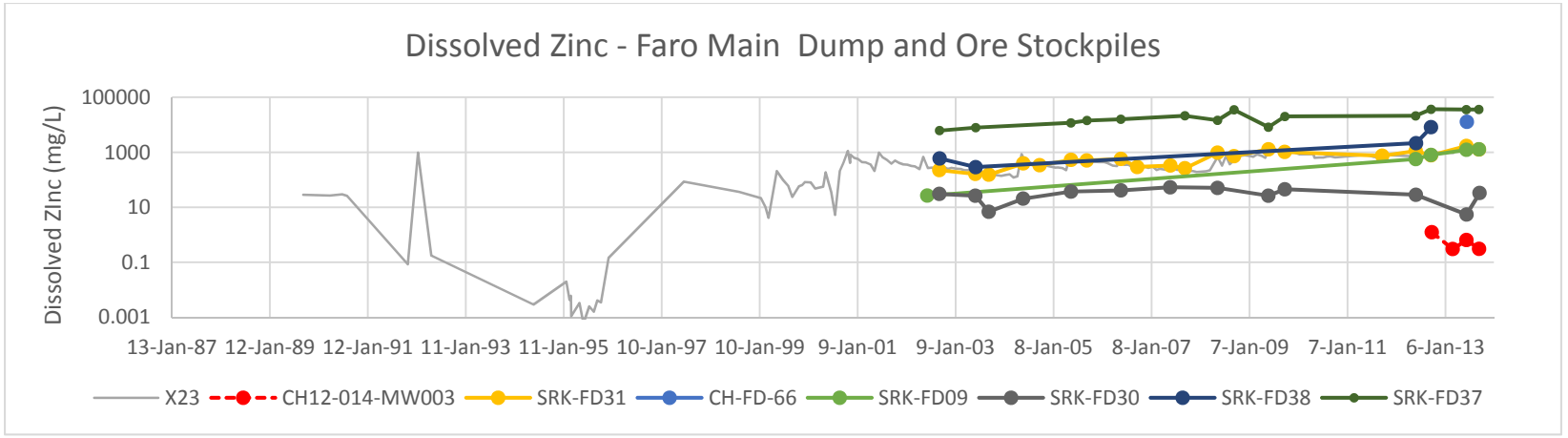
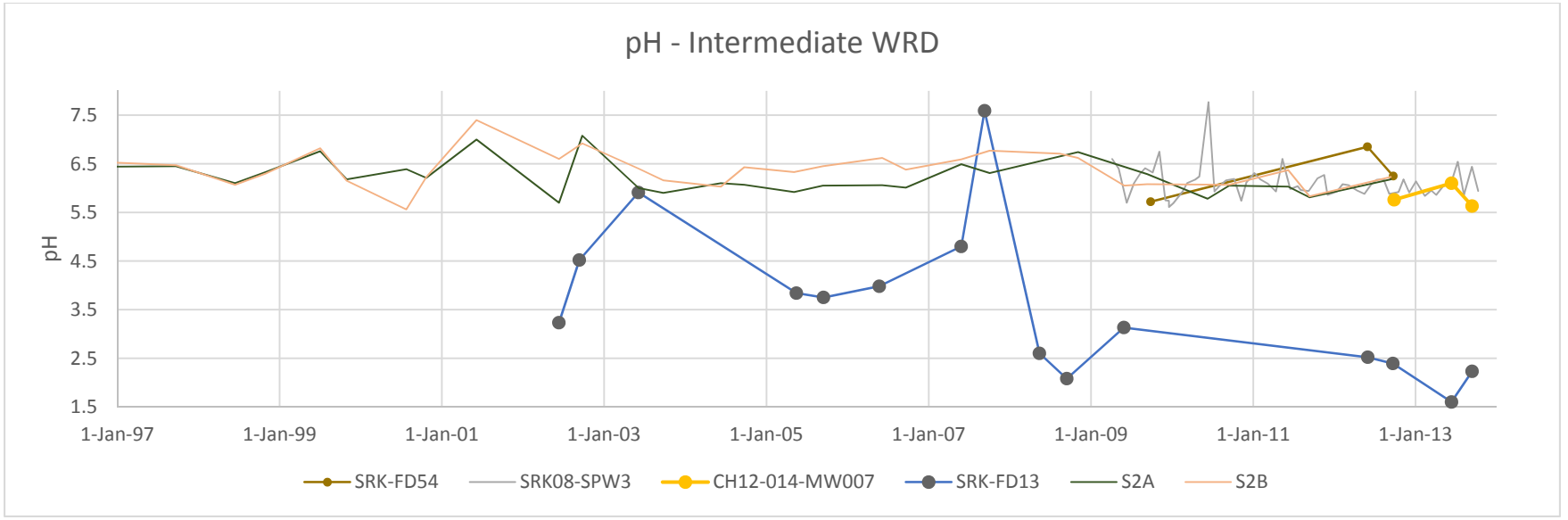


FIGURE 1-4 (CONTINUED)
Faro Main Dump and Ore Stockpiles Water Quality Time Series Plot
Faro Mine Remediation Project



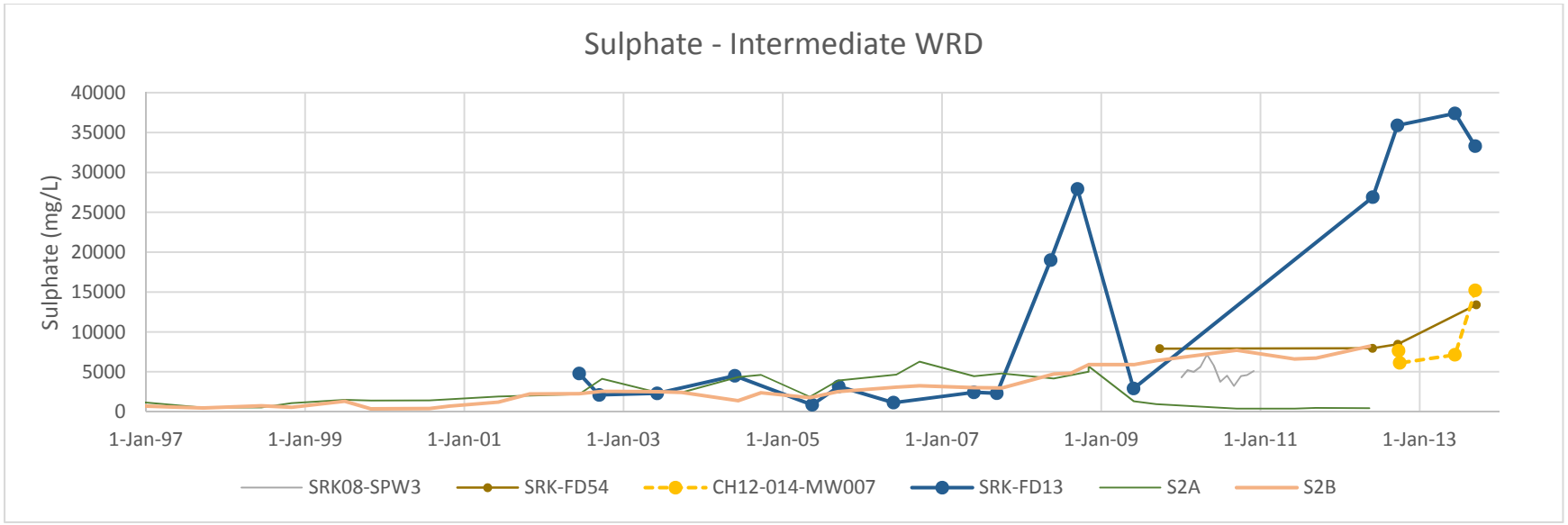


FIGURE 1-5
Intermediate Waste Dump Water Quality Time Series Plots
Faro Mine Remediation Project

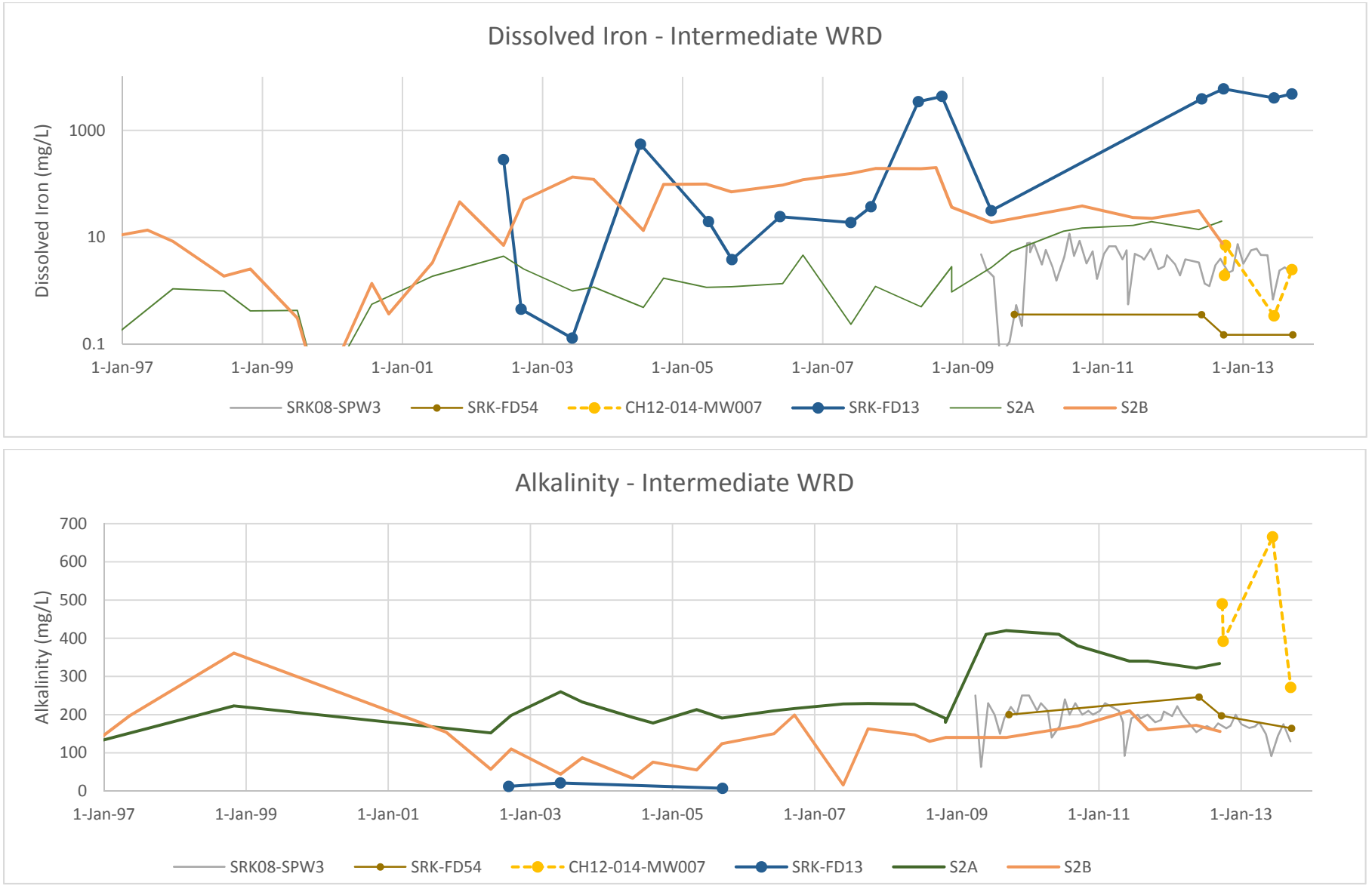
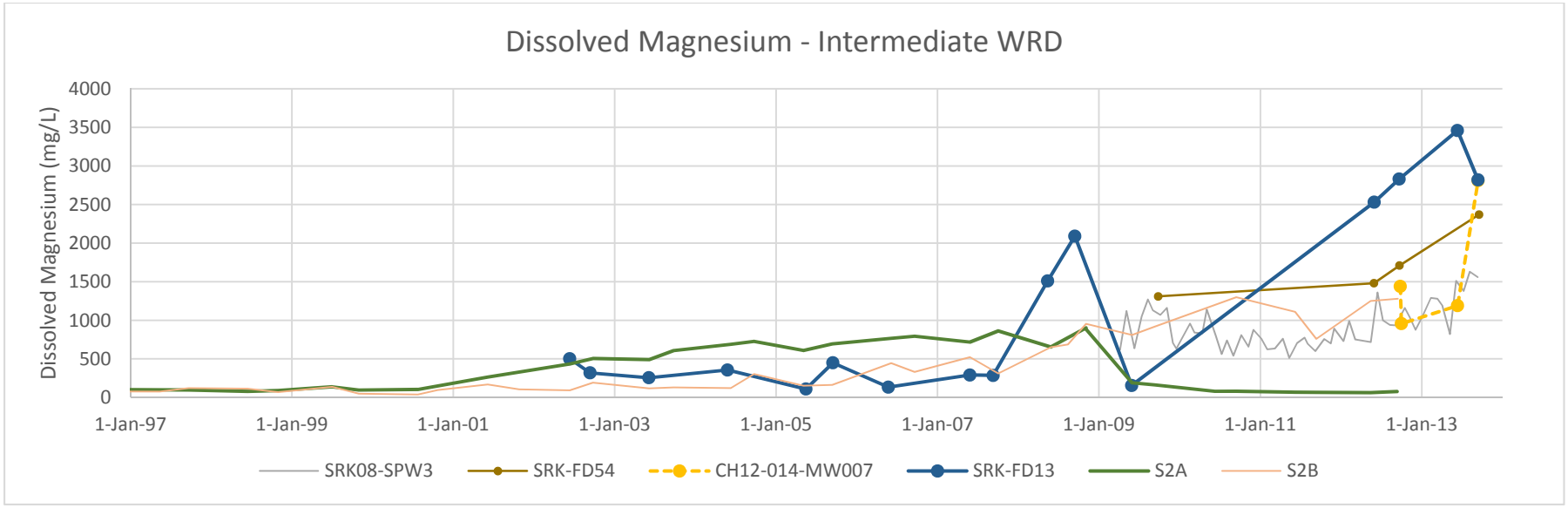


FIGURE 1-5 (CONTINUED)
Intermediate Waste Dump Water Quality Time Series Plots
Faro Mine Remediation Project



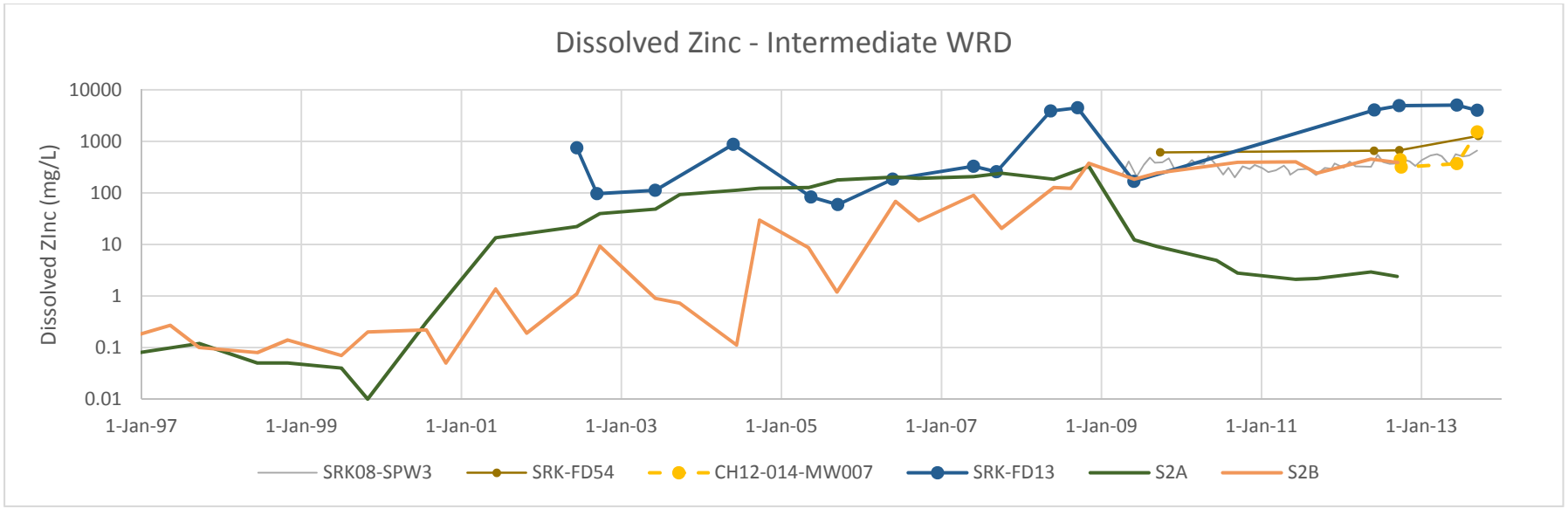
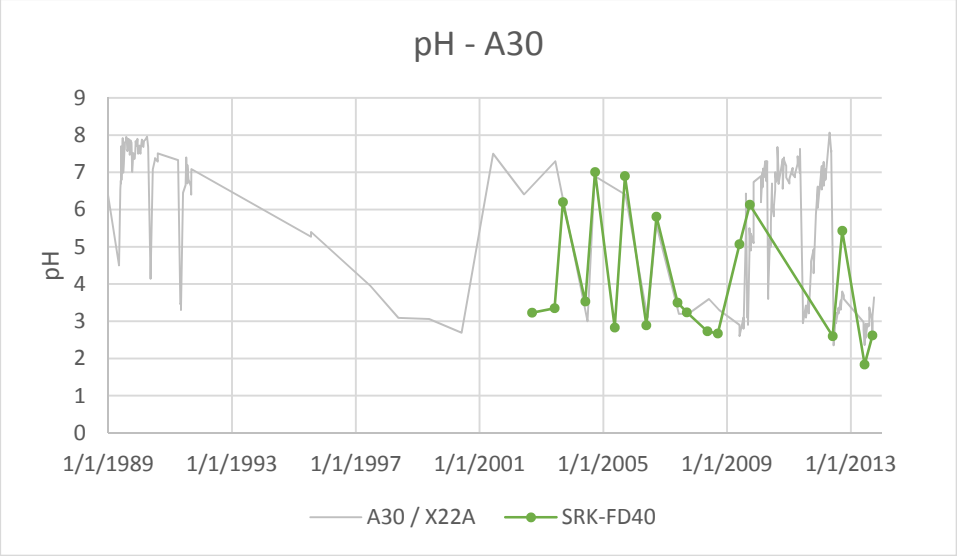
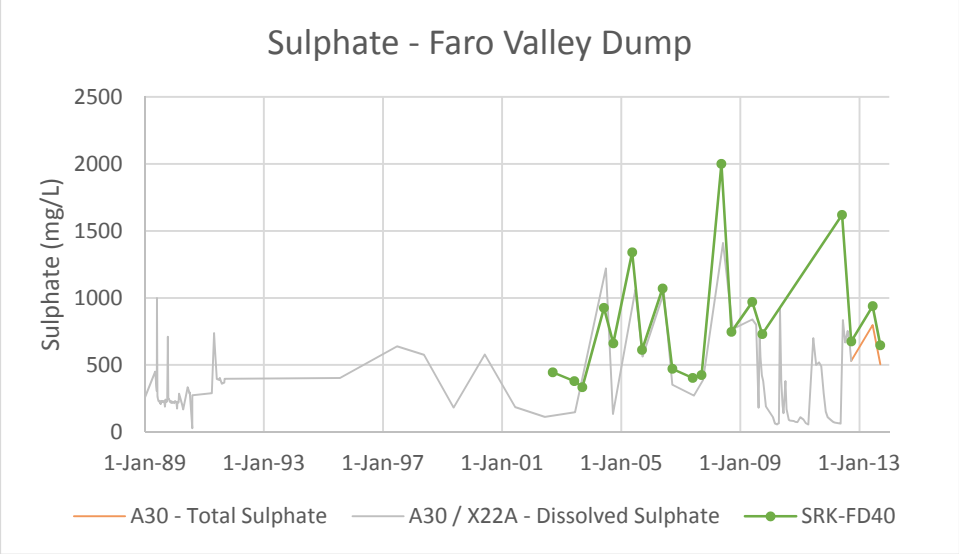


FIGURE 1-5 (CONTINUED)
Intermediate Waste Dump Water Quality Time Series Plots
Faro Mine Remediation Project





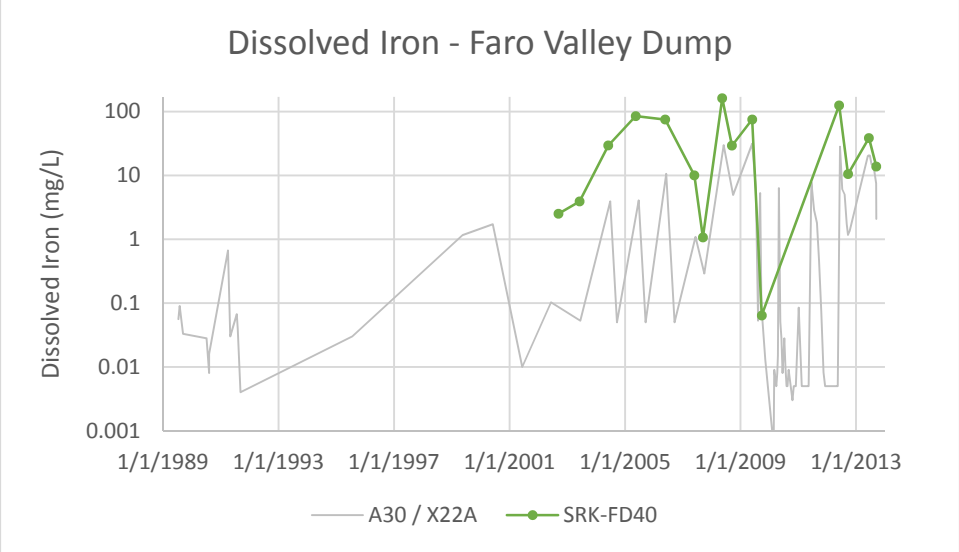
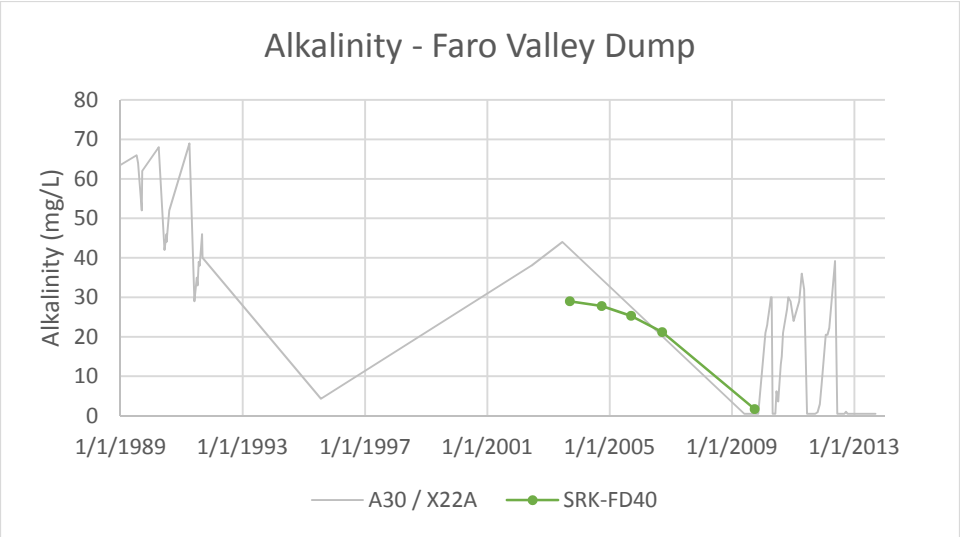
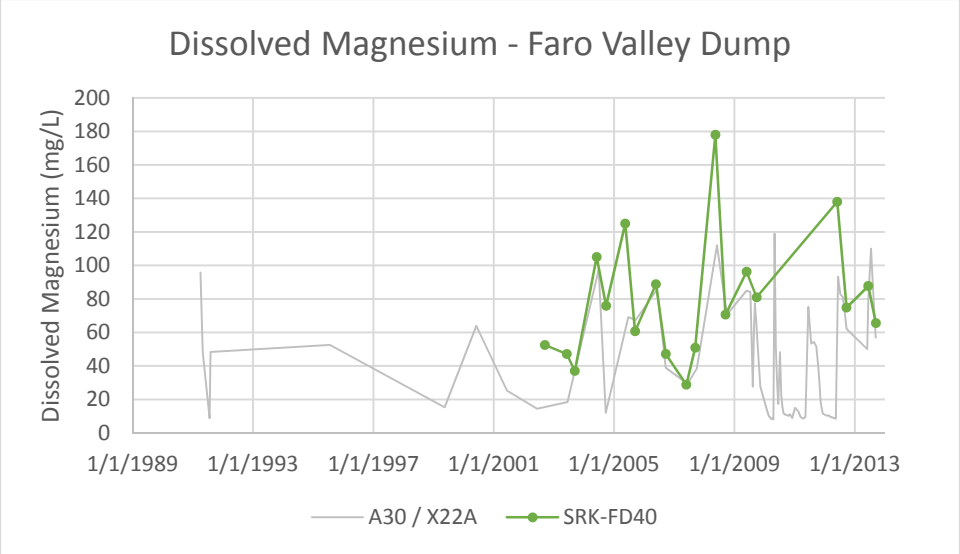


FIGURE 1-6
Faro Valley Waste Dump Water Quality Time Series Plots
Faro Mine Remediation Project





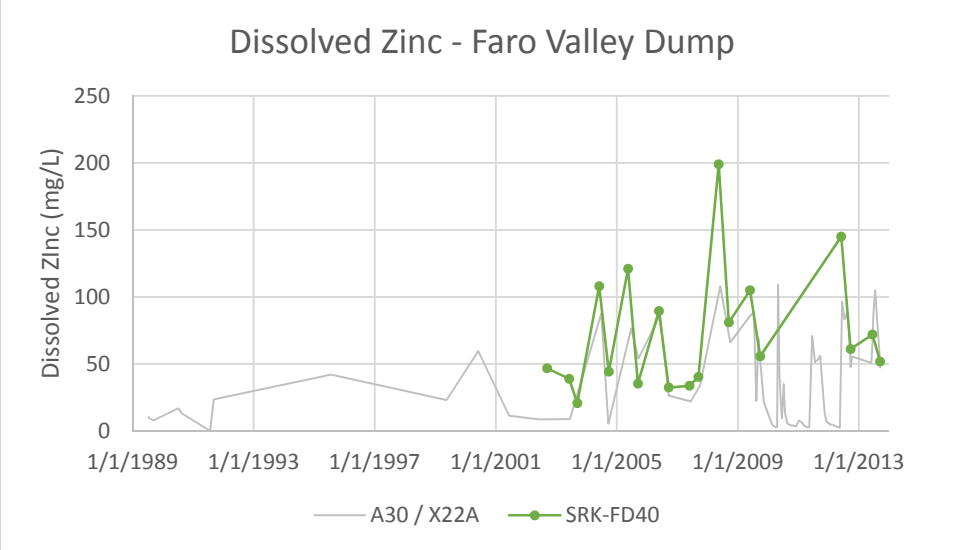
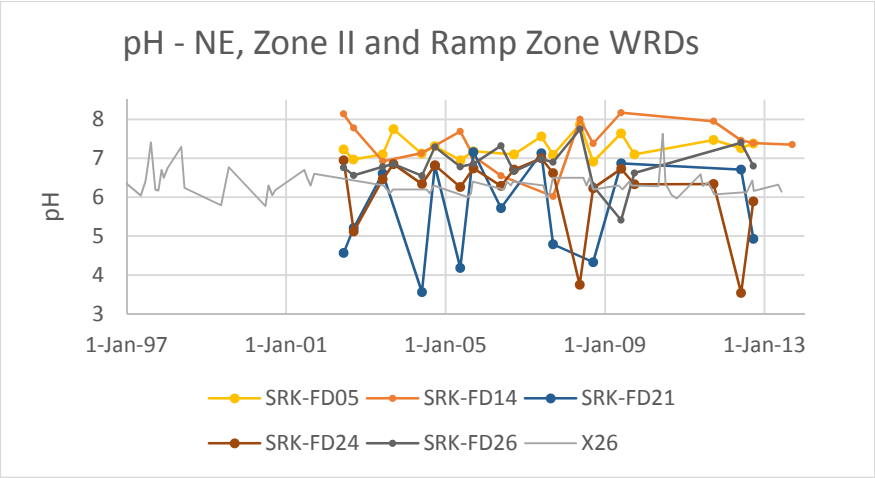
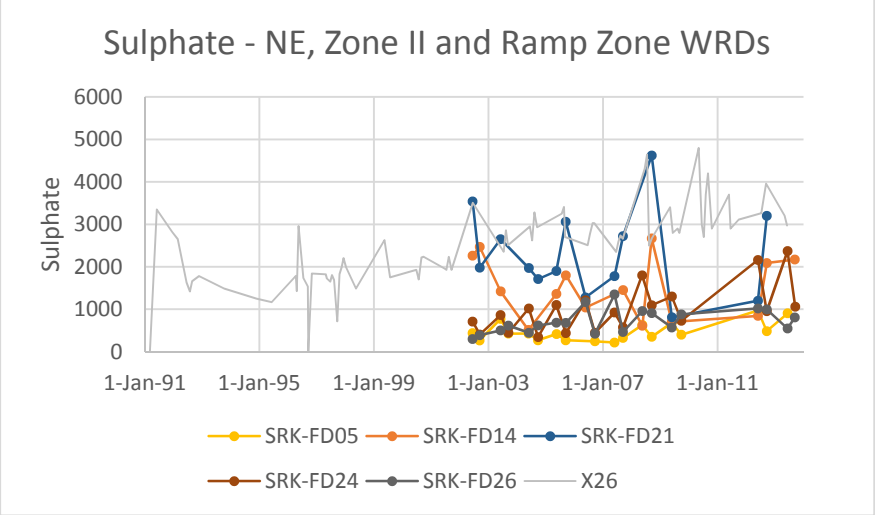


FIGURE 1-6 (CONTINUED)
Faro Valley Waste Dump Water Quality Time Series Plots
Faro Mine Remediation Project





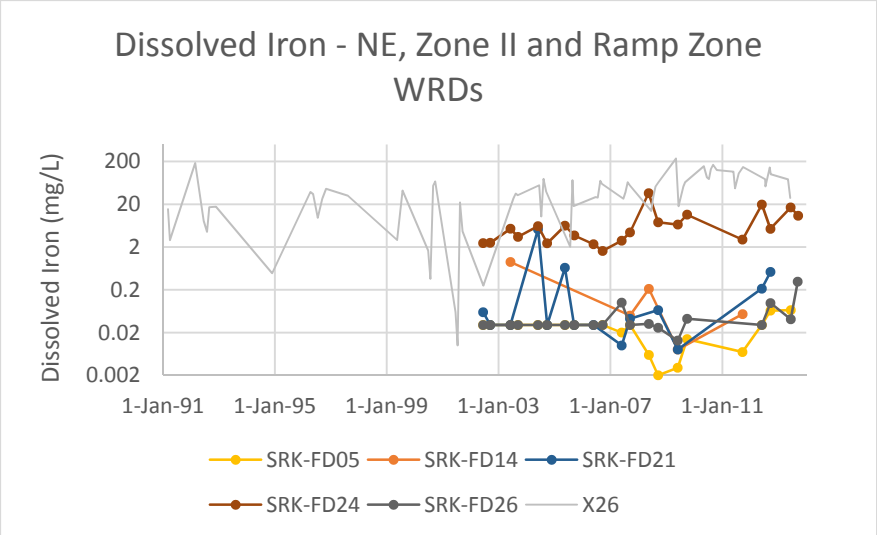
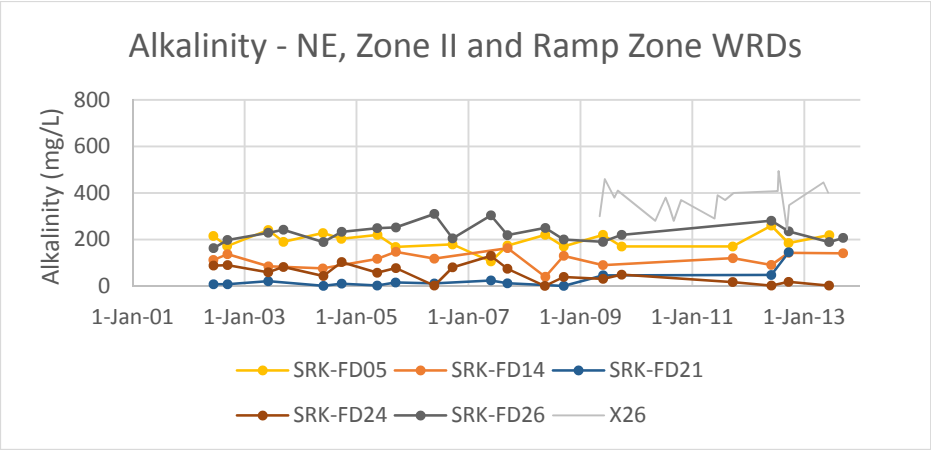
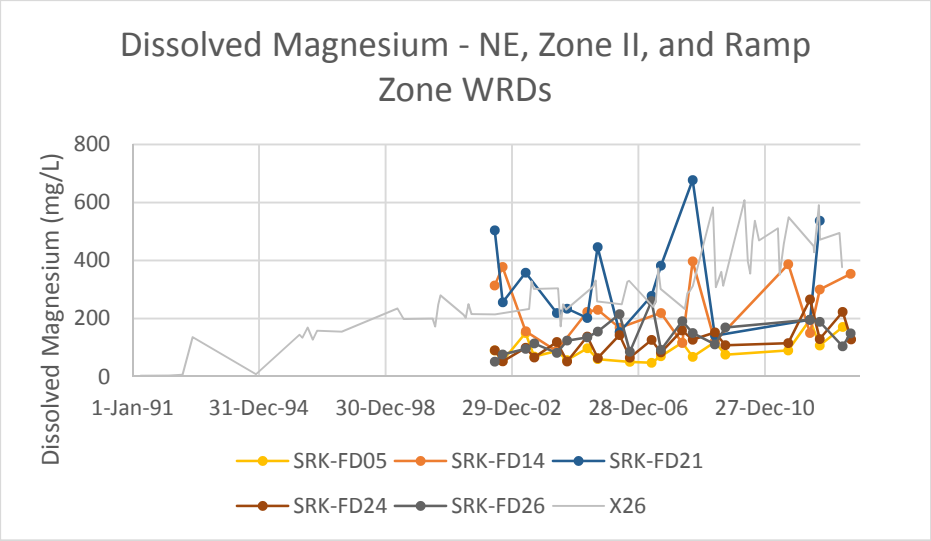


FIGURE 1-7

Zone II, Northeast, and Ramp Zone Waste Dump Water Quality Time Series Plots

Faro Mine Remediation Project





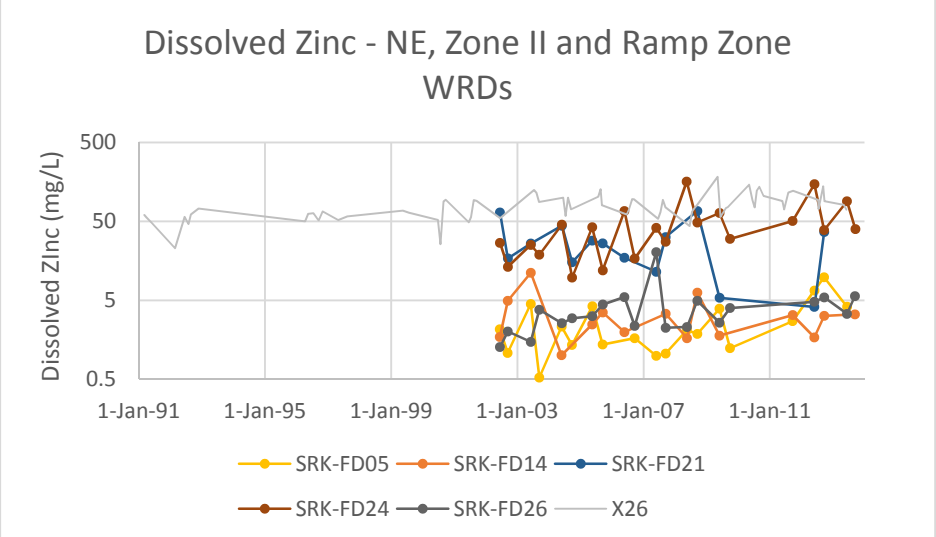
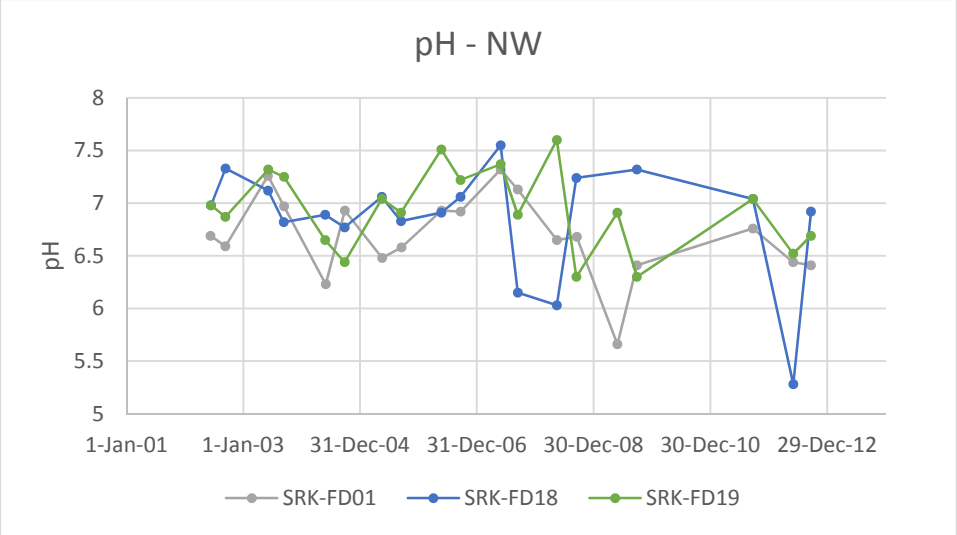
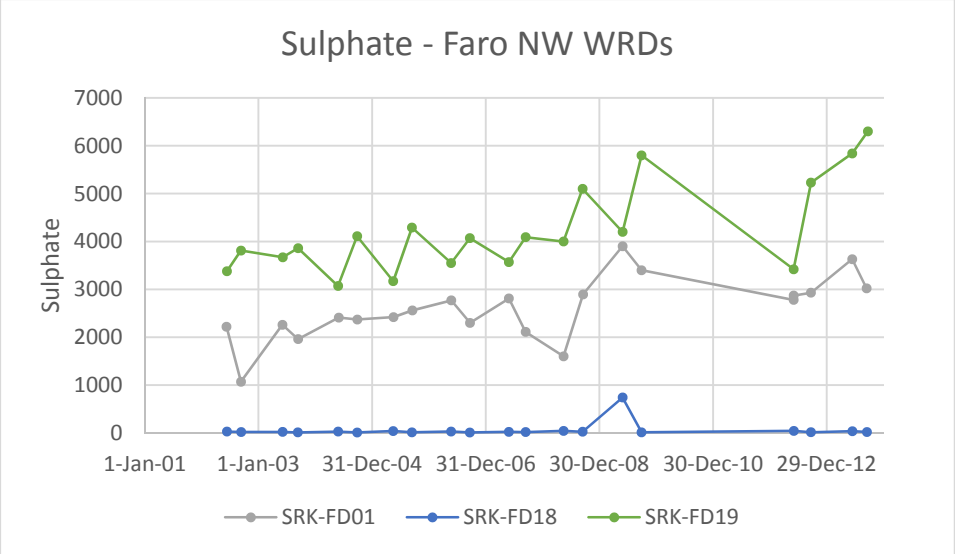


FIGURE 1-7 (CONTINUED)
Zone II, Northeast, and Ramp Zone Waste Dump Water Quality Time Series Plots
Faro Mine Remediation Project





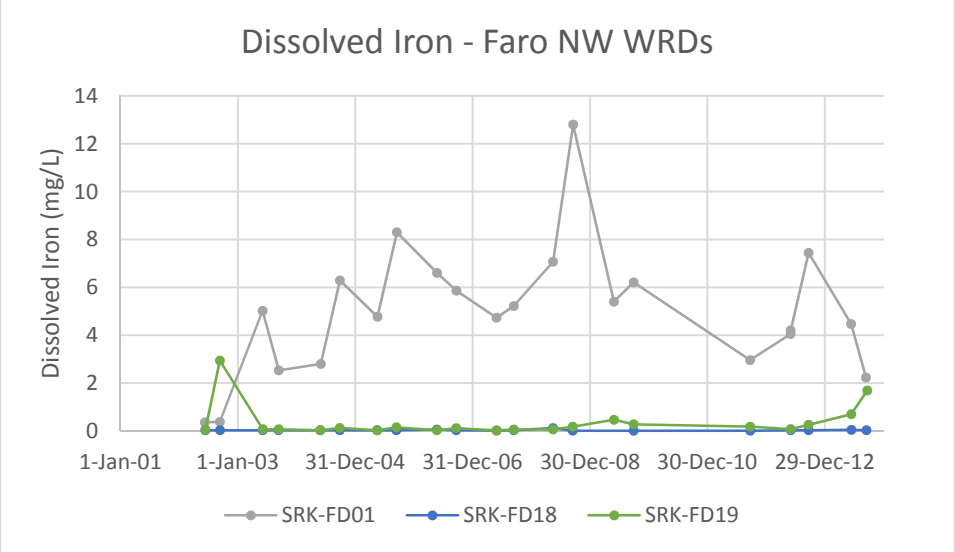
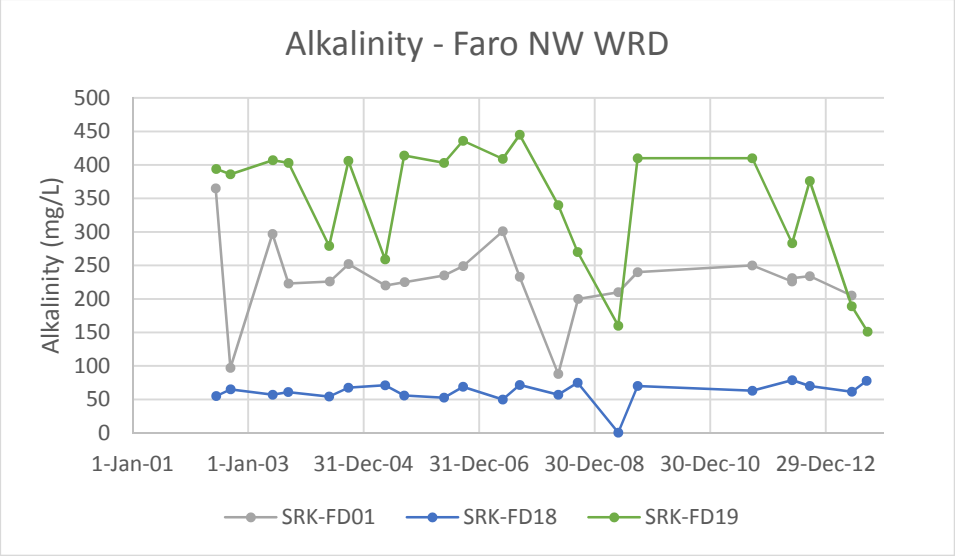
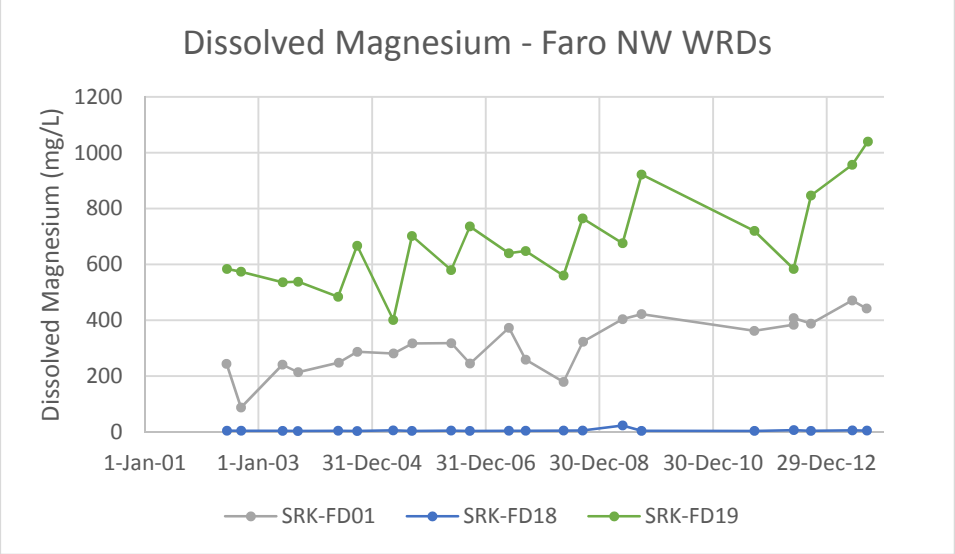


FIGURE 1-8
Northwest Waste Dump Water Quality Time Series Plots
Faro Mine Remediation Project





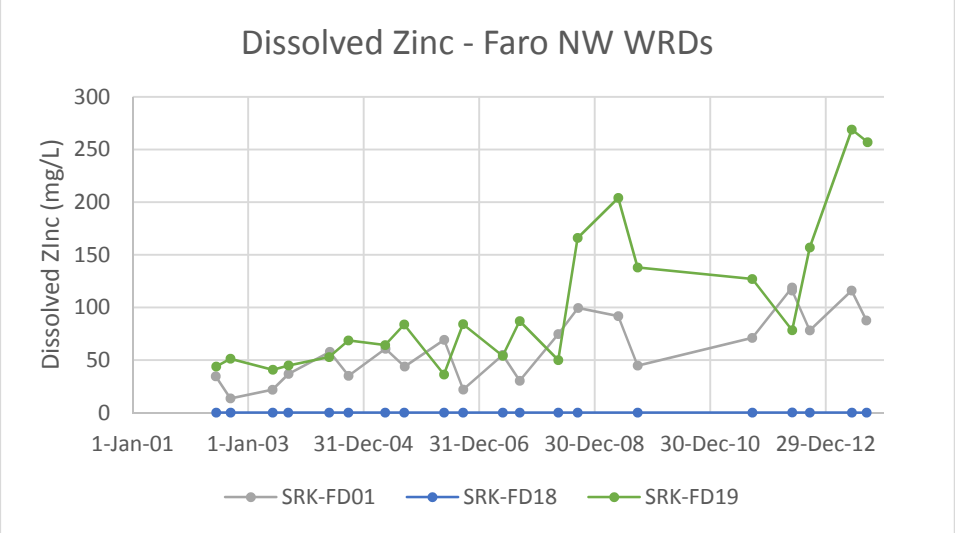
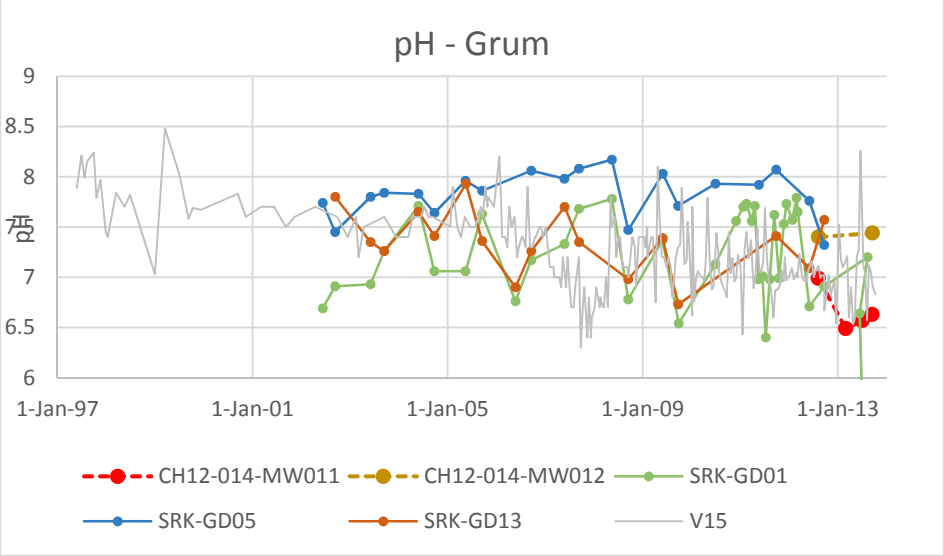
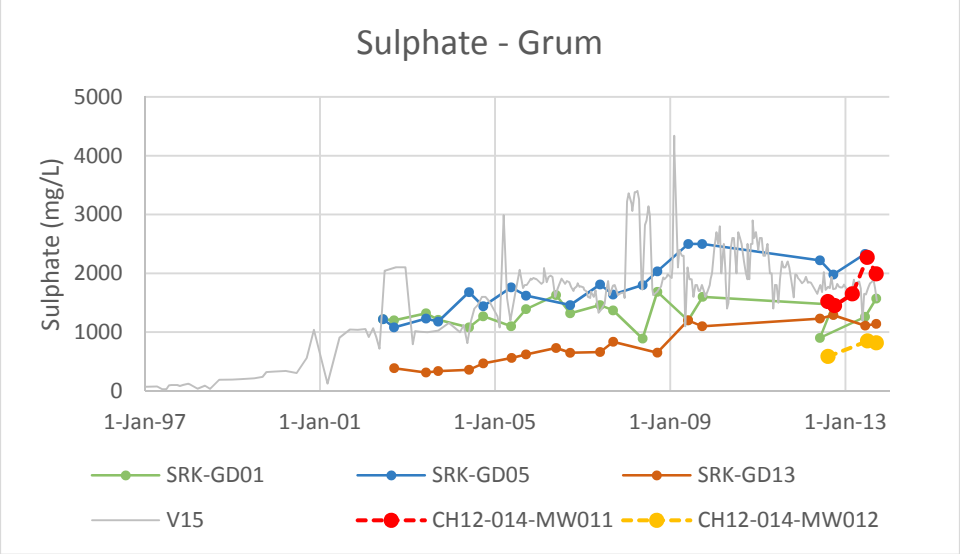


FIGURE 1-8 (CONTINUED)
Northwest Waste Dump Water Quality Time Series Plots
Faro Mine Remediation Project





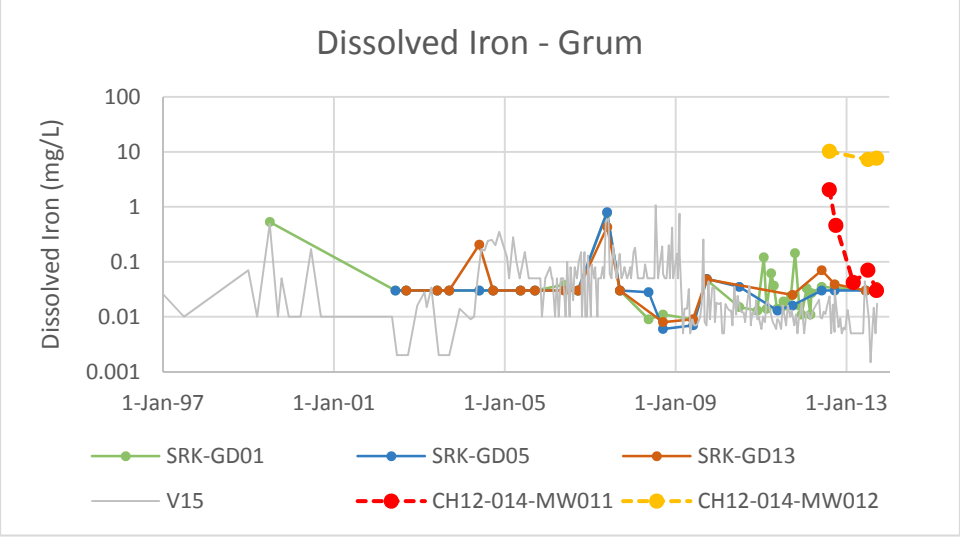
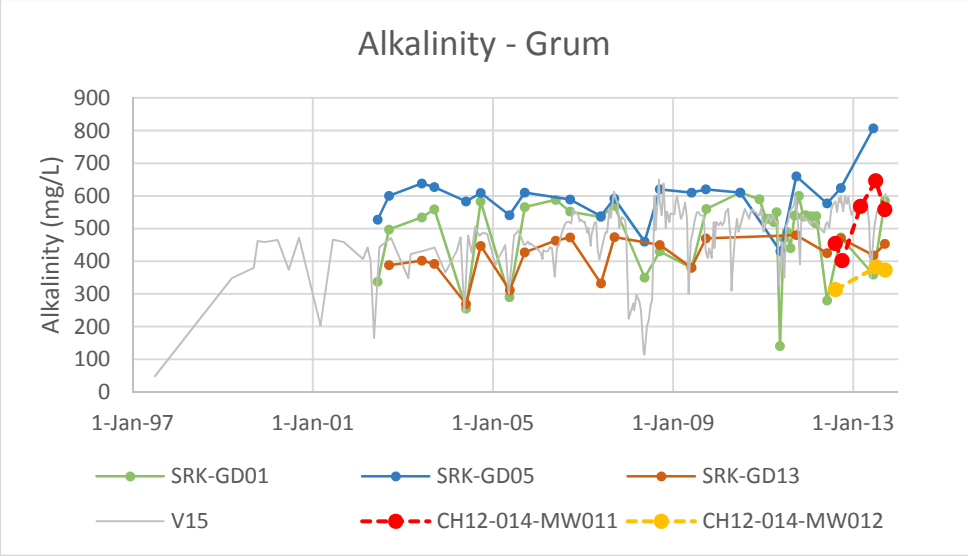
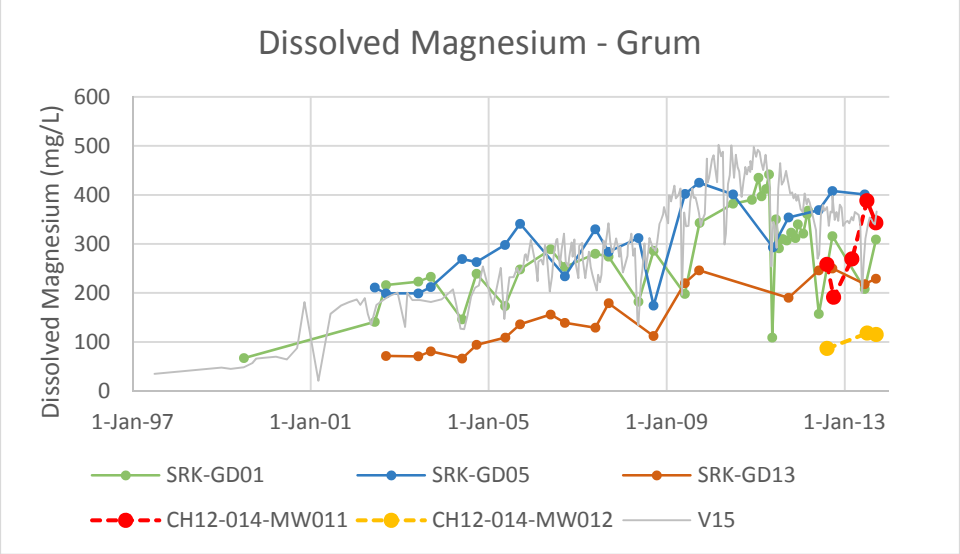


FIGURE 1-9
Grum Waste Dump Water Quality Time Series Plots
Faro Mine Remediation Project





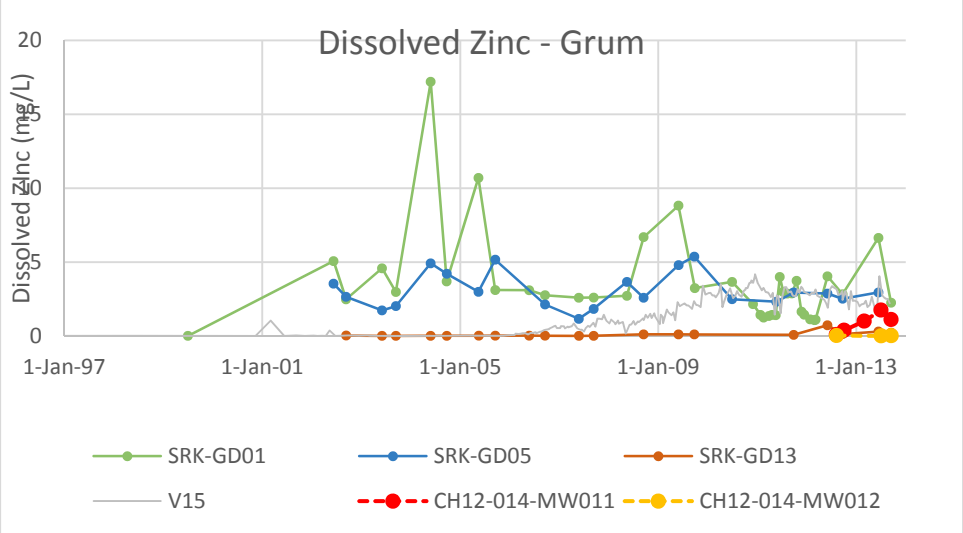
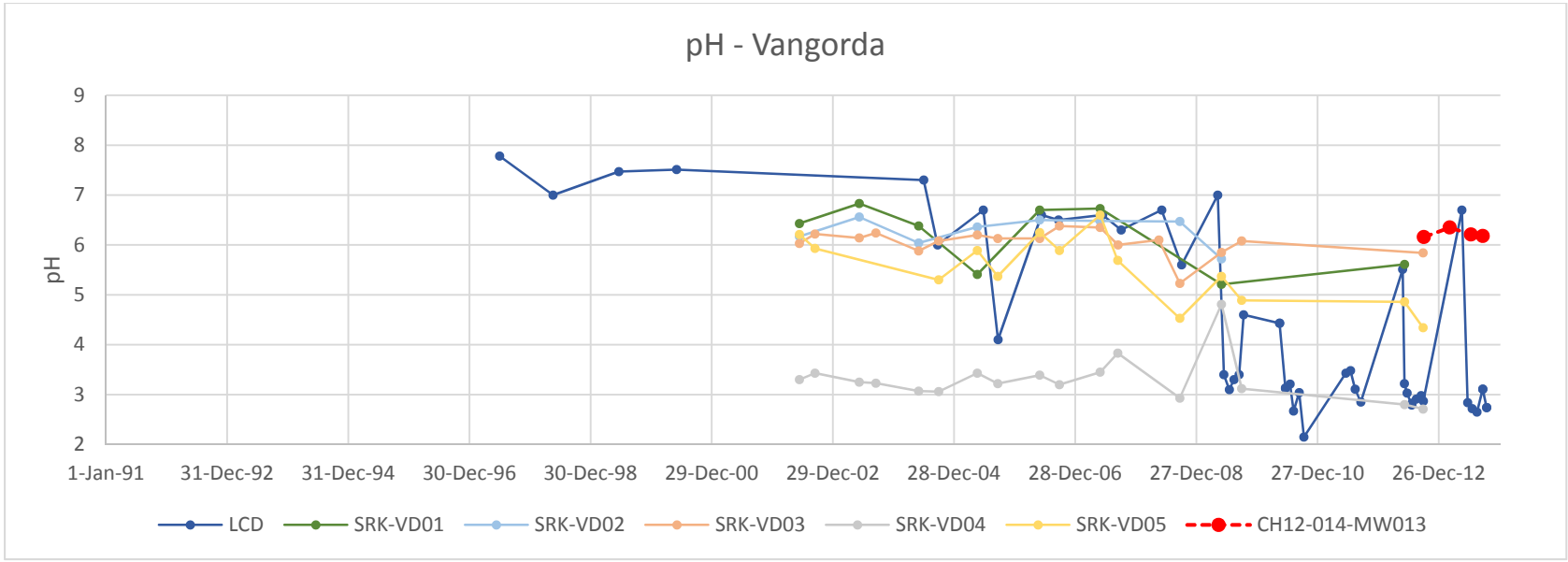


FIGURE 1-9 (CONTINUED)
Grum Waste Dump Water Quality Time Series Plots
Faro Mine Remediation Project



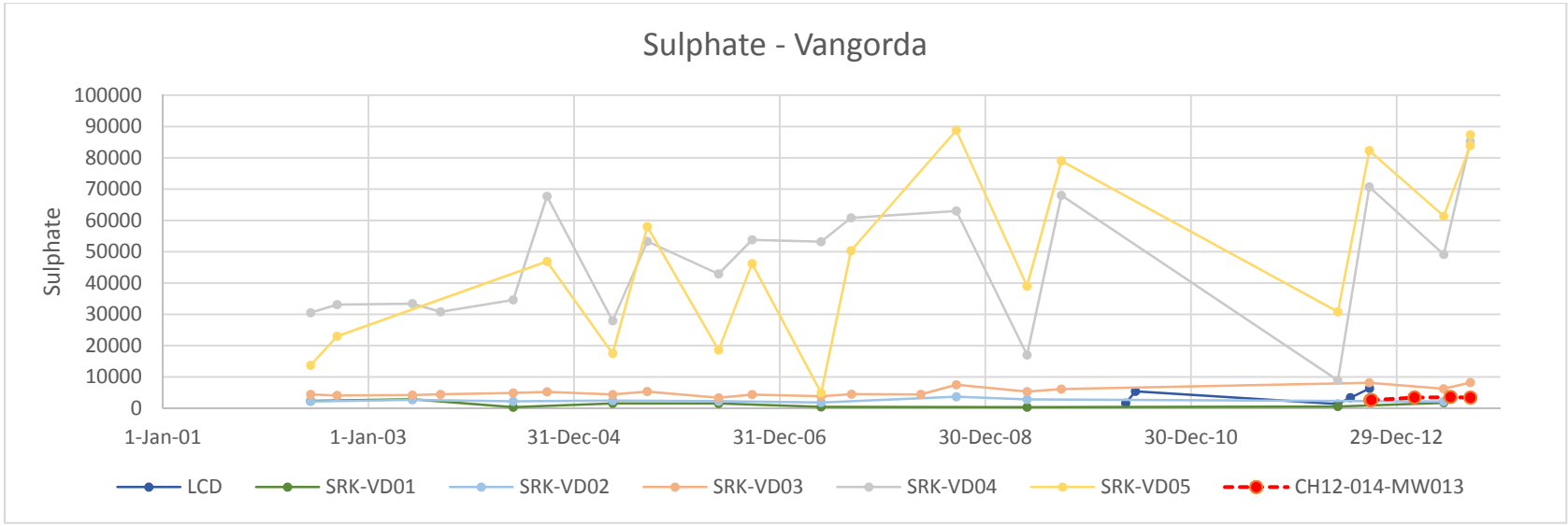
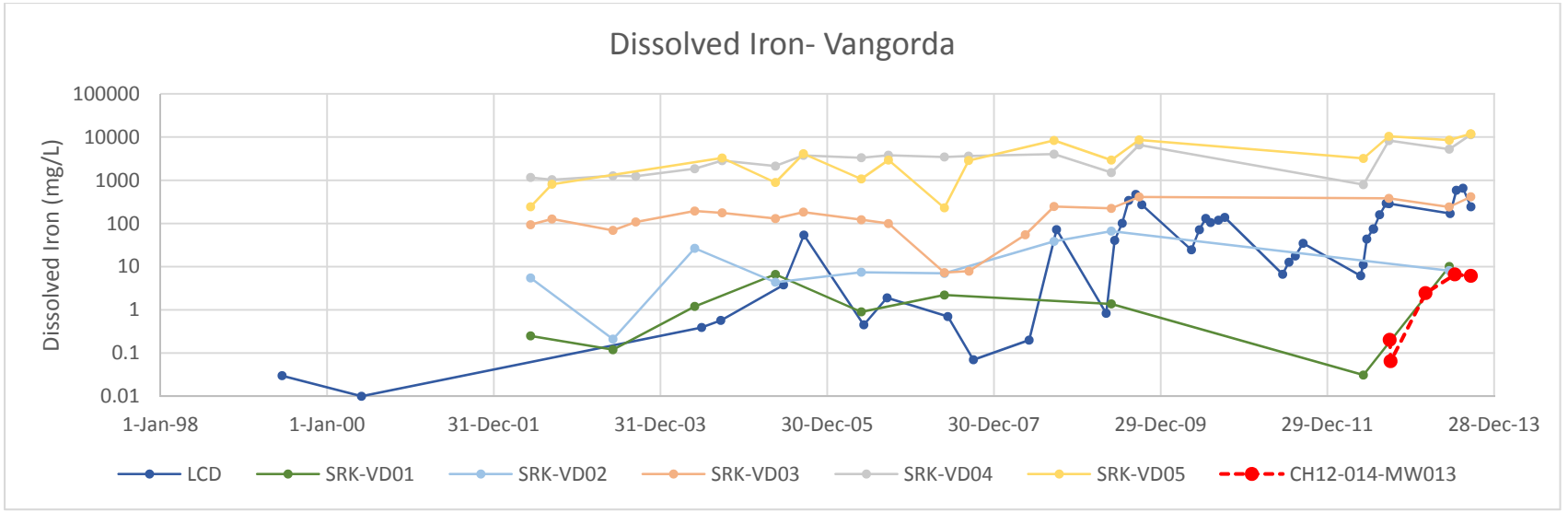


FIGURE 1-10
Vangorda Waste Dump Water Quality Time Series Plots
Faro Mine Remediation Project



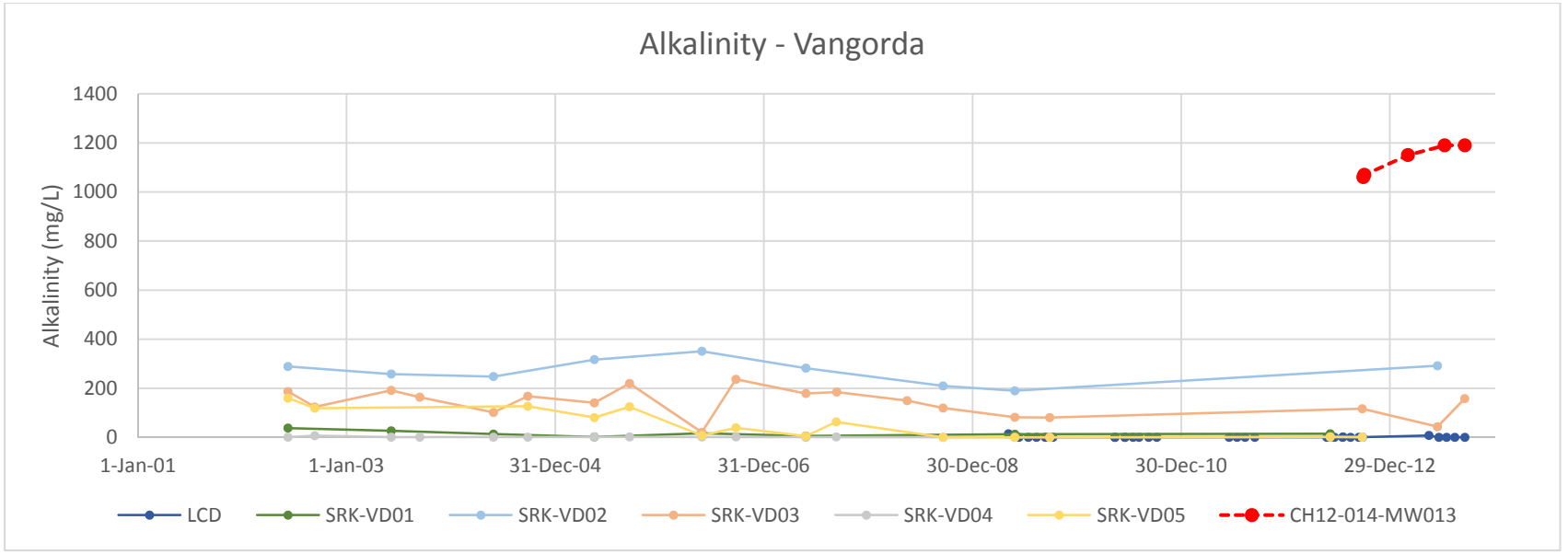
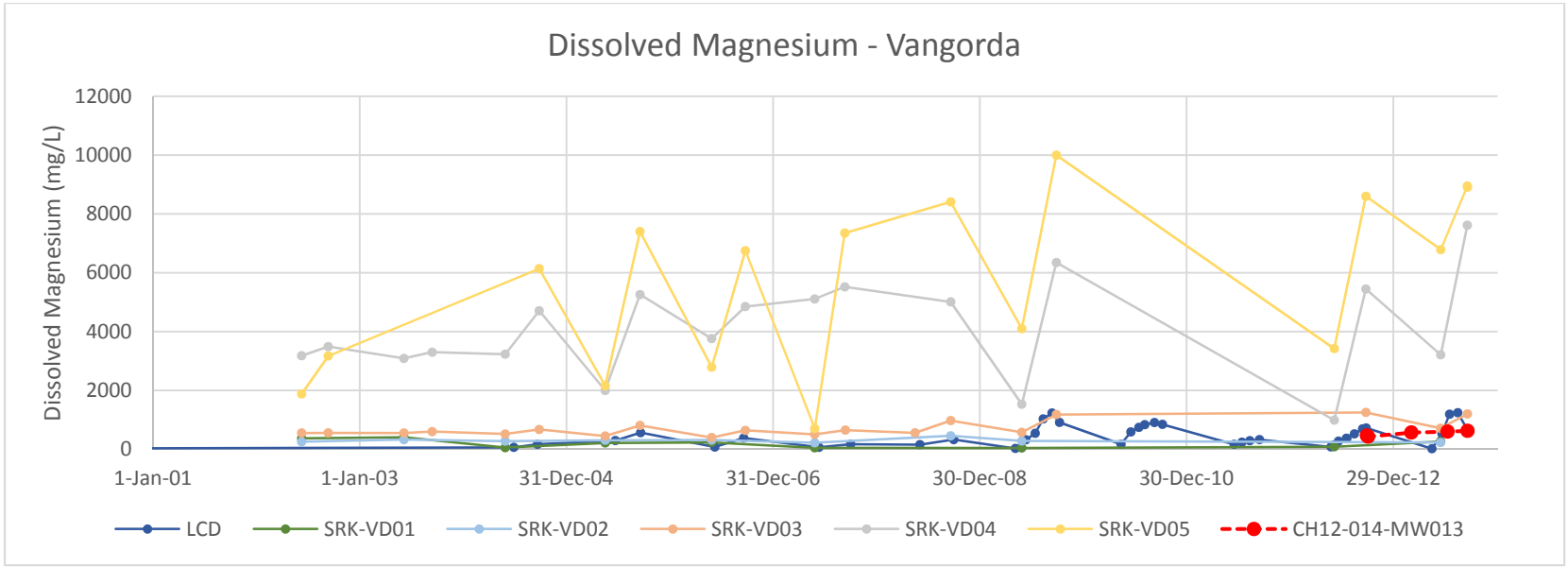


FIGURE 1-10 (CONTINUED)
Vangorda Waste Dump Water Quality Time Series Plots
Faro Mine Remediation Project



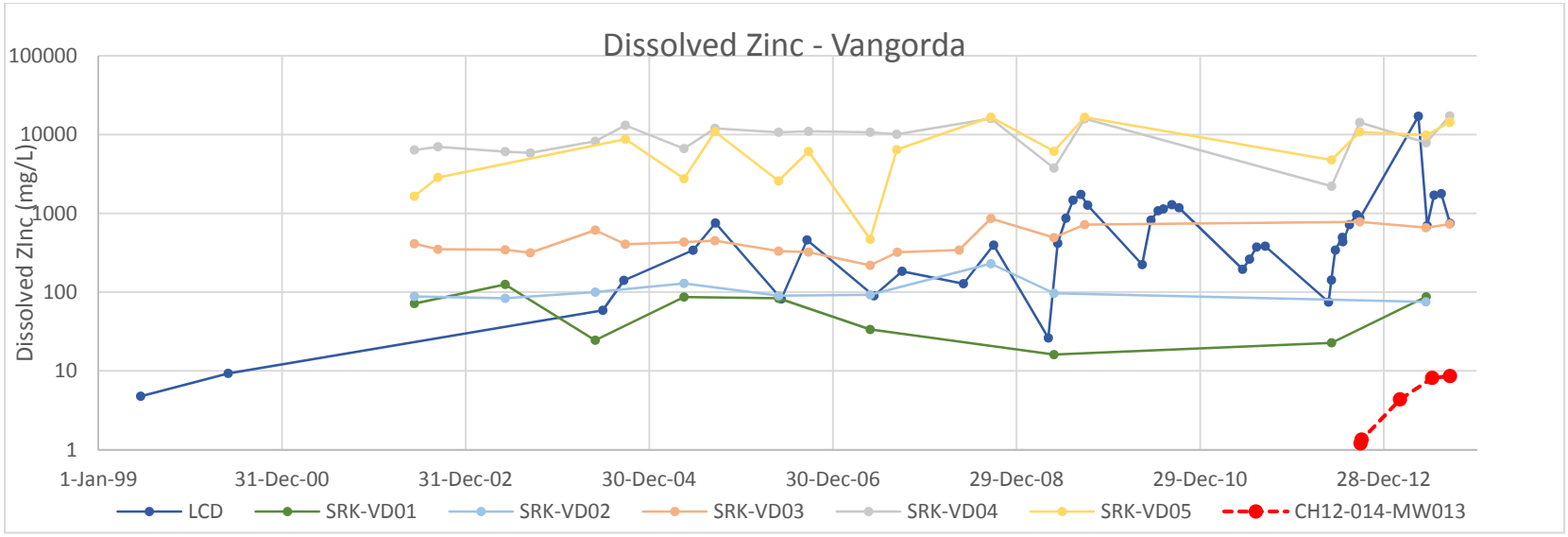
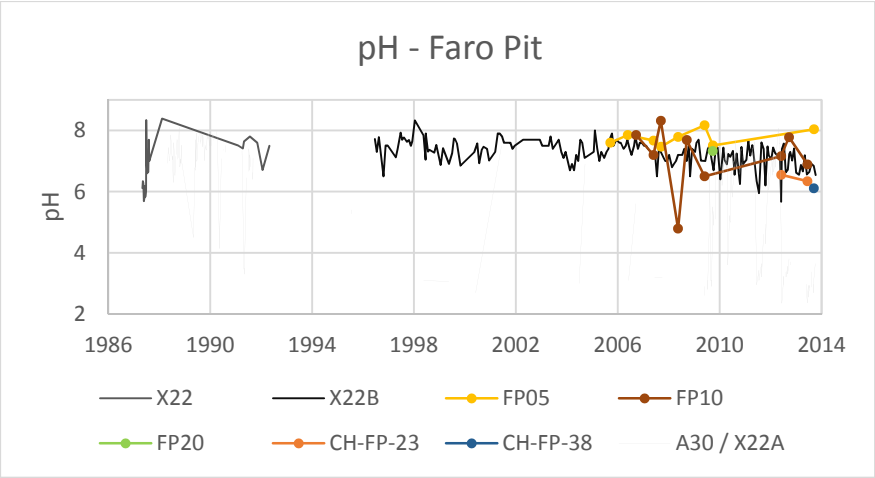
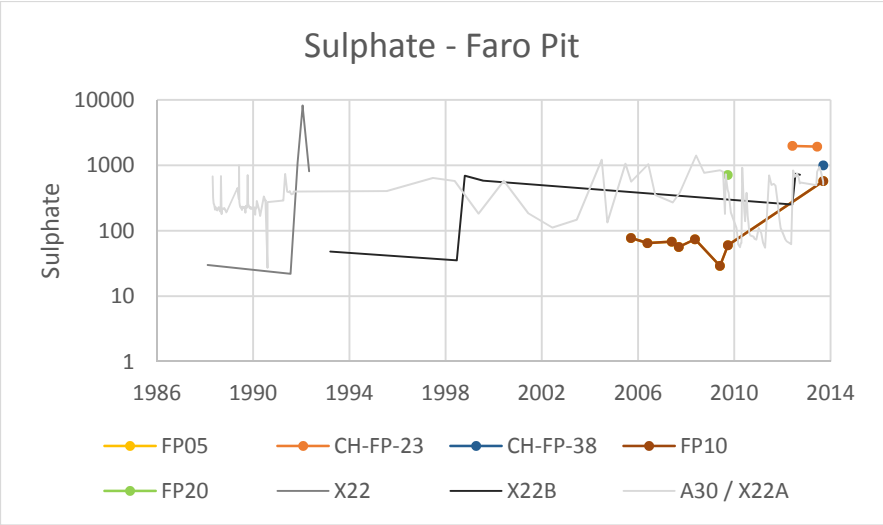


FIGURE 1-10 (CONTINUED)
Vangorda Waste Dump Water Quality Time Series Plots
Faro Mine Remediation Project





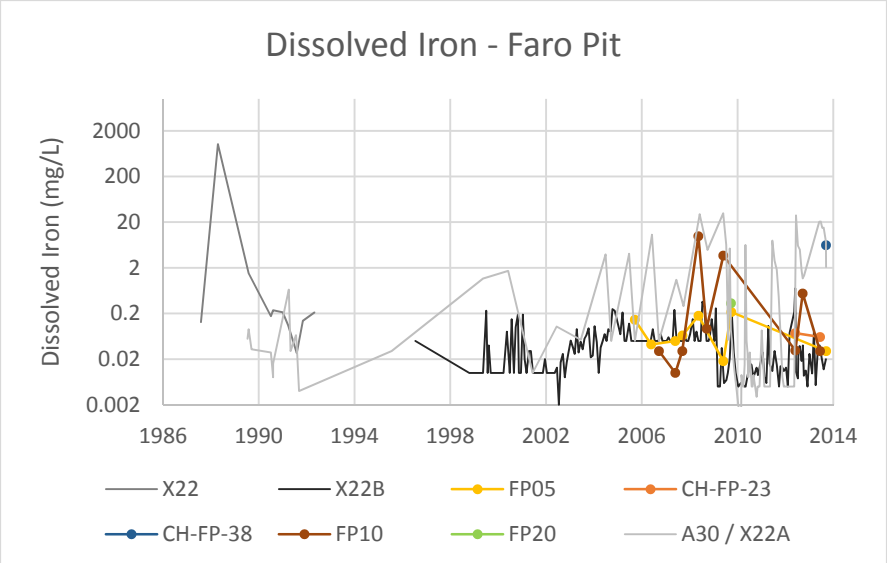
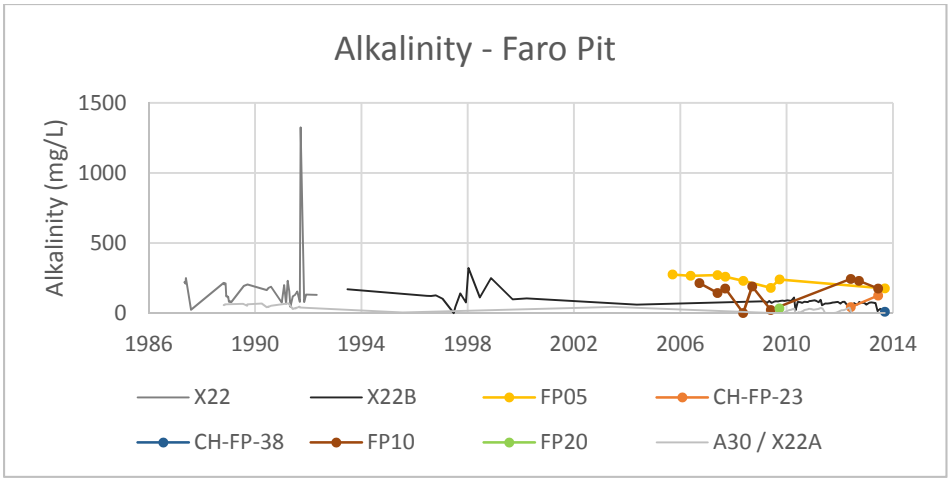
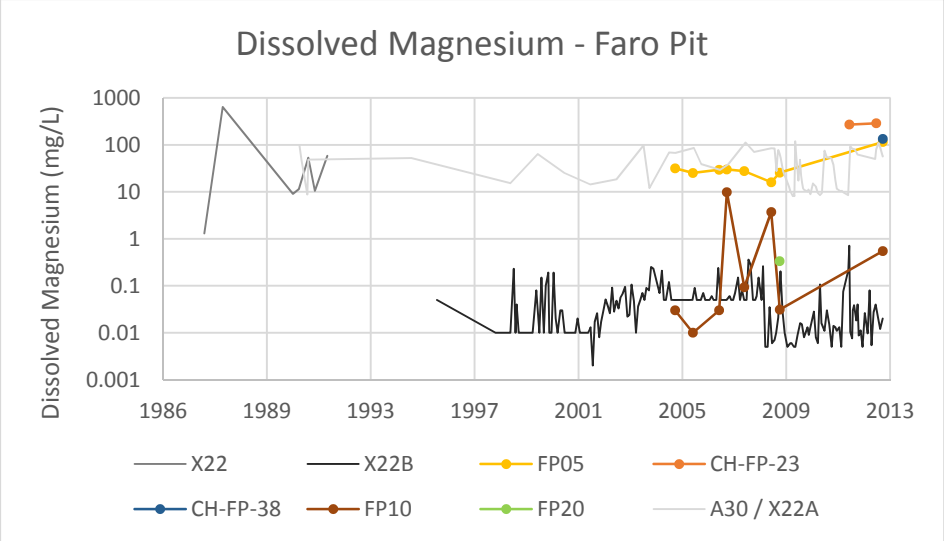


FIGURE 1-11
Faro Pit Water Quality Time Series Plots
Faro Mine Remediation Project





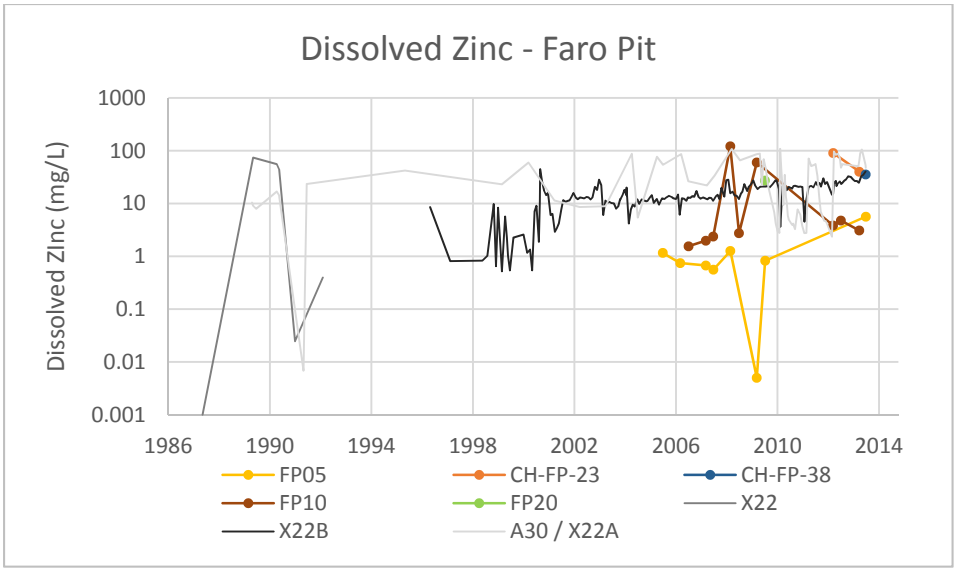
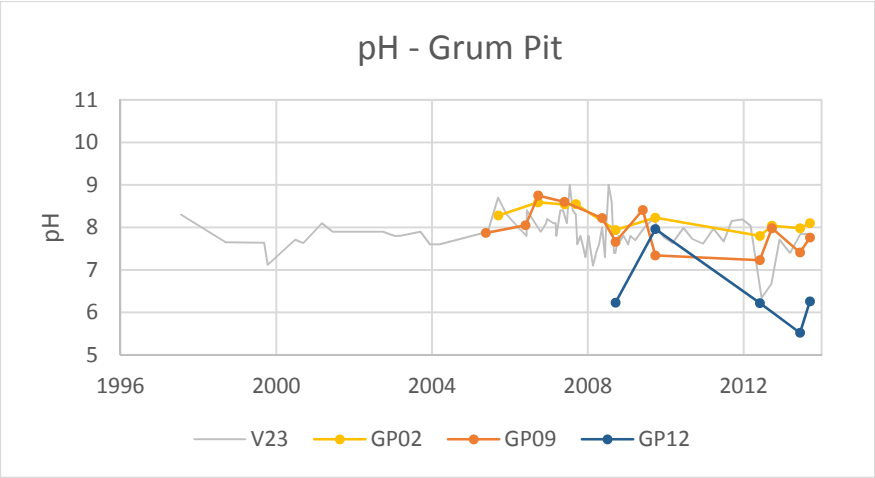
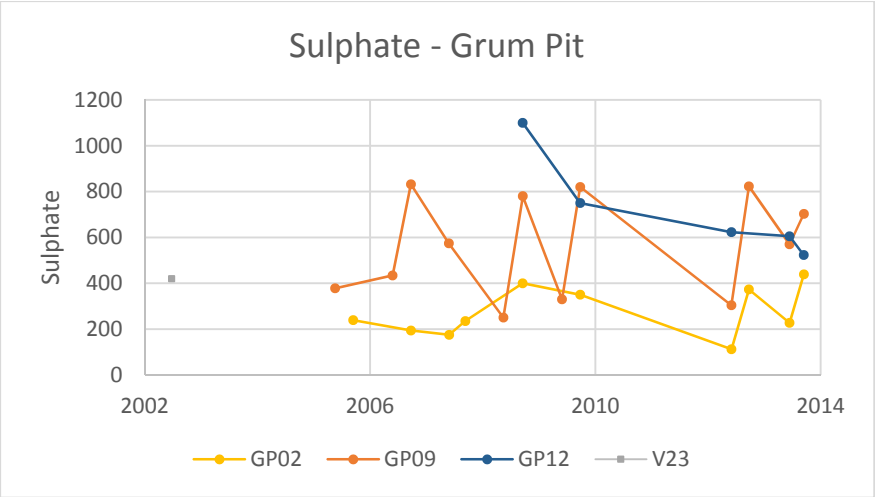


FIGURE 1-11 (CONTINUED)
Faro Pit Water Quality Time Series Plots
Faro Mine Remediation Project





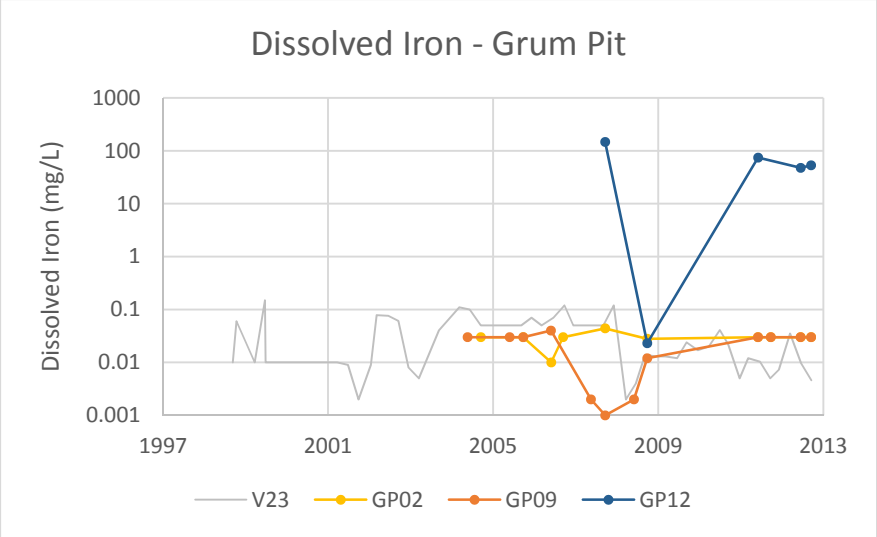
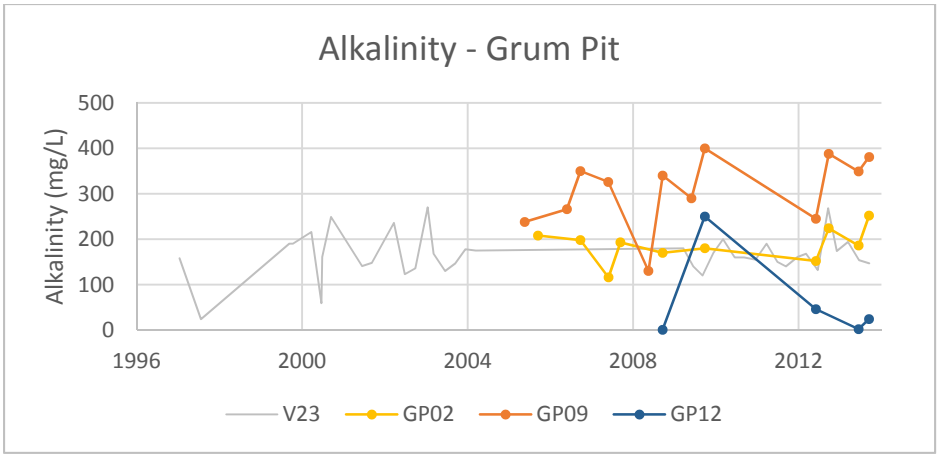
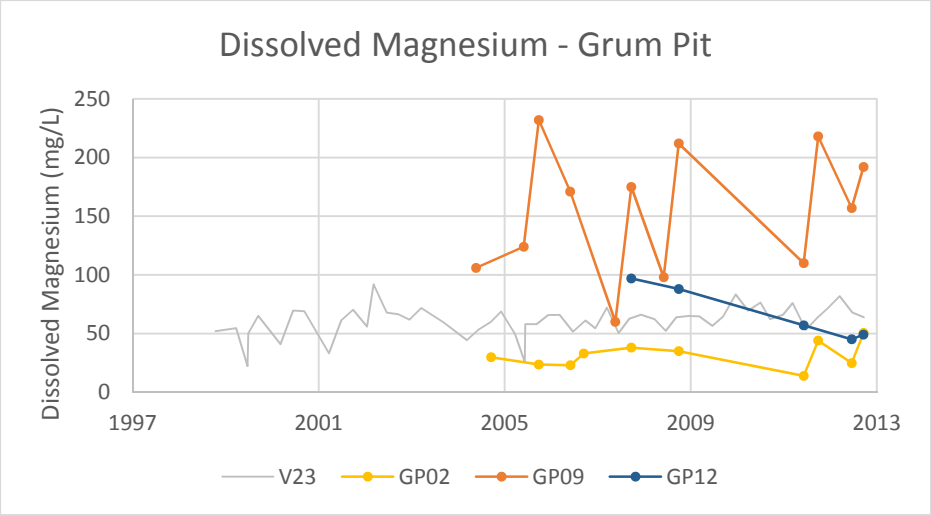


FIGURE 1-12
Grum Pit Water Quality Time Series Plots
Faro Mine Remediation Project





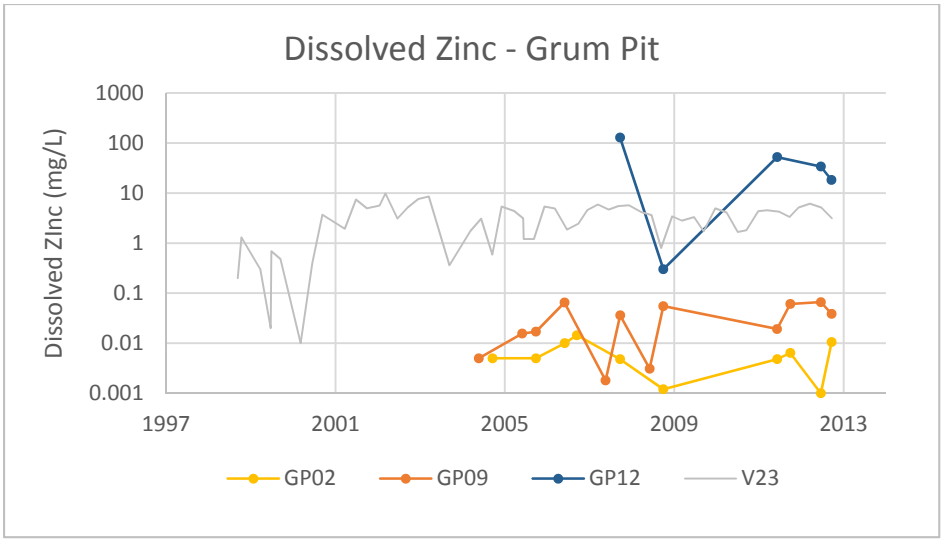
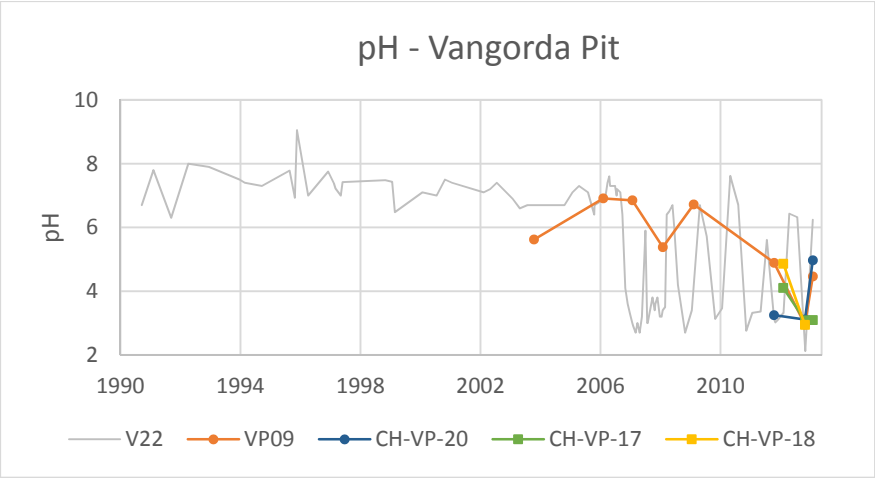
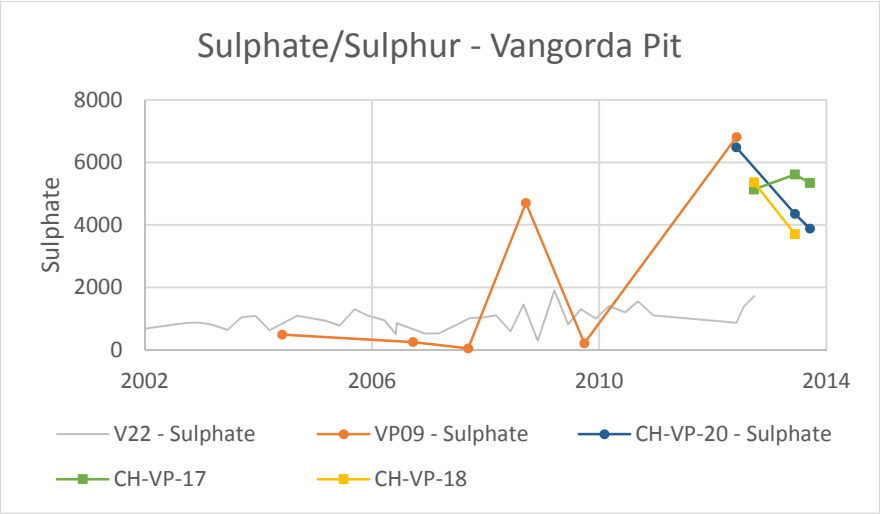


FIGURE 1-12 (CONTINUED)
Grum Pit Water Quality Time Series Plots
Faro Mine Remediation Project





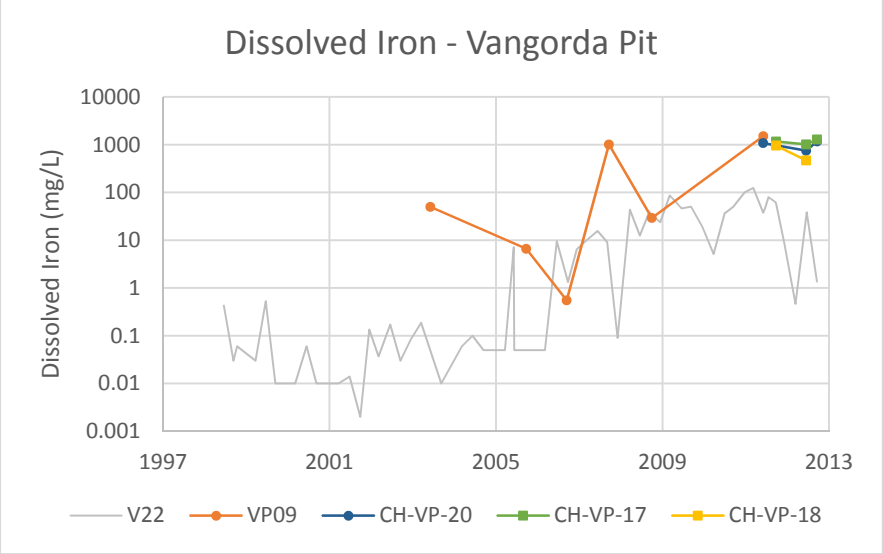
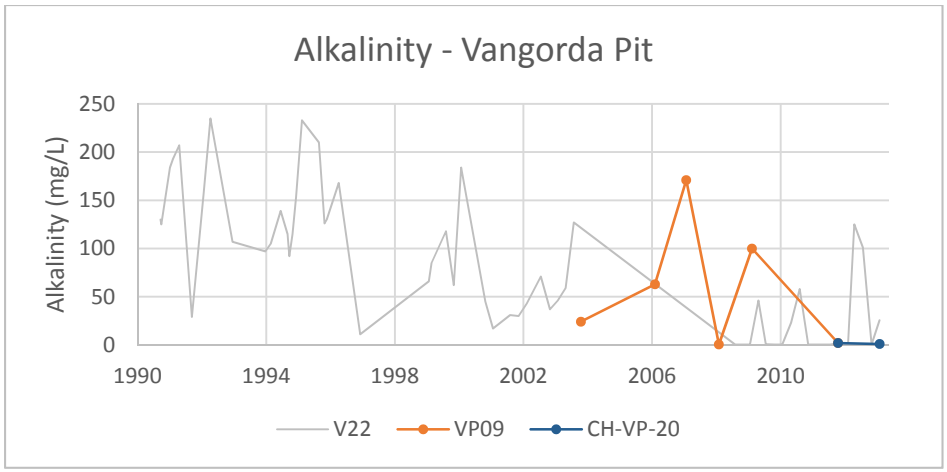
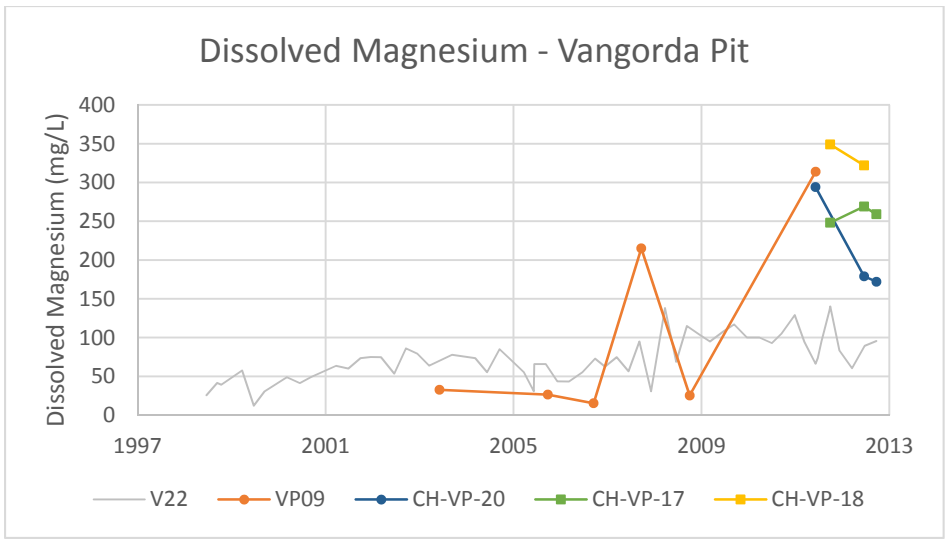


FIGURE 1-13
Vangorda Pit Water Quality Time Series Plots
Faro Mine Remediation Project





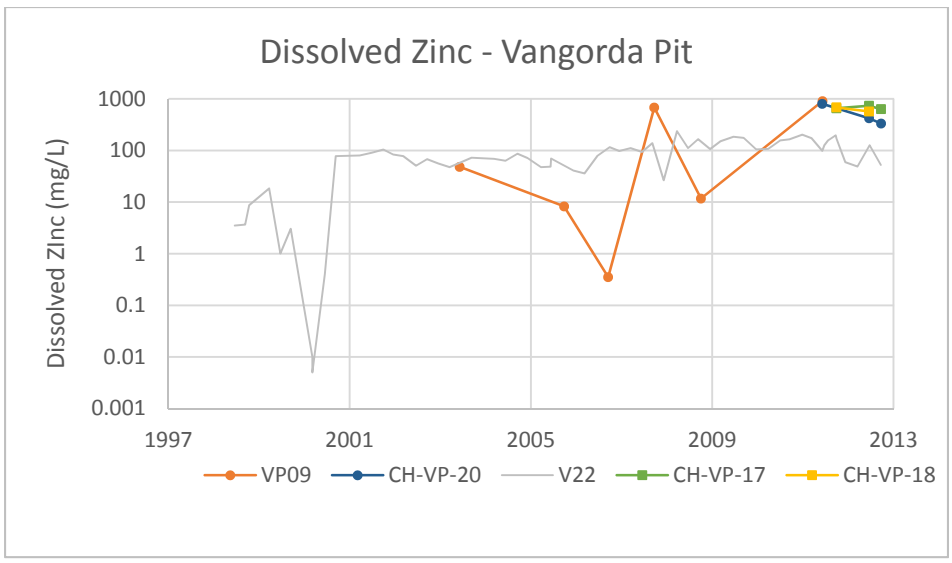
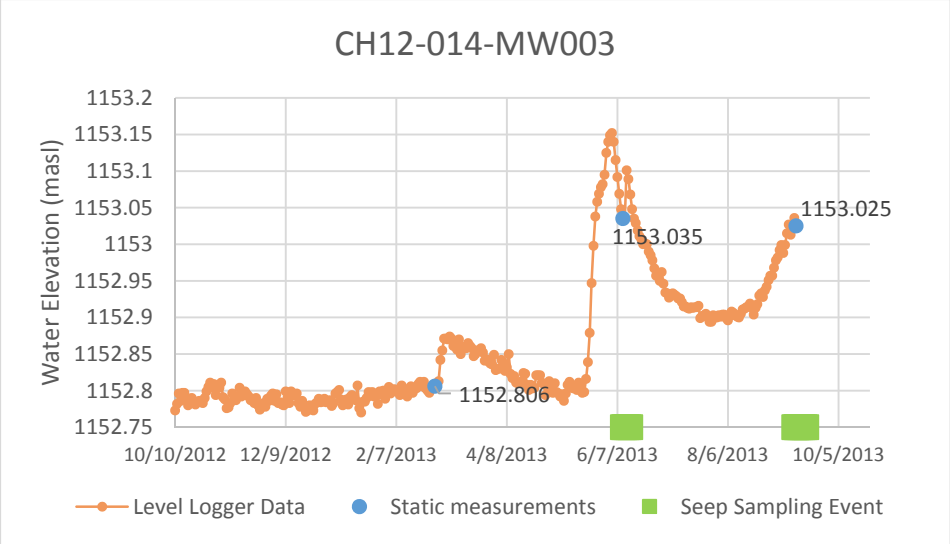
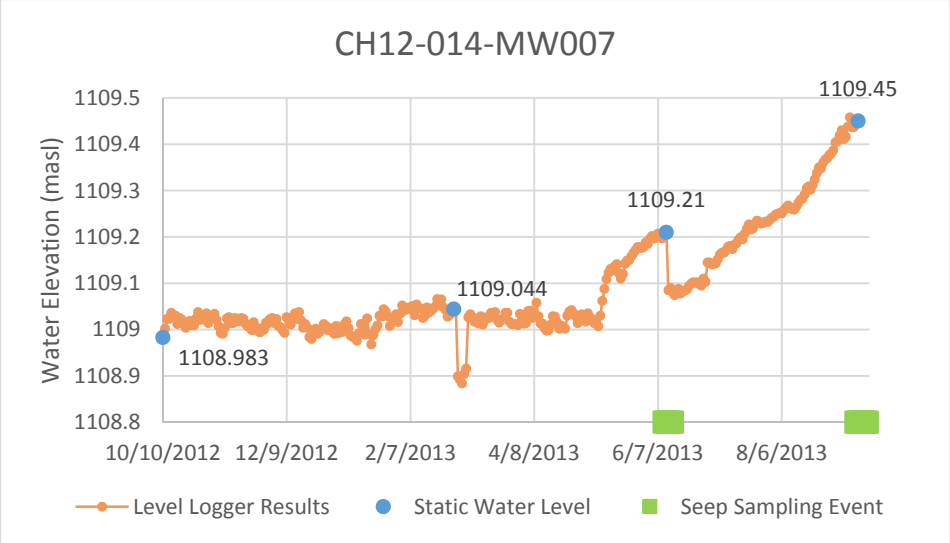


FIGURE 1-13 (CONTINUED)
Vangorda Pit Water Quality Time Series Plots
Faro Mine Remediation Project





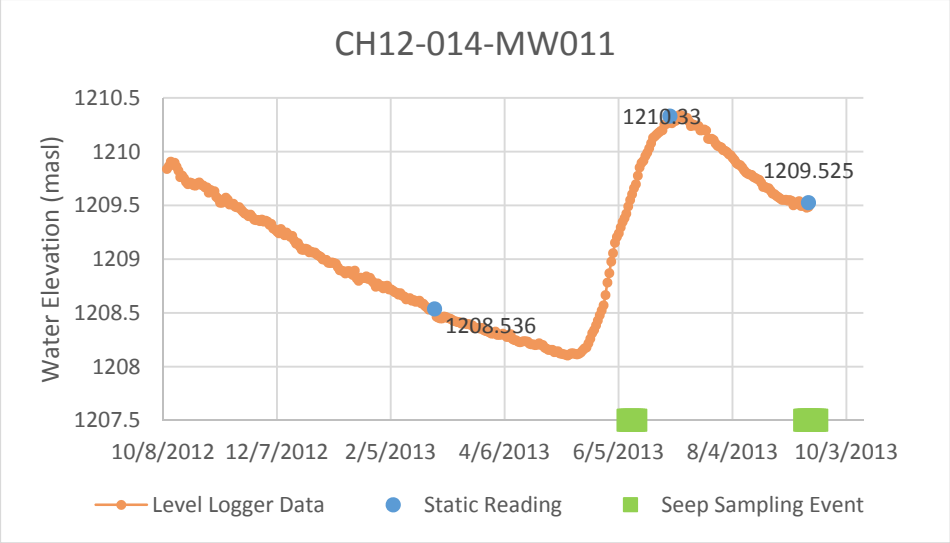
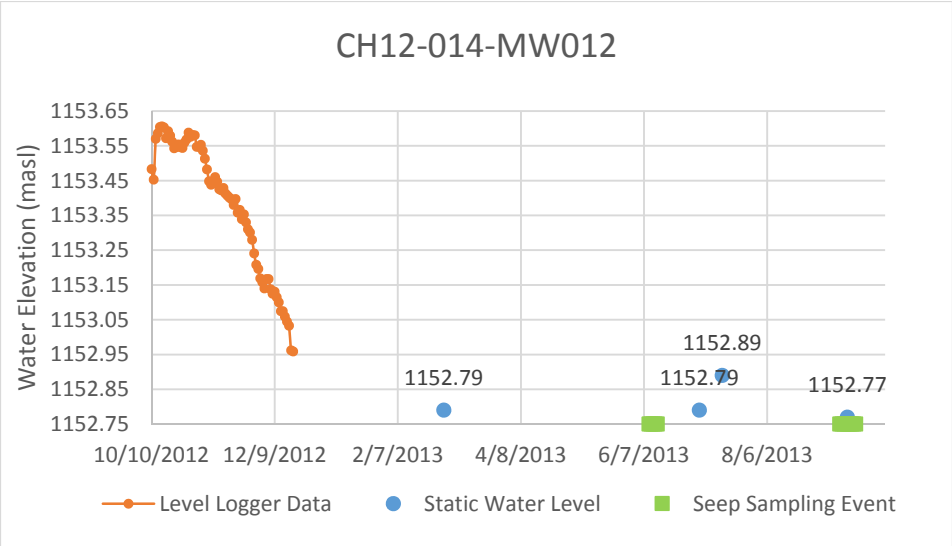


FIGURE 2-1
Waste Dump Monitoring Installation Water Level Plots
Faro Mine Remediation Project



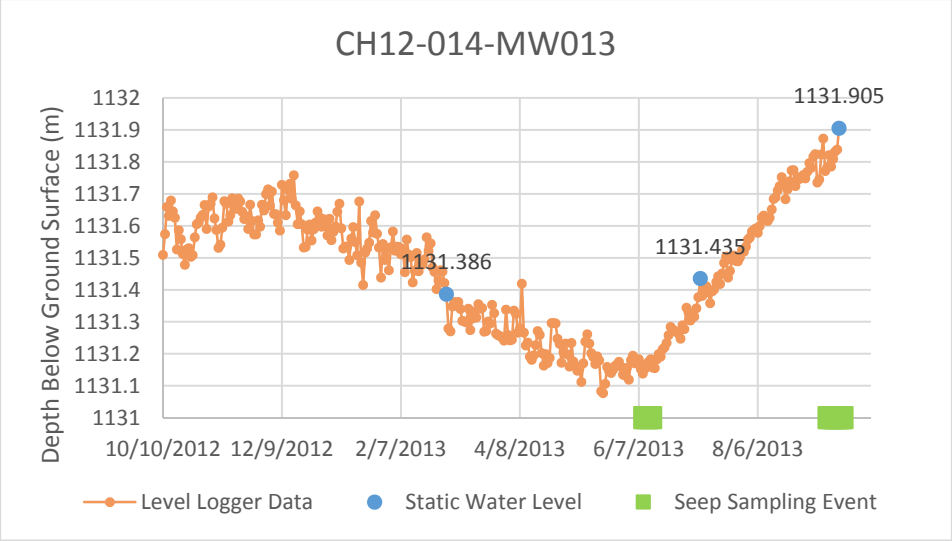
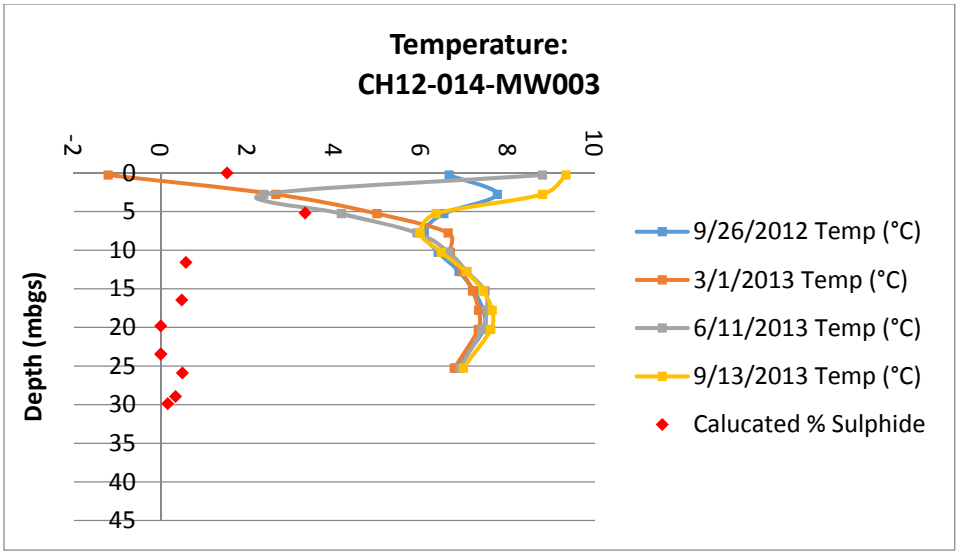
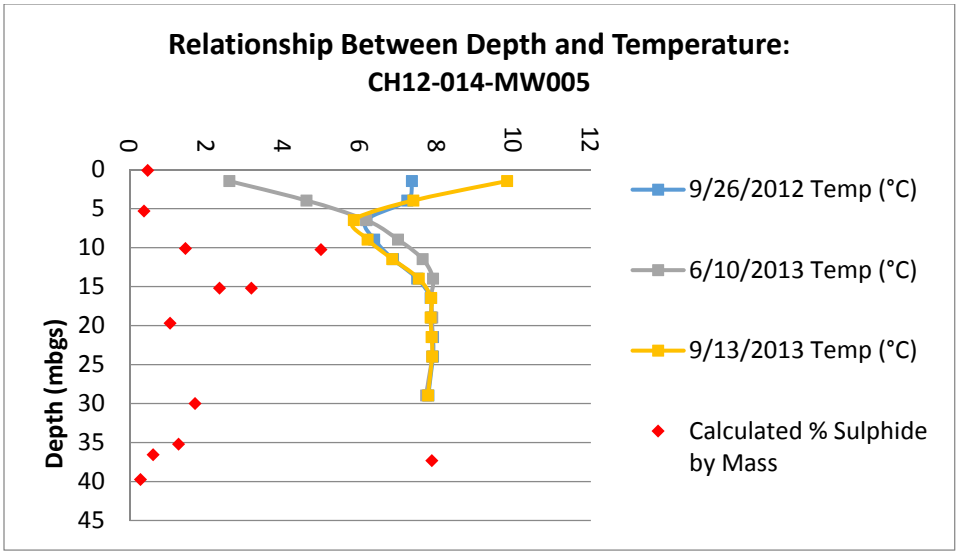


FIGURE 2-1 (CONTINUED)
Waste Dump Monitoring Installation Water Level Plots
Faro Mine Remediation Project





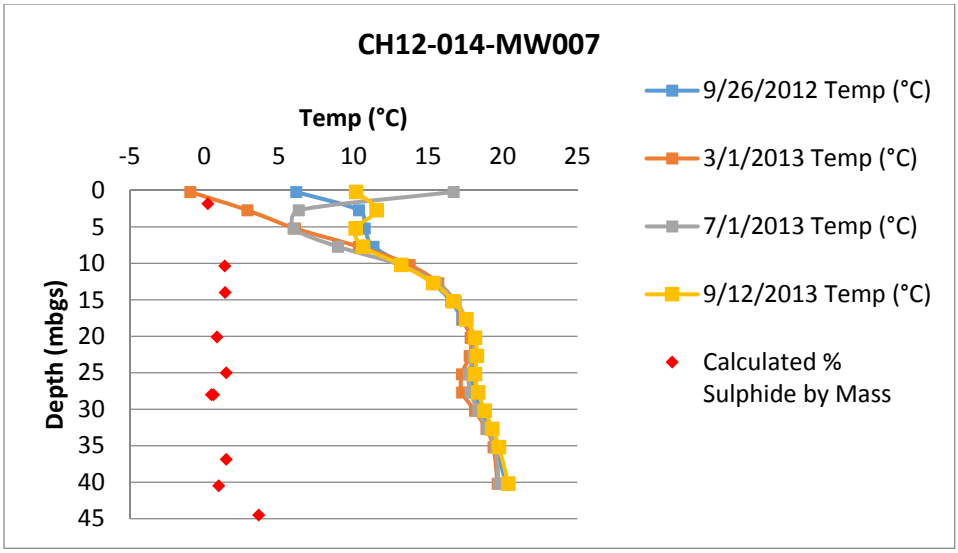
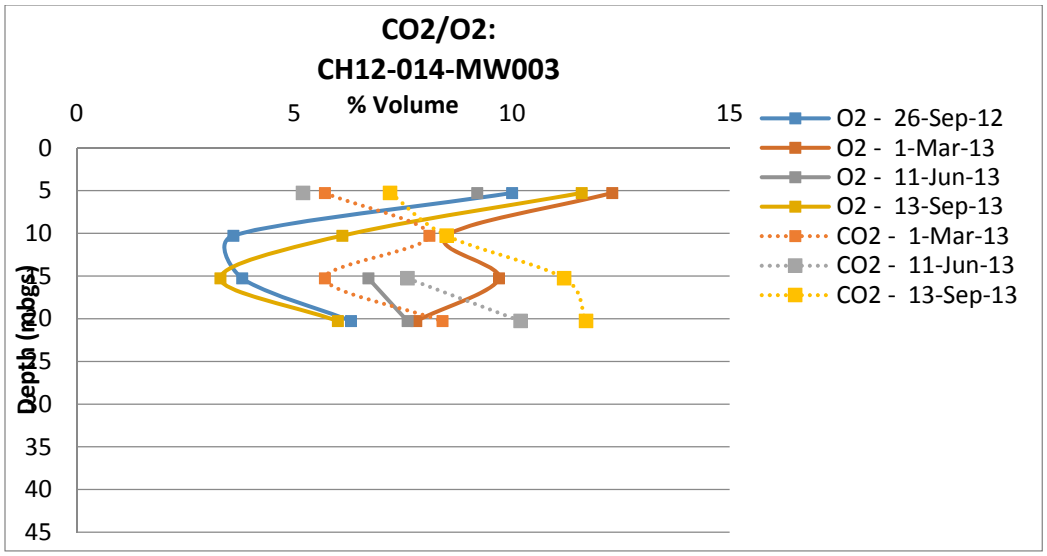
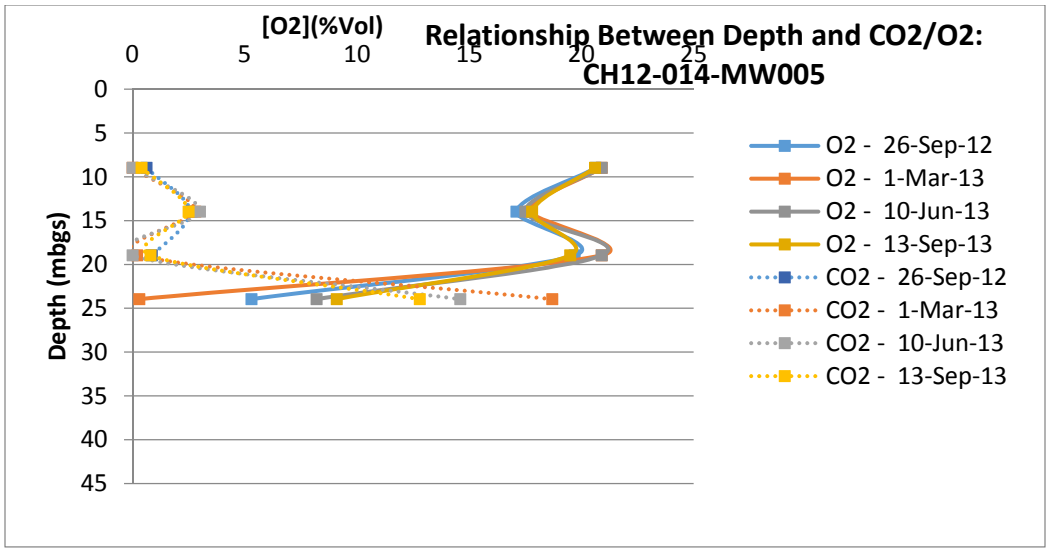


FIGURE 2-2
Waste Dump Monitoring Installation Soil Gas and Temperature Profiles – Faro Mine Area
Faro Mine Remediation Project





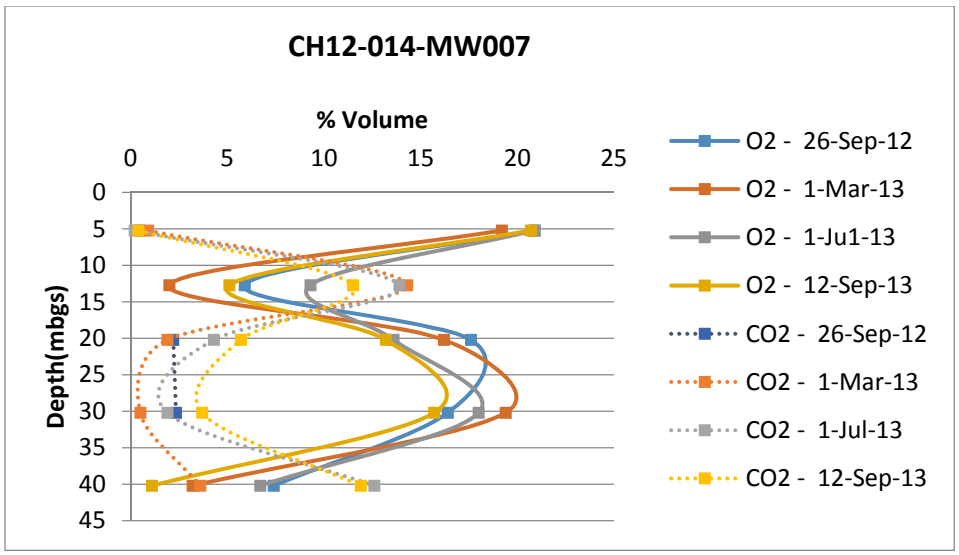
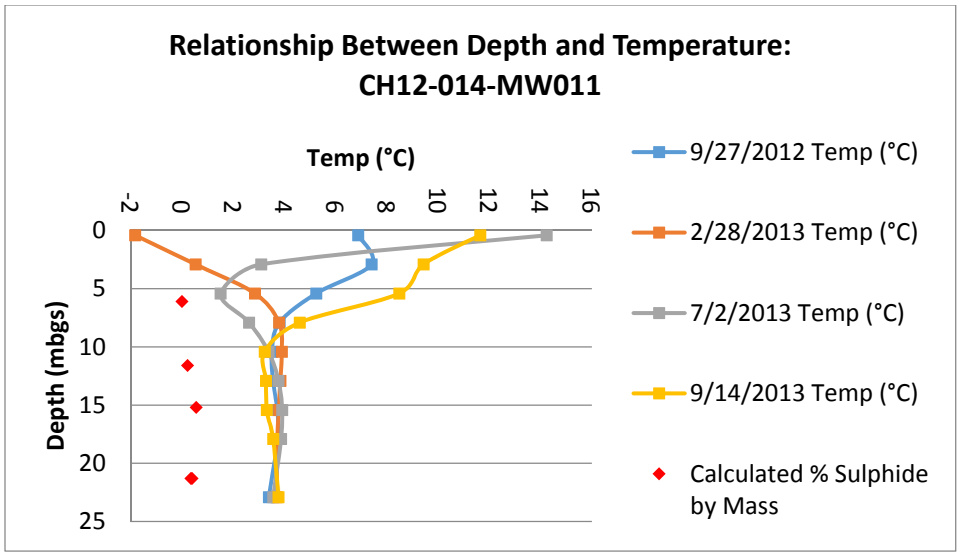
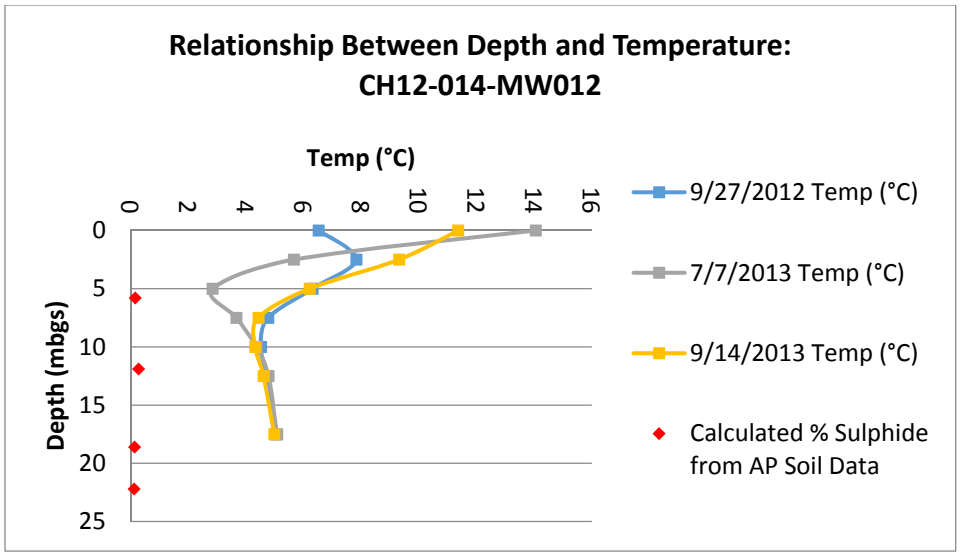


FIGURE 2-2 (CONTINUED)
Waste Dump Monitoring Installation Soil Gas and Temperature Profiles – Faro Mine Area
Faro Mine Remediation Project





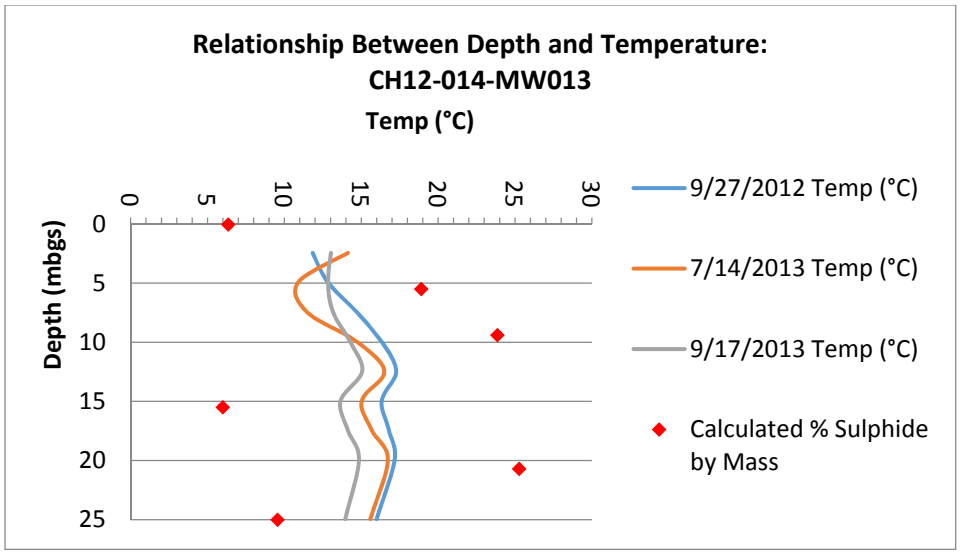
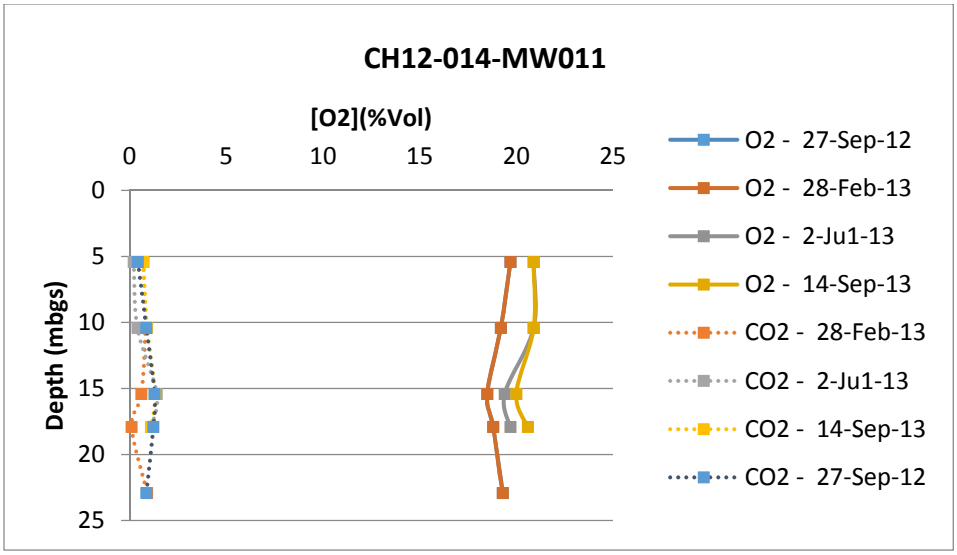
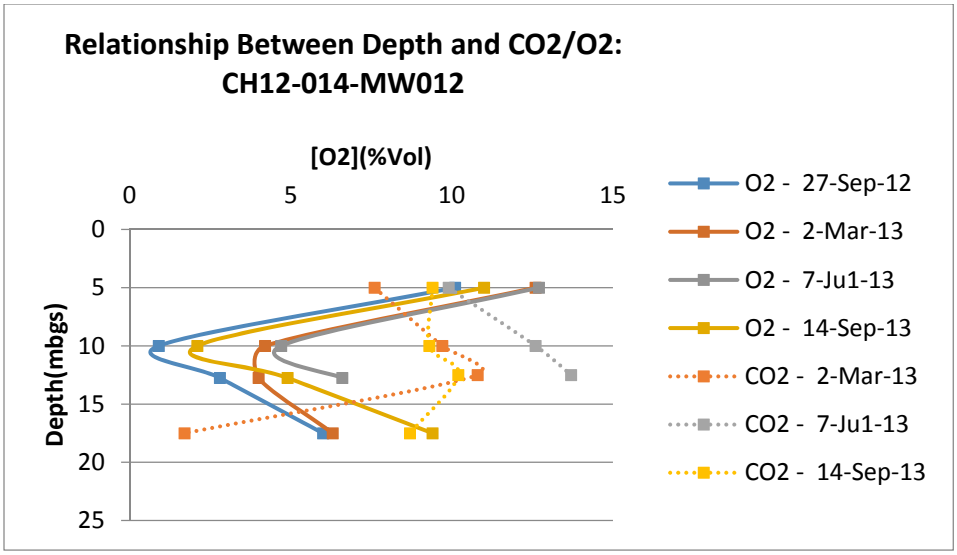


FIGURE 2-3
Waste Dump Monitoring Installation Soil Gas and Temperature Profiles – Vangorda/Grum Mine Area
Faro Mine Remediation Project





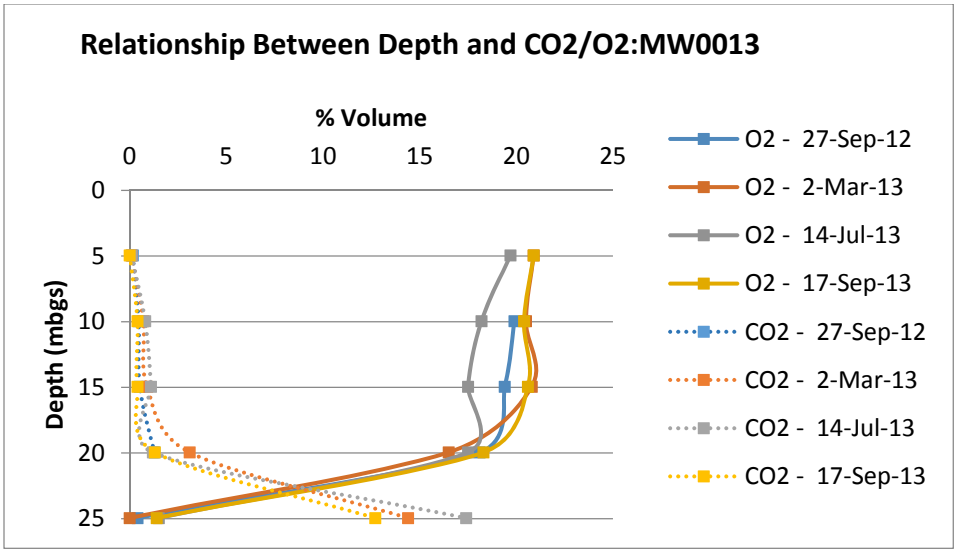
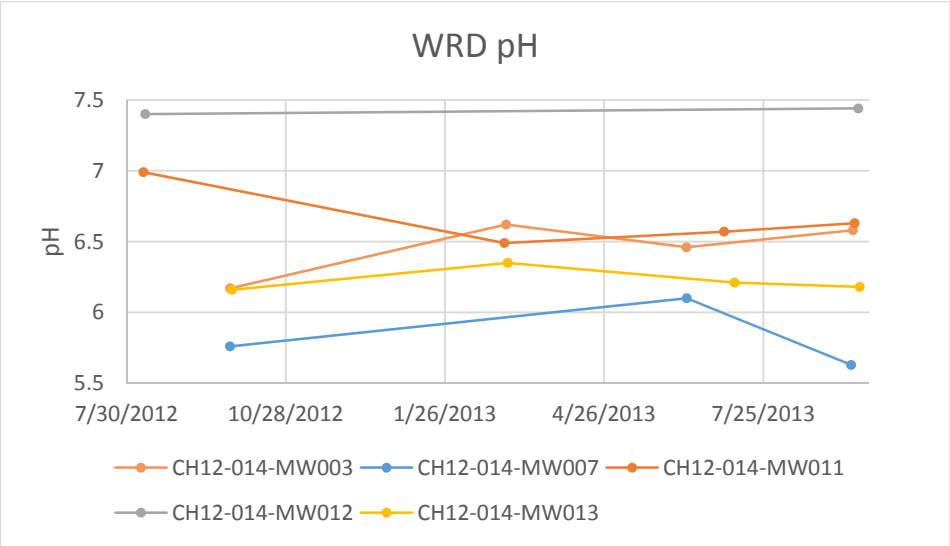
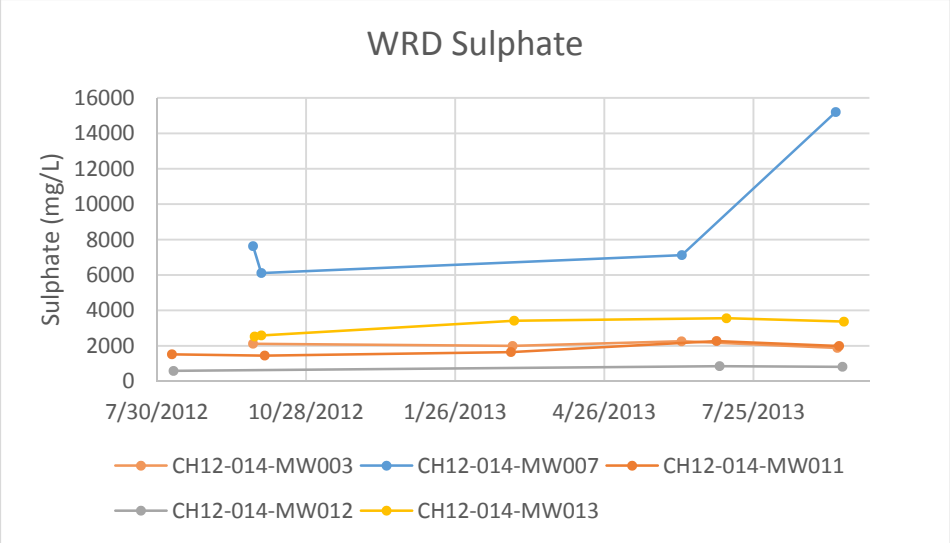


FIGURE 2-3 (CONTINUED)
Waste Dump Monitoring Installation Soil Gas and Temperature Profiles – Vangorda/Grum Mine Area
Faro Mine Remediation Project





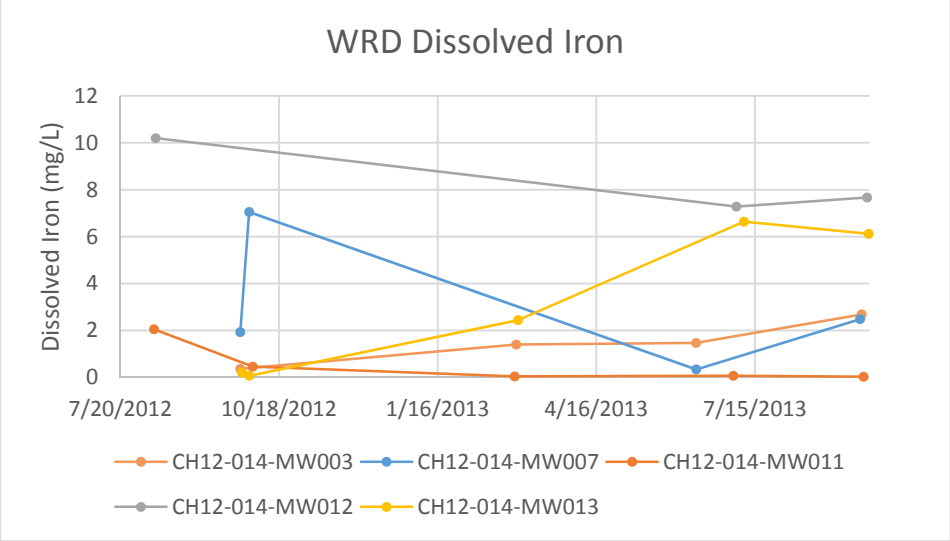
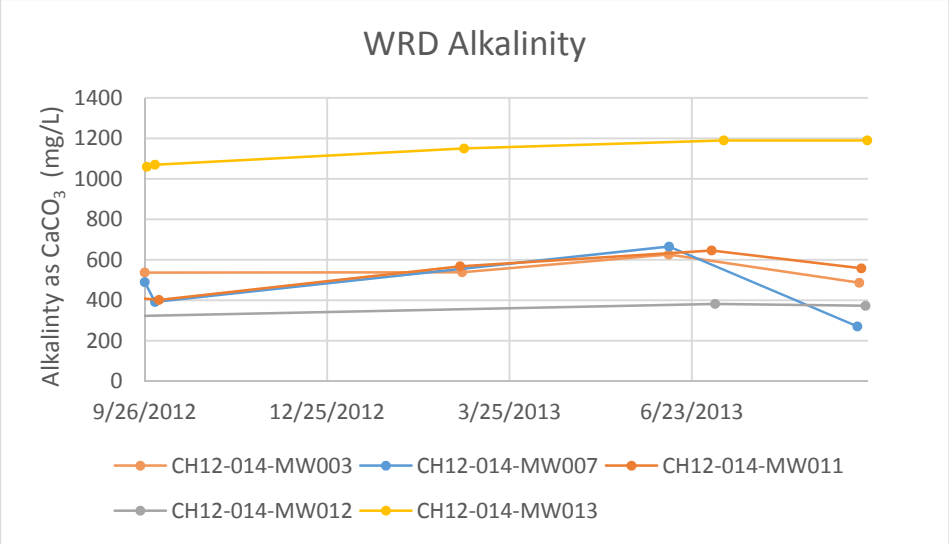
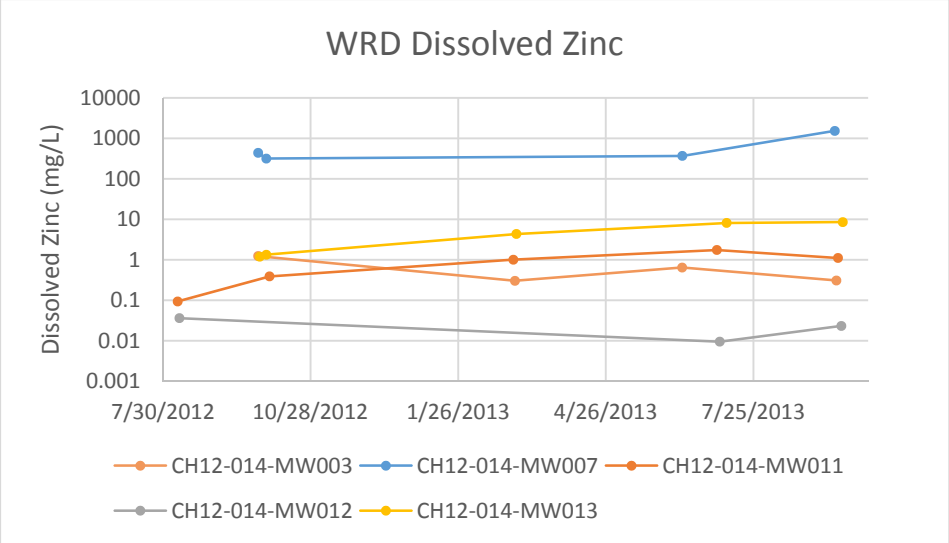


FIGURE 3-1
Waste Dump Monitoring Installation Groundwater Quality Time Series Plots
Faro Mine Remediation Project





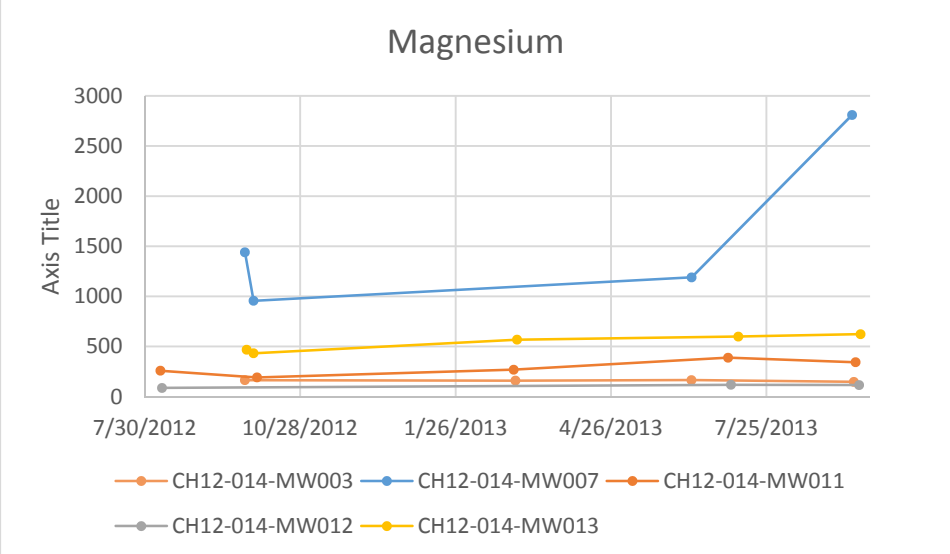
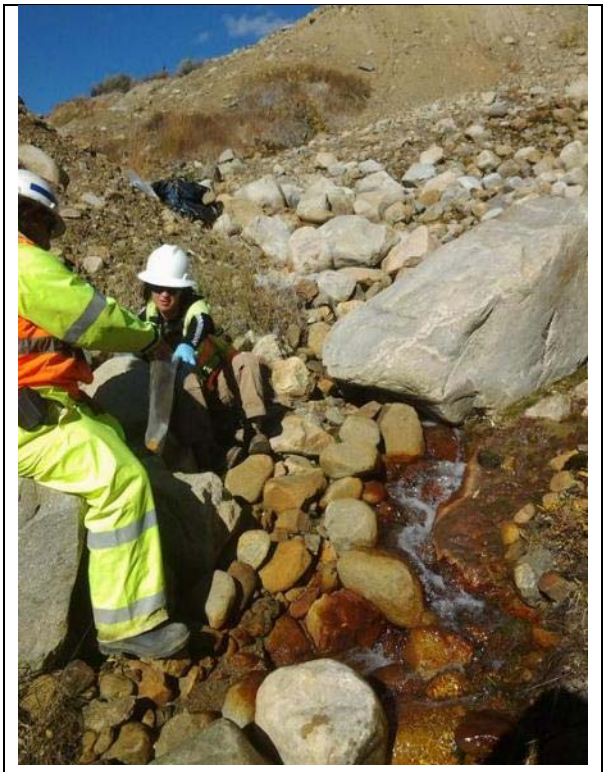


FIGURE 3-1 (CONTINUED)
Waste Dump Monitoring Installation Groundwater Quality Time Series Plots
Faro Mine Remediation Project

Appendix A
Photograph Log



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IMG_SEEP_A30_View of seep looking upstream_20130913.jpg



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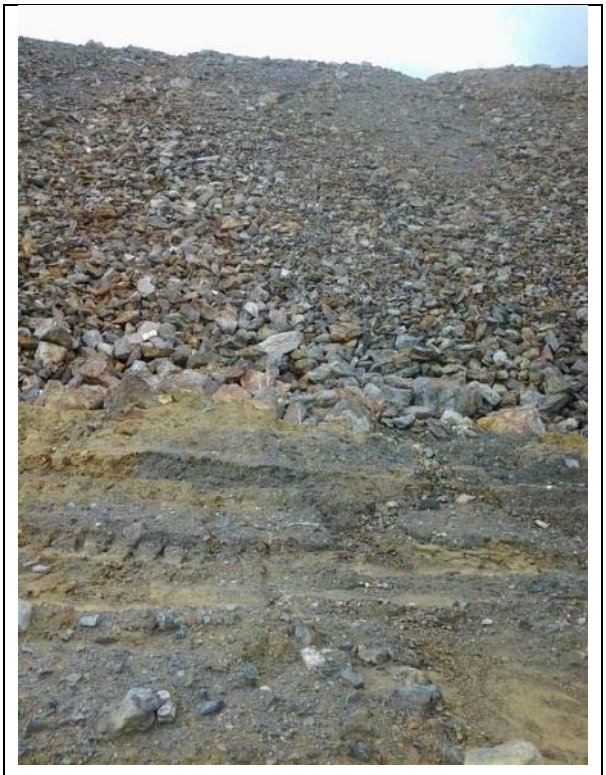
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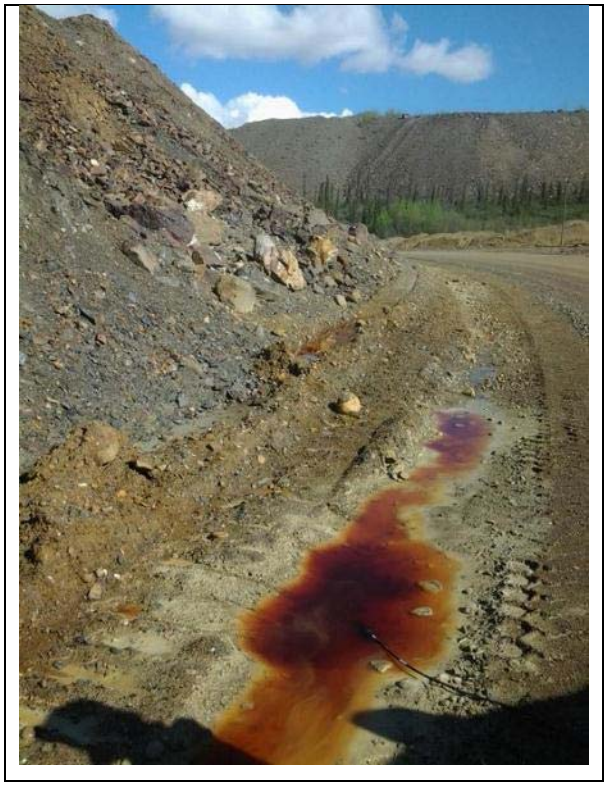
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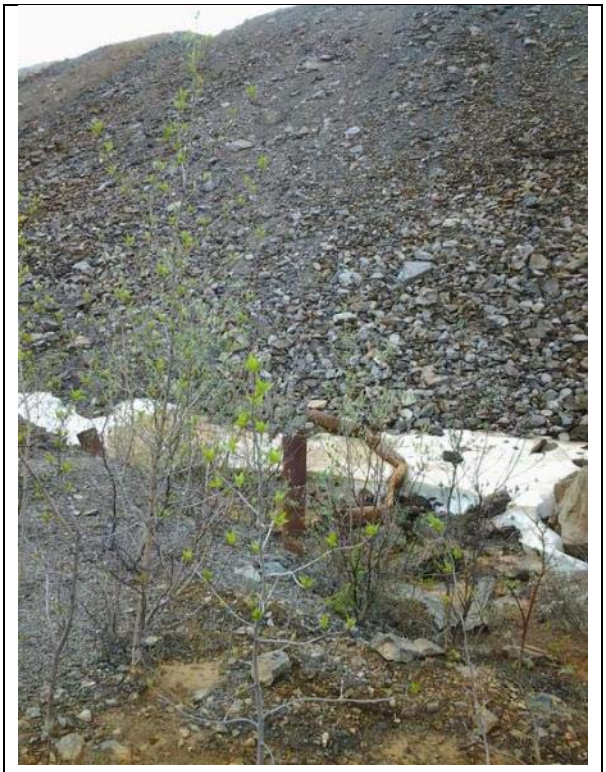
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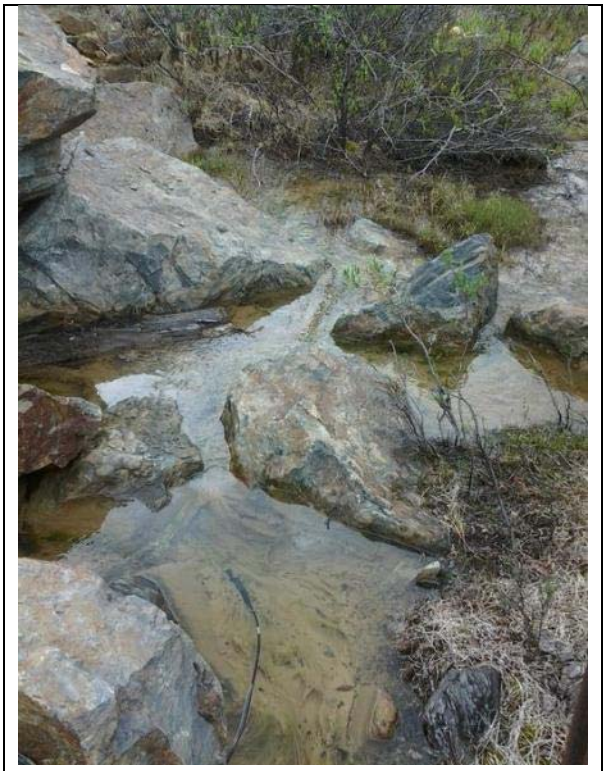
IMG_SEEP_CH-FD-67_general site image_20130614.jpg



IMG_SEEP_CH-FD-68_general site image_20130612.jpg



IMG_SEEP_CH-FD-69_general site image_20130612.jpg



IMG_SEEP_CH-FD-70_closeup of sonde and sample location_20130612.jpg



IMG_SEEP_CH-FD-70_View of seep looking downstream_20130911.jpg



IMG_SEEP_CH-FD-71_View of seep looking downstream_20130912_001.jpg



IMG_SEEP_CH-FD-72_View of seep looking upstream_20130917.jpg



IMG_SEEP_CH-FP-23 Sample location flooded_20130912.jpg



IMG_SEEP_CH-FP-23_general site image_20130612.jpg



IMG_SEEP_CH-FP-24_View of seep looking downstream_20130912.jpg



IMG_SEEP_CH-FP-25_View of seep looking upstream_20130912.jpg



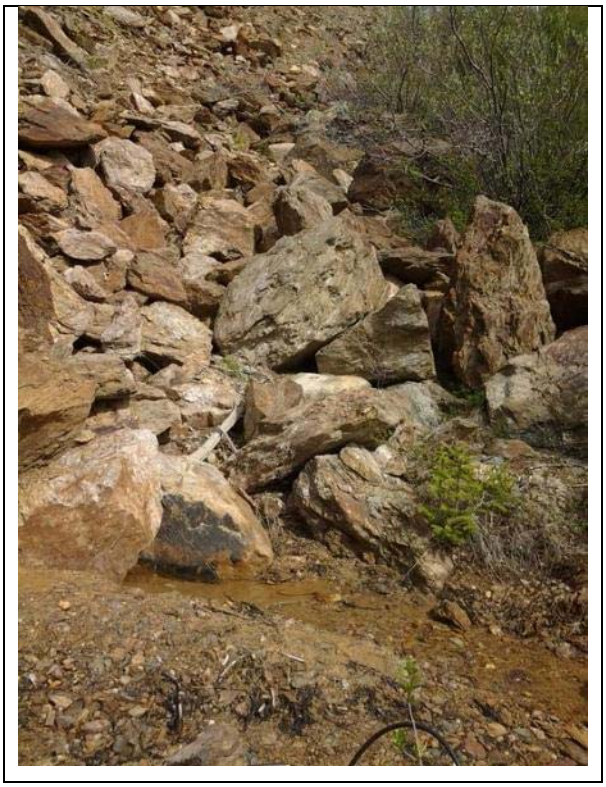
IMG_SEEP_CH-FP-28_View looking downstream_20130610.jpg



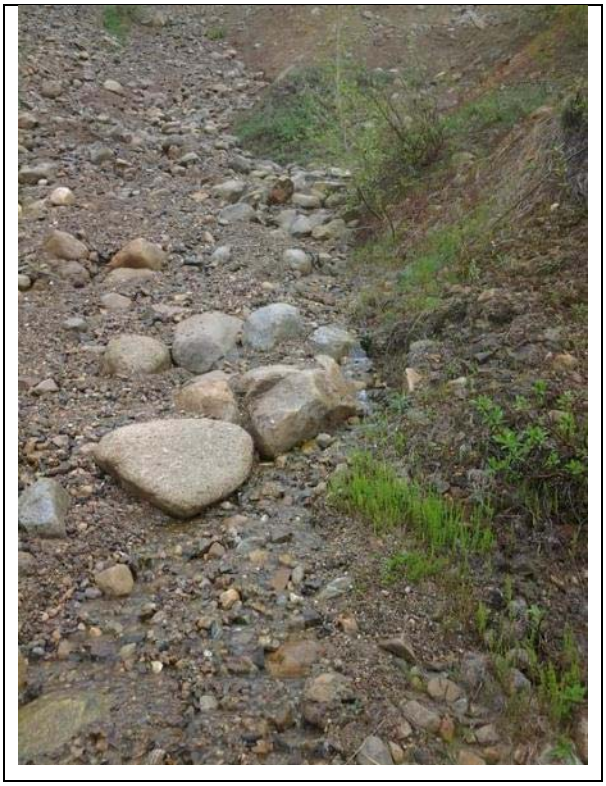
IMG_SEEP_CH-FP-28_View of seep looking downstream_20130912.jpg



IMG_SEEP_CH-FP-29_Closeup of sonde and sampling setup_20130913.jpg



IMG_SEEP_CH-FP-29_general site image_20130612.jpg



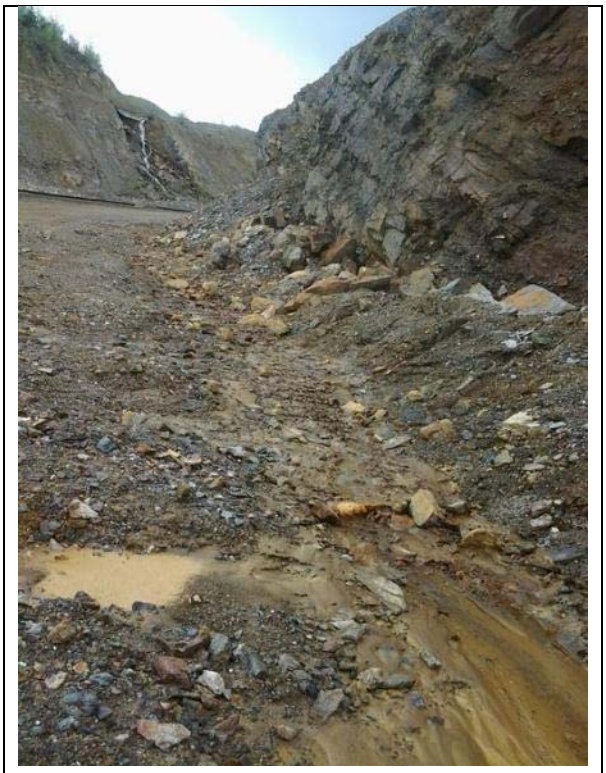
IMG_SEEP_CH-FP-30_closeup view looking upstream_20130612.jpg



IMG_SEEP_CH-FP-31_general site image_20130612.jpg



IMG_SEEP_CH-FP-31_view looking downstream_20130612.jpg



IMG_SEEP_CH-FP-32_view looking upstream_20130610.jpg



IMG_SEEP_CH-FP-33_general site image_20130612.jpg



IMG_SEEP_CH-FP-33_view looking downstream_20130612.jpg



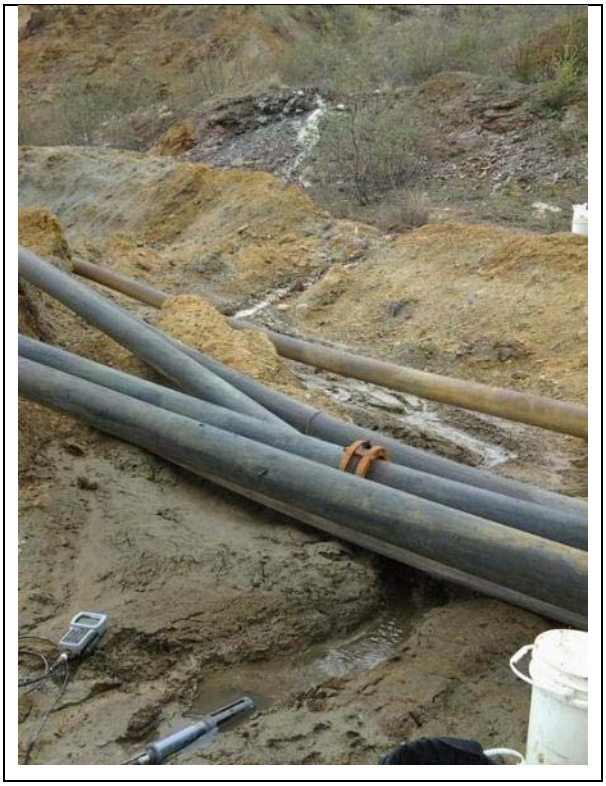
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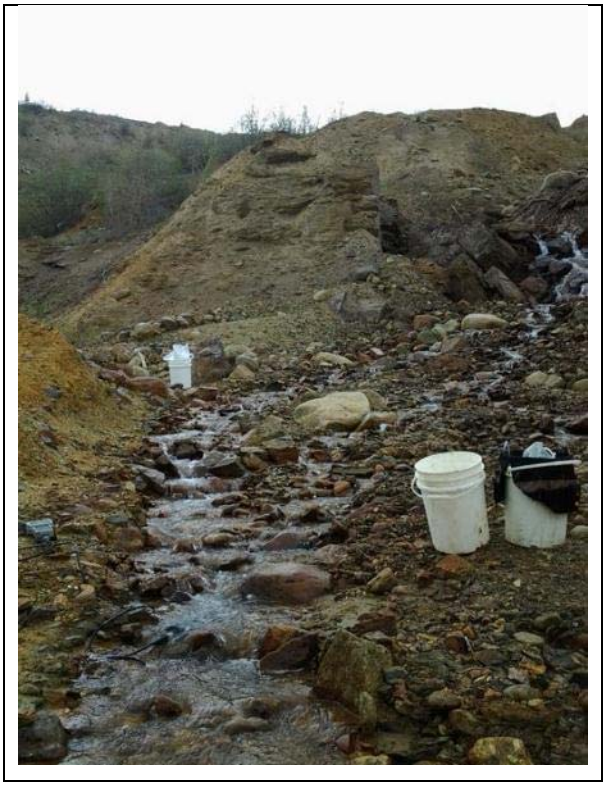
IMG_SEEP_CH-FP-34_view looking downstream_20130612.jpg



IMG_SEEP_CH-FP-35_closeup of sonde and sample location looking downstream_20130612.jpg



IMG_SEEP_CH-FP-35_general site image_20130612.jpg



IMG_SEEP_CH-FP-36_general site image_20130612.jpg



IMG_SEEP_CH-FP-36_view looking downstream_20130612.jpg



IMG_SEEP_CH-FP-37_general site image_20130612.jpg



IMG_SEEP_CH-FP-38 _general view looking west toward faro pit_20130912.jpg



IMG_SEEP_CH-FP-38 _View of seep looking upstream_20130912.jpg



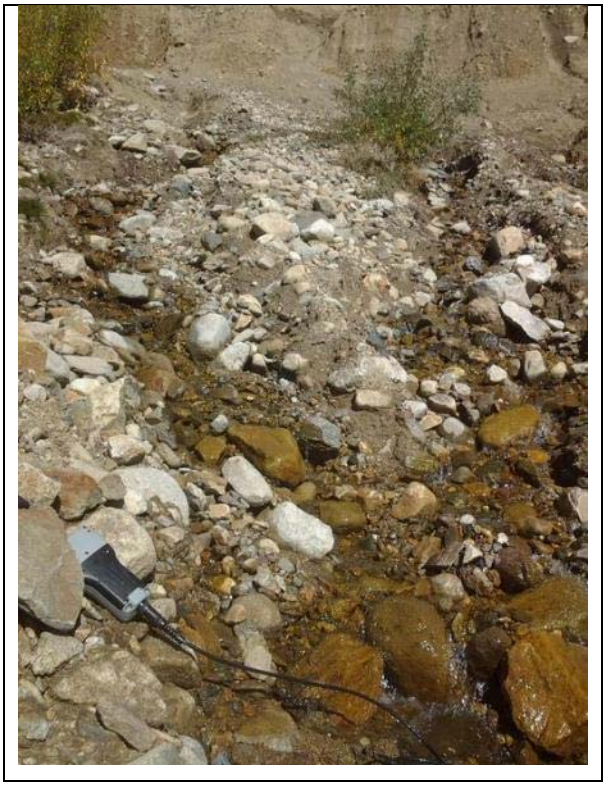
IMG_SEEP_CH-FP-39_View of seep looking upstream_20130913_001.jpg



IMG_SEEP_CH-FP-40_View of seep looking upstream_20130913.jpg



IMG_SEEP_CH-FP-42_View of seep looking downstream_20130913.jpg



IMG_SEEP_CH-FP-42_View of seep looking upstream_20130913.jpg



IMG_SEEP_CH-GP-19_closeup of sonde and sample location looking downstream_20130613.jpg



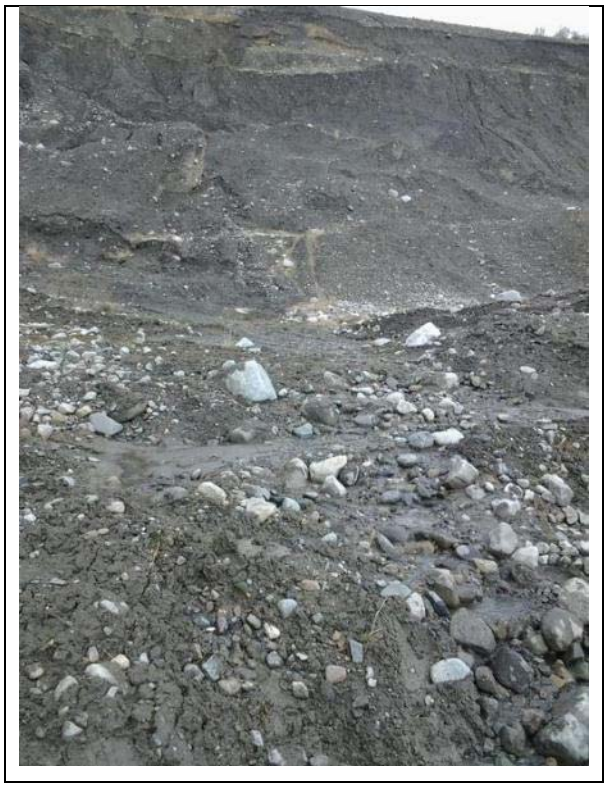
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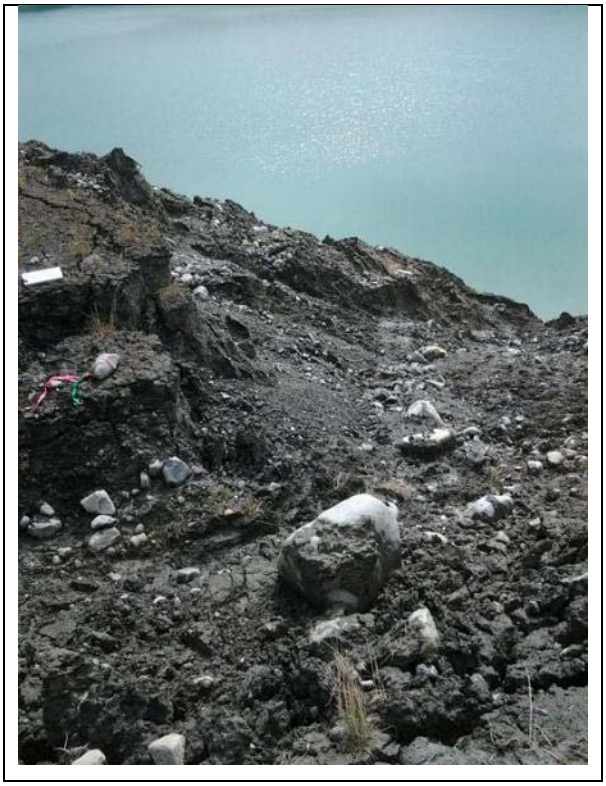
IMG_SEEP_CH-GP-22_general site image_20130613.jpg



IMG_SEEP_CH-GP-23_looking downstream_20130613.jpg



IMG_SEEP_CH-GP-23_view looking upstream_20130613.jpg



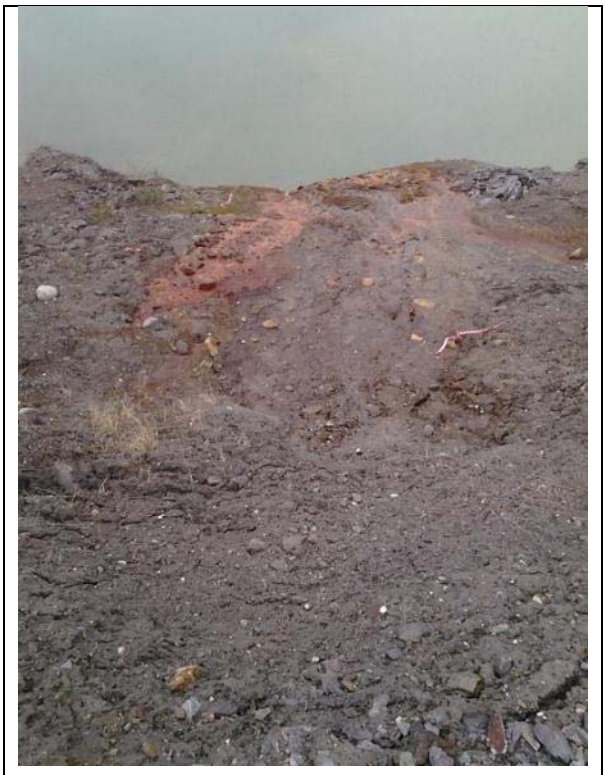
IMG_SEEP_CH-GP-24_view looking downstream_20130613.jpg



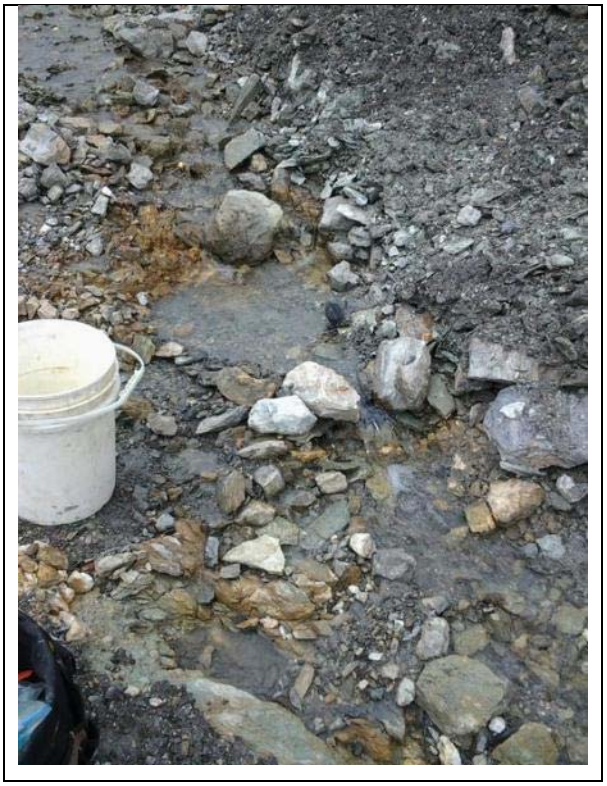
IMG_SEEP_CH-GP-25_general site image_20130613.jpg



IMG_SEEP_CH-GP-26_closeup of sonde and sample location_20130613.jpg



IMG_SEEP_CH-GP-26_general site image looking downstream_20130613.jpg



IMG_SEEP_CH-GP-27_closeup of sonde and sample location_20130613.jpg



IMG_SEEP_CH-GP-27_general site image_20130613.jpg



IMG_SEEP_CH-GP-27_view looking downstream_20130613.jpg



IMG_SEEP_CH-GP-28_general site image_20130613.jpg



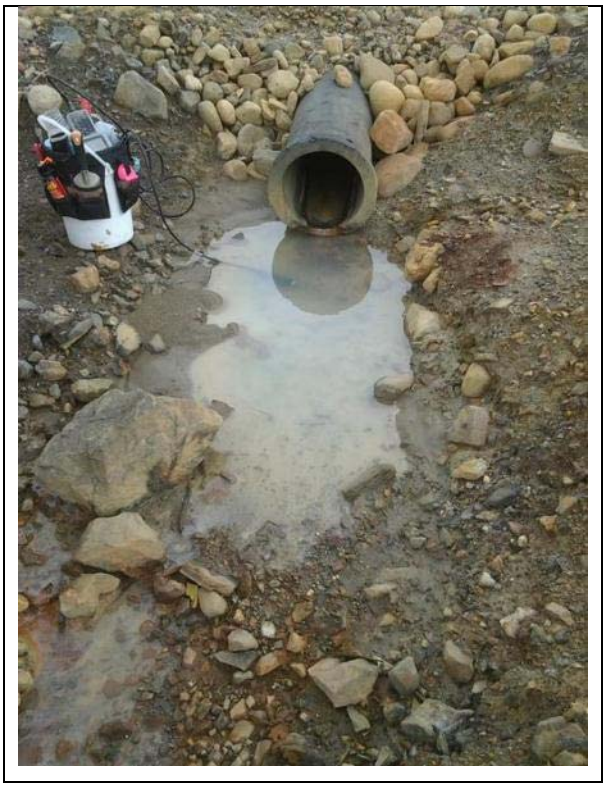
IMG_SEEP_CH-GP-28_View of seep looking downstream_20130914.jpg



IMG_SEEP_CH-GP-28_View of seep looking upstream_20130914.jpg



IMG_SEEP_CH-MILL-01_general site image_20130611.jpg



IMG_SEEP_CH-MILL-01_View of seep looking upstream_20130911.jpg



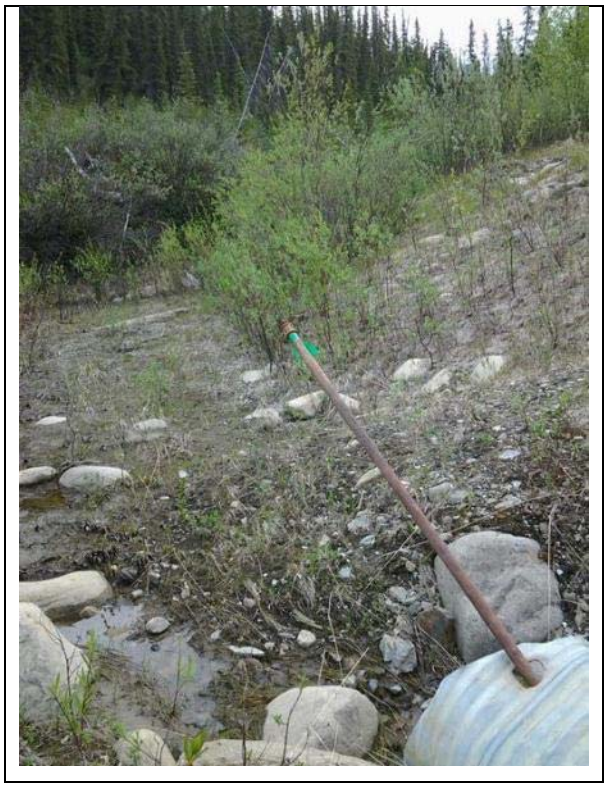
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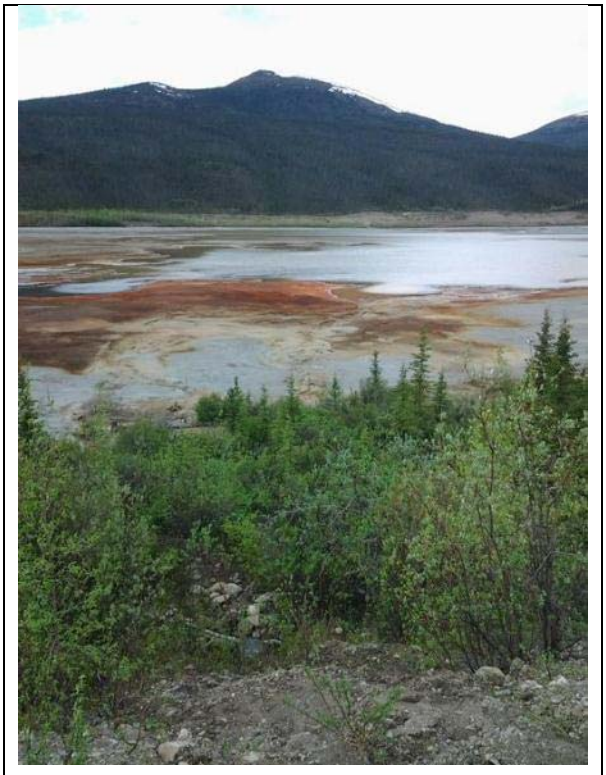
IMG_SEEP_CH-MILL-03_View of seep looking upstream_20130911.jpg



IMG_SEEP_CH-MILL-04_general site image_20130611.jpg



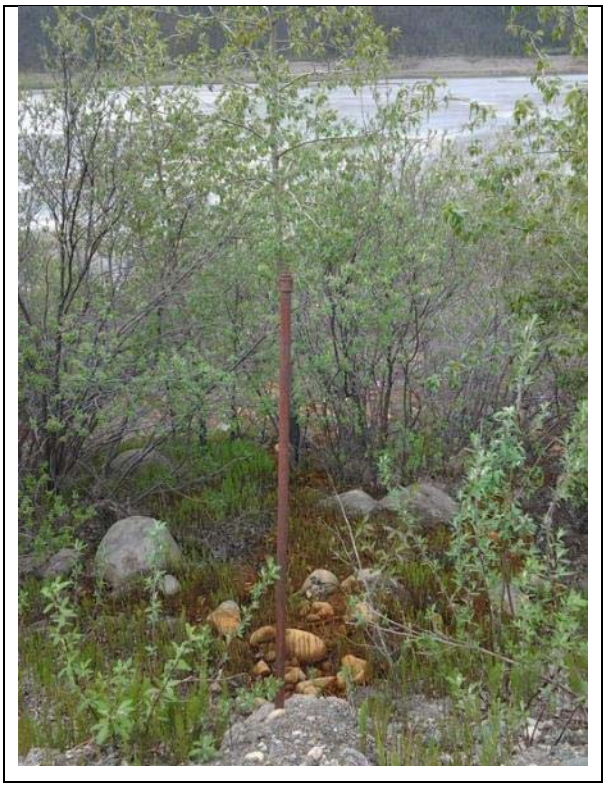
IMG_SEEP_CH-RCTA-01_general site image at culvert inlet_20130612.jpg



IMG_SEEP_CH-RCTA-01_looking downstream from culvert outlet_20130612.jpg



IMG_SEEP_CH-RCTA-02_general site image looking upstream_20130612.jpg



IMG_SEEP_CH-RCTA-02_looking downstream from culvert outlet_20130612.jpg



IMG_SEEP_CH-RCTA-03_View of seep looking downstream_20130912.jpg



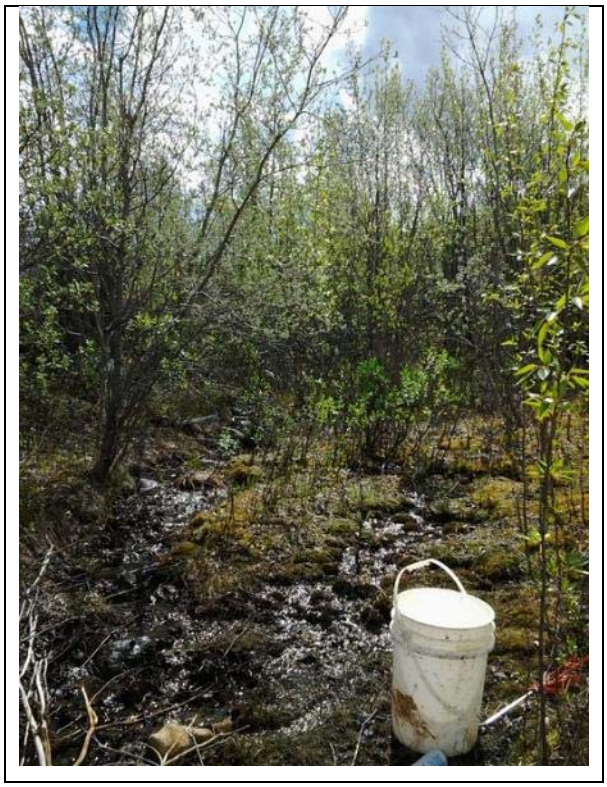
IMG_SEEP_CH-RCTA-04_closeup of sonde and sample location_20130612.jpg



IMG_SEEP_CH-RCTA-04_general site image_20130612.jpg



IMG_SEEP_CH-RCTA-05_closeup of sonde and sample location_20130612.jpg



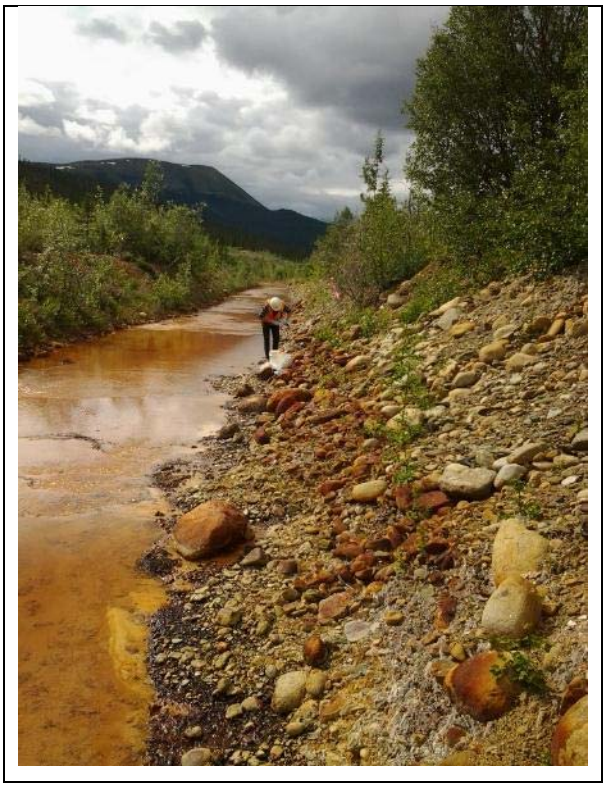
IMG_SEEP_CH-RCTA-05_general site image_20130612.jpg



IMG_SEEP_CH-RCTA-06_general site image_20130612.jpg



IMG_SEEP_CH-RCTA-07_Closeup of sonde and sampling setup_20130703.jpg



IMG_SEEP_CH-RCTA-07_View of seep looking across slope_20130703.jpg



IMG_SEEP_CH-RCTA-08_general site image_20130612.jpg



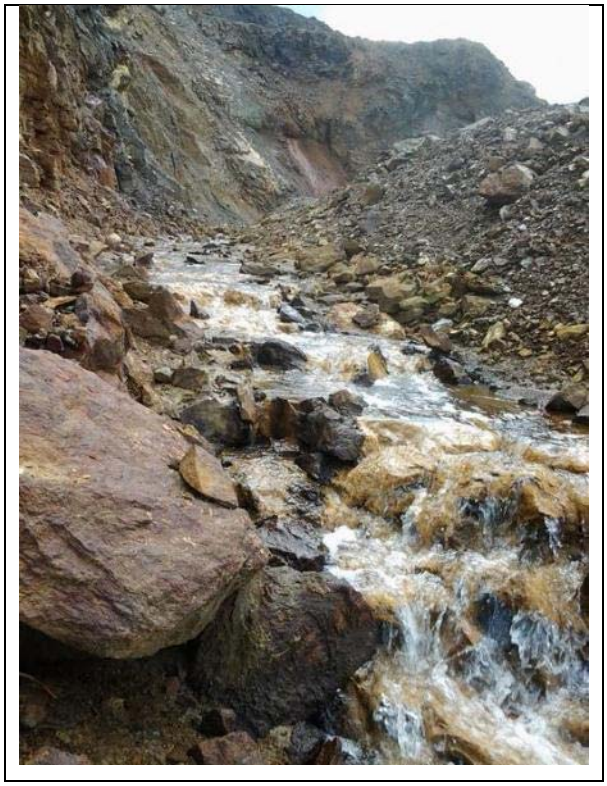
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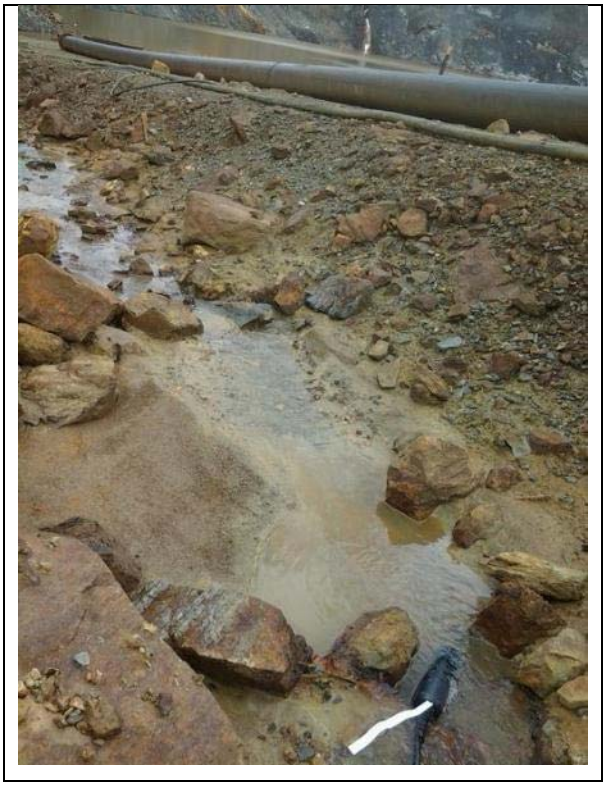
IMG_SEEP_CH-VD-13_closeup of dry sample location_20130613.jpg



IMG_SEEP_CH-VD-14_general site image_20130613.jpg



IMG_SEEP_CH-VP-17_closeup of sample location looking upstream_20130613.jpg



IMG_SEEP_CH-VP-18_closeup of sonde and sample location_20130613.jpg



IMG_SEEP_CH-VP-18_general site image_20130613.jpg



IMG_SEEP_CH-VP-19_general site image_20130613.jpg



IMG_SEEP_CH-VP-20_Closeup of sonde and sampling setup_20130917_001.jpg



IMG_SEEP_CH-VP-20_general site image_20130613.jpg



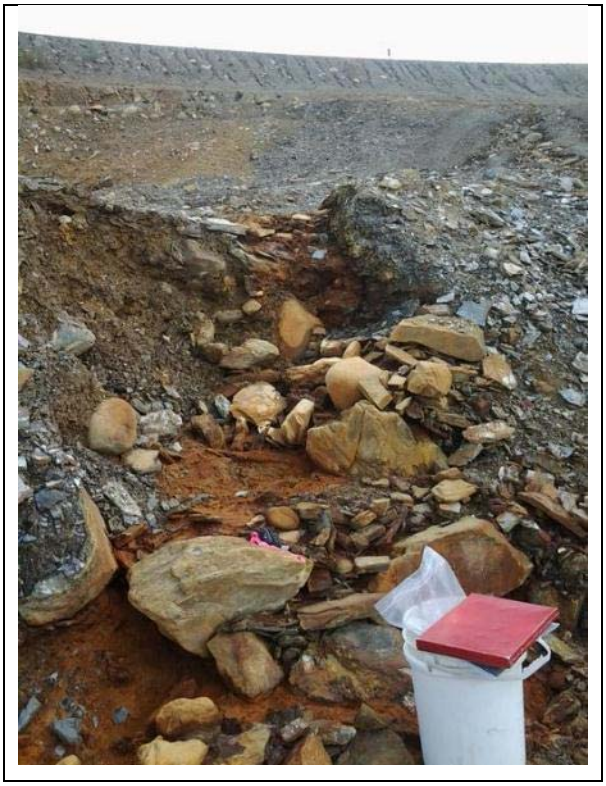
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IMG_SEEP_FCS-2_closeup of sonde and sample location_20130611.jpg



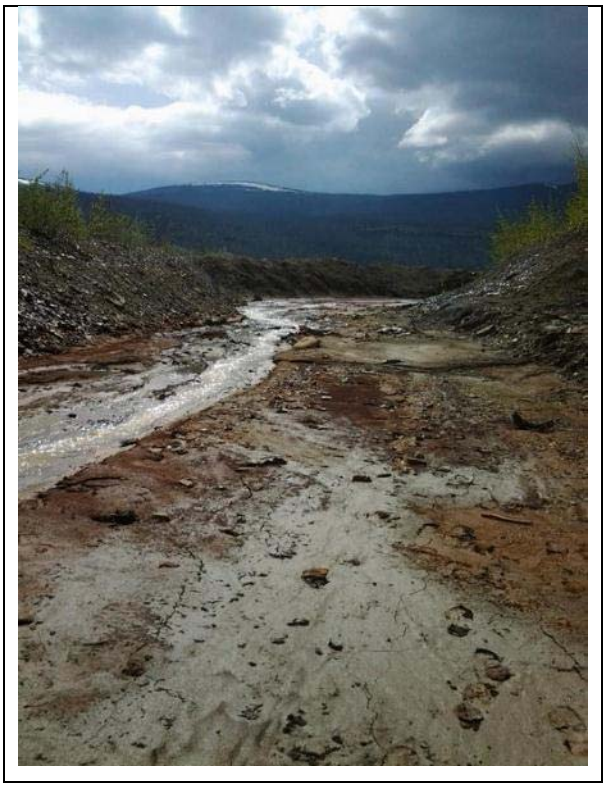
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IMG_SEEP_FCS-3_general site image_20130611.jpg



IMG_SEEP_FCS-4_general site image_20130611.jpg



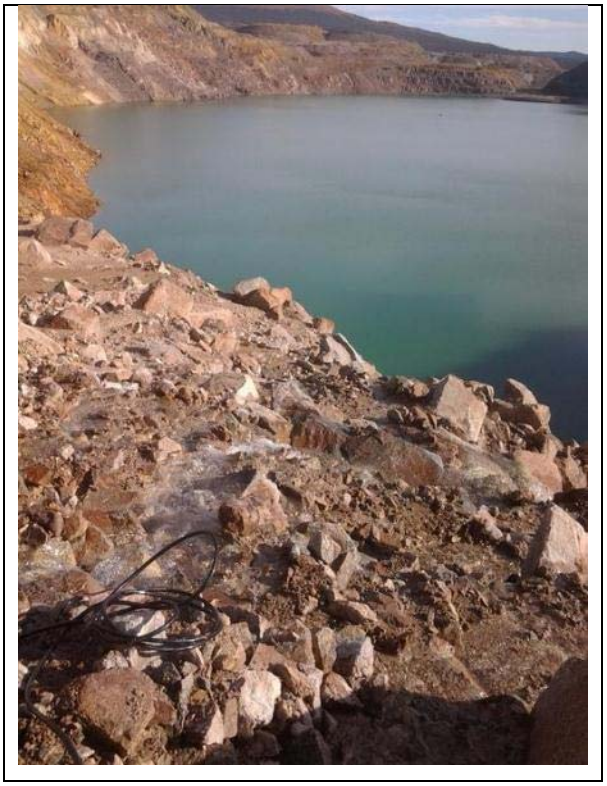
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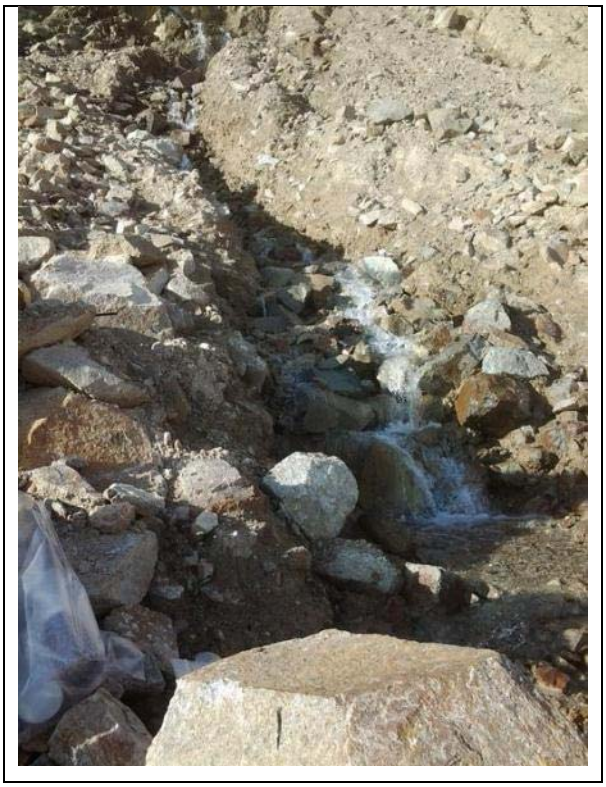
IMG_SEEP_FCS-5_closeup of sonde and sample location_20130612.jpg



IMG_SEEP_FCS-5_general site image_20130612.jpg



IMG_SEEP_FP05_View of seep looking downstream_20130913.jpg



IMG_SEEP_FP05_View of seep looking upstream_20130913.jpg



IMG_SEEP_FP07_general site image_20130612.jpg



IMG_SEEP_FP08_closeup of sonde and sample location_20130612.jpg



IMG_SEEP_FP08_general site image_20130612.jpg



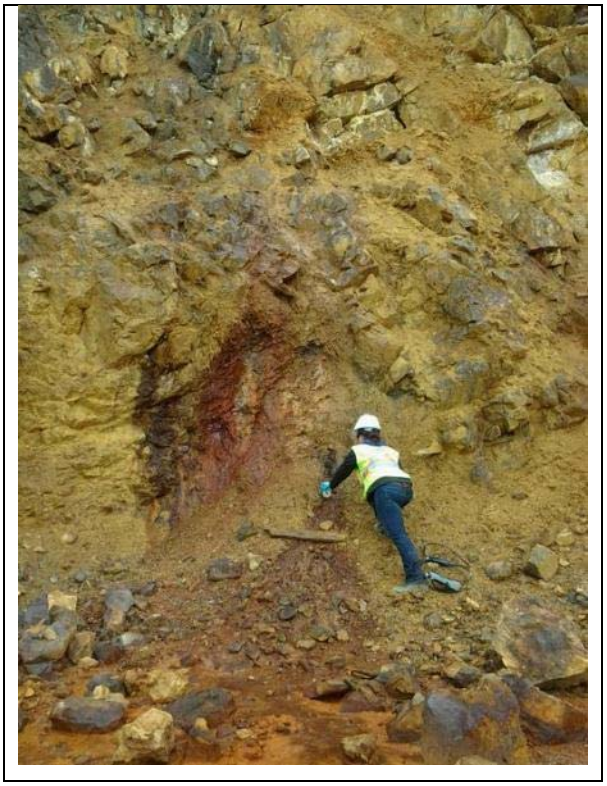
IMG_SEEP_FP10_general site image_20130612.jpg



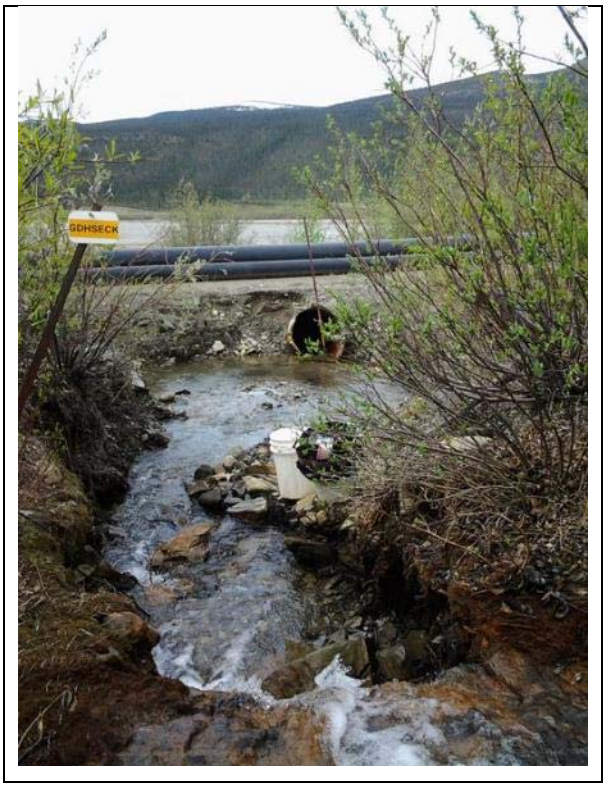
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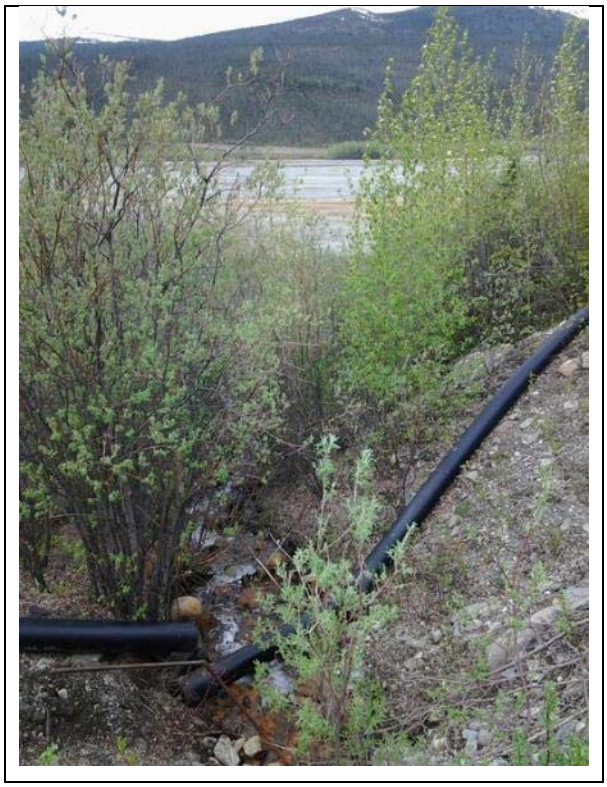
IMG_SEEP_FP11_closeup of sonde and sample location_20130612.jpg



IMG_SEEP_FP11_general site image_20130612.jpg



IMG_SEEP_GDHSECK_existing markings_20130612.jpg



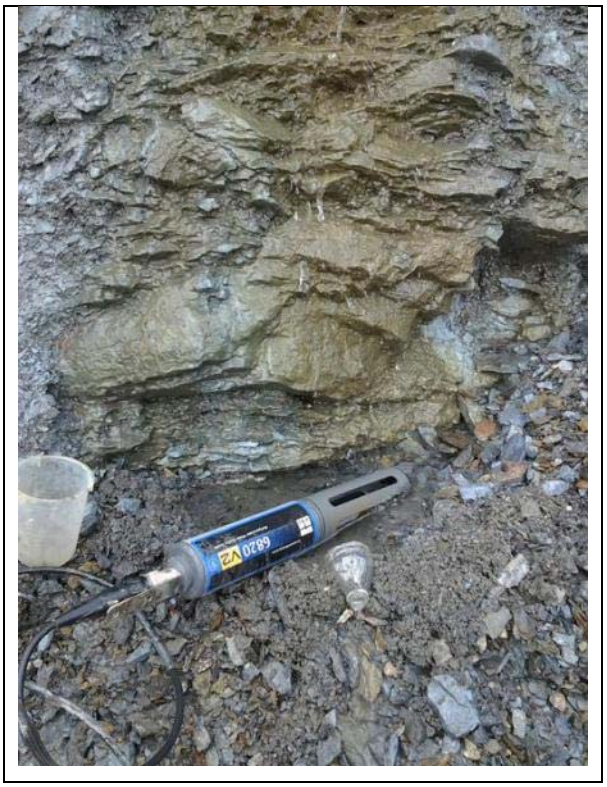
IMG_SEEP_GDHSECK_looking downstream from culvert outlet_20130612.jpg



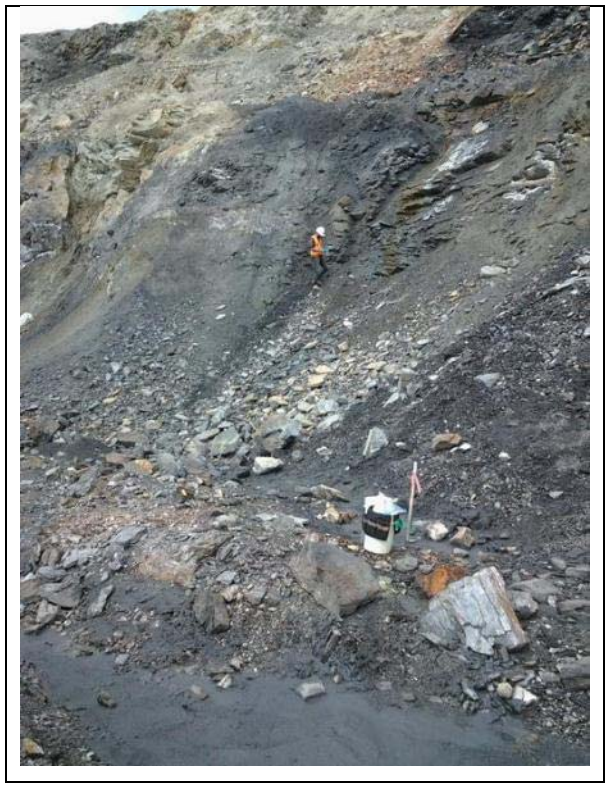
IMG_SEEP_GP02_general site image_20130613.jpg



IMG_SEEP_GP02_View of seep looking upstream_20130914.jpg



IMG_SEEP_GP04_closeup of sonde and sample location_20130613.jpg



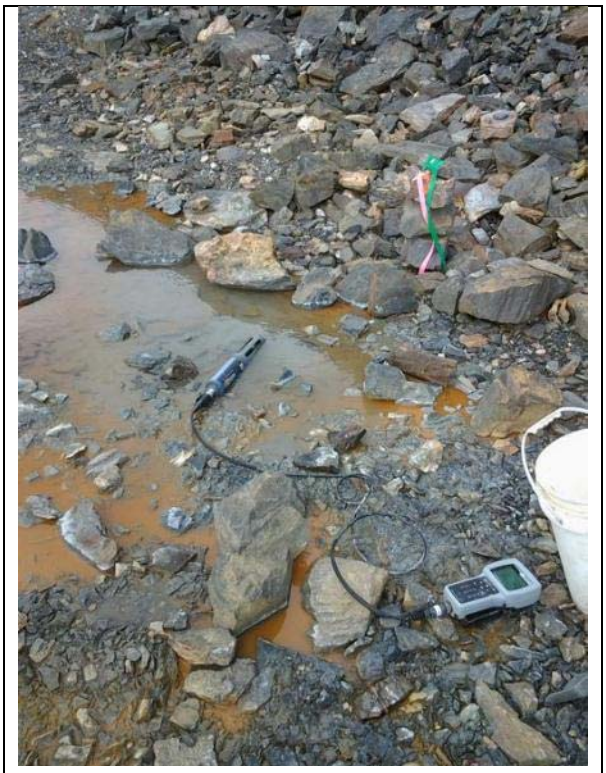
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IMG_SEEP_GP05_general site image_20130613.jpg



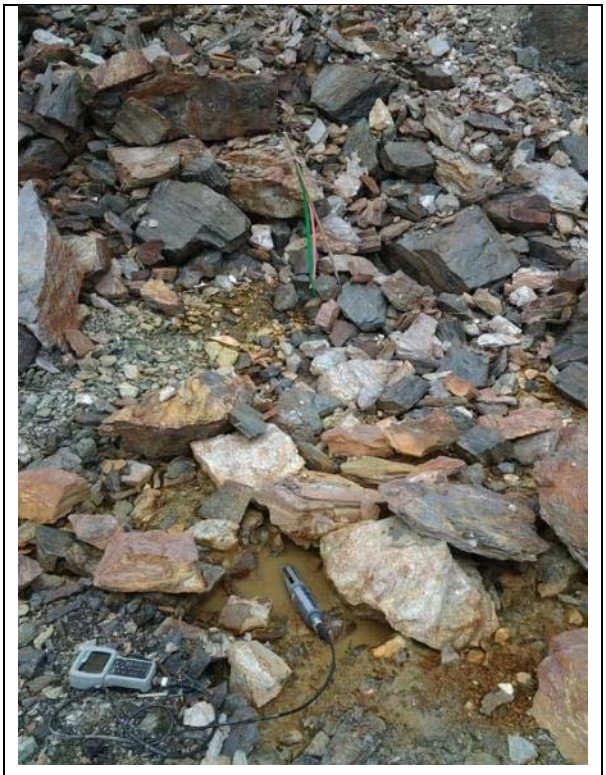
IMG_SEEP_GP05_view looking south_20130613.jpg



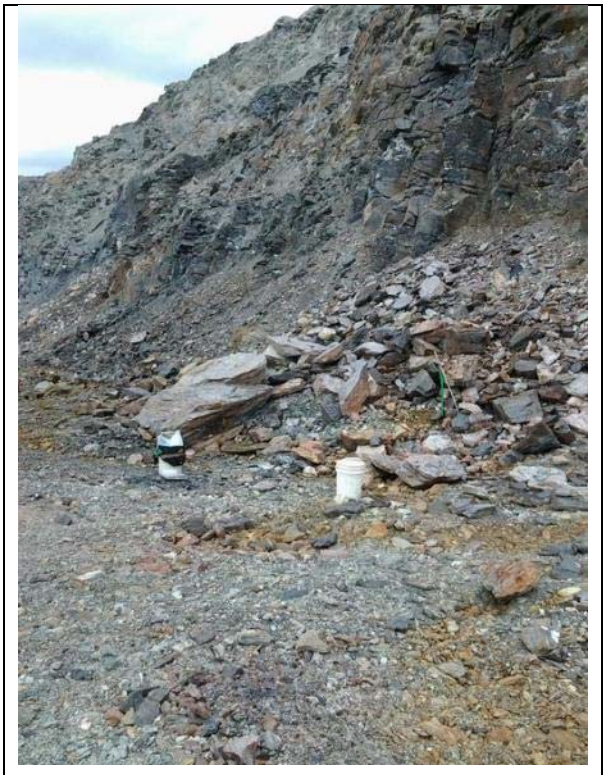
IMG_SEEP_GP06_closeup of sonde and sample location_20130613.jpg



IMG_SEEP_GP06_general site image_20130613.jpg



IMG_SEEP_GP07_existing markings_20130613.jpg



IMG_SEEP_GP07_general site image_20130613.jpg



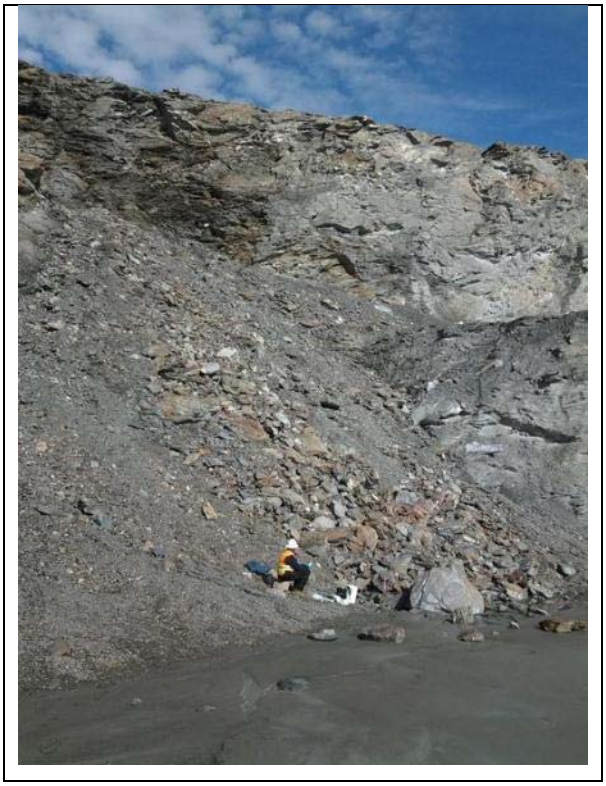
IMG_SEEP_GP08_closeup of sonde and sample location_20130613.jpg



IMG_SEEP_GP08_general site image_20130613.jpg



IMG_SEEP_GP09_closeup of sonde and sample location_20130613.jpg



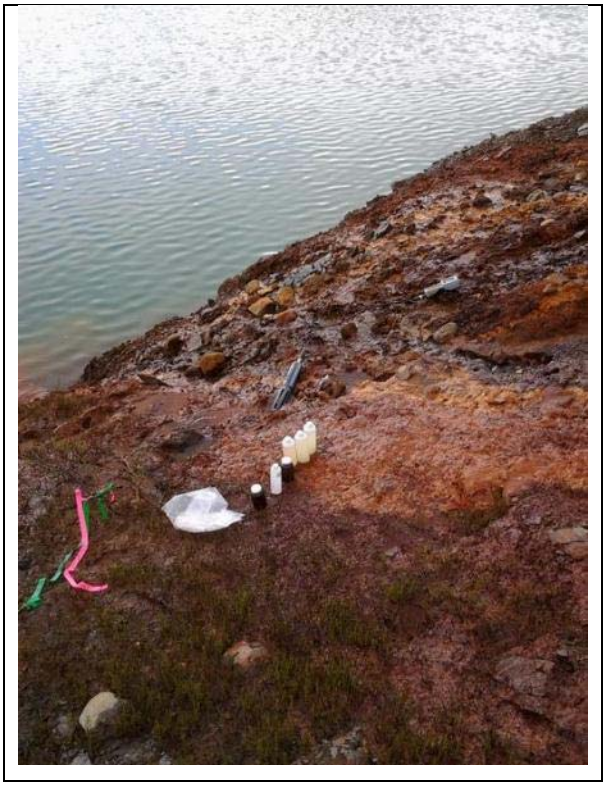
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IMG_SEEP_GP10_closeup of sonde and sample location_20130613.jpg



IMG_SEEP_GP10_general site image_20130613.jpg



IMG_SEEP_GP12_closeup of sonde and sample location_20130613.jpg



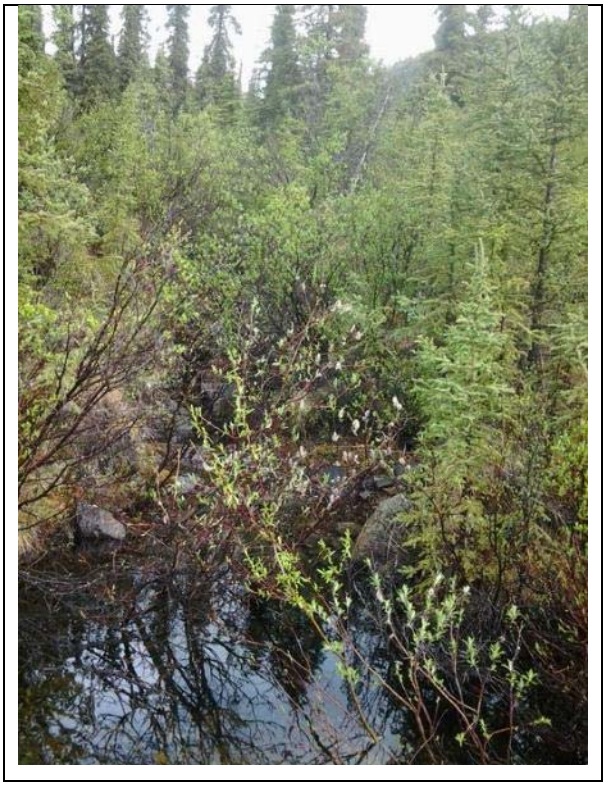
IMG_SEEP_GP12_general site image_20130613.jpg



IMG_SEEP_GP14_general site image_20130613.jpg



IMG_SEEP_GP14_View of seep looking downstream_20130914.jpg



IMG_SEEP_NE1_general site image_20130613.jpg



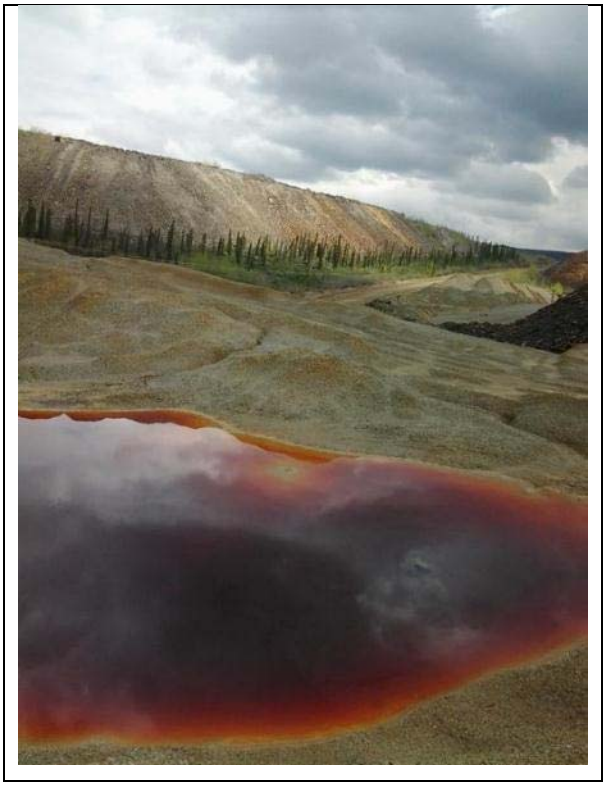
IMG_SEEP_SRK-FD01_closeup of sonde and sample location_20130610.jpg



IMG_SEEP_SRK-FD01_general site image_20130610.jpg



IMG_SEEP_SRK-FD02_closeup of dry location_20130611.jpg



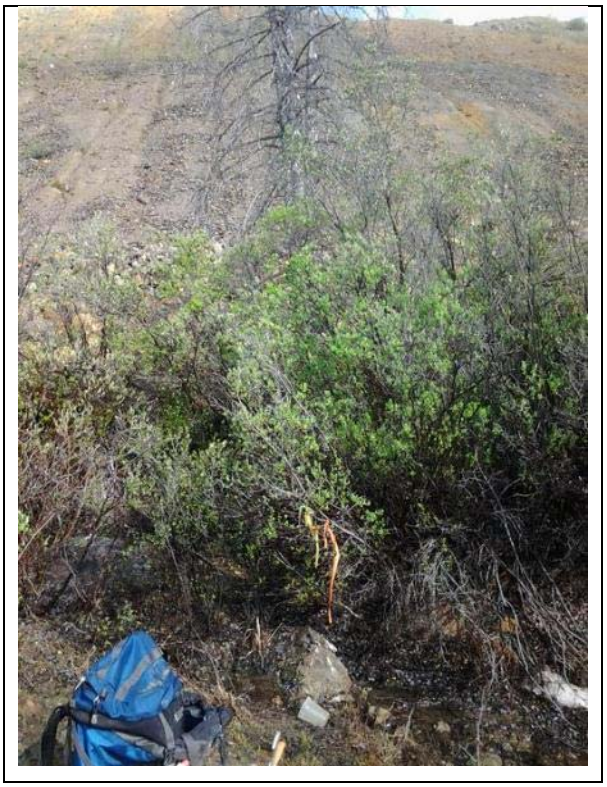
IMG_SEEP_SRK-FD04_closeup of sonde and sample location_20130611.jpg



IMG_SEEP_SRK-FD04_general site image_20130611.jpg



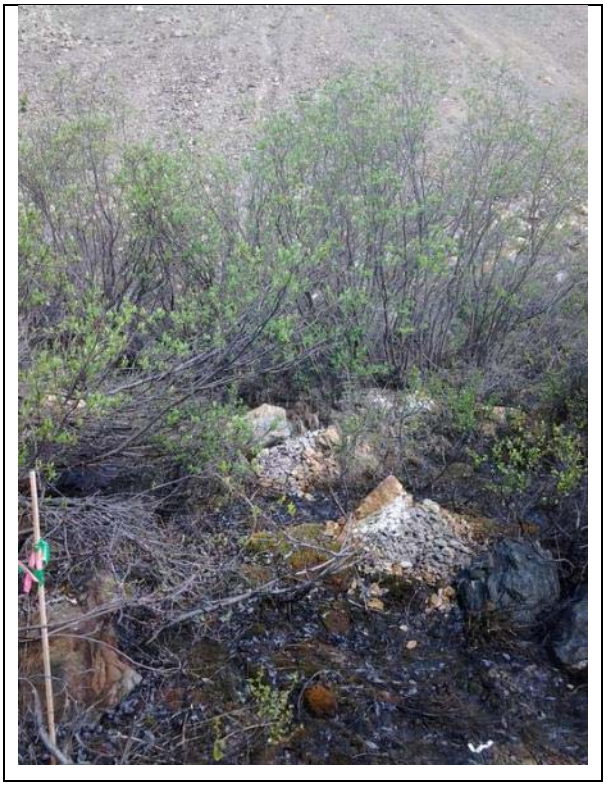
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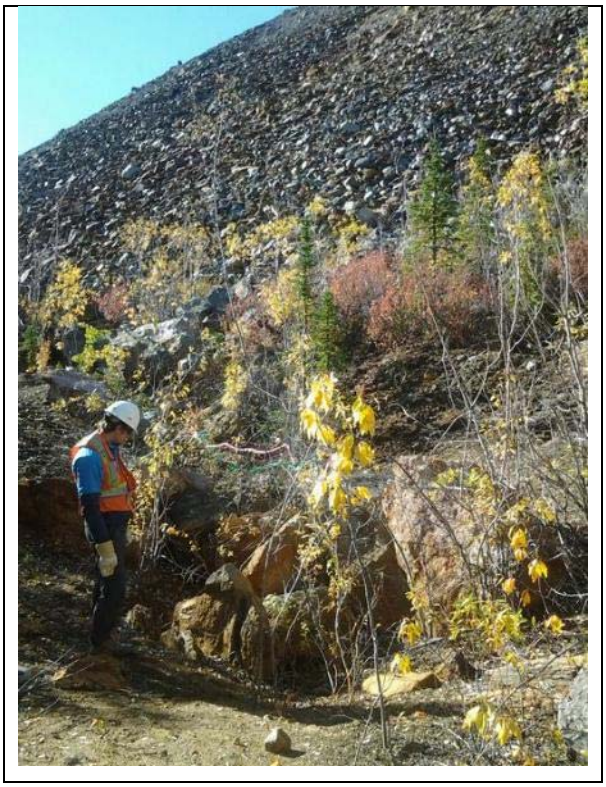
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IMG_SEEP_SRK-FD06_general site image_20130613.jpg



IMG_SEEP_SRK-FD07_View of seep looking upstream_20130911.jpg



IMG_SEEP_SRK-FD08_View of seep looking upstream_20130912.jpg



IMG_SEEP_SRK-FD08_viewed from above looking east_20130612.jpg



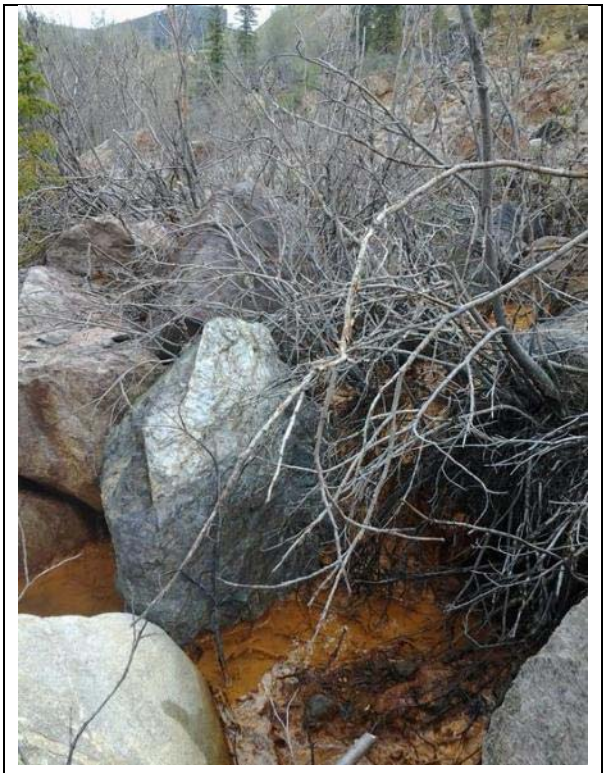
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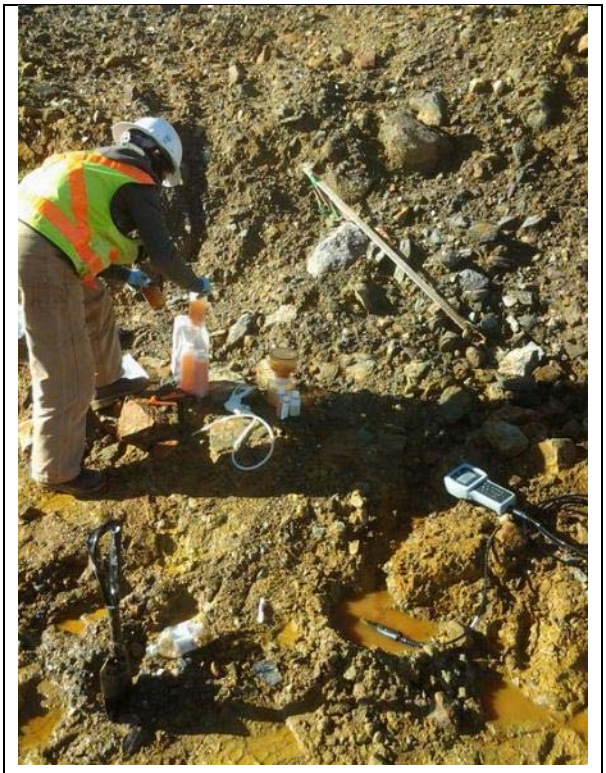
IMG_SEEP_SRK-FD10_closeup of precipitate or algae_20130611.jpg



IMG_SEEP_SRK-FD10_existing markings_20130611.jpg



IMG_SEEP_SRK-FD12_general site image_20130611.jpg



IMG_SEEP_SRK-FD13_Closeup of sonde and sampling setup_20130912.jpg



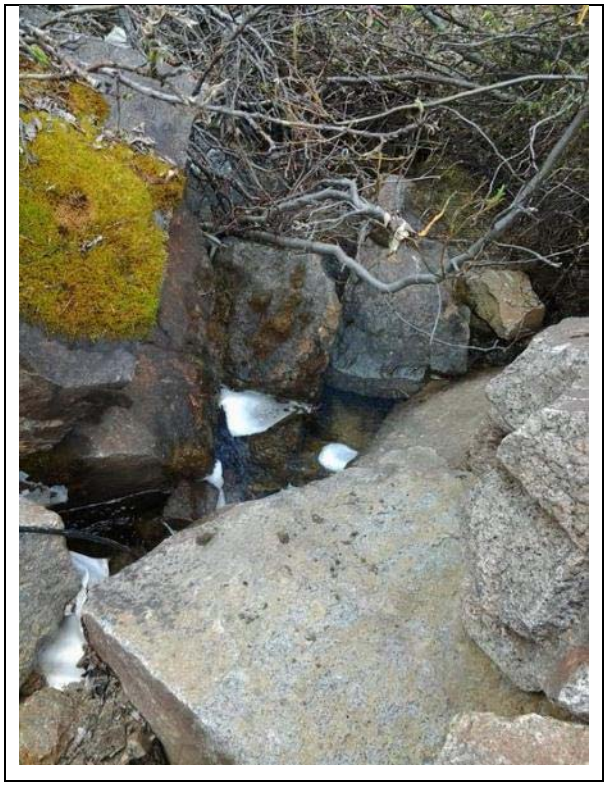
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IMG_SEEP_SRK-FD14_closeup of seep sample location_20130911.jpg



IMG_SEEP_SRK-FD14_general site image_20130610.jpg



IMG_SEEP_SRK-FD16_closeup of sonde and sample location_20130612.jpg



IMG_SEEP_SRK-FD17_general site image_20130612.jpg



IMG_SEEP_SRK-FD18_closeup of sonde and sample location_20130612.jpg



IMG_SEEP_SRK-FD19_Closeup of Sonde and Sampling Setup_20130919.jpg



IMG_SEEP_SRK-FD19_View of seep looking across slope_20130919.jpg



IMG_SEEP_SRK-FD21_general site image looking uphill_20130612.jpg



IMG_SEEP_SRK-FD22_View of seep looking upstream_20130917.jpg



IMG_SEEP_SRK-FD23_closeup of sonde and sample location_20130612.jpg



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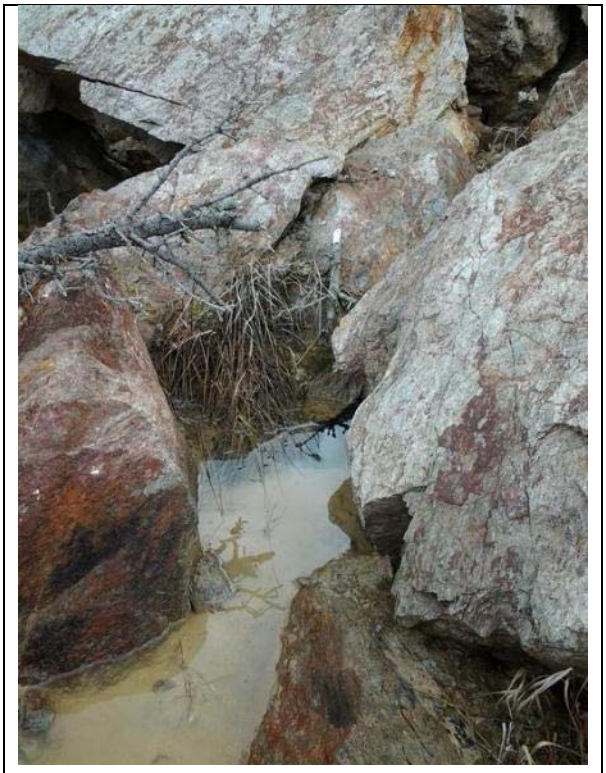
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IMG_SEEP_SRK-FD26_Closeup of sonde and sampling setup_20130911.jpg



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IMG_SEEP_SRK-FD30_general site image_20130612.jpg



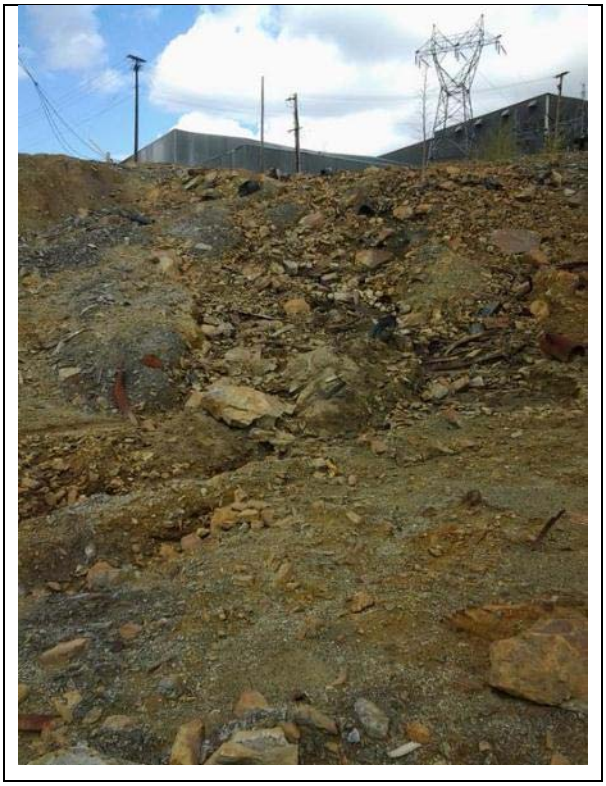
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IMG_SEEP_SRK-FD32_general site image_20130611.jpg



IMG_SEEP_SRK-FD35_general site image_20130611.jpg



IMG_SEEP_SRK-FD35_View of seep looking upstream_20130911.jpg



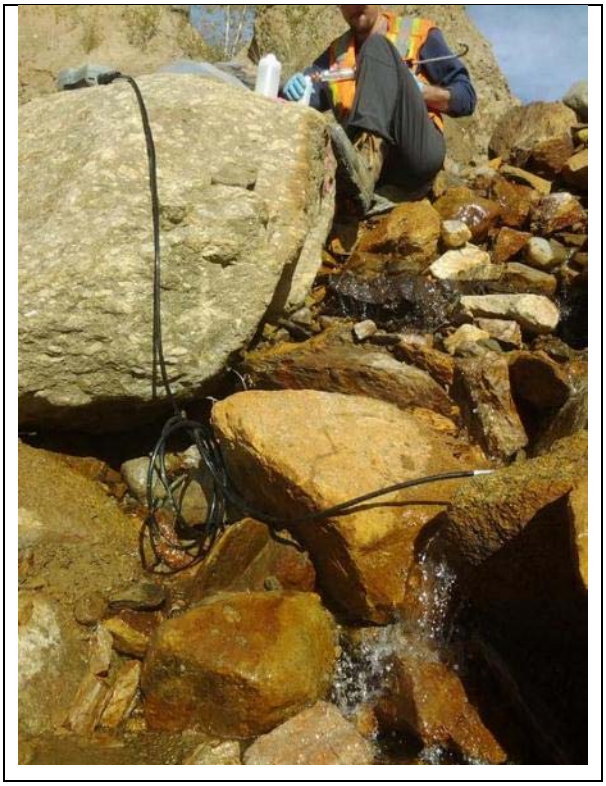
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IMG_SEEP_SRK-FD38_looking north towards faro pit_20130912.jpg



IMG_SEEP_SRK-FD40_Closeup of sonde and sampling setup_20130913.jpg



IMG_SEEP_SRK-FD40_general site image_20130612.jpg



IMG_SEEP_SRK-FD44_closeup of sample location_20130610.jpg



IMG_SEEP_SRK-FD46_general site image_20130611.jpg



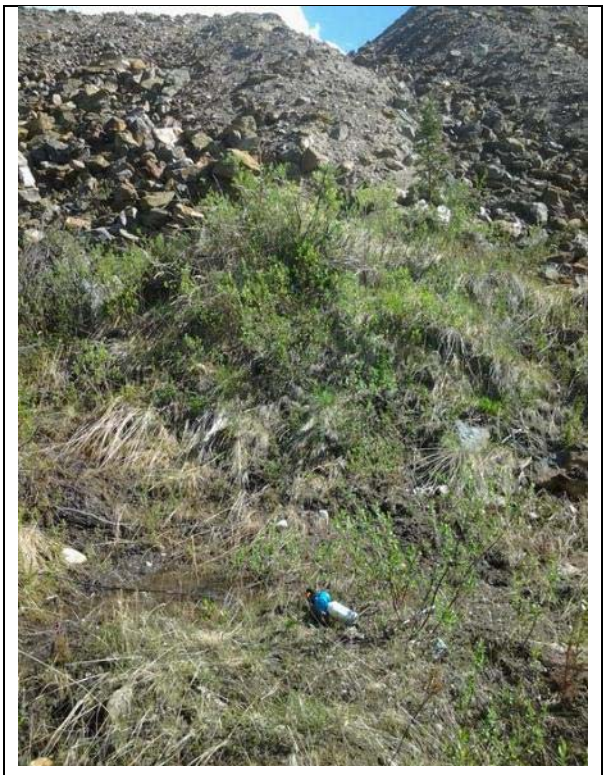
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IMG_SEEP_SRK-FD49_closeup of sonde and sample location_20130614.jpg



IMG_SEEP_SRK-FD49_general site image_20130614.jpg



IMG_SEEP_SRK-FD50_general site image_20130612.jpg



IMG_SEEP_SRK-FD51_closeup of sonde and sample location_20130612.jpg



IMG_SEEP_SRK-FD51_general site image_20130612.jpg



IMG_SEEP_SRK-FD52_closeup of sonde and sample location_20130611.jpg



IMG_SEEP_SRK-FD52_View of seep looking upstream_20130917.jpg



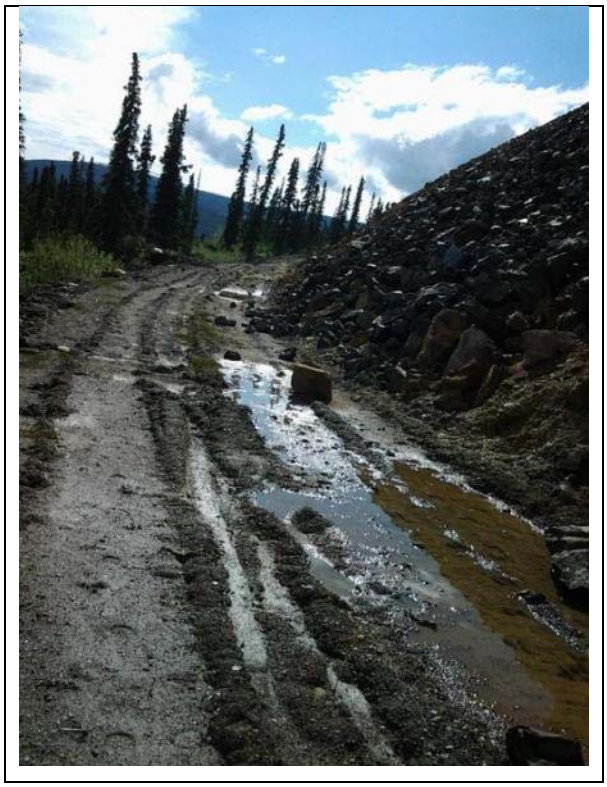
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IMG_SEEP_SRK-FD54_closeup of sonde and sample location_20130611.jpg



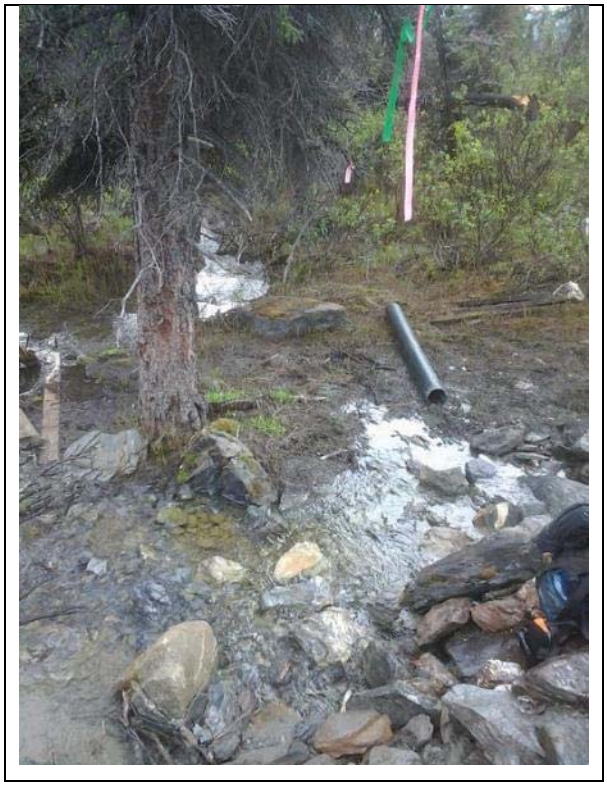
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IMG_SEEP_SRK-FD55_view looking west_20130611.jpg



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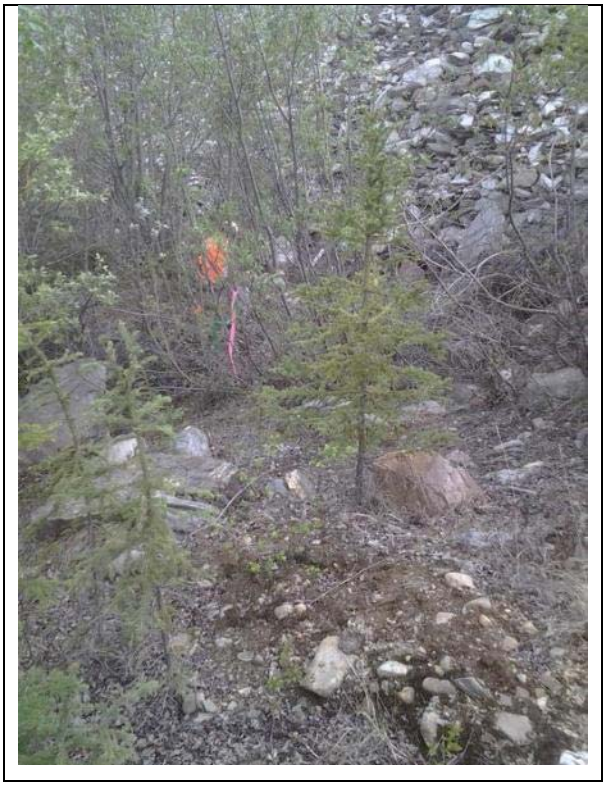
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IMG_SEEP_SRK-GD04_general site image_20130613.jpg



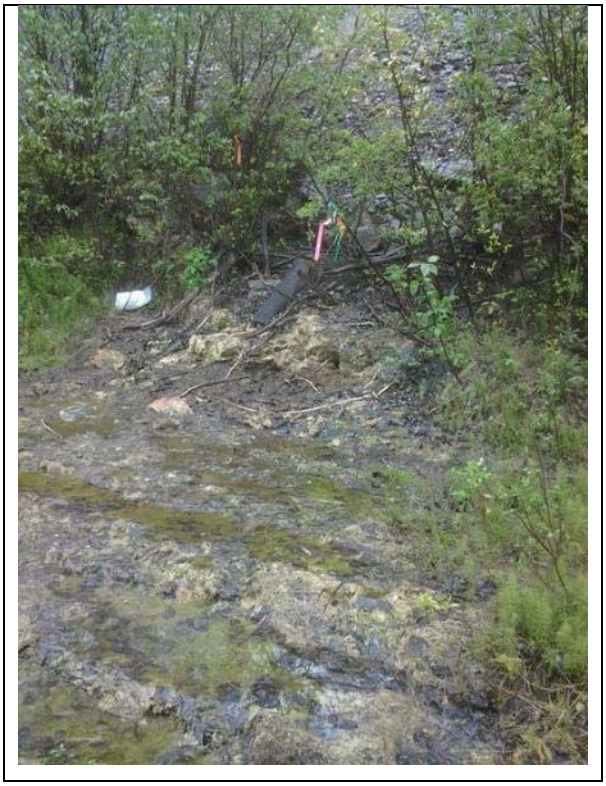
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IMG_SEEP_SRK-GD06_Closeup of sonde and sampling setup_20130916.jpg



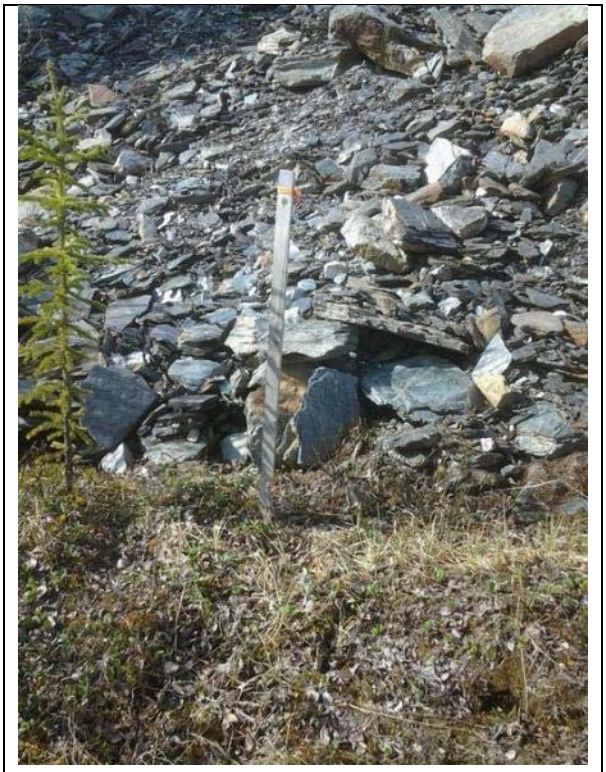
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IMG_SEEP_SRK-GD07_closeup of sonde and sample location_20130614.jpg



IMG_SEEP_SRK-GD07_View of seep looking upstream_20130916.jpg



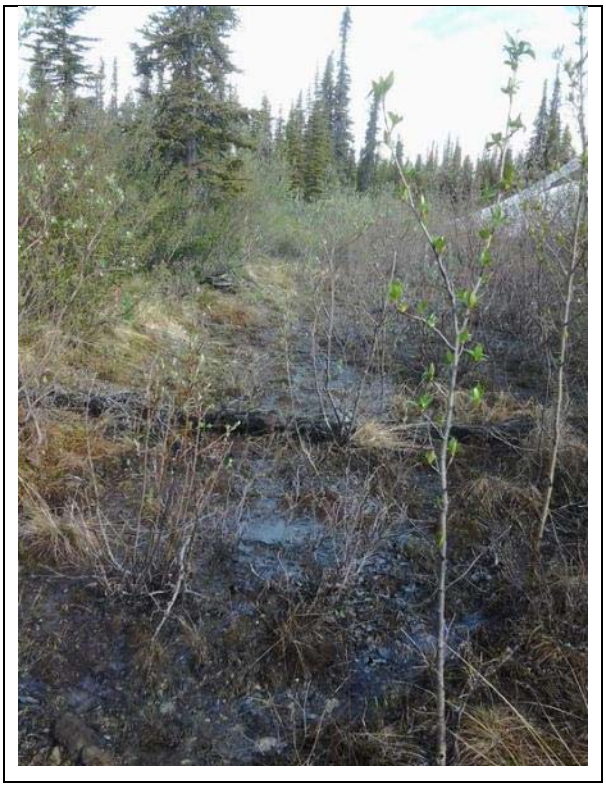
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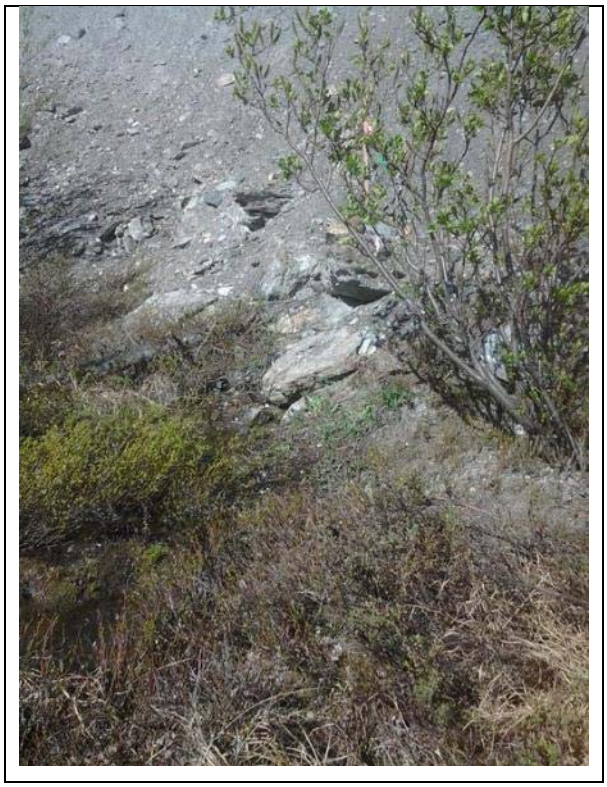
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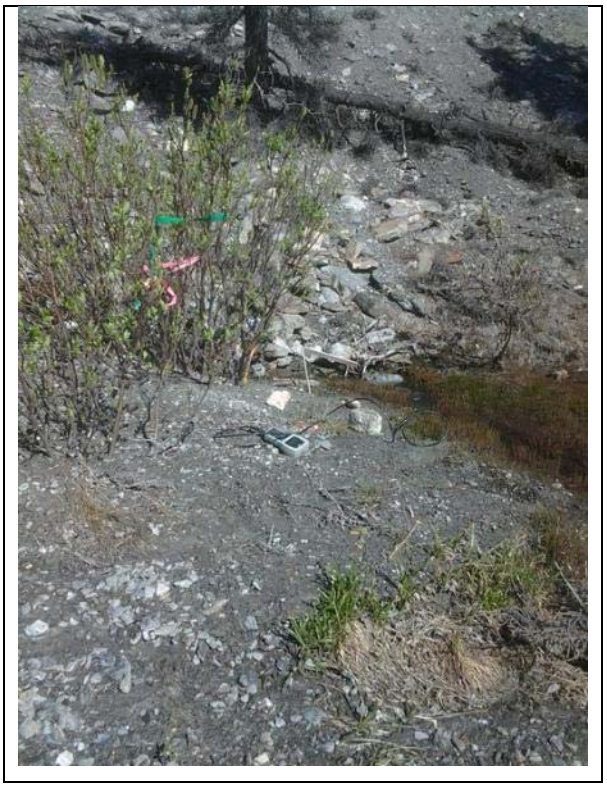
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IMG_SEEP_SRK-GD11_closeup of sonde and sample location_20130613.jpg



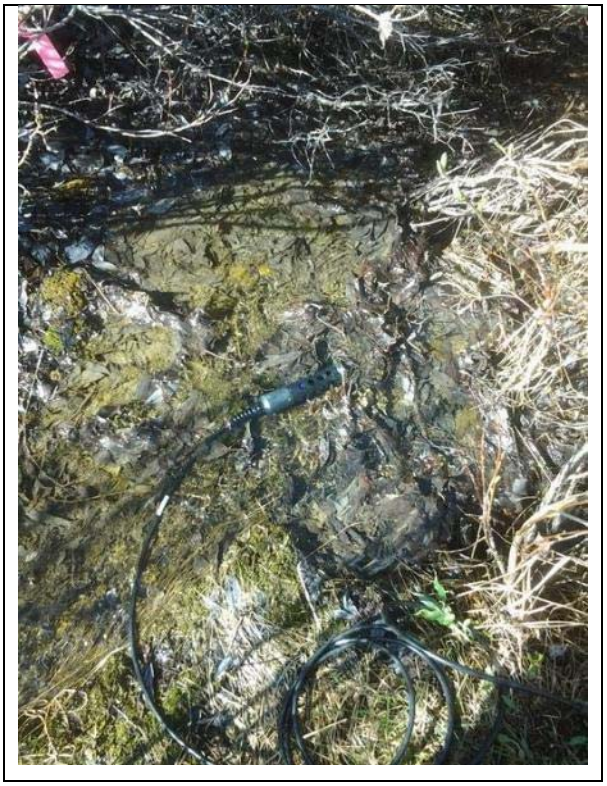
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IMG_SEEP_SRK-GD12_existing markings_20130614.jpg



IMG_SEEP_SRK-GD12_View of seep looking downstream_20130916.jpg



IMG_SEEP_SRK-GD13_closeup of sonde and sample location_20130614.jpg



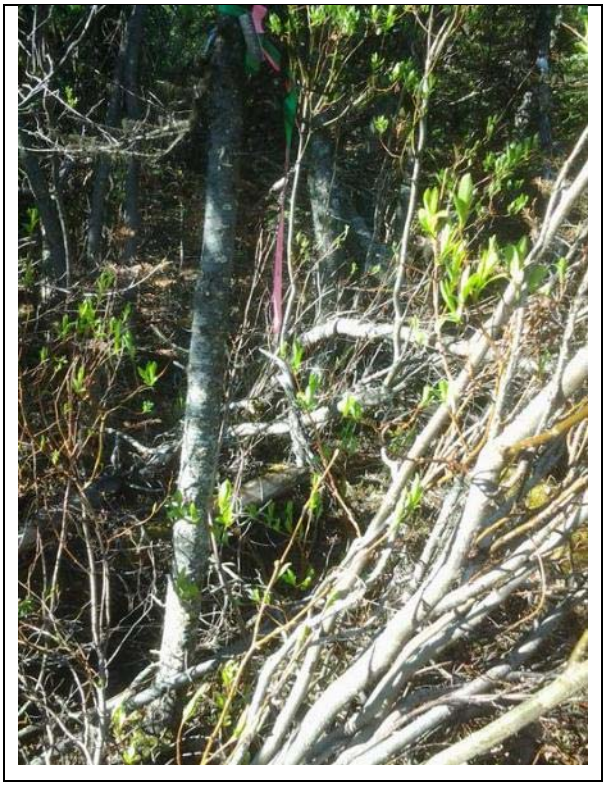
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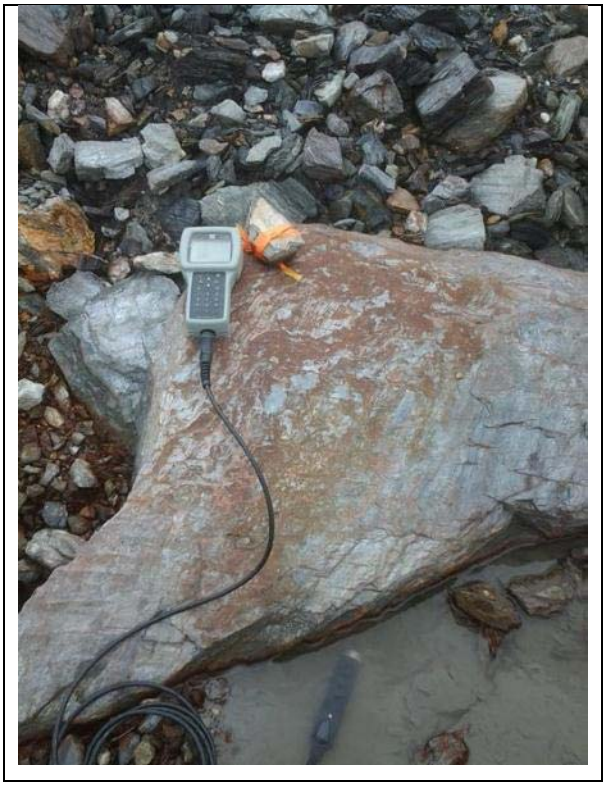
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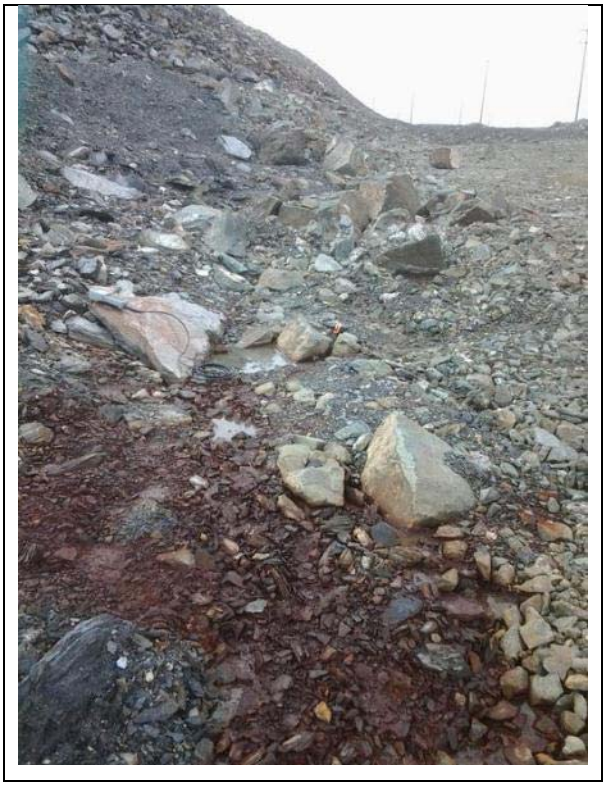
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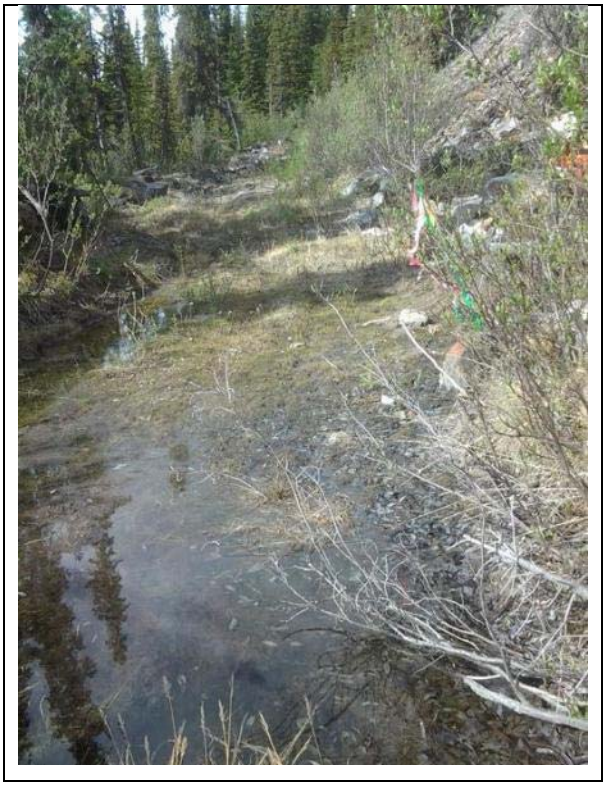
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IMG_SEEP_SRK-GD21_general site image_20130613.jpg



IMG_SEEP_SRK-GD22_general site image_20130613.jpg



IMG_SEEP_SRK-GD23_Closeup of sonde and sampling setup_20130916.jpg



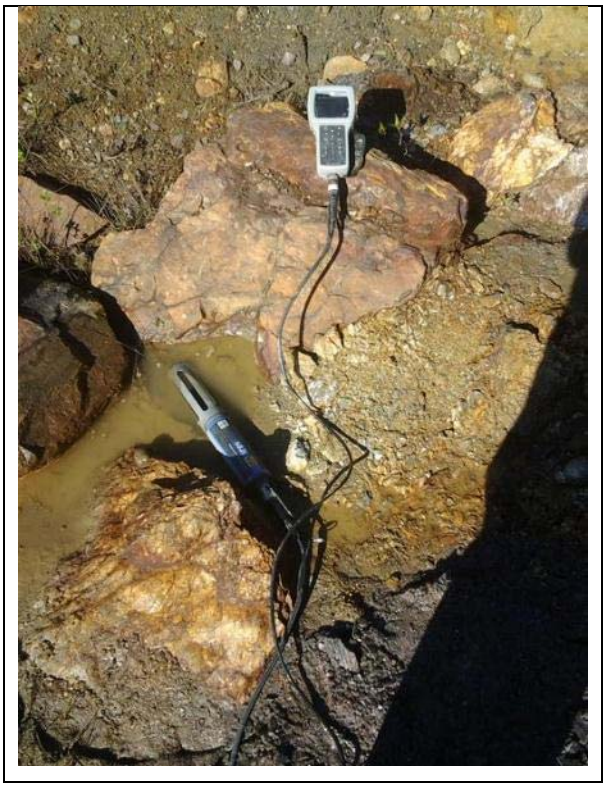
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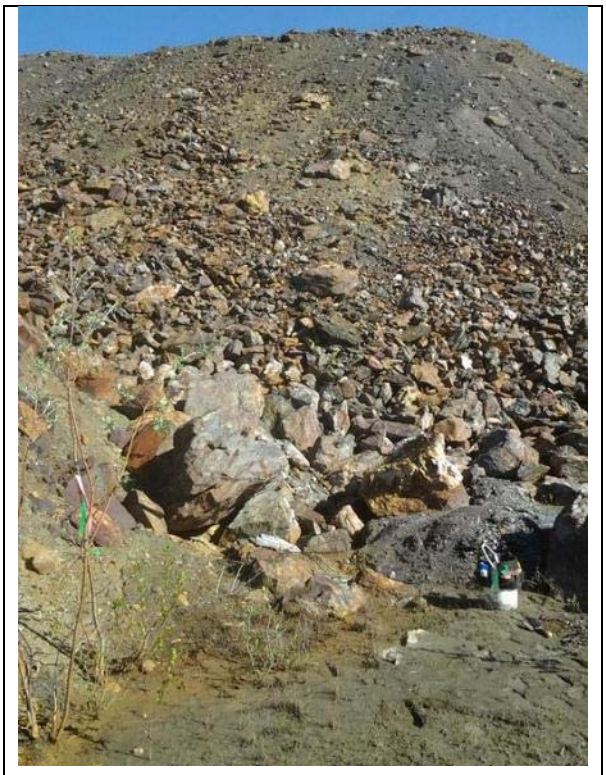
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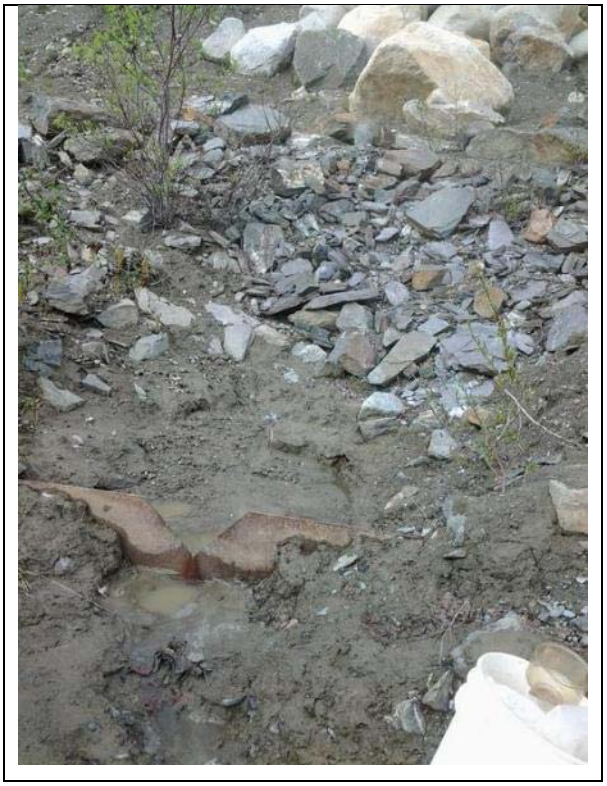
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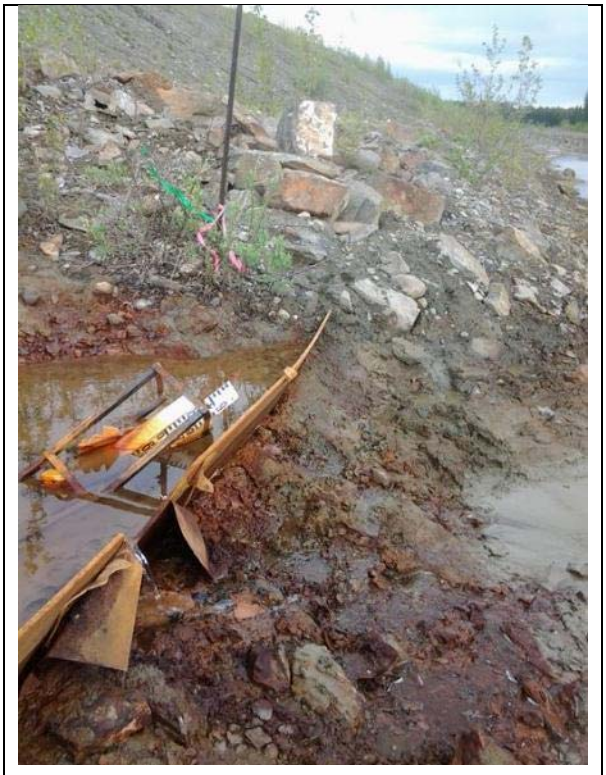
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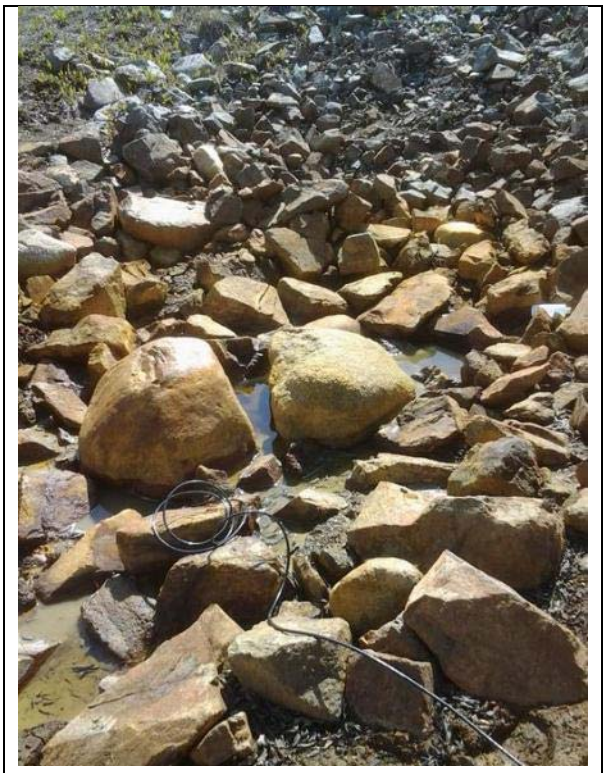
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IMG_SEEP_SRK-VD02_general site image_20130613.jpg



IMG_SEEP_SRK-VD03_closeup of sonde and sample location_20130613.jpg



IMG_SEEP_SRK-VD04_closeup of sonde and sample location_20130614.jpg



IMG_SEEP_SRK-VD04_general site image_20130614.jpg



IMG_SEEP_SRK-VD05_closeup of sonde and sample location_20130614.jpg



IMG_SEEP_SRK-VD05_general site image_20130614.jpg



IMG_SEEP_SRK-VD06_general site image_20130614.jpg



IMG_SEEP_SRK-VD07_general site image_20130614.jpg



IMG_SEEP_SRK-VD09_general site image_20130613.jpg



IMG_SEEP_SRK-VD09_View of seep looking downstream_20130916.jpg



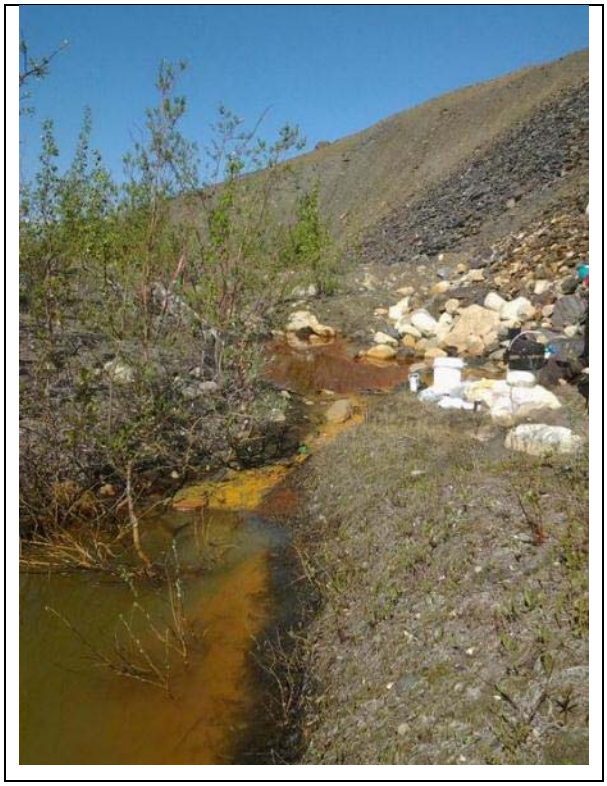
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IMG_SEEP_SRK-VD12_general site image_20130614.jpg



IMG_SEEP_VP07_closeup of sonde and sample location_20130613.jpg



IMG_SEEP_VP07_general site image_20130613.jpg



IMG_SEEP_VP09_closeup of sonde and sample location_20130613.jpg



IMG_SEEP_VP09_general site image_20130613.jpg



IMG_SEEP_VP10_general site image_20130613.jpg



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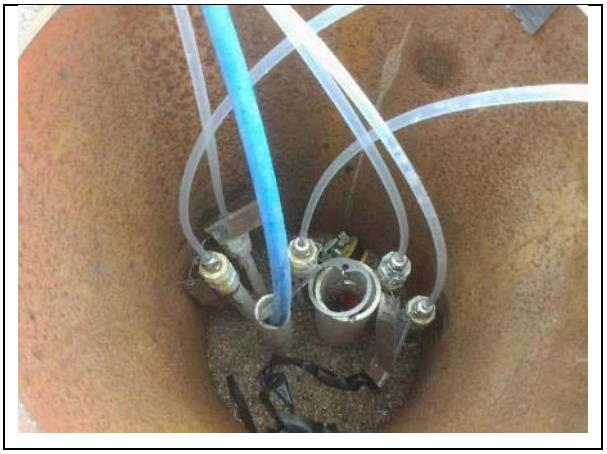
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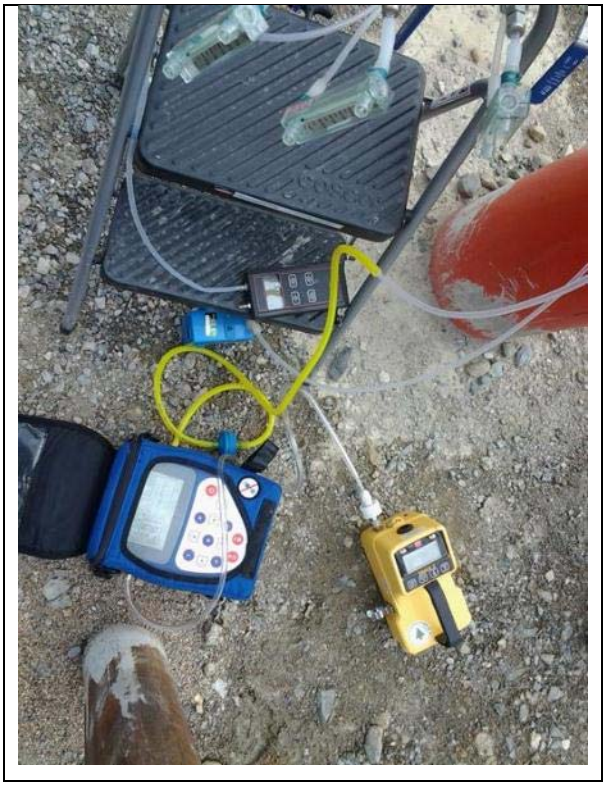
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IMG_WRD_CH12-014-MW005_Well Monitoring Setup_20130610.jpg



IMG_WRD_CH12-014-MW007_Monitoring Well Setup_20130701.jpg



IMG_WRD_CH12-014-MW007_Soil Gas Monitoring with GEM Instrument_20130702.jpg



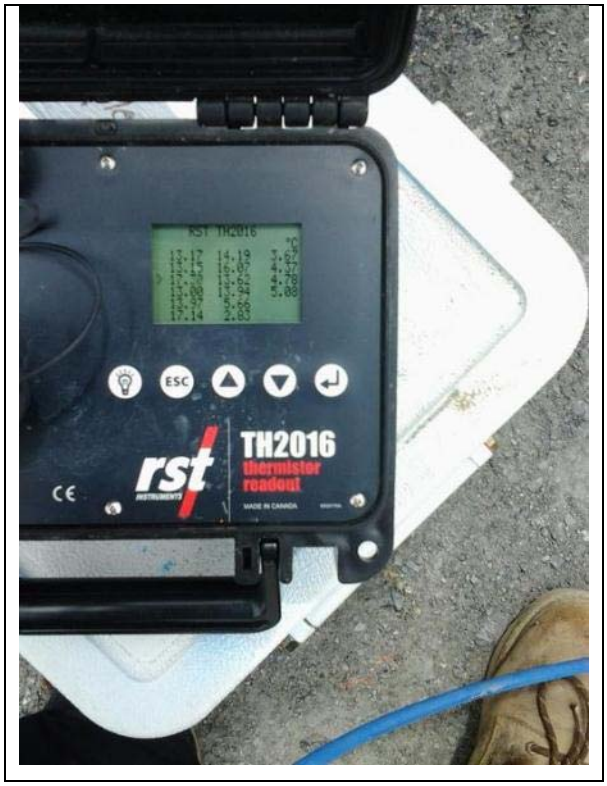
IMG_WRD_CH12-014-MW011_Well Monitoring Setup 20130701.jpg



IMG_WRD_CH12-014-MW012 _Closeup of purge water_20130916.jpg



IMG_WRD_CH12-014-MW012 _View of monitoring well purge setup_20130916.jpg



IMG_WRD_CH12-014-MW012_ Thermistor String Reading 20130704.jpg



IMG_WRD_CH12-014-MW012_Soil gas and GW purge setup_20130916.jpg



IMG_WRD_CH12-014-MW013 _Closeup of purge water_20130917_002.jpg



IMG_WRD_CH12-014-MW013 _View of monitoring well purge setup_20130917.jpg



IMG_WRD_CO2 Sensor Failure_20130612.jpg

Appendix B
Pit Lakes Report

Laberge ENVIRONMENTAL SERVICES

Technical Memo

TO: CH2M Hill DATE: October 3rd, 2013
FROM: Ken Nordin, Senior Technologist, LES LES Project: FMC 2013.1

SUBJECT: **Field Summary Water Sampling and Seep Sampling in Faro, Grum and Vangorda Pit Lakes**

Background

CH2M HILL is engaged in the Remediation Project at the Faro Mine Complex or FMC. The subject of this memo is work conducted in the pit lakes; namely Pit Lake and seep sampling in Faro Pit Lake, seep sampling in Grum Pit Lake and seep sampling in Vangorda Pit Lake. All data and field observations collected during the pit lake sampling and pit lake seep sampling investigations in September 2013 are presented herein. The work was done in accordance with a field sampling plan reviewed and approved by CH2M Hill.

Faro Pit Lake Samples

Two water samples with duplicates will were collected from 80m depth in the area of the Faro pit with greatest depth to bottom. The boat was moored to the existing sampling buoy situated within the zone of the pit that is the deepest. (The depth at the buoy was 96 m this year). All samples were submitted to CH2M HILL's sample manager.

Samples were collected as follows:

Two sample bottle sets (one is a field duplicate) were collected for a suite of laboratory geochemical analyses detailed in Table 1 of the RFP.

Each bottle set consisted of 9 bottles with a combined volume of approximately 3 litres.

Samples for dissolved metals and dissolved organic carbon were field filtered to 0.45µm using syringe filters.

Samples for ferrous iron were taken as soon as the possible after the bulk sample was collected from the pit lake to minimize the amount of time the sample was exposed to air. Samples for ferrous iron were pre-filtered using 0.45 µm techniques stacked upstream of a 0.1µm using syringe filters. The sample was preserved immediately after filtration.

Preservatives were added following the reference in Table 1 of the RFP.

Bottle sets, filters, and preservatives were provided by CH2M HILL.

Ten litres of water was collected using evacuated Teflon sample bags for customized lab sludge stability testing. These samples were kept to a 1L maximum volume for ease in shipping to the United States. The sample was not allowed to come in contact with oxygen or air by using a peristaltic pump and sampling tube lowered to 80m. Laberge provided all sampling equipment and sample containers required to collect the samples for customized lab sludge stability testing.

Field parameters were collected using a 600 XLM YSI water Sonde supplied by Laberge. The Sonde was calibrated daily following SOP MSR003 included with the RFP. The daily calibration log is included with copies of the field notes herein. The Sonde was used for all field parameters. In addition to the above, the YSI Sonde was used in casts made in the Faro and Grum pit lakes. Also, a CTD was deployed in the Faro and Grum pit lakes. Casts were not made in the Vangorda pit lake due to shallow depth and homogenous conditions.

Seep Samples at pit lakes edge of water

All twenty five targeted seep locations previously sampled between 2002 and 2009 were visited in this survey. Samples could not be obtained from many locations due to the site being inundated, dry or simply inaccessible. The locations of the targeted seep sample sites shown in 2013_FSP_Figure_SEEP-3,

2013_FSP_Figure_SEEP-4, and 2013_FSP_Figure_SEEP-5 corresponded very well with field GPS coordinates which in turn matched very well with the list of waypoints supplied by CH2M Hill. The few exceptions are noted below.

Seeps were located using printed maps and a Garmin GPS unit populated with sample location coordinates and accessed by boat. Owing to site safety requirements, a crew of three was required so that two people could remain on board at any given time with a rescue boat positioned on shore with a spotter. Where flowing seeps were found, field parameters were measured and samples were collected. New flagging was made following the CH2M Hill SOP SMP015 where no markings were found at the seep location. Exceptions were locations that were inundated or inaccessible. Table 1 below lists all seep locations with commentary.

The following field parameters were collected at each seep sample site:

- Time and date
- Seep flow following SOP SMP015 as in appendix 1 of the RFP
- Temperature, pH (temperature corrected), specific conductivity, dissolved oxygen (DO) and ORP using a YSI water quality meter and probe calibrated daily following SOP MSR003 as in appendix 1 of the RFP
- Pictures of each site.
- Observations of precipitates, staining, or algae growth within seepage streams, and colour of seepage water
- Observations and photographs of existing SRK flagging marking the location.

Sample bottle sets were collected for a suite of laboratory geochemical analyses detailed in Table 1 of the RFP as follows:

Each bottle set consisted of 8 bottles with a combined volume of approximately 2 litres.

Samples for dissolved metals and dissolved organic carbon were field filtered to 0.45um using syringe filters.

Samples for ferrous iron were taken as soon as the possible after the bulk sample was collected from the pit lake to minimize the amount of time the sample was exposed to air. Samples for ferrous iron were pre-filtered using 0.45 µm techniques stacked upstream of a 0.1µm using syringe filters. The sample was preserved immediately after filtration.

Preservatives were added according to the reference in Table 1 of the RFP.

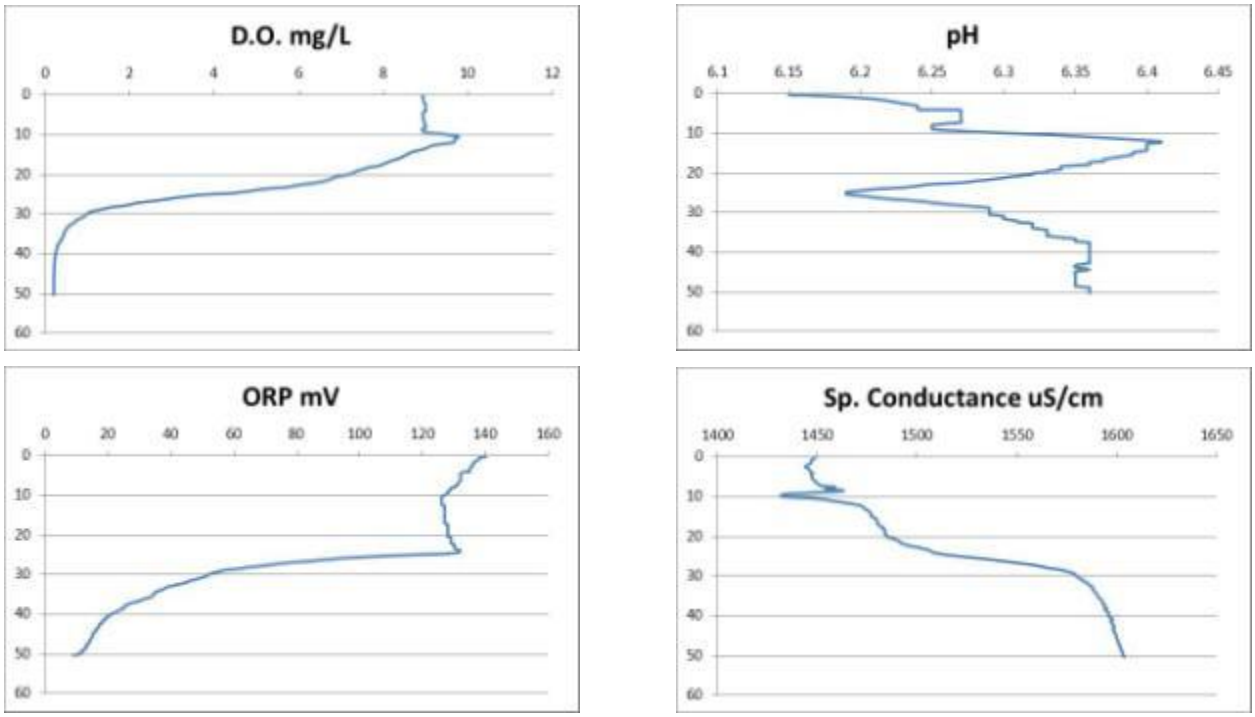
Only one duplicate sample was required to adhere to the once for every 10 samples collected rule.

Pit Lake Profiles

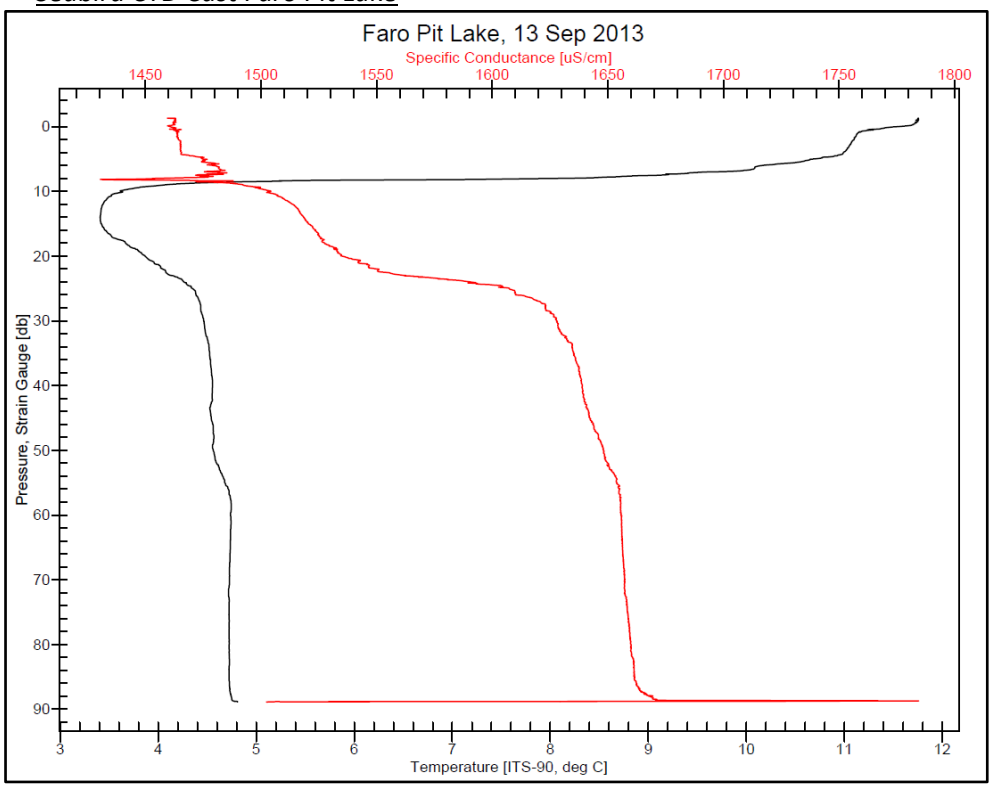
Faro Pit Lake

The YSI was deployed for a single cast to a target depth of 60 m (the maximum depth of the instrument). Perhaps due to skew, the cast depth only reached 50 m, however, this was sufficient to depict the chemocline evident in the pit at about 25m and the theromocline at about 9m. The CTD cast reflects the same pattern for conductance and temperature but extends the range to 90m.

YSI 6600 XLM Cast Faro Pit Lake



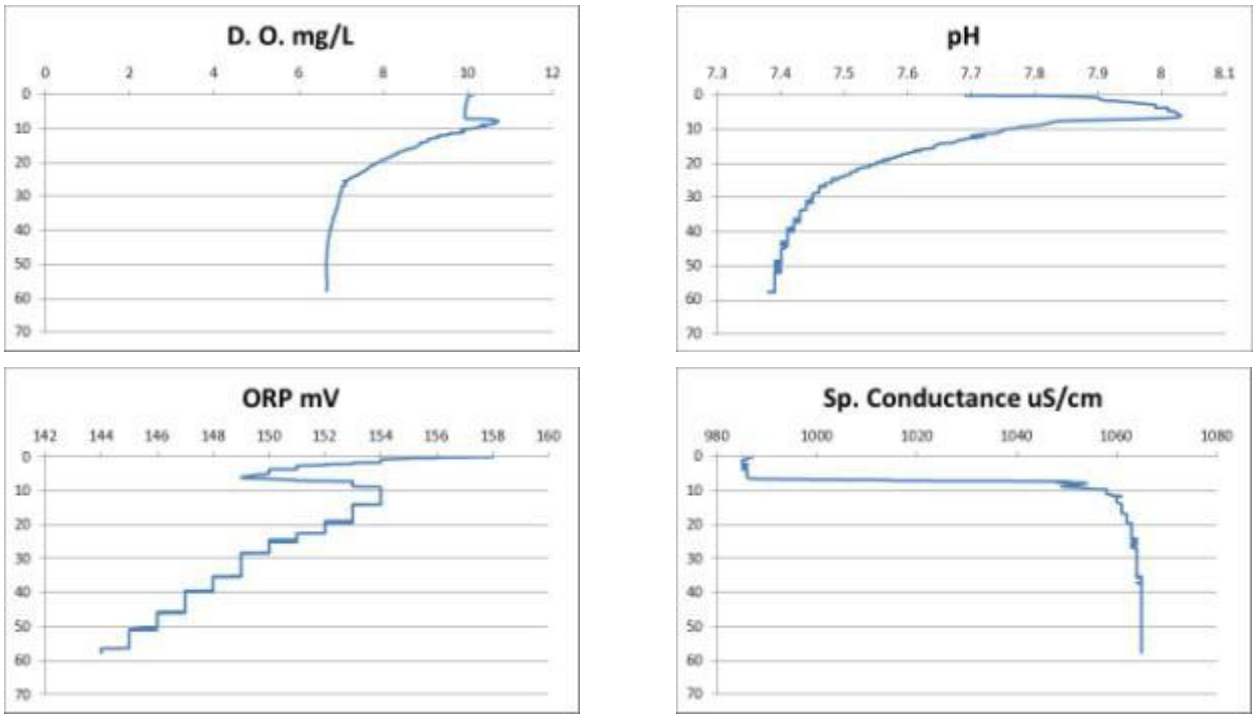
Seabird CTD Cast Faro Pit Lake



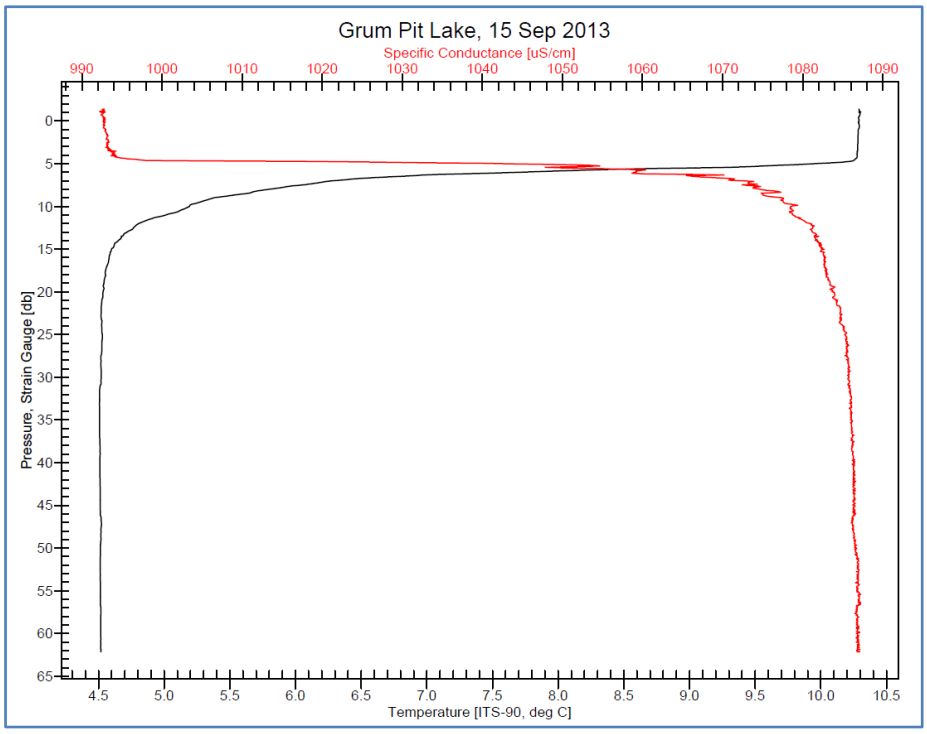
Grum Pit Lake

The YSI was deployed in the Grum Pit to 59m. The CTD was deployed to 63m. The thermocline appeared to be at about 10m below which temperature and specific conductance are stable to depth and ORP declined slightly. The depth of water was 72m at the cast location in the middle of the pit lake.

YSI 6600XLM Cast Grum Pit Lake



Seabird CTD Cast Grum Pit Lake



Seep Sampling Locations

Most of the waypoints supplied by CH2M Hill corresponded very well with seep locations in the field with minor exceptions noted in Table 1 below.

Table 1 – Seep Locations Zone 08V

Seep	m.E.	m.N.	Sampled?	Comment
FP01	584373	6914678	no	Zero-out GPS at WP = seep location. No flow anywhere near this location. Might be inundated.
FP02	584166	6915469	no	No flow at this location
FP02	584127	6915471	yes	Sampled at this location as it was the closest seep to the WP. Labelled this sample FP02.
FP06	584772	6915207	yes	Zero-out GPS at WP = seep location.
FP09	584570	6915325	yes	Zero-out GPS at WP = seep location.
FP12	584071	6915456	yes	Zero-out GPS at WP = seep location.
FP13	584102	6915469	no	No flow at the WP position provided.
FP13	584077	6915473	yes	Sampled at this location as it was the nearest flow to the FP13 WP. Sample is labeled FP13.
FP14	584064	6915407	yes	Zero-out GPS at WP = seep location.
FP15	584299	6915412	Yes	Zero-out GPS at WP = seep location.
FP16	584437	6915337	Yes	Zero-out GPS at WP = seep location.
FP17	584437	6914626	no	Zero-out GPS at WP = seep location. No flow anywhere near this location. Might be inundated.
FP19	584052	6915086	no	Zero-out GPS at WP = seep location. No flow anywhere near this location. Might be inundated.
GP03	592496	6905246	yes	Zero-out GPS at WP = seep location.
GP17	592460	6905302	yes	Zero-out GPS at WP = seep location. Pathway is visible but dry. No flow either side for 50m.
GP18	592411	6905337	no	Zero-out GPS at WP = seep location.
VP01	593745	6903519	no	Zero-out GPS at WP = seep location. Orange stained flow pathway but dry as bone.
VP02	593760	6903590	no	Zero-out GPS at WP = seep location. Brightly stained pathway is glistening wet, nominal dripping can be heard in stones. There is a seep 25m south of this location also can be heard dripping, stones are wet. Neither possible to collect a sample.
VP03	593810	6903644	yes	Zero-out GPS at WP = seep location.
VP04	593898	6903644	no	Zero-out GPS at WP = seep location. Dry.
VP05	593932	6903597	no	There are multiple drips above these locations but the VP05 and VP06 WPs appear to be reversed. Either way, impossible to collect sample as the flow daylights about 5m above – unsafe to access at this water level.
VP06	593953	6903552	no	
VP12	593783	6903627	no	Zero-out GPS at WP = seep location. Dripping can be seen about 8m above the water but none of these droplets actually report to the current water level.
VP13	593861	6903659	no	Zero-out GPS at WP = seep location. Droplets can be seen about 8m above the boat.

Seep	m.E.	m.N.	Sampled?	Comment
VP14	593966	6903517	no	Zero-out GPS at these waypoints and they do correspond to seep locations. Water can be seen dripping far above the current lake level onto a bench – no water reports to the current water level.
VP15	593959	6903536	no	
VP16	593975	6903499	no	

Field Parameters

Table 2 - Faro Pit Lake Water Sample from 80m

Site	Date	Time	Temp C	SpCond uS/cm	DO Conc mg/L	pH	ORP mV
80m	9/14/2013	11:30	10.5	1650	0.4	6.55	nm

Seep Field Parameters

Table 3 – Faro Pit Seeps Field Parameters

Site	Date	Time	Temp C	SpCond uS/cm	DO %	DO Conc mg/L	pH	ORP mV	Discharge L/sec
FP02	9/14/2013	14:24:35	9.35	779	87.2	9.97	8.26	133	0.16
FP06	9/14/2013	16:23:00	8.88	422	84.7	9.81	8.41	136	0.2
FP09	9/14/2013	15:49:56	6.93	460	87.5	10.62	6.79	194	6.9
FP12	9/14/2013	13:01:41	8.9	715	87.4	10.11	7.93	266	0.54
FP13	9/14/2013	13:44:37	8.46	415	87.3	10.21	8.23	159	2.68
FP14	9/14/2013	12:14:36	9.82	2858	86.4	9.7	2.79	513	0.18
FP15	9/14/2013	15:01:13	9.93	772	85	9.59	7.65	112	3
FP16	9/14/2013	15:14:55	7.77	1137	88.9	10.55	3.76	463	4.31
FP06	9/14/2013	16:23:05	8.88	423	84.7	9.81	8.41	136	6.9

Table 3a – Faro Pit Seeps Observations

Site	Observations
FP02	There was no flow at the designated WP but a significant flow about 100’ NW, so sampled, flagged and labeled this FP02 with new coordinates. Water clear and colourless, reports to pit lake over a delta-like structure of loose material.
FP06	Clear colourless robust flow channelized in loose grey material.
FP09	Clear colourless waterfall-like flow across cut rock face with little staining, but there is a red-stained flow pathway about 15m N that is dry.
FP12	Clear colourless, distinct orange-red stained flow pathway. SRK flagging intact. Left new flagging.
FP13	No flow at designated WP but robust flow about 80’ NE, so sample and mark new WP. Flagged. Clear water, orange staining.
FP14	Clear colourless, distinct orange-red stained flow pathway. SRK flagging intact. Left new flagging. Couple of upstream tributary flows combine to a single pathway. Eerie corroded metal waste and parts. Bright green algae present in flow pathway.

Site	Observations
FP15	3 small channels combine just before the lake at a rock fall retaining fence. No flagging found so establish ne flagging on the fence. Clear and colourless but red stained flow path.
FP16	Cascade-like flow is clear and colourless over soft red rock.
FP06	Robust flow through grey unconsolidated material, clear and colourless.

Table 4 – Grum Pit Seeps Field Parameters

Site	Date	Time	Temp C	SpCond uS/cm	DO Conc mg/L	pH	ORP mV	discharge L/sec
GP03	9/15/2013	11:47:22	6.48	402	11.48	8.29	70	0.31
GP17	9/15/2013	13:10:50	5.56	261	11.76	8.32	45	1.63

Table 4a – Grum Seep Observations

Site	Observations
GP03	Clear and colourless but has very fine suspended solids judging by the number of .45 filters used…flows through channelized muddy till. Blind Duplicate.
GP17	Robust flow, same as above re: clarity.
GP18	No flow although pathway is evident. No flow nearby either.

Table 5 – Vangorda Pit Seeps field Parameters

Site	Date	Time	Temp C	SpCond uS/cm	DO Conc mg/L	pH	ORP mV	discharge L/sec
VP03	9/15/2013	16:02:08	10.16	1579	10.69	2.96	486	0.06

Note: One reason that only one sample was possible in this pit is that the lake level is very low. In several cases seepage water could be seen high above the current lake level dripping from sheer rock walls. Other seeps were simply dry.

Table 5a – Vangorda Pit Seeps Observations

Site	Observations
VP01	Orange stained flow pathway at WP is dry. Drip-wise trickle over wet stones about 20 south but not possible to sample.
VP02	Dramatic red-orange flow pathway in remnant Vangorda creek channel. Stones are wet and Droplets can be seen on larger substrates. Not possible to obtain a sample.
VP12	Droplets can be seen about 8m above the water on a rock wall. No water reports to current lake level.
VP03	Definite flow pathway, water is clear and colourless flowing over a delta of loose material into the lake.
VP13	Droplets can be seen about 8m above the lake on a sheer rock wall. Unsafe or impossible to access. No water reports to current edge of water.

Site	Observations
VP04	Droplets can be seen about 8m above the lake on a sheer rock wall. Unsafe or impossible to access. No water reports to current edge of water.
VP05	Droplets can be seen about 8m above the lake on a sheer rock wall. Unsafe or impossible to access. No water reports to current edge of water. The WP is reversed with VP06. Flow pathway is evident.
VP15	Droplets can be seen about 8m above the lake on a sheer rock wall. Unsafe or impossible to access. No water reports to current edge of water.
VP14	Droplets can be seen about 8m above the lake on a sheer rock wall. Unsafe or impossible to access. No water reports to current edge of water.
VP16	Droplets can be seen about 8m above the lake on a sheer rock wall. Unsafe or impossible to access. No water reports to current edge of water.
VP06	Droplets can be seen about 8m above the lake on a sheer rock wall. Unsafe or impossible to access. No water reports to current edge of water. WP switched with VP05

Pictures of the seeps follow. Copies of calibration log and field notes also follow.

Files that accompany this memo are as follows:

- Faro Pit Seeps YSI 600XLM.xlsx
- Faro Pit Profile.xlsx
- Grum Pit Seeps YSI 600XLM.xlsx
- Grum_Profile.xlsx
- Vangorda Pit Seeps YSI 600XLM.xlsx

Respectfully Submitted by:



Ken Nordin AScT, CCEP

Laberge Environmental Services

October 3rd, 2013

Pictures of Seep Sampling



Near FP17



FP17 is across from boat.



FP01



FP19



FP14



FP14



Algae at FP14



Flow at FP14



FP12



FP12



FP13



FP13



FP02



FP02



FP15



FP16



FP16



FP09



Grum Pit Lake Sept 15, 2013



GP03



GP17



GP17



GP17



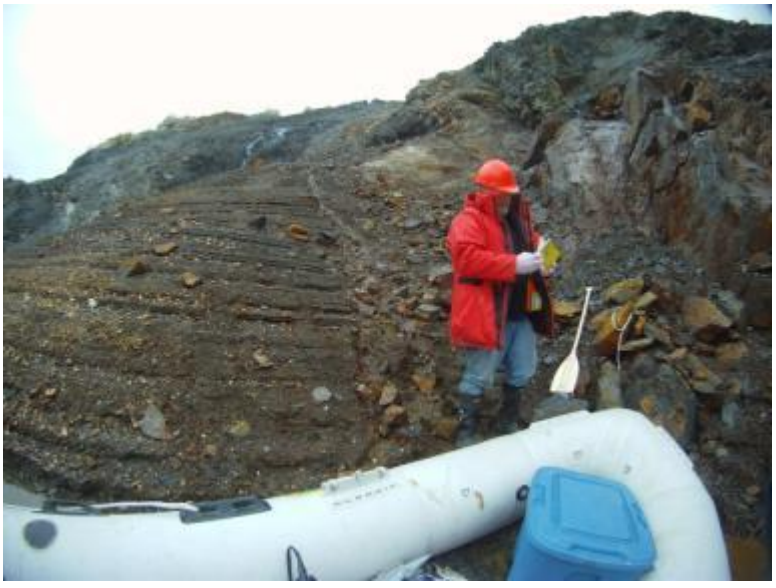
VP01



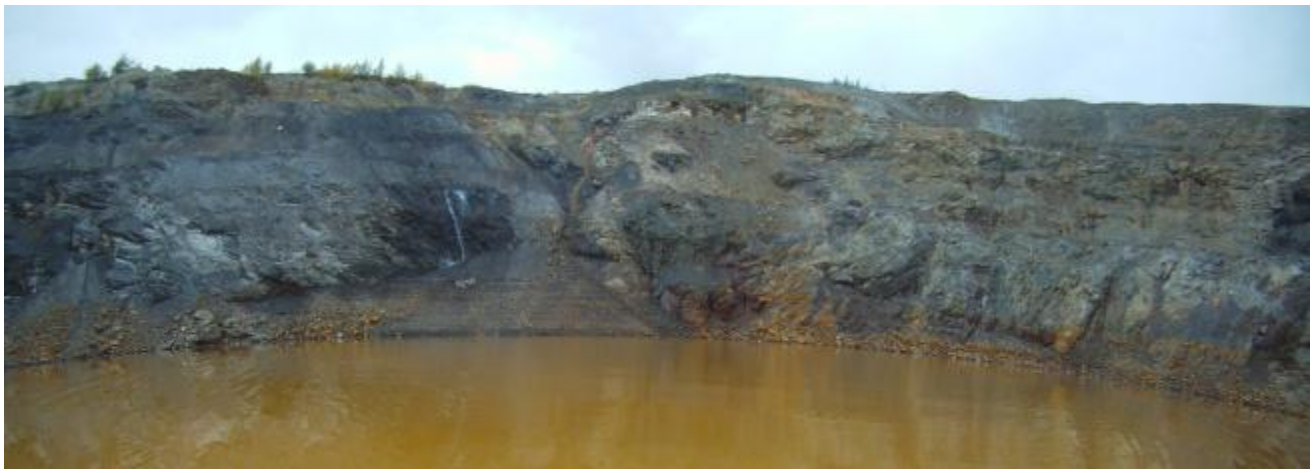
VP02 remnant Vangorda Creek channel



VP12



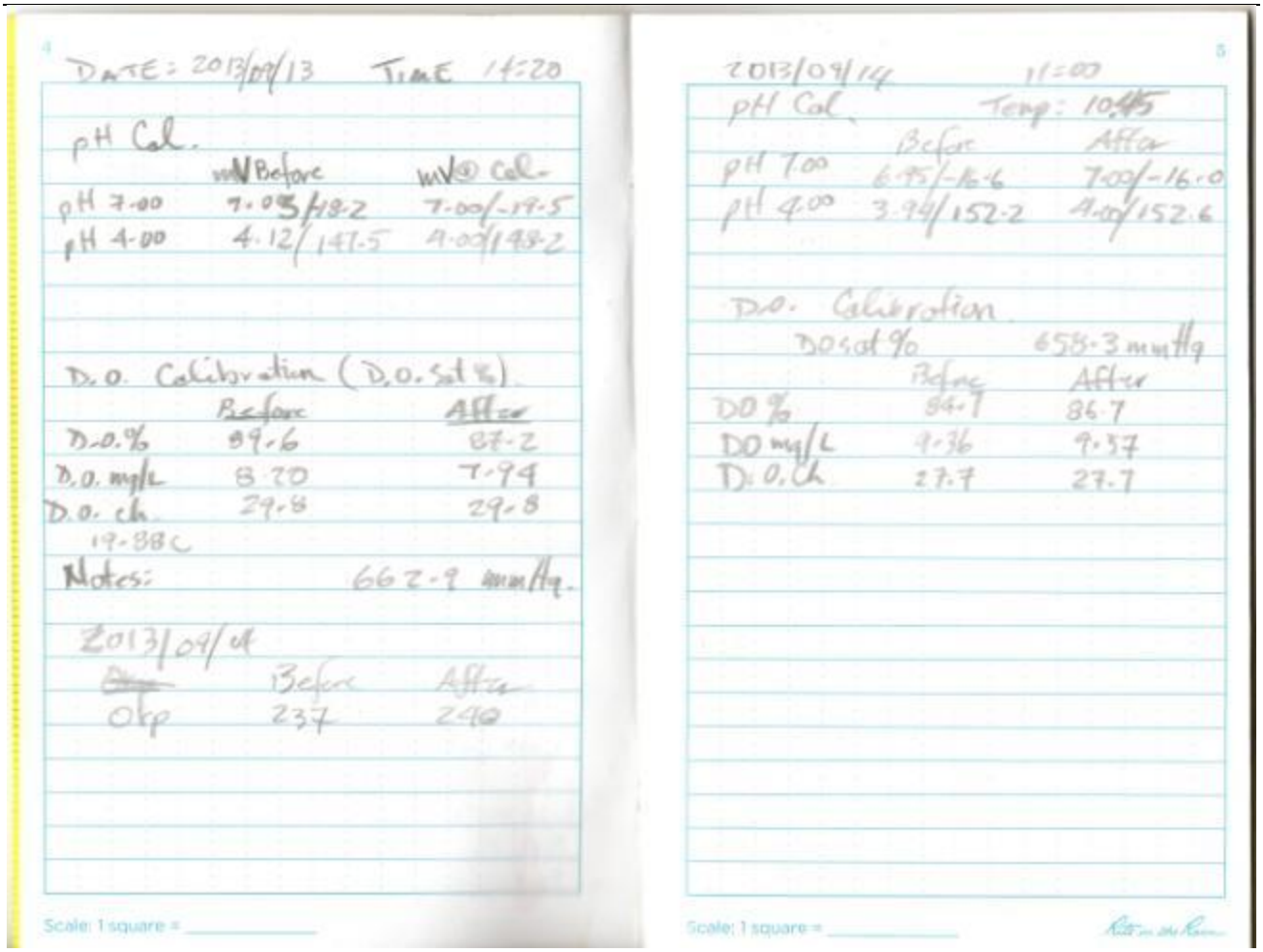
VP03



Vangorda Pit looking north. VP03 at centre, VP13 and VP04 at right.



Vangorda Pit looking northeast. VP05, VP15, VP14, VP16 and VP06 in that order from left to right. All negligible drip-wise flows high up on the rock wall, not possible to sample.



DATE: 2013/09/13 TIME 14:20

pH Cal.

	mV Before	mV @ Cal.
pH 7.00	7.03/-18.2	7.00/-19.5
pH 4.00	4.12/147.5	4.00/148.2

D.O. Calibration (D.O. Sat %)

	Before	After
D.O.%	89.6	87.2
D.O. mg/L	8.70	7.94
D.O. ch.	29.8	29.8

19.88C

Notes: 662.9 mm Hg.

2013/09/14

	Before	After
~~ORP~~		
ORP	237	240

Scale: 1 square = _____

2013/09/14 11:00

pH Cal. Temp: 10.45

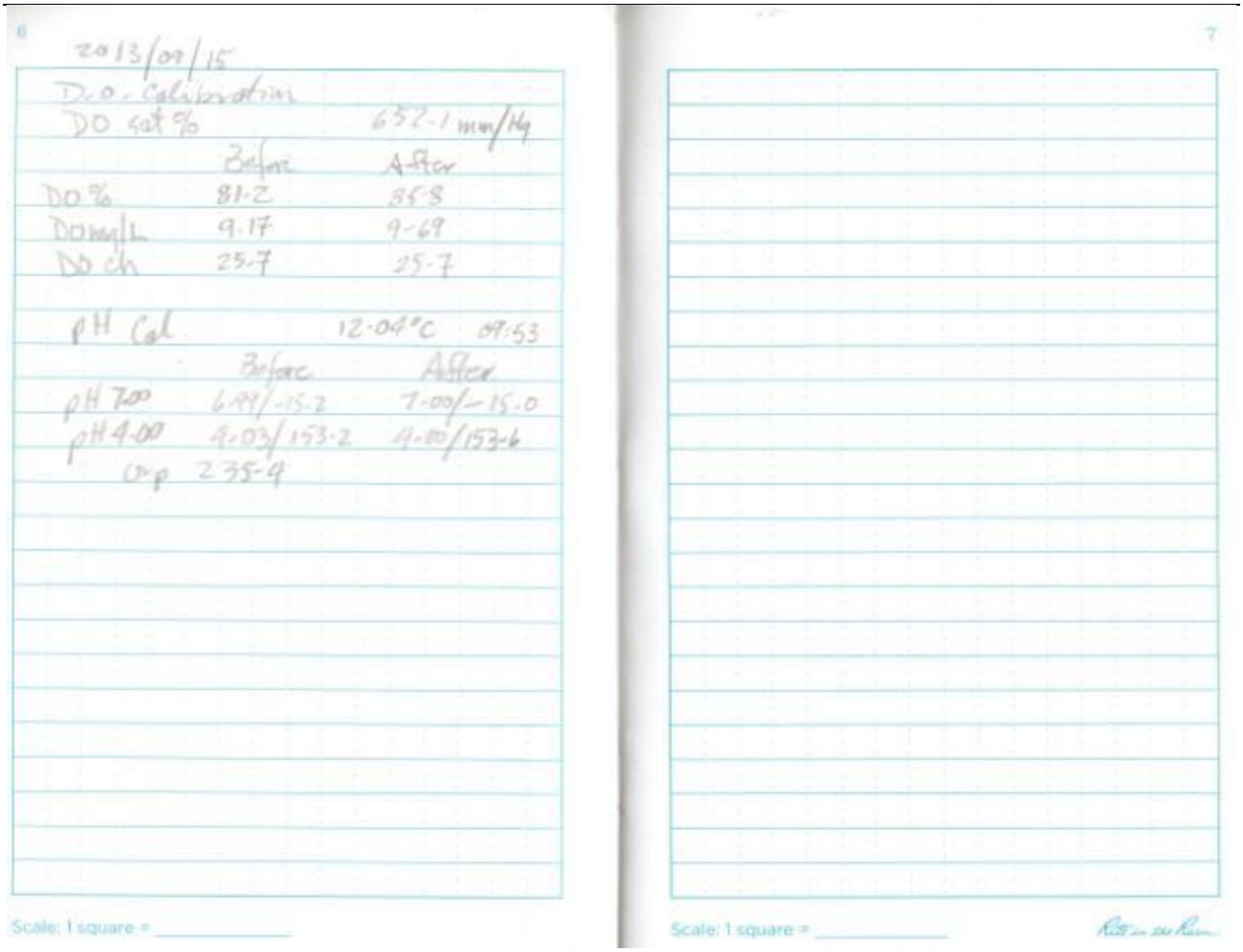
	Before	After
pH 7.00	6.95/-16.6	7.00/-16.0
pH 4.00	3.94/152.2	4.00/152.6

D.O. Calibration

DO sat % 658.3 mm Hg

	Before	After
DO %	84.7	86.7
DO mg/L	9.36	9.57
D.O. ch	27.7	27.7

Scale: 1 square = _____



2013/09/15
D.O. Calibration
DO sat % 652-1 mm/Hg

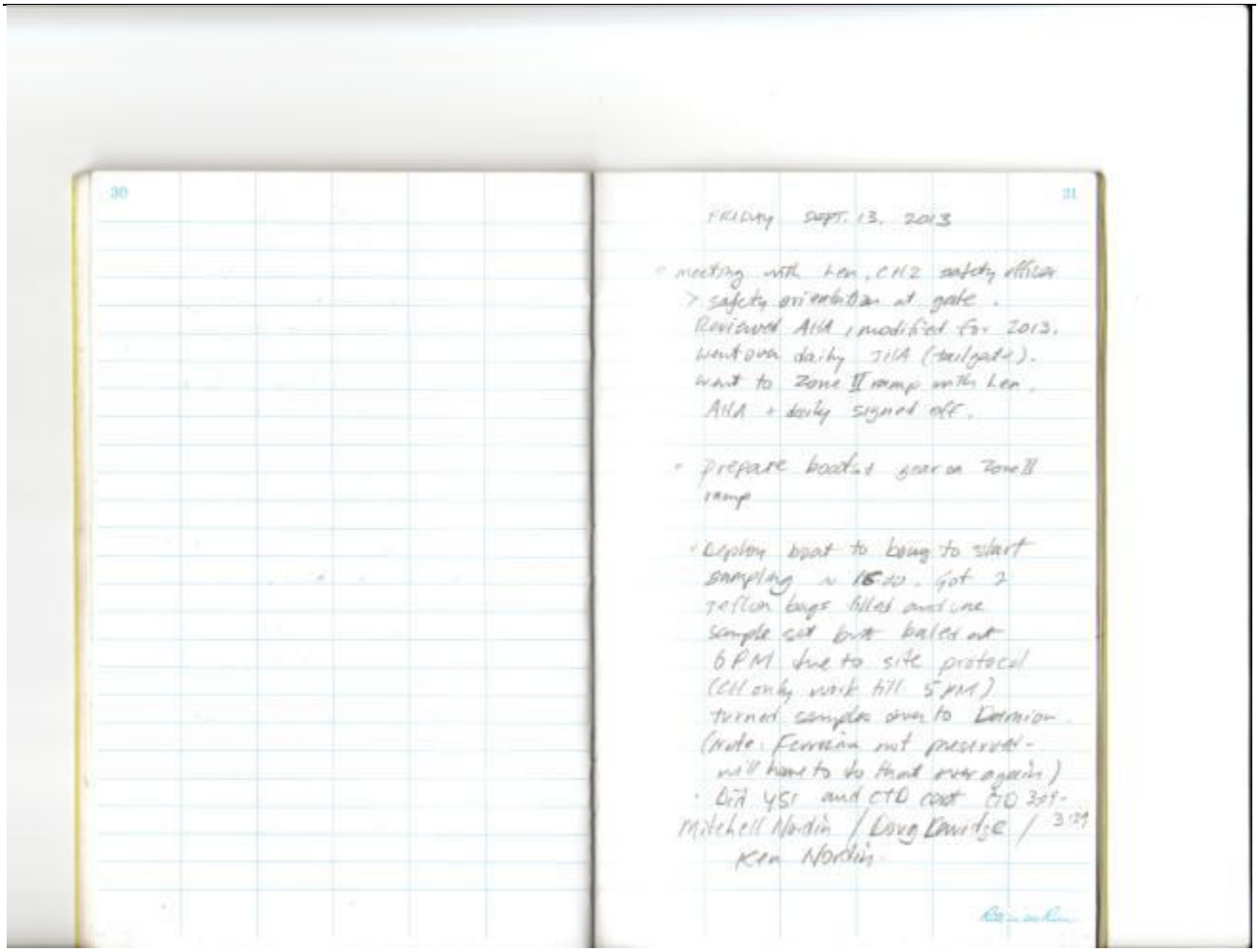
	Before	After
DO %	81.2	85.8
DO mg/L	9.17	9.69
DO ch	25.7	25.7

pH Cal 12.04°C 09:53

	Before	After
pH 7.00	6.99/-15.2	7.00/-15.0
pH 4.00	4.03/153.2	4.00/153.6
Orp	235.9	

Scale: 1 square = _____

Scale: 1 square = _____



30

31

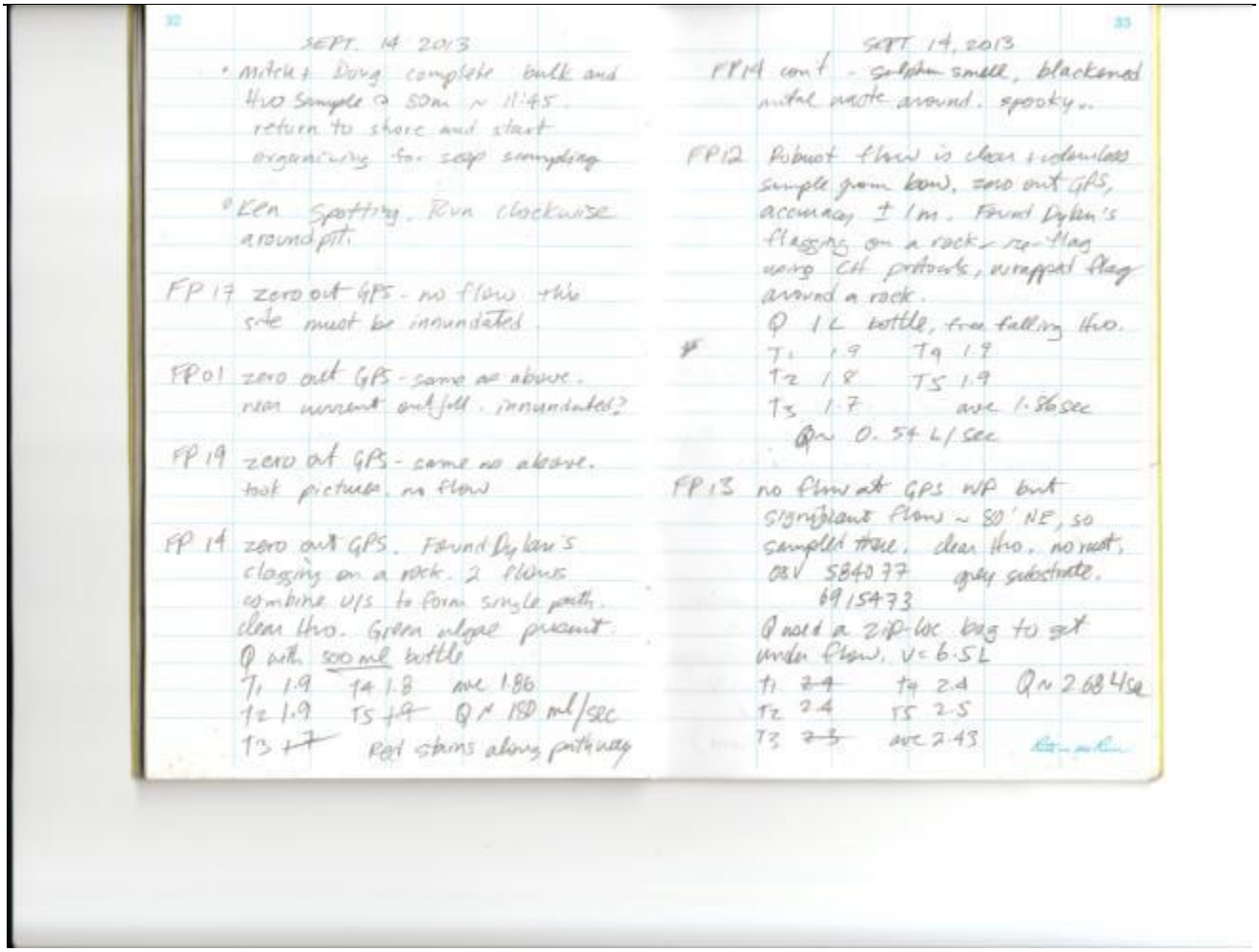
FRIDAY SEPT. 13, 2013

- meeting with Ken, CH2 safety officer > safety orientation at gate. Reviewed AHA, modified for 2013. went over daily JHA (tailgate). want to Zone II ramp with Len. AHA + daily signed off.

- prepare boat + gear on Zone II ramp

- Explore boat to Long to start sampling @ 1530. Got 2 Teflon bags filled and one sample set but bailed at 6PM due to site protocol (CH only work till 5PM) turned samples over to Dennison (note: Ferrosin not preserved - will have to do that over again)

- Did YSI and CTD cast CO 3rd - Mitchell Nordin / Long Lowridge / Ken Nordin 3:09



SEPT. 14 2013

- Mitch + Doug complete bulk and Hyo Sample @ 50m ~ 11:45. return to shore and start organizing for seep sampling

- Ken Spotting. Run clockwise around pit.

FP 17 zero out GPS - no flow this site must be inundated.

FP01 zero out GPS - same as above. near current outfall. inundated?

FP 19 zero out GPS - same as above. took pictures. no flow

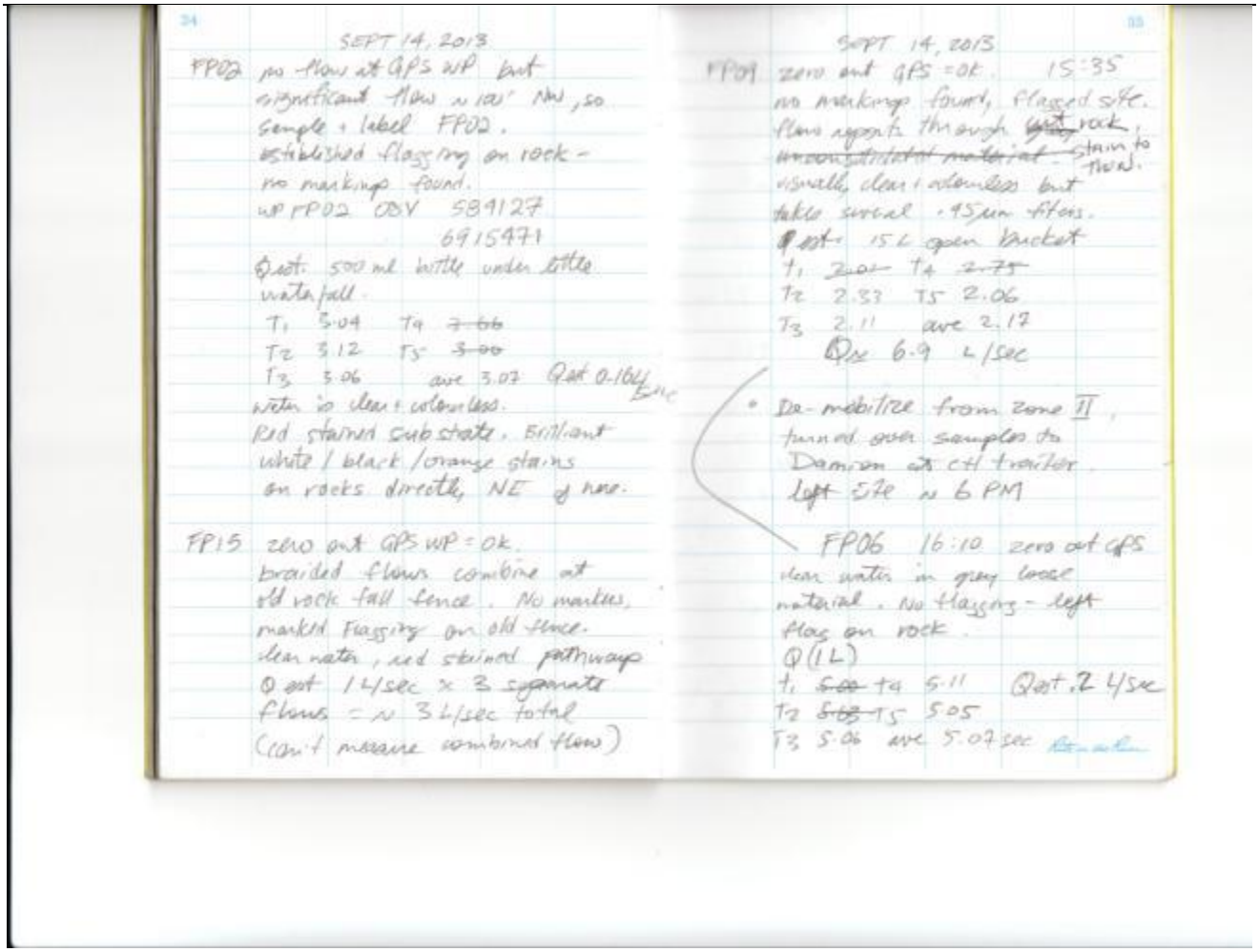
FP 14 zero out GPS. Found Dylan's clogging on a rock. 2 flows combine U/S to form single path. clear thro. Green algae present. Q with 500 ml bottle
T1 1.9 T4 1.8 ave 1.86
T2 1.9 T5 ~~1.9~~ Q ~ 180 ml/sec
T3 ~~1.7~~ Red stains along pathway

SEPT 14, 2013

FP14 cont - ~~Sulphur~~ smell, blackened metal waste around. spooky..

FP12 Robust flow is clear + colourless sample from bank. zero out GPS, accuracy ± 1m. Found Dylan's flagging on a rock - re-flag using CH protocols, unwrapped flag around a rock.
Q 1L bottle, free falling thro.
T1 1.9 T4 1.9
T2 1.8 T5 1.9
T3 1.7 ave 1.86 sec
Qv 0.54 L/sec

FP13 no flow at GPS WP but significant flow ~ 80' NE, so sampled there. clear thro. no mat, 08V 584077 6915473 grey substrate.
Q used a zip-loc bag to get under flow. V = 6.5L
T1 ~~2.4~~ T4 2.4 Qv 2.68 L/s
T2 2.4 T5 2.5
T3 ~~2.5~~ ave 2.43



SEPT 14, 2013

FP02 no flow at GPS WP but significant flow ~ 10m NW, so sample + label FP02. established flagging on rock - no markings found. WP FP02 CDV 589127 6915471

Qest: 500 ml bottle under little waterfall.

T1 5.04 T4 ~~7.66~~
T2 5.12 T5 ~~5.00~~
T3 5.06 ave 3.07 Qest 0.16L/sec

water is clear + colourless. Red stained substrate. Brilliant white / black / orange stains on rocks directly NE of here.

FP15 zero out GPS WP = ok. braided flows combine at old rock fall fence. No markers, marked flagging on old fence. clear water, red stained pathways Q est 1 L/sec x 3 separate flows = ~ 3 L/sec total (can't measure combined flow)

SEPT 14, 2013

FP01 zero out GPS = ok. 15:35 no markings found, flagged site. flow upwards through ~~gravel~~ rock, ~~unconsolidated material~~ stain to flow. visually clear + colourless but takes swirl .95 um filters. Q est 15 L open bucket

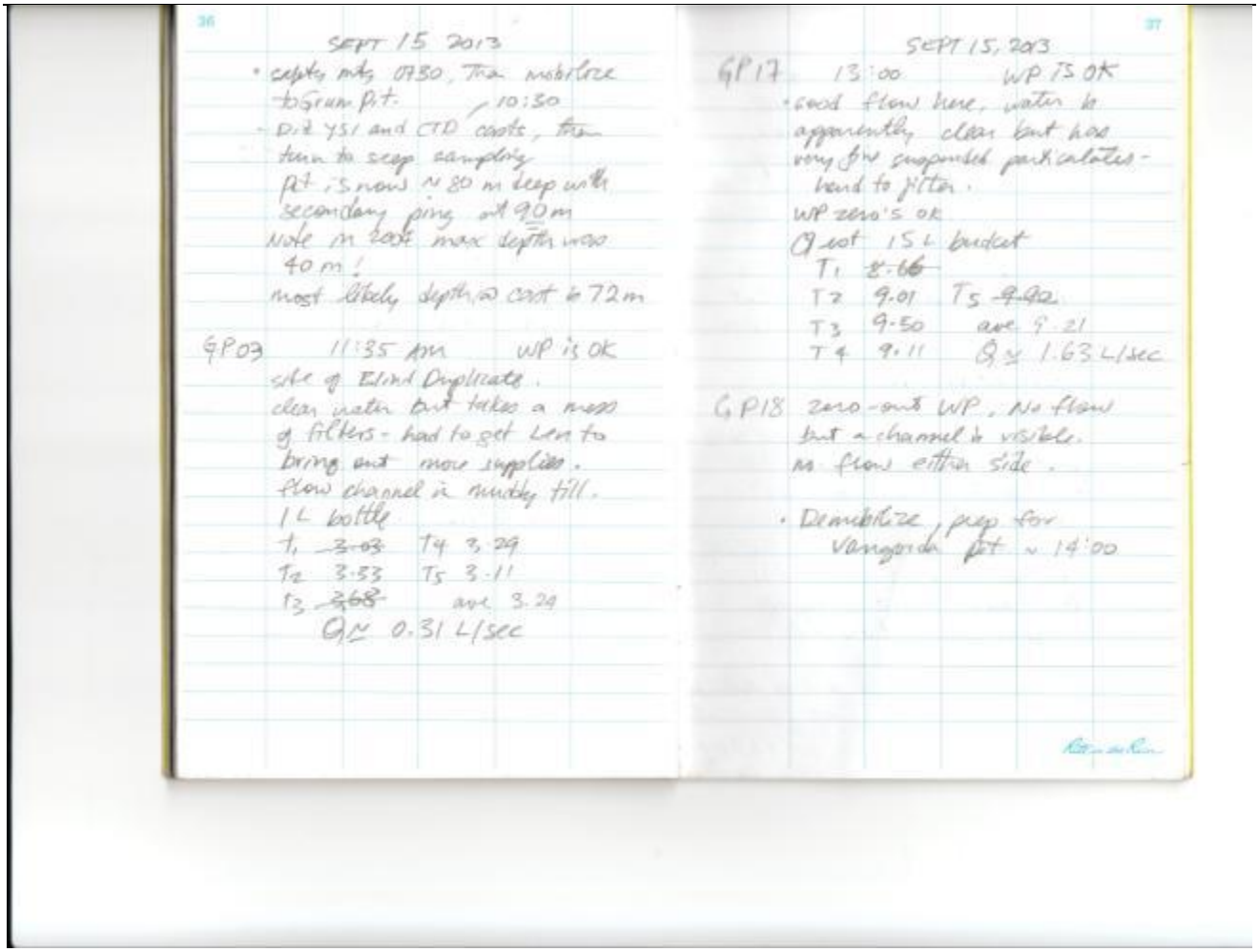
T1 ~~2.01~~ T4 ~~2.75~~
T2 2.33 T5 2.06
T3 2.11 ave 2.17
Q ~~2~~ 6.9 L/sec

- De-mobilize from zone II, turned over samples to Damien at CH trailer. ~~Left~~ 57e ~ 6 PM

FP06 16:10 zero out GPS clear water in grey loose material. No flagging - left flag on rock.

Q (1L)

T1 ~~5.00~~ T4 5.11 Qest. 2 L/sec
T2 ~~5.05~~ T5 5.05
T3 5.06 ave 5.07 sec



SEPT 15 2013

- capts mtg 0730, Tra mobilize to Grum Pit. 10:30
- Did YSI and CTD casts, Tra turn to seep sampling
Pit is now ~80 m deep with secondary ping at 90 m
Note in past max depth was 40 m!
most likely depth @ cast is 72 m

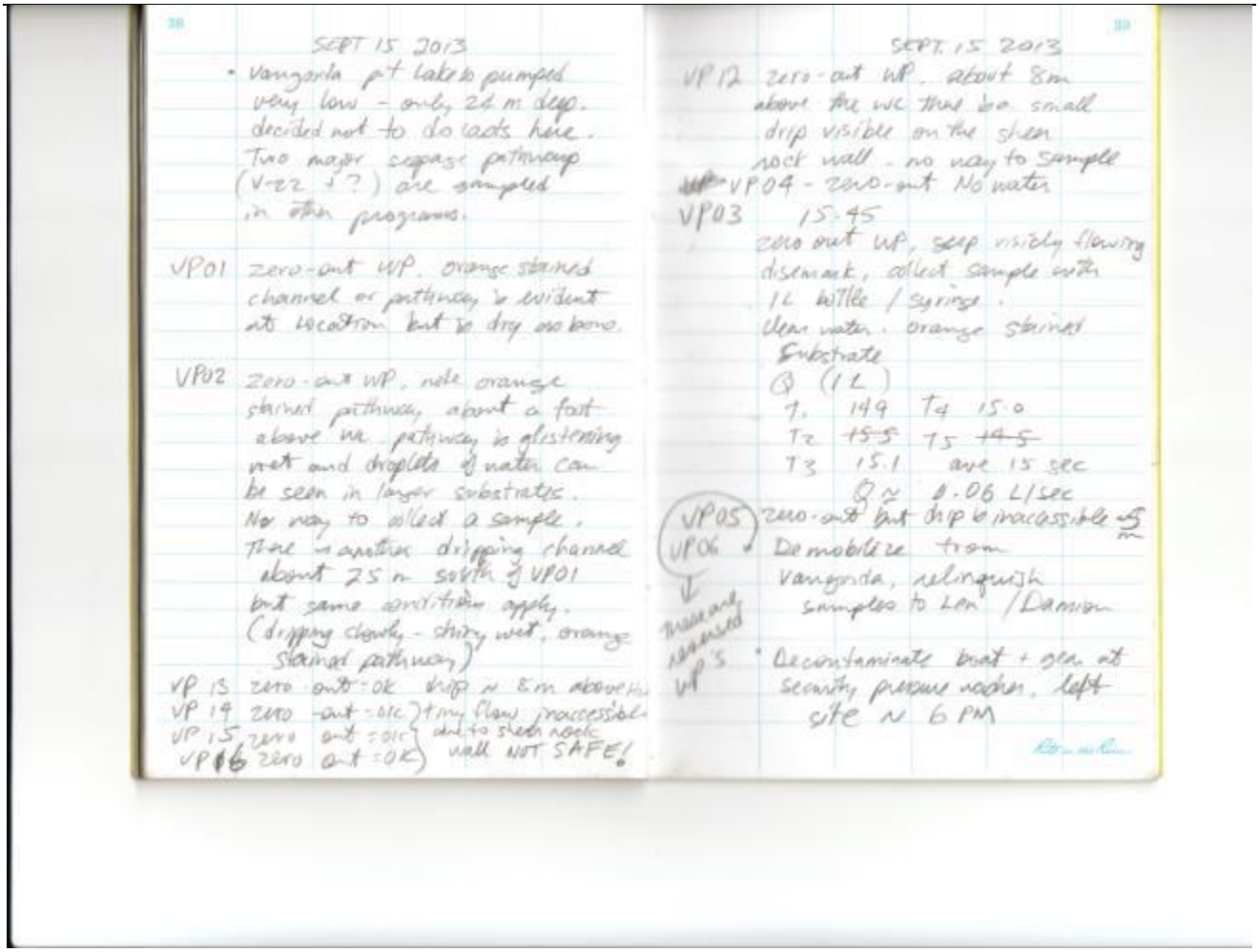
GP03 11:35 AM WP is OK
side of Eland Duplicate.
clear water but takes a mess of filters - had to get Len to bring out more supplies.
flow channel is muddy fill.
1 L bottle
T1 ~~3.03~~ T4 3.29
T2 3.53 T5 3.11
T3 ~~3.68~~ ave 3.29
Q ~ 0.31 L/sec

SEPT 15, 2013

GP17 13:00 WP IS OK
- Good flow here, water is apparently clean but has very few suspended particulates - hard to filter.
WP zero's OK
Q est 15 L bucket
T1 ~~8.66~~
T2 9.01 T5 ~~9.92~~
T3 9.50 ave 9.21
T4 9.11 Q ~ 1.63 L/sec

GP18 zero-out WP. No flow but a channel is visible. No flow either side.

- Demobilize, prep for Vangorda pit ~ 14:00



SEPT 15 2013

- Vangorda pit lake is pumped very low - only 2d m deep. decided not to do tests here. Two major seepage pathways (V-22 + ?) are sampled in other programs.

VP01 zero-out WP. orange stained channel or pathway is evident at location but is dry as bone.

VP02 zero-out WP, wide orange stained pathway, about a foot above the pathway is glistening wet and droplets of water can be seen in larger substrates. No way to collect a sample. There is another dripping channel about 25 m south of VP01 but same conditions apply. (dripping slowly - shiny wet, orange stained pathway)

VP 13 zero out = OK drip ~ 8m above ground
VP 14 zero out = DRY } trickle flow inaccessible due to steep rock wall NOT SAFE!
VP 15 zero out = DRY
VP 16 zero out = OK

SEPT. 15 2013

VP12 zero-out WP. about 8m above the WL there is a small drip visible on the steep rock wall - no way to sample

VP04 - zero-out No water

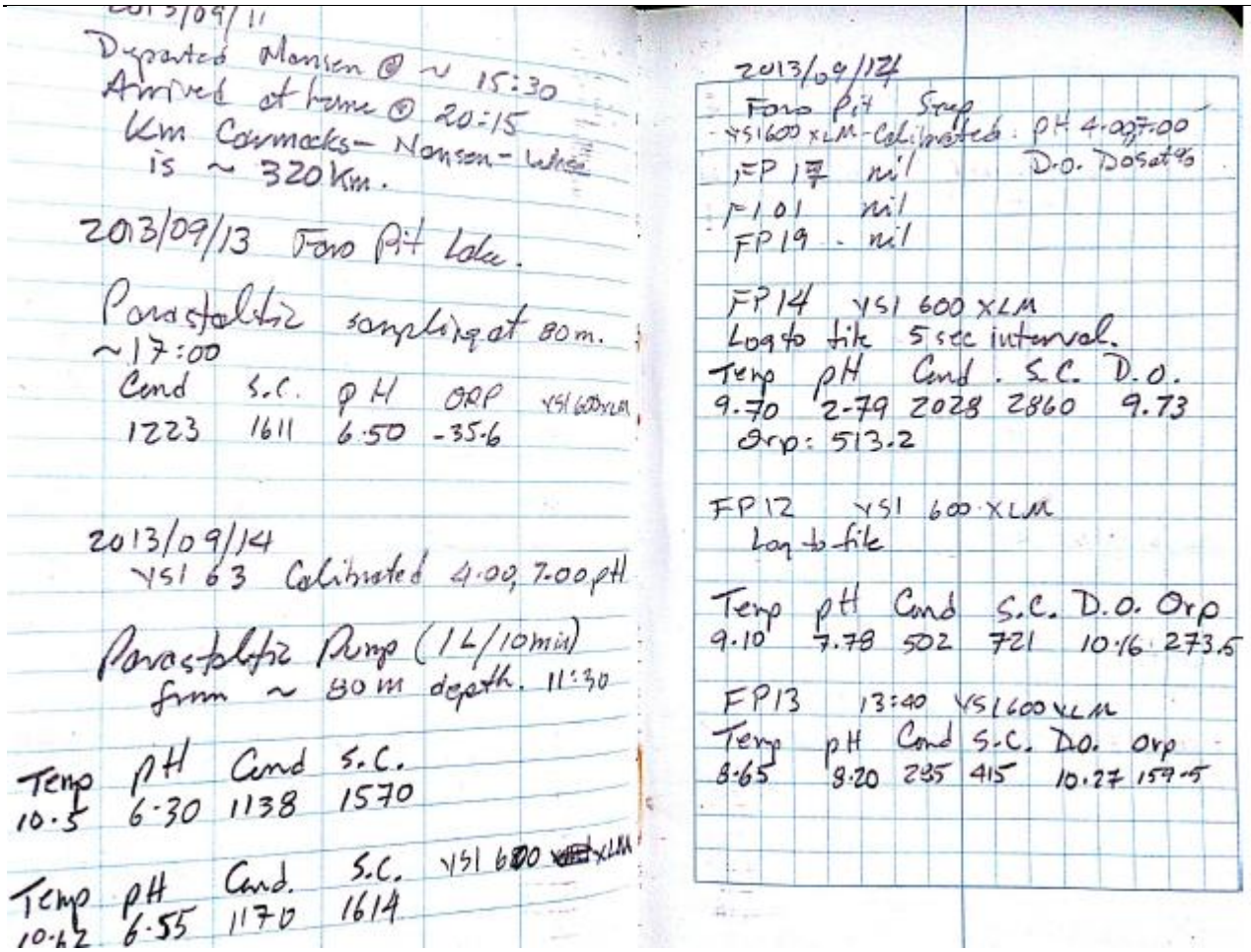
VP03 15:45
zero out WP, seep visibly flowing downhill, collect sample with 1L bottle / syringe. Clear water. orange stained substrate
Q (1L)
T1 14.9 T4 15.0
T2 ~~15.5~~ T5 ~~14.5~~
T3 15.1 ave 15 sec
Q ≈ 0.06 L/sec

VP05 zero-out but drip is inaccessible ~5m
VP06

Demobilize from Vangorda, relinquish samples to Lea / Damon

Thank you for your assistance

- Decontaminate boat + gear at security, prepare washes. left site ~ 6 PM



2013/09/11
Departed Mansen @ ~ 15:30
Arrived at home @ 20:15
Km Carmacks – Mansen – White is ~ 320 Km.

2013/09/13 Faro Pit Lake.

Peristaltic sampling at 80 m. ~17:00

Cond	S.C.	pH	ORP	YSI 600 XLM
1223	1611	6.50	-35.6	

2013/09/14
YSI 63 Calibrated 4.00, 7.00 pH

Peristaltic Pump (1L/10min) from ~ 80 m depth. 11:30

Temp	pH	Cond	S.C.
10.5	6.30	1138	1570

Temp	pH	Cond.	S.C.	YSI 600 XLM
10.62	6.55	1170	1614	

2013/09/12
Faro Pit Seep
YSI 600 XLM - Calibrated: pH 4.00, 7.00
FP 17 nil D.O. Dosat%
FP 101 nil
FP 19 nil

FP 14 YSI 600 XLM
Log to file 5 sec interval.

Temp	pH	Cond.	S.C.	D.O.
9.70	2.79	2028	2860	9.73

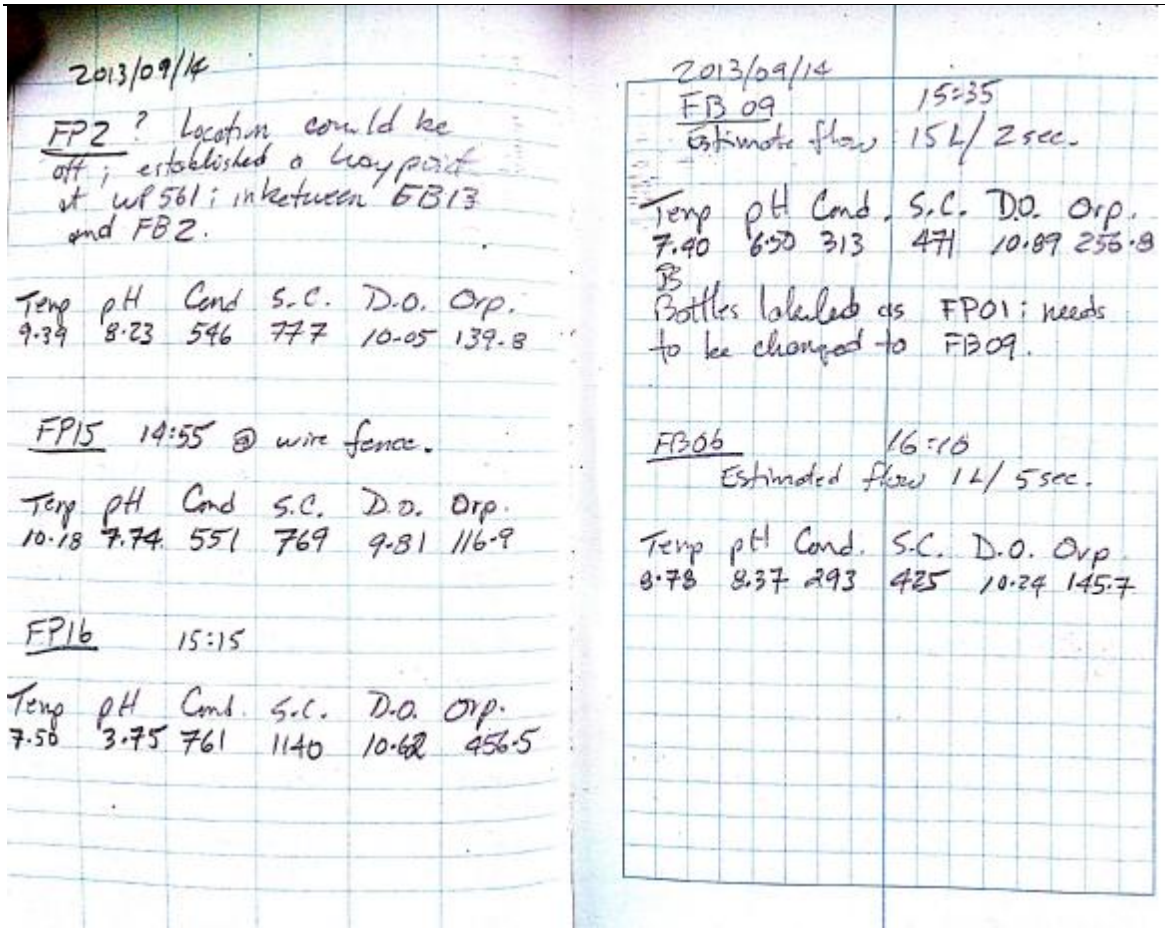
Orp: 513.2

FP 12 YSI 600 XLM
Log to file

Temp	pH	Cond	S.C.	D.O.	Orp
9.10	7.78	502	721	10.16	273.6

FP 13 13:40 YSI 600 XLM

Temp	pH	Cond	S.C.	DO.	Orp
8.65	8.20	235	415	10.27	159.5



2013/09/14

FP2 ? Location could be off; established a waypoint at wp561; in between FB13 and FB2.

Temp	pH	Cond	S.C.	D.O.	Orp.
9.39	8.23	546	777	10.05	139.8

FP15 14:55 @ wire fence.

Temp	pH	Cond	S.C.	D.O.	Orp.
10.18	7.74	551	769	9.81	116.9

FP16 15:15

Temp	pH	Cond.	S.C.	D.O.	Orp.
7.50	3.75	761	1140	10.62	456.5

2013/09/14

FB 09 15:35

Estimate flow 15L/25sec.

Temp	pH	Cond.	S.C.	D.O.	Orp.
7.40	6.50	313	471	10.89	256.8

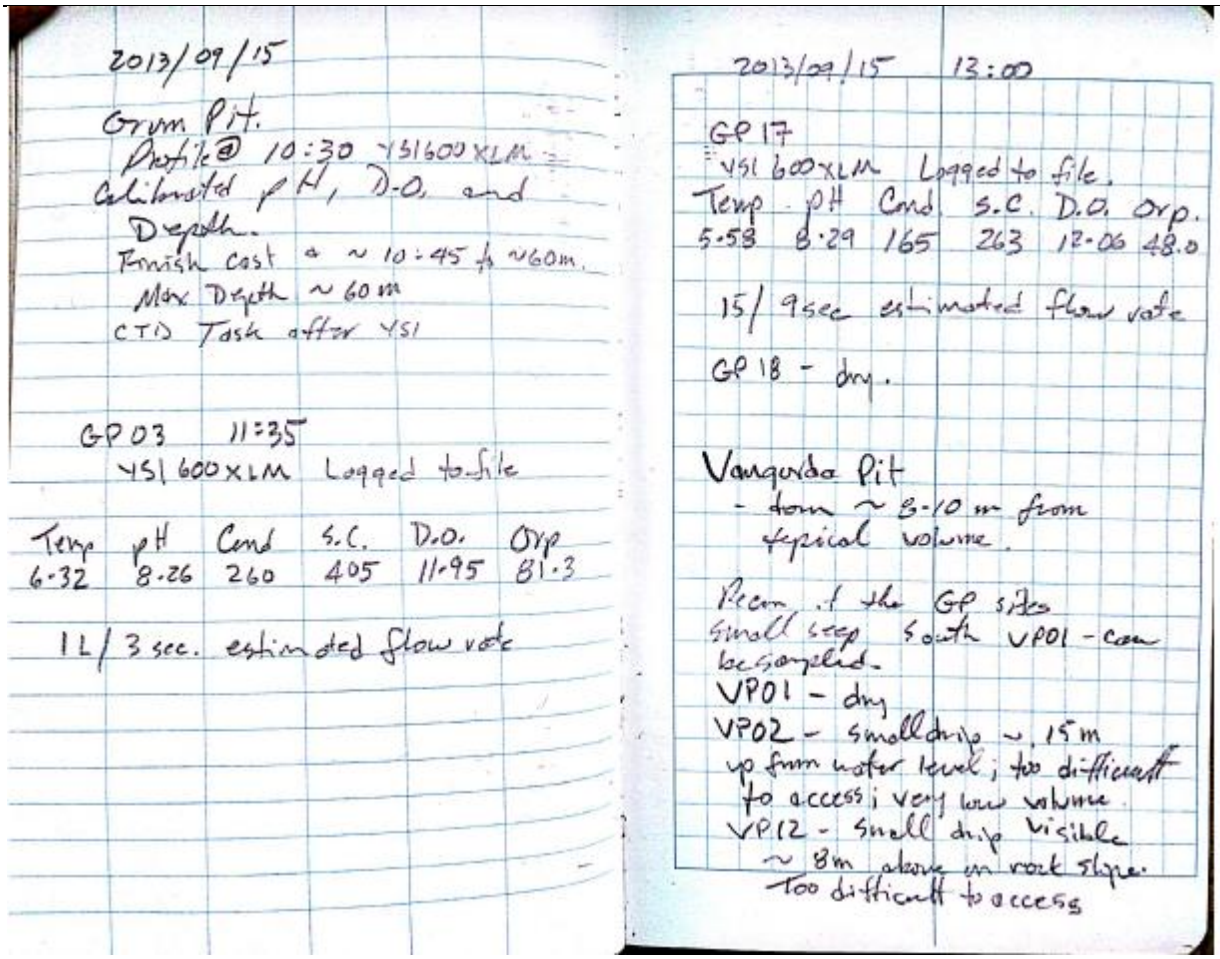
3B

Bottles labeled as FP01; needs to be changed to FB09.

FB06 16:10

Estimated flow 1L/5sec.

Temp	pH	Cond.	S.C.	D.O.	Orp.
8.78	8.37	293	425	10.24	145.7



2013/09/15

Grum Pit.
Profile @ 10:30 YSI 600 XLM
Calibrated pH, D.O. and Depth.
Finish cast @ ~ 10:45 to ~60m.
Max Depth ~ 60 m
CTD Trash after YSI

GP 03 11:35
YSI 600 XLM Logged to file

Temp	pH	Cond	S.C.	D.O.	Orp
6.32	8.26	260	405	11.95	81.3

1L / 3 sec. estimated flow rate

2013/09/15 13:00

GP 17
YSI 600 XLM Logged to file.

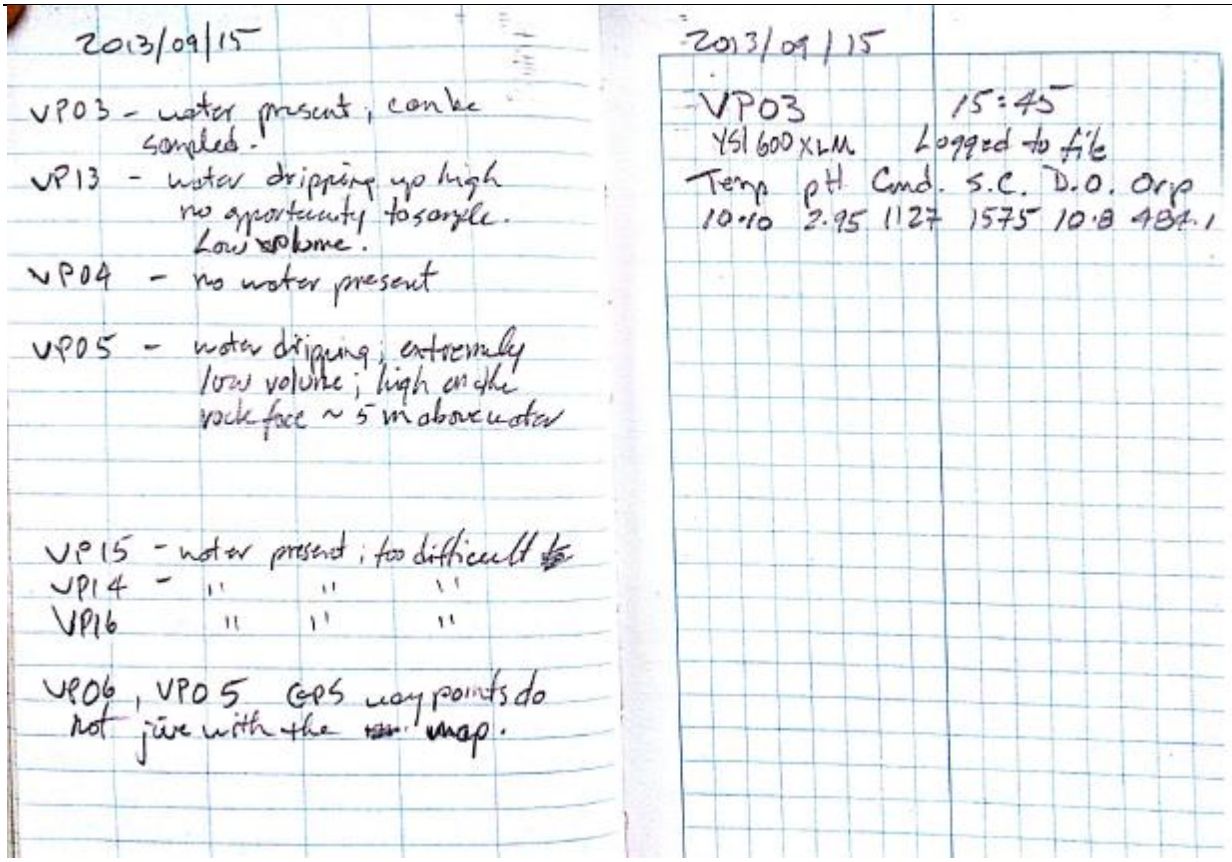
Temp	pH	Cond	S.C.	D.O.	Orp.
5.58	8.29	165	263	12.06	48.0

15 / 9 sec estimated flow rate

GP 18 - dry.

Vangorda Pit
- down ~ 8-10 m from typical volume.

Recon of the GP sites
Small seep South VP01 - can be sampled.
VP01 - dry
VP02 - small drip ~ 15 m up from water level; too difficult to access; very low volume.
VP12 - small drip visible ~ 8m above on rock slope. Too difficult to access



2013/09/15

VP03 - water present; can be sampled.
VP13 - water dripping up high no opportunity to sample. Low volume.
VP04 - no water present
VP05 - water dripping; extremely low volume; high on the rock face ~ 5 m above water
VP15 - water present; too difficult
VP14 - " " "
VP16 " " "
VP06, VP05 GPS way points do not give with the map.

2013/09/15

VP03 15:45
YSI 600 XLM Logged to file

Temp	pH	Cond.	S.C.	D.O.	Orp
10.10	2.95	1127	1575	10.8	484.1

Appendix C
Data Quality Evaluation Report

Spring/Fall 2013 Seep Sampling and Pit Lake Sampling
Data Quality Evaluation Report

Surface water and seep water samples were collected and analyzed during the Spring and Fall 2013 sampling events in support of the Faro Mine Remediation Project. All analytical data were evaluated as described in the *Quality Assurance Project Plan, Faro Mine Remediation Project* (QAPP) (CH2M HILL, 2013). This Data Quality Evaluation report summarizes the results of the Quality Assurance/Quality Control (QA/QC) activities prescribed in the QAPP and provides a complete data usability assessment. The QAPP identifies the method-specific QC requirements for each analytical parameter and matrix and defines a plan to test that the correct sampling, analytical, and data reduction procedures are followed using audits and data validation.

This report is intended as a general data quality assessment designed to summarize data issues.

Analytical Data

A total of 110 native environmental seep samples, 12 seep field duplicates (FD), one native environmental surface water, one surface water FD, and 8 equipment blanks (EB) were collected from June 10 through September 19, 2013. Samples were analyzed by the ALS network of laboratories, including the ALS Whitehorse, Yukon Territory and ALS Vancouver in Burnaby, British Columbia laboratories. The majority of the analyses were performed by the ALS Vancouver laboratory. The laboratories divided the samples into 13 sample delivery groups (SDG). Summaries of the samples collected are presented in Tables 1 and 2. A total of 17 methods were used to analyze the environmental samples. Samples were collected and couriered to the ALS Whitehorse laboratory. After pulling sample aliquots to support the analyses performed at the ALS Whitehorse laboratory, samples were then shipped by overnight carrier to the ALS Vancouver laboratory for analysis. Selected samples were analyzed for one or more of the following analytes/methods:

- Free cyanide by Method ASTM D7237
- Lime demand and solids formed by Method CH1987LIME
- pH by Method CSSS/APHA4500H
- Mercury by Method E245.7
- Ferrous iron by Method Ferrozine
- Total cyanide by Method ISO 14403:2002
- Ammonia by Method JEM/SM4500N
- Acidity by Method SM2310 or SM2310_HP (hot peroxide)
- Alkalinity by Method SM2320B
- Hardness by Method SM2340B_CALC
- Total dissolved solids (TDS) by Method SM2540C
- Total suspended solids (TSS) by Method SM2540D

- Anions (bromide, chloride, fluoride, nitrate, nitrite, sulfate) by Method SM4110B
- Ortho-phosphate by Method SM4500P
- Dissolved organic carbon (DOC) by Method SM5310
- Total and dissolved metals by Method SW6010B (ICP)

Each SDG was evaluated by CH2M HILL chemists for data quality. Analytical performance was initially assessed on an SDG basis or an analytical batch basis. Several SDGs may be associated with the same laboratory QC samples. The association of laboratory QC samples and environmental samples from the same analytical batches is determined by the laboratory lot control number. Data were assessed using Level II validation as indicated below:

- Review of the data set narrative to identify issues that the laboratory reported in the data deliverable
- Check of sample integrity (sample collection, preservation, and holding times)
- Evaluation of basic QC measurements used to assess the accuracy, precision and representativeness of data, including QC blanks, LCS, MS, surrogate recovery when applicable, and field or laboratory duplicate results
- Review of sample results, target compound lists, and detection limits to verify that project analytical requirements are met
- Initiation of corrective actions, as necessary, based on the data review findings
- Verification that hardcopy results match electronic deliverable results
- Qualification of the data using appropriate qualifier flags, as necessary, to reflect data usability limitations

Field samples were also reviewed to ascertain field compliance and data quality issues. This included a review of FDs and EBs.

Data flags were assigned according to the QC acceptance limits defined in the QAPP (CH2M HILL, 2013). The data validation flags for each SDG are summarized in each data quality validation report. These flags, and the reason for each flag, are recorded in the electronic validation database. Multiple flags can routinely be applied to a specific sample method/matrix/analyte combination, but there will be only one final flag. As discussed below, a final flag is applied to the data on the basis of the flags entered into the database and is the most conservative of the applied validation flags. The final flag also includes matrix and blank sample impacts.

Data flags can be separated into the following two categories to be used in estimating both contractor and analytical completeness:

- Flags caused by laboratory deviation from requirements in the QAPP (CH2M HILL, 2013)
- Flags applied because of the nature of the sample matrix or method limitations

The database keeps track of the type of protocol violation, and contractual and analytical completeness during data validation.

The data flags are those listed in the QAPP (CH2M HILL, 2013) and are defined as follows:

J - Analyte was present but the reported value may not be accurate or precise.

UJ - Analyte was not detected above the detection limit objective. However, the reported detection limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - Result has been rejected for use.

U - Analyte was analyzed for but not detected at the specified detection limit.

None - A database flag with no QC implications. A flag is not applied. This is a placeholder for calculating QC criteria issues that do not require flagging.

Exclude - A database flag with no QC implications. When multiple data points have been reported, such as dilutions or re-extractions, the data that best match QAPP QC requirements (CH2M HILL, 2013) are presented to the data users and the remainders are marked with this flag.

= - A database flag with no QC implications. A place holder for the DQE reporting purposes noting that the reported result is a detected concentration greater than the RL.

Findings

The overall summaries of the data validation findings are contained in Tables 3 through 8 and summarized in the following method sections:

- **Table 3**: Overall Flagging Summary. Presents the number of occurrences for each data validation reason by method.
- **Table 4**: Field Duplicate Precision – Qualified Data. Presents the results which are qualified because of FD precision exceedances.
- **Table 5:** Holding Time Exceedances – Qualified Data. Presents the data qualified because of holding time criteria exceedances.
- **Table 6**: Blank Contamination – Qualified Data. Presents the data qualified because of blank contamination or temperature criteria exceedances.
- **Table 7**: Matrix Spike Precision/Accuracy – Qualified Data. Presents the results which are qualified because of MS or MSD precision /accuracy exceedances, or other matrix issues.
- **Table 8**: Site Completeness by Analyte – Qualified Data. Presents the percent completeness by method, analyte and matrix.

Overall Flagging **Summary**

The frequency of field and laboratory QC samples and the associated control criteria are specified in the QAPP (CH2M HILL, 2013). These control criteria were used to evaluate the laboratory data. In the following method-specific discussions, only the criteria exceedances that impact data qualification are discussed.

Method ASTM D7237 (Free Cyanide)

Holding Time

Table 5 lists the specific field samples and their associated holding time criteria exceedances, see General Comments section below. The 14 day holding time for water samples was exceeded by 1 to 3 days for 19 samples. The associated concentrations were all non-detected and were flagged "UJ."

Method CSSS/APHA 4500H (pH)

Holding Time

Table 5 lists the specific field samples and their associated holding time criteria exceedances, see General Comments section below. Ninety-two samples were analyzed upon receipt at the laboratory, the holding times were exceeded by 4 to 11 days. The associated pH results were flagged "J."

Method E245.7 (Mercury)

Field Duplicates

Table 4 lists the specific field samples which exceeded the FD precision criteria. Two FD pairs exceeded the criteria. The associated detected concentrations in native samples were flagged "J," and the associated non-detected concentrations were flagged "UJ."

Method Ferrozine (Ferrous Iron)

Blanks

Table 6 lists the specific field samples and their associated EB criteria exceedances. Ten water sample detected concentrations were less than five times the EB concentrations. The associated concentrations were flagged "U."

Sample Preservation/Temperature

Samples were received by the ALS Whitehorse laboratory which exceeded the temperature criteria. Twenty-seven samples were affected, see General Comments section below. The associated detected concentrations in native samples were flagged "J," and the associated non-detected concentrations were flagged "UJ."

Field Duplicates

Table 4 lists the specific field sample and its associated FD precision criteria exceedances. Three FD pairs had criteria exceedances. The associated detected concentrations were flagged "J."

Matrix

One sample was received in an unpreserved sample container by the laboratory for ferrous iron. Table 7 lists the specific field sample that was affected. The associated detected concentration was flagged "J."

Method JEM/SM4500N (Ammonia)

Blanks

Table 6 lists the specific field samples and their associated EB criteria exceedances. Twenty-one water sample detected concentrations were less than five times the EB concentrations. The associated concentrations were flagged "U."

Sample Preservation/Temperature

Samples were received by the ALS Whitehorse laboratory which exceeded the temperature criteria. Twenty-seven samples were affected, see General Comments section below. The associated detected concentrations in native samples were flagged “J,” and the associated non-detected concentrations were flagged “UJ.”

Method SM2310 (Acidity)

Sample Preservation/Temperature

Samples were received by the ALS Whitehorse laboratory which exceeded the temperature criteria. Twenty-seven samples were affected, see General Comments section below. The associated detected concentrations in native samples were flagged “J,” and the associated non-detected concentrations were flagged “UJ.”

Method SM2310_HP (Acidity, Hot Peroxide)

Sample Preservation/Temperature

Samples were received by the ALS Whitehorse laboratory which exceeded the temperature criteria. Twenty-seven samples were affected, see General Comments section below. The associated detected concentrations in native samples were flagged “J”.

Field Duplicates

Table 4 lists the specific field sample and its associated FD precision criteria exceedances. One FD pair had criteria exceedances. The associated detected concentrations were flagged “J.”

Holding Time

Table 5 lists the specific field samples and their associated holding time criteria exceedances. The 14 day holding time for water samples was exceeded by 1 to 4 days for 10 samples, see General Comments Section below. The associated detected concentrations were flagged “J” and the associated non-detected concentrations were flagged “UJ.”

Method SM2320B (Alkalinity)

Sample Preservation/Temperature

Samples were received by the ALS Whitehorse laboratory which exceeded the temperature criteria. Twenty-seven samples were affected, see General Comments section below. The associated detected concentrations in native samples were flagged “J,” and the associated non-detected concentrations were flagged “UJ.”

Holding Time

Table 5 lists the specific field samples and their associated holding time criteria exceedances. The 14 day holding time for water samples was exceeded by 3 and 7 days for 2 samples. The associated detected concentrations were flagged “J”.

Method SM2540C (TDS)

Sample Preservation/Temperature

Samples were received by the ALS Whitehorse laboratory which exceeded the temperature criteria. Twenty-seven samples were affected, see General Comments section below. The associated detected concentrations in native samples were flagged “J”.

Holding Time

Table 5 lists the specific field samples and their associated holding time criteria exceedances. The 7 day holding time for water samples was exceeded by 1 day for 19 samples, see General Comments section below. The associated detected concentrations were flagged “J.”

Matrix

Total dissolved solids were estimated for six samples due to possible matrix interferences. Table 7 lists the specific field samples that were affected. The associated detected concentrations were flagged “J.”

Method SM2540D (TSS)

Sample Preservation/Temperature

Samples were received by the ALS Whitehorse laboratory which exceeded the temperature criteria. Twenty-seven samples were affected, see General Comments section below. The associated detected concentrations in native samples were flagged “J”.

Field Duplicates

Table 4 lists the specific field samples which exceeded the FD precision criteria. Four FD pairs exceeded the criteria. The associated detected concentrations were flagged “J.”

Holding Time

Table 5 lists the specific field samples and their associated holding time criteria exceedances. The 7 day holding time for water samples was exceeded by 1 day for 19 samples, see General Comments section below. The associated detected concentrations were flagged “J.”

Method SM4110B (Anions)

Sample Preservation/Temperature

Samples were received by the ALS Whitehorse laboratory which exceeded the temperature criteria. Twenty-seven samples were affected, see General Comments section below. The associated detected concentrations in native samples were flagged “J,” and the associated non-detected concentrations were flagged “UJ”.

Holding Time

Table 5 lists the specific field samples and their associated nitrate and nitrite holding time criteria exceedances. The 3 day holding time for water samples was exceeded by 1 to 2 days for 33 samples. The associated detected concentrations were flagged “J” and the associated non-detected concentrations were flagged “UJ.”

Method SM4500P (Ortho-phosphate)

Sample Preservation/Temperature

Samples were received by the ALS Whitehorse laboratory which exceeded the temperature criteria. Twenty-seven samples were affected, see General Comments section below. The associated detected concentrations in native samples were flagged “J,” and the associated non-detected concentrations were flagged “UJ”.

Field Duplicates

Table 4 lists the specific field samples which exceeded the FD precision criteria. Two FD pairs exceeded the criteria. The associated detected concentrations were flagged “J.”

Holding Time

Table 5 lists the specific field samples and their associated holding time criteria exceedances. The 3 day holding time for water samples was exceeded by 1 to 3 days for 60 samples, see General Comments section below. The associated detected concentrations in native samples were flagged “J,” and the associated non-detected concentrations were flagged “UJ.”

Method SM5310 (DOC)

Blanks

Table 6 lists the specific field samples and their associated EB criteria exceedances. Forty water sample detected concentrations were less than five times the EB concentrations. The associated concentrations were flagged “U.”

Sample Preservation/Temperature

Samples were received by the ALS Whitehorse laboratory which exceeded the temperature criteria, see General Comments section below. Twenty-seven samples were affected. The associated detected concentrations in native samples were flagged “J.”

Field Duplicates

Table 4 lists the specific field samples and their associated FD precision criteria exceedances. One FD pair had criteria exceedances. The associated detected concentrations were flagged “J.”

Method SW6010B (ICP Metals)

Blanks

Table 6 lists the specific field samples and their associated EB criteria exceedances. One hundred twenty-nine water sample detected concentrations were less than five times the blank concentrations. The associated concentrations were flagged “U.”

Field Duplicates

Table 4 lists the specific field samples which exceeded the FD precision criteria. Six FD pairs had exceeded the criteria. The associated detected concentrations were flagged “J.”

General Comments

Laboratory Qualifiers

The laboratory applied informational qualifiers to multiple results to note analytical issues such as dilutions, blank contamination, matrix effects, limited sample volume, holding time, and reanalyses. These qualifiers were reviewed and where the informational qualifiers did not result in a validation flags noting a QC exceedances, these qualifiers where replaced with the concentration flags “U” or “=”. All instances of these laboratory qualifier replacements are recorded in Table 3, and are not further discussed.

Holding Time

Because of the remote location of the project site, some short holding times were unavoidably exceeded.

Additionally there were holding times that were missed because the laboratory capacity was exceeded at the time the samples were received. A detailed summary of the Corrective Action Report (CAR) provided in Attachment 1.

Sample Temperature

The sample temperature acceptance criteria were exceeded for 27 samples due to insufficient coolant being used in some of the coolers. One or more coolers were received by the ALS Whitehorse laboratory which exceeded the temperature criteria. The field team responsible for packaging and shipping the samples were informed of the temperature exceedance, and took corrective actions to ensure that sufficient ice is placed in the cooler to maintain the appropriate temperature of samples until received by the laboratory

Overall Assessment

Completeness is calculated and reported for each method, matrix, and analyte combination as outlined in the QAPP (CH2M HILL, 2013). The number of valid (not qualified with an “R” flag) results divided by the number of possible individual analyte results, expressed as a percentage, determines the completeness of the data set. A summary of the completeness percentages can be found in Table 8.

The QAPP completeness goal is 90 percent and the overall data completeness is 100 percent.

Out of approximately 6280 normal and FD data points, 200 results (approximately 3.2 percent) were qualified as not detected because of associated blank contamination, and 388 detected results and 199 non-detected results (approximately 9.4 percent) were qualified as estimated concentrations because of QC exceedances. No data points were rejected because of QC exceedances. These numbers indicate that the quality of the analytical program and laboratory are sufficient to meet the project data quality objectives.

Evaluation of 100 percent of the chemical data was performed by using the QAPP (CH2M HILL, 2013) as a guide for data quality evaluation.

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Data Management

Faro Mine Remediation sampling activity logs and laboratory analytical data are maintained in a project database and/or in project files, where appropriate. Data were collected and stored in a manner consistent with the requirements of the QAPP (CH2M HILL, 2013).

All raw data will be maintained on file in the laboratory, and will be available upon request. Complete documentation of sample preparation and analysis and associated QC information will be maintained in a manner that allows easy retrieval in the event that additional information is required. The following minimum documentation should be kept for each project:

☐ Original work order, COC forms, and other pertinent documents received with the samples

☐ Records of communication between the laboratory, field personnel, and the client

☐ Corrective action reports

☐ Laboratory data reports

☐ Laboratory logbooks and all raw sample preparation and analytical data

☐ Electronic data and all pertinent SOPs

Field records to be retained as a minimum will include correspondence, COC forms, field notes, field equipment performance records, maintenance logs, field procedures, corrective action reports, field personnel files, and project-related reports.

The receipt of electronic and pdf laboratory data was logged into the sample tracking program to determine completeness and contractor turnaround time compliance.

The laboratory uploaded electronic data to the Faro Mine EQuIS site. CH2M HILL chemists downloaded this data into the validation program. All data quality evaluation is done using a semiautomated data validation program that uses laboratory pdf report and electronic data simultaneously. All validation flags and discoveries are entered into the validation database and are linked directly to each individual data point. This process validates pdf report data and electronic data simultaneously.

All data quality evaluation reports are generated from the validation database. Final validation flags are uploaded to the Faro Mine EQuIS site.

The data management system was designed to maintain the usability and integrity of the data through a series of procedures and QC checks that began at the field site and carried through to the generation of data for the user. These data included both the chemical data and field operation information. Both the chemical data and the field data were handled according to the guidelines established in the QAPP (CH2M HILL, 2013) and in the *Faro Mine Data Management Plan* (CH2M HILL, 2013).

The laboratory pdf reports are stored in the project files and project local area network hard drive areas in the CH2M HILL office in Redding, California. The original field data forms are stored on the Faro Mine Sharepoint site. Laboratories are required to archive the analytical data as outlined in the QAPP (CH2M HILL, 2013).

Works Cited

CH2M HILL. 2013. *Faro Mine Data Management Plan.* August.

CH2M HILL. 2013. *Quality Assurance Project Plan, Faro Mine Remediation Project.* July.

TABLE 1

Sample Summary by Chain of Custody – Data Summary

CoC Number	Sample Date	Matrix	Sample ID / QAQC Type	SDG	Laboratory
ALS06121302					
	10-Jun-13	WATER	SRK-FD01_SESP13 / N	L1316410	ALS
			SRK-FD01_SESP13MS / MS	L1316410	ALS
			SRK-FD37_SESP13 / N	L1316410	ALS
ALS06121303					
	11-Jun-13	WATER	E_015_13_001 / EB	L1316422	ALS
			E_015_13_001MS / MS	L1316422	ALS
			E_015_13_002 / AB	L1316422	ALS
			E_015_13_002MS / MS	L1316422	ALS
			E_015_13_003 / AB	L1316422	ALS
			E_015_13_004 / EB	L1316422	ALS
	12-Jun-13		E_015_13_005 / AB	L1316422	ALS
			E_015_13_006 / EB	L1316422	ALS
ALS06121304					
	11-Jun-13	WATER	CH-MILL-03_SESP13 / N	L1316379	ALS
			CH-MILL-903_SESP13 / FD	L1316379	ALS
			FCS-2_SESP13 / N	L1316379	ALS
			FCS-4_SESP13 / N	L1316379	ALS
	12-Jun-13		FCS-5_SESP13 / N	L1316379	ALS
	11-Jun-13		FCS-94_SESP13 / FD	L1316379	ALS
			SRK-FD09_SESP13 / N	L1316379	ALS
			SRK-FD13_SESP13 / N	L1316379	ALS
	12-Jun-13		SRK-FD18_SESP13 / N	L1316379	ALS
	11-Jun-13		SRK-FD19_SESP13 / N	L1316379	ALS
			SRK-FD24_SESP13 / N	L1316379	ALS
	12-Jun-13		SRK-FD30_SESP13 / N	L1316438	ALS
			SRK-FD30_SESP13MS / MS	L1316438	ALS
	11-Jun-13		SRK-FD31_SESP13 / N	L1316379	ALS
			SRK-FD31_SESP13MS / MS	L1316379	ALS
			SRK-FD56_SESP13 / N	L1316379	ALS
			SRK-FD956_SESP13 / FD	L1316379	ALS
ALS06131301					
	12-Jun-13	WATER	A30_SESP13 / N	L1316792	ALS

TABLE 1

Sample Summary by Chain of Custody – Data Summary

CoC Number	Sample Date	Matrix	Sample ID / QAQC Type	SDG	Laboratory
ALS06131301					
	12-Jun-13	WATER	CH-FP-23_SESP13 / N	L1316792	ALS
			CH-FP-30_SESP13 / N	L1316792	ALS
			CH-FP-34_SESP13 / N	L1316792	ALS
			CH-FP-35_SESP13 / N	L1316792	ALS
			CH-FP-37_SESP13 / N	L1316792	ALS
			CH-RCTA-04_SESP13 / N	L1316792	ALS
			CH-RCTA-04_SESP13MS / MS	L1316792	ALS
			FP10_SESP13 / N	L1316792	ALS
	13-Jun-13		SRK-FD05_SESP13 / N	L1316792	ALS
	12-Jun-13		SRK-FD26_SESP13 / N	L1316792	ALS
			SRK-FD40_SESP13 / N	L1316792	ALS
			SRK-FD940_SESP13 / FD	L1316792	ALS
ALS06141301					
	13-Jun-13	WATER	CH-GP-19_SESP13 / N	L1317509	ALS
			CH-GP-22_SESP13 / N	L1317509	ALS
			CH-GP-27_SESP13 / N	L1317509	ALS
			CH-VP-17_SESP13 / N	L1317509	ALS
			CH-VP-18_SESP13 / N	L1317509	ALS
			CH-VP-20_SESP13 / N	L1317509	ALS
			GP02_SESP13 / N	L1317509	ALS
			GP02_SESP13MS / MS	L1317509	ALS
			GP09_SESP13 / N	L1317509	ALS
			GP12_SESP13 / N	L1317509	ALS
			SRK-GD01_SESP13 / N	L1317509	ALS
			SRK-GD01_SESP13MS / MS	L1317509	ALS
			SRK-GD05_SESP13 / N	L1317509	ALS
			SRK-GD06_SESP13 / N	L1317509	ALS
			SRK-GD09_SESP13 / N	L1317509	ALS
			SRK-GD11_SESP13 / N	L1317509	ALS
			SRK-GD19_SESP13 / N	L1317509	ALS
			SRK-GD911_SESP13 / FD	L1317509	ALS
			SRK-VD02_SESP13 / N	L1317509	ALS
			SRK-VD03_SESP13 / N	L1317509	ALS

TABLE 1

Sample Summary by Chain of Custody – Data Summary

CoC Number	Sample Date	Matrix	Sample ID / QAQC Type	SDG	Laboratory
ALS06141301					
	13-Jun-13	WATER	SRK-VD09_SESP13 / N	L1317509	ALS
ALS06141303					
	14-Jun-13	WATER	CH-FD-66_SESP13 / N	L1317530	ALS
			SRK-GD13_SESP13 / N	L1317530	ALS
			SRK-VD01_SESP13 / N	L1317530	ALS
			SRK-VD04_SESP13 / N	L1317530	ALS
			SRK-VD04_SESP13MS / MS	L1317530	ALS
			SRK-VD05_SESP13 / N	L1317530	ALS
			SRK-VD10_SESP13 / N	L1317530	ALS
			SRK-VD12_SESP13 / N	L1317530	ALS
			SRK-VD905_SESP13 / FD	L1317530	ALS
ALS07041301					
	03-Jul-13	WATER	CH-RCTA-07_SESP13 / N	L1327471	ALS
			SRK-FD49_SESP13 / N	L1327471	ALS
			SRK-FD49_SESP13MS / MS	L1327471	ALS
ALS09121301					
	11-Sep-13	WATER	CH-MILL-03_SEFL13 / N	L1362505	ALS
			CH-MILL-03_SEFL13MS / MS	L1362505	ALS
			SRK-FD01_SEFL13 / N	L1362505	ALS
			SRK-FD01_SEFL13MS / MS	L1362505	ALS
	12-Sep-13		SRK-FD12_SEFL13 / N	L1362505	ALS
			SRK-FD13_SEFL13 / N	L1362505	ALS
	11-Sep-13		SRK-FD14_SEFL13 / N	L1362505	ALS
			SRK-FD14_SEFL13MS / MS	L1362505	ALS
			SRK-FD26_SEFL13 / N	L1362505	ALS
	12-Sep-13		SRK-FD31_SEFL13 / N	L1362505	ALS
			SRK-FD31_SEFL13MS / MS	L1362505	ALS
	11-Sep-13		SRK-FD37_SEFL13 / N	L1362505	ALS
			SRK-FD37_SEFL13MS / MS	L1362505	ALS
ALS09151301					
	13-Sep-13	WATER	A30_SEFL13 / N	L1363247	ALS
			CH-FP-34_SEFL13 / N	L1363247	ALS

TABLE 1

Sample Summary by Chain of Custody – Data Summary

CoC Number	Sample Date	Matrix	Sample ID / QAQC Type	SDG	Laboratory
ALS09151301					
	13-Sep-13	WATER	CH-FP-34_SEFL13MS / MS	L1363247	ALS
	12-Sep-13		CH-FP-38_SEFL13 / N	L1363247	ALS
			CH-FP-38_SEFL13MS / MS	L1363247	ALS
	13-Sep-13		CH-FP-39_SEFL13 / N	L1363247	ALS
			CH-FP-42_SEFL13 / N	L1363247	ALS
			CH-FP-934_SEFL13 / FD	L1363247	ALS
	14-Sep-13		CH-GP-19_SEFL13 / N	L1363247	ALS
			CH-GP-19_SEFL13MS / MS	L1363247	ALS
			CH-GP-27_SEFL13 / N	L1363247	ALS
			CH-GP-27_SEFL13MS / MS	L1363247	ALS
			CH-GP-919_SEFL13 / FD	L1363247	ALS
	12-Sep-13		CH-RCTA-03_SEFL13 / N	L1363247	ALS
			CH-RCTA-05_SEFL13 / N	L1363247	ALS
			CH-RCTA-07_SEFL13 / N	L1363247	ALS
	14-Sep-13		FP02_SEFL13 / N	L1363247	ALS
	13-Sep-13		FP05_SEFL13 / N	L1363247	ALS
			FP05_SEFL13MS / MS	L1363247	ALS
	14-Sep-13		FP06_SEFL13 / N	L1363247	ALS
			FP09_SEFL13 / N	L1363247	ALS
			FP12_SEFL13 / N	L1363247	ALS
			FP13_SEFL13 / N	L1363247	ALS
			FP13_SEFL13MS / MS	L1363247	ALS
			FP14_SEFL13 / N	L1363247	ALS
			FP14_SEFL13MS / MS	L1363247	ALS
			FP15_SEFL13 / N	L1363247	ALS
			FP16_SEFL13 / N	L1363247	ALS
			FP16_SEFL13MS / MS	L1363247	ALS
			GP02_SEFL13 / N	L1363247	ALS
			GP09_SEFL13 / N	L1363247	ALS
			GP09_SEFL13MS / MS	L1363247	ALS
	13-Sep-13		GP12_SEFL13 / N	L1363247	ALS
	14-Sep-13		GP22_SEFL13 / N	L1363247	ALS
	13-Sep-13		SRK-FD05_SEFL13 / N	L1363247	ALS
			SRK-FD05_SEFL13MS / MS	L1363247	ALS

TABLE 1

Sample Summary by Chain of Custody – Data Summary

CoC Number	Sample Date	Matrix	Sample ID / QAQC Type	SDG	Laboratory
ALS09151301					
	13-Sep-13	WATER	SRK-FD18_SEFL13 / N	L1363247	ALS
			SRK-FD18_SEFL13MS / MS	L1363247	ALS
			SRK-FD40_SEFL13 / N	L1363247	ALS
			SRK-FD940_SEFL13 / FD	L1363247	ALS
	14-Sep-13		SRK-GD01_SEFL13 / N	L1363247	ALS
			SRK-GD13_SEFL13 / N	L1363247	ALS
			SRK-GD13_SEFL13MS / MS	L1363247	ALS
ALS09151302					
	14-Sep-13	WATER	CH13-016-FAROPL_80 / N	L1363276	ALS
			CH13-016-FAROPL_80MS / MS	L1363276	ALS
			CH13-916-FAROPL_80 / FD	L1363276	ALS
			CH13-916-FAROPL_80MS / MS	L1363276	ALS
ALS09171301					
	15-Sep-13	WATER	GP03_SEFL13 / N	L1364538	ALS
			GP03_SEFL13MS / MS	L1364538	ALS
			GP17_SEFL13 / N	L1364538	ALS
			GP903_SEFL13 / FD	L1364538	ALS
	16-Sep-13		SRK-GD06_SEFL13 / N	L1364538	ALS
			SRK-GD06_SEFL13MS / MS	L1364538	ALS
			SRK-GD12_SEFL13 / N	L1364538	ALS
			SRK-GD12_SEFL13MS / MS	L1364538	ALS
			SRK-GD906_SEFL13 / FD	L1364538	ALS
			SRK-GD906_SEFL13MS / MS	L1364538	ALS
			SRK-VD03_SEFL13 / N	L1364538	ALS
			SRK-VD04_SEFL13 / N	L1364538	ALS
			SRK-VD05_SEFL13 / N	L1364538	ALS
			SRK-VD09_SEFL13 / N	L1364538	ALS
			SRK-VD10_SEFL13 / N	L1364538	ALS
			SRK-VD905_SEFL13 / FD	L1364538	ALS
	15-Sep-13		VP03_SEFL13 / N	L1364538	ALS
ALS09191301					
	17-Sep-13	WATER	CH-FD72_SEFL13 / N	L1365908	ALS

TABLE 1

Sample Summary by Chain of Custody – Data Summary

CoC Number	Sample Date	Matrix	Sample ID / QAQC Type	SDG	Laboratory
ALS09191301					
	17-Sep-13	WATER	CH-FD72_SEFL13MS / MS	L1365908	ALS
	19-Sep-13		CH-FP-35_SEFL13 / N	L1365908	ALS
	17-Sep-13		CH-FP41_SEFL13 / N	L1365908	ALS
			CH-VP-17_SEFL13 / N	L1365908	ALS
			CH-VP-20_SEFL13 / N	L1365908	ALS
			CH-VP-20_SEFL13MS / MS	L1365908	ALS
	16-Sep-13		E_015_13_007 / EB	L1365908	ALS
	17-Sep-13		E_015_13_008 / EB	L1365908	ALS
			E_015_13_008MS / MS	L1365908	ALS
	19-Sep-13		SRK-FD19_SEFL13 / N	L1365908	ALS
	17-Sep-13		SRK-FD24_SEFL13 / N	L1365908	ALS
			SRK-FD30_SEFL13 / N	L1365908	ALS
			SRK-FD30_SEFL13MS / MS	L1365908	ALS
			SRK-FD51_SEFL13 / N	L1365908	ALS
			SRK-FD51_SEFL13MS / MS	L1365908	ALS
			SRK-FD54_SEFL13 / N	L1365908	ALS
			SRK-FD54_SEFL13MS / MS	L1365908	ALS
			SRK-FD56_SEFL13 / N	L1365908	ALS
			SRK-FD68_SEFL13 / N	L1365908	ALS
			SRK-FD68_SEFL13MS / MS	L1365908	ALS

QAQC Type

N = normal environmental sample
FD = field duplicate
MS = matrix spike
SD = spike duplicate
TB = trip blank
EB = equipment blank
AB = ambient blank
FB = field blank

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1316379	CH-MILL-03_SESP13	ASTM D7237	6/11/2013	6/13/2013		6/28/2013
		CH-MILL-03_SESP13	CSSS/APHA 4500H	6/11/2013	6/13/2013		6/19/2013
		CH-MILL-03_SESP13	E245.7	6/11/2013	6/13/2013	6/17/2013	6/19/2013
		CH-MILL-03_SESP13	Ferrozine	6/11/2013	6/13/2013	6/13/2013	6/17/2013
		CH-MILL-03_SESP13	JEM/SM4500N	6/11/2013	6/13/2013		6/19/2013
		CH-MILL-03_SESP13	SM2310_HP	6/11/2013	6/13/2013		6/19/2013
		CH-MILL-03_SESP13	SM2320B	6/11/2013	6/13/2013		6/25/2013
		CH-MILL-03_SESP13	SM2340B_CALC	6/11/2013	6/13/2013		7/1/2013
		CH-MILL-03_SESP13	SM2540C	6/11/2013	6/13/2013		6/14/2013
		CH-MILL-03_SESP13	SM2540D	6/11/2013	6/13/2013		6/15/2013
		CH-MILL-03_SESP13	SM4110B	6/11/2013	6/13/2013		6/14/2013
		CH-MILL-03_SESP13	SM4500P	6/11/2013	6/13/2013		6/14/2013
		CH-MILL-03_SESP13	SM5310	6/11/2013	6/13/2013		6/30/2013
		CH-MILL-03_SESP13	SW6010B	6/11/2013	6/13/2013		6/27/2013
		CH-MILL-03_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/25/2013
		CH-MILL-03_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/26/2013
		CH-MILL-03_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/28/2013
		CH-MILL-03_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/29/2013
		CH-MILL-903_SESP13	ASTM D7237	6/11/2013	6/13/2013		6/28/2013
		CH-MILL-903_SESP13	CSSS/APHA 4500H	6/11/2013	6/13/2013		6/19/2013
		CH-MILL-903_SESP13	E245.7	6/11/2013	6/13/2013	6/17/2013	6/19/2013
		CH-MILL-903_SESP13	Ferrozine	6/11/2013	6/13/2013	6/13/2013	6/17/2013
		CH-MILL-903_SESP13	JEM/SM4500N	6/11/2013	6/13/2013		6/19/2013
		CH-MILL-903_SESP13	SM2310_HP	6/11/2013	6/13/2013		6/19/2013
		CH-MILL-903_SESP13	SM2320B	6/11/2013	6/13/2013		6/25/2013
		CH-MILL-903_SESP13	SM2340B_CALC	6/11/2013	6/13/2013		6/28/2013
		CH-MILL-903_SESP13	SM2540C	6/11/2013	6/13/2013		6/14/2013
		CH-MILL-903_SESP13	SM2540D	6/11/2013	6/13/2013		6/15/2013
		CH-MILL-903_SESP13	SM4110B	6/11/2013	6/13/2013		6/14/2013
		CH-MILL-903_SESP13	SM4500P	6/11/2013	6/13/2013		6/14/2013
		CH-MILL-903_SESP13	SM5310	6/11/2013	6/13/2013		6/30/2013
		CH-MILL-903_SESP13	SW6010B	6/11/2013	6/13/2013		6/27/2013
		CH-MILL-903_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/25/2013
		CH-MILL-903_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/26/2013
		CH-MILL-903_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/27/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1316379	FCS-2_SESP13	CSSS/APHA 4500H	6/11/2013	6/13/2013		6/19/2013
		FCS-2_SESP13	E245.7	6/11/2013	6/13/2013	6/17/2013	6/19/2013
		FCS-2_SESP13	Ferrozine	6/11/2013	6/13/2013	6/13/2013	6/17/2013
		FCS-2_SESP13	JEM/SM4500N	6/11/2013	6/13/2013		6/19/2013
		FCS-2_SESP13	SM2310_HP	6/11/2013	6/13/2013		6/19/2013
		FCS-2_SESP13	SM2320B	6/11/2013	6/13/2013		6/25/2013
		FCS-2_SESP13	SM2340B_CALC	6/11/2013	6/13/2013		6/28/2013
		FCS-2_SESP13	SM2540C	6/11/2013	6/13/2013		6/14/2013
		FCS-2_SESP13	SM2540D	6/11/2013	6/13/2013		6/15/2013
		FCS-2_SESP13	SM4110B	6/11/2013	6/13/2013		6/14/2013
		FCS-2_SESP13	SM4500P	6/11/2013	6/13/2013		6/14/2013
		FCS-2_SESP13	SM5310	6/11/2013	6/13/2013		6/30/2013
		FCS-2_SESP13	SW6010B	6/11/2013	6/13/2013		6/27/2013
		FCS-2_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/25/2013
		FCS-2_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/26/2013
		FCS-2_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/27/2013
		FCS-4_SESP13	CSSS/APHA 4500H	6/11/2013	6/13/2013		6/19/2013
		FCS-4_SESP13	E245.7	6/11/2013	6/13/2013	6/17/2013	6/20/2013
		FCS-4_SESP13	Ferrozine	6/11/2013	6/13/2013	6/13/2013	6/17/2013
		FCS-4_SESP13	JEM/SM4500N	6/11/2013	6/13/2013		6/19/2013
		FCS-4_SESP13	SM2310_HP	6/11/2013	6/13/2013		6/19/2013
		FCS-4_SESP13	SM2320B	6/11/2013	6/13/2013		6/25/2013
		FCS-4_SESP13	SM2340B_CALC	6/11/2013	6/13/2013		6/28/2013
		FCS-4_SESP13	SM2540C	6/11/2013	6/13/2013		6/14/2013
		FCS-4_SESP13	SM2540D	6/11/2013	6/13/2013		6/15/2013
		FCS-4_SESP13	SM4110B	6/11/2013	6/13/2013		6/14/2013
		FCS-4_SESP13	SM4500P	6/11/2013	6/13/2013		6/14/2013
		FCS-4_SESP13	SM5310	6/11/2013	6/13/2013		6/30/2013
		FCS-4_SESP13	SW6010B	6/11/2013	6/13/2013		6/27/2013
		FCS-4_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/25/2013
		FCS-4_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/26/2013
		FCS-4_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/27/2013
		FCS-5_SESP13	ASTM D7237	6/12/2013	6/13/2013		6/28/2013
		FCS-5_SESP13	CSSS/APHA 4500H	6/12/2013	6/13/2013		6/19/2013
		FCS-5_SESP13	E245.7	6/12/2013	6/13/2013	6/17/2013	6/19/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1316379	FCS-5_SESP13	Ferrozine	6/12/2013	6/13/2013	6/13/2013	6/17/2013
		FCS-5_SESP13	JEM/SM4500N	6/12/2013	6/13/2013		6/19/2013
		FCS-5_SESP13	SM2310_HP	6/12/2013	6/13/2013		6/19/2013
		FCS-5_SESP13	SM2320B	6/12/2013	6/13/2013		6/25/2013
		FCS-5_SESP13	SM2340B_CALC	6/12/2013	6/13/2013		6/28/2013
		FCS-5_SESP13	SM2540C	6/12/2013	6/13/2013		6/14/2013
		FCS-5_SESP13	SM2540D	6/12/2013	6/13/2013		6/15/2013
		FCS-5_SESP13	SM4110B	6/12/2013	6/13/2013		6/14/2013
		FCS-5_SESP13	SM4500P	6/12/2013	6/13/2013		6/14/2013
		FCS-5_SESP13	SM5310	6/12/2013	6/13/2013		6/30/2013
		FCS-5_SESP13	SW6010B	6/12/2013	6/13/2013		6/26/2013
		FCS-5_SESP13	SW6010B	6/12/2013	6/13/2013	6/17/2013	6/23/2013
		FCS-5_SESP13	SW6010B	6/12/2013	6/13/2013	6/17/2013	6/28/2013
		FCS-94_SESP13	CSSS/APHA 4500H	6/11/2013	6/13/2013		6/19/2013
		FCS-94_SESP13	E245.7	6/11/2013	6/13/2013	6/17/2013	6/20/2013
		FCS-94_SESP13	Ferrozine	6/11/2013	6/13/2013	6/13/2013	6/17/2013
		FCS-94_SESP13	JEM/SM4500N	6/11/2013	6/13/2013		6/19/2013
		FCS-94_SESP13	SM2310_HP	6/11/2013	6/13/2013		6/19/2013
		FCS-94_SESP13	SM2320B	6/11/2013	6/13/2013		6/25/2013
		FCS-94_SESP13	SM2340B_CALC	6/11/2013	6/13/2013		6/28/2013
		FCS-94_SESP13	SM2540C	6/11/2013	6/13/2013		6/14/2013
		FCS-94_SESP13	SM2540D	6/11/2013	6/13/2013		6/15/2013
		FCS-94_SESP13	SM4110B	6/11/2013	6/13/2013		6/14/2013
		FCS-94_SESP13	SM4500P	6/11/2013	6/13/2013		6/14/2013
		FCS-94_SESP13	SM5310	6/11/2013	6/13/2013		6/30/2013
		FCS-94_SESP13	SW6010B	6/11/2013	6/13/2013		6/27/2013
		FCS-94_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/25/2013
		FCS-94_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/26/2013
		FCS-94_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/27/2013
		SRK-FD09_SESP13	ASTM D7237	6/11/2013	6/13/2013		6/28/2013
		SRK-FD09_SESP13	CSSS/APHA 4500H	6/11/2013	6/13/2013		6/19/2013
		SRK-FD09_SESP13	E245.7	6/11/2013	6/13/2013	6/17/2013	6/19/2013
		SRK-FD09_SESP13	Ferrozine	6/11/2013	6/13/2013	6/13/2013	6/17/2013
		SRK-FD09_SESP13	JEM/SM4500N	6/11/2013	6/13/2013		6/19/2013
		SRK-FD09_SESP13	SM2310_HP	6/11/2013	6/13/2013		6/19/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1316379	SRK-FD09_SESP13	SM2320B	6/11/2013	6/13/2013		6/25/2013
		SRK-FD09_SESP13	SM2340B_CALC	6/11/2013	6/13/2013		6/28/2013
		SRK-FD09_SESP13	SM2540C	6/11/2013	6/13/2013		6/14/2013
		SRK-FD09_SESP13	SM2540D	6/11/2013	6/13/2013		6/15/2013
		SRK-FD09_SESP13	SM4110B	6/11/2013	6/13/2013		6/14/2013
		SRK-FD09_SESP13	SM4500P	6/11/2013	6/13/2013		6/14/2013
		SRK-FD09_SESP13	SM5310	6/11/2013	6/13/2013		6/30/2013
		SRK-FD09_SESP13	SW6010B	6/11/2013	6/13/2013		6/27/2013
		SRK-FD09_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/25/2013
		SRK-FD09_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/26/2013
		SRK-FD09_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/27/2013
		SRK-FD13_SESP13	CSSS/APHA 4500H	6/11/2013	6/13/2013		6/19/2013
		SRK-FD13_SESP13	E245.7	6/11/2013	6/13/2013	6/17/2013	6/19/2013
		SRK-FD13_SESP13	Ferrozine	6/11/2013	6/13/2013	6/13/2013	6/17/2013
		SRK-FD13_SESP13	JEM/SM4500N	6/11/2013	6/13/2013		6/19/2013
		SRK-FD13_SESP13	SM2310_HP	6/11/2013	6/13/2013		6/19/2013
		SRK-FD13_SESP13	SM2320B	6/11/2013	6/13/2013		6/25/2013
		SRK-FD13_SESP13	SM2340B_CALC	6/11/2013	6/13/2013		6/28/2013
		SRK-FD13_SESP13	SM2540C	6/11/2013	6/13/2013		6/14/2013
		SRK-FD13_SESP13	SM2540D	6/11/2013	6/13/2013		6/15/2013
		SRK-FD13_SESP13	SM4110B	6/11/2013	6/13/2013		6/14/2013
		SRK-FD13_SESP13	SM4500P	6/11/2013	6/13/2013		6/14/2013
		SRK-FD13_SESP13	SM5310	6/11/2013	6/13/2013		7/1/2013
		SRK-FD13_SESP13	SW6010B	6/11/2013	6/13/2013		6/27/2013
		SRK-FD13_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/26/2013
		SRK-FD13_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/27/2013
		SRK-FD18_SESP13	CSSS/APHA 4500H	6/12/2013	6/13/2013		6/19/2013
		SRK-FD18_SESP13	E245.7	6/12/2013	6/13/2013	6/17/2013	6/20/2013
		SRK-FD18_SESP13	Ferrozine	6/12/2013	6/13/2013	6/13/2013	6/17/2013
		SRK-FD18_SESP13	JEM/SM4500N	6/12/2013	6/13/2013		6/19/2013
		SRK-FD18_SESP13	SM2310	6/12/2013	6/13/2013		6/19/2013
		SRK-FD18_SESP13	SM2320B	6/12/2013	6/13/2013		6/25/2013
		SRK-FD18_SESP13	SM2340B_CALC	6/12/2013	6/13/2013		6/27/2013
		SRK-FD18_SESP13	SM2540C	6/12/2013	6/13/2013		6/14/2013
		SRK-FD18_SESP13	SM2540D	6/12/2013	6/13/2013		6/15/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1316379	SRK-FD18_SESP13	SM4110B	6/12/2013	6/13/2013		6/14/2013
		SRK-FD18_SESP13	SM4500P	6/12/2013	6/13/2013		6/14/2013
		SRK-FD18_SESP13	SM5310	6/12/2013	6/13/2013		6/30/2013
		SRK-FD18_SESP13	SW6010B	6/12/2013	6/13/2013		6/27/2013
		SRK-FD18_SESP13	SW6010B	6/12/2013	6/13/2013	6/17/2013	6/23/2013
		SRK-FD18_SESP13	SW6010B	6/12/2013	6/13/2013	6/17/2013	6/25/2013
		SRK-FD18_SESP13	SW6010B	6/12/2013	6/13/2013	6/17/2013	6/26/2013
		SRK-FD19_SESP13	CSSS/APHA 4500H	6/11/2013	6/13/2013		6/19/2013
		SRK-FD19_SESP13	E245.7	6/11/2013	6/13/2013	6/17/2013	6/19/2013
		SRK-FD19_SESP13	Ferrozine	6/11/2013	6/13/2013	6/13/2013	6/17/2013
		SRK-FD19_SESP13	JEM/SM4500N	6/11/2013	6/13/2013		6/19/2013
		SRK-FD19_SESP13	SM2310	6/11/2013	6/13/2013		6/19/2013
		SRK-FD19_SESP13	SM2320B	6/11/2013	6/13/2013		6/25/2013
		SRK-FD19_SESP13	SM2340B_CALC	6/11/2013	6/13/2013		6/28/2013
		SRK-FD19_SESP13	SM2540C	6/11/2013	6/13/2013		6/14/2013
		SRK-FD19_SESP13	SM2540D	6/11/2013	6/13/2013		6/15/2013
		SRK-FD19_SESP13	SM4110B	6/11/2013	6/13/2013		6/14/2013
		SRK-FD19_SESP13	SM4500P	6/11/2013	6/13/2013		6/14/2013
		SRK-FD19_SESP13	SM5310	6/11/2013	6/13/2013		6/30/2013
		SRK-FD19_SESP13	SW6010B	6/11/2013	6/13/2013		6/27/2013
		SRK-FD19_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/25/2013
		SRK-FD19_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/26/2013
		SRK-FD19_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/27/2013
		SRK-FD24_SESP13	CSSS/APHA 4500H	6/11/2013	6/13/2013		6/19/2013
		SRK-FD24_SESP13	E245.7	6/11/2013	6/13/2013	6/17/2013	6/19/2013
		SRK-FD24_SESP13	Ferrozine	6/11/2013	6/13/2013	6/13/2013	6/17/2013
		SRK-FD24_SESP13	JEM/SM4500N	6/11/2013	6/13/2013		6/19/2013
		SRK-FD24_SESP13	SM2310_HP	6/11/2013	6/13/2013		6/19/2013
		SRK-FD24_SESP13	SM2320B	6/11/2013	6/13/2013		6/25/2013
		SRK-FD24_SESP13	SM2340B_CALC	6/11/2013	6/13/2013		6/28/2013
		SRK-FD24_SESP13	SM2540C	6/11/2013	6/13/2013		6/14/2013
		SRK-FD24_SESP13	SM2540D	6/11/2013	6/13/2013		6/15/2013
		SRK-FD24_SESP13	SM4110B	6/11/2013	6/13/2013		6/14/2013
		SRK-FD24_SESP13	SM4500P	6/11/2013	6/13/2013		6/14/2013
		SRK-FD24_SESP13	SM5310	6/11/2013	6/13/2013		6/30/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1316379	SRK-FD24_SESP13	SW6010B	6/11/2013	6/13/2013		6/26/2013
		SRK-FD24_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/23/2013
		SRK-FD24_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/25/2013
		SRK-FD24_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/27/2013
		SRK-FD31_SESP13	ASTM D7237	6/11/2013	6/13/2013		6/28/2013
		SRK-FD31_SESP13	CSSS/APHA 4500H	6/11/2013	6/13/2013		6/19/2013
		SRK-FD31_SESP13	E245.7	6/11/2013	6/13/2013	6/17/2013	6/19/2013
		SRK-FD31_SESP13	Ferrozine	6/11/2013	6/13/2013	6/13/2013	6/17/2013
		SRK-FD31_SESP13	JEM/SM4500N	6/11/2013	6/13/2013		6/19/2013
		SRK-FD31_SESP13	SM2310_HP	6/11/2013	6/13/2013		6/19/2013
		SRK-FD31_SESP13	SM2320B	6/11/2013	6/13/2013		6/25/2013
		SRK-FD31_SESP13	SM2340B_CALC	6/11/2013	6/13/2013		6/28/2013
		SRK-FD31_SESP13	SM2540C	6/11/2013	6/13/2013		6/14/2013
		SRK-FD31_SESP13	SM2540D	6/11/2013	6/13/2013		6/15/2013
		SRK-FD31_SESP13	SM4110B	6/11/2013	6/13/2013		6/14/2013
		SRK-FD31_SESP13	SM4500P	6/11/2013	6/13/2013		6/14/2013
		SRK-FD31_SESP13	SM5310	6/11/2013	6/13/2013		6/30/2013
		SRK-FD31_SESP13	SW6010B	6/11/2013	6/13/2013		6/27/2013
		SRK-FD31_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/26/2013
		SRK-FD31_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/27/2013
		SRK-FD31_SESP13MS	ASTM D7237	6/11/2013			7/3/2013
		SRK-FD31_SESP13MS	E245.7	6/11/2013		6/17/2013	6/17/2013
		SRK-FD31_SESP13MS	Ferrozine	6/11/2013		6/12/2013	6/17/2013
		SRK-FD31_SESP13MS	JEM/SM4500N	6/11/2013			6/19/2013
		SRK-FD31_SESP13MS	SM4110B	6/11/2013			7/3/2013
		SRK-FD31_SESP13MS	SM4500P	6/11/2013			6/14/2013
		SRK-FD31_SESP13MS	SM5310	6/11/2013			7/2/2013
		SRK-FD31_SESP13MS	SW6010B	6/11/2013		6/17/2013	6/17/2013
		SRK-FD56_SESP13	ASTM D7237	6/11/2013	6/13/2013		6/28/2013
		SRK-FD56_SESP13	CSSS/APHA 4500H	6/11/2013	6/13/2013		6/19/2013
		SRK-FD56_SESP13	E245.7	6/11/2013	6/13/2013	6/17/2013	6/20/2013
		SRK-FD56_SESP13	Ferrozine	6/11/2013	6/13/2013	6/13/2013	6/17/2013
		SRK-FD56_SESP13	JEM/SM4500N	6/11/2013	6/13/2013		6/19/2013
		SRK-FD56_SESP13	SM2310_HP	6/11/2013	6/13/2013		6/19/2013
		SRK-FD56_SESP13	SM2320B	6/11/2013	6/13/2013		6/25/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1316379	SRK-FD56_SESP13	SM2340B_CALC	6/11/2013	6/13/2013		6/28/2013
		SRK-FD56_SESP13	SM2540C	6/11/2013	6/13/2013		6/14/2013
		SRK-FD56_SESP13	SM2540D	6/11/2013	6/13/2013		6/15/2013
		SRK-FD56_SESP13	SM4110B	6/11/2013	6/13/2013		6/14/2013
		SRK-FD56_SESP13	SM4500P	6/11/2013	6/13/2013		6/14/2013
		SRK-FD56_SESP13	SM5310	6/11/2013	6/13/2013		6/30/2013
		SRK-FD56_SESP13	SW6010B	6/11/2013	6/13/2013		6/27/2013
		SRK-FD56_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/25/2013
		SRK-FD56_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/26/2013
		SRK-FD56_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/27/2013
		SRK-FD956_SESP13	ASTM D7237	6/11/2013	6/13/2013		6/28/2013
		SRK-FD956_SESP13	CSSS/APHA 4500H	6/11/2013	6/13/2013		6/19/2013
		SRK-FD956_SESP13	E245.7	6/11/2013	6/13/2013	6/17/2013	6/20/2013
		SRK-FD956_SESP13	Ferrozine	6/11/2013	6/13/2013	6/13/2013	6/17/2013
		SRK-FD956_SESP13	JEM/SM4500N	6/11/2013	6/13/2013		6/19/2013
		SRK-FD956_SESP13	SM2310_HP	6/11/2013	6/13/2013		6/19/2013
		SRK-FD956_SESP13	SM2320B	6/11/2013	6/13/2013		6/25/2013
		SRK-FD956_SESP13	SM2340B_CALC	6/11/2013	6/13/2013		6/28/2013
		SRK-FD956_SESP13	SM2540C	6/11/2013	6/13/2013		6/14/2013
		SRK-FD956_SESP13	SM2540D	6/11/2013	6/13/2013		6/15/2013
		SRK-FD956_SESP13	SM4110B	6/11/2013	6/13/2013		6/14/2013
		SRK-FD956_SESP13	SM4500P	6/11/2013	6/13/2013		6/14/2013
		SRK-FD956_SESP13	SM5310	6/11/2013	6/13/2013		6/30/2013
		SRK-FD956_SESP13	SW6010B	6/11/2013	6/13/2013		6/27/2013
		SRK-FD956_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/25/2013
		SRK-FD956_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/26/2013
		SRK-FD956_SESP13	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/27/2013
	L1316410	SRK-FD01_SESP13	ASTM D7237	6/10/2013	6/13/2013		6/24/2013
		SRK-FD01_SESP13	CSSS/APHA 4500H	6/10/2013	6/13/2013		6/19/2013
		SRK-FD01_SESP13	E245.7	6/10/2013	6/13/2013	6/17/2013	6/18/2013
		SRK-FD01_SESP13	Ferrozine	6/10/2013	6/13/2013	6/11/2013	6/17/2013
		SRK-FD01_SESP13	JEM/SM4500N	6/10/2013	6/13/2013		6/19/2013
		SRK-FD01_SESP13	SM2310	6/10/2013	6/13/2013		6/19/2013
		SRK-FD01_SESP13	SM2320B	6/10/2013	6/13/2013		6/23/2013
		SRK-FD01_SESP13	SM2340B_CALC	6/10/2013	6/13/2013		6/28/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1316410	SRK-FD01_SESP13	SM2540C	6/10/2013	6/13/2013		6/15/2013
		SRK-FD01_SESP13	SM2540D	6/10/2013	6/13/2013		6/15/2013
		SRK-FD01_SESP13	SM4110B	6/10/2013	6/13/2013		6/14/2013
		SRK-FD01_SESP13	SM4500P	6/10/2013	6/13/2013		6/14/2013
		SRK-FD01_SESP13	SM5310	6/10/2013	6/13/2013		6/30/2013
		SRK-FD01_SESP13	SW6010B	6/10/2013	6/13/2013		6/27/2013
		SRK-FD01_SESP13	SW6010B	6/10/2013	6/13/2013	6/17/2013	6/25/2013
		SRK-FD01_SESP13	SW6010B	6/10/2013	6/13/2013	6/17/2013	6/26/2013
		SRK-FD01_SESP13	SW6010B	6/10/2013	6/13/2013	6/17/2013	6/27/2013
		SRK-FD01_SESP13MS	E245.7	6/10/2013		6/17/2013	6/17/2013
		SRK-FD01_SESP13MS	SW6010B	6/10/2013		6/17/2013	6/17/2013
		SRK-FD37_SESP13	ASTM D7237	6/10/2013	6/13/2013		6/24/2013
		SRK-FD37_SESP13	E245.7	6/10/2013	6/13/2013	6/17/2013	6/18/2013
		SRK-FD37_SESP13	Ferrozine	6/10/2013	6/13/2013	6/11/2013	6/17/2013
		SRK-FD37_SESP13	JEM/SM4500N	6/10/2013	6/13/2013		6/19/2013
		SRK-FD37_SESP13	SM2310_HP	6/10/2013	6/13/2013		6/19/2013
		SRK-FD37_SESP13	SM2340B_CALC	6/10/2013	6/13/2013		6/27/2013
		SRK-FD37_SESP13	SM2540C	6/10/2013	6/13/2013		6/15/2013
		SRK-FD37_SESP13	SM2540D	6/10/2013	6/13/2013		6/15/2013
		SRK-FD37_SESP13	SM4110B	6/10/2013	6/13/2013		6/14/2013
		SRK-FD37_SESP13	SM4500P	6/10/2013	6/13/2013		6/14/2013
		SRK-FD37_SESP13	SM5310	6/10/2013	6/13/2013		7/2/2013
		SRK-FD37_SESP13	SW6010B	6/10/2013	6/13/2013		6/27/2013
		SRK-FD37_SESP13	SW6010B	6/10/2013	6/13/2013	6/17/2013	6/25/2013
		SRK-FD37_SESP13	SW6010B	6/10/2013	6/13/2013	6/17/2013	6/26/2013
	L1316422	E_015_13_001	ASTM D7237	6/11/2013	6/13/2013		6/28/2013
		E_015_13_001	E245.7	6/11/2013	6/13/2013	6/17/2013	6/19/2013
		E_015_13_001	Ferrozine	6/11/2013	6/13/2013	6/13/2013	6/19/2013
		E_015_13_001	JEM/SM4500N	6/11/2013	6/13/2013		6/19/2013
		E_015_13_001	SM2340B_CALC	6/11/2013	6/13/2013		6/27/2013
		E_015_13_001	SM4110B	6/11/2013	6/13/2013		6/14/2013
		E_015_13_001	SM4500P	6/11/2013	6/13/2013		6/14/2013
		E_015_13_001	SM5310	6/11/2013	6/13/2013		6/30/2013
		E_015_13_001	SW6010B	6/11/2013	6/13/2013		6/27/2013
		E_015_13_001	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/25/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1316422	E_015_13_001	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/26/2013
		E_015_13_001MS	ASTM D7237	6/11/2013			7/3/2013
		E_015_13_001MS	E245.7	6/11/2013		6/17/2013	6/17/2013
		E_015_13_001MS	SW6010B	6/11/2013		6/17/2013	6/17/2013
		E_015_13_002	E245.7	6/11/2013	6/13/2013	6/17/2013	6/19/2013
		E_015_13_002	Ferrozine	6/11/2013	6/13/2013	6/13/2013	6/19/2013
		E_015_13_002	SM2340B_CALC	6/11/2013	6/13/2013		6/28/2013
		E_015_13_002	SM5310	6/11/2013	6/13/2013		6/30/2013
		E_015_13_002	SW6010B	6/11/2013	6/13/2013		6/27/2013
		E_015_13_002	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/26/2013
		E_015_13_002	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/28/2013
		E_015_13_002MS	Ferrozine	6/11/2013		6/18/2013	6/18/2013
		E_015_13_003	E245.7	6/11/2013	6/13/2013	6/17/2013	6/19/2013
		E_015_13_003	Ferrozine	6/11/2013	6/13/2013	6/13/2013	6/19/2013
		E_015_13_003	SM2340B_CALC	6/11/2013	6/13/2013		6/28/2013
		E_015_13_003	SM5310	6/11/2013	6/13/2013		6/30/2013
		E_015_13_003	SW6010B	6/11/2013	6/13/2013		6/27/2013
		E_015_13_003	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/26/2013
		E_015_13_003	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/28/2013
		E_015_13_004	ASTM D7237	6/11/2013	6/13/2013		6/28/2013
		E_015_13_004	E245.7	6/11/2013	6/13/2013	6/17/2013	6/19/2013
		E_015_13_004	Ferrozine	6/11/2013	6/13/2013	6/13/2013	6/19/2013
		E_015_13_004	JEM/SM4500N	6/11/2013	6/13/2013		6/19/2013
		E_015_13_004	SM2340B_CALC	6/11/2013	6/13/2013		6/28/2013
		E_015_13_004	SM4110B	6/11/2013	6/13/2013		6/14/2013
		E_015_13_004	SM4500P	6/11/2013	6/13/2013		6/14/2013
		E_015_13_004	SM5310	6/11/2013	6/13/2013		7/1/2013
		E_015_13_004	SW6010B	6/11/2013	6/13/2013		6/27/2013
		E_015_13_004	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/26/2013
		E_015_13_004	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/28/2013
		E_015_13_005	E245.7	6/12/2013	6/13/2013	6/17/2013	6/19/2013
		E_015_13_005	Ferrozine	6/12/2013	6/13/2013	6/13/2013	6/19/2013
		E_015_13_005	SM2340B_CALC	6/12/2013	6/13/2013		6/28/2013
		E_015_13_005	SM5310	6/12/2013	6/13/2013		7/1/2013
		E_015_13_005	SW6010B	6/12/2013	6/13/2013		6/27/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1316422	E_015_13_005	SW6010B	6/12/2013	6/13/2013	6/17/2013	6/26/2013
		E_015_13_005	SW6010B	6/12/2013	6/13/2013	6/17/2013	6/28/2013
		E_015_13_006	ASTM D7237	6/12/2013	6/13/2013		6/28/2013
		E_015_13_006	E245.7	6/12/2013	6/13/2013	6/17/2013	6/19/2013
		E_015_13_006	Ferrozine	6/12/2013	6/13/2013	6/13/2013	6/19/2013
		E_015_13_006	JEM/SM4500N	6/12/2013	6/13/2013		6/19/2013
		E_015_13_006	SM2340B_CALC	6/12/2013	6/13/2013		6/28/2013
		E_015_13_006	SM4110B	6/12/2013	6/13/2013		6/14/2013
		E_015_13_006	SM4500P	6/12/2013	6/13/2013		6/14/2013
		E_015_13_006	SM5310	6/12/2013	6/13/2013		7/1/2013
		E_015_13_006	SW6010B	6/12/2013	6/13/2013		6/27/2013
		E_015_13_006	SW6010B	6/12/2013	6/13/2013	6/17/2013	6/26/2013
		E_015_13_006	SW6010B	6/12/2013	6/13/2013	6/17/2013	6/28/2013
	L1316438	SRK-FD30_SESP13	ASTM D7237	6/12/2013	6/13/2013		6/28/2013
		SRK-FD30_SESP13	CSSS/APHA 4500H	6/12/2013	6/13/2013		6/19/2013
		SRK-FD30_SESP13	E245.7	6/12/2013	6/13/2013	6/17/2013	6/19/2013
		SRK-FD30_SESP13	Ferrozine	6/12/2013	6/13/2013	6/13/2013	6/17/2013
		SRK-FD30_SESP13	JEM/SM4500N	6/12/2013	6/13/2013		6/27/2013
		SRK-FD30_SESP13	SM2310	6/12/2013	6/13/2013		6/19/2013
		SRK-FD30_SESP13	SM2320B	6/12/2013	6/13/2013		6/25/2013
		SRK-FD30_SESP13	SM2340B_CALC	6/12/2013	6/13/2013		6/28/2013
		SRK-FD30_SESP13	SM2540C	6/12/2013	6/13/2013		6/15/2013
		SRK-FD30_SESP13	SM2540D	6/12/2013	6/13/2013		6/15/2013
		SRK-FD30_SESP13	SM4110B	6/12/2013	6/13/2013		6/14/2013
		SRK-FD30_SESP13	SM4500P	6/12/2013	6/13/2013		6/14/2013
		SRK-FD30_SESP13	SM5310	6/12/2013	6/13/2013		7/1/2013
		SRK-FD30_SESP13	SW6010B	6/12/2013	6/13/2013		6/27/2013
		SRK-FD30_SESP13	SW6010B	6/12/2013	6/13/2013	6/17/2013	6/25/2013
		SRK-FD30_SESP13	SW6010B	6/12/2013	6/13/2013	6/17/2013	6/26/2013
		SRK-FD30_SESP13	SW6010B	6/12/2013	6/13/2013	6/17/2013	6/28/2013
		SRK-FD30_SESP13MS	ASTM D7237	6/12/2013			7/3/2013
		SRK-FD30_SESP13MS	E245.7	6/12/2013		6/17/2013	6/17/2013
		SRK-FD30_SESP13MS	JEM/SM4500N	6/12/2013			6/27/2013
		SRK-FD30_SESP13MS	SW6010B	6/12/2013		6/17/2013	6/17/2013
	L1316792	A30_SESP13	E245.7	6/12/2013	6/14/2013	6/17/2013	6/19/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1316792	A30_SESP13	Ferrozine	6/12/2013	6/14/2013	6/14/2013	6/19/2013
		A30_SESP13	JEM/SM4500N	6/12/2013	6/14/2013		7/1/2013
		A30_SESP13	SM2310_HP	6/12/2013	6/14/2013		6/25/2013
		A30_SESP13	SM2340B_CALC	6/12/2013	6/14/2013		7/2/2013
		A30_SESP13	SM2540C	6/12/2013	6/14/2013		6/19/2013
		A30_SESP13	SM2540D	6/12/2013	6/14/2013		6/18/2013
		A30_SESP13	SM4110B	6/12/2013	6/14/2013		6/15/2013
		A30_SESP13	SM4500P	6/12/2013	6/14/2013		6/15/2013
		A30_SESP13	SM5310	6/12/2013	6/14/2013		7/1/2013
		A30_SESP13	SW6010B	6/12/2013	6/14/2013		6/25/2013
		A30_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/24/2013
		A30_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/27/2013
		CH-FP-23_SESP13	CSSS/APHA 4500H	6/12/2013	6/14/2013		6/20/2013
		CH-FP-23_SESP13	E245.7	6/12/2013	6/14/2013	6/17/2013	6/18/2013
		CH-FP-23_SESP13	Ferrozine	6/12/2013	6/14/2013	6/14/2013	6/19/2013
		CH-FP-23_SESP13	JEM/SM4500N	6/12/2013	6/14/2013		7/1/2013
		CH-FP-23_SESP13	SM2310	6/12/2013	6/14/2013		6/25/2013
		CH-FP-23_SESP13	SM2320B	6/12/2013	6/14/2013		6/25/2013
		CH-FP-23_SESP13	SM2340B_CALC	6/12/2013	6/14/2013		7/2/2013
		CH-FP-23_SESP13	SM2540C	6/12/2013	6/14/2013		6/19/2013
		CH-FP-23_SESP13	SM2540D	6/12/2013	6/14/2013		6/18/2013
		CH-FP-23_SESP13	SM4110B	6/12/2013	6/14/2013		6/15/2013
		CH-FP-23_SESP13	SM4500P	6/12/2013	6/14/2013		6/15/2013
		CH-FP-23_SESP13	SM5310	6/12/2013	6/14/2013		7/1/2013
		CH-FP-23_SESP13	SW6010B	6/12/2013	6/14/2013		6/25/2013
		CH-FP-23_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/24/2013
		CH-FP-23_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/27/2013
		CH-FP-30_SESP13	CSSS/APHA 4500H	6/12/2013	6/14/2013		6/20/2013
		CH-FP-30_SESP13	E245.7	6/12/2013	6/14/2013	6/17/2013	6/18/2013
		CH-FP-30_SESP13	Ferrozine	6/12/2013	6/14/2013	6/14/2013	6/19/2013
		CH-FP-30_SESP13	JEM/SM4500N	6/12/2013	6/14/2013		7/1/2013
		CH-FP-30_SESP13	SM2310	6/12/2013	6/14/2013		6/25/2013
		CH-FP-30_SESP13	SM2320B	6/12/2013	6/14/2013		6/25/2013
		CH-FP-30_SESP13	SM2340B_CALC	6/12/2013	6/14/2013		7/2/2013
		CH-FP-30_SESP13	SM2540C	6/12/2013	6/14/2013		6/19/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1316792	CH-FP-30_SESP13	SM2540D	6/12/2013	6/14/2013		6/18/2013
		CH-FP-30_SESP13	SM4110B	6/12/2013	6/14/2013		6/15/2013
		CH-FP-30_SESP13	SM4500P	6/12/2013	6/14/2013		6/15/2013
		CH-FP-30_SESP13	SM5310	6/12/2013	6/14/2013		7/1/2013
		CH-FP-30_SESP13	SW6010B	6/12/2013	6/14/2013		6/25/2013
		CH-FP-30_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/24/2013
		CH-FP-30_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/27/2013
		CH-FP-34_SESP13	CSSS/APHA 4500H	6/12/2013	6/14/2013		6/20/2013
		CH-FP-34_SESP13	E245.7	6/12/2013	6/14/2013	6/17/2013	6/18/2013
		CH-FP-34_SESP13	Ferrozine	6/12/2013	6/14/2013	6/14/2013	6/19/2013
		CH-FP-34_SESP13	JEM/SM4500N	6/12/2013	6/14/2013		7/1/2013
		CH-FP-34_SESP13	SM2310	6/12/2013	6/14/2013		6/25/2013
		CH-FP-34_SESP13	SM2320B	6/12/2013	6/14/2013		6/25/2013
		CH-FP-34_SESP13	SM2340B_CALC	6/12/2013	6/14/2013		6/27/2013
		CH-FP-34_SESP13	SM2540C	6/12/2013	6/14/2013		6/19/2013
		CH-FP-34_SESP13	SM2540D	6/12/2013	6/14/2013		6/18/2013
		CH-FP-34_SESP13	SM4110B	6/12/2013	6/14/2013		6/15/2013
		CH-FP-34_SESP13	SM4500P	6/12/2013	6/14/2013		6/15/2013
		CH-FP-34_SESP13	SM5310	6/12/2013	6/14/2013		7/1/2013
		CH-FP-34_SESP13	SW6010B	6/12/2013	6/14/2013		6/25/2013
		CH-FP-34_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/24/2013
		CH-FP-34_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/26/2013
		CH-FP-35_SESP13	E245.7	6/12/2013	6/14/2013	6/17/2013	6/18/2013
		CH-FP-35_SESP13	Ferrozine	6/12/2013	6/14/2013	6/14/2013	6/19/2013
		CH-FP-35_SESP13	JEM/SM4500N	6/12/2013	6/14/2013		7/1/2013
		CH-FP-35_SESP13	SM2310_HP	6/12/2013	6/14/2013		6/25/2013
		CH-FP-35_SESP13	SM2340B_CALC	6/12/2013	6/14/2013		7/2/2013
		CH-FP-35_SESP13	SM2540C	6/12/2013	6/14/2013		6/19/2013
		CH-FP-35_SESP13	SM2540D	6/12/2013	6/14/2013		6/18/2013
		CH-FP-35_SESP13	SM4110B	6/12/2013	6/14/2013		6/15/2013
		CH-FP-35_SESP13	SM4500P	6/12/2013	6/14/2013		6/15/2013
		CH-FP-35_SESP13	SM5310	6/12/2013	6/14/2013		7/1/2013
		CH-FP-35_SESP13	SW6010B	6/12/2013	6/14/2013		6/25/2013
		CH-FP-35_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/24/2013
		CH-FP-35_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/27/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1316792	CH-FP-37_SESP13	CSSS/APHA 4500H	6/12/2013	6/14/2013		6/20/2013
		CH-FP-37_SESP13	E245.7	6/12/2013	6/14/2013	6/17/2013	6/18/2013
		CH-FP-37_SESP13	Ferrozine	6/12/2013	6/14/2013	6/14/2013	6/19/2013
		CH-FP-37_SESP13	JEM/SM4500N	6/12/2013	6/14/2013		7/1/2013
		CH-FP-37_SESP13	SM2310	6/12/2013	6/14/2013		6/25/2013
		CH-FP-37_SESP13	SM2320B	6/12/2013	6/14/2013		6/25/2013
		CH-FP-37_SESP13	SM2340B_CALC	6/12/2013	6/14/2013		6/27/2013
		CH-FP-37_SESP13	SM2540C	6/12/2013	6/14/2013		6/19/2013
		CH-FP-37_SESP13	SM2540D	6/12/2013	6/14/2013		6/18/2013
		CH-FP-37_SESP13	SM4110B	6/12/2013	6/14/2013		6/15/2013
		CH-FP-37_SESP13	SM4500P	6/12/2013	6/14/2013		6/15/2013
		CH-FP-37_SESP13	SM5310	6/12/2013	6/14/2013		7/1/2013
		CH-FP-37_SESP13	SW6010B	6/12/2013	6/14/2013		6/25/2013
		CH-FP-37_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/24/2013
		CH-FP-37_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/26/2013
		CH-RCTA-04_SESP13	ASTM D7237	6/12/2013	6/14/2013		6/28/2013
		CH-RCTA-04_SESP13	CSSS/APHA 4500H	6/12/2013	6/14/2013		6/20/2013
		CH-RCTA-04_SESP13	E245.7	6/12/2013	6/14/2013	6/17/2013	6/18/2013
		CH-RCTA-04_SESP13	Ferrozine	6/12/2013	6/14/2013	6/14/2013	6/19/2013
		CH-RCTA-04_SESP13	JEM/SM4500N	6/12/2013	6/14/2013		7/1/2013
		CH-RCTA-04_SESP13	SM2310_HP	6/12/2013	6/14/2013		6/19/2013
		CH-RCTA-04_SESP13	SM2320B	6/12/2013	6/14/2013		7/3/2013
		CH-RCTA-04_SESP13	SM2340B_CALC	6/12/2013	6/14/2013		7/2/2013
		CH-RCTA-04_SESP13	SM2540C	6/12/2013	6/14/2013		6/19/2013
		CH-RCTA-04_SESP13	SM2540D	6/12/2013	6/14/2013		6/18/2013
		CH-RCTA-04_SESP13	SM4110B	6/12/2013	6/14/2013		6/15/2013
		CH-RCTA-04_SESP13	SM4500P	6/12/2013	6/14/2013		6/15/2013
		CH-RCTA-04_SESP13	SM5310	6/12/2013	6/14/2013		7/1/2013
		CH-RCTA-04_SESP13	SW6010B	6/12/2013	6/14/2013		6/25/2013
		CH-RCTA-04_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/24/2013
		CH-RCTA-04_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/27/2013
		CH-RCTA-04_SESP13MS	ASTM D7237	6/12/2013			7/3/2013
		CH-RCTA-04_SESP13MS	E245.7	6/12/2013		6/18/2013	6/17/2013
		CH-RCTA-04_SESP13MS	Ferrozine	6/12/2013		6/19/2013	6/18/2013
		CH-RCTA-04_SESP13MS	JEM/SM4500N	6/12/2013			7/1/2013

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Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1316792	CH-RCTA-04_SESP13MS	SM4110B	6/12/2013			7/3/2013
		CH-RCTA-04_SESP13MS	SM4500P	6/12/2013			6/15/2013
		CH-RCTA-04_SESP13MS	SW6010B	6/12/2013		6/24/2013	6/17/2013
		CH-RCTA-04_SESP13MS	SW6010B	6/12/2013		6/27/2013	6/17/2013
		FP10_SESP13	CSSS/APHA 4500H	6/12/2013	6/14/2013		6/20/2013
		FP10_SESP13	E245.7	6/12/2013	6/14/2013	6/17/2013	6/18/2013
		FP10_SESP13	Ferrozine	6/12/2013	6/14/2013	6/14/2013	6/19/2013
		FP10_SESP13	JEM/SM4500N	6/12/2013	6/14/2013		7/1/2013
		FP10_SESP13	SM2310	6/12/2013	6/14/2013		6/25/2013
		FP10_SESP13	SM2320B	6/12/2013	6/14/2013		6/25/2013
		FP10_SESP13	SM2340B_CALC	6/12/2013	6/14/2013		7/2/2013
		FP10_SESP13	SM2540C	6/12/2013	6/14/2013		6/19/2013
		FP10_SESP13	SM2540D	6/12/2013	6/14/2013		6/18/2013
		FP10_SESP13	SM4110B	6/12/2013	6/14/2013		6/15/2013
		FP10_SESP13	SM4500P	6/12/2013	6/14/2013		6/15/2013
		FP10_SESP13	SM5310	6/12/2013	6/14/2013		6/30/2013
		FP10_SESP13	SW6010B	6/12/2013	6/14/2013		6/25/2013
		FP10_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/24/2013
		FP10_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/27/2013
		SRK-FD05_SESP13	ASTM D7237	6/13/2013	6/14/2013		6/28/2013
		SRK-FD05_SESP13	CSSS/APHA 4500H	6/13/2013	6/14/2013		6/20/2013
		SRK-FD05_SESP13	E245.7	6/13/2013	6/14/2013	6/17/2013	6/18/2013
		SRK-FD05_SESP13	Ferrozine	6/13/2013	6/14/2013	6/14/2013	6/19/2013
		SRK-FD05_SESP13	JEM/SM4500N	6/13/2013	6/14/2013		7/1/2013
		SRK-FD05_SESP13	SM2310	6/13/2013	6/14/2013		6/25/2013
		SRK-FD05_SESP13	SM2320B	6/13/2013	6/14/2013		6/25/2013
		SRK-FD05_SESP13	SM2340B_CALC	6/13/2013	6/14/2013		6/27/2013
		SRK-FD05_SESP13	SM2540C	6/13/2013	6/14/2013		6/19/2013
		SRK-FD05_SESP13	SM2540D	6/13/2013	6/14/2013		6/18/2013
		SRK-FD05_SESP13	SM4110B	6/13/2013	6/14/2013		6/15/2013
		SRK-FD05_SESP13	SM4500P	6/13/2013	6/14/2013		6/15/2013
		SRK-FD05_SESP13	SM5310	6/13/2013	6/14/2013		6/30/2013
		SRK-FD05_SESP13	SW6010B	6/13/2013	6/14/2013		6/25/2013
		SRK-FD05_SESP13	SW6010B	6/13/2013	6/14/2013	6/17/2013	6/24/2013
		SRK-FD05_SESP13	SW6010B	6/13/2013	6/14/2013	6/17/2013	6/26/2013

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Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1316792	SRK-FD26_SESP13	CSSS/APHA 4500H	6/12/2013	6/14/2013		6/20/2013
		SRK-FD26_SESP13	E245.7	6/12/2013	6/14/2013	6/17/2013	6/18/2013
		SRK-FD26_SESP13	Ferrozine	6/12/2013	6/14/2013	6/14/2013	6/19/2013
		SRK-FD26_SESP13	JEM/SM4500N	6/12/2013	6/14/2013		7/1/2013
		SRK-FD26_SESP13	SM2310	6/12/2013	6/14/2013		6/25/2013
		SRK-FD26_SESP13	SM2320B	6/12/2013	6/14/2013		6/25/2013
		SRK-FD26_SESP13	SM2340B_CALC	6/12/2013	6/14/2013		6/27/2013
		SRK-FD26_SESP13	SM2540C	6/12/2013	6/14/2013		6/19/2013
		SRK-FD26_SESP13	SM2540D	6/12/2013	6/14/2013		6/18/2013
		SRK-FD26_SESP13	SM4110B	6/12/2013	6/14/2013		6/15/2013
		SRK-FD26_SESP13	SM4500P	6/12/2013	6/14/2013		6/15/2013
		SRK-FD26_SESP13	SM5310	6/12/2013	6/14/2013		6/30/2013
		SRK-FD26_SESP13	SW6010B	6/12/2013	6/14/2013		6/27/2013
		SRK-FD26_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/24/2013
		SRK-FD26_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/26/2013
		SRK-FD40_SESP13	E245.7	6/12/2013	6/14/2013	6/17/2013	6/19/2013
		SRK-FD40_SESP13	Ferrozine	6/12/2013	6/14/2013	6/14/2013	6/19/2013
		SRK-FD40_SESP13	JEM/SM4500N	6/12/2013	6/14/2013		7/1/2013
		SRK-FD40_SESP13	SM2310_HP	6/12/2013	6/14/2013		6/25/2013
		SRK-FD40_SESP13	SM2340B_CALC	6/12/2013	6/14/2013		7/2/2013
		SRK-FD40_SESP13	SM2540C	6/12/2013	6/14/2013		6/19/2013
		SRK-FD40_SESP13	SM2540D	6/12/2013	6/14/2013		6/18/2013
		SRK-FD40_SESP13	SM4110B	6/12/2013	6/14/2013		6/15/2013
		SRK-FD40_SESP13	SM4500P	6/12/2013	6/14/2013		6/15/2013
		SRK-FD40_SESP13	SM5310	6/12/2013	6/14/2013		6/30/2013
		SRK-FD40_SESP13	SW6010B	6/12/2013	6/14/2013		6/27/2013
		SRK-FD40_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/26/2013
		SRK-FD40_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/27/2013
		SRK-FD940_SESP13	E245.7	6/12/2013	6/14/2013	6/17/2013	6/19/2013
		SRK-FD940_SESP13	Ferrozine	6/12/2013	6/14/2013	6/14/2013	6/19/2013
		SRK-FD940_SESP13	JEM/SM4500N	6/12/2013	6/14/2013		7/1/2013
		SRK-FD940_SESP13	SM2310_HP	6/12/2013	6/14/2013		6/25/2013
		SRK-FD940_SESP13	SM2340B_CALC	6/12/2013	6/14/2013		7/2/2013
		SRK-FD940_SESP13	SM2540C	6/12/2013	6/14/2013		6/19/2013
		SRK-FD940_SESP13	SM2540D	6/12/2013	6/14/2013		6/18/2013

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Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1316792	SRK-FD940_SESP13	SM4110B	6/12/2013	6/14/2013		6/15/2013
		SRK-FD940_SESP13	SM4500P	6/12/2013	6/14/2013		6/15/2013
		SRK-FD940_SESP13	SM5310	6/12/2013	6/14/2013		6/30/2013
		SRK-FD940_SESP13	SW6010B	6/12/2013	6/14/2013		6/27/2013
		SRK-FD940_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/26/2013
		SRK-FD940_SESP13	SW6010B	6/12/2013	6/14/2013	6/17/2013	6/27/2013
	L1317509	CH-GP-19_SESP13	CSSS/APHA 4500H	6/13/2013	6/15/2013		6/20/2013
		CH-GP-19_SESP13	E245.7	6/13/2013	6/15/2013	6/19/2013	6/19/2013
		CH-GP-19_SESP13	Ferrozine	6/13/2013	6/15/2013	6/15/2013	6/20/2013
		CH-GP-19_SESP13	JEM/SM4500N	6/13/2013	6/15/2013		7/1/2013
		CH-GP-19_SESP13	SM2310	6/13/2013	6/15/2013		6/20/2013
		CH-GP-19_SESP13	SM2320B	6/13/2013	6/15/2013		6/25/2013
		CH-GP-19_SESP13	SM2340B_CALC	6/13/2013	6/15/2013		7/2/2013
		CH-GP-19_SESP13	SM2540C	6/13/2013	6/15/2013		6/21/2013
		CH-GP-19_SESP13	SM2540D	6/13/2013	6/15/2013		6/21/2013
		CH-GP-19_SESP13	SM4110B	6/13/2013	6/15/2013		6/18/2013
		CH-GP-19_SESP13	SM4500P	6/13/2013	6/15/2013		6/18/2013
		CH-GP-19_SESP13	SM5310	6/13/2013	6/15/2013		7/1/2013
		CH-GP-19_SESP13	SW6010B	6/13/2013	6/15/2013		6/25/2013
		CH-GP-19_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/24/2013
		CH-GP-19_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/27/2013
		CH-GP-22_SESP13	CSSS/APHA 4500H	6/13/2013	6/15/2013		6/20/2013
		CH-GP-22_SESP13	E245.7	6/13/2013	6/15/2013	6/19/2013	6/19/2013
		CH-GP-22_SESP13	Ferrozine	6/13/2013	6/15/2013	6/15/2013	6/20/2013
		CH-GP-22_SESP13	JEM/SM4500N	6/13/2013	6/15/2013		7/1/2013
		CH-GP-22_SESP13	SM2310	6/13/2013	6/15/2013		6/20/2013
		CH-GP-22_SESP13	SM2320B	6/13/2013	6/15/2013		6/25/2013
		CH-GP-22_SESP13	SM2340B_CALC	6/13/2013	6/15/2013		6/27/2013
		CH-GP-22_SESP13	SM2540C	6/13/2013	6/15/2013		6/21/2013
		CH-GP-22_SESP13	SM2540D	6/13/2013	6/15/2013		6/21/2013
		CH-GP-22_SESP13	SM4110B	6/13/2013	6/15/2013		6/18/2013
		CH-GP-22_SESP13	SM4500P	6/13/2013	6/15/2013		6/18/2013
		CH-GP-22_SESP13	SM5310	6/13/2013	6/15/2013		7/1/2013
		CH-GP-22_SESP13	SW6010B	6/13/2013	6/15/2013		6/25/2013
		CH-GP-22_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/24/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1317509	CH-GP-22_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/26/2013
		CH-GP-27_SESP13	CSSS/APHA 4500H	6/13/2013	6/15/2013		6/20/2013
		CH-GP-27_SESP13	E245.7	6/13/2013	6/15/2013	6/19/2013	6/19/2013
		CH-GP-27_SESP13	Ferrozine	6/13/2013	6/15/2013	6/15/2013	6/20/2013
		CH-GP-27_SESP13	JEM/SM4500N	6/13/2013	6/15/2013		7/1/2013
		CH-GP-27_SESP13	SM2310	6/13/2013	6/15/2013		6/20/2013
		CH-GP-27_SESP13	SM2320B	6/13/2013	6/15/2013		6/25/2013
		CH-GP-27_SESP13	SM2340B_CALC	6/13/2013	6/15/2013		6/28/2013
		CH-GP-27_SESP13	SM2540C	6/13/2013	6/15/2013		6/21/2013
		CH-GP-27_SESP13	SM2540D	6/13/2013	6/15/2013		6/21/2013
		CH-GP-27_SESP13	SM4110B	6/13/2013	6/15/2013		6/18/2013
		CH-GP-27_SESP13	SM4500P	6/13/2013	6/15/2013		6/18/2013
		CH-GP-27_SESP13	SM5310	6/13/2013	6/15/2013		7/1/2013
		CH-GP-27_SESP13	SW6010B	6/13/2013	6/15/2013		6/25/2013
		CH-GP-27_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/24/2013
		CH-GP-27_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/27/2013
		CH-VP-17_SESP13	E245.7	6/13/2013	6/15/2013	6/19/2013	6/20/2013
		CH-VP-17_SESP13	Ferrozine	6/13/2013	6/15/2013	6/15/2013	6/20/2013
		CH-VP-17_SESP13	JEM/SM4500N	6/13/2013	6/15/2013		7/1/2013
		CH-VP-17_SESP13	SM2310_HP	6/13/2013	6/15/2013		6/21/2013
		CH-VP-17_SESP13	SM2340B_CALC	6/13/2013	6/15/2013		7/1/2013
		CH-VP-17_SESP13	SM2540C	6/13/2013	6/15/2013		6/21/2013
		CH-VP-17_SESP13	SM2540D	6/13/2013	6/15/2013		6/21/2013
		CH-VP-17_SESP13	SM4110B	6/13/2013	6/15/2013		6/18/2013
		CH-VP-17_SESP13	SM4500P	6/13/2013	6/15/2013		6/18/2013
		CH-VP-17_SESP13	SM5310	6/13/2013	6/15/2013		7/1/2013
		CH-VP-17_SESP13	SW6010B	6/13/2013	6/15/2013		6/27/2013
		CH-VP-17_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/26/2013
		CH-VP-17_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/29/2013
		CH-VP-18_SESP13	E245.7	6/13/2013	6/15/2013	6/19/2013	6/19/2013
		CH-VP-18_SESP13	Ferrozine	6/13/2013	6/15/2013	6/15/2013	6/20/2013
		CH-VP-18_SESP13	JEM/SM4500N	6/13/2013	6/15/2013		7/1/2013
		CH-VP-18_SESP13	SM2310_HP	6/13/2013	6/15/2013		6/21/2013
		CH-VP-18_SESP13	SM2340B_CALC	6/13/2013	6/15/2013		7/1/2013
		CH-VP-18_SESP13	SM2540C	6/13/2013	6/15/2013		6/21/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1317509	CH-VP-18_SESP13	SM2540D	6/13/2013	6/15/2013		6/21/2013
		CH-VP-18_SESP13	SM4110B	6/13/2013	6/15/2013		6/18/2013
		CH-VP-18_SESP13	SM4500P	6/13/2013	6/15/2013		6/18/2013
		CH-VP-18_SESP13	SM5310	6/13/2013	6/15/2013		7/1/2013
		CH-VP-18_SESP13	SW6010B	6/13/2013	6/15/2013		6/27/2013
		CH-VP-18_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/26/2013
		CH-VP-18_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/29/2013
		CH-VP-20_SESP13	E245.7	6/13/2013	6/15/2013	6/19/2013	6/19/2013
		CH-VP-20_SESP13	Ferrozine	6/13/2013	6/15/2013	6/15/2013	6/20/2013
		CH-VP-20_SESP13	JEM/SM4500N	6/13/2013	6/15/2013		7/1/2013
		CH-VP-20_SESP13	SM2310_HP	6/13/2013	6/15/2013		6/21/2013
		CH-VP-20_SESP13	SM2340B_CALC	6/13/2013	6/15/2013		7/1/2013
		CH-VP-20_SESP13	SM2540C	6/13/2013	6/15/2013		6/21/2013
		CH-VP-20_SESP13	SM2540D	6/13/2013	6/15/2013		6/21/2013
		CH-VP-20_SESP13	SM4110B	6/13/2013	6/15/2013		6/18/2013
		CH-VP-20_SESP13	SM4500P	6/13/2013	6/15/2013		6/18/2013
		CH-VP-20_SESP13	SM5310	6/13/2013	6/15/2013		7/1/2013
		CH-VP-20_SESP13	SW6010B	6/13/2013	6/15/2013		6/27/2013
		CH-VP-20_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/26/2013
		CH-VP-20_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/29/2013
		GP02_SESP13	CSSS/APHA 4500H	6/13/2013	6/15/2013		6/20/2013
		GP02_SESP13	E245.7	6/13/2013	6/15/2013	6/19/2013	6/19/2013
		GP02_SESP13	Ferrozine	6/13/2013	6/15/2013	6/15/2013	6/20/2013
		GP02_SESP13	JEM/SM4500N	6/13/2013	6/15/2013		7/1/2013
		GP02_SESP13	SM2310	6/13/2013	6/15/2013		6/20/2013
		GP02_SESP13	SM2320B	6/13/2013	6/15/2013		6/25/2013
		GP02_SESP13	SM2340B_CALC	6/13/2013	6/15/2013		6/28/2013
		GP02_SESP13	SM2540C	6/13/2013	6/15/2013		6/21/2013
		GP02_SESP13	SM2540D	6/13/2013	6/15/2013		6/21/2013
		GP02_SESP13	SM4110B	6/13/2013	6/15/2013		6/18/2013
		GP02_SESP13	SM4500P	6/13/2013	6/15/2013		6/18/2013
		GP02_SESP13	SM5310	6/13/2013	6/15/2013		7/1/2013
		GP02_SESP13	SW6010B	6/13/2013	6/15/2013		6/25/2013
		GP02_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/24/2013
		GP02_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/27/2013

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Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1317509	GP02_SESP13MS	SM4110B	6/13/2013			7/4/2013
		GP09_SESP13	CSSS/APHA 4500H	6/13/2013	6/15/2013		6/20/2013
		GP09_SESP13	E245.7	6/13/2013	6/15/2013	6/19/2013	6/19/2013
		GP09_SESP13	Ferrozine	6/13/2013	6/15/2013	6/15/2013	6/20/2013
		GP09_SESP13	JEM/SM4500N	6/13/2013	6/15/2013		7/1/2013
		GP09_SESP13	SM2310	6/13/2013	6/15/2013		6/20/2013
		GP09_SESP13	SM2320B	6/13/2013	6/15/2013		6/25/2013
		GP09_SESP13	SM2340B_CALC	6/13/2013	6/15/2013		6/28/2013
		GP09_SESP13	SM2540C	6/13/2013	6/15/2013		6/21/2013
		GP09_SESP13	SM2540D	6/13/2013	6/15/2013		6/21/2013
		GP09_SESP13	SM4110B	6/13/2013	6/15/2013		6/18/2013
		GP09_SESP13	SM4500P	6/13/2013	6/15/2013		6/18/2013
		GP09_SESP13	SM5310	6/13/2013	6/15/2013		7/1/2013
		GP09_SESP13	SW6010B	6/13/2013	6/15/2013		6/25/2013
		GP09_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/24/2013
		GP09_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/27/2013
		GP12_SESP13	CSSS/APHA 4500H	6/13/2013	6/15/2013		6/20/2013
		GP12_SESP13	E245.7	6/13/2013	6/15/2013	6/19/2013	6/19/2013
		GP12_SESP13	Ferrozine	6/13/2013	6/15/2013	6/15/2013	6/20/2013
		GP12_SESP13	JEM/SM4500N	6/13/2013	6/15/2013		7/1/2013
		GP12_SESP13	SM2310_HP	6/13/2013	6/15/2013		6/27/2013
		GP12_SESP13	SM2320B	6/13/2013	6/15/2013		6/25/2013
		GP12_SESP13	SM2340B_CALC	6/13/2013	6/15/2013		7/2/2013
		GP12_SESP13	SM2540C	6/13/2013	6/15/2013		6/21/2013
		GP12_SESP13	SM2540D	6/13/2013	6/15/2013		6/21/2013
		GP12_SESP13	SM4110B	6/13/2013	6/15/2013		6/18/2013
		GP12_SESP13	SM4500P	6/13/2013	6/15/2013		6/18/2013
		GP12_SESP13	SM5310	6/13/2013	6/15/2013		7/1/2013
		GP12_SESP13	SW6010B	6/13/2013	6/15/2013		6/25/2013
		GP12_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/24/2013
		GP12_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/27/2013
		SRK-GD01_SESP13	ASTM D7237	6/13/2013	6/15/2013		6/28/2013
		SRK-GD01_SESP13	CSSS/APHA 4500H	6/13/2013	6/15/2013		6/20/2013
		SRK-GD01_SESP13	E245.7	6/13/2013	6/15/2013	6/19/2013	6/19/2013
		SRK-GD01_SESP13	Ferrozine	6/13/2013	6/15/2013	6/15/2013	6/20/2013

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Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1317509	SRK-GD01_SESP13	JEM/SM4500N	6/13/2013	6/15/2013		7/1/2013
		SRK-GD01_SESP13	SM2310	6/13/2013	6/15/2013		6/20/2013
		SRK-GD01_SESP13	SM2320B	6/13/2013	6/15/2013		6/25/2013
		SRK-GD01_SESP13	SM2340B_CALC	6/13/2013	6/15/2013		7/2/2013
		SRK-GD01_SESP13	SM2540C	6/13/2013	6/15/2013		6/21/2013
		SRK-GD01_SESP13	SM2540D	6/13/2013	6/15/2013		6/21/2013
		SRK-GD01_SESP13	SM4110B	6/13/2013	6/15/2013		6/18/2013
		SRK-GD01_SESP13	SM4500P	6/13/2013	6/15/2013		6/18/2013
		SRK-GD01_SESP13	SM5310	6/13/2013	6/15/2013		7/1/2013
		SRK-GD01_SESP13	SW6010B	6/13/2013	6/15/2013		6/25/2013
		SRK-GD01_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/24/2013
		SRK-GD01_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/27/2013
		SRK-GD01_SESP13MS	ASTM D7237	6/13/2013			7/4/2013
		SRK-GD01_SESP13MS	E245.7	6/13/2013		6/19/2013	6/19/2013
		SRK-GD01_SESP13MS	Ferrozine	6/13/2013		6/20/2013	6/20/2013
		SRK-GD01_SESP13MS	JEM/SM4500N	6/13/2013			7/1/2013
		SRK-GD01_SESP13MS	SM4500P	6/13/2013			6/19/2013
		SRK-GD01_SESP13MS	SW6010B	6/13/2013		6/24/2013	6/19/2013
		SRK-GD01_SESP13MS	SW6010B	6/13/2013		6/27/2013	6/19/2013
		SRK-GD05_SESP13	ASTM D7237	6/13/2013	6/15/2013		6/28/2013
		SRK-GD05_SESP13	CSSS/APHA 4500H	6/13/2013	6/15/2013		6/20/2013
		SRK-GD05_SESP13	E245.7	6/13/2013	6/15/2013	6/19/2013	6/19/2013
		SRK-GD05_SESP13	Ferrozine	6/13/2013	6/15/2013	6/15/2013	6/20/2013
		SRK-GD05_SESP13	JEM/SM4500N	6/13/2013	6/15/2013		7/1/2013
		SRK-GD05_SESP13	SM2310	6/13/2013	6/15/2013		6/20/2013
		SRK-GD05_SESP13	SM2320B	6/13/2013	6/15/2013		6/25/2013
		SRK-GD05_SESP13	SM2340B_CALC	6/13/2013	6/15/2013		6/27/2013
		SRK-GD05_SESP13	SM2540C	6/13/2013	6/15/2013		6/21/2013
		SRK-GD05_SESP13	SM2540D	6/13/2013	6/15/2013		6/21/2013
		SRK-GD05_SESP13	SM4110B	6/13/2013	6/15/2013		6/18/2013
		SRK-GD05_SESP13	SM4500P	6/13/2013	6/15/2013		6/18/2013
		SRK-GD05_SESP13	SM5310	6/13/2013	6/15/2013		7/1/2013
		SRK-GD05_SESP13	SW6010B	6/13/2013	6/15/2013		6/25/2013
		SRK-GD05_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/24/2013
		SRK-GD05_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/26/2013

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Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1317509	SRK-GD06_SESP13	ASTM D7237	6/13/2013	6/15/2013		6/28/2013
		SRK-GD06_SESP13	CSSS/APHA 4500H	6/13/2013	6/15/2013		6/20/2013
		SRK-GD06_SESP13	E245.7	6/13/2013	6/15/2013	6/19/2013	6/19/2013
		SRK-GD06_SESP13	Ferrozine	6/13/2013	6/15/2013	6/15/2013	6/20/2013
		SRK-GD06_SESP13	JEM/SM4500N	6/13/2013	6/15/2013		7/1/2013
		SRK-GD06_SESP13	SM2310	6/13/2013	6/15/2013		6/20/2013
		SRK-GD06_SESP13	SM2320B	6/13/2013	6/15/2013		6/25/2013
		SRK-GD06_SESP13	SM2340B_CALC	6/13/2013	6/15/2013		7/1/2013
		SRK-GD06_SESP13	SM2540C	6/13/2013	6/15/2013		6/21/2013
		SRK-GD06_SESP13	SM2540D	6/13/2013	6/15/2013		6/21/2013
		SRK-GD06_SESP13	SM4110B	6/13/2013	6/15/2013		6/18/2013
		SRK-GD06_SESP13	SM4500P	6/13/2013	6/15/2013		6/18/2013
		SRK-GD06_SESP13	SM5310	6/13/2013	6/15/2013		7/1/2013
		SRK-GD06_SESP13	SW6010B	6/13/2013	6/15/2013		6/25/2013
		SRK-GD06_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/24/2013
		SRK-GD06_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/29/2013
		SRK-GD09_SESP13	ASTM D7237	6/13/2013	6/15/2013		6/28/2013
		SRK-GD09_SESP13	CSSS/APHA 4500H	6/13/2013	6/15/2013		6/20/2013
		SRK-GD09_SESP13	E245.7	6/13/2013	6/15/2013	6/19/2013	6/19/2013
		SRK-GD09_SESP13	Ferrozine	6/13/2013	6/15/2013	6/15/2013	6/20/2013
		SRK-GD09_SESP13	JEM/SM4500N	6/13/2013	6/15/2013		7/1/2013
		SRK-GD09_SESP13	SM2310	6/13/2013	6/15/2013		6/20/2013
		SRK-GD09_SESP13	SM2320B	6/13/2013	6/15/2013		6/25/2013
		SRK-GD09_SESP13	SM2340B_CALC	6/13/2013	6/15/2013		6/28/2013
		SRK-GD09_SESP13	SM2540C	6/13/2013	6/15/2013		6/21/2013
		SRK-GD09_SESP13	SM2540D	6/13/2013	6/15/2013		6/21/2013
		SRK-GD09_SESP13	SM4110B	6/13/2013	6/15/2013		6/18/2013
		SRK-GD09_SESP13	SM4500P	6/13/2013	6/15/2013		6/18/2013
		SRK-GD09_SESP13	SM5310	6/13/2013	6/15/2013		7/1/2013
		SRK-GD09_SESP13	SW6010B	6/13/2013	6/15/2013		6/25/2013
		SRK-GD09_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/24/2013
		SRK-GD09_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/27/2013
		SRK-GD11_SESP13	ASTM D7237	6/13/2013	6/15/2013		6/28/2013
		SRK-GD11_SESP13	CSSS/APHA 4500H	6/13/2013	6/15/2013		6/20/2013
		SRK-GD11_SESP13	E245.7	6/13/2013	6/15/2013	6/19/2013	6/19/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1317509	SRK-GD11_SESP13	Ferrozine	6/13/2013	6/15/2013	6/15/2013	6/20/2013
		SRK-GD11_SESP13	JEM/SM4500N	6/13/2013	6/15/2013		7/1/2013
		SRK-GD11_SESP13	SM2310	6/13/2013	6/15/2013		6/20/2013
		SRK-GD11_SESP13	SM2320B	6/13/2013	6/15/2013		6/25/2013
		SRK-GD11_SESP13	SM2340B_CALC	6/13/2013	6/15/2013		7/1/2013
		SRK-GD11_SESP13	SM2540C	6/13/2013	6/15/2013		6/21/2013
		SRK-GD11_SESP13	SM2540D	6/13/2013	6/15/2013		6/21/2013
		SRK-GD11_SESP13	SM4110B	6/13/2013	6/15/2013		6/18/2013
		SRK-GD11_SESP13	SM4500P	6/13/2013	6/15/2013		6/18/2013
		SRK-GD11_SESP13	SM5310	6/13/2013	6/15/2013		7/1/2013
		SRK-GD11_SESP13	SW6010B	6/13/2013	6/15/2013		6/25/2013
		SRK-GD11_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/24/2013
		SRK-GD11_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/29/2013
		SRK-GD19_SESP13	ASTM D7237	6/13/2013	6/15/2013		6/28/2013
		SRK-GD19_SESP13	CSSS/APHA 4500H	6/13/2013	6/15/2013		6/20/2013
		SRK-GD19_SESP13	E245.7	6/13/2013	6/15/2013	6/19/2013	6/19/2013
		SRK-GD19_SESP13	Ferrozine	6/13/2013	6/15/2013	6/15/2013	6/20/2013
		SRK-GD19_SESP13	JEM/SM4500N	6/13/2013	6/15/2013		7/1/2013
		SRK-GD19_SESP13	SM2310	6/13/2013	6/15/2013		6/20/2013
		SRK-GD19_SESP13	SM2320B	6/13/2013	6/15/2013		6/25/2013
		SRK-GD19_SESP13	SM2340B_CALC	6/13/2013	6/15/2013		7/2/2013
		SRK-GD19_SESP13	SM2540C	6/13/2013	6/15/2013		6/21/2013
		SRK-GD19_SESP13	SM2540D	6/13/2013	6/15/2013		6/21/2013
		SRK-GD19_SESP13	SM4110B	6/13/2013	6/15/2013		6/18/2013
		SRK-GD19_SESP13	SM4500P	6/13/2013	6/15/2013		6/18/2013
		SRK-GD19_SESP13	SM5310	6/13/2013	6/15/2013		7/1/2013
		SRK-GD19_SESP13	SW6010B	6/13/2013	6/15/2013		6/25/2013
		SRK-GD19_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/24/2013
		SRK-GD19_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/26/2013
		SRK-GD19_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/27/2013
		SRK-GD911_SESP13	ASTM D7237	6/13/2013	6/15/2013		6/28/2013
		SRK-GD911_SESP13	CSSS/APHA 4500H	6/13/2013	6/15/2013		6/20/2013
		SRK-GD911_SESP13	E245.7	6/13/2013	6/15/2013	6/19/2013	6/19/2013
		SRK-GD911_SESP13	Ferrozine	6/13/2013	6/15/2013	6/15/2013	6/20/2013
		SRK-GD911_SESP13	JEM/SM4500N	6/13/2013	6/15/2013		7/1/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1317509	SRK-GD911_SESP13	SM2310	6/13/2013	6/15/2013		6/20/2013
		SRK-GD911_SESP13	SM2320B	6/13/2013	6/15/2013		6/25/2013
		SRK-GD911_SESP13	SM2340B_CALC	6/13/2013	6/15/2013		7/2/2013
		SRK-GD911_SESP13	SM2540C	6/13/2013	6/15/2013		6/21/2013
		SRK-GD911_SESP13	SM2540D	6/13/2013	6/15/2013		6/21/2013
		SRK-GD911_SESP13	SM4110B	6/13/2013	6/15/2013		6/18/2013
		SRK-GD911_SESP13	SM4500P	6/13/2013	6/15/2013		6/18/2013
		SRK-GD911_SESP13	SM5310	6/13/2013	6/15/2013		7/1/2013
		SRK-GD911_SESP13	SW6010B	6/13/2013	6/15/2013		6/25/2013
		SRK-GD911_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/24/2013
		SRK-GD911_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/27/2013
		SRK-VD02_SESP13	ASTM D7237	6/13/2013	6/15/2013		6/28/2013
		SRK-VD02_SESP13	CSSS/APHA 4500H	6/13/2013	6/15/2013		6/20/2013
		SRK-VD02_SESP13	E245.7	6/13/2013	6/15/2013	6/19/2013	6/21/2013
		SRK-VD02_SESP13	Ferrozine	6/13/2013	6/15/2013	6/15/2013	6/20/2013
		SRK-VD02_SESP13	JEM/SM4500N	6/13/2013	6/15/2013		7/1/2013
		SRK-VD02_SESP13	SM2310	6/13/2013	6/15/2013		6/20/2013
		SRK-VD02_SESP13	SM2320B	6/13/2013	6/15/2013		6/25/2013
		SRK-VD02_SESP13	SM2340B_CALC	6/13/2013	6/15/2013		7/2/2013
		SRK-VD02_SESP13	SM2540C	6/13/2013	6/15/2013		6/21/2013
		SRK-VD02_SESP13	SM2540D	6/13/2013	6/15/2013		6/21/2013
		SRK-VD02_SESP13	SM4110B	6/13/2013	6/15/2013		6/18/2013
		SRK-VD02_SESP13	SM4500P	6/13/2013	6/15/2013		6/18/2013
		SRK-VD02_SESP13	SM5310	6/13/2013	6/15/2013		7/1/2013
		SRK-VD02_SESP13	SW6010B	6/13/2013	6/15/2013		6/25/2013
		SRK-VD02_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/24/2013
		SRK-VD02_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/27/2013
		SRK-VD03_SESP13	ASTM D7237	6/13/2013	6/15/2013		6/28/2013
		SRK-VD03_SESP13	CSSS/APHA 4500H	6/13/2013	6/15/2013		6/20/2013
		SRK-VD03_SESP13	E245.7	6/13/2013	6/15/2013	6/19/2013	6/19/2013
		SRK-VD03_SESP13	Ferrozine	6/13/2013	6/15/2013	6/15/2013	6/20/2013
		SRK-VD03_SESP13	JEM/SM4500N	6/13/2013	6/15/2013		7/1/2013
		SRK-VD03_SESP13	SM2310_HP	6/13/2013	6/15/2013		6/27/2013
		SRK-VD03_SESP13	SM2320B	6/13/2013	6/15/2013		6/25/2013
		SRK-VD03_SESP13	SM2340B_CALC	6/13/2013	6/15/2013		7/2/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1317509	SRK-VD03_SESP13	SM2540C	6/13/2013	6/15/2013		6/21/2013
		SRK-VD03_SESP13	SM2540D	6/13/2013	6/15/2013		6/21/2013
		SRK-VD03_SESP13	SM4110B	6/13/2013	6/15/2013		6/18/2013
		SRK-VD03_SESP13	SM4500P	6/13/2013	6/15/2013		6/18/2013
		SRK-VD03_SESP13	SM5310	6/13/2013	6/15/2013		7/1/2013
		SRK-VD03_SESP13	SW6010B	6/13/2013	6/15/2013		6/27/2013
		SRK-VD03_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/26/2013
		SRK-VD03_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/27/2013
		SRK-VD09_SESP13	E245.7	6/13/2013	6/15/2013	6/19/2013	6/19/2013
		SRK-VD09_SESP13	Ferrozine	6/13/2013	6/15/2013	6/15/2013	6/20/2013
		SRK-VD09_SESP13	JEM/SM4500N	6/13/2013	6/15/2013		7/1/2013
		SRK-VD09_SESP13	SM2310_HP	6/13/2013	6/15/2013		6/21/2013
		SRK-VD09_SESP13	SM2340B_CALC	6/13/2013	6/15/2013		7/2/2013
		SRK-VD09_SESP13	SM2540C	6/13/2013	6/15/2013		6/21/2013
		SRK-VD09_SESP13	SM2540D	6/13/2013	6/15/2013		6/21/2013
		SRK-VD09_SESP13	SM4110B	6/13/2013	6/15/2013		6/18/2013
		SRK-VD09_SESP13	SM4500P	6/13/2013	6/15/2013		6/18/2013
		SRK-VD09_SESP13	SM5310	6/13/2013	6/15/2013		7/1/2013
		SRK-VD09_SESP13	SW6010B	6/13/2013	6/15/2013		6/27/2013
		SRK-VD09_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	6/26/2013
		SRK-VD09_SESP13	SW6010B	6/13/2013	6/15/2013	6/19/2013	7/2/2013
	L1317530	CH-FD-66_SESP13	E245.7	6/14/2013	6/15/2013	6/19/2013	6/19/2013
		CH-FD-66_SESP13	Ferrozine	6/14/2013	6/15/2013	6/15/2013	6/21/2013
		CH-FD-66_SESP13	JEM/SM4500N	6/14/2013	6/15/2013		7/2/2013
		CH-FD-66_SESP13	SM2310_HP	6/14/2013	6/15/2013		6/21/2013
		CH-FD-66_SESP13	SM2340B_CALC	6/14/2013	6/15/2013		6/27/2013
		CH-FD-66_SESP13	SM2540C	6/14/2013	6/15/2013		6/21/2013
		CH-FD-66_SESP13	SM2540D	6/14/2013	6/15/2013		6/21/2013
		CH-FD-66_SESP13	SM4110B	6/14/2013	6/15/2013		6/18/2013
		CH-FD-66_SESP13	SM4500P	6/14/2013	6/15/2013		6/20/2013
		CH-FD-66_SESP13	SM5310	6/14/2013	6/15/2013		7/2/2013
		CH-FD-66_SESP13	SW6010B	6/14/2013	6/15/2013		6/27/2013
		CH-FD-66_SESP13	SW6010B	6/14/2013	6/15/2013	6/19/2013	6/26/2013
		CH-FD-66_SESP13	SW6010B	6/14/2013	6/15/2013	6/19/2013	6/27/2013
		SRK-GD13_SESP13	ASTM D7237	6/14/2013	6/15/2013		6/28/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1317530	SRK-GD13_SESP13	CSSS/APHA 4500H	6/14/2013	6/15/2013		6/20/2013
		SRK-GD13_SESP13	E245.7	6/14/2013	6/15/2013	6/19/2013	6/19/2013
		SRK-GD13_SESP13	Ferrozine	6/14/2013	6/15/2013	6/15/2013	6/21/2013
		SRK-GD13_SESP13	JEM/SM4500N	6/14/2013	6/15/2013		7/2/2013
		SRK-GD13_SESP13	SM2310	6/14/2013	6/15/2013		6/20/2013
		SRK-GD13_SESP13	SM2320B	6/14/2013	6/15/2013		6/25/2013
		SRK-GD13_SESP13	SM2340B_CALC	6/14/2013	6/15/2013		6/26/2013
		SRK-GD13_SESP13	SM2540C	6/14/2013	6/15/2013		6/21/2013
		SRK-GD13_SESP13	SM2540D	6/14/2013	6/15/2013		6/21/2013
		SRK-GD13_SESP13	SM4110B	6/14/2013	6/15/2013		6/18/2013
		SRK-GD13_SESP13	SM4500P	6/14/2013	6/15/2013		6/18/2013
		SRK-GD13_SESP13	SM5310	6/14/2013	6/15/2013		7/1/2013
		SRK-GD13_SESP13	SW6010B	6/14/2013	6/15/2013		6/25/2013
		SRK-GD13_SESP13	SW6010B	6/14/2013	6/15/2013	6/19/2013	6/25/2013
		SRK-GD13_SESP13	SW6010B	6/14/2013	6/15/2013	6/19/2013	6/26/2013
		SRK-VD01_SESP13	ASTM D7237	6/14/2013	6/15/2013		6/28/2013
		SRK-VD01_SESP13	E245.7	6/14/2013	6/15/2013	6/19/2013	6/19/2013
		SRK-VD01_SESP13	Ferrozine	6/14/2013	6/15/2013	6/15/2013	6/21/2013
		SRK-VD01_SESP13	JEM/SM4500N	6/14/2013	6/15/2013		7/2/2013
		SRK-VD01_SESP13	SM2310_HP	6/14/2013	6/15/2013		6/21/2013
		SRK-VD01_SESP13	SM2340B_CALC	6/14/2013	6/15/2013		6/26/2013
		SRK-VD01_SESP13	SM2540C	6/14/2013	6/15/2013		6/21/2013
		SRK-VD01_SESP13	SM2540D	6/14/2013	6/15/2013		6/21/2013
		SRK-VD01_SESP13	SM4110B	6/14/2013	6/15/2013		6/18/2013
		SRK-VD01_SESP13	SM4500P	6/14/2013	6/15/2013		6/18/2013
		SRK-VD01_SESP13	SM5310	6/14/2013	6/15/2013		7/1/2013
		SRK-VD01_SESP13	SW6010B	6/14/2013	6/15/2013		6/25/2013
		SRK-VD01_SESP13	SW6010B	6/14/2013	6/15/2013	6/19/2013	6/24/2013
		SRK-VD01_SESP13	SW6010B	6/14/2013	6/15/2013	6/19/2013	6/25/2013
		SRK-VD04_SESP13	ASTM D7237	6/14/2013	6/15/2013		6/28/2013
		SRK-VD04_SESP13	E245.7	6/14/2013	6/15/2013	6/19/2013	6/26/2013
		SRK-VD04_SESP13	Ferrozine	6/14/2013	6/15/2013	6/15/2013	6/21/2013
		SRK-VD04_SESP13	JEM/SM4500N	6/14/2013	6/15/2013		7/2/2013
		SRK-VD04_SESP13	SM2310_HP	6/14/2013	6/15/2013		6/21/2013
		SRK-VD04_SESP13	SM2340B_CALC	6/14/2013	6/15/2013		6/27/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1317530	SRK-VD04_SESP13	SM2540C	6/14/2013	6/15/2013		6/21/2013
		SRK-VD04_SESP13	SM2540D	6/14/2013	6/15/2013		6/21/2013
		SRK-VD04_SESP13	SM4110B	6/14/2013	6/15/2013		6/18/2013
		SRK-VD04_SESP13	SM4500P	6/14/2013	6/15/2013		6/20/2013
		SRK-VD04_SESP13	SM5310	6/14/2013	6/15/2013		7/2/2013
		SRK-VD04_SESP13	SW6010B	6/14/2013	6/15/2013		6/27/2013
		SRK-VD04_SESP13	SW6010B	6/14/2013	6/15/2013	6/19/2013	6/25/2013
		SRK-VD04_SESP13	SW6010B	6/14/2013	6/15/2013	6/19/2013	6/26/2013
		SRK-VD04_SESP13MS	ASTM D7237	6/14/2013			7/3/2013
		SRK-VD04_SESP13MS	E245.7	6/14/2013		6/26/2013	6/19/2013
		SRK-VD04_SESP13MS	Ferrozine	6/14/2013		6/21/2013	6/24/2013
		SRK-VD04_SESP13MS	JEM/SM4500N	6/14/2013			7/2/2013
		SRK-VD04_SESP13MS	SM4500P	6/14/2013			6/19/2013
		SRK-VD04_SESP13MS	SM5310	6/14/2013			7/5/2013
		SRK-VD04_SESP13MS	SW6010B	6/14/2013		6/25/2013	6/19/2013
		SRK-VD04_SESP13MS	SW6010B	6/14/2013		6/26/2013	6/19/2013
		SRK-VD05_SESP13	ASTM D7237	6/14/2013	6/15/2013		6/28/2013
		SRK-VD05_SESP13	E245.7	6/14/2013	6/15/2013	6/19/2013	6/20/2013
		SRK-VD05_SESP13	Ferrozine	6/14/2013	6/15/2013	6/15/2013	6/21/2013
		SRK-VD05_SESP13	JEM/SM4500N	6/14/2013	6/15/2013		7/2/2013
		SRK-VD05_SESP13	SM2310_HP	6/14/2013	6/15/2013		6/21/2013
		SRK-VD05_SESP13	SM2340B_CALC	6/14/2013	6/15/2013		6/27/2013
		SRK-VD05_SESP13	SM2540C	6/14/2013	6/15/2013		6/21/2013
		SRK-VD05_SESP13	SM2540D	6/14/2013	6/15/2013		6/21/2013
		SRK-VD05_SESP13	SM4110B	6/14/2013	6/15/2013		6/18/2013
		SRK-VD05_SESP13	SM4500P	6/14/2013	6/15/2013		6/18/2013
		SRK-VD05_SESP13	SM5310	6/14/2013	6/15/2013		7/2/2013
		SRK-VD05_SESP13	SW6010B	6/14/2013	6/15/2013		6/27/2013
		SRK-VD05_SESP13	SW6010B	6/14/2013	6/15/2013	6/19/2013	6/26/2013
		SRK-VD05_SESP13	SW6010B	6/14/2013	6/15/2013	6/19/2013	6/27/2013
		SRK-VD10_SESP13	ASTM D7237	6/14/2013	6/15/2013		6/28/2013
		SRK-VD10_SESP13	CSSS/APHA 4500H	6/14/2013	6/15/2013		6/20/2013
		SRK-VD10_SESP13	E245.7	6/14/2013	6/15/2013	6/19/2013	6/19/2013
		SRK-VD10_SESP13	Ferrozine	6/14/2013	6/15/2013	6/15/2013	6/21/2013
		SRK-VD10_SESP13	JEM/SM4500N	6/14/2013	6/15/2013		7/2/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1317530	SRK-VD10_SESP13	SM2310_HP	6/14/2013	6/15/2013		6/21/2013
		SRK-VD10_SESP13	SM2320B	6/14/2013	6/15/2013		6/25/2013
		SRK-VD10_SESP13	SM2340B_CALC	6/14/2013	6/15/2013		6/27/2013
		SRK-VD10_SESP13	SM2540C	6/14/2013	6/15/2013		6/21/2013
		SRK-VD10_SESP13	SM2540D	6/14/2013	6/15/2013		6/21/2013
		SRK-VD10_SESP13	SM4110B	6/14/2013	6/15/2013		6/18/2013
		SRK-VD10_SESP13	SM4500P	6/14/2013	6/15/2013		6/18/2013
		SRK-VD10_SESP13	SM5310	6/14/2013	6/15/2013		7/2/2013
		SRK-VD10_SESP13	SW6010B	6/14/2013	6/15/2013		6/27/2013
		SRK-VD10_SESP13	SW6010B	6/14/2013	6/15/2013	6/19/2013	6/25/2013
		SRK-VD10_SESP13	SW6010B	6/14/2013	6/15/2013	6/19/2013	6/26/2013
		SRK-VD12_SESP13	ASTM D7237	6/14/2013	6/15/2013		6/28/2013
		SRK-VD12_SESP13	E245.7	6/14/2013	6/15/2013	6/19/2013	6/19/2013
		SRK-VD12_SESP13	Ferrozine	6/14/2013	6/15/2013	6/15/2013	6/21/2013
		SRK-VD12_SESP13	JEM/SM4500N	6/14/2013	6/15/2013		7/2/2013
		SRK-VD12_SESP13	SM2310_HP	6/14/2013	6/15/2013		6/21/2013
		SRK-VD12_SESP13	SM2340B_CALC	6/14/2013	6/15/2013		6/27/2013
		SRK-VD12_SESP13	SM2540C	6/14/2013	6/15/2013		6/21/2013
		SRK-VD12_SESP13	SM2540D	6/14/2013	6/15/2013		6/21/2013
		SRK-VD12_SESP13	SM4110B	6/14/2013	6/15/2013		6/18/2013
		SRK-VD12_SESP13	SM4500P	6/14/2013	6/15/2013		6/18/2013
		SRK-VD12_SESP13	SM5310	6/14/2013	6/15/2013		7/1/2013
		SRK-VD12_SESP13	SW6010B	6/14/2013	6/15/2013		6/27/2013
		SRK-VD12_SESP13	SW6010B	6/14/2013	6/15/2013	6/19/2013	6/25/2013
		SRK-VD12_SESP13	SW6010B	6/14/2013	6/15/2013	6/19/2013	6/26/2013
		SRK-VD905_SESP13	ASTM D7237	6/14/2013	6/15/2013		6/28/2013
		SRK-VD905_SESP13	E245.7	6/14/2013	6/15/2013	6/19/2013	6/20/2013
		SRK-VD905_SESP13	Ferrozine	6/14/2013	6/15/2013	6/15/2013	6/21/2013
		SRK-VD905_SESP13	JEM/SM4500N	6/14/2013	6/15/2013		7/2/2013
		SRK-VD905_SESP13	SM2310_HP	6/14/2013	6/15/2013		6/21/2013
		SRK-VD905_SESP13	SM2340B_CALC	6/14/2013	6/15/2013		6/28/2013
		SRK-VD905_SESP13	SM2540C	6/14/2013	6/15/2013		6/21/2013
		SRK-VD905_SESP13	SM2540D	6/14/2013	6/15/2013		6/21/2013
		SRK-VD905_SESP13	SM4110B	6/14/2013	6/15/2013		6/18/2013
		SRK-VD905_SESP13	SM4500P	6/14/2013	6/15/2013		6/18/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1317530	SRK-VD905_SESP13	SM5310	6/14/2013	6/15/2013		7/2/2013
		SRK-VD905_SESP13	SW6010B	6/14/2013	6/15/2013		6/27/2013
		SRK-VD905_SESP13	SW6010B	6/14/2013	6/15/2013	6/19/2013	6/26/2013
		SRK-VD905_SESP13	SW6010B	6/14/2013	6/15/2013	6/19/2013	6/28/2013
	L1327471	CH-RCTA-07_SESP13	ASTM D7237	7/3/2013	7/4/2013		7/17/2013
		CH-RCTA-07_SESP13	CSSS/APHA 4500H	7/3/2013	7/4/2013		7/8/2013
		CH-RCTA-07_SESP13	E245.7	7/3/2013	7/4/2013	7/11/2013	7/12/2013
		CH-RCTA-07_SESP13	Ferrozine	7/3/2013	7/4/2013	7/4/2013	7/8/2013
		CH-RCTA-07_SESP13	JEM/SM4500N	7/3/2013	7/4/2013		7/18/2013
		CH-RCTA-07_SESP13	SM2310_HP	7/3/2013	7/4/2013		7/16/2013
		CH-RCTA-07_SESP13	SM2320B	7/3/2013	7/4/2013		7/6/2013
		CH-RCTA-07_SESP13	SM2340B_CALC	7/3/2013	7/4/2013		7/16/2013
		CH-RCTA-07_SESP13	SM2540C	7/3/2013	7/4/2013		7/9/2013
		CH-RCTA-07_SESP13	SM2540D	7/3/2013	7/4/2013		7/6/2013
		CH-RCTA-07_SESP13	SM4110B	7/3/2013	7/4/2013		7/5/2013
		CH-RCTA-07_SESP13	SM4500P	7/3/2013	7/4/2013		7/5/2013
		CH-RCTA-07_SESP13	SM5310	7/3/2013	7/4/2013		7/16/2013
		CH-RCTA-07_SESP13	SW6010B	7/3/2013	7/4/2013		7/12/2013
		CH-RCTA-07_SESP13	SW6010B	7/3/2013	7/4/2013	7/11/2013	7/12/2013
		CH-RCTA-07_SESP13	SW6010B	7/3/2013	7/4/2013	7/11/2013	7/15/2013
		SRK-FD49_SESP13	ASTM D7237	7/3/2013	7/4/2013		7/17/2013
		SRK-FD49_SESP13	CSSS/APHA 4500H	7/3/2013	7/4/2013		7/8/2013
		SRK-FD49_SESP13	E245.7	7/3/2013	7/4/2013	7/11/2013	7/12/2013
		SRK-FD49_SESP13	Ferrozine	7/3/2013	7/4/2013	7/4/2013	7/8/2013
		SRK-FD49_SESP13	JEM/SM4500N	7/3/2013	7/4/2013		7/18/2013
		SRK-FD49_SESP13	SM2310_HP	7/3/2013	7/4/2013		7/11/2013
		SRK-FD49_SESP13	SM2320B	7/3/2013	7/4/2013		7/6/2013
		SRK-FD49_SESP13	SM2340B_CALC	7/3/2013	7/4/2013		7/16/2013
		SRK-FD49_SESP13	SM2540C	7/3/2013	7/4/2013		7/9/2013
		SRK-FD49_SESP13	SM2540D	7/3/2013	7/4/2013		7/6/2013
		SRK-FD49_SESP13	SM4110B	7/3/2013	7/4/2013		7/5/2013
		SRK-FD49_SESP13	SM4500P	7/3/2013	7/4/2013		7/5/2013
		SRK-FD49_SESP13	SM5310	7/3/2013	7/4/2013		7/16/2013
		SRK-FD49_SESP13	SW6010B	7/3/2013	7/4/2013		7/12/2013
		SRK-FD49_SESP13	SW6010B	7/3/2013	7/4/2013	7/11/2013	7/12/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1327471	SRK-FD49_SESP13	SW6010B	7/3/2013	7/4/2013	7/11/2013	7/15/2013
		SRK-FD49_SESP13MS	ASTM D7237	7/3/2013			7/18/2013
		SRK-FD49_SESP13MS	SM4500P	7/3/2013			7/5/2013
	L1362505	CH-MILL-03_SEFL13	ASTM D7237	9/11/2013	9/13/2013		9/23/2013
		CH-MILL-03_SEFL13	CSSS/APHA 4500H	9/11/2013	9/13/2013		9/16/2013
		CH-MILL-03_SEFL13	E245.7	9/11/2013	9/13/2013	9/14/2013	9/17/2013
		CH-MILL-03_SEFL13	Ferrozine	9/11/2013	9/13/2013	9/18/2013	9/19/2013
		CH-MILL-03_SEFL13	JEM/SM4500N	9/11/2013	9/13/2013		9/24/2013
		CH-MILL-03_SEFL13	SM2310_HP	9/11/2013	9/13/2013		9/27/2013
		CH-MILL-03_SEFL13	SM2320B	9/11/2013	9/13/2013		9/14/2013
		CH-MILL-03_SEFL13	SM2340B_CALC	9/11/2013	9/13/2013		9/26/2013
		CH-MILL-03_SEFL13	SM2540C	9/11/2013	9/13/2013		9/16/2013
		CH-MILL-03_SEFL13	SM2540D	9/11/2013	9/13/2013		9/16/2013
		CH-MILL-03_SEFL13	SM4110B	9/11/2013	9/13/2013		9/13/2013
		CH-MILL-03_SEFL13	SM4500P	9/11/2013	9/13/2013		9/14/2013
		CH-MILL-03_SEFL13	SM5310	9/11/2013	9/13/2013		9/16/2013
		CH-MILL-03_SEFL13	SW6010B	9/11/2013	9/13/2013		9/26/2013
		CH-MILL-03_SEFL13	SW6010B	9/11/2013	9/13/2013	9/14/2013	9/24/2013
		CH-MILL-03_SEFL13	SW6010B	9/11/2013	9/13/2013	9/14/2013	9/25/2013
		CH-MILL-03_SEFL13MS	ASTM D7237	9/11/2013			9/24/2013
		CH-MILL-03_SEFL13MS	SW6010B	9/11/2013		9/24/2013	9/14/2013
		CH-MILL-03_SEFL13MS	SW6010B	9/11/2013		9/25/2013	9/14/2013
		SRK-FD01_SEFL13	ASTM D7237	9/11/2013	9/13/2013		9/23/2013
		SRK-FD01_SEFL13	CSSS/APHA 4500H	9/11/2013	9/13/2013		9/16/2013
		SRK-FD01_SEFL13	E245.7	9/11/2013	9/13/2013	9/14/2013	9/17/2013
		SRK-FD01_SEFL13	Ferrozine	9/11/2013	9/13/2013	9/17/2013	9/18/2013
		SRK-FD01_SEFL13	JEM/SM4500N	9/11/2013	9/13/2013		9/24/2013
		SRK-FD01_SEFL13	SM2310	9/11/2013	9/13/2013		9/16/2013
		SRK-FD01_SEFL13	SM2320B	9/11/2013	9/13/2013		9/14/2013
		SRK-FD01_SEFL13	SM2340B_CALC	9/11/2013	9/13/2013		9/25/2013
		SRK-FD01_SEFL13	SM2540C	9/11/2013	9/13/2013		9/16/2013
		SRK-FD01_SEFL13	SM2540D	9/11/2013	9/13/2013		9/16/2013
		SRK-FD01_SEFL13	SM4110B	9/11/2013	9/13/2013		9/13/2013
		SRK-FD01_SEFL13	SM4500P	9/11/2013	9/13/2013		9/14/2013
		SRK-FD01_SEFL13	SM5310	9/11/2013	9/13/2013		9/16/2013

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Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1362505	SRK-FD01_SEFL13	SW6010B	9/11/2013	9/13/2013		9/24/2013
		SRK-FD01_SEFL13	SW6010B	9/11/2013	9/13/2013	9/14/2013	9/22/2013
		SRK-FD01_SEFL13	SW6010B	9/11/2013	9/13/2013	9/14/2013	9/24/2013
		SRK-FD01_SEFL13MS	SM4500P	9/11/2013			9/14/2013
		SRK-FD12_SEFL13	ASTM D7237	9/12/2013	9/13/2013		9/23/2013
		SRK-FD12_SEFL13	CSSS/APHA 4500H	9/12/2013	9/13/2013		9/16/2013
		SRK-FD12_SEFL13	E245.7	9/12/2013	9/13/2013	9/14/2013	9/17/2013
		SRK-FD12_SEFL13	Ferrozine	9/12/2013	9/13/2013	9/18/2013	9/19/2013
		SRK-FD12_SEFL13	JEM/SM4500N	9/12/2013	9/13/2013		9/24/2013
		SRK-FD12_SEFL13	SM2310_HP	9/12/2013	9/13/2013		9/27/2013
		SRK-FD12_SEFL13	SM2320B	9/12/2013	9/13/2013		9/14/2013
		SRK-FD12_SEFL13	SM2340B_CALC	9/12/2013	9/13/2013		9/26/2013
		SRK-FD12_SEFL13	SM2540C	9/12/2013	9/13/2013		9/16/2013
		SRK-FD12_SEFL13	SM2540D	9/12/2013	9/13/2013		9/16/2013
		SRK-FD12_SEFL13	SM4110B	9/12/2013	9/13/2013		9/13/2013
		SRK-FD12_SEFL13	SM4500P	9/12/2013	9/13/2013		9/14/2013
		SRK-FD12_SEFL13	SM5310	9/12/2013	9/13/2013		9/16/2013
		SRK-FD12_SEFL13	SW6010B	9/12/2013	9/13/2013		9/26/2013
		SRK-FD12_SEFL13	SW6010B	9/12/2013	9/13/2013	9/14/2013	9/24/2013
		SRK-FD12_SEFL13	SW6010B	9/12/2013	9/13/2013	9/14/2013	9/25/2013
		SRK-FD13_SEFL13	E245.7	9/12/2013	9/13/2013	9/14/2013	9/17/2013
		SRK-FD13_SEFL13	Ferrozine	9/12/2013	9/13/2013	9/18/2013	9/19/2013
		SRK-FD13_SEFL13	JEM/SM4500N	9/12/2013	9/13/2013		9/24/2013
		SRK-FD13_SEFL13	SM2310_HP	9/12/2013	9/13/2013		9/27/2013
		SRK-FD13_SEFL13	SM2340B_CALC	9/12/2013	9/13/2013		9/26/2013
		SRK-FD13_SEFL13	SM2540C	9/12/2013	9/13/2013		9/16/2013
		SRK-FD13_SEFL13	SM2540D	9/12/2013	9/13/2013		9/16/2013
		SRK-FD13_SEFL13	SM4110B	9/12/2013	9/13/2013		9/13/2013
		SRK-FD13_SEFL13	SM4500P	9/12/2013	9/13/2013		9/17/2013
		SRK-FD13_SEFL13	SM5310	9/12/2013	9/13/2013		9/16/2013
		SRK-FD13_SEFL13	SW6010B	9/12/2013	9/13/2013		9/26/2013
		SRK-FD13_SEFL13	SW6010B	9/12/2013	9/13/2013	9/14/2013	9/24/2013
		SRK-FD13_SEFL13	SW6010B	9/12/2013	9/13/2013	9/14/2013	9/25/2013
		SRK-FD14_SEFL13	CSSS/APHA 4500H	9/11/2013	9/13/2013		9/16/2013
		SRK-FD14_SEFL13	E245.7	9/11/2013	9/13/2013	9/14/2013	9/17/2013

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Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1362505	SRK-FD14_SEFL13	Ferrozine	9/11/2013	9/13/2013	9/17/2013	9/18/2013
		SRK-FD14_SEFL13	JEM/SM4500N	9/11/2013	9/13/2013		9/24/2013
		SRK-FD14_SEFL13	SM2310	9/11/2013	9/13/2013		9/16/2013
		SRK-FD14_SEFL13	SM2320B	9/11/2013	9/13/2013		9/14/2013
		SRK-FD14_SEFL13	SM2340B_CALC	9/11/2013	9/13/2013		9/24/2013
		SRK-FD14_SEFL13	SM2540C	9/11/2013	9/13/2013		9/16/2013
		SRK-FD14_SEFL13	SM2540D	9/11/2013	9/13/2013		9/16/2013
		SRK-FD14_SEFL13	SM4110B	9/11/2013	9/13/2013		9/13/2013
		SRK-FD14_SEFL13	SM4500P	9/11/2013	9/13/2013		9/14/2013
		SRK-FD14_SEFL13	SM5310	9/11/2013	9/13/2013		9/16/2013
		SRK-FD14_SEFL13	SW6010B	9/11/2013	9/13/2013		9/24/2013
		SRK-FD14_SEFL13	SW6010B	9/11/2013	9/13/2013	9/14/2013	9/22/2013
		SRK-FD14_SEFL13	SW6010B	9/11/2013	9/13/2013	9/14/2013	9/23/2013
		SRK-FD14_SEFL13MS	Ferrozine	9/11/2013		9/18/2013	9/19/2013
		SRK-FD14_SEFL13MS	JEM/SM4500N	9/11/2013			9/24/2013
		SRK-FD26_SEFL13	CSSS/APHA 4500H	9/11/2013	9/13/2013		9/16/2013
		SRK-FD26_SEFL13	E245.7	9/11/2013	9/13/2013	9/14/2013	9/17/2013
		SRK-FD26_SEFL13	Ferrozine	9/11/2013	9/13/2013	9/17/2013	9/18/2013
		SRK-FD26_SEFL13	JEM/SM4500N	9/11/2013	9/13/2013		9/24/2013
		SRK-FD26_SEFL13	SM2310	9/11/2013	9/13/2013		9/16/2013
		SRK-FD26_SEFL13	SM2320B	9/11/2013	9/13/2013		9/14/2013
		SRK-FD26_SEFL13	SM2340B_CALC	9/11/2013	9/13/2013		9/24/2013
		SRK-FD26_SEFL13	SM2540C	9/11/2013	9/13/2013		9/16/2013
		SRK-FD26_SEFL13	SM2540D	9/11/2013	9/13/2013		9/16/2013
		SRK-FD26_SEFL13	SM4110B	9/11/2013	9/13/2013		9/13/2013
		SRK-FD26_SEFL13	SM4500P	9/11/2013	9/13/2013		9/14/2013
		SRK-FD26_SEFL13	SM5310	9/11/2013	9/13/2013		9/16/2013
		SRK-FD26_SEFL13	SW6010B	9/11/2013	9/13/2013		9/24/2013
		SRK-FD26_SEFL13	SW6010B	9/11/2013	9/13/2013	9/14/2013	9/22/2013
		SRK-FD26_SEFL13	SW6010B	9/11/2013	9/13/2013	9/14/2013	9/23/2013
		SRK-FD31_SEFL13	ASTM D7237	9/12/2013	9/13/2013		9/23/2013
		SRK-FD31_SEFL13	CSSS/APHA 4500H	9/12/2013	9/13/2013		9/16/2013
		SRK-FD31_SEFL13	E245.7	9/12/2013	9/13/2013	9/14/2013	9/17/2013
		SRK-FD31_SEFL13	Ferrozine	9/12/2013	9/13/2013	10/2/2013	10/2/2013
		SRK-FD31_SEFL13	JEM/SM4500N	9/12/2013	9/13/2013		9/24/2013

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Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1362505	SRK-FD31_SEFL13	SM2310_HP	9/12/2013	9/13/2013		9/27/2013
		SRK-FD31_SEFL13	SM2320B	9/12/2013	9/13/2013		9/14/2013
		SRK-FD31_SEFL13	SM2340B_CALC	9/12/2013	9/13/2013		9/26/2013
		SRK-FD31_SEFL13	SM2540C	9/12/2013	9/13/2013		9/16/2013
		SRK-FD31_SEFL13	SM2540D	9/12/2013	9/13/2013		9/16/2013
		SRK-FD31_SEFL13	SM4110B	9/12/2013	9/13/2013		9/13/2013
		SRK-FD31_SEFL13	SM4500P	9/12/2013	9/13/2013		9/14/2013
		SRK-FD31_SEFL13	SM5310	9/12/2013	9/13/2013		9/16/2013
		SRK-FD31_SEFL13	SW6010B	9/12/2013	9/13/2013		9/26/2013
		SRK-FD31_SEFL13	SW6010B	9/12/2013	9/13/2013	9/14/2013	9/24/2013
		SRK-FD31_SEFL13	SW6010B	9/12/2013	9/13/2013	9/14/2013	9/25/2013
		SRK-FD31_SEFL13MS	SM5310	9/12/2013			9/16/2013
		SRK-FD37_SEFL13	ASTM D7237	9/11/2013	9/13/2013		9/23/2013
		SRK-FD37_SEFL13	E245.7	9/11/2013	9/13/2013	9/14/2013	9/18/2013
		SRK-FD37_SEFL13	Ferrozine	9/11/2013	9/13/2013	9/18/2013	9/19/2013
		SRK-FD37_SEFL13	JEM/SM4500N	9/11/2013	9/13/2013		9/24/2013
		SRK-FD37_SEFL13	SM2310_HP	9/11/2013	9/13/2013		9/27/2013
		SRK-FD37_SEFL13	SM2340B_CALC	9/11/2013	9/13/2013		9/26/2013
		SRK-FD37_SEFL13	SM2540C	9/11/2013	9/13/2013		9/16/2013
		SRK-FD37_SEFL13	SM2540D	9/11/2013	9/13/2013		9/16/2013
		SRK-FD37_SEFL13	SM4110B	9/11/2013	9/13/2013		9/13/2013
		SRK-FD37_SEFL13	SM4500P	9/11/2013	9/13/2013		9/17/2013
		SRK-FD37_SEFL13	SM5310	9/11/2013	9/13/2013		9/16/2013
		SRK-FD37_SEFL13	SW6010B	9/11/2013	9/13/2013		9/26/2013
		SRK-FD37_SEFL13	SW6010B	9/11/2013	9/13/2013	9/14/2013	9/24/2013
		SRK-FD37_SEFL13	SW6010B	9/11/2013	9/13/2013	9/14/2013	9/25/2013
		SRK-FD37_SEFL13MS	E245.7	9/11/2013		9/18/2013	9/16/2013
	L1363247	A30_SEFL13	E245.7	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		A30_SEFL13	Ferrozine	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		A30_SEFL13	JEM/SM4500N	9/13/2013	9/16/2013		9/25/2013
		A30_SEFL13	SM2310	9/13/2013	9/16/2013		9/19/2013
		A30_SEFL13	SM2340B_CALC	9/13/2013	9/16/2013		9/27/2013
		A30_SEFL13	SM2540C	9/13/2013	9/16/2013		9/18/2013
		A30_SEFL13	SM2540D	9/13/2013	9/16/2013		9/18/2013
		A30_SEFL13	SM4110B	9/13/2013	9/16/2013		9/16/2013

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Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1363247	A30_SEFL13	SM4500P	9/13/2013	9/16/2013		9/17/2013
		A30_SEFL13	SM5310	9/13/2013	9/16/2013		9/18/2013
		A30_SEFL13	SW6010B	9/13/2013	9/16/2013		9/27/2013
		A30_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/26/2013
		A30_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/27/2013
		CH-FP-34_SEFL13	CSSS/APHA 4500H	9/13/2013	9/16/2013		9/19/2013
		CH-FP-34_SEFL13	E245.7	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		CH-FP-34_SEFL13	Ferrozine	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		CH-FP-34_SEFL13	JEM/SM4500N	9/13/2013	9/16/2013		9/25/2013
		CH-FP-34_SEFL13	SM2310	9/13/2013	9/16/2013		9/19/2013
		CH-FP-34_SEFL13	SM2320B	9/13/2013	9/16/2013		9/18/2013
		CH-FP-34_SEFL13	SM2340B_CALC	9/13/2013	9/16/2013		9/30/2013
		CH-FP-34_SEFL13	SM2540C	9/13/2013	9/16/2013		9/18/2013
		CH-FP-34_SEFL13	SM2540D	9/13/2013	9/16/2013		9/18/2013
		CH-FP-34_SEFL13	SM4110B	9/13/2013	9/16/2013		9/16/2013
		CH-FP-34_SEFL13	SM4500P	9/13/2013	9/16/2013		9/17/2013
		CH-FP-34_SEFL13	SM5310	9/13/2013	9/16/2013		9/18/2013
		CH-FP-34_SEFL13	SW6010B	9/13/2013	9/16/2013		9/27/2013
		CH-FP-34_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/26/2013
		CH-FP-34_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/27/2013
		CH-FP-34_SEFL13MS	SW6010B	9/13/2013		9/26/2013	9/19/2013
		CH-FP-34_SEFL13MS	SW6010B	9/13/2013		9/27/2013	9/19/2013
		CH-FP-38_SEFL13	CSSS/APHA 4500H	9/12/2013	9/16/2013		9/19/2013
		CH-FP-38_SEFL13	E245.7	9/12/2013	9/16/2013	9/18/2013	9/19/2013
		CH-FP-38_SEFL13	Ferrozine	9/12/2013	9/16/2013	9/18/2013	9/19/2013
		CH-FP-38_SEFL13	JEM/SM4500N	9/12/2013	9/16/2013		9/25/2013
		CH-FP-38_SEFL13	SM2310	9/12/2013	9/16/2013		9/19/2013
		CH-FP-38_SEFL13	SM2320B	9/12/2013	9/16/2013		9/18/2013
		CH-FP-38_SEFL13	SM2340B_CALC	9/12/2013	9/16/2013		9/27/2013
		CH-FP-38_SEFL13	SM2540C	9/12/2013	9/16/2013		9/18/2013
		CH-FP-38_SEFL13	SM2540D	9/12/2013	9/16/2013		9/18/2013
		CH-FP-38_SEFL13	SM4110B	9/12/2013	9/16/2013		9/16/2013
		CH-FP-38_SEFL13	SM4500P	9/12/2013	9/16/2013		9/17/2013
		CH-FP-38_SEFL13	SM5310	9/12/2013	9/16/2013		9/18/2013
		CH-FP-38_SEFL13	SW6010B	9/12/2013	9/16/2013		9/27/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1363247	CH-FP-38_SEFL13	SW6010B	9/12/2013	9/16/2013	9/19/2013	9/26/2013
		CH-FP-38_SEFL13	SW6010B	9/12/2013	9/16/2013	9/19/2013	9/27/2013
		CH-FP-38_SEFL13MS	JEM/SM4500N	9/12/2013			9/25/2013
		CH-FP-38_SEFL13MS	SM4500P	9/12/2013			9/18/2013
		CH-FP-39_SEFL13	CSSS/APHA 4500H	9/13/2013	9/16/2013		9/19/2013
		CH-FP-39_SEFL13	E245.7	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		CH-FP-39_SEFL13	Ferrozine	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		CH-FP-39_SEFL13	JEM/SM4500N	9/13/2013	9/16/2013		9/25/2013
		CH-FP-39_SEFL13	SM2310	9/13/2013	9/16/2013		9/19/2013
		CH-FP-39_SEFL13	SM2320B	9/13/2013	9/16/2013		9/18/2013
		CH-FP-39_SEFL13	SM2340B_CALC	9/13/2013	9/16/2013		9/27/2013
		CH-FP-39_SEFL13	SM2540C	9/13/2013	9/16/2013		9/18/2013
		CH-FP-39_SEFL13	SM2540D	9/13/2013	9/16/2013		9/18/2013
		CH-FP-39_SEFL13	SM4110B	9/13/2013	9/16/2013		9/16/2013
		CH-FP-39_SEFL13	SM4500P	9/13/2013	9/16/2013		9/17/2013
		CH-FP-39_SEFL13	SM5310	9/13/2013	9/16/2013		9/18/2013
		CH-FP-39_SEFL13	SW6010B	9/13/2013	9/16/2013		9/27/2013
		CH-FP-39_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/26/2013
		CH-FP-39_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/27/2013
		CH-FP-42_SEFL13	CSSS/APHA 4500H	9/13/2013	9/16/2013		9/19/2013
		CH-FP-42_SEFL13	E245.7	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		CH-FP-42_SEFL13	Ferrozine	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		CH-FP-42_SEFL13	JEM/SM4500N	9/13/2013	9/16/2013		9/25/2013
		CH-FP-42_SEFL13	SM2310	9/13/2013	9/16/2013		9/19/2013
		CH-FP-42_SEFL13	SM2320B	9/13/2013	9/16/2013		9/18/2013
		CH-FP-42_SEFL13	SM2340B_CALC	9/13/2013	9/16/2013		10/1/2013
		CH-FP-42_SEFL13	SM2540C	9/13/2013	9/16/2013		9/18/2013
		CH-FP-42_SEFL13	SM2540D	9/13/2013	9/16/2013		9/18/2013
		CH-FP-42_SEFL13	SM4110B	9/13/2013	9/16/2013		9/16/2013
		CH-FP-42_SEFL13	SM4500P	9/13/2013	9/16/2013		9/17/2013
		CH-FP-42_SEFL13	SM5310	9/13/2013	9/16/2013		9/18/2013
		CH-FP-42_SEFL13	SW6010B	9/13/2013	9/16/2013		9/27/2013
		CH-FP-42_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/26/2013
		CH-FP-42_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/27/2013
		CH-FP-42_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/30/2013

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Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1363247	CH-FP-934_SEFL13	CSSS/APHA 4500H	9/13/2013	9/16/2013		9/19/2013
		CH-FP-934_SEFL13	E245.7	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		CH-FP-934_SEFL13	Ferrozine	9/13/2013	9/16/2013	10/2/2013	10/2/2013
		CH-FP-934_SEFL13	JEM/SM4500N	9/13/2013	9/16/2013		9/25/2013
		CH-FP-934_SEFL13	SM2310	9/13/2013	9/16/2013		9/19/2013
		CH-FP-934_SEFL13	SM2320B	9/13/2013	9/16/2013		9/18/2013
		CH-FP-934_SEFL13	SM2340B_CALC	9/13/2013	9/16/2013		9/27/2013
		CH-FP-934_SEFL13	SM2540C	9/13/2013	9/16/2013		9/18/2013
		CH-FP-934_SEFL13	SM2540D	9/13/2013	9/16/2013		9/18/2013
		CH-FP-934_SEFL13	SM4110B	9/13/2013	9/16/2013		9/16/2013
		CH-FP-934_SEFL13	SM4500P	9/13/2013	9/16/2013		9/17/2013
		CH-FP-934_SEFL13	SM5310	9/13/2013	9/16/2013		9/18/2013
		CH-FP-934_SEFL13	SW6010B	9/13/2013	9/16/2013		9/27/2013
		CH-FP-934_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/26/2013
		CH-FP-934_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/27/2013
		CH-GP-19_SEFL13	CSSS/APHA 4500H	9/14/2013	9/16/2013		9/19/2013
		CH-GP-19_SEFL13	E245.7	9/14/2013	9/16/2013	9/18/2013	9/19/2013
		CH-GP-19_SEFL13	Ferrozine	9/14/2013	9/16/2013	9/20/2013	9/20/2013
		CH-GP-19_SEFL13	JEM/SM4500N	9/14/2013	9/16/2013		9/26/2013
		CH-GP-19_SEFL13	SM2310	9/14/2013	9/16/2013		9/19/2013
		CH-GP-19_SEFL13	SM2320B	9/14/2013	9/16/2013		9/20/2013
		CH-GP-19_SEFL13	SM2340B_CALC	9/14/2013	9/16/2013		9/27/2013
		CH-GP-19_SEFL13	SM2540C	9/14/2013	9/16/2013		9/18/2013
		CH-GP-19_SEFL13	SM2540D	9/14/2013	9/16/2013		9/18/2013
		CH-GP-19_SEFL13	SM4110B	9/14/2013	9/16/2013		9/16/2013
		CH-GP-19_SEFL13	SM4500P	9/14/2013	9/16/2013		9/17/2013
		CH-GP-19_SEFL13	SM5310	9/14/2013	9/16/2013		9/18/2013
		CH-GP-19_SEFL13	SW6010B	9/14/2013	9/16/2013		9/27/2013
		CH-GP-19_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/26/2013
		CH-GP-19_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/27/2013
		CH-GP-19_SEFL13MS	SM5310	9/14/2013			9/18/2013
		CH-GP-27_SEFL13	CSSS/APHA 4500H	9/14/2013	9/16/2013		9/18/2013
		CH-GP-27_SEFL13	E245.7	9/14/2013	9/16/2013	9/18/2013	9/19/2013
		CH-GP-27_SEFL13	Ferrozine	9/14/2013	9/16/2013	9/20/2013	9/20/2013
		CH-GP-27_SEFL13	JEM/SM4500N	9/14/2013	9/16/2013		9/26/2013

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Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1363247	CH-GP-27_SEFL13	SM2320B	9/14/2013	9/16/2013		9/20/2013
		CH-GP-27_SEFL13	SM2340B_CALC	9/14/2013	9/16/2013		10/1/2013
		CH-GP-27_SEFL13	SM2540C	9/14/2013	9/16/2013		9/18/2013
		CH-GP-27_SEFL13	SM2540D	9/14/2013	9/16/2013		9/18/2013
		CH-GP-27_SEFL13	SM4110B	9/14/2013	9/16/2013		9/16/2013
		CH-GP-27_SEFL13	SM4500P	9/14/2013	9/16/2013		9/17/2013
		CH-GP-27_SEFL13	SM5310	9/14/2013	9/16/2013		9/18/2013
		CH-GP-27_SEFL13	SW6010B	9/14/2013	9/16/2013		9/27/2013
		CH-GP-27_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/26/2013
		CH-GP-27_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/30/2013
		CH-GP-27_SEFL13MS	JEM/SM4500N	9/14/2013			9/26/2013
		CH-GP-919_SEFL13	CSSS/APHA 4500H	9/14/2013	9/16/2013		9/18/2013
		CH-GP-919_SEFL13	E245.7	9/14/2013	9/16/2013	9/18/2013	9/19/2013
		CH-GP-919_SEFL13	Ferrozine	9/14/2013	9/16/2013	9/20/2013	9/20/2013
		CH-GP-919_SEFL13	JEM/SM4500N	9/14/2013	9/16/2013		9/26/2013
		CH-GP-919_SEFL13	SM2320B	9/14/2013	9/16/2013		9/20/2013
		CH-GP-919_SEFL13	SM2340B_CALC	9/14/2013	9/16/2013		9/27/2013
		CH-GP-919_SEFL13	SM2540C	9/14/2013	9/16/2013		9/18/2013
		CH-GP-919_SEFL13	SM2540D	9/14/2013	9/16/2013		9/18/2013
		CH-GP-919_SEFL13	SM4110B	9/14/2013	9/16/2013		9/16/2013
		CH-GP-919_SEFL13	SM4500P	9/14/2013	9/16/2013		9/17/2013
		CH-GP-919_SEFL13	SM5310	9/14/2013	9/16/2013		9/18/2013
		CH-GP-919_SEFL13	SW6010B	9/14/2013	9/16/2013		9/27/2013
		CH-GP-919_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/26/2013
		CH-GP-919_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/27/2013
		CH-RCTA-03_SEFL13	ASTM D7237	9/12/2013	9/16/2013		9/23/2013
		CH-RCTA-03_SEFL13	CSSS/APHA 4500H	9/12/2013	9/16/2013		9/19/2013
		CH-RCTA-03_SEFL13	E245.7	9/12/2013	9/16/2013	9/18/2013	9/19/2013
		CH-RCTA-03_SEFL13	Ferrozine	9/12/2013	9/16/2013	9/18/2013	9/19/2013
		CH-RCTA-03_SEFL13	JEM/SM4500N	9/12/2013	9/16/2013		9/25/2013
		CH-RCTA-03_SEFL13	SM2310_HP	9/12/2013	9/16/2013		9/30/2013
		CH-RCTA-03_SEFL13	SM2320B	9/12/2013	9/16/2013		9/18/2013
		CH-RCTA-03_SEFL13	SM2340B_CALC	9/12/2013	9/16/2013		9/27/2013
		CH-RCTA-03_SEFL13	SM2540C	9/12/2013	9/16/2013		9/18/2013
		CH-RCTA-03_SEFL13	SM2540D	9/12/2013	9/16/2013		9/18/2013

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Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1363247	CH-RCTA-03_SEFL13	SM4110B	9/12/2013	9/16/2013		9/16/2013
		CH-RCTA-03_SEFL13	SM4500P	9/12/2013	9/16/2013		9/17/2013
		CH-RCTA-03_SEFL13	SM5310	9/12/2013	9/16/2013		9/18/2013
		CH-RCTA-03_SEFL13	SW6010B	9/12/2013	9/16/2013		9/27/2013
		CH-RCTA-03_SEFL13	SW6010B	9/12/2013	9/16/2013	9/19/2013	9/26/2013
		CH-RCTA-03_SEFL13	SW6010B	9/12/2013	9/16/2013	9/19/2013	9/27/2013
		CH-RCTA-05_SEFL13	ASTM D7237	9/12/2013	9/16/2013		9/23/2013
		CH-RCTA-05_SEFL13	CSSS/APHA 4500H	9/12/2013	9/16/2013		9/19/2013
		CH-RCTA-05_SEFL13	E245.7	9/12/2013	9/16/2013	9/18/2013	9/19/2013
		CH-RCTA-05_SEFL13	Ferrozine	9/12/2013	9/16/2013	9/18/2013	9/19/2013
		CH-RCTA-05_SEFL13	JEM/SM4500N	9/12/2013	9/16/2013		9/25/2013
		CH-RCTA-05_SEFL13	SM2310	9/12/2013	9/16/2013		9/19/2013
		CH-RCTA-05_SEFL13	SM2320B	9/12/2013	9/16/2013		9/18/2013
		CH-RCTA-05_SEFL13	SM2340B_CALC	9/12/2013	9/16/2013		9/30/2013
		CH-RCTA-05_SEFL13	SM2540C	9/12/2013	9/16/2013		9/18/2013
		CH-RCTA-05_SEFL13	SM2540D	9/12/2013	9/16/2013		9/18/2013
		CH-RCTA-05_SEFL13	SM4110B	9/12/2013	9/16/2013		9/16/2013
		CH-RCTA-05_SEFL13	SM4500P	9/12/2013	9/16/2013		9/17/2013
		CH-RCTA-05_SEFL13	SM5310	9/12/2013	9/16/2013		9/18/2013
		CH-RCTA-05_SEFL13	SW6010B	9/12/2013	9/16/2013		9/27/2013
		CH-RCTA-05_SEFL13	SW6010B	9/12/2013	9/16/2013	9/19/2013	9/26/2013
		CH-RCTA-05_SEFL13	SW6010B	9/12/2013	9/16/2013	9/19/2013	9/27/2013
		CH-RCTA-05_SEFL13	SW6010B	9/12/2013	9/16/2013	9/19/2013	9/30/2013
		CH-RCTA-07_SEFL13	ASTM D7237	9/12/2013	9/16/2013		9/23/2013
		CH-RCTA-07_SEFL13	CSSS/APHA 4500H	9/12/2013	9/16/2013		9/19/2013
		CH-RCTA-07_SEFL13	E245.7	9/12/2013	9/16/2013	9/18/2013	9/19/2013
		CH-RCTA-07_SEFL13	Ferrozine	9/12/2013	9/16/2013	9/18/2013	9/19/2013
		CH-RCTA-07_SEFL13	JEM/SM4500N	9/12/2013	9/16/2013		9/26/2013
		CH-RCTA-07_SEFL13	SM2310_HP	9/12/2013	9/16/2013		9/30/2013
		CH-RCTA-07_SEFL13	SM2320B	9/12/2013	9/16/2013		9/18/2013
		CH-RCTA-07_SEFL13	SM2340B_CALC	9/12/2013	9/16/2013		9/27/2013
		CH-RCTA-07_SEFL13	SM2540C	9/12/2013	9/16/2013		9/18/2013
		CH-RCTA-07_SEFL13	SM2540D	9/12/2013	9/16/2013		9/18/2013
		CH-RCTA-07_SEFL13	SM4110B	9/12/2013	9/16/2013		9/16/2013
		CH-RCTA-07_SEFL13	SM4500P	9/12/2013	9/16/2013		9/17/2013

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Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1363247	CH-RCTA-07_SEFL13	SM5310	9/12/2013	9/16/2013		9/18/2013
		CH-RCTA-07_SEFL13	SW6010B	9/12/2013	9/16/2013		9/27/2013
		CH-RCTA-07_SEFL13	SW6010B	9/12/2013	9/16/2013	9/19/2013	9/26/2013
		CH-RCTA-07_SEFL13	SW6010B	9/12/2013	9/16/2013	9/19/2013	9/27/2013
		FP02_SEFL13	CSSS/APHA 4500H	9/14/2013	9/16/2013		9/18/2013
		FP02_SEFL13	E245.7	9/14/2013	9/16/2013	9/18/2013	9/19/2013
		FP02_SEFL13	Ferrozine	9/14/2013	9/16/2013	9/20/2013	9/20/2013
		FP02_SEFL13	JEM/SM4500N	9/14/2013	9/16/2013		9/26/2013
		FP02_SEFL13	SM2320B	9/14/2013	9/16/2013		9/23/2013
		FP02_SEFL13	SM2340B_CALC	9/14/2013	9/16/2013		9/27/2013
		FP02_SEFL13	SM2540C	9/14/2013	9/16/2013		9/18/2013
		FP02_SEFL13	SM2540D	9/14/2013	9/16/2013		9/18/2013
		FP02_SEFL13	SM4110B	9/14/2013	9/16/2013		9/16/2013
		FP02_SEFL13	SM4500P	9/14/2013	9/16/2013		9/17/2013
		FP02_SEFL13	SM5310	9/14/2013	9/16/2013		9/18/2013
		FP02_SEFL13	SW6010B	9/14/2013	9/16/2013		9/27/2013
		FP02_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/26/2013
		FP02_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/27/2013
		FP05_SEFL13	CSSS/APHA 4500H	9/13/2013	9/16/2013		9/19/2013
		FP05_SEFL13	E245.7	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		FP05_SEFL13	Ferrozine	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		FP05_SEFL13	JEM/SM4500N	9/13/2013	9/16/2013		9/25/2013
		FP05_SEFL13	SM2310	9/13/2013	9/16/2013		9/19/2013
		FP05_SEFL13	SM2320B	9/13/2013	9/16/2013		9/18/2013
		FP05_SEFL13	SM2340B_CALC	9/13/2013	9/16/2013		9/27/2013
		FP05_SEFL13	SM2540C	9/13/2013	9/16/2013		9/18/2013
		FP05_SEFL13	SM2540D	9/13/2013	9/16/2013		9/18/2013
		FP05_SEFL13	SM4110B	9/13/2013	9/16/2013		9/16/2013
		FP05_SEFL13	SM4500P	9/13/2013	9/16/2013		9/17/2013
		FP05_SEFL13	SM5310	9/13/2013	9/16/2013		9/18/2013
		FP05_SEFL13	SW6010B	9/13/2013	9/16/2013		9/27/2013
		FP05_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/26/2013
		FP05_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/27/2013
		FP05_SEFL13MS	E245.7	9/13/2013		9/19/2013	9/18/2013
		FP06_SEFL13	CSSS/APHA 4500H	9/14/2013	9/16/2013		9/18/2013

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Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1363247	FP06_SEFL13	E245.7	9/14/2013	9/16/2013	9/18/2013	9/19/2013
		FP06_SEFL13	Ferrozine	9/14/2013	9/16/2013	9/20/2013	9/20/2013
		FP06_SEFL13	JEM/SM4500N	9/14/2013	9/16/2013		9/25/2013
		FP06_SEFL13	SM2320B	9/14/2013	9/16/2013		9/20/2013
		FP06_SEFL13	SM2340B_CALC	9/14/2013	9/16/2013		9/27/2013
		FP06_SEFL13	SM2540C	9/14/2013	9/16/2013		9/18/2013
		FP06_SEFL13	SM2540D	9/14/2013	9/16/2013		9/18/2013
		FP06_SEFL13	SM4110B	9/14/2013	9/16/2013		9/16/2013
		FP06_SEFL13	SM4500P	9/14/2013	9/16/2013		9/17/2013
		FP06_SEFL13	SM5310	9/14/2013	9/16/2013		9/18/2013
		FP06_SEFL13	SW6010B	9/14/2013	9/16/2013		9/27/2013
		FP06_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/26/2013
		FP06_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/27/2013
		FP09_SEFL13	CSSS/APHA 4500H	9/14/2013	9/16/2013		9/19/2013
		FP09_SEFL13	E245.7	9/14/2013	9/16/2013	9/18/2013	9/19/2013
		FP09_SEFL13	Ferrozine	9/14/2013	9/16/2013	9/20/2013	9/20/2013
		FP09_SEFL13	JEM/SM4500N	9/14/2013	9/16/2013		9/25/2013
		FP09_SEFL13	SM2310	9/14/2013	9/16/2013		9/19/2013
		FP09_SEFL13	SM2320B	9/14/2013	9/16/2013		9/18/2013
		FP09_SEFL13	SM2340B_CALC	9/14/2013	9/16/2013		9/27/2013
		FP09_SEFL13	SM2540C	9/14/2013	9/16/2013		9/18/2013
		FP09_SEFL13	SM2540D	9/14/2013	9/16/2013		9/18/2013
		FP09_SEFL13	SM4110B	9/14/2013	9/16/2013		9/16/2013
		FP09_SEFL13	SM4500P	9/14/2013	9/16/2013		9/17/2013
		FP09_SEFL13	SM5310	9/14/2013	9/16/2013		9/18/2013
		FP09_SEFL13	SW6010B	9/14/2013	9/16/2013		9/27/2013
		FP09_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/26/2013
		FP09_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/27/2013
		FP12_SEFL13	CSSS/APHA 4500H	9/14/2013	9/16/2013		9/18/2013
		FP12_SEFL13	E245.7	9/14/2013	9/16/2013	9/18/2013	9/19/2013
		FP12_SEFL13	Ferrozine	9/14/2013	9/16/2013	9/20/2013	9/20/2013
		FP12_SEFL13	JEM/SM4500N	9/14/2013	9/16/2013		9/25/2013
		FP12_SEFL13	SM2320B	9/14/2013	9/16/2013		9/20/2013
		FP12_SEFL13	SM2340B_CALC	9/14/2013	9/16/2013		9/27/2013
		FP12_SEFL13	SM2540C	9/14/2013	9/16/2013		9/18/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1363247	FP12_SEFL13	SM2540D	9/14/2013	9/16/2013		9/18/2013
		FP12_SEFL13	SM4110B	9/14/2013	9/16/2013		9/16/2013
		FP12_SEFL13	SM4500P	9/14/2013	9/16/2013		9/17/2013
		FP12_SEFL13	SM5310	9/14/2013	9/16/2013		9/18/2013
		FP12_SEFL13	SW6010B	9/14/2013	9/16/2013		9/27/2013
		FP12_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/26/2013
		FP12_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/27/2013
		FP13_SEFL13	CSSS/APHA 4500H	9/14/2013	9/16/2013		9/18/2013
		FP13_SEFL13	E245.7	9/14/2013	9/16/2013	9/18/2013	9/19/2013
		FP13_SEFL13	Ferrozine	9/14/2013	9/16/2013	9/20/2013	9/20/2013
		FP13_SEFL13	JEM/SM4500N	9/14/2013	9/16/2013		9/25/2013
		FP13_SEFL13	SM2320B	9/14/2013	9/16/2013		9/20/2013
		FP13_SEFL13	SM2340B_CALC	9/14/2013	9/16/2013		9/27/2013
		FP13_SEFL13	SM2540C	9/14/2013	9/16/2013		9/18/2013
		FP13_SEFL13	SM2540D	9/14/2013	9/16/2013		9/18/2013
		FP13_SEFL13	SM4110B	9/14/2013	9/16/2013		9/16/2013
		FP13_SEFL13	SM4500P	9/14/2013	9/16/2013		9/17/2013
		FP13_SEFL13	SM5310	9/14/2013	9/16/2013		9/18/2013
		FP13_SEFL13	SW6010B	9/14/2013	9/16/2013		9/27/2013
		FP13_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/26/2013
		FP13_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/27/2013
		FP13_SEFL13MS	SM4500P	9/14/2013			9/18/2013
		FP14_SEFL13	E245.7	9/14/2013	9/16/2013	9/18/2013	9/19/2013
		FP14_SEFL13	Ferrozine	9/14/2013	9/16/2013	9/20/2013	9/20/2013
		FP14_SEFL13	JEM/SM4500N	9/14/2013	9/16/2013		9/25/2013
		FP14_SEFL13	SM2310_HP	9/14/2013	9/16/2013		10/1/2013
		FP14_SEFL13	SM2340B_CALC	9/14/2013	9/16/2013		9/27/2013
		FP14_SEFL13	SM2540C	9/14/2013	9/16/2013		9/18/2013
		FP14_SEFL13	SM2540D	9/14/2013	9/16/2013		9/18/2013
		FP14_SEFL13	SM4110B	9/14/2013	9/16/2013		9/16/2013
		FP14_SEFL13	SM4500P	9/14/2013	9/16/2013		9/17/2013
		FP14_SEFL13	SM5310	9/14/2013	9/16/2013		9/18/2013
		FP14_SEFL13	SW6010B	9/14/2013	9/16/2013		9/27/2013
		FP14_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/26/2013
		FP14_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/27/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1363247	FP14_SEFL13MS	E245.7	9/14/2013		9/19/2013	9/18/2013
		FP15_SEFL13	CSSS/APHA 4500H	9/14/2013	9/16/2013		9/18/2013
		FP15_SEFL13	E245.7	9/14/2013	9/16/2013	9/18/2013	9/19/2013
		FP15_SEFL13	Ferrozine	9/14/2013	9/16/2013	9/20/2013	9/20/2013
		FP15_SEFL13	JEM/SM4500N	9/14/2013	9/16/2013		9/25/2013
		FP15_SEFL13	SM2320B	9/14/2013	9/16/2013		9/18/2013
		FP15_SEFL13	SM2340B_CALC	9/14/2013	9/16/2013		9/27/2013
		FP15_SEFL13	SM2540C	9/14/2013	9/16/2013		9/18/2013
		FP15_SEFL13	SM2540D	9/14/2013	9/16/2013		9/18/2013
		FP15_SEFL13	SM4110B	9/14/2013	9/16/2013		9/16/2013
		FP15_SEFL13	SM4500P	9/14/2013	9/16/2013		9/17/2013
		FP15_SEFL13	SM5310	9/14/2013	9/16/2013		9/18/2013
		FP15_SEFL13	SW6010B	9/14/2013	9/16/2013		9/27/2013
		FP15_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/26/2013
		FP15_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/27/2013
		FP16_SEFL13	E245.7	9/14/2013	9/16/2013	9/18/2013	9/19/2013
		FP16_SEFL13	Ferrozine	9/14/2013	9/16/2013	9/20/2013	9/20/2013
		FP16_SEFL13	JEM/SM4500N	9/14/2013	9/16/2013		9/25/2013
		FP16_SEFL13	SM2310	9/14/2013	9/16/2013		9/19/2013
		FP16_SEFL13	SM2340B_CALC	9/14/2013	9/16/2013		9/30/2013
		FP16_SEFL13	SM2540C	9/14/2013	9/16/2013		9/18/2013
		FP16_SEFL13	SM2540D	9/14/2013	9/16/2013		9/18/2013
		FP16_SEFL13	SM4110B	9/14/2013	9/16/2013		9/16/2013
		FP16_SEFL13	SM4500P	9/14/2013	9/16/2013		9/17/2013
		FP16_SEFL13	SM5310	9/14/2013	9/16/2013		9/18/2013
		FP16_SEFL13	SW6010B	9/14/2013	9/16/2013		9/27/2013
		FP16_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/26/2013
		FP16_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/27/2013
		FP16_SEFL13MS	SW6010B	9/14/2013		9/26/2013	9/19/2013
		FP16_SEFL13MS	SW6010B	9/14/2013		9/27/2013	9/19/2013
		GP02_SEFL13	CSSS/APHA 4500H	9/14/2013	9/16/2013		9/19/2013
		GP02_SEFL13	E245.7	9/14/2013	9/16/2013	9/18/2013	9/19/2013
		GP02_SEFL13	Ferrozine	9/14/2013	9/16/2013	9/20/2013	9/20/2013
		GP02_SEFL13	JEM/SM4500N	9/14/2013	9/16/2013		9/25/2013
		GP02_SEFL13	SM2310	9/14/2013	9/16/2013		9/19/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1363247	GP02_SEFL13	SM2320B	9/14/2013	9/16/2013		9/18/2013
		GP02_SEFL13	SM2340B_CALC	9/14/2013	9/16/2013		9/27/2013
		GP02_SEFL13	SM2540C	9/14/2013	9/16/2013		9/18/2013
		GP02_SEFL13	SM2540D	9/14/2013	9/16/2013		9/18/2013
		GP02_SEFL13	SM4110B	9/14/2013	9/16/2013		9/16/2013
		GP02_SEFL13	SM4500P	9/14/2013	9/16/2013		9/17/2013
		GP02_SEFL13	SM5310	9/14/2013	9/16/2013		9/18/2013
		GP02_SEFL13	SW6010B	9/14/2013	9/16/2013		9/27/2013
		GP02_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/26/2013
		GP02_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/27/2013
		GP09_SEFL13	CSSS/APHA 4500H	9/14/2013	9/16/2013		9/20/2013
		GP09_SEFL13	E245.7	9/14/2013	9/16/2013	9/18/2013	9/19/2013
		GP09_SEFL13	Ferrozine	9/14/2013	9/16/2013	9/18/2013	9/19/2013
		GP09_SEFL13	JEM/SM4500N	9/14/2013	9/16/2013		9/25/2013
		GP09_SEFL13	SM2320B	9/14/2013	9/16/2013		9/23/2013
		GP09_SEFL13	SM2340B_CALC	9/14/2013	9/16/2013		9/27/2013
		GP09_SEFL13	SM2540C	9/14/2013	9/16/2013		9/18/2013
		GP09_SEFL13	SM2540D	9/14/2013	9/16/2013		9/18/2013
		GP09_SEFL13	SM4110B	9/14/2013	9/16/2013		9/16/2013
		GP09_SEFL13	SM4500P	9/14/2013	9/16/2013		9/17/2013
		GP09_SEFL13	SM5310	9/14/2013	9/16/2013		9/18/2013
		GP09_SEFL13	SW6010B	9/14/2013	9/16/2013		9/27/2013
		GP09_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/26/2013
		GP09_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/27/2013
		GP09_SEFL13MS	Ferrozine	9/14/2013		9/19/2013	9/19/2013
		GP12_SEFL13	CSSS/APHA 4500H	9/13/2013	9/16/2013		9/19/2013
		GP12_SEFL13	E245.7	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		GP12_SEFL13	Ferrozine	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		GP12_SEFL13	JEM/SM4500N	9/13/2013	9/16/2013		9/25/2013
		GP12_SEFL13	SM2310_HP	9/13/2013	9/16/2013		9/30/2013
		GP12_SEFL13	SM2320B	9/13/2013	9/16/2013		9/20/2013
		GP12_SEFL13	SM2340B_CALC	9/13/2013	9/16/2013		9/27/2013
		GP12_SEFL13	SM2540C	9/13/2013	9/16/2013		9/18/2013
		GP12_SEFL13	SM2540D	9/13/2013	9/16/2013		9/18/2013
		GP12_SEFL13	SM4110B	9/13/2013	9/16/2013		9/16/2013

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Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1363247	GP12_SEFL13	SM4500P	9/13/2013	9/16/2013		9/17/2013
		GP12_SEFL13	SM5310	9/13/2013	9/16/2013		9/18/2013
		GP12_SEFL13	SW6010B	9/13/2013	9/16/2013		9/27/2013
		GP12_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/26/2013
		GP12_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/27/2013
		GP22_SEFL13	CSSS/APHA 4500H	9/14/2013	9/16/2013		9/18/2013
		GP22_SEFL13	E245.7	9/14/2013	9/16/2013	9/18/2013	9/19/2013
		GP22_SEFL13	Ferrozine	9/14/2013	9/16/2013	9/20/2013	9/20/2013
		GP22_SEFL13	JEM/SM4500N	9/14/2013	9/16/2013		9/25/2013
		GP22_SEFL13	SM2320B	9/14/2013	9/16/2013		9/20/2013
		GP22_SEFL13	SM2340B_CALC	9/14/2013	9/16/2013		9/27/2013
		GP22_SEFL13	SM2540C	9/14/2013	9/16/2013		9/18/2013
		GP22_SEFL13	SM2540D	9/14/2013	9/16/2013		9/18/2013
		GP22_SEFL13	SM4110B	9/14/2013	9/16/2013		9/16/2013
		GP22_SEFL13	SM4500P	9/14/2013	9/16/2013		9/17/2013
		GP22_SEFL13	SM5310	9/14/2013	9/16/2013		9/18/2013
		GP22_SEFL13	SW6010B	9/14/2013	9/16/2013		9/27/2013
		GP22_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/26/2013
		GP22_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/27/2013
		SRK-FD05_SEFL13	ASTM D7237	9/13/2013	9/16/2013		9/23/2013
		SRK-FD05_SEFL13	CSSS/APHA 4500H	9/13/2013	9/16/2013		9/19/2013
		SRK-FD05_SEFL13	E245.7	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		SRK-FD05_SEFL13	Ferrozine	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		SRK-FD05_SEFL13	JEM/SM4500N	9/13/2013	9/16/2013		9/25/2013
		SRK-FD05_SEFL13	SM2310	9/13/2013	9/16/2013		9/19/2013
		SRK-FD05_SEFL13	SM2320B	9/13/2013	9/16/2013		9/18/2013
		SRK-FD05_SEFL13	SM2340B_CALC	9/13/2013	9/16/2013		10/1/2013
		SRK-FD05_SEFL13	SM2540C	9/13/2013	9/16/2013		9/18/2013
		SRK-FD05_SEFL13	SM2540D	9/13/2013	9/16/2013		9/18/2013
		SRK-FD05_SEFL13	SM4110B	9/13/2013	9/16/2013		9/16/2013
		SRK-FD05_SEFL13	SM4500P	9/13/2013	9/16/2013		9/17/2013
		SRK-FD05_SEFL13	SM5310	9/13/2013	9/16/2013		9/18/2013
		SRK-FD05_SEFL13	SW6010B	9/13/2013	9/16/2013		9/27/2013
		SRK-FD05_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/26/2013
		SRK-FD05_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/27/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1363247	SRK-FD05_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/30/2013
		SRK-FD05_SEFL13MS	JEM/SM4500N	9/13/2013			9/25/2013
		SRK-FD18_SEFL13	CSSS/APHA 4500H	9/13/2013	9/16/2013		9/19/2013
		SRK-FD18_SEFL13	E245.7	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		SRK-FD18_SEFL13	Ferrozine	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		SRK-FD18_SEFL13	JEM/SM4500N	9/13/2013	9/16/2013		9/25/2013
		SRK-FD18_SEFL13	SM2310	9/13/2013	9/16/2013		9/19/2013
		SRK-FD18_SEFL13	SM2320B	9/13/2013	9/16/2013		9/18/2013
		SRK-FD18_SEFL13	SM2340B_CALC	9/13/2013	9/16/2013		9/27/2013
		SRK-FD18_SEFL13	SM2540C	9/13/2013	9/16/2013		9/18/2013
		SRK-FD18_SEFL13	SM2540D	9/13/2013	9/16/2013		9/18/2013
		SRK-FD18_SEFL13	SM4110B	9/13/2013	9/16/2013		9/16/2013
		SRK-FD18_SEFL13	SM4500P	9/13/2013	9/16/2013		9/17/2013
		SRK-FD18_SEFL13	SM5310	9/13/2013	9/16/2013		9/18/2013
		SRK-FD18_SEFL13	SW6010B	9/13/2013	9/16/2013		9/27/2013
		SRK-FD18_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/26/2013
		SRK-FD18_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/27/2013
		SRK-FD18_SEFL13MS	SM4110B	9/13/2013			9/19/2013
		SRK-FD40_SEFL13	E245.7	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		SRK-FD40_SEFL13	Ferrozine	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		SRK-FD40_SEFL13	JEM/SM4500N	9/13/2013	9/16/2013		9/25/2013
		SRK-FD40_SEFL13	SM2310	9/13/2013	9/16/2013		9/19/2013
		SRK-FD40_SEFL13	SM2340B_CALC	9/13/2013	9/16/2013		9/27/2013
		SRK-FD40_SEFL13	SM2540C	9/13/2013	9/16/2013		9/18/2013
		SRK-FD40_SEFL13	SM2540D	9/13/2013	9/16/2013		9/18/2013
		SRK-FD40_SEFL13	SM4110B	9/13/2013	9/16/2013		9/16/2013
		SRK-FD40_SEFL13	SM4500P	9/13/2013	9/16/2013		9/17/2013
		SRK-FD40_SEFL13	SM5310	9/13/2013	9/16/2013		9/18/2013
		SRK-FD40_SEFL13	SW6010B	9/13/2013	9/16/2013		9/27/2013
		SRK-FD40_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/26/2013
		SRK-FD40_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/27/2013
		SRK-FD940_SEFL13	E245.7	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		SRK-FD940_SEFL13	Ferrozine	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		SRK-FD940_SEFL13	JEM/SM4500N	9/13/2013	9/16/2013		9/25/2013
		SRK-FD940_SEFL13	SM2310	9/13/2013	9/16/2013		9/19/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1363247	SRK-FD940_SEFL13	SM2340B_CALC	9/13/2013	9/16/2013		9/27/2013
		SRK-FD940_SEFL13	SM2540C	9/13/2013	9/16/2013		9/18/2013
		SRK-FD940_SEFL13	SM2540D	9/13/2013	9/16/2013		9/18/2013
		SRK-FD940_SEFL13	SM4110B	9/13/2013	9/16/2013		9/16/2013
		SRK-FD940_SEFL13	SM4500P	9/13/2013	9/16/2013		9/17/2013
		SRK-FD940_SEFL13	SM5310	9/13/2013	9/16/2013		9/18/2013
		SRK-FD940_SEFL13	SW6010B	9/13/2013	9/16/2013		9/27/2013
		SRK-FD940_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/26/2013
		SRK-FD940_SEFL13	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/27/2013
		SRK-GD01_SEFL13	ASTM D7237	9/14/2013	9/16/2013		9/23/2013
		SRK-GD01_SEFL13	CSSS/APHA 4500H	9/14/2013	9/16/2013		9/19/2013
		SRK-GD01_SEFL13	E245.7	9/14/2013	9/16/2013	9/18/2013	9/19/2013
		SRK-GD01_SEFL13	Ferrozine	9/14/2013	9/16/2013	9/20/2013	9/20/2013
		SRK-GD01_SEFL13	JEM/SM4500N	9/14/2013	9/16/2013		9/25/2013
		SRK-GD01_SEFL13	SM2310	9/14/2013	9/16/2013		9/19/2013
		SRK-GD01_SEFL13	SM2320B	9/14/2013	9/16/2013		9/18/2013
		SRK-GD01_SEFL13	SM2340B_CALC	9/14/2013	9/16/2013		9/27/2013
		SRK-GD01_SEFL13	SM2540C	9/14/2013	9/16/2013		9/18/2013
		SRK-GD01_SEFL13	SM2540D	9/14/2013	9/16/2013		9/18/2013
		SRK-GD01_SEFL13	SM4110B	9/14/2013	9/16/2013		9/16/2013
		SRK-GD01_SEFL13	SM4500P	9/14/2013	9/16/2013		9/17/2013
		SRK-GD01_SEFL13	SM5310	9/14/2013	9/16/2013		9/18/2013
		SRK-GD01_SEFL13	SW6010B	9/14/2013	9/16/2013		9/27/2013
		SRK-GD01_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/26/2013
		SRK-GD01_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/27/2013
		SRK-GD13_SEFL13	ASTM D7237	9/14/2013	9/16/2013		9/23/2013
		SRK-GD13_SEFL13	CSSS/APHA 4500H	9/14/2013	9/16/2013		9/18/2013
		SRK-GD13_SEFL13	E245.7	9/14/2013	9/16/2013	9/18/2013	9/19/2013
		SRK-GD13_SEFL13	Ferrozine	9/14/2013	9/16/2013	9/20/2013	9/20/2013
		SRK-GD13_SEFL13	JEM/SM4500N	9/14/2013	9/16/2013		9/25/2013
		SRK-GD13_SEFL13	SM2320B	9/14/2013	9/16/2013		9/18/2013
		SRK-GD13_SEFL13	SM2340B_CALC	9/14/2013	9/16/2013		9/27/2013
		SRK-GD13_SEFL13	SM2540C	9/14/2013	9/16/2013		9/18/2013
		SRK-GD13_SEFL13	SM2540D	9/14/2013	9/16/2013		9/18/2013
		SRK-GD13_SEFL13	SM4110B	9/14/2013	9/16/2013		9/16/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1363247	SRK-GD13_SEFL13	SM4500P	9/14/2013	9/16/2013		9/17/2013
		SRK-GD13_SEFL13	SM5310	9/14/2013	9/16/2013		9/18/2013
		SRK-GD13_SEFL13	SW6010B	9/14/2013	9/16/2013		9/27/2013
		SRK-GD13_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/26/2013
		SRK-GD13_SEFL13	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/27/2013
		SRK-GD13_SEFL13MS	ASTM D7237	9/14/2013			9/24/2013
	L1363276	CH13-016-FAROPL_80	CH1987LIME	9/14/2013	9/16/2013		9/25/2013
		CH13-016-FAROPL_80	CSSS/APHA 4500H	9/14/2013	9/16/2013		9/25/2013
		CH13-016-FAROPL_80	E245.7	9/14/2013	9/16/2013		9/26/2013
		CH13-016-FAROPL_80	E245.7	9/14/2013	9/16/2013	9/24/2013	9/26/2013
		CH13-016-FAROPL_80	Ferrozine	9/14/2013	9/16/2013	9/25/2013	9/25/2013
		CH13-016-FAROPL_80	JEM/SM4500N	9/14/2013	9/16/2013		9/26/2013
		CH13-016-FAROPL_80	SM2310	9/14/2013	9/16/2013		9/23/2013
		CH13-016-FAROPL_80	SM2320B	9/14/2013	9/16/2013		9/18/2013
		CH13-016-FAROPL_80	SM2340B_CALC	9/14/2013	9/16/2013		9/26/2013
		CH13-016-FAROPL_80	SM2540C	9/14/2013	9/16/2013		9/18/2013
		CH13-016-FAROPL_80	SM2540D	9/14/2013	9/16/2013		9/18/2013
		CH13-016-FAROPL_80	SM4110B	9/14/2013	9/16/2013		9/16/2013
		CH13-016-FAROPL_80	SM4500P	9/14/2013	9/16/2013		9/17/2013
		CH13-016-FAROPL_80	SM5310	9/14/2013	9/16/2013		9/20/2013
		CH13-016-FAROPL_80	SW6010B	9/14/2013	9/16/2013		9/23/2013
		CH13-016-FAROPL_80	SW6010B	9/14/2013	9/16/2013		9/25/2013
		CH13-016-FAROPL_80	SW6010B	9/14/2013	9/16/2013		9/26/2013
		CH13-016-FAROPL_80	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/23/2013
		CH13-016-FAROPL_80	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/25/2013
		CH13-016-FAROPL_80MS	Ferrozine	9/14/2013		9/25/2013	9/25/2013
		CH13-916-FAROPL_80	CH1987LIME	9/14/2013	9/16/2013		9/25/2013
		CH13-916-FAROPL_80	CSSS/APHA 4500H	9/14/2013	9/16/2013		9/19/2013
		CH13-916-FAROPL_80	E245.7	9/14/2013	9/16/2013		9/19/2013
		CH13-916-FAROPL_80	E245.7	9/14/2013	9/16/2013	9/18/2013	9/19/2013
		CH13-916-FAROPL_80	Ferrozine	9/14/2013	9/16/2013	9/20/2013	9/20/2013
		CH13-916-FAROPL_80	JEM/SM4500N	9/14/2013	9/16/2013		9/26/2013
		CH13-916-FAROPL_80	SM2310_HP	9/14/2013	9/16/2013		9/27/2013
		CH13-916-FAROPL_80	SM2320B	9/14/2013	9/16/2013		9/18/2013
		CH13-916-FAROPL_80	SM2340B_CALC	9/14/2013	9/16/2013		9/24/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1363276	CH13-916-FAROPL_80	SM2540C	9/14/2013	9/16/2013		9/18/2013
		CH13-916-FAROPL_80	SM2540D	9/14/2013	9/16/2013		9/18/2013
		CH13-916-FAROPL_80	SM4110B	9/14/2013	9/16/2013		9/16/2013
		CH13-916-FAROPL_80	SM4500P	9/14/2013	9/16/2013		9/17/2013
		CH13-916-FAROPL_80	SM5310	9/14/2013	9/16/2013		9/20/2013
		CH13-916-FAROPL_80	SW6010B	9/14/2013	9/16/2013		9/22/2013
		CH13-916-FAROPL_80	SW6010B	9/14/2013	9/16/2013		9/23/2013
		CH13-916-FAROPL_80	SW6010B	9/14/2013	9/16/2013		9/24/2013
		CH13-916-FAROPL_80	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/22/2013
		CH13-916-FAROPL_80	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/23/2013
		CH13-916-FAROPL_80MS	SW6010B	9/14/2013			9/19/2013
		CH13-916-FAROPL_80MS	SW6010B	9/14/2013		9/22/2013	9/19/2013
		CH13-916-FAROPL_80MS	SW6010B	9/14/2013		9/23/2013	9/19/2013
	L1364538	GP03_SEFL13	CSSS/APHA 4500H	9/15/2013	9/18/2013		9/23/2013
		GP03_SEFL13	E245.7	9/15/2013	9/18/2013	9/23/2013	9/24/2013
		GP03_SEFL13	Ferrozine	9/15/2013	9/18/2013	9/21/2013	9/21/2013
		GP03_SEFL13	JEM/SM4500N	9/15/2013	9/18/2013		9/27/2013
		GP03_SEFL13	SM2310	9/15/2013	9/18/2013		9/23/2013
		GP03_SEFL13	SM2320B	9/15/2013	9/18/2013		9/25/2013
		GP03_SEFL13	SM2340B_CALC	9/15/2013	9/18/2013		10/1/2013
		GP03_SEFL13	SM2540C	9/15/2013	9/18/2013		9/20/2013
		GP03_SEFL13	SM2540D	9/15/2013	9/18/2013		9/20/2013
		GP03_SEFL13	SM4110B	9/15/2013	9/18/2013		9/18/2013
		GP03_SEFL13	SM4500P	9/15/2013	9/18/2013		9/19/2013
		GP03_SEFL13	SM5310	9/15/2013	9/18/2013		9/20/2013
		GP03_SEFL13	SW6010B	9/15/2013	9/18/2013		9/30/2013
		GP03_SEFL13	SW6010B	9/15/2013	9/18/2013	9/19/2013	9/27/2013
		GP03_SEFL13	SW6010B	9/15/2013	9/18/2013	9/19/2013	9/30/2013
		GP03_SEFL13MS	JEM/SM4500N	9/15/2013			9/27/2013
		GP03_SEFL13MS	SM4110B	9/15/2013			9/19/2013
		GP03_SEFL13MS	SM4500P	9/15/2013			9/20/2013
		GP17_SEFL13	CSSS/APHA 4500H	9/15/2013	9/18/2013		9/23/2013
		GP17_SEFL13	E245.7	9/15/2013	9/18/2013	9/23/2013	9/24/2013
		GP17_SEFL13	Ferrozine	9/15/2013	9/18/2013	9/21/2013	9/21/2013
		GP17_SEFL13	JEM/SM4500N	9/15/2013	9/18/2013		9/27/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1364538	GP17_SEFL13	SM2310	9/15/2013	9/18/2013		9/23/2013
		GP17_SEFL13	SM2320B	9/15/2013	9/18/2013		9/25/2013
		GP17_SEFL13	SM2340B_CALC	9/15/2013	9/18/2013		10/1/2013
		GP17_SEFL13	SM2540C	9/15/2013	9/18/2013		9/20/2013
		GP17_SEFL13	SM2540D	9/15/2013	9/18/2013		9/20/2013
		GP17_SEFL13	SM4110B	9/15/2013	9/18/2013		9/18/2013
		GP17_SEFL13	SM4500P	9/15/2013	9/18/2013		9/19/2013
		GP17_SEFL13	SM5310	9/15/2013	9/18/2013		9/20/2013
		GP17_SEFL13	SW6010B	9/15/2013	9/18/2013		9/30/2013
		GP17_SEFL13	SW6010B	9/15/2013	9/18/2013	9/19/2013	9/27/2013
		GP17_SEFL13	SW6010B	9/15/2013	9/18/2013	9/19/2013	9/30/2013
		GP903_SEFL13	CSSS/APHA 4500H	9/15/2013	9/18/2013		9/23/2013
		GP903_SEFL13	E245.7	9/15/2013	9/18/2013	9/23/2013	9/24/2013
		GP903_SEFL13	Ferrozine	9/15/2013	9/18/2013	9/21/2013	9/21/2013
		GP903_SEFL13	JEM/SM4500N	9/15/2013	9/18/2013		9/27/2013
		GP903_SEFL13	SM2310	9/15/2013	9/18/2013		9/23/2013
		GP903_SEFL13	SM2320B	9/15/2013	9/18/2013		9/25/2013
		GP903_SEFL13	SM2340B_CALC	9/15/2013	9/18/2013		10/1/2013
		GP903_SEFL13	SM2540C	9/15/2013	9/18/2013		9/20/2013
		GP903_SEFL13	SM2540D	9/15/2013	9/18/2013		9/20/2013
		GP903_SEFL13	SM4110B	9/15/2013	9/18/2013		9/18/2013
		GP903_SEFL13	SM4500P	9/15/2013	9/18/2013		9/19/2013
		GP903_SEFL13	SM5310	9/15/2013	9/18/2013		9/20/2013
		GP903_SEFL13	SW6010B	9/15/2013	9/18/2013		9/30/2013
		GP903_SEFL13	SW6010B	9/15/2013	9/18/2013	9/19/2013	9/27/2013
		GP903_SEFL13	SW6010B	9/15/2013	9/18/2013	9/19/2013	9/30/2013
		SRK-GD06_SEFL13	ASTM D7237	9/16/2013	9/18/2013		9/25/2013
		SRK-GD06_SEFL13	CSSS/APHA 4500H	9/16/2013	9/18/2013		9/23/2013
		SRK-GD06_SEFL13	E245.7	9/16/2013	9/18/2013	9/23/2013	9/24/2013
		SRK-GD06_SEFL13	Ferrozine	9/16/2013	9/18/2013	9/21/2013	9/21/2013
		SRK-GD06_SEFL13	JEM/SM4500N	9/16/2013	9/18/2013		9/27/2013
		SRK-GD06_SEFL13	SM2310	9/16/2013	9/18/2013		9/23/2013
		SRK-GD06_SEFL13	SM2320B	9/16/2013	9/18/2013		9/20/2013
		SRK-GD06_SEFL13	SM2340B_CALC	9/16/2013	9/18/2013		10/1/2013
		SRK-GD06_SEFL13	SM2540C	9/16/2013	9/18/2013		9/20/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1364538	SRK-GD06_SEFL13	SM2540D	9/16/2013	9/18/2013		9/20/2013
		SRK-GD06_SEFL13	SM4110B	9/16/2013	9/18/2013		9/18/2013
		SRK-GD06_SEFL13	SM4500P	9/16/2013	9/18/2013		9/19/2013
		SRK-GD06_SEFL13	SM5310	9/16/2013	9/18/2013		9/20/2013
		SRK-GD06_SEFL13	SW6010B	9/16/2013	9/18/2013		9/30/2013
		SRK-GD06_SEFL13	SW6010B	9/16/2013	9/18/2013	9/19/2013	9/27/2013
		SRK-GD06_SEFL13	SW6010B	9/16/2013	9/18/2013	9/19/2013	9/30/2013
		SRK-GD06_SEFL13MS	E245.7	9/16/2013		9/24/2013	9/23/2013
		SRK-GD06_SEFL13MS	SW6010B	9/16/2013		9/27/2013	9/19/2013
		SRK-GD06_SEFL13MS	SW6010B	9/16/2013		9/30/2013	9/19/2013
		SRK-GD12_SEFL13	ASTM D7237	9/16/2013	9/18/2013		9/25/2013
		SRK-GD12_SEFL13	CSSS/APHA 4500H	9/16/2013	9/18/2013		9/23/2013
		SRK-GD12_SEFL13	E245.7	9/16/2013	9/18/2013	9/23/2013	9/24/2013
		SRK-GD12_SEFL13	Ferrozine	9/16/2013	9/18/2013	9/21/2013	9/21/2013
		SRK-GD12_SEFL13	JEM/SM4500N	9/16/2013	9/18/2013		9/27/2013
		SRK-GD12_SEFL13	SM2310	9/16/2013	9/18/2013		9/23/2013
		SRK-GD12_SEFL13	SM2320B	9/16/2013	9/18/2013		9/25/2013
		SRK-GD12_SEFL13	SM2340B_CALC	9/16/2013	9/18/2013		10/1/2013
		SRK-GD12_SEFL13	SM2540C	9/16/2013	9/18/2013		9/20/2013
		SRK-GD12_SEFL13	SM2540D	9/16/2013	9/18/2013		9/20/2013
		SRK-GD12_SEFL13	SM4110B	9/16/2013	9/18/2013		9/18/2013
		SRK-GD12_SEFL13	SM4500P	9/16/2013	9/18/2013		9/19/2013
		SRK-GD12_SEFL13	SM5310	9/16/2013	9/18/2013		9/20/2013
		SRK-GD12_SEFL13	SW6010B	9/16/2013	9/18/2013		9/30/2013
		SRK-GD12_SEFL13	SW6010B	9/16/2013	9/18/2013	9/19/2013	9/27/2013
		SRK-GD12_SEFL13	SW6010B	9/16/2013	9/18/2013	9/19/2013	9/30/2013
		SRK-GD12_SEFL13MS	ASTM D7237	9/16/2013			9/26/2013
		SRK-GD906_SEFL13	ASTM D7237	9/16/2013	9/18/2013		9/25/2013
		SRK-GD906_SEFL13	CSSS/APHA 4500H	9/16/2013	9/18/2013		9/23/2013
		SRK-GD906_SEFL13	E245.7	9/16/2013	9/18/2013	9/23/2013	9/24/2013
		SRK-GD906_SEFL13	Ferrozine	9/16/2013	9/18/2013	9/21/2013	9/21/2013
		SRK-GD906_SEFL13	JEM/SM4500N	9/16/2013	9/18/2013		9/27/2013
		SRK-GD906_SEFL13	SM2310	9/16/2013	9/18/2013		9/23/2013
		SRK-GD906_SEFL13	SM2320B	9/16/2013	9/18/2013		9/20/2013
		SRK-GD906_SEFL13	SM2340B_CALC	9/16/2013	9/18/2013		10/1/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1364538	SRK-GD906_SEFL13	SM2540C	9/16/2013	9/18/2013		9/20/2013
		SRK-GD906_SEFL13	SM2540D	9/16/2013	9/18/2013		9/20/2013
		SRK-GD906_SEFL13	SM4110B	9/16/2013	9/18/2013		9/18/2013
		SRK-GD906_SEFL13	SM4500P	9/16/2013	9/18/2013		9/19/2013
		SRK-GD906_SEFL13	SM5310	9/16/2013	9/18/2013		9/20/2013
		SRK-GD906_SEFL13	SW6010B	9/16/2013	9/18/2013		9/30/2013
		SRK-GD906_SEFL13	SW6010B	9/16/2013	9/18/2013	9/19/2013	9/27/2013
		SRK-GD906_SEFL13	SW6010B	9/16/2013	9/18/2013	9/19/2013	9/30/2013
		SRK-GD906_SEFL13MS	Ferrozine	9/16/2013		9/21/2013	9/25/2013
		SRK-VD03_SEFL13	ASTM D7237	9/16/2013	9/18/2013		9/25/2013
		SRK-VD03_SEFL13	CSSS/APHA 4500H	9/16/2013	9/18/2013		9/23/2013
		SRK-VD03_SEFL13	E245.7	9/16/2013	9/18/2013	9/23/2013	9/24/2013
		SRK-VD03_SEFL13	Ferrozine	9/16/2013	9/18/2013	9/21/2013	9/21/2013
		SRK-VD03_SEFL13	JEM/SM4500N	9/16/2013	9/18/2013		9/29/2013
		SRK-VD03_SEFL13	SM2310_HP	9/16/2013	9/18/2013		9/30/2013
		SRK-VD03_SEFL13	SM2320B	9/16/2013	9/18/2013		9/20/2013
		SRK-VD03_SEFL13	SM2340B_CALC	9/16/2013	9/18/2013		10/1/2013
		SRK-VD03_SEFL13	SM2540C	9/16/2013	9/18/2013		9/20/2013
		SRK-VD03_SEFL13	SM2540D	9/16/2013	9/18/2013		9/20/2013
		SRK-VD03_SEFL13	SM4110B	9/16/2013	9/18/2013		9/18/2013
		SRK-VD03_SEFL13	SM4500P	9/16/2013	9/18/2013		9/19/2013
		SRK-VD03_SEFL13	SM5310	9/16/2013	9/18/2013		9/20/2013
		SRK-VD03_SEFL13	SW6010B	9/16/2013	9/18/2013		9/30/2013
		SRK-VD03_SEFL13	SW6010B	9/16/2013	9/18/2013	9/19/2013	9/30/2013
		SRK-VD04_SEFL13	ASTM D7237	9/16/2013	9/18/2013		9/25/2013
		SRK-VD04_SEFL13	E245.7	9/16/2013	9/18/2013	9/23/2013	9/24/2013
		SRK-VD04_SEFL13	Ferrozine	9/16/2013	9/18/2013	9/21/2013	9/21/2013
		SRK-VD04_SEFL13	JEM/SM4500N	9/16/2013	9/18/2013		9/29/2013
		SRK-VD04_SEFL13	SM2310_HP	9/16/2013	9/18/2013		9/30/2013
		SRK-VD04_SEFL13	SM2340B_CALC	9/16/2013	9/18/2013		10/1/2013
		SRK-VD04_SEFL13	SM2540C	9/16/2013	9/18/2013		9/20/2013
		SRK-VD04_SEFL13	SM2540D	9/16/2013	9/18/2013		9/20/2013
		SRK-VD04_SEFL13	SM4110B	9/16/2013	9/18/2013		9/18/2013
		SRK-VD04_SEFL13	SM4500P	9/16/2013	9/18/2013		9/19/2013
		SRK-VD04_SEFL13	SM5310	9/16/2013	9/18/2013		9/22/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1364538	SRK-VD04_SEFL13	SW6010B	9/16/2013	9/18/2013		10/1/2013
		SRK-VD04_SEFL13	SW6010B	9/16/2013	9/18/2013	9/19/2013	9/30/2013
		SRK-VD04_SEFL13	SW6010B	9/16/2013	9/18/2013	9/19/2013	10/1/2013
		SRK-VD05_SEFL13	ASTM D7237	9/16/2013	9/18/2013		9/25/2013
		SRK-VD05_SEFL13	E245.7	9/16/2013	9/18/2013	9/23/2013	9/24/2013
		SRK-VD05_SEFL13	Ferrozine	9/16/2013	9/18/2013	9/21/2013	9/21/2013
		SRK-VD05_SEFL13	JEM/SM4500N	9/16/2013	9/18/2013		9/27/2013
		SRK-VD05_SEFL13	SM2310_HP	9/16/2013	9/18/2013		9/30/2013
		SRK-VD05_SEFL13	SM2340B_CALC	9/16/2013	9/18/2013		10/1/2013
		SRK-VD05_SEFL13	SM2540C	9/16/2013	9/18/2013		9/20/2013
		SRK-VD05_SEFL13	SM2540D	9/16/2013	9/18/2013		9/20/2013
		SRK-VD05_SEFL13	SM4110B	9/16/2013	9/18/2013		9/18/2013
		SRK-VD05_SEFL13	SM4500P	9/16/2013	9/18/2013		9/19/2013
		SRK-VD05_SEFL13	SM5310	9/16/2013	9/18/2013		9/22/2013
		SRK-VD05_SEFL13	SW6010B	9/16/2013	9/18/2013		10/1/2013
		SRK-VD05_SEFL13	SW6010B	9/16/2013	9/18/2013	9/19/2013	9/30/2013
		SRK-VD05_SEFL13	SW6010B	9/16/2013	9/18/2013	9/19/2013	10/1/2013
		SRK-VD09_SEFL13	E245.7	9/16/2013	9/18/2013	9/23/2013	9/24/2013
		SRK-VD09_SEFL13	Ferrozine	9/16/2013	9/18/2013	9/21/2013	9/21/2013
		SRK-VD09_SEFL13	JEM/SM4500N	9/16/2013	9/18/2013		9/27/2013
		SRK-VD09_SEFL13	SM2310_HP	9/16/2013	9/18/2013		9/30/2013
		SRK-VD09_SEFL13	SM2340B_CALC	9/16/2013	9/18/2013		10/1/2013
		SRK-VD09_SEFL13	SM2540C	9/16/2013	9/18/2013		9/20/2013
		SRK-VD09_SEFL13	SM2540D	9/16/2013	9/18/2013		9/20/2013
		SRK-VD09_SEFL13	SM4110B	9/16/2013	9/18/2013		9/18/2013
		SRK-VD09_SEFL13	SM4500P	9/16/2013	9/18/2013		9/19/2013
		SRK-VD09_SEFL13	SM5310	9/16/2013	9/18/2013		9/22/2013
		SRK-VD09_SEFL13	SW6010B	9/16/2013	9/18/2013		9/30/2013
		SRK-VD09_SEFL13	SW6010B	9/16/2013	9/18/2013	9/19/2013	9/30/2013
		SRK-VD10_SEFL13	ASTM D7237	9/16/2013	9/18/2013		9/25/2013
		SRK-VD10_SEFL13	CSSS/APHA 4500H	9/16/2013	9/18/2013		9/23/2013
		SRK-VD10_SEFL13	E245.7	9/16/2013	9/18/2013	9/23/2013	9/24/2013
		SRK-VD10_SEFL13	Ferrozine	9/16/2013	9/18/2013	9/21/2013	9/21/2013
		SRK-VD10_SEFL13	JEM/SM4500N	9/16/2013	9/18/2013		9/29/2013
		SRK-VD10_SEFL13	SM2310_HP	9/16/2013	9/18/2013		9/30/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1364538	SRK-VD10_SEFL13	SM2320B	9/16/2013	9/18/2013		9/25/2013
		SRK-VD10_SEFL13	SM2340B_CALC	9/16/2013	9/18/2013		10/1/2013
		SRK-VD10_SEFL13	SM2540C	9/16/2013	9/18/2013		9/20/2013
		SRK-VD10_SEFL13	SM2540D	9/16/2013	9/18/2013		9/20/2013
		SRK-VD10_SEFL13	SM4110B	9/16/2013	9/18/2013		9/18/2013
		SRK-VD10_SEFL13	SM4500P	9/16/2013	9/18/2013		9/19/2013
		SRK-VD10_SEFL13	SM5310	9/16/2013	9/18/2013		9/22/2013
		SRK-VD10_SEFL13	SW6010B	9/16/2013	9/18/2013		9/30/2013
		SRK-VD10_SEFL13	SW6010B	9/16/2013	9/18/2013	9/19/2013	9/30/2013
		SRK-VD905_SEFL13	ASTM D7237	9/16/2013	9/18/2013		9/25/2013
		SRK-VD905_SEFL13	E245.7	9/16/2013	9/18/2013	9/23/2013	9/24/2013
		SRK-VD905_SEFL13	Ferrozine	9/16/2013	9/18/2013	9/21/2013	9/21/2013
		SRK-VD905_SEFL13	JEM/SM4500N	9/16/2013	9/18/2013		9/29/2013
		SRK-VD905_SEFL13	SM2310_HP	9/16/2013	9/18/2013		9/30/2013
		SRK-VD905_SEFL13	SM2340B_CALC	9/16/2013	9/18/2013		10/1/2013
		SRK-VD905_SEFL13	SM2540C	9/16/2013	9/18/2013		9/20/2013
		SRK-VD905_SEFL13	SM2540D	9/16/2013	9/18/2013		9/20/2013
		SRK-VD905_SEFL13	SM4110B	9/16/2013	9/18/2013		9/18/2013
		SRK-VD905_SEFL13	SM4500P	9/16/2013	9/18/2013		9/19/2013
		SRK-VD905_SEFL13	SM5310	9/16/2013	9/18/2013		9/22/2013
		SRK-VD905_SEFL13	SW6010B	9/16/2013	9/18/2013		10/1/2013
		SRK-VD905_SEFL13	SW6010B	9/16/2013	9/18/2013	9/19/2013	9/30/2013
		SRK-VD905_SEFL13	SW6010B	9/16/2013	9/18/2013	9/19/2013	10/1/2013
		VP03_SEFL13	E245.7	9/15/2013	9/18/2013	9/23/2013	9/24/2013
		VP03_SEFL13	Ferrozine	9/15/2013	9/18/2013	9/21/2013	9/21/2013
		VP03_SEFL13	JEM/SM4500N	9/15/2013	9/18/2013		9/27/2013
		VP03_SEFL13	SM2310_HP	9/15/2013	9/18/2013		10/1/2013
		VP03_SEFL13	SM2340B_CALC	9/15/2013	9/18/2013		10/1/2013
		VP03_SEFL13	SM2540C	9/15/2013	9/18/2013		9/20/2013
		VP03_SEFL13	SM2540D	9/15/2013	9/18/2013		9/20/2013
		VP03_SEFL13	SM4110B	9/15/2013	9/18/2013		9/18/2013
		VP03_SEFL13	SM4500P	9/15/2013	9/18/2013		9/19/2013
		VP03_SEFL13	SM5310	9/15/2013	9/18/2013		9/20/2013
		VP03_SEFL13	SW6010B	9/15/2013	9/18/2013		9/30/2013
		VP03_SEFL13	SW6010B	9/15/2013	9/18/2013	9/19/2013	9/27/2013

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Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1364538	VP03_SEFL13	SW6010B	9/15/2013	9/18/2013	9/19/2013	9/30/2013
	L1365908	CH-FD72_SEFL13	E245.7	9/17/2013	9/20/2013	9/23/2013	9/24/2013
		CH-FD72_SEFL13	Ferrozine	9/17/2013	9/20/2013	9/21/2013	9/21/2013
		CH-FD72_SEFL13	ISO 14403:2002	9/17/2013	9/20/2013		9/30/2013
		CH-FD72_SEFL13	JEM/SM4500N	9/17/2013	9/20/2013		9/29/2013
		CH-FD72_SEFL13	SM2310_HP	9/17/2013	9/20/2013		10/1/2013
		CH-FD72_SEFL13	SM2340B_CALC	9/17/2013	9/20/2013		10/3/2013
		CH-FD72_SEFL13	SM2540C	9/17/2013	9/20/2013		9/23/2013
		CH-FD72_SEFL13	SM2540D	9/17/2013	9/20/2013		9/23/2013
		CH-FD72_SEFL13	SM4110B	9/17/2013	9/20/2013		9/20/2013
		CH-FD72_SEFL13	SM4500P	9/17/2013	9/20/2013		9/21/2013
		CH-FD72_SEFL13	SM5310	9/17/2013	9/20/2013		9/23/2013
		CH-FD72_SEFL13	SW6010B	9/17/2013	9/20/2013		10/3/2013
		CH-FD72_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/1/2013
		CH-FD72_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/3/2013
		CH-FD72_SEFL13MS	ISO 14403:2002	9/17/2013			10/1/2013
		CH-FD72_SEFL13MS	SM4500P	9/17/2013			9/21/2013
		CH-FP-35_SEFL13	CSSS/APHA 4500H	9/19/2013	9/20/2013		9/26/2013
		CH-FP-35_SEFL13	E245.7	9/19/2013	9/20/2013	9/23/2013	9/24/2013
		CH-FP-35_SEFL13	Ferrozine	9/19/2013	9/20/2013	9/21/2013	9/21/2013
		CH-FP-35_SEFL13	JEM/SM4500N	9/19/2013	9/20/2013		9/29/2013
		CH-FP-35_SEFL13	SM2310	9/19/2013	9/20/2013		9/26/2013
		CH-FP-35_SEFL13	SM2320B	9/19/2013	9/20/2013		9/26/2013
		CH-FP-35_SEFL13	SM2340B_CALC	9/19/2013	9/20/2013		10/2/2013
		CH-FP-35_SEFL13	SM2540C	9/19/2013	9/20/2013		9/23/2013
		CH-FP-35_SEFL13	SM2540D	9/19/2013	9/20/2013		9/23/2013
		CH-FP-35_SEFL13	SM4110B	9/19/2013	9/20/2013		9/20/2013
		CH-FP-35_SEFL13	SM4500P	9/19/2013	9/20/2013		9/21/2013
		CH-FP-35_SEFL13	SM5310	9/19/2013	9/20/2013		9/23/2013
		CH-FP-35_SEFL13	SW6010B	9/19/2013	9/20/2013		10/1/2013
		CH-FP-35_SEFL13	SW6010B	9/19/2013	9/20/2013	9/21/2013	9/29/2013
		CH-FP-35_SEFL13	SW6010B	9/19/2013	9/20/2013	9/21/2013	10/1/2013
		CH-FP41_SEFL13	CSSS/APHA 4500H	9/17/2013	9/20/2013		9/26/2013
		CH-FP41_SEFL13	E245.7	9/17/2013	9/20/2013	9/23/2013	9/24/2013
		CH-FP41_SEFL13	Ferrozine	9/17/2013	9/20/2013	9/21/2013	9/21/2013

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Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1365908	CH-FP41_SEFL13	JEM/SM4500N	9/17/2013	9/20/2013		9/29/2013
		CH-FP41_SEFL13	SM2310	9/17/2013	9/20/2013		9/26/2013
		CH-FP41_SEFL13	SM2320B	9/17/2013	9/20/2013		9/26/2013
		CH-FP41_SEFL13	SM2340B_CALC	9/17/2013	9/20/2013		10/2/2013
		CH-FP41_SEFL13	SM2540C	9/17/2013	9/20/2013		9/23/2013
		CH-FP41_SEFL13	SM2540D	9/17/2013	9/20/2013		9/23/2013
		CH-FP41_SEFL13	SM4110B	9/17/2013	9/20/2013		9/20/2013
		CH-FP41_SEFL13	SM4500P	9/17/2013	9/20/2013		9/21/2013
		CH-FP41_SEFL13	SM5310	9/17/2013	9/20/2013		9/23/2013
		CH-FP41_SEFL13	SW6010B	9/17/2013	9/20/2013		10/1/2013
		CH-FP41_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	9/29/2013
		CH-FP41_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/1/2013
		CH-VP-17_SEFL13	E245.7	9/17/2013	9/20/2013	9/23/2013	9/24/2013
		CH-VP-17_SEFL13	Ferrozine	9/17/2013	9/20/2013	9/21/2013	9/21/2013
		CH-VP-17_SEFL13	JEM/SM4500N	9/17/2013	9/20/2013		9/29/2013
		CH-VP-17_SEFL13	SM2310_HP	9/17/2013	9/20/2013		10/1/2013
		CH-VP-17_SEFL13	SM2340B_CALC	9/17/2013	9/20/2013		10/3/2013
		CH-VP-17_SEFL13	SM2540C	9/17/2013	9/20/2013		9/23/2013
		CH-VP-17_SEFL13	SM2540D	9/17/2013	9/20/2013		9/23/2013
		CH-VP-17_SEFL13	SM4110B	9/17/2013	9/20/2013		9/20/2013
		CH-VP-17_SEFL13	SM4500P	9/17/2013	9/20/2013		9/21/2013
		CH-VP-17_SEFL13	SM5310	9/17/2013	9/20/2013		9/23/2013
		CH-VP-17_SEFL13	SW6010B	9/17/2013	9/20/2013		10/3/2013
		CH-VP-17_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/1/2013
		CH-VP-17_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/3/2013
		CH-VP-20_SEFL13	CSSS/APHA 4500H	9/17/2013	9/20/2013		9/26/2013
		CH-VP-20_SEFL13	E245.7	9/17/2013	9/20/2013	9/23/2013	9/24/2013
		CH-VP-20_SEFL13	Ferrozine	9/17/2013	9/20/2013	9/21/2013	9/21/2013
		CH-VP-20_SEFL13	JEM/SM4500N	9/17/2013	9/20/2013		9/29/2013
		CH-VP-20_SEFL13	SM2310_HP	9/17/2013	9/20/2013		10/1/2013
		CH-VP-20_SEFL13	SM2320B	9/17/2013	9/20/2013		10/4/2013
		CH-VP-20_SEFL13	SM2340B_CALC	9/17/2013	9/20/2013		10/3/2013
		CH-VP-20_SEFL13	SM2540C	9/17/2013	9/20/2013		9/23/2013
		CH-VP-20_SEFL13	SM2540D	9/17/2013	9/20/2013		9/23/2013
		CH-VP-20_SEFL13	SM4110B	9/17/2013	9/20/2013		9/20/2013

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Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1365908	CH-VP-20_SEFL13	SM4500P	9/17/2013	9/20/2013		9/21/2013
		CH-VP-20_SEFL13	SM5310	9/17/2013	9/20/2013		9/23/2013
		CH-VP-20_SEFL13	SW6010B	9/17/2013	9/20/2013		10/3/2013
		CH-VP-20_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/1/2013
		CH-VP-20_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/3/2013
		CH-VP-20_SEFL13MS	E245.7	9/17/2013		9/24/2013	9/23/2013
		CH-VP-20_SEFL13MS	SW6010B	9/17/2013		10/1/2013	9/21/2013
		CH-VP-20_SEFL13MS	SW6010B	9/17/2013		10/3/2013	9/21/2013
		E_015_13_007	E245.7	9/16/2013	9/20/2013	9/23/2013	9/24/2013
		E_015_13_007	Ferrozine	9/16/2013	9/20/2013	9/21/2013	9/21/2013
		E_015_13_007	SM2340B_CALC	9/16/2013	9/20/2013		10/2/2013
		E_015_13_007	SM5310	9/16/2013	9/20/2013		9/23/2013
		E_015_13_007	SW6010B	9/16/2013	9/20/2013		10/1/2013
		E_015_13_007	SW6010B	9/16/2013	9/20/2013	9/21/2013	9/29/2013
		E_015_13_007	SW6010B	9/16/2013	9/20/2013	9/21/2013	10/1/2013
		E_015_13_008	E245.7	9/17/2013	9/20/2013	9/23/2013	9/24/2013
		E_015_13_008	Ferrozine	9/17/2013	9/20/2013	9/21/2013	9/21/2013
		E_015_13_008	SM2340B_CALC	9/17/2013	9/20/2013		10/3/2013
		E_015_13_008	SM5310	9/17/2013	9/20/2013		9/23/2013
		E_015_13_008	SW6010B	9/17/2013	9/20/2013		10/3/2013
		E_015_13_008	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/1/2013
		E_015_13_008	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/2/2013
		E_015_13_008	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/3/2013
		E_015_13_008MS	Ferrozine	9/17/2013		9/21/2013	9/25/2013
		SRK-FD19_SEFL13	CSSS/APHA 4500H	9/19/2013	9/20/2013		9/26/2013
		SRK-FD19_SEFL13	E245.7	9/19/2013	9/20/2013	9/23/2013	9/24/2013
		SRK-FD19_SEFL13	Ferrozine	9/19/2013	9/20/2013	9/21/2013	9/21/2013
		SRK-FD19_SEFL13	JEM/SM4500N	9/19/2013	9/20/2013		9/29/2013
		SRK-FD19_SEFL13	SM2310	9/19/2013	9/20/2013		9/26/2013
		SRK-FD19_SEFL13	SM2320B	9/19/2013	9/20/2013		9/26/2013
		SRK-FD19_SEFL13	SM2340B_CALC	9/19/2013	9/20/2013		10/4/2013
		SRK-FD19_SEFL13	SM2540C	9/19/2013	9/20/2013		9/23/2013
		SRK-FD19_SEFL13	SM2540D	9/19/2013	9/20/2013		9/23/2013
		SRK-FD19_SEFL13	SM4110B	9/19/2013	9/20/2013		9/20/2013
		SRK-FD19_SEFL13	SM4500P	9/19/2013	9/20/2013		9/21/2013

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Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1365908	SRK-FD19_SEFL13	SM5310	9/19/2013	9/20/2013		9/23/2013
		SRK-FD19_SEFL13	SW6010B	9/19/2013	9/20/2013		10/4/2013
		SRK-FD19_SEFL13	SW6010B	9/19/2013	9/20/2013	9/21/2013	10/1/2013
		SRK-FD19_SEFL13	SW6010B	9/19/2013	9/20/2013	9/21/2013	10/3/2013
		SRK-FD24_SEFL13	E245.7	9/17/2013	9/20/2013	9/23/2013	9/24/2013
		SRK-FD24_SEFL13	Ferrozine	9/17/2013	9/20/2013	9/21/2013	9/21/2013
		SRK-FD24_SEFL13	JEM/SM4500N	9/17/2013	9/20/2013		9/29/2013
		SRK-FD24_SEFL13	SM2310	9/17/2013	9/20/2013		9/26/2013
		SRK-FD24_SEFL13	SM2340B_CALC	9/17/2013	9/20/2013		10/3/2013
		SRK-FD24_SEFL13	SM2540C	9/17/2013	9/20/2013		9/23/2013
		SRK-FD24_SEFL13	SM2540D	9/17/2013	9/20/2013		9/23/2013
		SRK-FD24_SEFL13	SM4110B	9/17/2013	9/20/2013		9/20/2013
		SRK-FD24_SEFL13	SM4500P	9/17/2013	9/20/2013		9/21/2013
		SRK-FD24_SEFL13	SM5310	9/17/2013	9/20/2013		9/23/2013
		SRK-FD24_SEFL13	SW6010B	9/17/2013	9/20/2013		10/1/2013
		SRK-FD24_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	9/29/2013
		SRK-FD24_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/1/2013
		SRK-FD24_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/2/2013
		SRK-FD30_SEFL13	ASTM D7237	9/17/2013	9/20/2013		9/30/2013
		SRK-FD30_SEFL13	CSSS/APHA 4500H	9/17/2013	9/20/2013		9/26/2013
		SRK-FD30_SEFL13	E245.7	9/17/2013	9/20/2013	9/23/2013	9/24/2013
		SRK-FD30_SEFL13	Ferrozine	9/17/2013	9/20/2013	9/21/2013	9/21/2013
		SRK-FD30_SEFL13	JEM/SM4500N	9/17/2013	9/20/2013		9/29/2013
		SRK-FD30_SEFL13	SM2310	9/17/2013	9/20/2013		9/26/2013
		SRK-FD30_SEFL13	SM2320B	9/17/2013	9/20/2013		9/26/2013
		SRK-FD30_SEFL13	SM2340B_CALC	9/17/2013	9/20/2013		10/2/2013
		SRK-FD30_SEFL13	SM2540C	9/17/2013	9/20/2013		9/23/2013
		SRK-FD30_SEFL13	SM2540D	9/17/2013	9/20/2013		9/23/2013
		SRK-FD30_SEFL13	SM4110B	9/17/2013	9/20/2013		9/20/2013
		SRK-FD30_SEFL13	SM4500P	9/17/2013	9/20/2013		9/21/2013
		SRK-FD30_SEFL13	SM5310	9/17/2013	9/20/2013		9/23/2013
		SRK-FD30_SEFL13	SW6010B	9/17/2013	9/20/2013		10/1/2013
		SRK-FD30_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	9/29/2013
		SRK-FD30_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/1/2013
		SRK-FD30_SEFL13MS	ASTM D7237	9/17/2013			9/30/2013

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Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1365908	SRK-FD51_SEFL13	E245.7	9/17/2013	9/20/2013	9/23/2013	9/24/2013
		SRK-FD51_SEFL13	Ferrozine	9/17/2013	9/20/2013	9/21/2013	9/21/2013
		SRK-FD51_SEFL13	JEM/SM4500N	9/17/2013	9/20/2013		9/29/2013
		SRK-FD51_SEFL13	SM2310	9/17/2013	9/20/2013		9/26/2013
		SRK-FD51_SEFL13	SM2340B_CALC	9/17/2013	9/20/2013		10/3/2013
		SRK-FD51_SEFL13	SM2540C	9/17/2013	9/20/2013		9/23/2013
		SRK-FD51_SEFL13	SM2540D	9/17/2013	9/20/2013		9/23/2013
		SRK-FD51_SEFL13	SM4110B	9/17/2013	9/20/2013		9/20/2013
		SRK-FD51_SEFL13	SM4500P	9/17/2013	9/20/2013		9/21/2013
		SRK-FD51_SEFL13	SM5310	9/17/2013	9/20/2013		9/23/2013
		SRK-FD51_SEFL13	SW6010B	9/17/2013	9/20/2013		10/1/2013
		SRK-FD51_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	9/29/2013
		SRK-FD51_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/1/2013
		SRK-FD51_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/2/2013
		SRK-FD51_SEFL13MS	SM4110B	9/17/2013			9/23/2013
		SRK-FD54_SEFL13	ASTM D7237	9/17/2013	9/20/2013		9/30/2013
		SRK-FD54_SEFL13	CSSS/APHA 4500H	9/17/2013	9/20/2013		9/26/2013
		SRK-FD54_SEFL13	E245.7	9/17/2013	9/20/2013	9/23/2013	9/24/2013
		SRK-FD54_SEFL13	Ferrozine	9/17/2013	9/20/2013	9/21/2013	9/21/2013
		SRK-FD54_SEFL13	JEM/SM4500N	9/17/2013	9/20/2013		9/29/2013
		SRK-FD54_SEFL13	SM2310	9/17/2013	9/20/2013		9/26/2013
		SRK-FD54_SEFL13	SM2320B	9/17/2013	9/20/2013		9/26/2013
		SRK-FD54_SEFL13	SM2340B_CALC	9/17/2013	9/20/2013		10/3/2013
		SRK-FD54_SEFL13	SM2540C	9/17/2013	9/20/2013		9/23/2013
		SRK-FD54_SEFL13	SM2540D	9/17/2013	9/20/2013		9/23/2013
		SRK-FD54_SEFL13	SM4110B	9/17/2013	9/20/2013		9/20/2013
		SRK-FD54_SEFL13	SM4500P	9/17/2013	9/20/2013		9/21/2013
		SRK-FD54_SEFL13	SM5310	9/17/2013	9/20/2013		9/25/2013
		SRK-FD54_SEFL13	SW6010B	9/17/2013	9/20/2013		10/3/2013
		SRK-FD54_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/1/2013
		SRK-FD54_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/3/2013
		SRK-FD54_SEFL13MS	SM5310	9/17/2013			9/26/2013
		SRK-FD56_SEFL13	E245.7	9/17/2013	9/20/2013	9/23/2013	9/24/2013
		SRK-FD56_SEFL13	Ferrozine	9/17/2013	9/20/2013	9/21/2013	9/21/2013
		SRK-FD56_SEFL13	JEM/SM4500N	9/17/2013	9/20/2013		9/29/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1365908	SRK-FD56_SEFL13	SM2310_HP	9/17/2013	9/20/2013		10/1/2013
		SRK-FD56_SEFL13	SM2340B_CALC	9/17/2013	9/20/2013		10/3/2013
		SRK-FD56_SEFL13	SM2540C	9/17/2013	9/20/2013		9/23/2013
		SRK-FD56_SEFL13	SM2540D	9/17/2013	9/20/2013		9/23/2013
		SRK-FD56_SEFL13	SM4110B	9/17/2013	9/20/2013		9/20/2013
		SRK-FD56_SEFL13	SM4500P	9/17/2013	9/20/2013		9/21/2013
		SRK-FD56_SEFL13	SM5310	9/17/2013	9/20/2013		9/23/2013
		SRK-FD56_SEFL13	SW6010B	9/17/2013	9/20/2013		10/3/2013
		SRK-FD56_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/2/2013
		SRK-FD56_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/3/2013
		SRK-FD68_SEFL13	CSSS/APHA 4500H	9/17/2013	9/20/2013		9/26/2013
		SRK-FD68_SEFL13	E245.7	9/17/2013	9/20/2013	9/23/2013	9/24/2013
		SRK-FD68_SEFL13	Ferrozine	9/17/2013	9/20/2013	9/21/2013	9/21/2013
		SRK-FD68_SEFL13	JEM/SM4500N	9/17/2013	9/20/2013		9/29/2013
		SRK-FD68_SEFL13	SM2310	9/17/2013	9/20/2013		9/26/2013
		SRK-FD68_SEFL13	SM2320B	9/17/2013	9/20/2013		9/26/2013
		SRK-FD68_SEFL13	SM2340B_CALC	9/17/2013	9/20/2013		10/4/2013
		SRK-FD68_SEFL13	SM2540C	9/17/2013	9/20/2013		9/23/2013
		SRK-FD68_SEFL13	SM2540D	9/17/2013	9/20/2013		9/23/2013
		SRK-FD68_SEFL13	SM4110B	9/17/2013	9/20/2013		9/20/2013
		SRK-FD68_SEFL13	SM4500P	9/17/2013	9/20/2013		9/21/2013
		SRK-FD68_SEFL13	SM5310	9/17/2013	9/20/2013		9/23/2013
		SRK-FD68_SEFL13	SW6010B	9/17/2013	9/20/2013		10/4/2013
		SRK-FD68_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/1/2013
		SRK-FD68_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/2/2013
		SRK-FD68_SEFL13	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/3/2013
		SRK-FD68_SEFL13MS	JEM/SM4500N	9/17/2013			9/30/2013

TABLE 3

Overall Flagging Summary

Method	Matrix	Validation Reason	Qualifier*	Qualifier Type	Number of Affected Analytes
ASTM D7237	Water				
Category = HoldingTime		Holding time exceeded			
			UJ	Protocol	19
Category = Miscellaneous		Invalid Final Flag replaced with Concqual			
			U	Other	18
CSSS/APHA 4500H	Water				
Category = HoldingTime		Holding time exceeded			
			J	Protocol	92
E245.7	Water				
Category = FieldDuplicate		Field duplicate exceeds RPD criteria			
			J	Other	3
			UJ	Other	1
Category = Miscellaneous		Invalid Final Flag replaced with Concqual			
			U	Other	1
Ferrozine	Water				
Category = Blank		Cooler received by laboratory at greater than 10 degrees C			
			UJ	Other	7
			J	Other	20
Category = Blank		Equipment blank concentration greater than the RL			
			U	Protocol	10
Category = FieldDuplicate		Field duplicate exceeds RPD criteria			
			J	Other	6
Category = Matrix		Sample received unpreserved by laboratory			
			J	Other	1
Category = Miscellaneous		Invalid Final Flag replaced with Concqual			
			=	Other	1
			U	Other	5
ISO 14403:2002	Water				

TABLE 3

Overall Flagging Summary

Method	Matrix	Validation Reason	Qualifier*	Qualifier Type	Number of Affected Analytes
Category =	Miscellaneous	Invalid Final Flag replaced with Concqual			
			U	Other	1
JEM/SM4500N	Water				
Category =	Blank	Cooler received by laboratory at greater than 10 degrees C			
			J	Other	23
			UJ	Other	4
Category =	Blank	Equipment blank concentration greater than the RL			
			U	Protocol	21
Category =	Miscellaneous	Invalid Final Flag replaced with Concqual			
			U	Other	1
SM2310	Water				
Category =	Blank	Cooler received by laboratory at greater than 10 degrees C			
			J	Other	11
			UJ	Other	3
SM2310_HP	Water				
Category =	Blank	Cooler received by laboratory at greater than 10 degrees C			
			J	Other	13
Category =	FieldDuplicate	Field duplicate exceeds RPD criteria			
			J	Other	2
Category =	HoldingTime	Holding time exceeded			
			J	Protocol	9
			UJ	Protocol	1
SM2320B	Water				
Category =	Blank	Cooler received by laboratory at greater than 10 degrees C			
			J	Other	33
			UJ	Other	35
Category =	HoldingTime	Holding time exceeded			
			UJ	Protocol	6
			J	Protocol	2

TABLE 3

Overall Flagging Summary

Method	Matrix	Validation Reason	Qualifier*	Qualifier Type	Number of Affected Analytes
SM2540C	Water				
Category = Blank		Cooler received by laboratory at greater than 10 degrees C			
			J	Other	27
Category = HoldingTime		Holding time exceeded			
			J	Protocol	19
Category = Matrix		Analytical interferences may be present.			
			J	Other	6
SM2540D	Water				
Category = Blank		Cooler received by laboratory at greater than 10 degrees C			
			J	Other	27
Category = FieldDuplicate		Field duplicate exceeds RPD criteria			
			J	Other	8
Category = HoldingTime		Holding time exceeded			
			J	Protocol	19
SM4110B	Water				
Category = Blank		Cooler received by laboratory at greater than 10 degrees C			
			UJ	Other	75
			J	Other	60
Category = HoldingTime		Holding time exceeded			
			J	Protocol	18
			UJ	Protocol	48
Category = Miscellaneous		Invalid Final Flag replaced with Concqual			
			U	Other	191
SM4500P	Water				
Category = Blank		Cooler received by laboratory at greater than 10 degrees C			
			UJ	Other	17
			J	Other	10
Category = FieldDuplicate		Field duplicate exceeds RPD criteria			

TABLE 3

Overall Flagging Summary

Method	Matrix	Validation Reason	Qualifier*	Qualifier Type	Number of Affected Analytes
			J	Other	4
Category =	HoldingTime	Holding time exceeded			
			UJ	Protocol	37
			J	Protocol	23
SM5310	Water				
Category =	Blank	Cooler received by laboratory at greater than 10 degrees C			
			J	Other	27
Category =	Blank	Equipment blank concentration greater than the RL			
			U	Protocol	80
Category =	FieldDuplicate	Field duplicate exceeds RPD criteria			
			J	Other	2
SW6010B	Water				
Category =	Blank	Equipment blank concentration greater than the RL			
			U	Protocol	193
Category =	FieldDuplicate	Field duplicate exceeds RPD criteria			
			J	Other	31
			UJ	Other	5
Category =	Miscellaneous	Invalid Final Flag replaced with Concqual			
			U	Other	966
			=	Other	4

TABLE 3

Overall Flagging Summary

Method	Matrix	Validation Reason	Qualifier*	Qualifier Type	Number of Affected Analytes

* The most severe flag for each analyte becomes the final validation flag.

Qualifier Description:

= = Analyte was detected at a concentration greater than the RL.

J = Analyte was present but the reported value may not be accurate or precise.

U = This analyte was analyzed for but not detected at the specified detection limit.

UJ = The analyte was not detected above the detection limit objective. However, the reported detection limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Qualifier Type:

Protocol = Flagging due to contractor/laboratory protocol violations.
Other = Flagging due to sample, matrix, or field issues not related to Quality Assurance Project Plan (QAPP) or Sampling and Analysis Plan (SAP) protocol.

TABLE 4

Field Duplicate Precision – Qualified Data

Method	Matrix	Sample ID	Analyte	Result	Field Duplicate Qualifier*	Criteria
E245.7	Water		**Mercury, dissolved**			
		SRK-FD40_SEFL13		0.00001 mg/l	UJ	FD>RPD
		SRK-FD56_SESP13		0.00003 mg/l	J	FD>RPD
		SRK-FD940_SEFL13		0.000053 mg/l	J	FD>RPD
		SRK-FD956_SESP13		0.000019 mg/l	J	FD>RPD
Ferrozine	Water		**Ferrous Iron, Dissolved**			
		CH13-016-FAROPL_80		0.62 mg/l	J	FD>RPD
		CH13-916-FAROPL_80		27.4 mg/l	J	FD>RPD
		CH-GP-19_SEFL13		6.92 mg/l	J	FD>RPD
		CH-GP-919_SEFL13		13 mg/l	J	FD>RPD
		SRK-FD40_SEFL13		1.32 mg/l	J	FD>RPD
		SRK-FD940_SEFL13		0.4 mg/l	J	FD>RPD
SM2310_HP	Water		**Acidity, hot peroxide**			
		SRK-FD40_SESP13		543 mg/l	J	FD>RPD
		SRK-FD940_SESP13		391 mg/l	J	FD>RPD
SM2540D	Water		**Total Suspended Solids**			
		CH-FP-34_SEFL13		4.2 mg/l	J	FD>RPD
		CH-FP-934_SEFL13		2.2 mg/l	J	FD>RPD
		CH-MILL-03_SESP13		15.2 mg/l	J	FD>RPD
		CH-MILL-903_SESP13		27.2 mg/l	J	FD>RPD
		SRK-FD40_SEFL13		12.4 mg/l	J	FD>RPD
		SRK-FD940_SEFL13		129 mg/l	J	FD>RPD
		SRK-VD05_SEFL13		30.4 mg/l	J	FD>RPD
		SRK-VD905_SEFL13		68 mg/l	J	FD>RPD
SM4500P	Water		**ortho-Phosphate**			
		CH-MILL-03_SESP13		0.0071 mg/l	J	FD>RPD
		CH-MILL-903_SESP13		0.0048 mg/l	J	FD>RPD
		SRK-VD05_SESP13		0.41 mg/l	J	FD>RPD
		SRK-VD905_SESP13		0.007 mg/l	J	FD>RPD
SM5310	Water		**Dissolved Organic Carbon**			
		GP03_SEFL13		0.83 mg/l	J	FD>RPD
		GP903_SEFL13		1.55 mg/l	J	FD>RPD

TABLE 4

Field Duplicate Precision – Qualified Data

Method	Matrix	Sample ID	Analyte	Result	Field Duplicate Qualifier*	Criteria
SW6010B	Water		**Aluminum**			
		CH13-016-FAROPL_80		0.0063 mg/l	J	FD>RPD
		CH13-916-FAROPL_80		0.009 mg/l	J	FD>RPD
SW6010B	Water		**Aluminum, dissolved**			
		GP03_SEFL13		0.0017 mg/l	J	FD>RPD
		GP903_SEFL13		0.0034 mg/l	J	FD>RPD
		SRK-GD06_SEFL13		0.0048 mg/l	J	FD>RPD
		SRK-GD906_SEFL13		0.0021 mg/l	J	FD>RPD
SW6010B	Water		**Arsenic**			
		CH13-016-FAROPL_80		0.00034 mg/l	J	FD>RPD
		CH13-916-FAROPL_80		0.00062 mg/l	J	FD>RPD
SW6010B	Water		**Arsenic, dissolved**			
		CH13-016-FAROPL_80		0.0001 mg/l	UJ	FD>RPD
		CH13-916-FAROPL_80		0.00045 mg/l	J	FD>RPD
		CH-MILL-03_SESP13		1.54 mg/l	J	FD>RPD
		CH-MILL-903_SESP13		0.088 mg/l	J	FD>RPD
SW6010B	Water		**Copper**			
		CH13-016-FAROPL_80		0.0005 mg/l	UJ	FD>RPD
		CH13-916-FAROPL_80		0.00065 mg/l	J	FD>RPD
SW6010B	Water		**Iron**			
		CH13-016-FAROPL_80		11.2 mg/l	J	FD>RPD
		CH13-916-FAROPL_80		22.9 mg/l	J	FD>RPD
SW6010B	Water		**Iron, dissolved**			
		CH13-016-FAROPL_80		2.8 mg/l	J	FD>RPD
		CH13-916-FAROPL_80		22.7 mg/l	J	FD>RPD
SW6010B	Water		**Lead**			
		CH13-016-FAROPL_80		0.000646 mg/l	J	FD>RPD
		CH13-916-FAROPL_80		0.00133 mg/l	J	FD>RPD
SW6010B	Water		**Lead, dissolved**			
		CH13-016-FAROPL_80		0.00005 mg/l	UJ	FD>RPD

TABLE 4
Field Duplicate Precision – Qualified Data

Method	Matrix	Sample ID	Analyte	Result	Field Duplicate Qualifier*	Criteria
		CH13-916-FAROPL_80		0.000055 mg/l	J	FD>RPD
		CH-FP-34_SEFL13		0.00068 mg/l	J	FD>RPD
		CH-FP-934_SEFL13		0.00038 mg/l	J	FD>RPD
		GP03_SEFL13		0.00005 mg/l	UJ	FD>RPD
		GP903_SEFL13		0.0003 mg/l	J	FD>RPD
SW6010B	Water		**Molybdenum**			
		CH13-016-FAROPL_80		0.000257 mg/l	J	FD>RPD
		CH13-916-FAROPL_80		0.000518 mg/l	J	FD>RPD
SW6010B	Water		**Molybdenum, dissolved**			
		CH13-016-FAROPL_80		0.000081 mg/l	J	FD>RPD
		CH13-916-FAROPL_80		0.000428 mg/l	J	FD>RPD
SW6010B	Water		**Selenium, dissolved**			
		CH13-016-FAROPL_80		0.0001 mg/l	UJ	FD>RPD
		CH13-916-FAROPL_80		0.00013 mg/l	J	FD>RPD
SW6010B	Water		**Uranium**			
		CH13-016-FAROPL_80		0.00142 mg/l	J	FD>RPD
		CH13-916-FAROPL_80		0.00251 mg/l	J	FD>RPD
SW6010B	Water		**Uranium, dissolved**			
		CH13-016-FAROPL_80		0.000683 mg/l	J	FD>RPD
		CH13-916-FAROPL_80		0.00242 mg/l	J	FD>RPD

* The most severe flag for each analyte becomes the final validation flag.

Qualifier Description:

J = Analyte was present but the reported value may not be accurate or precise.

UJ = The analyte was not detected above the detection limit objective. However, the reported detection limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Criteria:

FD>RPD = Field duplicate exceeds RPD criteria

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
ASTM D7237	Water	CH-MILL-03_SESP13					
			Free Cyanide	17 Days	0.02 mg/l	UJ	UJ
ASTM D7237	Water	CH-MILL-903_SESP13					
			Free Cyanide	17 Days	0.02 mg/l	UJ	UJ
ASTM D7237	Water	CH-RCTA-04_SESP13					
			Free Cyanide	16 Days	0.01 mg/l	UJ	UJ
ASTM D7237	Water	FCS-5_SESP13					
			Free Cyanide	16 Days	0.02 mg/l	UJ	UJ
ASTM D7237	Water	SRK-FD05_SESP13					
			Free Cyanide	15 Days	0.005 mg/l	UJ	UJ
ASTM D7237	Water	SRK-FD09_SESP13					
			Free Cyanide	17 Days	0.02 mg/l	UJ	UJ
ASTM D7237	Water	SRK-FD30_SESP13					
			Free Cyanide	16 Days	0.01 mg/l	UJ	UJ
ASTM D7237	Water	SRK-FD31_SESP13					
			Free Cyanide	17 Days	0.02 mg/l	UJ	UJ
ASTM D7237	Water	SRK-FD56_SESP13					
			Free Cyanide	17 Days	0.01 mg/l	UJ	UJ
ASTM D7237	Water	SRK-FD956_SESP13					
			Free Cyanide	17 Days	0.01 mg/l	UJ	UJ
ASTM D7237	Water	SRK-GD01_SESP13					
			Free Cyanide	15 Days	0.01 mg/l	UJ	UJ
ASTM D7237	Water	SRK-GD05_SESP13					
			Free Cyanide	15 Days	0.01 mg/l	UJ	UJ
ASTM D7237	Water	SRK-GD06_SESP13					

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
ASTM D7237	Water	SRK-GD06_SESP13					
			Free Cyanide	15 Days	0.01 mg/l	UJ	UJ
ASTM D7237	Water	SRK-GD09_SESP13					
			Free Cyanide	15 Days	0.005 mg/l	UJ	UJ
ASTM D7237	Water	SRK-GD11_SESP13					
			Free Cyanide	15 Days	0.01 mg/l	UJ	UJ
ASTM D7237	Water	SRK-GD19_SESP13					
			Free Cyanide	15 Days	0.01 mg/l	UJ	UJ
ASTM D7237	Water	SRK-GD911_SESP13					
			Free Cyanide	15 Days	0.01 mg/l	UJ	UJ
ASTM D7237	Water	SRK-VD02_SESP13					
			Free Cyanide	15 Days	0.01 mg/l	UJ	UJ
ASTM D7237	Water	SRK-VD03_SESP13					
			Free Cyanide	15 Days	0.02 mg/l	UJ	UJ
CSSS/APHA 4500H	Water	CH13-016-FAROPL_80					
			pH	11 Days	6.9 pH Units	J	J
CSSS/APHA 4500H	Water	CH13-916-FAROPL_80					
			pH	5 Days	6.9 pH Units	J	J
CSSS/APHA 4500H	Water	CH-FP-23_SESP13					
			pH	8 Days	7.29 pH Units	J	J
CSSS/APHA 4500H	Water	CH-FP-30_SESP13					
			pH	8 Days	8.13 pH Units	J	J
CSSS/APHA 4500H	Water	CH-FP-34_SEFL13					
			pH	6 Days	7.49 pH Units	J	J
CSSS/APHA 4500H	Water	CH-FP-34_SESP13					

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
CSSS/APHA 4500H	Water	CH-FP-34_SESP13					
			pH	8 Days	8.01 pH Units	J	J
CSSS/APHA 4500H	Water	CH-FP-35_SEFL13					
			pH	7 Days	4.85 pH Units	J	J
CSSS/APHA 4500H	Water	CH-FP-37_SESP13					
			pH	8 Days	8.22 pH Units	J	J
CSSS/APHA 4500H	Water	CH-FP-38_SEFL13					
			pH	7 Days	5.47 pH Units	J	J
CSSS/APHA 4500H	Water	CH-FP-39_SEFL13					
			pH	6 Days	7.86 pH Units	J	J
CSSS/APHA 4500H	Water	CH-FP41_SEFL13					
			pH	9 Days	5.88 pH Units	J	J
CSSS/APHA 4500H	Water	CH-FP-42_SEFL13					
			pH	6 Days	7.88 pH Units	J	J
CSSS/APHA 4500H	Water	CH-FP-934_SEFL13					
			pH	6 Days	7.65 pH Units	J	J
CSSS/APHA 4500H	Water	CH-GP-19_SEFL13					
			pH	5 Days	8.09 pH Units	J	J
CSSS/APHA 4500H	Water	CH-GP-19_SESP13					
			pH	7 Days	7.9 pH Units	J	J
CSSS/APHA 4500H	Water	CH-GP-22_SESP13					
			pH	7 Days	8.21 pH Units	J	J
CSSS/APHA 4500H	Water	CH-GP-27_SEFL13					
			pH	4 Days	8.39 pH Units	J	J
CSSS/APHA 4500H	Water	CH-GP-27_SESP13					

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
CSSS/APHA 4500H	Water	CH-GP-27_SESP13					
			pH	7 Days	8.44 pH Units	J	J
CSSS/APHA 4500H	Water	CH-GP-919_SEFL13					
			pH	4 Days	7.96 pH Units	J	J
CSSS/APHA 4500H	Water	CH-MILL-03_SEFL13					
			pH	5 Days	4.59 pH Units	J	J
CSSS/APHA 4500H	Water	CH-MILL-03_SESP13					
			pH	8 Days	3.18 pH Units	J	J
CSSS/APHA 4500H	Water	CH-MILL-903_SESP13					
			pH	8 Days	3.17 pH Units	J	J
CSSS/APHA 4500H	Water	CH-RCTA-03_SEFL13					
			pH	7 Days	5.79 pH Units	J	J
CSSS/APHA 4500H	Water	CH-RCTA-04_SESP13					
			pH	8 Days	5.63 pH Units	J	J
CSSS/APHA 4500H	Water	CH-RCTA-05_SEFL13					
			pH	7 Days	8.07 pH Units	J	J
CSSS/APHA 4500H	Water	CH-RCTA-07_SEFL13					
			pH	7 Days	6.17 pH Units	J	J
CSSS/APHA 4500H	Water	CH-RCTA-07_SESP13					
			pH	5 Days	5.2 pH Units	J	J
CSSS/APHA 4500H	Water	CH-VP-20_SEFL13					
			pH	9 Days	3.88 pH Units	J	J
CSSS/APHA 4500H	Water	FCS-2_SESP13					
			pH	8 Days	3.92 pH Units	J	J
CSSS/APHA 4500H	Water	FCS-4_SESP13					

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
CSSS/APHA 4500H	Water	FCS-4_SESP13					
			pH	8 Days	4.1 pH Units	J	J
CSSS/APHA 4500H	Water	FCS-5_SESP13					
			pH	7 Days	4.38 pH Units	J	J
CSSS/APHA 4500H	Water	FCS-94_SESP13					
			pH	8 Days	4.15 pH Units	J	J
CSSS/APHA 4500H	Water	FP02_SEFL13					
			pH	4 Days	8.28 pH Units	J	J
CSSS/APHA 4500H	Water	FP05_SEFL13					
			pH	6 Days	8 pH Units	J	J
CSSS/APHA 4500H	Water	FP06_SEFL13					
			pH	4 Days	8.51 pH Units	J	J
CSSS/APHA 4500H	Water	FP09_SEFL13					
			pH	5 Days	6.48 pH Units	J	J
CSSS/APHA 4500H	Water	FP10_SESP13					
			pH	8 Days	7.87 pH Units	J	J
CSSS/APHA 4500H	Water	FP12_SEFL13					
			pH	4 Days	8.46 pH Units	J	J
CSSS/APHA 4500H	Water	FP13_SEFL13					
			pH	4 Days	8.35 pH Units	J	J
CSSS/APHA 4500H	Water	FP15_SEFL13					
			pH	4 Days	8.05 pH Units	J	J
CSSS/APHA 4500H	Water	GP02_SEFL13					
			pH	5 Days	8.26 pH Units	J	J
CSSS/APHA 4500H	Water	GP02_SESP13					

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
CSSS/APHA 4500H	Water	GP02_SESP13					
			pH	7 Days	8.29 pH Units	J	J
CSSS/APHA 4500H	Water	GP03_SEFL13					
			pH	8 Days	8.4 pH Units	J	J
CSSS/APHA 4500H	Water	GP09_SEFL13					
			pH	6 Days	8.08 pH Units	J	J
CSSS/APHA 4500H	Water	GP09_SESP13					
			pH	7 Days	8.16 pH Units	J	J
CSSS/APHA 4500H	Water	GP12_SEFL13					
			pH	6 Days	6.33 pH Units	J	J
CSSS/APHA 4500H	Water	GP12_SESP13					
			pH	7 Days	3.29 pH Units	J	J
CSSS/APHA 4500H	Water	GP17_SEFL13					
			pH	8 Days	8.36 pH Units	J	J
CSSS/APHA 4500H	Water	GP22_SEFL13					
			pH	4 Days	8.32 pH Units	J	J
CSSS/APHA 4500H	Water	GP903_SEFL13					
			pH	8 Days	8.4 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD01_SEFL13					
			pH	5 Days	6.87 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD01_SESP13					
			pH	9 Days	7.32 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD05_SEFL13					
			pH	6 Days	8.04 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD05_SESP13					

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
CSSS/APHA 4500H	Water	SRK-FD05_SESP13					
			pH	7 Days	7.68 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD09_SESP13					
			pH	8 Days	4.38 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD12_SEFL13					
			pH	4 Days	5.43 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD13_SESP13					
			pH	8 Days	2.6 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD14_SEFL13					
			pH	5 Days	7.93 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD18_SEFL13					
			pH	6 Days	7.7 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD18_SESP13					
			pH	7 Days	8.09 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD19_SEFL13					
			pH	7 Days	6.81 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD19_SESP13					
			pH	8 Days	7.07 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD24_SESP13					
			pH	8 Days	3.38 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD26_SEFL13					
			pH	5 Days	7.85 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD26_SESP13					
			pH	8 Days	7.78 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD30_SEFL13					

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
CSSS/APHA 4500H	Water	SRK-FD30_SEFL13					
			pH	9 Days	6.74 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD30_SESP13					
			pH	7 Days	8.11 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD31_SEFL13					
			pH	4 Days	5.11 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD31_SESP13					
			pH	8 Days	4.05 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD49_SESP13					
			pH	5 Days	7.49 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD54_SEFL13					
			pH	9 Days	6.79 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD56_SESP13					
			pH	8 Days	3.6 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD68_SEFL13					
			pH	9 Days	4.6 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-FD956_SESP13					
			pH	8 Days	3.56 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-GD01_SEFL13					
			pH	5 Days	7.77 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-GD01_SESP13					
			pH	7 Days	7.59 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-GD05_SESP13					
			pH	7 Days	8.09 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-GD06_SEFL13					

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
CSSS/APHA 4500H	Water	SRK-GD06_SEFL13					
			pH	7 Days	8.21 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-GD06_SESP13					
			pH	7 Days	8.03 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-GD09_SESP13					
			pH	7 Days	8.34 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-GD11_SESP13					
			pH	7 Days	7.62 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-GD12_SEFL13					
			pH	7 Days	8.34 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-GD13_SEFL13					
			pH	4 Days	8.14 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-GD13_SESP13					
			pH	6 Days	8.13 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-GD19_SESP13					
			pH	7 Days	7.4 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-GD906_SEFL13					
			pH	7 Days	8.23 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-GD911_SESP13					
			pH	7 Days	7.69 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-VD02_SESP13					
			pH	7 Days	7.31 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-VD03_SEFL13					
			pH	7 Days	6.25 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-VD03_SESP13					

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
CSSS/APHA 4500H	Water	SRK-VD03_SESP13					
			pH	7 Days	6.41 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-VD10_SEFL13					
			pH	7 Days	3.58 pH Units	J	J
CSSS/APHA 4500H	Water	SRK-VD10_SESP13					
			pH	6 Days	5.06 pH Units	J	J
SM2310_HP	Water	CH-MILL-03_SEFL13					
			Acidity, hot peroxide	16 Days	4230 mg/l	J	J
SM2310_HP	Water	CH-RCTA-03_SEFL13					
			Acidity, hot peroxide	18 Days	606 mg/l	J	J
SM2310_HP	Water	CH-RCTA-07_SEFL13					
			Acidity, hot peroxide	18 Days	153 mg/l	J	J
SM2310_HP	Water	FP14_SEFL13					
			Acidity, hot peroxide	17 Days	1020 mg/l	J	J
SM2310_HP	Water	GP12_SEFL13					
			Acidity, hot peroxide	17 Days	25 mg/l	UJ	UJ
SM2310_HP	Water	SRK-FD12_SEFL13					
			Acidity, hot peroxide	15 Days	3080 mg/l	J	J
SM2310_HP	Water	SRK-FD13_SEFL13					
			Acidity, hot peroxide	15 Days	20400 mg/l	J	J
SM2310_HP	Water	SRK-FD31_SEFL13					
			Acidity, hot peroxide	15 Days	2920 mg/l	J	J
SM2310_HP	Water	SRK-FD37_SEFL13					
			Acidity, hot peroxide	16 Days	86300 mg/l	J	J
SM2310_HP	Water	VP03_SEFL13					

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
SM2310_HP	Water	VP03_SEFL13					
			Acidity, hot peroxide	16 Days	306 mg/l	J	J
SM2320B	Water	CH-RCTA-04_SESP13					
			Alkalinity, Bicarbonate	21 Days	6.6 mg/l	J	J
			Alkalinity, Carbonate	21 Days	2 mg/l	UJ	UJ
			Alkalinity, Hydroxide	21 Days	2 mg/l	UJ	UJ
			Alkalinity, Total	21 Days	6.6 mg/l	J	J
SM2320B	Water	CH-VP-20_SEFL13					
			Alkalinity, Bicarbonate	17 Days	1 mg/l	UJ	UJ
			Alkalinity, Carbonate	17 Days	1 mg/l	UJ	UJ
			Alkalinity, Hydroxide	17 Days	1 mg/l	UJ	UJ
			Alkalinity, Total	17 Days	1 mg/l	UJ	UJ
SM2540C	Water	CH-GP-19_SESP13					
			Total Dissolved Solids	8 Days	1020 mg/l	J	J
SM2540C	Water	CH-GP-22_SESP13					
			Total Dissolved Solids	8 Days	1050 mg/l	J	J
SM2540C	Water	CH-GP-27_SESP13					
			Total Dissolved Solids	8 Days	963 mg/l	J	J
SM2540C	Water	CH-VP-17_SESP13					
			Total Dissolved Solids	8 Days	9100 mg/l	J	J
SM2540C	Water	CH-VP-18_SESP13					
			Total Dissolved Solids	8 Days	7180 mg/l	J	J
SM2540C	Water	CH-VP-20_SESP13					
			Total Dissolved Solids	8 Days	6930 mg/l	J	J
SM2540C	Water	GP02_SESP13					
			Total Dissolved Solids	8 Days	526 mg/l	J	J

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
SM2540C	Water	GP09_SESP13					
			Total Dissolved Solids	8 Days	1200 mg/l	J	J
SM2540C	Water	GP12_SESP13					
			Total Dissolved Solids	8 Days	909 mg/l	J	J
SM2540C	Water	SRK-GD01_SESP13					
			Total Dissolved Solids	8 Days	2190 mg/l	J	J
SM2540C	Water	SRK-GD05_SESP13					
			Total Dissolved Solids	8 Days	4230 mg/l	J	J
SM2540C	Water	SRK-GD06_SESP13					
			Total Dissolved Solids	8 Days	3950 mg/l	J	J
SM2540C	Water	SRK-GD09_SESP13					
			Total Dissolved Solids	8 Days	460 mg/l	J	J
SM2540C	Water	SRK-GD11_SESP13					
			Total Dissolved Solids	8 Days	1540 mg/l	J	J
SM2540C	Water	SRK-GD19_SESP13					
			Total Dissolved Solids	8 Days	3230 mg/l	J	J
SM2540C	Water	SRK-GD911_SESP13					
			Total Dissolved Solids	8 Days	1530 mg/l	J	J
SM2540C	Water	SRK-VD02_SESP13					
			Total Dissolved Solids	8 Days	3450 mg/l	J	J
SM2540C	Water	SRK-VD03_SESP13					
			Total Dissolved Solids	8 Days	9350 mg/l	J	J
SM2540C	Water	SRK-VD09_SESP13					
			Total Dissolved Solids	8 Days	5630 mg/l	J	J
SM2540D	Water	CH-GP-19_SESP13					

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
SM2540D	Water	CH-GP-19_SESP13					
			Total Suspended Solids	8 Days	88.4 mg/l	J	J
SM2540D	Water	CH-GP-22_SESP13					
			Total Suspended Solids	8 Days	2230 mg/l	J	J
SM2540D	Water	CH-GP-27_SESP13					
			Total Suspended Solids	8 Days	70.8 mg/l	J	J
SM2540D	Water	CH-VP-17_SESP13					
			Total Suspended Solids	8 Days	66.4 mg/l	J	J
SM2540D	Water	CH-VP-18_SESP13					
			Total Suspended Solids	8 Days	149 mg/l	J	J
SM2540D	Water	CH-VP-20_SESP13					
			Total Suspended Solids	8 Days	310 mg/l	J	J
SM2540D	Water	GP02_SESP13					
			Total Suspended Solids	8 Days	9800 mg/l	J	J
SM2540D	Water	GP09_SESP13					
			Total Suspended Solids	8 Days	70.7 mg/l	J	J
SM2540D	Water	GP12_SESP13					
			Total Suspended Solids	8 Days	171 mg/l	J	J
SM2540D	Water	SRK-GD01_SESP13					
			Total Suspended Solids	8 Days	3.2 mg/l	J	J
SM2540D	Water	SRK-GD05_SESP13					
			Total Suspended Solids	8 Days	4.4 mg/l	J	J
SM2540D	Water	SRK-GD06_SESP13					
			Total Suspended Solids	8 Days	3.2 mg/l	J	J
SM2540D	Water	SRK-GD09_SESP13					

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
SM2540D	Water	SRK-GD09_SESP13					
			Total Suspended Solids	8 Days	18.6 mg/l	J	J
SM2540D	Water	SRK-GD11_SESP13					
			Total Suspended Solids	8 Days	1.4 mg/l	J	J
SM2540D	Water	SRK-GD19_SESP13					
			Total Suspended Solids	8 Days	176 mg/l	J	J
SM2540D	Water	SRK-GD911_SESP13					
			Total Suspended Solids	8 Days	2 mg/l	J	J
SM2540D	Water	SRK-VD02_SESP13					
			Total Suspended Solids	8 Days	626 mg/l	J	J
SM2540D	Water	SRK-VD03_SESP13					
			Total Suspended Solids	8 Days	55.5 mg/l	J	J
SM2540D	Water	SRK-VD09_SESP13					
			Total Suspended Solids	8 Days	59.4 mg/l	J	J
SM4110B	Water	CH-FD-66_SESP13					
			Nitrate-N	4 Days	0.5 mg/l	UJ	UJ
			Nitrite as N	4 Days	0.1 mg/l	UJ	UJ
SM4110B	Water	CH-FP-38_SEFL13					
			Nitrate-N	4 Days	0.068 mg/l	J	J
			Nitrite as N	4 Days	0.01 mg/l	UJ	UJ
SM4110B	Water	CH-GP-19_SESP13					
			Nitrate-N	5 Days	0.05 mg/l	UJ	UJ
			Nitrite as N	5 Days	0.01 mg/l	UJ	UJ
SM4110B	Water	CH-GP-22_SESP13					
			Nitrate-N	5 Days	0.175 mg/l	J	J
			Nitrite as N	5 Days	0.01 mg/l	UJ	UJ

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
SM4110B	Water	CH-GP-27_SESP13					
			Nitrate-N	5 Days	0.344 mg/l	J	J
			Nitrite as N	5 Days	0.01 mg/l	UJ	UJ
SM4110B	Water	CH-RCTA-03_SEFL13					
			Nitrate-N	4 Days	0.1 mg/l	UJ	UJ
			Nitrite as N	4 Days	0.02 mg/l	UJ	UJ
SM4110B	Water	CH-RCTA-05_SEFL13					
			Nitrate-N	4 Days	0.0666 mg/l	J	J
			Nitrite as N	4 Days	0.001 mg/l	UJ	UJ
SM4110B	Water	CH-RCTA-07_SEFL13					
			Nitrate-N	4 Days	0.05 mg/l	UJ	UJ
			Nitrite as N	4 Days	0.01 mg/l	UJ	UJ
SM4110B	Water	CH-VP-17_SESP13					
			Nitrate-N	5 Days	0.1 mg/l	UJ	UJ
			Nitrite as N	5 Days	0.02 mg/l	UJ	UJ
SM4110B	Water	CH-VP-18_SESP13					
			Nitrate-N	5 Days	0.1 mg/l	UJ	UJ
			Nitrite as N	5 Days	0.02 mg/l	UJ	UJ
SM4110B	Water	CH-VP-20_SESP13					
			Nitrate-N	5 Days	0.1 mg/l	UJ	UJ
			Nitrite as N	5 Days	0.02 mg/l	UJ	UJ
SM4110B	Water	GP02_SESP13					
			Nitrate-N	5 Days	0.13 mg/l	J	J
			Nitrite as N	5 Days	0.0011 mg/l	J	J
SM4110B	Water	GP09_SESP13					
			Nitrate-N	5 Days	0.502 mg/l	J	J
			Nitrite as N	5 Days	0.01 mg/l	UJ	UJ

TABLE 5
Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
SM4110B	Water	GP12_SESP13					
			Nitrate-N	5 Days	0.05 mg/l	UJ	UJ
			Nitrite as N	5 Days	0.01 mg/l	UJ	UJ
SM4110B	Water	SRK-FD01_SESP13					
			Nitrate-N	4 Days	1.58 mg/l	J	J
			Nitrite as N	4 Days	0.02 mg/l	UJ	UJ
SM4110B	Water	SRK-FD37_SESP13					
			Nitrate-N	4 Days	0.5 mg/l	UJ	UJ
			Nitrite as N	4 Days	0.1 mg/l	UJ	UJ
SM4110B	Water	SRK-GD01_SESP13					
			Nitrate-N	5 Days	5.79 mg/l	J	J
			Nitrite as N	5 Days	0.02 mg/l	UJ	UJ
SM4110B	Water	SRK-GD05_SESP13					
			Nitrate-N	5 Days	10.2 mg/l	J	J
			Nitrite as N	5 Days	0.02 mg/l	UJ	UJ
SM4110B	Water	SRK-GD06_SESP13					
			Nitrate-N	5 Days	12.5 mg/l	J	J
			Nitrite as N	5 Days	0.02 mg/l	UJ	UJ
SM4110B	Water	SRK-GD09_SESP13					
			Nitrate-N	5 Days	1.86 mg/l	J	J
			Nitrite as N	5 Days	0.001 mg/l	UJ	UJ
SM4110B	Water	SRK-GD11_SESP13					
			Nitrate-N	5 Days	4.91 mg/l	J	J
			Nitrite as N	5 Days	0.01 mg/l	UJ	UJ
SM4110B	Water	SRK-GD13_SESP13					
			Nitrate-N	4 Days	20.1 mg/l	J	J
			Nitrite as N	4 Days	0.02 mg/l	UJ	UJ

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
SM4110B	Water	SRK-GD19_SESP13					
			Nitrate-N	5 Days	0.38 mg/l	J	J
			Nitrite as N	5 Days	0.02 mg/l	UJ	UJ
SM4110B	Water	SRK-GD911_SESP13					
			Nitrate-N	5 Days	4.94 mg/l	J	J
			Nitrite as N	5 Days	0.01 mg/l	UJ	UJ
SM4110B	Water	SRK-VD01_SESP13					
			Nitrate-N	4 Days	0.1 mg/l	UJ	UJ
			Nitrite as N	4 Days	0.02 mg/l	UJ	UJ
SM4110B	Water	SRK-VD02_SESP13					
			Nitrate-N	5 Days	0.45 mg/l	J	J
			Nitrite as N	5 Days	0.02 mg/l	UJ	UJ
SM4110B	Water	SRK-VD03_SESP13					
			Nitrate-N	5 Days	0.25 mg/l	UJ	UJ
			Nitrite as N	5 Days	0.05 mg/l	UJ	UJ
SM4110B	Water	SRK-VD04_SESP13					
			Nitrate-N	4 Days	0.5 mg/l	UJ	UJ
			Nitrite as N	4 Days	0.1 mg/l	UJ	UJ
SM4110B	Water	SRK-VD05_SESP13					
			Nitrate-N	4 Days	0.5 mg/l	UJ	UJ
			Nitrite as N	4 Days	0.1 mg/l	UJ	UJ
SM4110B	Water	SRK-VD09_SESP13					
			Nitrate-N	5 Days	0.1 mg/l	UJ	UJ
			Nitrite as N	5 Days	0.02 mg/l	UJ	UJ
SM4110B	Water	SRK-VD10_SESP13					
			Nitrate-N	4 Days	0.25 mg/l	UJ	UJ
			Nitrite as N	4 Days	0.05 mg/l	UJ	UJ

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
SM4110B	Water	SRK-VD12_SESP13					
			Nitrate-N	4 Days	5.84 mg/l	J	J
			Nitrite as N	4 Days	0.05 mg/l	UJ	UJ
SM4110B	Water	SRK-VD905_SESP13					
			Nitrate-N	4 Days	0.5 mg/l	UJ	UJ
			Nitrite as N	4 Days	0.1 mg/l	UJ	UJ
SM4500P	Water	A30_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.0029 mg/l	J	J
SM4500P	Water	CH-FD-66_SESP13					
			ortho-Phosphate	6 Days	1.11 mg/l	J	J
SM4500P	Water	CH-FD72_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	CH-FP-34_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	CH-FP-38_SEFL13					
			ortho-Phosphate, dissolved	5 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	CH-FP-39_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	CH-FP41_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	CH-FP-42_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.0073 mg/l	J	J
SM4500P	Water	CH-FP-934_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	CH-GP-19_SESP13					
			ortho-Phosphate	5 Days	0.001 mg/l	UJ	UJ

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
SM4500P	Water	CH-GP-22_SESP13					
			ortho-Phosphate	5 Days	0.0021 mg/l	J	J
SM4500P	Water	CH-GP-27_SESP13					
			ortho-Phosphate	5 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	CH-RCTA-03_SEFL13					
			ortho-Phosphate, dissolved	5 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	CH-RCTA-05_SEFL13					
			ortho-Phosphate, dissolved	5 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	CH-RCTA-07_SEFL13					
			ortho-Phosphate, dissolved	5 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	CH-VP-17_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.0652 mg/l	J	J
SM4500P	Water	CH-VP-17_SESP13					
			ortho-Phosphate	5 Days	0.0024 mg/l	J	J
SM4500P	Water	CH-VP-18_SESP13					
			ortho-Phosphate	5 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	CH-VP-20_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	CH-VP-20_SESP13					
			ortho-Phosphate	5 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	FP05_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	GP02_SESP13					
			ortho-Phosphate	5 Days	0.0023 mg/l	J	J
SM4500P	Water	GP03_SEFL13					

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
SM4500P	Water	GP03_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.0079 mg/l	J	J
SM4500P	Water	GP09_SESP13					
			ortho-Phosphate	5 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	GP12_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	GP12_SESP13					
			ortho-Phosphate	5 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	GP17_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.0107 mg/l	J	J
SM4500P	Water	GP903_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.0079 mg/l	J	J
SM4500P	Water	SRK-FD01_SESP13					
			ortho-Phosphate	4 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	SRK-FD05_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	SRK-FD13_SEFL13					
			ortho-Phosphate, dissolved	5 Days	2.06 mg/l	J	J
SM4500P	Water	SRK-FD18_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	SRK-FD24_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	SRK-FD30_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	SRK-FD37_SEFL13					

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
SM4500P	Water	SRK-FD37_SEFL13					
			ortho-Phosphate, dissolved	6 Days	47 mg/l	J	J
SM4500P	Water	SRK-FD37_SESP13					
			ortho-Phosphate	4 Days	47.7 mg/l	J	J
SM4500P	Water	SRK-FD40_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.0019 mg/l	J	J
SM4500P	Water	SRK-FD51_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	SRK-FD54_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.0021 mg/l	J	J
SM4500P	Water	SRK-FD56_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	SRK-FD68_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	SRK-FD940_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.0019 mg/l	J	J
SM4500P	Water	SRK-GD01_SESP13					
			ortho-Phosphate	5 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	SRK-GD05_SESP13					
			ortho-Phosphate	5 Days	0.0033 mg/l	J	J
SM4500P	Water	SRK-GD06_SESP13					
			ortho-Phosphate	5 Days	0.0011 mg/l	J	J
SM4500P	Water	SRK-GD09_SESP13					
			ortho-Phosphate	5 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	SRK-GD11_SESP13					

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
SM4500P	Water	SRK-GD11_SESP13					
			ortho-Phosphate	5 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	SRK-GD13_SESP13					
			ortho-Phosphate	4 Days	0.0041 mg/l	J	J
SM4500P	Water	SRK-GD19_SESP13					
			ortho-Phosphate	5 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	SRK-GD911_SESP13					
			ortho-Phosphate	5 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	SRK-VD01_SESP13					
			ortho-Phosphate	4 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	SRK-VD02_SESP13					
			ortho-Phosphate	5 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	SRK-VD03_SESP13					
			ortho-Phosphate	5 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	SRK-VD04_SESP13					
			ortho-Phosphate	6 Days	0.1 mg/l	UJ	UJ
SM4500P	Water	SRK-VD05_SESP13					
			ortho-Phosphate	4 Days	0.41 mg/l	J	J
SM4500P	Water	SRK-VD09_SESP13					
			ortho-Phosphate	5 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	SRK-VD10_SESP13					
			ortho-Phosphate	4 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	SRK-VD12_SESP13					
			ortho-Phosphate	4 Days	2.86 mg/l	J	J
SM4500P	Water	SRK-VD905_SESP13					

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
SM4500P	Water	SRK-VD905_SESP13					
			ortho-Phosphate	4 Days	0.007 mg/l	J	J
SM4500P	Water	VP03_SEFL13					
			ortho-Phosphate, dissolved	4 Days	0.0014 mg/l	J	J

* The most severe flag for each analyte becomes the final validation flag.

Qualifier Description:

J = Analyte was present but the reported value may not be accurate or precise.

UJ = The analyte was not detected above the detection limit objective. However, the reported detection limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Criteria:

HTa>UCL = Holding time exceeded

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
Ferrozine	Water	**Ferrous Iron**				
		CH-FD-66_SESP13	5360 mg/l	J	TEMP>10C	
		CH-FP-23_SESP13	0.026 mg/l	U	AB>RL	blank target = 0.088mg/l
		CH-FP-23_SESP13	0.026 mg/l	U	EB>RL	blank target = 0.119mg/l
		CH-GP-19_SESP13	10.9 mg/l	J	TEMP>10C	
		CH-GP-22_SESP13	0.02 mg/l	UJ	TEMP>10C	
		CH-GP-27_SESP13	0.02 mg/l	UJ	TEMP>10C	
		CH-VP-17_SESP13	1000 mg/l	J	TEMP>10C	
		CH-VP-18_SESP13	472 mg/l	J	TEMP>10C	
		CH-VP-20_SESP13	689 mg/l	J	TEMP>10C	
		GP02_SESP13	0.027 mg/l	J	TEMP>10C	
		GP09_SESP13	0.02 mg/l	UJ	TEMP>10C	
		GP12_SESP13	55.2 mg/l	J	TEMP>10C	
		SRK-FD26_SESP13	0.041 mg/l	U	AB>RL	blank target = 0.088mg/l
		SRK-FD26_SESP13	0.041 mg/l	U	EB>RL	blank target = 0.119mg/l
		SRK-FD40_SESP13	0.561 mg/l	U	EB>RL	blank target = 0.119mg/l
		SRK-FD940_SESP13	0.578 mg/l	U	EB>RL	blank target = 0.119mg/l
		SRK-GD01_SESP13	0.044 mg/l	U	AB>RL	blank target = 0.088mg/l
		SRK-GD01_SESP13	0.044 mg/l	U	EB>RL	blank target = 0.119mg/l
		SRK-GD01_SESP13	0.044 mg/l	J	TEMP>10C	
		SRK-GD05_SESP13	0.02 mg/l	UJ	TEMP>10C	
		SRK-GD06_SESP13	0.02 mg/l	UJ	TEMP>10C	
		SRK-GD09_SESP13	0.02 mg/l	UJ	TEMP>10C	
		SRK-GD11_SESP13	0.027 mg/l	U	AB>RL	blank target = 0.088mg/l
		SRK-GD11_SESP13	0.027 mg/l	U	EB>RL	blank target = 0.119mg/l
		SRK-GD11_SESP13	0.027 mg/l	J	TEMP>10C	
		SRK-GD13_SESP13	0.031 mg/l	J	TEMP>10C	
		SRK-GD19_SESP13	9.81 mg/l	J	TEMP>10C	
		SRK-GD911_SESP13	0.02 mg/l	UJ	TEMP>10C	
		SRK-VD01_SESP13	10.8 mg/l	J	TEMP>10C	
		SRK-VD02_SESP13	8.9 mg/l	J	TEMP>10C	
		SRK-VD03_SESP13	279 mg/l	J	TEMP>10C	
		SRK-VD04_SESP13	4180 mg/l	J	TEMP>10C	
		SRK-VD05_SESP13	7850 mg/l	J	TEMP>10C	

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
		SRK-VD09_SESP13	130 mg/l	J	TEMP>10C	
		SRK-VD10_SESP13	1290 mg/l	J	TEMP>10C	
		SRK-VD12_SESP13	166 mg/l	J	TEMP>10C	
		SRK-VD905_SESP13	7890 mg/l	J	TEMP>10C	
JEM/SM4500N	Water	**Ammonia-N**				
		A30_SESP13	0.0242 mg/l	U	EB>RL	blank target = 0.0119mg/l
		CH-FD-66_SESP13	0.005 mg/l	UJ	TEMP>10C	
		CH-FP-30_SESP13	0.0058 mg/l	U	EB>RL	blank target = 0.0119mg/l
		CH-FP-35_SESP13	0.0081 mg/l	U	EB>RL	blank target = 0.0085mg/l
		CH-GP-19_SESP13	0.366 mg/l	J	TEMP>10C	
		CH-GP-22_SESP13	0.0665 mg/l	J	TEMP>10C	
		CH-GP-27_SESP13	0.0073 mg/l	U	EB>RL	blank target = 0.0085mg/l
		CH-GP-27_SESP13	0.0073 mg/l	J	TEMP>10C	
		CH-VP-17_SESP13	0.198 mg/l	J	TEMP>10C	
		CH-VP-18_SESP13	0.145 mg/l	J	TEMP>10C	
		CH-VP-20_SESP13	0.0807 mg/l	J	TEMP>10C	
		FP10_SESP13	0.0082 mg/l	U	EB>RL	blank target = 0.0083mg/l
		GP02_SESP13	0.0339 mg/l	U	EB>RL	blank target = 0.0085mg/l
		GP02_SESP13	0.0339 mg/l	J	TEMP>10C	
		GP09_SESP13	0.0089 mg/l	U	EB>RL	blank target = 0.0085mg/l
		GP09_SESP13	0.0089 mg/l	J	TEMP>10C	
		GP12_SESP13	0.116 mg/l	J	TEMP>10C	
		SRK-FD01_SESP13	0.0259 mg/l	U	EB>RL	blank target = 0.0119mg/l
		SRK-FD18_SESP13	0.01 mg/l	U	EB>RL	blank target = 0.0119mg/l
		SRK-FD26_SESP13	0.0208 mg/l	U	EB>RL	blank target = 0.0083mg/l
		SRK-FD30_SESP13	0.0056 mg/l	U	EB>RL	blank target = 0.0119mg/l
		SRK-FD37_SESP13	0.0123 mg/l	U	EB>RL	blank target = 0.0083mg/l
		SRK-FD40_SESP13	0.0203 mg/l	U	EB>RL	blank target = 0.0083mg/l
		SRK-FD940_SESP13	0.0203 mg/l	U	EB>RL	blank target = 0.0083mg/l
		SRK-GD01_SESP13	0.0107 mg/l	U	EB>RL	blank target = 0.0083mg/l
		SRK-GD01_SESP13	0.0107 mg/l	J	TEMP>10C	
		SRK-GD05_SESP13	0.005 mg/l	UJ	TEMP>10C	
		SRK-GD06_SESP13	0.0062 mg/l	U	EB>RL	blank target = 0.0083mg/l
		SRK-GD06_SESP13	0.0062 mg/l	J	TEMP>10C	

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
		SRK-GD09_SESP13	0.005 mg/l	UJ	TEMP>10C	
		SRK-GD11_SESP13	0.0067 mg/l	U	EB>RL	blank target = 0.0083mg/l
		SRK-GD11_SESP13	0.0067 mg/l	J	TEMP>10C	
		SRK-GD13_SESP13	0.005 mg/l	UJ	TEMP>10C	
		SRK-GD19_SESP13	0.024 mg/l	U	EB>RL	blank target = 0.0083mg/l
		SRK-GD19_SESP13	0.024 mg/l	J	TEMP>10C	
		SRK-GD911_SESP13	0.0069 mg/l	U	EB>RL	blank target = 0.0083mg/l
		SRK-GD911_SESP13	0.0069 mg/l	J	TEMP>10C	
		SRK-VD01_SESP13	0.009 mg/l	U	EB>RL	blank target = 0.0085mg/l
		SRK-VD01_SESP13	0.009 mg/l	J	TEMP>10C	
		SRK-VD02_SESP13	1.19 mg/l	J	TEMP>10C	
		SRK-VD03_SESP13	2.1 mg/l	J	TEMP>10C	
		SRK-VD04_SESP13	0.812 mg/l	J	TEMP>10C	
		SRK-VD05_SESP13	2.8 mg/l	J	TEMP>10C	
		SRK-VD09_SESP13	0.0065 mg/l	U	EB>RL	blank target = 0.0119mg/l
		SRK-VD09_SESP13	0.0065 mg/l	J	TEMP>10C	
		SRK-VD10_SESP13	6.18 mg/l	J	TEMP>10C	
		SRK-VD12_SESP13	0.68 mg/l	J	TEMP>10C	
		SRK-VD905_SESP13	2.72 mg/l	J	TEMP>10C	
SM2310	Water	**Acidity**				
		CH-GP-19_SESP13	11.9 mg/l	J	TEMP>10C	
		CH-GP-22_SESP13	2.1 mg/l	J	TEMP>10C	
		CH-GP-27_SESP13	1 mg/l	UJ	TEMP>10C	
		GP02_SESP13	1 mg/l	UJ	TEMP>10C	
		GP09_SESP13	4 mg/l	J	TEMP>10C	
		SRK-GD01_SESP13	26.8 mg/l	J	TEMP>10C	
		SRK-GD05_SESP13	16.6 mg/l	J	TEMP>10C	
		SRK-GD06_SESP13	24.6 mg/l	J	TEMP>10C	
		SRK-GD09_SESP13	1 mg/l	UJ	TEMP>10C	
		SRK-GD11_SESP13	26.1 mg/l	J	TEMP>10C	
		SRK-GD13_SESP13	8.3 mg/l	J	TEMP>10C	
		SRK-GD19_SESP13	130 mg/l	J	TEMP>10C	
		SRK-GD911_SESP13	27.5 mg/l	J	TEMP>10C	
		SRK-VD02_SESP13	147 mg/l	J	TEMP>10C	

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
SM2310_HP	Water	**Acidity, hot peroxide**				
		CH-FD-66_SESP13	36400 mg/l	J	TEMP>10C	
		CH-VP-17_SESP13	2900 mg/l	J	TEMP>10C	
		CH-VP-18_SESP13	1980 mg/l	J	TEMP>10C	
		CH-VP-20_SESP13	2200 mg/l	J	TEMP>10C	
		GP12_SESP13	138 mg/l	J	TEMP>10C	
		SRK-VD01_SESP13	268 mg/l	J	TEMP>10C	
		SRK-VD03_SESP13	1440 mg/l	J	TEMP>10C	
		SRK-VD04_SESP13	28000 mg/l	J	TEMP>10C	
		SRK-VD05_SESP13	29300 mg/l	J	TEMP>10C	
		SRK-VD09_SESP13	1390 mg/l	J	TEMP>10C	
		SRK-VD10_SESP13	4450 mg/l	J	TEMP>10C	
		SRK-VD12_SESP13	5250 mg/l	J	TEMP>10C	
		SRK-VD905_SESP13	28500 mg/l	J	TEMP>10C	
SM2320B	Water	**Alkalinity, Bicarbonate**				
		CH-GP-19_SESP13	342 mg/l	J	TEMP>10C	
		CH-GP-22_SESP13	155 mg/l	J	TEMP>10C	
		CH-GP-27_SESP13	265 mg/l	J	TEMP>10C	
		GP02_SESP13	186 mg/l	J	TEMP>10C	
		GP09_SESP13	349 mg/l	J	TEMP>10C	
		GP12_SESP13	2 mg/l	UJ	TEMP>10C	
		SRK-GD01_SESP13	359 mg/l	J	TEMP>10C	
		SRK-GD05_SESP13	807 mg/l	J	TEMP>10C	
		SRK-GD06_SESP13	779 mg/l	J	TEMP>10C	
		SRK-GD09_SESP13	223 mg/l	J	TEMP>10C	
		SRK-GD11_SESP13	373 mg/l	J	TEMP>10C	
		SRK-GD13_SESP13	418 mg/l	J	TEMP>10C	
		SRK-GD19_SESP13	133 mg/l	J	TEMP>10C	
		SRK-GD911_SESP13	371 mg/l	J	TEMP>10C	
		SRK-VD02_SESP13	292 mg/l	J	TEMP>10C	
		SRK-VD03_SESP13	43.8 mg/l	J	TEMP>10C	
		SRK-VD10_SESP13	28.6 mg/l	J	TEMP>10C	
SM2320B	Water	**Alkalinity, Carbonate**				
		CH-GP-19_SESP13	2 mg/l	UJ	TEMP>10C	

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
		CH-GP-22_SESP13	2 mg/l	UJ	TEMP>10C	
		CH-GP-27_SESP13	4 mg/l	J	TEMP>10C	
		GP02_SESP13	1 mg/l	UJ	TEMP>10C	
		GP09_SESP13	2 mg/l	UJ	TEMP>10C	
		GP12_SESP13	2 mg/l	UJ	TEMP>10C	
		SRK-GD01_SESP13	2 mg/l	UJ	TEMP>10C	
		SRK-GD05_SESP13	20 mg/l	UJ	TEMP>10C	
		SRK-GD06_SESP13	20 mg/l	UJ	TEMP>10C	
		SRK-GD09_SESP13	1 mg/l	UJ	TEMP>10C	
		SRK-GD11_SESP13	2 mg/l	UJ	TEMP>10C	
		SRK-GD13_SESP13	2 mg/l	UJ	TEMP>10C	
		SRK-GD19_SESP13	2 mg/l	UJ	TEMP>10C	
		SRK-GD911_SESP13	2 mg/l	UJ	TEMP>10C	
		SRK-VD02_SESP13	2 mg/l	UJ	TEMP>10C	
		SRK-VD03_SESP13	2 mg/l	UJ	TEMP>10C	
		SRK-VD10_SESP13	2 mg/l	UJ	TEMP>10C	
SM2320B	Water	**Alkalinity, Hydroxide**				
		CH-GP-19_SESP13	2 mg/l	UJ	TEMP>10C	
		CH-GP-22_SESP13	2 mg/l	UJ	TEMP>10C	
		CH-GP-27_SESP13	1 mg/l	UJ	TEMP>10C	
		GP02_SESP13	1 mg/l	UJ	TEMP>10C	
		GP09_SESP13	2 mg/l	UJ	TEMP>10C	
		GP12_SESP13	2 mg/l	UJ	TEMP>10C	
		SRK-GD01_SESP13	2 mg/l	UJ	TEMP>10C	
		SRK-GD05_SESP13	20 mg/l	UJ	TEMP>10C	
		SRK-GD06_SESP13	20 mg/l	UJ	TEMP>10C	
		SRK-GD09_SESP13	1 mg/l	UJ	TEMP>10C	
		SRK-GD11_SESP13	2 mg/l	UJ	TEMP>10C	
		SRK-GD13_SESP13	2 mg/l	UJ	TEMP>10C	
		SRK-GD19_SESP13	2 mg/l	UJ	TEMP>10C	
		SRK-GD911_SESP13	2 mg/l	UJ	TEMP>10C	
		SRK-VD02_SESP13	2 mg/l	UJ	TEMP>10C	
		SRK-VD03_SESP13	2 mg/l	UJ	TEMP>10C	
		SRK-VD10_SESP13	2 mg/l	UJ	TEMP>10C	

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
SM2320B	Water	**Alkalinity, Total**				
		CH-GP-19_SESP13	342 mg/l	J	TEMP>10C	
		CH-GP-22_SESP13	155 mg/l	J	TEMP>10C	
		CH-GP-27_SESP13	269 mg/l	J	TEMP>10C	
		GP02_SESP13	186 mg/l	J	TEMP>10C	
		GP09_SESP13	349 mg/l	J	TEMP>10C	
		GP12_SESP13	2 mg/l	UJ	TEMP>10C	
		SRK-GD01_SESP13	359 mg/l	J	TEMP>10C	
		SRK-GD05_SESP13	807 mg/l	J	TEMP>10C	
		SRK-GD06_SESP13	779 mg/l	J	TEMP>10C	
		SRK-GD09_SESP13	223 mg/l	J	TEMP>10C	
		SRK-GD11_SESP13	373 mg/l	J	TEMP>10C	
		SRK-GD13_SESP13	418 mg/l	J	TEMP>10C	
		SRK-GD19_SESP13	133 mg/l	J	TEMP>10C	
		SRK-GD911_SESP13	371 mg/l	J	TEMP>10C	
		SRK-VD02_SESP13	292 mg/l	J	TEMP>10C	
		SRK-VD03_SESP13	43.8 mg/l	J	TEMP>10C	
		SRK-VD10_SESP13	28.6 mg/l	J	TEMP>10C	
SM2540C	Water	**Total Dissolved Solids**				
		CH-FD-66_SESP13	77100 mg/l	J	TEMP>10C	
		CH-GP-19_SESP13	1020 mg/l	J	TEMP>10C	
		CH-GP-22_SESP13	1050 mg/l	J	TEMP>10C	
		CH-GP-27_SESP13	963 mg/l	J	TEMP>10C	
		CH-VP-17_SESP13	9100 mg/l	J	TEMP>10C	
		CH-VP-18_SESP13	7180 mg/l	J	TEMP>10C	
		CH-VP-20_SESP13	6930 mg/l	J	TEMP>10C	
		GP02_SESP13	526 mg/l	J	TEMP>10C	
		GP09_SESP13	1200 mg/l	J	TEMP>10C	
		GP12_SESP13	909 mg/l	J	TEMP>10C	
		SRK-GD01_SESP13	2190 mg/l	J	TEMP>10C	
		SRK-GD05_SESP13	4230 mg/l	J	TEMP>10C	
		SRK-GD06_SESP13	3950 mg/l	J	TEMP>10C	
		SRK-GD09_SESP13	460 mg/l	J	TEMP>10C	
		SRK-GD11_SESP13	1540 mg/l	J	TEMP>10C	

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
		SRK-GD13_SESP13	1860 mg/l	J	TEMP>10C	
		SRK-GD19_SESP13	3230 mg/l	J	TEMP>10C	
		SRK-GD911_SESP13	1530 mg/l	J	TEMP>10C	
		SRK-VD01_SESP13	1100 mg/l	J	TEMP>10C	
		SRK-VD02_SESP13	3450 mg/l	J	TEMP>10C	
		SRK-VD03_SESP13	9350 mg/l	J	TEMP>10C	
		SRK-VD04_SESP13	89100 mg/l	J	TEMP>10C	
		SRK-VD05_SESP13	106000 mg/l	J	TEMP>10C	
		SRK-VD09_SESP13	5630 mg/l	J	TEMP>10C	
		SRK-VD10_SESP13	22600 mg/l	J	TEMP>10C	
		SRK-VD12_SESP13	15100 mg/l	J	TEMP>10C	
		SRK-VD905_SESP13	103000 mg/l	J	TEMP>10C	
SM2540D	Water	**Total Suspended Solids**				
		CH-FD-66_SESP13	325 mg/l	J	TEMP>10C	
		CH-GP-19_SESP13	88.4 mg/l	J	TEMP>10C	
		CH-GP-22_SESP13	2230 mg/l	J	TEMP>10C	
		CH-GP-27_SESP13	70.8 mg/l	J	TEMP>10C	
		CH-VP-17_SESP13	66.4 mg/l	J	TEMP>10C	
		CH-VP-18_SESP13	149 mg/l	J	TEMP>10C	
		CH-VP-20_SESP13	310 mg/l	J	TEMP>10C	
		GP02_SESP13	9800 mg/l	J	TEMP>10C	
		GP09_SESP13	70.7 mg/l	J	TEMP>10C	
		GP12_SESP13	171 mg/l	J	TEMP>10C	
		SRK-GD01_SESP13	3.2 mg/l	J	TEMP>10C	
		SRK-GD05_SESP13	4.4 mg/l	J	TEMP>10C	
		SRK-GD06_SESP13	3.2 mg/l	J	TEMP>10C	
		SRK-GD09_SESP13	18.6 mg/l	J	TEMP>10C	
		SRK-GD11_SESP13	1.4 mg/l	J	TEMP>10C	
		SRK-GD13_SESP13	5.8 mg/l	J	TEMP>10C	
		SRK-GD19_SESP13	176 mg/l	J	TEMP>10C	
		SRK-GD911_SESP13	2 mg/l	J	TEMP>10C	
		SRK-VD01_SESP13	162 mg/l	J	TEMP>10C	
		SRK-VD02_SESP13	626 mg/l	J	TEMP>10C	
		SRK-VD03_SESP13	55.5 mg/l	J	TEMP>10C	

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
		SRK-VD04_SESP13	262 mg/l	J	TEMP>10C	
		SRK-VD05_SESP13	604 mg/l	J	TEMP>10C	
		SRK-VD09_SESP13	59.4 mg/l	J	TEMP>10C	
		SRK-VD10_SESP13	146 mg/l	J	TEMP>10C	
		SRK-VD12_SESP13	140 mg/l	J	TEMP>10C	
		SRK-VD905_SESP13	485 mg/l	J	TEMP>10C	
SM4110B	Water	**Chloride**				
		CH-FD-66_SESP13	50 mg/l	UJ	TEMP>10C	
		CH-GP-19_SESP13	5 mg/l	UJ	TEMP>10C	
		CH-GP-22_SESP13	5 mg/l	UJ	TEMP>10C	
		CH-GP-27_SESP13	5 mg/l	UJ	TEMP>10C	
		CH-VP-17_SESP13	10 mg/l	UJ	TEMP>10C	
		CH-VP-18_SESP13	10 mg/l	UJ	TEMP>10C	
		CH-VP-20_SESP13	10 mg/l	UJ	TEMP>10C	
		GP02_SESP13	0.5 mg/l	UJ	TEMP>10C	
		GP09_SESP13	5 mg/l	UJ	TEMP>10C	
		GP12_SESP13	5 mg/l	UJ	TEMP>10C	
		SRK-GD01_SESP13	10 mg/l	UJ	TEMP>10C	
		SRK-GD05_SESP13	10 mg/l	UJ	TEMP>10C	
		SRK-GD06_SESP13	10 mg/l	UJ	TEMP>10C	
		SRK-GD09_SESP13	0.5 mg/l	UJ	TEMP>10C	
		SRK-GD11_SESP13	5 mg/l	UJ	TEMP>10C	
		SRK-GD13_SESP13	10 mg/l	UJ	TEMP>10C	
		SRK-GD19_SESP13	10 mg/l	UJ	TEMP>10C	
		SRK-GD911_SESP13	5 mg/l	UJ	TEMP>10C	
		SRK-VD01_SESP13	10 mg/l	UJ	TEMP>10C	
		SRK-VD02_SESP13	10 mg/l	UJ	TEMP>10C	
		SRK-VD03_SESP13	25 mg/l	UJ	TEMP>10C	
		SRK-VD04_SESP13	50 mg/l	UJ	TEMP>10C	
		SRK-VD05_SESP13	50 mg/l	UJ	TEMP>10C	
		SRK-VD09_SESP13	10 mg/l	UJ	TEMP>10C	
		SRK-VD10_SESP13	25 mg/l	UJ	TEMP>10C	
		SRK-VD12_SESP13	25 mg/l	UJ	TEMP>10C	
		SRK-VD905_SESP13	50 mg/l	UJ	TEMP>10C	

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
SM4110B	Water	**Fluoride**				
		CH-FD-66_SESP13	41.8 mg/l	J	TEMP>10C	
		CH-GP-19_SESP13	0.2 mg/l	UJ	TEMP>10C	
		CH-GP-22_SESP13	0.33 mg/l	J	TEMP>10C	
		CH-GP-27_SESP13	0.2 mg/l	UJ	TEMP>10C	
		CH-VP-17_SESP13	3.52 mg/l	J	TEMP>10C	
		CH-VP-18_SESP13	2.19 mg/l	J	TEMP>10C	
		CH-VP-20_SESP13	2.04 mg/l	J	TEMP>10C	
		GP02_SESP13	0.243 mg/l	J	TEMP>10C	
		GP09_SESP13	0.21 mg/l	J	TEMP>10C	
		GP12_SESP13	0.31 mg/l	J	TEMP>10C	
		SRK-GD01_SESP13	0.4 mg/l	UJ	TEMP>10C	
		SRK-GD05_SESP13	0.4 mg/l	UJ	TEMP>10C	
		SRK-GD06_SESP13	0.4 mg/l	UJ	TEMP>10C	
		SRK-GD09_SESP13	0.119 mg/l	J	TEMP>10C	
		SRK-GD11_SESP13	0.2 mg/l	UJ	TEMP>10C	
		SRK-GD13_SESP13	0.4 mg/l	UJ	TEMP>10C	
		SRK-GD19_SESP13	0.4 mg/l	UJ	TEMP>10C	
		SRK-GD911_SESP13	0.21 mg/l	J	TEMP>10C	
		SRK-VD01_SESP13	0.4 mg/l	J	TEMP>10C	
		SRK-VD02_SESP13	0.4 mg/l	UJ	TEMP>10C	
		SRK-VD03_SESP13	1.1 mg/l	J	TEMP>10C	
		SRK-VD04_SESP13	40.7 mg/l	J	TEMP>10C	
		SRK-VD05_SESP13	39.1 mg/l	J	TEMP>10C	
		SRK-VD09_SESP13	1.79 mg/l	J	TEMP>10C	
		SRK-VD10_SESP13	3.6 mg/l	J	TEMP>10C	
		SRK-VD12_SESP13	5 mg/l	J	TEMP>10C	
		SRK-VD905_SESP13	40.6 mg/l	J	TEMP>10C	
SM4110B	Water	**Nitrate-N**				
		CH-FD-66_SESP13	0.5 mg/l	UJ	TEMP>10C	
		CH-GP-19_SESP13	0.05 mg/l	UJ	TEMP>10C	
		CH-GP-22_SESP13	0.175 mg/l	J	TEMP>10C	
		CH-GP-27_SESP13	0.344 mg/l	J	TEMP>10C	
		CH-VP-17_SESP13	0.1 mg/l	UJ	TEMP>10C	

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
		CH-VP-18_SESP13	0.1 mg/l	UJ	TEMP>10C	
		CH-VP-20_SESP13	0.1 mg/l	UJ	TEMP>10C	
		GP02_SESP13	0.13 mg/l	J	TEMP>10C	
		GP09_SESP13	0.502 mg/l	J	TEMP>10C	
		GP12_SESP13	0.05 mg/l	UJ	TEMP>10C	
		SRK-GD01_SESP13	5.79 mg/l	J	TEMP>10C	
		SRK-GD05_SESP13	10.2 mg/l	J	TEMP>10C	
		SRK-GD06_SESP13	12.5 mg/l	J	TEMP>10C	
		SRK-GD09_SESP13	1.86 mg/l	J	TEMP>10C	
		SRK-GD11_SESP13	4.91 mg/l	J	TEMP>10C	
		SRK-GD13_SESP13	20.1 mg/l	J	TEMP>10C	
		SRK-GD19_SESP13	0.38 mg/l	J	TEMP>10C	
		SRK-GD911_SESP13	4.94 mg/l	J	TEMP>10C	
		SRK-VD01_SESP13	0.1 mg/l	UJ	TEMP>10C	
		SRK-VD02_SESP13	0.45 mg/l	J	TEMP>10C	
		SRK-VD03_SESP13	0.25 mg/l	UJ	TEMP>10C	
		SRK-VD04_SESP13	0.5 mg/l	UJ	TEMP>10C	
		SRK-VD05_SESP13	0.5 mg/l	UJ	TEMP>10C	
		SRK-VD09_SESP13	0.1 mg/l	UJ	TEMP>10C	
		SRK-VD10_SESP13	0.25 mg/l	UJ	TEMP>10C	
		SRK-VD12_SESP13	5.84 mg/l	J	TEMP>10C	
		SRK-VD905_SESP13	0.5 mg/l	UJ	TEMP>10C	
SM4110B	Water	**Nitrite as N**				
		CH-FD-66_SESP13	0.1 mg/l	UJ	TEMP>10C	
		CH-GP-19_SESP13	0.01 mg/l	UJ	TEMP>10C	
		CH-GP-22_SESP13	0.01 mg/l	UJ	TEMP>10C	
		CH-GP-27_SESP13	0.01 mg/l	UJ	TEMP>10C	
		CH-VP-17_SESP13	0.02 mg/l	UJ	TEMP>10C	
		CH-VP-18_SESP13	0.02 mg/l	UJ	TEMP>10C	
		CH-VP-20_SESP13	0.02 mg/l	UJ	TEMP>10C	
		GP02_SESP13	0.0011 mg/l	J	TEMP>10C	
		GP09_SESP13	0.01 mg/l	UJ	TEMP>10C	
		GP12_SESP13	0.01 mg/l	UJ	TEMP>10C	
		SRK-GD01_SESP13	0.02 mg/l	UJ	TEMP>10C	

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
		SRK-GD05_SESP13	0.02 mg/l	UJ	TEMP>10C	
		SRK-GD06_SESP13	0.02 mg/l	UJ	TEMP>10C	
		SRK-GD09_SESP13	0.001 mg/l	UJ	TEMP>10C	
		SRK-GD11_SESP13	0.01 mg/l	UJ	TEMP>10C	
		SRK-GD13_SESP13	0.02 mg/l	UJ	TEMP>10C	
		SRK-GD19_SESP13	0.02 mg/l	UJ	TEMP>10C	
		SRK-GD911_SESP13	0.01 mg/l	UJ	TEMP>10C	
		SRK-VD01_SESP13	0.02 mg/l	UJ	TEMP>10C	
		SRK-VD02_SESP13	0.02 mg/l	UJ	TEMP>10C	
		SRK-VD03_SESP13	0.05 mg/l	UJ	TEMP>10C	
		SRK-VD04_SESP13	0.1 mg/l	UJ	TEMP>10C	
		SRK-VD05_SESP13	0.1 mg/l	UJ	TEMP>10C	
		SRK-VD09_SESP13	0.02 mg/l	UJ	TEMP>10C	
		SRK-VD10_SESP13	0.05 mg/l	UJ	TEMP>10C	
		SRK-VD12_SESP13	0.05 mg/l	UJ	TEMP>10C	
		SRK-VD905_SESP13	0.1 mg/l	UJ	TEMP>10C	
SM4110B	Water	**Sulfate**				
		CH-FD-66_SESP13	47200 mg/l	J	TEMP>10C	
		CH-GP-19_SESP13	433 mg/l	J	TEMP>10C	
		CH-GP-22_SESP13	632 mg/l	J	TEMP>10C	
		CH-GP-27_SESP13	420 mg/l	J	TEMP>10C	
		CH-VP-17_SESP13	5610 mg/l	J	TEMP>10C	
		CH-VP-18_SESP13	3700 mg/l	J	TEMP>10C	
		CH-VP-20_SESP13	4350 mg/l	J	TEMP>10C	
		GP02_SESP13	227 mg/l	J	TEMP>10C	
		GP09_SESP13	570 mg/l	J	TEMP>10C	
		GP12_SESP13	605 mg/l	J	TEMP>10C	
		SRK-GD01_SESP13	1260 mg/l	J	TEMP>10C	
		SRK-GD05_SESP13	2330 mg/l	J	TEMP>10C	
		SRK-GD06_SESP13	2260 mg/l	J	TEMP>10C	
		SRK-GD09_SESP13	150 mg/l	J	TEMP>10C	
		SRK-GD11_SESP13	805 mg/l	J	TEMP>10C	
		SRK-GD13_SESP13	1110 mg/l	J	TEMP>10C	
		SRK-GD19_SESP13	2130 mg/l	J	TEMP>10C	

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
		SRK-GD911_SESP13	805 mg/l	J	TEMP>10C	
		SRK-VD01_SESP13	1740 mg/l	J	TEMP>10C	
		SRK-VD02_SESP13	2140 mg/l	J	TEMP>10C	
		SRK-VD03_SESP13	6200 mg/l	J	TEMP>10C	
		SRK-VD04_SESP13	49100 mg/l	J	TEMP>10C	
		SRK-VD05_SESP13	60000 mg/l	J	TEMP>10C	
		SRK-VD09_SESP13	3470 mg/l	J	TEMP>10C	
		SRK-VD10_SESP13	14100 mg/l	J	TEMP>10C	
		SRK-VD12_SESP13	8730 mg/l	J	TEMP>10C	
		SRK-VD905_SESP13	62700 mg/l	J	TEMP>10C	
SM4500P	Water	**ortho-Phosphate**				
		CH-FD-66_SESP13	1.11 mg/l	J	TEMP>10C	
		CH-GP-19_SESP13	0.001 mg/l	UJ	TEMP>10C	
		CH-GP-22_SESP13	0.0021 mg/l	J	TEMP>10C	
		CH-GP-27_SESP13	0.001 mg/l	UJ	TEMP>10C	
		CH-VP-17_SESP13	0.0024 mg/l	J	TEMP>10C	
		CH-VP-18_SESP13	0.001 mg/l	UJ	TEMP>10C	
		CH-VP-20_SESP13	0.001 mg/l	UJ	TEMP>10C	
		GP02_SESP13	0.0023 mg/l	J	TEMP>10C	
		GP09_SESP13	0.001 mg/l	UJ	TEMP>10C	
		GP12_SESP13	0.001 mg/l	UJ	TEMP>10C	
		SRK-GD01_SESP13	0.001 mg/l	UJ	TEMP>10C	
		SRK-GD05_SESP13	0.0033 mg/l	J	TEMP>10C	
		SRK-GD06_SESP13	0.0011 mg/l	J	TEMP>10C	
		SRK-GD09_SESP13	0.001 mg/l	UJ	TEMP>10C	
		SRK-GD11_SESP13	0.001 mg/l	UJ	TEMP>10C	
		SRK-GD13_SESP13	0.0041 mg/l	J	TEMP>10C	
		SRK-GD19_SESP13	0.001 mg/l	UJ	TEMP>10C	
		SRK-GD911_SESP13	0.001 mg/l	UJ	TEMP>10C	
		SRK-VD01_SESP13	0.001 mg/l	UJ	TEMP>10C	
		SRK-VD02_SESP13	0.001 mg/l	UJ	TEMP>10C	
		SRK-VD03_SESP13	0.001 mg/l	UJ	TEMP>10C	
		SRK-VD04_SESP13	0.1 mg/l	UJ	TEMP>10C	
		SRK-VD05_SESP13	0.41 mg/l	J	TEMP>10C	

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
		SRK-VD09_SESP13	0.001 mg/l	UJ	TEMP>10C	
		SRK-VD10_SESP13	0.001 mg/l	UJ	TEMP>10C	
		SRK-VD12_SESP13	2.86 mg/l	J	TEMP>10C	
		SRK-VD905_SESP13	0.007 mg/l	J	TEMP>10C	
SM5310	Water	**Dissolved Organic Carbon**				
		A30_SESP13	2.54 mg/l	U	AB>RL	blank target = 1.47mg/l
		A30_SESP13	2.54 mg/l	U	EB>RL	blank target = 1.79mg/l
		CH-FD-66_SESP13	31.7 mg/l	J	TEMP>10C	
		CH-FP-23_SESP13	2.17 mg/l	U	AB>RL	blank target = 1.76mg/l
		CH-FP-23_SESP13	2.17 mg/l	U	EB>RL	blank target = 1.15mg/l
		CH-FP-30_SESP13	1.74 mg/l	U	AB>RL	blank target = 1.47mg/l
		CH-FP-30_SESP13	1.74 mg/l	U	EB>RL	blank target = 1.79mg/l
		CH-FP-34_SESP13	1.16 mg/l	U	AB>RL	blank target = 1.08mg/l
		CH-FP-34_SESP13	1.16 mg/l	U	EB>RL	blank target = 0.55mg/l
		CH-FP-35_SESP13	1.47 mg/l	U	AB>RL	blank target = 1.08mg/l
		CH-FP-35_SESP13	1.47 mg/l	U	EB>RL	blank target = 0.55mg/l
		CH-FP-37_SESP13	2.47 mg/l	U	AB>RL	blank target = 1.47mg/l
		CH-FP-37_SESP13	2.47 mg/l	U	EB>RL	blank target = 1.79mg/l
		CH-GP-19_SESP13	7.73 mg/l	J	TEMP>10C	
		CH-GP-22_SESP13	2.41 mg/l	U	AB>RL	blank target = 1.08mg/l
		CH-GP-22_SESP13	2.41 mg/l	U	EB>RL	blank target = 0.55mg/l
		CH-GP-22_SESP13	2.41 mg/l	J	TEMP>10C	
		CH-GP-27_SESP13	1.25 mg/l	U	AB>RL	blank target = 1.08mg/l
		CH-GP-27_SESP13	1.25 mg/l	U	EB>RL	blank target = 0.55mg/l
		CH-GP-27_SESP13	1.25 mg/l	J	TEMP>10C	
		CH-RCTA-04_SESP13	1.85 mg/l	U	AB>RL	blank target = 1.08mg/l
		CH-RCTA-04_SESP13	1.85 mg/l	U	EB>RL	blank target = 0.55mg/l
		CH-VP-17_SESP13	2.41 mg/l	U	AB>RL	blank target = 1.47mg/l
		CH-VP-17_SESP13	2.41 mg/l	U	EB>RL	blank target = 1.79mg/l
		CH-VP-17_SESP13	2.41 mg/l	J	TEMP>10C	
		CH-VP-18_SESP13	1.97 mg/l	U	AB>RL	blank target = 1.47mg/l
		CH-VP-18_SESP13	1.97 mg/l	U	EB>RL	blank target = 1.79mg/l
		CH-VP-18_SESP13	1.97 mg/l	J	TEMP>10C	
		CH-VP-20_SESP13	2.11 mg/l	U	AB>RL	blank target = 1.47mg/l

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
		CH-VP-20_SESP13	2.11 mg/l	U	EB>RL	blank target = 1.79mg/l
		CH-VP-20_SESP13	2.11 mg/l	J	TEMP>10C	
		FCS-2_SESP13	7.99 mg/l	U	EB>RL	blank target = 1.79mg/l
		FCS-4_SESP13	7.86 mg/l	U	EB>RL	blank target = 1.79mg/l
		FCS-5_SESP13	3.07 mg/l	U	AB>RL	blank target = 1.08mg/l
		FCS-94_SESP13	7.85 mg/l	U	EB>RL	blank target = 1.79mg/l
		FP10_SESP13	3.39 mg/l	U	AB>RL	blank target = 1.76mg/l
		FP10_SESP13	3.39 mg/l	U	EB>RL	blank target = 1.15mg/l
		GP02_SESP13	2.88 mg/l	U	AB>RL	blank target = 1.08mg/l
		GP02_SESP13	2.88 mg/l	J	TEMP>10C	
		GP09_SESP13	0.67 mg/l	U	AB>RL	blank target = 1.08mg/l
		GP09_SESP13	0.67 mg/l	U	EB>RL	blank target = 0.55mg/l
		GP09_SESP13	0.67 mg/l	J	TEMP>10C	
		GP12_SESP13	0.87 mg/l	U	AB>RL	blank target = 1.08mg/l
		GP12_SESP13	0.87 mg/l	U	EB>RL	blank target = 0.55mg/l
		GP12_SESP13	0.87 mg/l	J	TEMP>10C	
		SRK-FD01_SESP13	6.56 mg/l	U	AB>RL	blank target = 1.47mg/l
		SRK-FD01_SESP13	6.56 mg/l	U	EB>RL	blank target = 1.79mg/l
		SRK-FD05_SESP13	3.84 mg/l	U	AB>RL	blank target = 1.47mg/l
		SRK-FD05_SESP13	3.84 mg/l	U	EB>RL	blank target = 1.79mg/l
		SRK-FD09_SESP13	6.52 mg/l	U	AB>RL	blank target = 1.76mg/l
		SRK-FD18_SESP13	6.6 mg/l	U	AB>RL	blank target = 1.47mg/l
		SRK-FD18_SESP13	6.6 mg/l	U	EB>RL	blank target = 1.79mg/l
		SRK-FD19_SESP13	8.24 mg/l	U	EB>RL	blank target = 1.79mg/l
		SRK-FD24_SESP13	2.39 mg/l	U	AB>RL	blank target = 1.76mg/l
		SRK-FD24_SESP13	2.39 mg/l	U	EB>RL	blank target = 1.15mg/l
		SRK-FD26_SESP13	3.71 mg/l	U	AB>RL	blank target = 1.76mg/l
		SRK-FD26_SESP13	3.71 mg/l	U	EB>RL	blank target = 1.15mg/l
		SRK-FD30_SESP13	1.22 mg/l	U	AB>RL	blank target = 1.47mg/l
		SRK-FD30_SESP13	1.22 mg/l	U	EB>RL	blank target = 1.79mg/l
		SRK-FD31_SESP13	8.76 mg/l	U	AB>RL	blank target = 1.76mg/l
		SRK-FD40_SESP13	2.85 mg/l	U	AB>RL	blank target = 1.76mg/l
		SRK-FD40_SESP13	2.85 mg/l	U	EB>RL	blank target = 1.15mg/l
		SRK-FD56_SESP13	7.25 mg/l	U	AB>RL	blank target = 1.47mg/l

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
		SRK-FD56_SESP13	7.25 mg/l	U	EB>RL	blank target = 1.79mg/l
		SRK-FD940_SESP13	2.84 mg/l	U	AB>RL	blank target = 1.76mg/l
		SRK-FD940_SESP13	2.84 mg/l	U	EB>RL	blank target = 1.15mg/l
		SRK-FD956_SESP13	7.26 mg/l	U	AB>RL	blank target = 1.47mg/l
		SRK-FD956_SESP13	7.26 mg/l	U	EB>RL	blank target = 1.79mg/l
		SRK-GD01_SESP13	3.64 mg/l	U	AB>RL	blank target = 1.76mg/l
		SRK-GD01_SESP13	3.64 mg/l	U	EB>RL	blank target = 1.15mg/l
		SRK-GD01_SESP13	3.64 mg/l	J	TEMP>10C	
		SRK-GD05_SESP13	3.59 mg/l	U	AB>RL	blank target = 1.76mg/l
		SRK-GD05_SESP13	3.59 mg/l	U	EB>RL	blank target = 1.15mg/l
		SRK-GD05_SESP13	3.59 mg/l	J	TEMP>10C	
		SRK-GD06_SESP13	8.84 mg/l	J	TEMP>10C	
		SRK-GD09_SESP13	4.01 mg/l	U	AB>RL	blank target = 1.76mg/l
		SRK-GD09_SESP13	4.01 mg/l	U	EB>RL	blank target = 1.15mg/l
		SRK-GD09_SESP13	4.01 mg/l	J	TEMP>10C	
		SRK-GD11_SESP13	2.78 mg/l	U	AB>RL	blank target = 1.76mg/l
		SRK-GD11_SESP13	2.78 mg/l	U	EB>RL	blank target = 1.15mg/l
		SRK-GD11_SESP13	2.78 mg/l	J	TEMP>10C	
		SRK-GD13_SESP13	5.24 mg/l	U	AB>RL	blank target = 1.76mg/l
		SRK-GD13_SESP13	5.24 mg/l	U	EB>RL	blank target = 1.15mg/l
		SRK-GD13_SESP13	5.24 mg/l	J	TEMP>10C	
		SRK-GD19_SESP13	2.08 mg/l	U	AB>RL	blank target = 1.76mg/l
		SRK-GD19_SESP13	2.08 mg/l	U	EB>RL	blank target = 1.15mg/l
		SRK-GD19_SESP13	2.08 mg/l	J	TEMP>10C	
		SRK-GD911_SESP13	2.89 mg/l	U	AB>RL	blank target = 1.76mg/l
		SRK-GD911_SESP13	2.89 mg/l	U	EB>RL	blank target = 1.15mg/l
		SRK-GD911_SESP13	2.89 mg/l	J	TEMP>10C	
		SRK-VD01_SESP13	1.41 mg/l	U	AB>RL	blank target = 1.08mg/l
		SRK-VD01_SESP13	1.41 mg/l	U	EB>RL	blank target = 0.55mg/l
		SRK-VD01_SESP13	1.41 mg/l	J	TEMP>10C	
		SRK-VD02_SESP13	2.86 mg/l	U	AB>RL	blank target = 1.47mg/l
		SRK-VD02_SESP13	2.86 mg/l	U	EB>RL	blank target = 1.79mg/l
		SRK-VD02_SESP13	2.86 mg/l	J	TEMP>10C	
		SRK-VD03_SESP13	3.9 mg/l	U	AB>RL	blank target = 1.47mg/l

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
		SRK-VD03_SESP13	3.9 mg/l	U	EB>RL	blank target = 1.79mg/l
		SRK-VD03_SESP13	3.9 mg/l	J	TEMP>10C	
		SRK-VD04_SESP13	24.7 mg/l	J	TEMP>10C	
		SRK-VD05_SESP13	33.4 mg/l	J	TEMP>10C	
		SRK-VD09_SESP13	2.34 mg/l	U	AB>RL	blank target = 1.47mg/l
		SRK-VD09_SESP13	2.34 mg/l	U	EB>RL	blank target = 1.79mg/l
		SRK-VD09_SESP13	2.34 mg/l	J	TEMP>10C	
		SRK-VD10_SESP13	15.4 mg/l	J	TEMP>10C	
		SRK-VD12_SESP13	6.53 mg/l	J	TEMP>10C	
		SRK-VD905_SESP13	33.2 mg/l	J	TEMP>10C	
SW6010B	Water	**Aluminum, dissolved**				
		CH-FP-23_SESP13	0.0185 mg/l	U	AB>RL	blank target = 0.0185mg/l
		CH-FP-23_SESP13	0.0185 mg/l	U	EB>RL	blank target = 0.0482mg/l
		CH-FP-34_SEFL13	0.0763 mg/l	U	EB>RL	blank target = 0.0089mg/l
		CH-FP-39_SEFL13	0.0096 mg/l	U	EB>RL	blank target = 0.0089mg/l
		CH-FP-934_SEFL13	0.0619 mg/l	U	EB>RL	blank target = 0.0089mg/l
		CH-GP-19_SEFL13	0.0148 mg/l	U	EB>RL	blank target = 0.0089mg/l
		CH-GP-27_SEFL13	0.0013 mg/l	U	EB>RL	blank target = 0.0089mg/l
		CH-GP-919_SEFL13	0.0186 mg/l	U	EB>RL	blank target = 0.0089mg/l
		FP10_SESP13	0.0082 mg/l	U	AB>RL	blank target = 0.0185mg/l
		FP10_SESP13	0.0082 mg/l	U	EB>RL	blank target = 0.0482mg/l
		GP09_SEFL13	0.0014 mg/l	U	EB>RL	blank target = 0.0089mg/l
		SRK-FD18_SEFL13	0.0039 mg/l	U	EB>RL	blank target = 0.0089mg/l
		SRK-FD26_SESP13	0.035 mg/l	U	AB>RL	blank target = 0.0185mg/l
		SRK-FD26_SESP13	0.035 mg/l	U	EB>RL	blank target = 0.0482mg/l
		SRK-GD01_SESP13	0.0109 mg/l	U	AB>RL	blank target = 0.0185mg/l
		SRK-GD01_SESP13	0.0109 mg/l	U	EB>RL	blank target = 0.0482mg/l
		SRK-GD05_SESP13	0.0076 mg/l	U	AB>RL	blank target = 0.0185mg/l
		SRK-GD05_SESP13	0.0076 mg/l	U	EB>RL	blank target = 0.0482mg/l
		SRK-GD06_SESP13	0.0066 mg/l	U	AB>RL	blank target = 0.0185mg/l
		SRK-GD06_SESP13	0.0066 mg/l	U	EB>RL	blank target = 0.0482mg/l
		SRK-GD09_SESP13	0.0119 mg/l	U	AB>RL	blank target = 0.0185mg/l
		SRK-GD09_SESP13	0.0119 mg/l	U	EB>RL	blank target = 0.0482mg/l
		SRK-GD11_SESP13	0.0047 mg/l	U	AB>RL	blank target = 0.0185mg/l

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
		SRK-GD11_SESP13	0.0047 mg/l	U	EB>RL	blank target = 0.0482mg/l
		SRK-GD13_SEFL13	0.0097 mg/l	U	EB>RL	blank target = 0.0089mg/l
		SRK-GD13_SESP13	0.0025 mg/l	U	AB>RL	blank target = 0.0185mg/l
		SRK-GD13_SESP13	0.0025 mg/l	U	EB>RL	blank target = 0.0482mg/l
		SRK-GD911_SESP13	0.005 mg/l	U	AB>RL	blank target = 0.0185mg/l
		SRK-GD911_SESP13	0.005 mg/l	U	EB>RL	blank target = 0.0482mg/l
SW6010B	Water	**Arsenic, dissolved**				
		FP10_SESP13	0.00033 mg/l	U	AB>RL	blank target = 0.00352mg/l
		FP10_SESP13	0.00033 mg/l	U	EB>RL	blank target = 0.00029mg/l
		SRK-FD24_SESP13	0.0036 mg/l	U	AB>RL	blank target = 0.00352mg/l
		SRK-FD26_SESP13	0.00031 mg/l	U	AB>RL	blank target = 0.00352mg/l
		SRK-FD26_SESP13	0.00031 mg/l	U	EB>RL	blank target = 0.00029mg/l
		SRK-FD40_SESP13	0.0014 mg/l	U	AB>RL	blank target = 0.00352mg/l
		SRK-FD40_SESP13	0.0014 mg/l	U	EB>RL	blank target = 0.00029mg/l
		SRK-FD940_SESP13	0.0018 mg/l	U	AB>RL	blank target = 0.00352mg/l
		SRK-GD01_SESP13	0.00156 mg/l	U	AB>RL	blank target = 0.00352mg/l
		SRK-GD05_SESP13	0.0043 mg/l	U	AB>RL	blank target = 0.00352mg/l
		SRK-GD06_SESP13	0.00395 mg/l	U	AB>RL	blank target = 0.00352mg/l
		SRK-GD09_SESP13	0.00035 mg/l	U	AB>RL	blank target = 0.00352mg/l
		SRK-GD09_SESP13	0.00035 mg/l	U	EB>RL	blank target = 0.00029mg/l
		SRK-GD11_SESP13	0.00085 mg/l	U	AB>RL	blank target = 0.00352mg/l
		SRK-GD11_SESP13	0.00085 mg/l	U	EB>RL	blank target = 0.00029mg/l
		SRK-GD13_SESP13	0.00331 mg/l	U	AB>RL	blank target = 0.00352mg/l
		SRK-GD19_SESP13	0.0019 mg/l	U	AB>RL	blank target = 0.00352mg/l
		SRK-GD911_SESP13	0.00083 mg/l	U	AB>RL	blank target = 0.00352mg/l
		SRK-GD911_SESP13	0.00083 mg/l	U	EB>RL	blank target = 0.00029mg/l
SW6010B	Water	**Cadmium, dissolved**				
		CH-FP-30_SESP13	0.000215 mg/l	U	EB>RL	blank target = 0.000053mg/l
		CH-FP-37_SESP13	0.000142 mg/l	U	EB>RL	blank target = 0.000053mg/l
		CH-GP-19_SEFL13	0.000206 mg/l	U	EB>RL	blank target = 0.000016mg/l
		CH-GP-22_SESP13	0.000076 mg/l	U	AB>RL	blank target = 0.000017mg/l
		CH-GP-919_SEFL13	0.000218 mg/l	U	EB>RL	blank target = 0.000016mg/l
		CH-RCTA-05_SEFL13	0.000015 mg/l	U	EB>RL	blank target = 0.000016mg/l
		FP10_SESP13	0.00507 mg/l	U	AB>RL	blank target = 0.00116mg/l

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
		FP10_SESP13	0.00507 mg/l	U	EB>RL	blank target = 0.00326mg/l
		GP09_SEFL13	0.000059 mg/l	U	EB>RL	blank target = 0.000016mg/l
		SRK-FD18_SESP13	0.000264 mg/l	U	EB>RL	blank target = 0.000053mg/l
		SRK-FD26_SESP13	0.00374 mg/l	U	AB>RL	blank target = 0.00116mg/l
		SRK-FD26_SESP13	0.00374 mg/l	U	EB>RL	blank target = 0.00326mg/l
		SRK-GD01_SESP13	0.00317 mg/l	U	AB>RL	blank target = 0.00116mg/l
		SRK-GD01_SESP13	0.00317 mg/l	U	EB>RL	blank target = 0.00326mg/l
		SRK-GD05_SESP13	0.00165 mg/l	U	AB>RL	blank target = 0.00116mg/l
		SRK-GD05_SESP13	0.00165 mg/l	U	EB>RL	blank target = 0.00326mg/l
		SRK-GD06_SESP13	0.00248 mg/l	U	AB>RL	blank target = 0.00116mg/l
		SRK-GD06_SESP13	0.00248 mg/l	U	EB>RL	blank target = 0.00326mg/l
		SRK-GD09_SESP13	0.000021 mg/l	U	AB>RL	blank target = 0.00116mg/l
		SRK-GD09_SESP13	0.000021 mg/l	U	EB>RL	blank target = 0.00326mg/l
		SRK-GD11_SESP13	0.00536 mg/l	U	AB>RL	blank target = 0.00116mg/l
		SRK-GD11_SESP13	0.00536 mg/l	U	EB>RL	blank target = 0.00326mg/l
		SRK-GD13_SEFL13	0.000089 mg/l	U	EB>RL	blank target = 0.000016mg/l
		SRK-GD13_SESP13	0.000089 mg/l	U	AB>RL	blank target = 0.00116mg/l
		SRK-GD13_SESP13	0.000089 mg/l	U	EB>RL	blank target = 0.00326mg/l
		SRK-GD911_SESP13	0.00527 mg/l	U	AB>RL	blank target = 0.00116mg/l
		SRK-GD911_SESP13	0.00527 mg/l	U	EB>RL	blank target = 0.00326mg/l
SW6010B	Water	**Cobalt, dissolved**				
		FP10_SESP13	0.00171 mg/l	U	AB>RL	blank target = 0.00041mg/l
		FP10_SESP13	0.00171 mg/l	U	EB>RL	blank target = 0.0011mg/l
		SRK-FD26_SESP13	0.00499 mg/l	U	EB>RL	blank target = 0.0011mg/l
		SRK-GD01_SESP13	0.00272 mg/l	U	EB>RL	blank target = 0.0011mg/l
		SRK-GD05_SESP13	0.00281 mg/l	U	EB>RL	blank target = 0.0011mg/l
		SRK-GD06_SESP13	0.00126 mg/l	U	AB>RL	blank target = 0.00041mg/l
		SRK-GD06_SESP13	0.00126 mg/l	U	EB>RL	blank target = 0.0011mg/l
		SRK-GD13_SESP13	0.00062 mg/l	U	AB>RL	blank target = 0.00041mg/l
		SRK-GD13_SESP13	0.00062 mg/l	U	EB>RL	blank target = 0.0011mg/l
SW6010B	Water	**Copper, dissolved**				
		CH-FP-23_SESP13	0.038 mg/l	U	AB>RL	blank target = 0.0189mg/l
		CH-FP-23_SESP13	0.038 mg/l	U	EB>RL	blank target = 0.0571mg/l
		CH-FP-37_SESP13	0.00126 mg/l	U	EB>RL	blank target = 0.00031mg/l

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
		FP10_SESP13	0.00308 mg/l	U	AB>RL	blank target = 0.0189mg/l
		FP10_SESP13	0.00308 mg/l	U	EB>RL	blank target = 0.0571mg/l
		SRK-FD09_SESP13	0.113 mg/l	U	EB>RL	blank target = 0.0571mg/l
		SRK-FD26_SESP13	0.00725 mg/l	U	AB>RL	blank target = 0.0189mg/l
		SRK-FD26_SESP13	0.00725 mg/l	U	EB>RL	blank target = 0.0571mg/l
		SRK-GD01_SESP13	0.00229 mg/l	U	AB>RL	blank target = 0.0189mg/l
		SRK-GD01_SESP13	0.00229 mg/l	U	EB>RL	blank target = 0.0571mg/l
		SRK-GD05_SESP13	0.0019 mg/l	U	AB>RL	blank target = 0.0189mg/l
		SRK-GD05_SESP13	0.0019 mg/l	U	EB>RL	blank target = 0.0571mg/l
		SRK-GD06_SESP13	0.00179 mg/l	U	AB>RL	blank target = 0.0189mg/l
		SRK-GD06_SESP13	0.00179 mg/l	U	EB>RL	blank target = 0.0571mg/l
		SRK-GD09_SESP13	0.0004 mg/l	U	AB>RL	blank target = 0.0189mg/l
		SRK-GD09_SESP13	0.0004 mg/l	U	EB>RL	blank target = 0.0571mg/l
		SRK-GD11_SESP13	0.0914 mg/l	U	AB>RL	blank target = 0.0189mg/l
		SRK-GD11_SESP13	0.0914 mg/l	U	EB>RL	blank target = 0.0571mg/l
		SRK-GD13_SESP13	0.00142 mg/l	U	AB>RL	blank target = 0.0189mg/l
		SRK-GD13_SESP13	0.00142 mg/l	U	EB>RL	blank target = 0.0571mg/l
		SRK-GD19_SESP13	0.0059 mg/l	U	AB>RL	blank target = 0.0189mg/l
		SRK-GD19_SESP13	0.0059 mg/l	U	EB>RL	blank target = 0.0571mg/l
		SRK-GD911_SESP13	0.0904 mg/l	U	AB>RL	blank target = 0.0189mg/l
		SRK-GD911_SESP13	0.0904 mg/l	U	EB>RL	blank target = 0.0571mg/l
		SRK-VD10_SESP13	0.054 mg/l	U	AB>RL	blank target = 0.0189mg/l
		SRK-VD10_SESP13	0.054 mg/l	U	EB>RL	blank target = 0.0571mg/l
SW6010B	Water	**Iron, dissolved**				
		CH-FP-23_SESP13	0.061 mg/l	U	AB>RL	blank target = 0.197mg/l
		CH-FP-23_SESP13	0.061 mg/l	U	EB>RL	blank target = 0.439mg/l
		SRK-FD26_SESP13	0.041 mg/l	U	AB>RL	blank target = 0.197mg/l
		SRK-FD26_SESP13	0.041 mg/l	U	EB>RL	blank target = 0.439mg/l
		SRK-GD911_SESP13	0.033 mg/l	U	AB>RL	blank target = 0.197mg/l
		SRK-GD911_SESP13	0.033 mg/l	U	EB>RL	blank target = 0.439mg/l
SW6010B	Water	**Lead, dissolved**				
		CH-FP-30_SESP13	0.00164 mg/l	U	AB>RL	blank target = 0.000383mg/l
		CH-FP-34_SEFL13	0.00068 mg/l	U	EB>RL	blank target = 0.000496mg/l
		CH-FP-37_SESP13	0.00161 mg/l	U	AB>RL	blank target = 0.000383mg/l

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
		CH-FP-39_SEFL13	0.00127 mg/l	U	EB>RL	blank target = 0.000496mg/l
		CH-FP-934_SEFL13	0.00038 mg/l	U	EB>RL	blank target = 0.000496mg/l
		CH-GP-22_SESP13	0.000153 mg/l	U	AB>RL	blank target = 0.00011mg/l
		CH-RCTA-03_SEFL13	0.00303 mg/l	U	EB>RL	blank target = 0.000496mg/l
		CH-RCTA-05_SEFL13	0.000058 mg/l	U	EB>RL	blank target = 0.000496mg/l
		CH-RCTA-07_SEFL13	0.00115 mg/l	U	EB>RL	blank target = 0.000496mg/l
		FP10_SESP13	0.0013 mg/l	U	AB>RL	blank target = 0.00169mg/l
		FP10_SESP13	0.0013 mg/l	U	EB>RL	blank target = 0.000799mg/l
		GP02_SESP13	0.000086 mg/l	U	AB>RL	blank target = 0.00011mg/l
		GP09_SEFL13	0.00105 mg/l	U	EB>RL	blank target = 0.000496mg/l
		SRK-FD01_SESP13	0.0016 mg/l	U	AB>RL	blank target = 0.000383mg/l
		SRK-FD18_SEFL13	0.000954 mg/l	U	EB>RL	blank target = 0.000496mg/l
		SRK-FD26_SESP13	0.00031 mg/l	U	AB>RL	blank target = 0.00169mg/l
		SRK-FD26_SESP13	0.00031 mg/l	U	EB>RL	blank target = 0.000799mg/l
		SRK-GD01_SESP13	0.00086 mg/l	U	AB>RL	blank target = 0.00169mg/l
		SRK-GD01_SESP13	0.00086 mg/l	U	EB>RL	blank target = 0.000799mg/l
		SRK-GD05_SESP13	0.00168 mg/l	U	AB>RL	blank target = 0.00169mg/l
		SRK-GD05_SESP13	0.00168 mg/l	U	EB>RL	blank target = 0.000799mg/l
		SRK-GD06_SESP13	0.00235 mg/l	U	AB>RL	blank target = 0.00169mg/l
		SRK-GD06_SESP13	0.00235 mg/l	U	EB>RL	blank target = 0.000799mg/l
		SRK-GD09_SESP13	0.000278 mg/l	U	AB>RL	blank target = 0.00169mg/l
		SRK-GD09_SESP13	0.000278 mg/l	U	EB>RL	blank target = 0.000799mg/l
		SRK-GD11_SESP13	0.00246 mg/l	U	AB>RL	blank target = 0.00169mg/l
		SRK-GD11_SESP13	0.00246 mg/l	U	EB>RL	blank target = 0.000799mg/l
		SRK-GD13_SEFL13	0.00149 mg/l	U	EB>RL	blank target = 0.000496mg/l
		SRK-GD13_SESP13	0.000156 mg/l	U	AB>RL	blank target = 0.00169mg/l
		SRK-GD13_SESP13	0.000156 mg/l	U	EB>RL	blank target = 0.000799mg/l
		SRK-GD911_SESP13	0.00281 mg/l	U	AB>RL	blank target = 0.00169mg/l
		SRK-GD911_SESP13	0.00281 mg/l	U	EB>RL	blank target = 0.000799mg/l
SW6010B	Water	**Manganese, dissolved**				
		CH-FP-39_SEFL13	0.0178 mg/l	U	EB>RL	blank target = 0.00838mg/l
		CH-GP-27_SEFL13	0.00673 mg/l	U	EB>RL	blank target = 0.00838mg/l
		CH-RCTA-05_SEFL13	0.000514 mg/l	U	EB>RL	blank target = 0.00838mg/l
		FP10_SESP13	0.109 mg/l	U	EB>RL	blank target = 0.0401mg/l

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
		GP09_SEFL13	0.0152 mg/l	U	EB>RL	blank target = 0.00838mg/l
		SRK-FD18_SEFL13	0.00134 mg/l	U	EB>RL	blank target = 0.00838mg/l
		SRK-FD18_SESP13	0.00328 mg/l	U	AB>RL	blank target = 0.00112mg/l
		SRK-FD18_SESP13	0.00328 mg/l	U	EB>RL	blank target = 0.00105mg/l
		SRK-GD01_SESP13	0.065 mg/l	U	AB>RL	blank target = 0.015mg/l
		SRK-GD01_SESP13	0.065 mg/l	U	EB>RL	blank target = 0.0401mg/l
		SRK-GD05_SESP13	0.0618 mg/l	U	AB>RL	blank target = 0.015mg/l
		SRK-GD05_SESP13	0.0618 mg/l	U	EB>RL	blank target = 0.0401mg/l
		SRK-GD06_SESP13	0.082 mg/l	U	EB>RL	blank target = 0.0401mg/l
		SRK-GD09_SESP13	0.00159 mg/l	U	AB>RL	blank target = 0.015mg/l
		SRK-GD09_SESP13	0.00159 mg/l	U	EB>RL	blank target = 0.0401mg/l
		SRK-GD13_SEFL13	0.0104 mg/l	U	EB>RL	blank target = 0.00838mg/l
		SRK-GD13_SESP13	0.00715 mg/l	U	AB>RL	blank target = 0.015mg/l
		SRK-GD13_SESP13	0.00715 mg/l	U	EB>RL	blank target = 0.0401mg/l
SW6010B	Water	**Zinc, dissolved**				
		CH-FP-30_SESP13	0.121 mg/l	U	AB>RL	blank target = 0.0324mg/l
		CH-FP-30_SESP13	0.121 mg/l	U	EB>RL	blank target = 0.0467mg/l
		CH-FP-37_SESP13	0.0434 mg/l	U	AB>RL	blank target = 0.0324mg/l
		CH-FP-37_SESP13	0.0434 mg/l	U	EB>RL	blank target = 0.0467mg/l
		CH-GP-19_SEFL13	0.0233 mg/l	U	EB>RL	blank target = 0.0325mg/l
		CH-GP-22_SESP13	0.0028 mg/l	U	AB>RL	blank target = 0.004mg/l
		CH-GP-919_SEFL13	0.0258 mg/l	U	EB>RL	blank target = 0.0325mg/l
		CH-RCTA-05_SEFL13	0.0014 mg/l	U	EB>RL	blank target = 0.0325mg/l
		FP10_SESP13	3.08 mg/l	U	AB>RL	blank target = 0.673mg/l
		FP10_SESP13	3.08 mg/l	U	EB>RL	blank target = 1.81mg/l
		GP02_SESP13	0.001 mg/l	U	AB>RL	blank target = 0.004mg/l
		GP09_SEFL13	0.0385 mg/l	U	EB>RL	blank target = 0.0325mg/l
		SRK-FD18_SEFL13	0.0899 mg/l	U	EB>RL	blank target = 0.0325mg/l
		SRK-FD18_SESP13	0.109 mg/l	U	AB>RL	blank target = 0.0324mg/l
		SRK-FD18_SESP13	0.109 mg/l	U	EB>RL	blank target = 0.0467mg/l
		SRK-FD26_SESP13	3.37 mg/l	U	EB>RL	blank target = 1.81mg/l
		SRK-GD01_SESP13	6.64 mg/l	U	EB>RL	blank target = 1.81mg/l
		SRK-GD05_SESP13	2.95 mg/l	U	AB>RL	blank target = 0.673mg/l
		SRK-GD05_SESP13	2.95 mg/l	U	EB>RL	blank target = 1.81mg/l

TABLE 6
Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
		SRK-GD06_SESP13	4.08 mg/l	U	EB>RL	blank target = 1.81mg/l
		SRK-GD09_SESP13	0.0101 mg/l	U	AB>RL	blank target = 0.673mg/l
		SRK-GD09_SESP13	0.0101 mg/l	U	EB>RL	blank target = 1.81mg/l
		SRK-GD11_SESP13	7.29 mg/l	U	EB>RL	blank target = 1.81mg/l
		SRK-GD13_SEFL13	0.231 mg/l	U	EB>RL	blank target = 0.0325mg/l
		SRK-GD13_SESP13	0.301 mg/l	U	AB>RL	blank target = 0.673mg/l
		SRK-GD13_SESP13	0.301 mg/l	U	EB>RL	blank target = 1.81mg/l
		SRK-GD911_SESP13	7.17 mg/l	U	EB>RL	blank target = 1.81mg/l

Blank target = concentration of field or laboratory blank.

* The most severe flag for each analyte becomes the final validation flag.

Qualifier Description:

J = Analyte was present but the reported value may not be accurate or precise.

U = This analyte was analyzed for but not detected at the specified detection limit.

UJ = The analyte was not detected above the detection limit objective. However, the reported detection limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Criteria:

AB>RL = Ambient blank concentration greater than the RL

EB>RL = Equipment blank concentration greater than the RL

TEMP>10C = Cooler received by laboratory at greater than 10 degrees C

TABLE 7

Matrix Spike Precision/Accuracy – Qualified Data

Method	Matrix	Sample ID	Analyte	Result	MS/MSD Qualifier*	MS Recovery	Criteria
Ferrozine	Water		**Ferrous Iron, Dissolved**				
		CH13-016-FAROPL_80		0.62 mg/l	J	Sample rec'd unpreserved by the lab	NoPreservative
SM2540C	Water		**Total Dissolved Solids**				
		SRK-FD13_SEFL13		58500 mg/l	J	Analytical interference may be present	Interference
		SRK-FD13_SESP13		60800 mg/l	J	Analytical interference may be present	Interference
		SRK-FD37_SEFL13		191000 mg/l	J	Analytical interference may be present	Interference
		SRK-VD04_SEFL13		161000 mg/l	J	Analytical interference may be present	Interference
		SRK-VD05_SEFL13		153000 mg/l	J	Analytical interference may be present	Interference
		SRK-VD905_SEFL13		155000 mg/l	J	Analytical interference may be present	Interference

* The most severe flag for each analyte becomes the final validation flag.

Qualifier Description:

J = Analyte was present but the reported value may not be accurate or precise.

Criteria:

Interference = Analytical interferences may be present.

NoPreservative = Sample received unpreserved by laboratory

TABLE 8

Site Completeness by Analyte – Qualified Data

			Number of Occurrences									
Method	**Analyte**	**Units**	**Analyses**	**Detects**	**Non-detects**	**Blank Flags**	**J Flags**	**M Flags**	**Contractor R Flags**	**Total R Flags**	**Contractor Percent Completeness**	**Overall Percent Completeness**
ASTM D7237	Free Cyanide	MG/L	51		51		19				100	100
CH1987LIME	Lime Demand	LB/1000US	2	2							100	100
CH1987LIME	Solids Formed	LB/1000US	2	2							100	100
CSSS/APHA 45	pH	PH UNITS	92	92			92				100	100
E245.7	Mercury	MG/L	2		2						100	100
E245.7	Mercury, dissolved	MG/L	124	31	93		4				100	100
Ferrozine	Ferrous Iron	MG/L	58	40	18		25				100	100
Ferrozine	Ferrous Iron, Dissolved	MG/L	66	39	27		6				100	100
ISO 14403:200	Total Cyanide	MG/L	1		1						100	100
JEM/SM4500N	Ammonia-N	MG/L	124	67	57		17				100	100
SM2310	Acidity	MG/L	25	22	3		1				100	100
SM2310	ACIDITY (CaCO3)	MG/L	35	30	5						100	100
SM2310_HP	Acidity, hot peroxide	MG/L	54	50	4		26				100	100
SM2320B	Alkalinity, Bicarbonate	MG/L	92	77	15		19				100	100
SM2320B	Alkalinity, Carbonate	MG/L	92	4	88		19				100	100
SM2320B	Alkalinity, Hydroxide	MG/L	92		92		19				100	100
SM2320B	Alkalinity, Total	MG/L	92	77	15		19				100	100
SM2340B_CAL	Hardness	MG/L	124	124							100	100
SM2540C	Total Dissolved Solids	MG/L	124	124			33				100	100
SM2540D	Total Suspended Solids	MG/L	124	118	6		35				100	100
SM4110B	Chloride	MG/L	124	1	123		27				100	100
SM4110B	Fluoride	MG/L	124	99	25		27				100	100
SM4110B	Nitrate-N	MG/L	124	84	40		33				100	100
SM4110B	Nitrite as N	MG/L	124	4	120		33				100	100
SM4110B	Sulfate	MG/L	124	124			27				100	100
SM4500P	ortho-Phosphate	MG/L	58	20	38		31				100	100
SM4500P	ortho-Phosphate, dissolved	MG/L	66	21	45		31				100	100
SM5310	Dissolved Organic Carbon	MG/L	124	78	46		10				100	100
SW6010B	Aluminum	MG/L	2	2			2				100	100

TABLE 8

Site Completeness by Analyte – Qualified Data

			Number of Occurrences									
Method	**Analyte**	**Units**	**Analyses**	**Detects**	**Non-detects**	**Blank Flags**	**J Flags**	**M Flags**	**Contractor R Flags**	**Total R Flags**	**Contractor Percent Completeness**	**Overall Percent Completeness**
SW6010B	Aluminum, dissolved	MG/L	124	94	30		4				100	100
SW6010B	Antimony	MG/L	2		2						100	100
SW6010B	Antimony, dissolved	MG/L	124	29	95						100	100
SW6010B	Arsenic	MG/L	2	2			2				100	100
SW6010B	Arsenic, dissolved	MG/L	124	68	56		4				100	100
SW6010B	Barium	MG/L	2	2							100	100
SW6010B	Barium, dissolved	MG/L	124	115	9						100	100
SW6010B	Beryllium	MG/L	2		2						100	100
SW6010B	Beryllium, dissolved	MG/L	124	22	102						100	100
SW6010B	Boron	MG/L	2	2							100	100
SW6010B	Boron, dissolved	MG/L	124	4	120						100	100
SW6010B	Cadmium	MG/L	2	2							100	100
SW6010B	Cadmium, dissolved	MG/L	124	100	24						100	100
SW6010B	Calcium	MG/L	2	2							100	100
SW6010B	Calcium, dissolved	MG/L	124	124							100	100
SW6010B	Chromium	MG/L	2		2						100	100
SW6010B	Chromium, dissolved	MG/L	124	34	90						100	100
SW6010B	Cobalt	MG/L	2	2							100	100
SW6010B	Cobalt, dissolved	MG/L	124	104	20						100	100
SW6010B	Copper	MG/L	2	1	1		2				100	100
SW6010B	Copper, dissolved	MG/L	124	95	29						100	100
SW6010B	Iron	MG/L	2	2			2				100	100
SW6010B	Iron, dissolved	MG/L	124	82	42		2				100	100
SW6010B	Lead	MG/L	2	2			2				100	100
SW6010B	Lead, dissolved	MG/L	124	86	38		4				100	100
SW6010B	Lithium	MG/L	2	2							100	100
SW6010B	Lithium, dissolved	MG/L	124	111	13						100	100
SW6010B	Magnesium	MG/L	2	2							100	100
SW6010B	Magnesium, dissolved	MG/L	124	124							100	100

TABLE 8

Site Completeness by Analyte – Qualified Data

			Number of Occurrences									
Method	**Analyte**	**Units**	**Analyses**	**Detects**	**Non-detects**	**Blank Flags**	**J Flags**	**M Flags**	**Contractor R Flags**	**Total R Flags**	**Contractor Percent Completeness**	**Overall Percent Completeness**
SW6010B	Manganese	MG/L	2	2							100	100
SW6010B	Manganese, dissolved	MG/L	124	111	13						100	100
SW6010B	Molybdenum	MG/L	2	2			2				100	100
SW6010B	Molybdenum, dissolved	MG/L	124	51	73		2				100	100
SW6010B	Nickel	MG/L	2	2							100	100
SW6010B	Nickel, dissolved	MG/L	124	115	9						100	100
SW6010B	Phosphorus	MG/L	2		2						100	100
SW6010B	Phosphorus, dissolved	MG/L	124	5	119						100	100
SW6010B	Potassium	MG/L	2	2							100	100
SW6010B	Potassium, dissolved	MG/L	124	98	26						100	100
SW6010B	Selenium	MG/L	2		2						100	100
SW6010B	Selenium, dissolved	MG/L	124	51	73		2				100	100
SW6010B	Silica	MG/L	2	2							100	100
SW6010B	Silica, dissolved	MG/L	124	124							100	100
SW6010B	Silicon	MG/L	2	2							100	100
SW6010B	Silicon, dissolved	MG/L	124	124							100	100
SW6010B	Silver	MG/L	2		2						100	100
SW6010B	Silver, dissolved	MG/L	124	13	111						100	100
SW6010B	Sodium	MG/L	2	2							100	100
SW6010B	Sodium, dissolved	MG/L	124	105	19						100	100
SW6010B	Strontium	MG/L	2	2							100	100
SW6010B	Strontium, dissolved	MG/L	124	124							100	100
SW6010B	Sulfur	MG/L	2	2							100	100
SW6010B	Sulfur, dissolved	MG/L	124	124							100	100
SW6010B	Thallium	MG/L	2	2							100	100
SW6010B	Thallium, dissolved	MG/L	124	91	33						100	100
SW6010B	Titanium	MG/L	2		2						100	100
SW6010B	Titanium, dissolved	MG/L	124		124						100	100
SW6010B	Uranium	MG/L	2	2			2				100	100

TABLE 8

Site Completeness by Analyte – Qualified Data

			Number of Occurrences									
Method	**Analyte**	**Units**	**Analyses**	**Detects**	**Non-detects**	**Blank Flags**	**J Flags**	**M Flags**	**Contractor R Flags**	**Total R Flags**	**Contractor Percent Completeness**	**Overall Percent Completeness**
SW6010B	Uranium, dissolved	MG/L	124	122	2		2				100	100
SW6010B	Vanadium	MG/L	2		2						100	100
SW6010B	Vanadium, dissolved	MG/L	124	1	123						100	100
SW6010B	Zinc	MG/L	2	2							100	100
SW6010B	Zinc, dissolved	MG/L	124	99	25						100	100

ATTACHMENT 1

Corrective Action Report

September 13, 2013

CH2M Hill
2525 Airpark Drive
Redding, CA
96001

Attention: Travis Gouveia

Dear Mr. Gouveia,

RE: ALS Corrective Action Report (CAR) #10399 – Missed Holding Times for CH2M Hill Faro Mine Project ID 472645.06.AD.01.04.13

Between June 13 and June 15, ALS Whitehorse received seven submissions from CH2M Hill for the above mentioned project and transported them to ALS Vancouver for analysis. These submissions experienced unexpected holding time (HT) exceedances for parameters with HTs ranging from three to fourteen days.

Affected tests submitted under the above referenced project included Free Cyanide, Ortho Phosphate, Total Suspended Solids, and Total Dissolved Solids. Submission details including parameters with hold time exceedances are detailed in the table below:

ALS Work Order	Date Received at ALS	Free CN 14 Day HT Missed	Ortho Phosphate 3 Day HT Missed	TSS/TDS 7 Day HT Missed
L1316343	*13-Jun-13*	X		
L1316379	*13-Jun-13*	X		
L1316422	*13-Jun-13*	X		
L1317509	*15-Jun-13*	X		X
L1316438	*13-Jun-13*	X		
L1316792	*14-Jun-13*	X		
L1317530	*15-Jun-13*		X	

ALS Vancouver relies on a core group of staff which is expanded seasonally to match resource requirements. During the period these samples were received at ALS, workloads at ALS Vancouver were approaching unexpected record highs at a time when the resources required to accommodate these workloads had not yet been fully mobilized.

In addition, during this period of over-capacity, the scheduling tools we use to prioritize lab tests were found to be inaccurately prioritizing samples for some tests, causing overdue samples to be unintentionally prioritized ahead of samples that could exceed hold times.

As soon as these issues were recognized, ALS took steps to address the affected areas as follows:

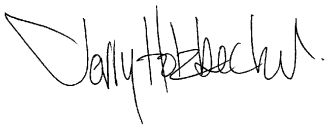
- Additional resources were employed and staffing was increased by more than 20% within eight weeks.
- Work sharing capacity was increased within the Canadian ALS laboratory network to better manage workload spikes and unexpected service outages.
- Worklists were manually re-sorted during peak workloads to ensure correct prioritization was occurring.

These corrective measures were mostly reactive and were not enacted quickly enough to prevent the holding time failures mentioned above. To prevent future recurrence, the laboratory is taking additional measures to reorganize our teams, add staff, and increase planning.

We sincerely apologize for any problems and inconvenience that this error may have caused to CH2M Hill. We hope that this letter sufficiently explains how these issues occurred and addresses how ALS plans to ensure that they do not occur again in the future.

Please feel free to contact myself or Joyce Chow if you require any additional information.

Sincerely,





Jerry Holzbecher, B.Sc.
Client Services Manager,
Vancouver

Joyce Chow, B.Sc.
Director,
Western Canada

Spring/Fall 2013 Waste Rock Dump Groundwater Monitoring Data Quality Evaluation Report

Groundwater samples were collected and analyzed for the Waste Rock Dump site during the Spring and Fall 2013 sampling events in support of the Faro Mine Remediation Project. All analytical data were evaluated as described in the *Quality Assurance Project Plan, Faro Mine Remediation Project* (QAPP) (CH2M HILL, 2013). This Data Quality Evaluation report summarizes the results of the Quality Assurance/Quality Control (QA/QC) activities prescribed in the QAPP and provides a complete data usability assessment. The QAPP identifies the method-specific QC requirements for each analytical parameter and matrix and defines a plan to test that the correct sampling, analytical, and data reduction procedures are followed using audits and data validation.

This report is intended as a general data quality assessment designed to summarize data issues.

Analytical Data

A total of 10 native environmental groundwater samples, 2 groundwater field duplicates (FD), and 2 equipment blanks (EB) were collected June 11 through September 17, 2013. Samples were analyzed by the ALS network of laboratories, including the ALS Whitehorse, Yukon Territory and ALS Vancouver in Burnaby, British Columbia laboratories. The majority of the analyses were performed by the ALS Vancouver laboratory. The laboratories divided the samples into eight sample delivery groups (SDG). Summaries of the samples collected are presented in Tables 1 and 2. A total of 14 methods were used to analyze the environmental samples. Samples were collected and couriered to the ALS Whitehorse laboratory. After pulling sample aliquots in to support the analyses performed at the ALS Whitehorse laboratory, samples were then shipped by overnight carrier to the ALS Vancouver laboratory for analysis. Selected samples were analyzed for one or more of the following analytes/methods:

- Free cyanide by Method ASTM D7237
- pH by Method CSSS/APHA4500H
- Mercury by Method E245.7
- Ferrous iron by Method Ferrozine
- Ammonia by Method JEM/SM4500N
- Acidity by Method SM2310
- Alkalinity by Method SM2320B
- Hardness by Method SM2340B_CALC
- Total dissolved solids (TDS) by Method SM2540C
- Total suspended solids (TSS) by Method SM2540D
- Anions (bromide, chloride, fluoride, nitrate, nitrite, sulfate) by Method SM4110B
- Ortho-phosphate by Method SM4500P

- Dissolved organic carbon (DOC) by Method SM5310
- Total and dissolved metals by Method SW6010B (ICP)

Each SDG was evaluated by CH2M HILL chemists for data quality. Analytical performance was initially assessed on an SDG basis or an analytical batch basis. Several SDGs may be associated with the same laboratory QC samples. The association of laboratory QC samples and environmental samples from the same analytical batches is determined by the laboratory lot control number. Data were assessed using Level II validation as indicated below:

- Review of the data set narrative to identify issues that the laboratory reported in the data deliverable
- Check of sample integrity (sample collection, preservation, and holding times)
- Evaluation of basic QC measurements used to assess the accuracy, precision and representativeness of data, including QC blanks, LCS, MS, surrogate recovery when applicable, and field or laboratory duplicate results
- Review of sample results, target compound lists, and detection limits to verify that project analytical requirements are met
- Initiation of corrective actions, as necessary, based on the data review findings
- Verification that hardcopy results match electronic deliverable results
- Qualification of the data using appropriate qualifier flags, as necessary, to reflect data usability limitations

Field samples were also reviewed to ascertain field compliance and data quality issues. This included a review of FDs and EBs.

Data flags were assigned according to the QC acceptance limits defined in the QAPP (CH2M HILL, 2013). The data validation flags for each SDG are summarized in each data quality validation report. These flags, and the reason for each flag, are recorded in the electronic validation database. Multiple flags can routinely be applied to a specific sample method/matrix/analyte combination, but there will be only one final flag. As discussed below, a final flag is applied to the data on the basis of the flags entered into the database and is the most conservative of the applied validation flags. The final flag also includes matrix and blank sample impacts.

Data flags can be separated into the following two categories to be used in estimating both contractor and analytical completeness:

- Flags caused by laboratory deviation from requirements in the QAPP (CH2M HILL, 2013)
- Flags applied because of the nature of the sample matrix or method limitations

The database keeps track of the type of protocol violation, and contractual and analytical completeness during data validation.

The data flags are those listed in the QAPP (CH2M HILL, 2013) and are defined as follows:

J - Analyte was present but the reported value may not be accurate or precise.

UJ - Analyte was not detected above the detection limit objective. However, the reported detection limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - Result has been rejected for use.

U - Analyte was analyzed for but not detected at the specified detection limit.

None - A database flag with no QC implications. A flag is not applied. This is a placeholder for calculating QC criteria issues that do not require flagging.

Exclude - A database flag with no QC implications. When multiple data points have been reported, such as dilutions or re-extractions, the data that best match QAPP QC requirements (CH2M HILL, 2013) are presented to the data users and the remainders are marked with this flag.

= - A database flag with no QC implications. A place holder for the DQE reporting purposes noting that the reported result is a detected concentration greater than the RL.

Findings

The overall summaries of the data validation findings are contained in Tables 3 through 7 and summarized in the following method sections:

- **Table 3**: Overall Flagging Summary. Presents the number of occurrences for each data validation reason by method.
- **Table 4**: Field Duplicate Precision – Qualified Data. Presents the results which are qualified because of FD precision exceedances.
- **Table 5:** Holding Time Exceedances – Qualified Data. Presents the data qualified because of holding time criteria exceedances.
- **Table 6**: Blank Contamination – Qualified Data. Presents the data qualified because of blank contamination or temperature criteria exceedances.
- **Table 7**: Site Completeness by Analyte – Qualified Data. Presents the percent completeness by method, analyte and matrix.

Overall Flagging **Summary**

The frequency of field and laboratory QC samples and the associated control criteria are specified in the QAPP (CH2M HILL, 2013). These control criteria were used to evaluate the laboratory data. In the following method-specific discussions, only the criteria exceedances that impact data qualification are discussed.

Laboratory Qualifiers

The laboratory applied informational qualifiers to multiple results to note analytical issues such as dilutions, blank contamination, matrix effects, limited sample volume, holding time, and reanalyses. These qualifiers were reviewed and where the informational qualifiers did not result in a validation flags noting a QC exceedances, these qualifiers where replaced with the concentration flags “U” or “=”. All instances of these laboratory qualifier replacements are recorded in Table 3, and are not further discussed.

Method ASTM D7237 (Free Cyanide)

Holding Time

Table 5 lists the specific field samples and their associated holding time criteria exceedances. The 14 day holding time for water samples was exceeded by 3 days for 3 samples. The associated concentrations were all non-detected and were flagged “UJ.”

Method CSSS/APHA 4500H (pH)

Holding Time

Table 5 lists the specific field samples and their associated holding time criteria exceedances. All 12 samples were analyzed upon receipt at the laboratory, the holding times were exceeded by 4 to 10 days. The associated pH results were flagged “J.”

Method SM2540D (TSS)

Field Duplicates

Table 4 lists the specific field samples which exceeded the FD precision criteria. One FD pair exceeded the criteria. The associated detected concentrations were flagged “J.”

Method SM4110B (Anions)

Holding Time

Table 5 lists the specific field samples and their associated nitrate and nitrite holding time criteria exceedances. The 3 day holding time for water samples was exceeded by one day for 2 samples. The associated detected concentrations were flagged “J.”

Method SM4500P (Ortho-phosphate)

Holding Time

Table 5 lists the specific field samples and their associated holding time criteria exceedances. The 3 day holding time for water samples was exceeded by 1 to 2 days for 4 samples. The associated detected concentrations in native samples were flagged “J,” and the associated non-detected concentrations were flagged “UJ.”

Method SW6010B (ICP Metals)

Blanks

Table 6 lists the specific field samples and their associated EB criteria exceedances. Six water sample detected concentrations were less than five times the blank concentrations. The associated concentrations were flagged “U.”

Field Duplicates

Table 4 lists the specific field samples which exceeded the FD precision criteria. Two FD pairs had exceeded the criteria. The associated detected concentrations were flagged “J.”

Overall Assessment

Completeness is calculated and reported for each method, matrix, and analyte combination as outlined in the QAPP (CH2M HILL, 2013). The number of valid (not qualified with an "R" flag) results divided by the number of possible individual analyte results, expressed as a percentage, determines the completeness of the data set. A summary of the completeness percentages can be found in Table 7.

The QAPP completeness goal is 90 percent and the overall data completeness is 100 percent.

Out of approximately 624 normal and FD data points, 6 results (approximately 1.0 percent) were qualified as not detected because of associated blank contamination, and 21 detected results and 6 non-detected results (approximately 4.3 percent) were qualified as estimated concentrations because of QC exceedances. No data points were rejected because of QC exceedances. These numbers indicate that the quality of the analytical program and laboratory are sufficient to meet the project data quality objectives.

Evaluation of 100 percent of the chemical data was performed by using the QAPP (CH2M HILL, 2013) as a guide for data quality evaluation.

Because of the remote location of the project site, some short holding times were exceeded. No systematic protocol errors were identified on the basis of the QA program set up or during the monitoring of the field or laboratory efforts.

Data Management

Faro Mine Remediation sampling activity logs and laboratory analytical data are maintained in a project database and/or in project files, where appropriate. Data were collected and stored in a manner consistent with the requirements of the QAPP (CH2M HILL, 2013).

All raw data will be maintained on file in the laboratory, and will be available upon request. Complete documentation of sample preparation and analysis and associated QC information will be maintained in a manner that allows easy retrieval in the event that additional information is required. The following minimum documentation should be kept for each project:

- Original work order, COC forms, and other pertinent documents received with the samples
- Records of communication between the laboratory, field personnel, and the client
- Corrective action reports
- Laboratory data reports
- Laboratory logbooks and all raw sample preparation and analytical data
- Electronic data and all pertinent SOPs

Field records to be retained as a minimum will include correspondence, COC forms, field notes, field equipment performance records, maintenance logs, field procedures, corrective action reports, field personnel files, and project-related reports.

The receipt of electronic and pdf laboratory data was logged into the sample tracking program to determine completeness and contractor turnaround time compliance.

The laboratory uploaded electronic data to the Faro Mine EQuIS site. CH2M HILL chemists downloaded this data into the validation program. All data quality evaluation is done using a semiautomated data validation program that uses laboratory pdf report and electronic data simultaneously. All validation flags and discoveries are entered into the validation database and are linked directly to each individual data point. This process validates pdf report data and electronic data simultaneously.

All data quality evaluation reports are generated from the validation database. Final validation flags are uploaded to the Faro Mine EQuIS site.

The data management system was designed to maintain the usability and integrity of the data through a series of procedures and QC checks that began at the field site and carried through to the generation of data for the user. These data included both the chemical data and field operation information. Both the chemical data and the field data were handled according to the guidelines established in the QAPP (CH2M HILL, 2013) and in the *Faro Mine Data Management Plan* (CH2M HILL, 2013).

The laboratory pdf reports are stored in the project files and project local area network hard drive areas in the CH2M HILL office in Redding, California. The original field data forms are stored on the Faro Mine Sharepoint site. Laboratories are required to archive the analytical data as outlined in the QAPP (CH2M HILL, 2013).

Works Cited

CH2M HILL. 2013. *Faro Mine Data Management Plan.* August.

CH2M HILL. 2013. *Quality Assurance Project Plan, Faro Mine Remediation Project.* July.

TABLE 1

Sample Summary by Chain of Custody – Data Summary

CoC Number	Sample Date	Matrix	Sample ID / QAQC Type	SDG	Laboratory
ALS06121301					
	11-Jun-13	WATER	CH12-014-MW003_GW0613 / N	L1316343	ALS
			CH12-014-MW003_GW0613MS / MS	L1316343	ALS
			CH12-014-MW007_GW0613 / N	L1316343	ALS
			CH12-014-MW907_GW0613 / FD	L1316343	ALS
ALS06141302					
	14-Jun-13	WATER	EB_014_13_002 / EB	L1317621	ALS
			EB_014_13_002MS / MS	L1317621	ALS
ALS07031301					
	02-Jul-13	WATER	CH12-014-MW011_GW0613 / N	L1327472	ALS
			CH12-014-MW011_GW0613MS / MS	L1327472	ALS
ALS07041302					
	04-Jul-13	WATER	CH12-014-MW012_GW0613 / N	L1327470	ALS
			CH12-014-MW012_GW0613MS / MS	L1327470	ALS
ALS07081301					
	08-Jul-13	WATER	CH12-014-MW013_GW0613 / N	L1330009	ALS
			CH12-014-MW013_GW0613MS / MS	L1330009	ALS
ALS09151303					
	13-Sep-13	WATER	CH12-014-MW003_GW0913 / N	L1363288	ALS
			CH12-014-MW003_GW0913MS / MS	L1363288	ALS
	12-Sep-13		CH12-014-MW007_GW0913 / N	L1363288	ALS
	14-Sep-13		CH12-014-MW011_GW0913 / N	L1363288	ALS
			CH12-014-MW011_GW0913MS / MS	L1363288	ALS
	13-Sep-13		CH12-014-MW903_GW0913 / FD	L1363288	ALS
			CH12-014-MW903_GW0913MS / MS	L1363288	ALS
ALS09171302					
	16-Sep-13	WATER	CH12-014-MW012_GW0913 / N	L1364565	ALS
			CH12-014-MW012_GW0913MS / MS	L1364565	ALS
ALS09191302					
	17-Sep-13	WATER	CH12-014-MW013_GW0913 / N	L1365983	ALS
			CH12-014-MW013_GW0913MS / MS	L1365983	ALS

TABLE 1

Sample Summary by Chain of Custody – Data Summary

CoC Number	Sample Date	Matrix	Sample ID / QAQC Type	SDG	Laboratory
ALS09191302					
	17-Sep-13	WATER	EB_014_13_003 / EB	L1365983	ALS
			EB_014_13_003MS / MS	L1365983	ALS

QAQC Type

N = normal environmental sample
FD = field duplicate
MS = matrix spike
SD = spike duplicate
TB = trip blank
EB = equipment blank
AB = ambient blank
FB = field blank

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1316343	CH12-014-MW003_GW0613	ASTM D7237	6/11/2013	6/13/2013		6/28/2013
		CH12-014-MW003_GW0613	CSSS/APHA 4500H	6/11/2013	6/13/2013		6/21/2013
		CH12-014-MW003_GW0613	E245.7	6/11/2013	6/13/2013	6/17/2013	6/18/2013
		CH12-014-MW003_GW0613	Ferrozine	6/11/2013	6/13/2013	6/13/2013	6/17/2013
		CH12-014-MW003_GW0613	JEM/SM4500N	6/11/2013	6/13/2013		6/19/2013
		CH12-014-MW003_GW0613	SM2310	6/11/2013	6/13/2013		6/21/2013
		CH12-014-MW003_GW0613	SM2320B	6/11/2013	6/13/2013		6/25/2013
		CH12-014-MW003_GW0613	SM2340B_CALC	6/11/2013	6/13/2013		6/28/2013
		CH12-014-MW003_GW0613	SM2540C	6/11/2013	6/13/2013		6/15/2013
		CH12-014-MW003_GW0613	SM2540D	6/11/2013	6/13/2013		6/15/2013
		CH12-014-MW003_GW0613	SM4110B	6/11/2013	6/13/2013		6/14/2013
		CH12-014-MW003_GW0613	SM4500P	6/11/2013	6/13/2013		6/14/2013
		CH12-014-MW003_GW0613	SM5310	6/11/2013	6/13/2013		6/30/2013
		CH12-014-MW003_GW0613	SW6010B	6/11/2013	6/13/2013		6/26/2013
		CH12-014-MW003_GW0613	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/23/2013
		CH12-014-MW003_GW0613	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/25/2013
		CH12-014-MW003_GW0613	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/28/2013
		CH12-014-MW003_GW0613MS	ASTM D7237	6/11/2013			7/1/2013
		CH12-014-MW003_GW0613MS	E245.7	6/11/2013		6/17/2013	6/17/2013
		CH12-014-MW003_GW0613MS	Ferrozine	6/11/2013		6/12/2013	6/17/2013
		CH12-014-MW003_GW0613MS	JEM/SM4500N	6/11/2013			6/19/2013
		CH12-014-MW003_GW0613MS	SM4110B	6/11/2013			7/2/2013
		CH12-014-MW003_GW0613MS	SM4500P	6/11/2013			6/14/2013
		CH12-014-MW003_GW0613MS	SM5310	6/11/2013			7/1/2013
		CH12-014-MW003_GW0613MS	SW6010B	6/11/2013		6/17/2013	6/17/2013
		CH12-014-MW007_GW0613	ASTM D7237	6/11/2013	6/13/2013		6/28/2013
		CH12-014-MW007_GW0613	CSSS/APHA 4500H	6/11/2013	6/13/2013		6/21/2013
		CH12-014-MW007_GW0613	E245.7	6/11/2013	6/13/2013	6/17/2013	6/18/2013
		CH12-014-MW007_GW0613	Ferrozine	6/11/2013	6/13/2013	6/13/2013	6/17/2013
		CH12-014-MW007_GW0613	JEM/SM4500N	6/11/2013	6/13/2013		6/19/2013
		CH12-014-MW007_GW0613	SM2310	6/11/2013	6/13/2013		6/21/2013
		CH12-014-MW007_GW0613	SM2320B	6/11/2013	6/13/2013		6/25/2013
		CH12-014-MW007_GW0613	SM2340B_CALC	6/11/2013	6/13/2013		6/27/2013
		CH12-014-MW007_GW0613	SM2540C	6/11/2013	6/13/2013		6/15/2013
		CH12-014-MW007_GW0613	SM2540D	6/11/2013	6/13/2013		6/15/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1316343	CH12-014-MW007_GW0613	SM4110B	6/11/2013	6/13/2013		6/14/2013
		CH12-014-MW007_GW0613	SM4500P	6/11/2013	6/13/2013		6/14/2013
		CH12-014-MW007_GW0613	SM5310	6/11/2013	6/13/2013		6/30/2013
		CH12-014-MW007_GW0613	SW6010B	6/11/2013	6/13/2013		6/27/2013
		CH12-014-MW007_GW0613	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/25/2013
		CH12-014-MW007_GW0613	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/27/2013
		CH12-014-MW907_GW0613	ASTM D7237	6/11/2013	6/13/2013		6/28/2013
		CH12-014-MW907_GW0613	CSSS/APHA 4500H	6/11/2013	6/13/2013		6/21/2013
		CH12-014-MW907_GW0613	E245.7	6/11/2013	6/13/2013	6/17/2013	6/18/2013
		CH12-014-MW907_GW0613	Ferrozine	6/11/2013	6/13/2013	6/13/2013	6/17/2013
		CH12-014-MW907_GW0613	JEM/SM4500N	6/11/2013	6/13/2013		6/19/2013
		CH12-014-MW907_GW0613	SM2310	6/11/2013	6/13/2013		6/21/2013
		CH12-014-MW907_GW0613	SM2320B	6/11/2013	6/13/2013		6/25/2013
		CH12-014-MW907_GW0613	SM2340B_CALC	6/11/2013	6/13/2013		6/27/2013
		CH12-014-MW907_GW0613	SM2540C	6/11/2013	6/13/2013		6/15/2013
		CH12-014-MW907_GW0613	SM2540D	6/11/2013	6/13/2013		6/15/2013
		CH12-014-MW907_GW0613	SM4110B	6/11/2013	6/13/2013		6/14/2013
		CH12-014-MW907_GW0613	SM4500P	6/11/2013	6/13/2013		6/14/2013
		CH12-014-MW907_GW0613	SM5310	6/11/2013	6/13/2013		6/30/2013
		CH12-014-MW907_GW0613	SW6010B	6/11/2013	6/13/2013		6/27/2013
		CH12-014-MW907_GW0613	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/25/2013
		CH12-014-MW907_GW0613	SW6010B	6/11/2013	6/13/2013	6/17/2013	6/26/2013
	L1317621	EB_014_13_002	ASTM D7237	6/14/2013	6/15/2013		6/28/2013
		EB_014_13_002	E245.7	6/14/2013	6/15/2013	6/19/2013	6/19/2013
		EB_014_13_002	Ferrozine	6/14/2013	6/15/2013	6/15/2013	6/21/2013
		EB_014_13_002	JEM/SM4500N	6/14/2013	6/15/2013		6/28/2013
		EB_014_13_002	SM2340B_CALC	6/14/2013	6/15/2013		6/27/2013
		EB_014_13_002	SM4110B	6/14/2013	6/15/2013		6/18/2013
		EB_014_13_002	SM4500P	6/14/2013	6/15/2013		6/18/2013
		EB_014_13_002	SM5310	6/14/2013	6/15/2013		7/1/2013
		EB_014_13_002	SW6010B	6/14/2013	6/15/2013		6/27/2013
		EB_014_13_002	SW6010B	6/14/2013	6/15/2013	6/19/2013	6/25/2013
		EB_014_13_002	SW6010B	6/14/2013	6/15/2013	6/19/2013	6/26/2013
		EB_014_13_002	SW6010B	6/14/2013	6/15/2013	6/19/2013	6/27/2013
		EB_014_13_002MS	ASTM D7237	6/14/2013			7/3/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1317621	EB_014_13_002MS	E245.7	6/14/2013		6/19/2013	6/19/2013
		EB_014_13_002MS	JEM/SM4500N	6/14/2013			7/1/2013
		EB_014_13_002MS	SM4110B	6/14/2013			7/4/2013
		EB_014_13_002MS	SW6010B	6/14/2013		6/25/2013	6/19/2013
		EB_014_13_002MS	SW6010B	6/14/2013		6/26/2013	6/19/2013
	L1327470	CH12-014-MW012_GW0613	ASTM D7237	7/4/2013	7/4/2013		7/18/2013
		CH12-014-MW012_GW0613	CSSS/APHA 4500H	7/4/2013	7/4/2013		7/8/2013
		CH12-014-MW012_GW0613	E245.7	7/4/2013	7/4/2013	7/11/2013	7/12/2013
		CH12-014-MW012_GW0613	Ferrozine	7/4/2013	7/4/2013	7/4/2013	7/8/2013
		CH12-014-MW012_GW0613	JEM/SM4500N	7/4/2013	7/4/2013		7/18/2013
		CH12-014-MW012_GW0613	SM2310	7/4/2013	7/4/2013		7/8/2013
		CH12-014-MW012_GW0613	SM2320B	7/4/2013	7/4/2013		7/6/2013
		CH12-014-MW012_GW0613	SM2340B_CALC	7/4/2013	7/4/2013		7/16/2013
		CH12-014-MW012_GW0613	SM2540C	7/4/2013	7/4/2013		7/11/2013
		CH12-014-MW012_GW0613	SM2540D	7/4/2013	7/4/2013		7/8/2013
		CH12-014-MW012_GW0613	SM4110B	7/4/2013	7/4/2013		7/5/2013
		CH12-014-MW012_GW0613	SM4500P	7/4/2013	7/4/2013		7/5/2013
		CH12-014-MW012_GW0613	SM5310	7/4/2013	7/4/2013		7/16/2013
		CH12-014-MW012_GW0613	SW6010B	7/4/2013	7/4/2013		7/12/2013
		CH12-014-MW012_GW0613	SW6010B	7/4/2013	7/4/2013	7/11/2013	7/11/2013
		CH12-014-MW012_GW0613	SW6010B	7/4/2013	7/4/2013	7/11/2013	7/15/2013
		CH12-014-MW012_GW0613MS	ASTM D7237	7/4/2013			7/19/2013
		CH12-014-MW012_GW0613MS	E245.7	7/4/2013		7/12/2013	7/11/2013
		CH12-014-MW012_GW0613MS	JEM/SM4500N	7/4/2013			7/18/2013
		CH12-014-MW012_GW0613MS	SW6010B	7/4/2013		7/11/2013	7/11/2013
		CH12-014-MW012_GW0613MS	SW6010B	7/4/2013		7/15/2013	7/11/2013
	L1327472	CH12-014-MW011_GW0613	ASTM D7237	7/2/2013	7/4/2013		7/16/2013
		CH12-014-MW011_GW0613	CSSS/APHA 4500H	7/2/2013	7/4/2013		7/8/2013
		CH12-014-MW011_GW0613	E245.7	7/2/2013	7/4/2013	7/11/2013	7/12/2013
		CH12-014-MW011_GW0613	Ferrozine	7/2/2013	7/4/2013	7/4/2013	7/8/2013
		CH12-014-MW011_GW0613	JEM/SM4500N	7/2/2013	7/4/2013		7/18/2013
		CH12-014-MW011_GW0613	SM2310	7/2/2013	7/4/2013		7/8/2013
		CH12-014-MW011_GW0613	SM2320B	7/2/2013	7/4/2013		7/6/2013
		CH12-014-MW011_GW0613	SM2340B_CALC	7/2/2013	7/4/2013		7/16/2013
		CH12-014-MW011_GW0613	SM2540C	7/2/2013	7/4/2013		7/9/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1327472	CH12-014-MW011_GW0613	SM2540D	7/2/2013	7/4/2013		7/6/2013
		CH12-014-MW011_GW0613	SM4110B	7/2/2013	7/4/2013		7/5/2013
		CH12-014-MW011_GW0613	SM4110B	7/2/2013	7/4/2013		7/9/2013
		CH12-014-MW011_GW0613	SM4500P	7/2/2013	7/4/2013		7/5/2013
		CH12-014-MW011_GW0613	SM5310	7/2/2013	7/4/2013		7/16/2013
		CH12-014-MW011_GW0613	SW6010B	7/2/2013	7/4/2013		7/12/2013
		CH12-014-MW011_GW0613	SW6010B	7/2/2013	7/4/2013	7/11/2013	7/11/2013
		CH12-014-MW011_GW0613	SW6010B	7/2/2013	7/4/2013	7/11/2013	7/15/2013
		CH12-014-MW011_GW0613MS	ASTM D7237	7/2/2013			7/17/2013
		CH12-014-MW011_GW0613MS	Ferrozine	7/2/2013		7/8/2013	7/10/2013
		CH12-014-MW011_GW0613MS	SM5310	7/2/2013			7/17/2013
	L1330009	CH12-014-MW013_GW0613	ASTM D7237	7/8/2013	7/10/2013		7/22/2013
		CH12-014-MW013_GW0613	CSSS/APHA 4500H	7/8/2013	7/10/2013		7/12/2013
		CH12-014-MW013_GW0613	E245.7	7/8/2013	7/10/2013	7/15/2013	7/17/2013
		CH12-014-MW013_GW0613	Ferrozine	7/8/2013	7/10/2013	7/15/2013	7/15/2013
		CH12-014-MW013_GW0613	JEM/SM4500N	7/8/2013	7/10/2013		7/23/2013
		CH12-014-MW013_GW0613	SM2310	7/8/2013	7/10/2013		7/12/2013
		CH12-014-MW013_GW0613	SM2320B	7/8/2013	7/10/2013		7/12/2013
		CH12-014-MW013_GW0613	SM2340B_CALC	7/8/2013	7/10/2013		7/23/2013
		CH12-014-MW013_GW0613	SM2540C	7/8/2013	7/10/2013		7/15/2013
		CH12-014-MW013_GW0613	SM2540D	7/8/2013	7/10/2013		7/15/2013
		CH12-014-MW013_GW0613	SM4110B	7/8/2013	7/10/2013		7/11/2013
		CH12-014-MW013_GW0613	SM4500P	7/8/2013	7/10/2013		7/11/2013
		CH12-014-MW013_GW0613	SM5310	7/8/2013	7/10/2013		7/19/2013
		CH12-014-MW013_GW0613	SW6010B	7/8/2013	7/10/2013		7/16/2013
		CH12-014-MW013_GW0613	SW6010B	7/8/2013	7/10/2013	7/15/2013	7/16/2013
		CH12-014-MW013_GW0613	SW6010B	7/8/2013	7/10/2013	7/15/2013	7/18/2013
		CH12-014-MW013_GW0613MS	ASTM D7237	7/8/2013			7/23/2013
		CH12-014-MW013_GW0613MS	E245.7	7/8/2013		7/17/2013	7/15/2013
		CH12-014-MW013_GW0613MS	Ferrozine	7/8/2013		7/15/2013	7/15/2013
		CH12-014-MW013_GW0613MS	JEM/SM4500N	7/8/2013			7/23/2013
		CH12-014-MW013_GW0613MS	SM4500P	7/8/2013			7/11/2013
		CH12-014-MW013_GW0613MS	SW6010B	7/8/2013		7/16/2013	7/15/2013
		CH12-014-MW013_GW0613MS	SW6010B	7/8/2013		7/18/2013	7/15/2013
	L1363288	CH12-014-MW003_GW0913	ASTM D7237	9/13/2013	9/16/2013		9/23/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1363288	CH12-014-MW003_GW0913	CSSS/APHA 4500H	9/13/2013	9/16/2013		9/19/2013
		CH12-014-MW003_GW0913	E245.7	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		CH12-014-MW003_GW0913	Ferrozine	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		CH12-014-MW003_GW0913	JEM/SM4500N	9/13/2013	9/16/2013		9/25/2013
		CH12-014-MW003_GW0913	SM2310	9/13/2013	9/16/2013		9/19/2013
		CH12-014-MW003_GW0913	SM2320B	9/13/2013	9/16/2013		9/18/2013
		CH12-014-MW003_GW0913	SM2340B_CALC	9/13/2013	9/16/2013		9/27/2013
		CH12-014-MW003_GW0913	SM2540C	9/13/2013	9/16/2013		9/18/2013
		CH12-014-MW003_GW0913	SM2540D	9/13/2013	9/16/2013		9/18/2013
		CH12-014-MW003_GW0913	SM4110B	9/13/2013	9/16/2013		9/16/2013
		CH12-014-MW003_GW0913	SM4500P	9/13/2013	9/16/2013		9/17/2013
		CH12-014-MW003_GW0913	SM5310	9/13/2013	9/16/2013		9/18/2013
		CH12-014-MW003_GW0913	SW6010B	9/13/2013	9/16/2013		9/26/2013
		CH12-014-MW003_GW0913	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/25/2013
		CH12-014-MW003_GW0913	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/26/2013
		CH12-014-MW003_GW0913MS	ASTM D7237	9/13/2013			9/24/2013
		CH12-014-MW007_GW0913	ASTM D7237	9/12/2013	9/16/2013		9/23/2013
		CH12-014-MW007_GW0913	CSSS/APHA 4500H	9/12/2013	9/16/2013		9/19/2013
		CH12-014-MW007_GW0913	E245.7	9/12/2013	9/16/2013	9/18/2013	9/19/2013
		CH12-014-MW007_GW0913	Ferrozine	9/12/2013	9/16/2013	9/18/2013	9/19/2013
		CH12-014-MW007_GW0913	JEM/SM4500N	9/12/2013	9/16/2013		9/26/2013
		CH12-014-MW007_GW0913	SM2310	9/12/2013	9/16/2013		9/19/2013
		CH12-014-MW007_GW0913	SM2320B	9/12/2013	9/16/2013		9/18/2013
		CH12-014-MW007_GW0913	SM2340B_CALC	9/12/2013	9/16/2013		9/27/2013
		CH12-014-MW007_GW0913	SM2540C	9/12/2013	9/16/2013		9/18/2013
		CH12-014-MW007_GW0913	SM2540D	9/12/2013	9/16/2013		9/18/2013
		CH12-014-MW007_GW0913	SM4110B	9/12/2013	9/16/2013		9/16/2013
		CH12-014-MW007_GW0913	SM4500P	9/12/2013	9/16/2013		9/17/2013
		CH12-014-MW007_GW0913	SM5310	9/12/2013	9/16/2013		9/20/2013
		CH12-014-MW007_GW0913	SW6010B	9/12/2013	9/16/2013		9/26/2013
		CH12-014-MW007_GW0913	SW6010B	9/12/2013	9/16/2013	9/19/2013	9/26/2013
		CH12-014-MW011_GW0913	ASTM D7237	9/14/2013	9/16/2013		9/23/2013
		CH12-014-MW011_GW0913	CSSS/APHA 4500H	9/14/2013	9/16/2013		9/19/2013
		CH12-014-MW011_GW0913	E245.7	9/14/2013	9/16/2013	9/18/2013	9/19/2013
		CH12-014-MW011_GW0913	Ferrozine	9/14/2013	9/16/2013	9/18/2013	9/20/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1363288	CH12-014-MW011_GW0913	JEM/SM4500N	9/14/2013	9/16/2013		9/25/2013
		CH12-014-MW011_GW0913	SM2310	9/14/2013	9/16/2013		9/19/2013
		CH12-014-MW011_GW0913	SM2320B	9/14/2013	9/16/2013		9/18/2013
		CH12-014-MW011_GW0913	SM2340B_CALC	9/14/2013	9/16/2013		9/27/2013
		CH12-014-MW011_GW0913	SM2540C	9/14/2013	9/16/2013		9/18/2013
		CH12-014-MW011_GW0913	SM2540D	9/14/2013	9/16/2013		9/18/2013
		CH12-014-MW011_GW0913	SM4110B	9/14/2013	9/16/2013		9/16/2013
		CH12-014-MW011_GW0913	SM4500P	9/14/2013	9/16/2013		9/17/2013
		CH12-014-MW011_GW0913	SM5310	9/14/2013	9/16/2013		9/18/2013
		CH12-014-MW011_GW0913	SW6010B	9/14/2013	9/16/2013		9/26/2013
		CH12-014-MW011_GW0913	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/25/2013
		CH12-014-MW011_GW0913	SW6010B	9/14/2013	9/16/2013	9/19/2013	9/26/2013
		CH12-014-MW011_GW0913MS	Ferrozine	9/14/2013		9/20/2013	9/20/2013
		CH12-014-MW011_GW0913MS	SM5310	9/14/2013			9/18/2013
		CH12-014-MW903_GW0913	ASTM D7237	9/13/2013	9/16/2013		9/23/2013
		CH12-014-MW903_GW0913	CSSS/APHA 4500H	9/13/2013	9/16/2013		9/19/2013
		CH12-014-MW903_GW0913	E245.7	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		CH12-014-MW903_GW0913	Ferrozine	9/13/2013	9/16/2013	9/18/2013	9/19/2013
		CH12-014-MW903_GW0913	JEM/SM4500N	9/13/2013	9/16/2013		9/25/2013
		CH12-014-MW903_GW0913	SM2310	9/13/2013	9/16/2013		9/19/2013
		CH12-014-MW903_GW0913	SM2320B	9/13/2013	9/16/2013		9/18/2013
		CH12-014-MW903_GW0913	SM2340B_CALC	9/13/2013	9/16/2013		9/27/2013
		CH12-014-MW903_GW0913	SM2540C	9/13/2013	9/16/2013		9/18/2013
		CH12-014-MW903_GW0913	SM2540D	9/13/2013	9/16/2013		9/18/2013
		CH12-014-MW903_GW0913	SM4110B	9/13/2013	9/16/2013		9/16/2013
		CH12-014-MW903_GW0913	SM4500P	9/13/2013	9/16/2013		9/17/2013
		CH12-014-MW903_GW0913	SM5310	9/13/2013	9/16/2013		9/18/2013
		CH12-014-MW903_GW0913	SW6010B	9/13/2013	9/16/2013		9/26/2013
		CH12-014-MW903_GW0913	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/25/2013
		CH12-014-MW903_GW0913	SW6010B	9/13/2013	9/16/2013	9/19/2013	9/26/2013
		CH12-014-MW903_GW0913MS	E245.7	9/13/2013		9/19/2013	9/18/2013
		CH12-014-MW903_GW0913MS	SW6010B	9/13/2013		9/25/2013	9/19/2013
		CH12-014-MW903_GW0913MS	SW6010B	9/13/2013		9/26/2013	9/19/2013
	L1364565	CH12-014-MW012_GW0913	ASTM D7237	9/16/2013	9/18/2013		9/25/2013
		CH12-014-MW012_GW0913	CSSS/APHA 4500H	9/16/2013	9/18/2013		9/25/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1364565	CH12-014-MW012_GW0913	E245.7	9/16/2013	9/18/2013	9/23/2013	9/24/2013
		CH12-014-MW012_GW0913	Ferrozine	9/16/2013	9/18/2013	9/21/2013	9/21/2013
		CH12-014-MW012_GW0913	JEM/SM4500N	9/16/2013	9/18/2013		9/27/2013
		CH12-014-MW012_GW0913	SM2310	9/16/2013	9/18/2013		9/25/2013
		CH12-014-MW012_GW0913	SM2320B	9/16/2013	9/18/2013		9/20/2013
		CH12-014-MW012_GW0913	SM2340B_CALC	9/16/2013	9/18/2013		10/1/2013
		CH12-014-MW012_GW0913	SM2540C	9/16/2013	9/18/2013		9/20/2013
		CH12-014-MW012_GW0913	SM2540D	9/16/2013	9/18/2013		9/20/2013
		CH12-014-MW012_GW0913	SM4110B	9/16/2013	9/18/2013		9/18/2013
		CH12-014-MW012_GW0913	SM4500P	9/16/2013	9/18/2013		9/19/2013
		CH12-014-MW012_GW0913	SM5310	9/16/2013	9/18/2013		9/22/2013
		CH12-014-MW012_GW0913	SW6010B	9/16/2013	9/18/2013		9/30/2013
		CH12-014-MW012_GW0913	SW6010B	9/16/2013	9/18/2013	9/19/2013	9/27/2013
		CH12-014-MW012_GW0913	SW6010B	9/16/2013	9/18/2013	9/19/2013	9/30/2013
		CH12-014-MW012_GW0913MS	ASTM D7237	9/16/2013			9/26/2013
		CH12-014-MW012_GW0913MS	SM4500P	9/16/2013			9/20/2013
		CH12-014-MW012_GW0913MS	SM5310	9/16/2013			9/23/2013
	L1365983	CH12-014-MW013_GW0913	ASTM D7237	9/17/2013	9/20/2013		9/30/2013
		CH12-014-MW013_GW0913	CSSS/APHA 4500H	9/17/2013	9/20/2013		9/26/2013
		CH12-014-MW013_GW0913	E245.7	9/17/2013	9/20/2013	9/23/2013	9/24/2013
		CH12-014-MW013_GW0913	Ferrozine	9/17/2013	9/20/2013	9/21/2013	9/21/2013
		CH12-014-MW013_GW0913	JEM/SM4500N	9/17/2013	9/20/2013		9/29/2013
		CH12-014-MW013_GW0913	SM2310	9/17/2013	9/20/2013		9/26/2013
		CH12-014-MW013_GW0913	SM2320B	9/17/2013	9/20/2013		9/26/2013
		CH12-014-MW013_GW0913	SM2340B_CALC	9/17/2013	9/20/2013		10/3/2013
		CH12-014-MW013_GW0913	SM2540C	9/17/2013	9/20/2013		9/23/2013
		CH12-014-MW013_GW0913	SM2540D	9/17/2013	9/20/2013		9/23/2013
		CH12-014-MW013_GW0913	SM4110B	9/17/2013	9/20/2013		9/20/2013
		CH12-014-MW013_GW0913	SM4500P	9/17/2013	9/20/2013		9/21/2013
		CH12-014-MW013_GW0913	SM5310	9/17/2013	9/20/2013		9/23/2013
		CH12-014-MW013_GW0913	SW6010B	9/17/2013	9/20/2013		10/3/2013
		CH12-014-MW013_GW0913	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/1/2013
		CH12-014-MW013_GW0913	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/3/2013
		CH12-014-MW013_GW0913MS	ASTM D7237	9/17/2013			9/30/2013
		EB_014_13_003	ASTM D7237	9/17/2013	9/20/2013		9/30/2013

TABLE 2

Sample Chronology – Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
ALS	L1365983	EB_014_13_003	E245.7	9/17/2013	9/20/2013	9/23/2013	9/24/2013
		EB_014_13_003	Ferrozine	9/17/2013	9/20/2013	9/21/2013	9/21/2013
		EB_014_13_003	JEM/SM4500N	9/17/2013	9/20/2013		9/29/2013
		EB_014_13_003	SM2340B_CALC	9/17/2013	9/20/2013		10/2/2013
		EB_014_13_003	SM4110B	9/17/2013	9/20/2013		9/20/2013
		EB_014_13_003	SM4500P	9/17/2013	9/20/2013		9/21/2013
		EB_014_13_003	SM5310	9/17/2013	9/20/2013		9/23/2013
		EB_014_13_003	SW6010B	9/17/2013	9/20/2013		10/1/2013
		EB_014_13_003	SW6010B	9/17/2013	9/20/2013	9/21/2013	9/29/2013
		EB_014_13_003	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/1/2013
		EB_014_13_003	SW6010B	9/17/2013	9/20/2013	9/21/2013	10/2/2013
		EB_014_13_003MS	E245.7	9/17/2013		9/24/2013	9/23/2013
		EB_014_13_003MS	SM5310	9/17/2013			9/24/2013
		EB_014_13_003MS	SW6010B	9/17/2013		9/29/2013	9/21/2013
		EB_014_13_003MS	SW6010B	9/17/2013		10/1/2013	9/21/2013

TABLE 3

Overall Flagging Summary

Method	Matrix	Validation Reason	Qualifier*	Qualifier Type	Number of Affected Analytes
ASTM D7237	Water				
Category = HoldingTime		Holding time exceeded			
			UJ	Protocol	3
CSSS/APHA 4500H	Water				
Category = HoldingTime		Holding time exceeded			
			J	Protocol	12
SM2540D	Water				
Category = FieldDuplicate		Field duplicate exceeds RPD criteria			
			J	Other	2
SM4110B	Water				
Category = HoldingTime		Holding time exceeded			
			J	Protocol	2
Category = Miscellaneous		Invalid Final Flag replaced with Concqual			
			U	Other	30
SM4500P	Water				
Category = HoldingTime		Holding time exceeded			
			UJ	Protocol	3
			J	Protocol	1
SW6010B	Water				
Category = Blank		Equipment blank concentration greater than the RL			
			U	Protocol	6
Category = FieldDuplicate		Field duplicate exceeds RPD criteria			
			J	Other	4
Category = Miscellaneous		Invalid Final Flag replaced with Concqual			
			U	Other	104

TABLE 3

Overall Flagging Summary

Method	Matrix	Validation Reason	Qualifier*	Qualifier Type	Number of Affected Analytes

* The most severe flag for each analyte becomes the final validation flag.

Qualifier Description:

J = Analyte was present but the reported value may not be accurate or precise.

U = This analyte was analyzed for but not detected at the specified detection limit.

UJ = The analyte was not detected above the detection limit objective. However, the reported detection limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Qualifier Type:

Protocol = Flagging due to contractor/laboratory protocol violations.
Other = Flagging due to sample, matrix, or field issues not related to Quality Assurance Project Plan (QAPP) or Sampling and Analysis Plan (SAP) protocol.

TABLE 4

Field Duplicate Precision – Qualified Data

Method	Matrix	Sample ID	Analyte	Result	Field Duplicate Qualifier*	Criteria
SM2540D	Water		**Total Suspended Solids**			
		CH12-014-MW007_GW061		17.4 mg/l	J	FD>RPD
		CH12-014-MW907_GW061		11.8 mg/l	J	FD>RPD
SW6010B	Water		**Chromium, dissolved**			
		CH12-014-MW003_GW091		0.00108 mg/l	J	FD>RPD
		CH12-014-MW903_GW091		0.00074 mg/l	J	FD>RPD
SW6010B	Water		**Copper, dissolved**			
		CH12-014-MW003_GW091		0.0519 mg/l	J	FD>RPD
		CH12-014-MW903_GW091		0.0266 mg/l	J	FD>RPD

* The most severe flag for each analyte becomes the final validation flag.

Qualifier Description:

J = Analyte was present but the reported value may not be accurate or precise.

Criteria:

FD>RPD = Field duplicate exceeds RPD criteria

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
ASTM D7237	Water	CH12-014-MW003_GW0613	Free Cyanide	17 Days	0.02 mg/l	UJ	UJ
ASTM D7237	Water	CH12-014-MW007_GW0613	Free Cyanide	17 Days	0.01 mg/l	UJ	UJ
ASTM D7237	Water	CH12-014-MW907_GW0613	Free Cyanide	17 Days	0.01 mg/l	UJ	UJ
CSSS/APHA 4500H	Water	CH12-014-MW003_GW0613	pH	10 Days	7.52 pH Units	J	J
CSSS/APHA 4500H	Water	CH12-014-MW003_GW0913	pH	6 Days	7.63 pH Units	J	J
CSSS/APHA 4500H	Water	CH12-014-MW007_GW0613	pH	10 Days	6.87 pH Units	J	J
CSSS/APHA 4500H	Water	CH12-014-MW007_GW0913	pH	7 Days	6.51 pH Units	J	J
CSSS/APHA 4500H	Water	CH12-014-MW011_GW0613	pH	6 Days	7.46 pH Units	J	J
CSSS/APHA 4500H	Water	CH12-014-MW011_GW0913	pH	5 Days	7.61 pH Units	J	J
CSSS/APHA 4500H	Water	CH12-014-MW012_GW0613	pH	4 Days	7.83 pH Units	J	J
CSSS/APHA 4500H	Water	CH12-014-MW012_GW0913	pH	9 Days	7.82 pH Units	J	J
CSSS/APHA 4500H	Water	CH12-014-MW013_GW0613	pH	4 Days	7.08 pH Units	J	J
CSSS/APHA 4500H	Water	CH12-014-MW013_GW0913					

TABLE 5

Holding Times – Qualified Data

Method	Matrix	Sample ID	Analyte	Holding Time	Result	Holding Time Qualifier	Final Flag*
CSSS/APHA 4500H	Water	CH12-014-MW013_GW0913					
			pH	9 Days	7.57 pH Units	J	J
CSSS/APHA 4500H	Water	CH12-014-MW903_GW0913					
			pH	6 Days	7.47 pH Units	J	J
CSSS/APHA 4500H	Water	CH12-014-MW907_GW0613					
			pH	10 Days	7 pH Units	J	J
SM4110B	Water	CH12-014-MW007_GW0913					
			Nitrate-N	4 Days	1.37 mg/l	J	J
			Nitrite as N	4 Days	0.509 mg/l	J	J
SM4500P	Water	CH12-014-MW003_GW0913					
			ortho-Phosphate, dissolved	4 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	CH12-014-MW007_GW0913					
			ortho-Phosphate, dissolved	5 Days	0.0137 mg/l	J	J
SM4500P	Water	CH12-014-MW013_GW0913					
			ortho-Phosphate, dissolved	4 Days	0.001 mg/l	UJ	UJ
SM4500P	Water	CH12-014-MW903_GW0913					
			ortho-Phosphate, dissolved	4 Days	0.001 mg/l	UJ	UJ

* The most severe flag for each analyte becomes the final validation flag.

Qualifier Description:

J = Analyte was present but the reported value may not be accurate or precise.

UJ = The analyte was not detected above the detection limit objective. However, the reported detection limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Criteria:

HTa>UCL = Holding time exceeded

TABLE 6

Blank Contamination – Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
SW6010B	Water	**Aluminum, dissolved**				
		CH12-014-MW011_GW091	0.0021 mg/l	U	EB>RL	blank target = 0.001mg/l
SW6010B	Water	**Cadmium, dissolved**				
		CH12-014-MW012_GW061	0.000012 mg/l	U	EB>RL	blank target = 0.000023mg/l
SW6010B	Water	**Lead, dissolved**				
		CH12-014-MW003_GW091	0.00027 mg/l	U	EB>RL	blank target = 0.000322mg/l
		CH12-014-MW011_GW091	0.00011 mg/l	U	EB>RL	blank target = 0.000322mg/l
		CH12-014-MW903_GW091	0.0003 mg/l	U	EB>RL	blank target = 0.000322mg/l
SW6010B	Water	**Zinc, dissolved**				
		CH12-014-MW012_GW061	0.0095 mg/l	U	EB>RL	blank target = 0.0065mg/l

Blank target = concentration of field or laboratory blank.

* The most severe flag for each analyte becomes the final validation flag.

Qualifier Description:

U = This analyte was analyzed for but not detected at the specified detection limit.

Criteria:

EB>RL = Equipment blank concentration greater than the RL

TABLE 7

Site Completeness by Analyte – Qualified Data

			Number of Occurrences									
Method	**Analyte**	**Units**	**Analyses**	**Detects**	**Non-detects**	**Blank Flags**	**J Flags**	**M Flags**	**Contractor R Flags**	**Total R Flags**	**Contractor Percent Completeness**	**Overall Percent Completeness**
ASTM D7237	Free Cyanide	MG/L	12		12		3				100	100
CSSS/APHA 45	pH	PH UNITS	12	12			12				100	100
E245.7	Mercury, dissolved	MG/L	12		12						100	100
Ferrozine	Ferrous Iron	MG/L	6	6							100	100
Ferrozine	Ferrous Iron, Dissolved	MG/L	6	5	1						100	100
JEM/SM4500N	Ammonia-N	MG/L	12	12							100	100
SM2310	Acidity	MG/L	6	6							100	100
SM2310	ACIDITY (CaCO3)	MG/L	6	6							100	100
SM2320B	Alkalinity, Bicarbonate	MG/L	12	12							100	100
SM2320B	Alkalinity, Carbonate	MG/L	12		12						100	100
SM2320B	Alkalinity, Hydroxide	MG/L	12		12						100	100
SM2320B	Alkalinity, Total	MG/L	12	12							100	100
SM2340B_CAL	Hardness	MG/L	12	12							100	100
SM2540C	Total Dissolved Solids	MG/L	12	12							100	100
SM2540D	Total Suspended Solids	MG/L	12	12			2				100	100
SM4110B	Chloride	MG/L	12	4	8						100	100
SM4110B	Fluoride	MG/L	12	5	7						100	100
SM4110B	Nitrate-N	MG/L	12	6	6		1				100	100
SM4110B	Nitrite as N	MG/L	12	3	9		1				100	100
SM4110B	Sulfate	MG/L	12	12							100	100
SM4500P	ortho-Phosphate	MG/L	6	1	5						100	100
SM4500P	ortho-Phosphate, dissolved	MG/L	6	1	5		4				100	100
SM5310	Dissolved Organic Carbon	MG/L	12	12							100	100
SW6010B	Aluminum, dissolved	MG/L	12	6	6						100	100
SW6010B	Antimony, dissolved	MG/L	12	2	10						100	100
SW6010B	Arsenic, dissolved	MG/L	12	7	5						100	100
SW6010B	Barium, dissolved	MG/L	12	12							100	100
SW6010B	Beryllium, dissolved	MG/L	12		12						100	100
SW6010B	Boron, dissolved	MG/L	12		12						100	100

TABLE 7

Site Completeness by Analyte – Qualified Data

			Number of Occurrences									
Method	**Analyte**	**Units**	**Analyses**	**Detects**	**Non-detects**	**Blank Flags**	**J Flags**	**M Flags**	**Contractor R Flags**	**Total R Flags**	**Contractor Percent Completeness**	**Overall Percent Completeness**
SW6010B	Cadmium, dissolved	MG/L	12	11	1						100	100
SW6010B	Calcium, dissolved	MG/L	12	12							100	100
SW6010B	Chromium, dissolved	MG/L	12	7	5		2				100	100
SW6010B	Cobalt, dissolved	MG/L	12	12							100	100
SW6010B	Copper, dissolved	MG/L	12	10	2		2				100	100
SW6010B	Iron, dissolved	MG/L	12	11	1						100	100
SW6010B	Lead, dissolved	MG/L	12	5	7						100	100
SW6010B	Lithium, dissolved	MG/L	12	12							100	100
SW6010B	Magnesium, dissolved	MG/L	12	12							100	100
SW6010B	Manganese, dissolved	MG/L	12	12							100	100
SW6010B	Molybdenum, dissolved	MG/L	12	9	3						100	100
SW6010B	Nickel, dissolved	MG/L	12	12							100	100
SW6010B	Phosphorus, dissolved	MG/L	12		12						100	100
SW6010B	Potassium, dissolved	MG/L	12	12							100	100
SW6010B	Selenium, dissolved	MG/L	12	3	9						100	100
SW6010B	Silica, dissolved	MG/L	12	12							100	100
SW6010B	Silicon, dissolved	MG/L	12	12							100	100
SW6010B	Silver, dissolved	MG/L	12	1	11						100	100
SW6010B	Sodium, dissolved	MG/L	12	12							100	100
SW6010B	Strontium, dissolved	MG/L	12	12							100	100
SW6010B	Sulfur, dissolved	MG/L	12	12							100	100
SW6010B	Thallium, dissolved	MG/L	12	4	8						100	100
SW6010B	Titanium, dissolved	MG/L	12	1	11						100	100
SW6010B	Uranium, dissolved	MG/L	12	12							100	100
SW6010B	Vanadium, dissolved	MG/L	12	1	11						100	100
SW6010B	Zinc, dissolved	MG/L	12	11	1						100	100

Appendix D
Laboratory Data

CH2M HILL, INC
ATTN: Bernice Kidd
2525 Airpark Drive
Redding CA 96001

Date Received: 13-JUN-13
Report Date: 03-JUL-13 13:35 (MT)
Version: FINAL

Client Phone: 530-229-3203

Certificate of Analysis

Lab Work Order #: L1316343

Project P.O. #: 472645.06.AD.01.04.13 PO=604564
Job Reference: WASTE ROCK DUMP MW 2013 SW-014B
C of C Numbers: ALS06121301
Legal Site Desc:

Amber Springer
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1316343-1	L1316343-2	L1316343-3		
	Description	Water	Water	Water		
	Sampled Date	11-JUN-13	11-JUN-13	11-JUN-13		
	Sampled Time	13:35	17:00	17:00		
	Client ID	CH12-014-MW003_GW0613	CH12-014-MW007_GW0613	CH12-014-MW907_GW0613		
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	2510	6380	6100		
	pH (pH)	7.52	6.87	7.00		
	Total Suspended Solids (mg/L)	13.4	17.4	11.8		
	Total Dissolved Solids (mg/L)	3530	9950	10300		
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	51.4	645	636		
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	626	628	703		
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<20	<20	<20		
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<20	<20	<20		
	Alkalinity, Total (as CaCO3) (mg/L)	626	628	703		
	Ammonia, Total (as N) (mg/L)	0.0702	0.229	0.221		
	Chloride (Cl) (mg/L)	20 DLA	<25	<25 DLA		
	Fluoride (F) (mg/L)	<0.40	1.3	1.2		
	Nitrate (as N) (mg/L)	5.00 DLA	0.70	0.73		
	Nitrite (as N) (mg/L)	<0.020	0.303	0.275		
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	0.0011	<0.0010		
	Sulfate (SO4) (mg/L)	2260 DLM	7190 DLM	7060 DLM		
Cyanides	Cyanide, Free (mg/L)	<0.020	<0.010	<0.010		
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	3.90	9.56	9.61		
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD		
	Aluminum (Al)-Dissolved (mg/L)	<0.0050 DLA	<0.050 DLA	<0.050 DLA		
	Antimony (Sb)-Dissolved (mg/L)	<0.00050 DLA	<0.0050 DLA	<0.0050 DLA		
	Arsenic (As)-Dissolved (mg/L)	<0.00050 DLA	<0.0050 DLA	<0.0050 DLA		
	Barium (Ba)-Dissolved (mg/L)	0.0348	0.0249	0.0264		
	Beryllium (Be)-Dissolved (mg/L)	<0.00050 DLA	<0.0050 DLA	<0.0050 DLA		
	Boron (B)-Dissolved (mg/L)	<0.050 DLA	<0.50 DLA	<0.50 DLA		
	Cadmium (Cd)-Dissolved (mg/L)	0.000657	0.444	0.459		
	Calcium (Ca)-Dissolved (mg/L)	734	540	538		
	Chromium (Cr)-Dissolved (mg/L)	<0.00050 DLA	<0.0050 DLA	<0.0050 DLA		
	Cobalt (Co)-Dissolved (mg/L)	0.0169	1.56	1.65		
	Copper (Cu)-Dissolved (mg/L)	0.0011	<0.010 DLA	<0.010 DLA		
	Iron (Fe)-Dissolved (mg/L)	1.47	0.340	0.336		
	Ferrous Iron, Dissolved (mg/L)	1.96	0.246	0.247		
	Lead (Pb)-Dissolved (mg/L)	<0.00025 DLA	<0.0025 DLA	<0.0025 DLA		
	Lithium (Li)-Dissolved (mg/L)	0.0618	0.122	0.134		
	Magnesium (Mg)-Dissolved (mg/L)	165	1220	1160		
	Manganese (Mn)-Dissolved (mg/L)	3.91	104	109		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1316343-1	L1316343-2	L1316343-3		
	Description	Water	Water	Water		
	Sampled Date	11-JUN-13	11-JUN-13	11-JUN-13		
	Sampled Time	13:35	17:00	17:00		
	Client ID	CH12-014-MW003_GW0613	CH12-014-MW007_GW0613	CH12-014-MW907_GW0613		
Grouping	**Analyte**					
WATER						
Dissolved Metals	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010		
	Molybdenum (Mo)-Dissolved (mg/L)	0.00055	<0.0025 DLA	<0.0025 DLA		
	Nickel (Ni)-Dissolved (mg/L)	0.0840	3.13	3.30		
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.90 DLA	<0.90 DLA		
	Potassium (K)-Dissolved (mg/L)	10.8	13.1	13.4		
	Selenium (Se)-Dissolved (mg/L)	0.00111	<0.0050 DLA	<0.0050 DLA		
	Silicon (Si)-Dissolved (mg/L)	9.37	14.0	13.2		
	Silicon (as SiO2)-Dissolved (mg/L)	20.0	29.9	28.2		
	Silver (Ag)-Dissolved (mg/L)	<0.000050 DLA	<0.00050 DLA	<0.00050 DLA		
	Sodium (Na)-Dissolved (mg/L)	32.7	17.6	18.3		
	Strontium (Sr)-Dissolved (mg/L)	2.40	1.76	1.87		
	Sulfur (S)-Dissolved (mg/L)	645	2090	2050		
	Thallium (Tl)-Dissolved (mg/L)	0.000071	<0.00050 DLA	<0.00050 DLA		
	Titanium (Ti)-Dissolved (mg/L)	<0.050 DLA	<0.50 DLA	<0.50 DLA		
	Uranium (U)-Dissolved (mg/L)	0.0176	0.0497	0.0526		
	Vanadium (V)-Dissolved (mg/L)	<0.0050 DLA	<0.050 DLA	<0.050 DLA		
	Zinc (Zn)-Dissolved (mg/L)	0.647	358	380		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Antimony (Sb)-Dissolved	DLA	L1316343-1, -2, -3
Duplicate	Arsenic (As)-Dissolved	DLA	L1316343-1, -2, -3
Duplicate	Beryllium (Be)-Dissolved	DLA	L1316343-1, -2, -3
Duplicate	Boron (B)-Dissolved	DLA	L1316343-1, -2, -3
Duplicate	Chromium (Cr)-Dissolved	DLA	L1316343-1, -2, -3
Duplicate	Lead (Pb)-Dissolved	DLA	L1316343-1, -2, -3
Duplicate	Silver (Ag)-Dissolved	DLA	L1316343-1, -2, -3
Duplicate	Titanium (Ti)-Dissolved	DLA	L1316343-1, -2, -3
Duplicate	Vanadium (V)-Dissolved	DLA	L1316343-1, -2, -3
Duplicate	Aluminum (Al)-Dissolved	DLA	L1316343-1, -2, -3
Duplicate	Cyanide, Free	DLM	L1316343-1, -2, -3
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1316343-1, -2, -3
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1316343-1, -2, -3
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1316343-1, -2, -3
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1316343-1, -2, -3
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1316343-1, -2, -3
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L1316343-1, -2, -3
Matrix Spike	Sulfate (SO4)	MS-B	L1316343-1, -2, -3

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
DLM	Detection Limit Adjusted For Sample Matrix Effects
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-CL-IC-WR	Water	Chloride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-F-IC-WR	Water	Fluoride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-NO2-IC-WR	Water	Nitrite Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-NO3-IC-WR	Water	Nitrate Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

Reference Information

ANIONS-SO4-IC-WR	Water	Sulphate by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CN-FREE-CFA-VA	Water	Free Cyanide in water by CFA	ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

FE2-D-COL-VA	Water	Diss. Ferrous Iron in Water by Colour	James W. Ball et al (1999)

This analysis is carried out using procedures adapted from "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedures involves preliminary sample filtration (0.1um filter) and Ferrous Iron is determined using the "FerroZine" colorimteric method.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA	Water	Dissolved Mercury in Water by CVAFS(Low)	EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA	Water	Dissolved Metals in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

S-DIS-ICP-VA	Water	Dissolved Sulfur in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents

Reference Information

all non-volatile forms of sulfur present in a particular sample.

SIO2-D-CALC-VA Water Dissolved Silicon (reported as Silica) CALCULATION

Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-LOW-VA Water Total Suspended Solids by Grav. (1 mg/L) APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

ALS06121301

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Client: CH2M HILL, INC
2525 Airpark Drive
Redding CA 96001
Contact: Bernice Kidd

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-PCT-VA	**Water**							
Batch R2636372								
WG1693649-9 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			104.1		%		85-115	21-JUN-13
WG1693649-33 DUP		**L1316343-1**						
Acidity (as CaCO3)		51.4	51.1		mg/L	0.5	20	21-JUN-13
ALK-SCR-VA	**Water**							
Batch R2637533								
WG1694921-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			97.2		%		85-115	25-JUN-13
WG1694921-16 DUP		**L1316343-1**						
Alkalinity, Total (as CaCO3)		626	637		mg/L	1.7	20	25-JUN-13
WG1694921-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	25-JUN-13
ANIONS-CL-IC-WR	**Water**							
Batch R2642144								
WG1699552-3 DUP		**L1316343-1**						
Chloride (Cl)		20	22		mg/L	12	20	14-JUN-13
WG1699552-2 LCS								
Chloride (Cl)			103.9		%		85-115	14-JUN-13
WG1699552-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	14-JUN-13
WG1699552-4 MS		**L1316343-1**						
Chloride (Cl)			101.7		%		75-125	14-JUN-13
ANIONS-F-IC-WR	**Water**							
Batch R2642144								
WG1699552-3 DUP		**L1316343-1**						
Fluoride (F)		<0.40	<0.40	RPD-NA	mg/L	N/A	20	14-JUN-13
WG1699552-2 LCS								
Fluoride (F)			104.6		%		85-115	14-JUN-13
WG1699552-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	14-JUN-13
WG1699552-4 MS		**L1316343-1**						
Fluoride (F)			108.5		%		75-125	14-JUN-13
ANIONS-NO2-IC-WR	**Water**							
Batch R2642144								
WG1699552-3 DUP		**L1316343-1**						
Nitrite (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	14-JUN-13
WG1699552-2 LCS								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO2-IC-WR	**Water**							
Batch R2642144								
WG1699552-2 LCS								
Nitrite (as N)			102.4		%		85-115	14-JUN-13
WG1699552-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	14-JUN-13
WG1699552-4 MS		**L1316343-1**						
Nitrite (as N)			94.8		%		75-125	14-JUN-13
ANIONS-NO3-IC-WR	**Water**							
Batch R2642144								
WG1699552-3 DUP		**L1316343-1**						
Nitrate (as N)		5.00	5.12		mg/L	2.4	20	14-JUN-13
WG1699552-2 LCS								
Nitrate (as N)			104.4		%		85-115	14-JUN-13
WG1699552-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	14-JUN-13
WG1699552-4 MS		**L1316343-1**						
Nitrate (as N)			101.5		%		75-125	14-JUN-13
ANIONS-SO4-IC-WR	**Water**							
Batch R2642144								
WG1699552-3 DUP		**L1316343-1**						
Sulfate (SO4)		2260	2360		mg/L	4.2	20	14-JUN-13
WG1699552-2 LCS								
Sulfate (SO4)			105.7		%		85-115	14-JUN-13
WG1699552-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	14-JUN-13
WG1699552-4 MS		**L1316343-1**						
Sulfate (SO4)			N/A	MS-B	%		-	14-JUN-13
CARBONS-DOC-VA	**Water**							
Batch R2641235								
WG1697382-1 DUP		**L1316343-1**						
Dissolved Organic Carbon		3.90	3.72		mg/L	4.8	20	30-JUN-13
WG1697382-6 LCS								
Dissolved Organic Carbon			108.5		%		80-120	30-JUN-13
WG1697382-5 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	30-JUN-13
WG1697382-2 MS		**L1316343-1**						
Dissolved Organic Carbon			104.4		%		70-130	30-JUN-13
CN-FREE-CFA-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CN-FREE-CFA-VA	**Water**							
Batch R2641282								
WG1698224-3 DUP		**L1316343-1**						
Cyanide, Free		<0.020	<0.020	RPD-NA	mg/L	N/A	20	28-JUN-13
WG1698224-2 LCS								
Cyanide, Free			101.0		%		80-120	28-JUN-13
WG1698224-1 MB								
Cyanide, Free			<0.0050		mg/L		0.005	28-JUN-13
WG1698224-4 MS		**L1316343-1**						
Cyanide, Free			97.0		%		70-130	28-JUN-13
FE2-D-COL-VA	**Water**							
Batch R2633546								
WG1689893-3 DUP		**L1316343-1**						
Ferrous Iron, Dissolved		1.96	1.89		mg/L	3.5	20	17-JUN-13
WG1689893-2 LCS								
Ferrous Iron, Dissolved			103.6		%		80-120	17-JUN-13
WG1689893-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	17-JUN-13
WG1689893-4 MS		**L1316343-1**						
Ferrous Iron, Dissolved			107.0		%		70-130	17-JUN-13
WG1689893-6 MS		**L1316379-10**						
Ferrous Iron, Dissolved			90.4		%		70-130	17-JUN-13
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2633814								
WG1689957-3 LCS								
Mercury (Hg)-Dissolved			101.0		%		80-120	18-JUN-13
WG1689957-1 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	18-JUN-13
Batch R2633849								
WG1689957-4 DUP		**L1316343-1**						
Mercury (Hg)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	18-JUN-13
WG1689957-5 MS		**L1316343-1**						
Mercury (Hg)-Dissolved			90.2		%		70-130	18-JUN-13
MET-D-CCMS-VA	**Water**							
Batch R2633494								
WG1689957-2 CRM		**VA-HIGH-WATRM**						
Aluminum (Al)-Dissolved			101.3		%		80-120	17-JUN-13
Antimony (Sb)-Dissolved			98.8		%		80-120	17-JUN-13
Arsenic (As)-Dissolved			99.6		%		80-120	17-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2633494								
WG1689957-2 CRM		**VA-HIGH-WATRM**						
Barium (Ba)-Dissolved			99.8		%		80-120	17-JUN-13
Beryllium (Be)-Dissolved			97.0		%		80-120	17-JUN-13
Boron (B)-Dissolved			92.2		%		80-120	17-JUN-13
Cadmium (Cd)-Dissolved			101.1		%		80-120	17-JUN-13
Chromium (Cr)-Dissolved			100.6		%		80-120	17-JUN-13
Cobalt (Co)-Dissolved			96.3		%		80-120	17-JUN-13
Copper (Cu)-Dissolved			95.7		%		80-120	17-JUN-13
Lead (Pb)-Dissolved			100.5		%		80-120	17-JUN-13
Lithium (Li)-Dissolved			99.4		%		80-120	17-JUN-13
Manganese (Mn)-Dissolved			99.4		%		80-120	17-JUN-13
Molybdenum (Mo)-Dissolved			100.9		%		80-120	17-JUN-13
Nickel (Ni)-Dissolved			98.1		%		80-120	17-JUN-13
Potassium (K)-Dissolved			99.1		%		80-120	17-JUN-13
Selenium (Se)-Dissolved			99.7		%		80-120	17-JUN-13
Silver (Ag)-Dissolved			97.9		%		80-120	17-JUN-13
Sodium (Na)-Dissolved			101.9		%		80-120	17-JUN-13
Strontium (Sr)-Dissolved			97.8		%		80-120	17-JUN-13
Thallium (Tl)-Dissolved			100.5		%		80-120	17-JUN-13
Titanium (Ti)-Dissolved			103.5		%		80-120	17-JUN-13
Uranium (U)-Dissolved			100.1		%		80-120	17-JUN-13
Vanadium (V)-Dissolved			99.8		%		80-120	17-JUN-13
Zinc (Zn)-Dissolved			96.3		%		80-120	17-JUN-13
WG1689957-4 DUP		**L1316343-1**						
Aluminum (Al)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	28-JUN-13
Antimony (Sb)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	25-JUN-13
Arsenic (As)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	25-JUN-13
Barium (Ba)-Dissolved		0.0348	0.0353		mg/L	1.4	20	25-JUN-13
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	25-JUN-13
Boron (B)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	25-JUN-13
Cadmium (Cd)-Dissolved		0.000657	0.000697		mg/L	6.0	20	25-JUN-13
Chromium (Cr)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	25-JUN-13
Cobalt (Co)-Dissolved		0.0169	0.0162		mg/L	4.1	20	25-JUN-13
Copper (Cu)-Dissolved		0.0011	0.0010		mg/L	12	20	25-JUN-13
Lead (Pb)-Dissolved		<0.00025	<0.00025	RPD-NA	mg/L	N/A	20	25-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2633494								
WG1689957-4 DUP		**L1316343-1**						
Lithium (Li)-Dissolved		0.0618	0.0619		mg/L	0.3	20	25-JUN-13
Manganese (Mn)-Dissolved		3.91	3.67		mg/L	6.2	20	25-JUN-13
Molybdenum (Mo)-Dissolved		0.00055	0.00041	J	mg/L	0.00013	0.0005	25-JUN-13
Nickel (Ni)-Dissolved		0.0840	0.0803		mg/L	4.4	20	25-JUN-13
Potassium (K)-Dissolved		10.8	10.5		mg/L	3.3	20	25-JUN-13
Selenium (Se)-Dissolved		0.00111	0.00095		mg/L	16	20	25-JUN-13
Silver (Ag)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	25-JUN-13
Sodium (Na)-Dissolved		32.7	31.0		mg/L	5.4	20	25-JUN-13
Strontium (Sr)-Dissolved		2.40	2.34		mg/L	2.3	20	25-JUN-13
Thallium (Tl)-Dissolved		0.000071	0.000104	J	mg/L	0.000033	0.0001	25-JUN-13
Titanium (Ti)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	25-JUN-13
Uranium (U)-Dissolved		0.0176	0.0186		mg/L	5.5	20	25-JUN-13
Vanadium (V)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	25-JUN-13
Zinc (Zn)-Dissolved		0.647	0.607		mg/L	6.3	20	25-JUN-13
WG1689957-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	17-JUN-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	17-JUN-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	17-JUN-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	17-JUN-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	17-JUN-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	17-JUN-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	17-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2633494								
WG1689957-1 MB								
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	17-JUN-13
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	17-JUN-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	17-JUN-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	17-JUN-13
WG1689957-5 MS		**L1316343-1**						
Aluminum (Al)-Dissolved			94.5		%		70-130	27-JUN-13
Antimony (Sb)-Dissolved			101.8		%		70-130	25-JUN-13
Arsenic (As)-Dissolved			102.4		%		70-130	25-JUN-13
Barium (Ba)-Dissolved			100.8		%		70-130	25-JUN-13
Beryllium (Be)-Dissolved			92.9		%		70-130	25-JUN-13
Boron (B)-Dissolved			89.7		%		70-130	25-JUN-13
Cadmium (Cd)-Dissolved			94.1		%		70-130	25-JUN-13
Chromium (Cr)-Dissolved			94.6		%		70-130	25-JUN-13
Cobalt (Co)-Dissolved			91.0		%		70-130	25-JUN-13
Copper (Cu)-Dissolved			89.6		%		70-130	25-JUN-13
Lead (Pb)-Dissolved			95.0		%		70-130	25-JUN-13
Lithium (Li)-Dissolved			92.4		%		70-130	25-JUN-13
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	25-JUN-13
Molybdenum (Mo)-Dissolved			100.9		%		70-130	25-JUN-13
Nickel (Ni)-Dissolved			87.9		%		70-130	25-JUN-13
Potassium (K)-Dissolved			93.3		%		70-130	25-JUN-13
Selenium (Se)-Dissolved			104.3		%		70-130	25-JUN-13
Silver (Ag)-Dissolved			93.7		%		70-130	25-JUN-13
Sodium (Na)-Dissolved			N/A	MS-B	%		-	25-JUN-13
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	25-JUN-13
Thallium (Tl)-Dissolved			97.3		%		70-130	25-JUN-13
Titanium (Ti)-Dissolved			100.2		%		70-130	25-JUN-13
Uranium (U)-Dissolved			105.8		%		70-130	25-JUN-13
Vanadium (V)-Dissolved			95.4		%		70-130	25-JUN-13
Zinc (Zn)-Dissolved			87.0		%		70-130	25-JUN-13
MET-DIS-ICP-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA	**Water**							
Batch R2633893								
WG1689957-2 CRM		**VA-HIGH-WATRM**						
Calcium (Ca)-Dissolved			100.5		%		80-120	18-JUN-13
Iron (Fe)-Dissolved			100.3		%		80-120	18-JUN-13
Magnesium (Mg)-Dissolved			100.1		%		80-120	18-JUN-13
Phosphorus (P)-Dissolved			98.6		%		80-120	18-JUN-13
Silicon (Si)-Dissolved			101.0		%		80-120	18-JUN-13
WG1689957-1 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	18-JUN-13
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	18-JUN-13
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	18-JUN-13
Phosphorus (P)-Dissolved			<0.30		mg/L		0.3	18-JUN-13
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	18-JUN-13
Batch R2638735								
WG1689957-4 DUP		**L1316343-1**						
Calcium (Ca)-Dissolved		734	745		mg/L	1.5	20	23-JUN-13
Iron (Fe)-Dissolved		1.47	1.49		mg/L	1.8	20	23-JUN-13
Magnesium (Mg)-Dissolved		165	164		mg/L	0.4	20	23-JUN-13
Phosphorus (P)-Dissolved		<0.30	<0.30	RPD-NA	mg/L	N/A	20	23-JUN-13
Silicon (Si)-Dissolved		9.37	9.64		mg/L	2.8	20	23-JUN-13
WG1689957-5 MS		**L1316343-1**						
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	23-JUN-13
Iron (Fe)-Dissolved			93.2		%		70-130	23-JUN-13
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	23-JUN-13
NH3-F-VA	**Water**							
Batch R2634755								
WG1690296-2 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			104.8		%		85-115	19-JUN-13
WG1690296-3 DUP		**L1316343-1**						
Ammonia, Total (as N)		0.0702	0.0685		mg/L	2.4	20	19-JUN-13
WG1690296-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	19-JUN-13
WG1690296-4 MS		**L1316343-1**						
Ammonia, Total (as N)			103.5		%		75-125	19-JUN-13
PH-PCT-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-PCT-VA	**Water**							
Batch R2636372								
WG1693649-25 CRM		**VA-PH7-BUF**						
pH			7.00		pH		6.9-7.1	21-JUN-13
WG1693649-33 DUP		**L1316343-1**						
pH		7.52	7.54	J	pH	0.02	0.3	21-JUN-13
PO4-DO-COL-VA	**Water**							
Batch R2633438								
WG1689226-2 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			103.0		%		80-120	14-JUN-13
WG1689226-7 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			93.3		%		80-120	14-JUN-13
WG1689226-3 DUP		**L1316343-1**						
Orthophosphate-Dissolved (as P)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	14-JUN-13
WG1689226-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	14-JUN-13
WG1689226-6 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	14-JUN-13
WG1689226-4 MS		**L1316343-1**						
Orthophosphate-Dissolved (as P)			89.8		%		70-130	14-JUN-13
S-DIS-ICP-VA	**Water**							
Batch R2633893								
WG1689957-2 CRM		**VA-HIGH-WATRM**						
Sulfur (S)-Dissolved			101.3		%		80-120	18-JUN-13
WG1689957-1 MB								
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	18-JUN-13
Batch R2638735								
WG1689957-4 DUP		**L1316343-1**						
Sulfur (S)-Dissolved		645	647		mg/L	0.3	20	23-JUN-13
WG1689957-5 MS		**L1316343-1**						
Sulfur (S)-Dissolved			N/A	MS-B	%		-	23-JUN-13
TDS-VA	**Water**							
Batch R2633124								
WG1689242-3 DUP		**L1316343-1**						
Total Dissolved Solids		3530	3690		mg/L	4.5	20	15-JUN-13
WG1689242-2 LCS								
Total Dissolved Solids			101.2		%		85-115	15-JUN-13
WG1689242-1 MB								
Total Dissolved Solids			<10		mg/L		10	15-JUN-13
TSS-LOW-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TSS-LOW-VA	**Water**							
Batch R2633045								
WG1689246-2 LCS								
Total Suspended Solids			94.7		%		85-115	15-JUN-13
WG1689246-1 MB								
Total Suspended Solids			<1.0		mg/L		1	15-JUN-13

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	1	11-JUN-13 13:35	21-JUN-13 23:00	0.25	249	hours	EHTR-FM
	2	11-JUN-13 17:00	21-JUN-13 23:00	0.25	246	hours	EHTR-FM
	3	11-JUN-13 17:00	21-JUN-13 23:00	0.25	246	hours	EHTR-FM
Cyanides							
Free Cyanide in water by CFA							
	1	11-JUN-13 13:35	28-JUN-13 11:57	14	17	days	EHT
	2	11-JUN-13 17:00	28-JUN-13 11:57	14	17	days	EHT
	3	11-JUN-13 17:00	28-JUN-13 11:57	14	17	days	EHT

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1316343 were received on 13-JUN-13 09:00.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CHAIN OF CUSTODY RECORD

6/12/2013 12:26:11 PM

CH2MHILL

Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.07.EM.RM.02.0
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-014
Project WASTE ROCK DUMP MW 2013 SW-014B
Turnaround Time 3 Days
Shipping Date: 6/12/2013
COC Number: ALS06121301

	DATE	TIME	Matrix	(ASTM 7237) Free Cyanide	(E245.7) Field Filtered Dissolved Hg	(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity - Run Hot H2O2 if Fe >15ppm	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM4110B) CL F NO2 NO3 and SO4	(SM4500P) ortho-Phosphate	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia		Number of Containers	COMMENTS
Container:				125mL Poly	250ml Poly	125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	250ml Poly	250ml glass			
Preservatives:				NaOH, 4°C	HNO3, 4°C	HCl, 4°C	4C	4C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C	HNO3, 4°C	H2SO4, pH<2, 4C			
Filtered:				NA	Field	Field	NA	NA	NA	NA	NA	NA	Field	Field	NA			
Holding Time:				14	180/28	180	14	14	7	7	3	3	28	180/28	28			
CH12-014-MW003_GW0613	6/11/2013	13:35	Water	X	X	X	X	X	X	X	X	X	X	X	X		8	LAB DUP/MS
CH12-014-MW007_GW0613	6/11/2013	17:00	Water	X	X	X	X	X	X	X	X	X	X	X	X		8	
CH12-014-MW907_GW0613	6/11/2013	17:00	Water	X	X	X	X	X	X	X	X	X	X	X	X		8	
																TOTAL NUMBER OF CONTAINERS	24	

L1316343-COFC

Signatures	Date/Time
Approved by	
Sampled by	Travis Stowell 6/12/13 1300
Relinquished by	
Received by	6/13/13 9:00
Relinquished by	
Received by	5.1

Shipping Details

Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

ATTN:

Sample Custody and Amber Springer

Special Instructions:

Perform Lab Dup/MS on these samples

Report Copy to
Bernice Kidd
(530) 229-3203

CH2M HILL, INC
ATTN: Bernice Kidd
2525 Airpark Drive
Redding CA 96001

Date Received: 13-JUN-13
Report Date: 03-JUL-13 15:06 (MT)
Version: FINAL

Client Phone: 530-229-3203

Certificate of Analysis

Lab Work Order #: L1316379

Project P.O. #: 472645.06.AD.01.04.13 "PO=604564"
Job Reference: FARO MINE SEEP SAMPLING 2013 SW-015
C of C Numbers: ALS06121304
Legal Site Desc:

Amber Springer
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1316379-1	L1316379-2	L1316379-3	L1316379-4	L1316379-5
	Description	water	water	water	water	water
	Sampled Date	11-JUN-13	11-JUN-13	11-JUN-13	11-JUN-13	11-JUN-13
	Sampled Time	10:00	10:00	12:10	13:35	13:35
	Client ID	CH-MILL-03_SESP13	CH-MILL-903_SESP13	FCS-2_SESP13	FCS-4_SESP13	FCS-94_SESP13
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	3000	2950	6300	5860	5930
	pH (pH)	3.18	3.17	3.92	4.10	4.15
	Total Suspended Solids (mg/L)	15.2	27.2	67.8	136	139
	Total Dissolved Solids (mg/L)	19200	19300	16100	15000	14700
Anions and Nutrients	Acidity (as CaCO3) (mg/L)					
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)	7330	7340	3550	2830	2940
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	<2.0	<2.0	<1.0	<1.0	<1.0
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<2.0	<1.0	<1.0	<1.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<2.0	<1.0	<1.0	<1.0
	Alkalinity, Total (as CaCO3) (mg/L)	<2.0	<2.0	<1.0	<1.0	<1.0
	Ammonia, Total (as N) (mg/L)	0.266	0.264	0.668	0.724	0.737
	Chloride (Cl) (mg/L)	<25 DLA	<25 DLA	<25 DLA	<25 DLA	<25 DLA
	Fluoride (F) (mg/L)	5.9	5.9	2.3	1.8	2.4
	Nitrate (as N) (mg/L)	<0.25 DLA	<0.25 DLA	1.84	1.16	1.18
	Nitrite (as N) (mg/L)	<0.050 DLA	<0.050 DLA	<0.050 DLA	<0.050 DLA	<0.050 DLA
	Orthophosphate-Dissolved (as P) (mg/L)	0.0071	0.0048	<0.0010	<0.0010	<0.0010
	Sulfate (SO4) (mg/L)	12000	12100	10500	9640	9740
Cyanides	Cyanide, Free (mg/L)	<0.020 DLM	<0.020 DLM			
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	11.2	11.4	7.99	7.86	7.85
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	127	136	23.8	8.79	9.72
	Antimony (Sb)-Dissolved (mg/L)	<0.050 DLA	<0.050 DLA	<0.020 DLA	<0.020 DLA	<0.020 DLA
	Arsenic (As)-Dissolved (mg/L)	1.54	0.088	0.022	<0.020 DLA	<0.020 DLA
	Barium (Ba)-Dissolved (mg/L)	<0.025 DLA	<0.025 DLA	0.027	0.025	0.031
	Beryllium (Be)-Dissolved (mg/L)	<0.050 DLA	<0.050 DLA	<0.020 DLA	<0.020 DLA	<0.020 DLA
	Boron (B)-Dissolved (mg/L)	<5.0 DLA	<5.0 DLA	<2.0 DLA	<2.0 DLA	<2.0 DLA
	Cadmium (Cd)-Dissolved (mg/L)	2.53	2.56	0.993	0.693	0.720
	Calcium (Ca)-Dissolved (mg/L)	378	367	435	453	452
	Chromium (Cr)-Dissolved (mg/L)	0.110	0.100	<0.020 DLA	<0.020 DLA	<0.020 DLA
	Cobalt (Co)-Dissolved (mg/L)	3.14	3.27	2.68	2.25	2.28
	Copper (Cu)-Dissolved (mg/L)	4.04	3.89	1.27	0.893	0.840
	Iron (Fe)-Dissolved (mg/L)	1840	1770	537	707	707
	Ferrous Iron, Dissolved (mg/L)	1650	1700	581	774	778
	Lead (Pb)-Dissolved (mg/L)	1.17	1.21	0.477	0.312	0.328
	Lithium (Li)-Dissolved (mg/L)	<0.25 DLA	<0.25 DLA	0.21	0.16	0.17
	Magnesium (Mg)-Dissolved (mg/L)	499	495	1270	1150	1160

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1316379-6	L1316379-7	L1316379-8	L1316379-9	L1316379-10
	Description	water	water	water	water	water
	Sampled Date	11-JUN-13	11-JUN-13	11-JUN-13	11-JUN-13	11-JUN-13
	Sampled Time	14:10	16:00	10:10	17:15	12:45
	Client ID	SRK-FD09_SESP13	SRK-FD13_SESP13	SRK-FD19_SESP13	SRK-FD24_SESP13	SRK-FD31_SESP13
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	4740	15200	5190	1510	7290
	pH (pH)	4.38	2.60	7.07	3.38	4.05
	Total Suspended Solids (mg/L)	81.4	72.0	40.6	9.8	160
	Total Dissolved Solids (mg/L)	11600	60800 AI	8540	2740	19500
Anions and Nutrients	Acidity (as CaCO3) (mg/L)			457		
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)	2740	19500		249	4090
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	<1.0	<1.0	189	<2.0	<1.0
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	<2.0	<2.0	<1.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<2.0	<2.0	<1.0
	Alkalinity, Total (as CaCO3) (mg/L)	<1.0	<1.0	189	<2.0	<1.0
	Ammonia, Total (as N) (mg/L)	0.407	<0.0050	0.120	0.0487	0.673
	Chloride (Cl) (mg/L)	<25 DLA	<50 DLA	<25 DLA	<10 DLA	<25
	Fluoride (F) (mg/L)	1.6	45.9	1.1	0.87	2.6
	Nitrate (as N) (mg/L)	2.72	3.39	1.84	0.81	2.60
	Nitrite (as N) (mg/L)	0.067	<0.10 DLA	<0.050 DLA	<0.020 DLA	<0.050
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	1.85	<0.0010	<0.0010	<0.0010
	Sulfate (SO4) (mg/L)	7210	37400	5840	2370	12400
Cyanides	Cyanide, Free (mg/L)	<0.020 DLM				<0.020 DLM
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	6.52	12.9	8.24	2.39	8.76
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.83	484	2.48	10.9	5.09
	Antimony (Sb)-Dissolved (mg/L)	<0.020 DLA	<0.10 DLA	<0.0050 DLA	<0.0010 DLA	<0.020 DLA
	Arsenic (As)-Dissolved (mg/L)	<0.020 DLA	3.44	0.0069	0.0036	<0.020 DLA
	Barium (Ba)-Dissolved (mg/L)	0.022	0.641	0.0396	0.00843	0.027
	Beryllium (Be)-Dissolved (mg/L)	<0.020 DLA	0.20	<0.0050 DLA	0.0042	<0.020 DLA
	Boron (B)-Dissolved (mg/L)	<2.0 DLA	<10 DLA	<0.50 DLA	<0.10 DLA	<2.0 DLA
	Cadmium (Cd)-Dissolved (mg/L)	0.969	6.30	0.239	0.124	1.31
	Calcium (Ca)-Dissolved (mg/L)	332	400	499	235	502
	Chromium (Cr)-Dissolved (mg/L)	<0.020 DLA	0.55	<0.0050 DLA	0.0055	<0.020 DLA
	Cobalt (Co)-Dissolved (mg/L)	2.02	11.7	0.860	0.331	2.91
	Copper (Cu)-Dissolved (mg/L)	0.113	63.1	0.884	1.01	1.73
	Iron (Fe)-Dissolved (mg/L)	600	4030	0.698	16.8	821
	Ferrous Iron, Dissolved (mg/L)	560	2550	0.612	10.0	912
	Lead (Pb)-Dissolved (mg/L)	0.218	0.625	0.0192	1.03	0.042
	Lithium (Li)-Dissolved (mg/L)	0.14	0.85	0.066	0.0849	0.13
	Magnesium (Mg)-Dissolved (mg/L)	950	3460	957	223	1470

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1316379-11	L1316379-12	L1316379-13	L1316379-14	
	Description	water	water	water	water	
	Sampled Date	11-JUN-13	11-JUN-13	12-JUN-13	12-JUN-13	
	Sampled Time	16:20	16:40	10:30	12:20	
	Client ID	SRK-FD56_SESP13	SRK-FD956_SESP13	FCS-5_SESP13	SRK-FD18_SESP13	
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	7690	7580	2090	98.4	
	pH (pH)	3.60	3.56	4.38	8.09	
	Total Suspended Solids (mg/L)	36.8	36.0	377	43.2	
	Total Dissolved Solids (mg/L)	13500	13500	5120	138	
Anions and Nutrients	Acidity (as CaCO3) (mg/L)				2.7	
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)	1600	1220	1030		
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	61.4	
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<2.0	
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<2.0	
	Alkalinity, Total (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	61.4	
	Ammonia, Total (as N) (mg/L)	1.23	1.21	0.295	0.0100	
	Chloride (Cl) (mg/L)	<25 DLA	<25 DLA	<25 DLA	<0.50	
	Fluoride (F) (mg/L)	2.8	2.7	1.9	0.116	
	Nitrate (as N) (mg/L)	1.20	1.10	0.82	0.0632	
	Nitrite (as N) (mg/L)	<0.050 DLA	<0.050 DLA	<0.050 DLA	<0.0010	
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	0.0025	<0.0010	
	Sulfate (SO4) (mg/L)	9340	9380	7430	35.5	
Cyanides	Cyanide, Free (mg/L)	<0.010 DLM	<0.010 DLM	<0.020 DLM		
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	7.25	7.26	3.07	6.60	
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	
	Aluminum (Al)-Dissolved (mg/L)	12.0	11.5	5.90	0.0165	
	Antimony (Sb)-Dissolved (mg/L)	<0.010 DLA	<0.010 DLA	<0.0050 DLA	<0.00010	
	Arsenic (As)-Dissolved (mg/L)	<0.010 DLA	<0.010 DLA	<0.0050 DLA	0.00020	
	Barium (Ba)-Dissolved (mg/L)	0.0325	0.0343	0.0176	0.0710	
	Beryllium (Be)-Dissolved (mg/L)	<0.010 DLA	<0.010 DLA	<0.0050 DLA	<0.00010	
	Boron (B)-Dissolved (mg/L)	<1.0 DLA	<1.0 DLA	<0.50 DLA	<0.010	
	Cadmium (Cd)-Dissolved (mg/L)	0.393	0.395	0.227	0.000264	
	Calcium (Ca)-Dissolved (mg/L)	445	433	241	32.9	
	Chromium (Cr)-Dissolved (mg/L)	<0.010 DLA	<0.010 DLA	<0.0050 DLA	<0.00010	
	Cobalt (Co)-Dissolved (mg/L)	2.12	2.07	0.700	<0.00010	
	Copper (Cu)-Dissolved (mg/L)	0.530	0.482	0.359	0.00598	
	Iron (Fe)-Dissolved (mg/L)	42.9	43.2	215	0.047	
	Ferrous Iron, Dissolved (mg/L)	44.0	43.8	320	0.056	
	Lead (Pb)-Dissolved (mg/L)	0.259	0.248	0.626	0.00299	
	Lithium (Li)-Dissolved (mg/L)	0.273	0.274	0.062	0.00219	
	Magnesium (Mg)-Dissolved (mg/L)	1600	1580	361	5.54	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1316379-1	L1316379-2	L1316379-3	L1316379-4	L1316379-5
	Description	water	water	water	water	water
	Sampled Date	11-JUN-13	11-JUN-13	11-JUN-13	11-JUN-13	11-JUN-13
	Sampled Time	10:00	10:00	12:10	13:35	13:35
	Client ID	CH-MILL-03_SESP13	CH-MILL-903_SESP13	FCS-2_SESP13	FCS-4_SESP13	FCS-94_SESP13
Grouping	**Analyte**					
WATER						
Dissolved Metals	Manganese (Mn)-Dissolved (mg/L)	143	148	163	145	149
	Mercury (Hg)-Dissolved (mg/L)	0.000489	0.000381	0.000037	0.000014	0.000014
	Molybdenum (Mo)-Dissolved (mg/L)	DLA <0.025	DLA <0.025	DLA <0.010	DLA <0.010	DLA <0.010
	Nickel (Ni)-Dissolved (mg/L)	3.11	3.14	2.76	2.32	2.37
	Phosphorus (P)-Dissolved (mg/L)	DLA <1.5	DLA <1.5	DLA <1.5	DLA <1.5	DLA <1.5
	Potassium (K)-Dissolved (mg/L)	DLA <25	DLA <25	18	18	18
	Selenium (Se)-Dissolved (mg/L)	DLA <0.050	DLA <0.050	DLA <0.020	DLA <0.020	DLA <0.020
	Silicon (Si)-Dissolved (mg/L)	31.3	30.4	15.9	15.0	15.0
	Silicon (as SiO2)-Dissolved (mg/L)	66.8	64.9	34.1	32.0	32.1
	Silver (Ag)-Dissolved (mg/L)	DLA <0.0050	DLA <0.0050	DLA <0.0020	DLA <0.0020	DLA <0.0020
	Sodium (Na)-Dissolved (mg/L)	110	119	57	62	64
	Strontium (Sr)-Dissolved (mg/L)	1.40	1.40	3.85	3.91	4.04
	Sulfur (S)-Dissolved (mg/L)	3660	3640	3270	3010	3030
	Thallium (Tl)-Dissolved (mg/L)	0.0107	0.0124	0.0021	0.0021	DLA <0.0020
	Titanium (Ti)-Dissolved (mg/L)	DLA <5.0	DLA <5.0	DLA <2.0	DLA <2.0	DLA <2.0
	Uranium (U)-Dissolved (mg/L)	0.0339	0.0326	0.0317	0.0194	0.0188
	Vanadium (V)-Dissolved (mg/L)	DLA <0.50	DLA <0.50	DLA <0.20	DLA <0.20	DLA <0.20
	Zinc (Zn)-Dissolved (mg/L)	2360	2460	1380	1080	1140

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1316379-6	L1316379-7	L1316379-8	L1316379-9	L1316379-10
	Description	water	water	water	water	water
	Sampled Date	11-JUN-13	11-JUN-13	11-JUN-13	11-JUN-13	11-JUN-13
	Sampled Time	14:10	16:00	10:10	17:15	12:45
	Client ID	SRK-FD09_SESP13	SRK-FD13_SESP13	SRK-FD19_SESP13	SRK-FD24_SESP13	SRK-FD31_SESP13
Grouping	**Analyte**					
WATER						
Dissolved Metals	Manganese (Mn)-Dissolved (mg/L)	118	495	61.6	13.4	169
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	0.000100	<0.000010	<0.000010	0.000024
	Molybdenum (Mo)-Dissolved (mg/L)	DLA <0.010	DLA <0.050	DLA <0.0025	DLA <0.00050	DLA <0.010
	Nickel (Ni)-Dissolved (mg/L)	2.23	18.4	1.13	0.431	3.35
	Phosphorus (P)-Dissolved (mg/L)	DLA <1.5	DLA <6.0	DLA <0.90	<0.30	DLA <1.5
	Potassium (K)-Dissolved (mg/L)	17	DLA <50	11.0	5.21	16
	Selenium (Se)-Dissolved (mg/L)	DLA <0.020	DLA <0.10	0.0075	DLA <0.0010	DLA <0.020
	Silicon (Si)-Dissolved (mg/L)	7.02	33.1	6.05	8.38	12.1
	Silicon (as SiO2)-Dissolved (mg/L)	15.0	70.8	12.9	17.9	25.8
	Silver (Ag)-Dissolved (mg/L)	DLA <0.0020	DLA <0.010	DLA <0.00050	0.00016	DLA <0.0020
	Sodium (Na)-Dissolved (mg/L)	45	DLA <50	22.3	5.83	56
	Strontium (Sr)-Dissolved (mg/L)	2.59	0.94	3.14	0.682	3.96
	Sulfur (S)-Dissolved (mg/L)	2600	11300	1760	548	3850
	Thallium (Tl)-Dissolved (mg/L)	0.0022	DLA <0.010	DLA <0.00050	0.00251	0.0028
	Titanium (Ti)-Dissolved (mg/L)	DLA <2.0	DLA <10	DLA <0.50	DLA <0.10	DLA <2.0
	Uranium (U)-Dissolved (mg/L)	0.0064	0.526	0.0159	0.00832	0.0252
	Vanadium (V)-Dissolved (mg/L)	DLA <0.20	DLA <1.0	DLA <0.050	DLA <0.010	DLA <0.20
	Zinc (Zn)-Dissolved (mg/L)	1220	5040	269	89.9	1690

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1316379-11	L1316379-12	L1316379-13	L1316379-14	
	Description	water	water	water	water	
	Sampled Date	11-JUN-13	11-JUN-13	12-JUN-13	12-JUN-13	
	Sampled Time	16:20	16:40	10:30	12:20	
	Client ID	SRK-FD56_SESP13	SRK-FD956_SESP13	FCS-5_SESP13	SRK-FD18_SESP13	
Grouping	**Analyte**					
WATER						
Dissolved Metals	Manganese (Mn)-Dissolved (mg/L)	119	117	55.7	0.00328	
	Mercury (Hg)-Dissolved (mg/L)	0.000030 DLA	0.000019 DLA	0.000106 DLA	0.000027	
	Molybdenum (Mo)-Dissolved (mg/L)	<0.0050	<0.0050	<0.0025	0.000949	
	Nickel (Ni)-Dissolved (mg/L)	3.19 DLA	3.13 DLA	0.703	0.00109	
	Phosphorus (P)-Dissolved (mg/L)	<1.5	<1.5	<0.30	<0.30	
	Potassium (K)-Dissolved (mg/L)	19.3 DLA	18.7 DLA	7.2 DLA	1.21	
	Selenium (Se)-Dissolved (mg/L)	<0.010	<0.010	<0.0050	0.00019	
	Silicon (Si)-Dissolved (mg/L)	6.96	6.79	7.52	5.08	
	Silicon (as SiO2)-Dissolved (mg/L)	14.9 DLA	14.5 DLA	16.1 DLA	11.1	
	Silver (Ag)-Dissolved (mg/L)	<0.0010	<0.0010	<0.00050	<0.000010	
	Sodium (Na)-Dissolved (mg/L)	76.3	75.0	21.0	1.86	
	Strontium (Sr)-Dissolved (mg/L)	2.08	2.04	1.35	0.0975	
	Sulfur (S)-Dissolved (mg/L)	2910	2880	978	10.9	
	Thallium (Tl)-Dissolved (mg/L)	0.0055 DLA	0.0054 DLA	0.00125 DLA	0.000077	
	Titanium (Ti)-Dissolved (mg/L)	<1.0	<1.0	<0.50	<0.010	
	Uranium (U)-Dissolved (mg/L)	0.0209 DLA	0.0205 DLA	0.0103 DLA	0.000892	
	Vanadium (V)-Dissolved (mg/L)	<0.10	<0.10	<0.050	<0.0010	
	Zinc (Zn)-Dissolved (mg/L)	662	648	361	0.109	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Phosphorus (P)-Dissolved	DLA	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Antimony (Sb)-Dissolved	DLA	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Arsenic (As)-Dissolved	DLA	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Beryllium (Be)-Dissolved	DLA	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Boron (B)-Dissolved	DLA	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Chromium (Cr)-Dissolved	DLA	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Molybdenum (Mo)-Dissolved	DLA	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Selenium (Se)-Dissolved	DLA	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Silver (Ag)-Dissolved	DLA	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Titanium (Ti)-Dissolved	DLA	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Vanadium (V)-Dissolved	DLA	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Cyanide, Free	DLM	L1316379-1, -10, -11, -12, -13, -2, -6
Matrix Spike	Ammonia, Total (as N)	MS-B	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Cadmium (Cd)-Dissolved	MS-B	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Cobalt (Co)-Dissolved	MS-B	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Nickel (Ni)-Dissolved	MS-B	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Zinc (Zn)-Dissolved	MS-B	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Iron (Fe)-Dissolved	MS-B	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Copper (Cu)-Dissolved	MS-B	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Dissolved Organic Carbon	MS-B	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -8, -9
Matrix Spike	Sulfate (SO4)	MS-B	L1316379-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
AI	Analytical interferences may be present. Result may be biased high.
DLA	Detection Limit Adjusted For required dilution
DLM	Detection Limit Adjusted For Sample Matrix Effects
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-H2O2-MAN-VA	Water	Acidity by Hot Peroxide Manual Titration	APHA - ACIDITY (2310)

Reference Information

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". The procedure involves preliminary sample treatment by the hot peroxide procedure, and Acidity is subsequently determined by potentiometric titration to a specified endpoint (i.e. pH = 8.3).

ACY-PCT-VA Water Acidity by Automatic Titration APHA 2310 "Acidity"

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ACY-PCT-VA Water Acidity by Automatic Titration APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ALK-PCT-VA Water Alkalinity by Auto. Titration APHA 2320 "Alkalinity"

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ALK-PCT-VA Water Alkalinity by Auto. Titration APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ALK-SCR-VA Water Alkalinity by colour or titration EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-CL-IC-WR Water Chloride by Ion Chromatography EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-F-IC-WR Water Fluoride by Ion Chromatography EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-NO2-IC-WR Water Nitrite Nitrogen by Ion Chromatography EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-NO3-IC-WR Water Nitrate Nitrogen by Ion Chromatography EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-SO4-IC-WR Water Sulphate by Ion Chromatography EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

CARBONS-DOC-VA Water Dissolved organic carbon by combustion APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CN-FREE-CFA-VA Water Free Cyanide in water by CFA ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

FE2-D-COL-VA Water Diss. Ferrous Iron in Water by Colour James W. Ball et al (1999)

This analysis is carried out using procedures adapted from "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedures involves preliminary sample filtration (0.1um filter) and Ferrous Iron is determined using the "FerroZine" colorimteric method.

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental

Reference Information

analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

MET-D-CCMS-VA Water Dissolved Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

S-DIS-ICP-VA Water Dissolved Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

SIO2-D-CALC-VA Water Dissolved Silicon (reported as Silica) CALCULATION

Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-LOW-VA Water Total Suspended Solids by Grav. (1 mg/L) APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

ALS06121304

Reference Information

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Client: CH2M HILL, INC
2525 Airpark Drive
Redding CA 96001
Contact: Bernice Kidd

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-H2O2-MAN-VA	**Water**							
Batch R2634731								
WG1691956-2 CRM		**VA-ACY-M-CONTROL**						
Acidity-Hot Peroxide Treated (as CaCO3)			98.9		%		85-115	19-JUN-13
WG1691956-3 DUP		**L1316379-10**						
Acidity-Hot Peroxide Treated (as CaCO3)		4090	4020		mg/L	1.7	20	19-JUN-13
WG1691956-1 MB								
Acidity-Hot Peroxide Treated (as CaCO3)			<25		mg/L		25	19-JUN-13
ACY-PCT-VA	**Water**							
Batch R2634711								
WG1691294-10 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			101.9		%		85-115	19-JUN-13
WG1691294-11 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			101.1		%		85-115	19-JUN-13
WG1691294-12 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			104.3		%		85-115	19-JUN-13
WG1691294-14 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			99.1		%		85-115	19-JUN-13
WG1691294-15 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			100.2		%		85-115	19-JUN-13
WG1691294-16 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			100.8		%		85-115	19-JUN-13
WG1691294-9 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			94.5		%		85-115	19-JUN-13
ALK-PCT-VA	**Water**							
Batch R2638529								
WG1695189-9 CRM		**VA-ALK-PCT-CONTROL**						
Alkalinity, Total (as CaCO3)			101.4		%		85-115	25-JUN-13
WG1695189-33 DUP		**L1316379-10**						
Alkalinity, Total (as CaCO3)		<1.0	<1.0	RPD-NA	mg/L	N/A	20	25-JUN-13
Alkalinity, Bicarbonate (as CaCO3)		<1.0	<1.0	RPD-NA	mg/L	N/A	20	25-JUN-13
Alkalinity, Carbonate (as CaCO3)		<1.0	<1.0	RPD-NA	mg/L	N/A	25	25-JUN-13
Alkalinity, Hydroxide (as CaCO3)		<1.0	<1.0	RPD-NA	mg/L	N/A	20	25-JUN-13
WG1695189-1 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	25-JUN-13
Alkalinity, Bicarbonate (as CaCO3)			<1.0		mg/L		1	25-JUN-13
Alkalinity, Carbonate (as CaCO3)			<1.0		mg/L		1	25-JUN-13
Alkalinity, Hydroxide (as CaCO3)			<1.0		mg/L		1	25-JUN-13
ALK-SCR-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-SCR-VA	**Water**							
Batch R2637533								
WG1694921-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			97.2		%		85-115	25-JUN-13
WG1694921-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	25-JUN-13
Batch R2642170								
WG1699491-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			97.2		%		85-115	25-JUN-13
WG1699491-4 CRM		**VA-ALKM-CONTROL**						
Alkalinity, Total (as CaCO3)			101.0		%		85-115	25-JUN-13
WG1699491-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	25-JUN-13
ANIONS-CL-IC-WR	**Water**							
Batch R2642291								
WG1699914-3 DUP		**L1316379-10**						
Chloride (Cl)		<25	<25	RPD-NA	mg/L	N/A	20	14-JUN-13
WG1699914-2 LCS								
Chloride (Cl)			103.0		%		85-115	14-JUN-13
WG1699914-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	14-JUN-13
WG1699914-4 MS		**L1316379-10**						
Chloride (Cl)			103.7		%		75-125	14-JUN-13
ANIONS-F-IC-WR	**Water**							
Batch R2642291								
WG1699914-3 DUP		**L1316379-10**						
Fluoride (F)		2.6	2.6		mg/L	1.7	20	14-JUN-13
WG1699914-2 LCS								
Fluoride (F)			104.6		%		85-115	14-JUN-13
WG1699914-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	14-JUN-13
WG1699914-4 MS		**L1316379-10**						
Fluoride (F)			115.5		%		75-125	14-JUN-13
ANIONS-NO2-IC-WR	**Water**							
Batch R2642291								
WG1699914-3 DUP		**L1316379-10**						
Nitrite (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	14-JUN-13
WG1699914-2 LCS								
Nitrite (as N)			98.6		%		85-115	14-JUN-13
WG1699914-1 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO2-IC-WR	**Water**							
Batch R2642291								
WG1699914-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	14-JUN-13
WG1699914-4 MS		**L1316379-10**						
Nitrite (as N)			93.6		%		75-125	14-JUN-13
ANIONS-NO3-IC-WR	**Water**							
Batch R2642291								
WG1699914-3 DUP		**L1316379-10**						
Nitrate (as N)		2.60	2.59		mg/L	0.4	20	14-JUN-13
WG1699914-2 LCS								
Nitrate (as N)			103.7		%		85-115	14-JUN-13
WG1699914-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	14-JUN-13
WG1699914-4 MS		**L1316379-10**						
Nitrate (as N)			103.4		%		75-125	14-JUN-13
ANIONS-SO4-IC-WR	**Water**							
Batch R2642291								
WG1699914-3 DUP		**L1316379-10**						
Sulfate (SO4)		12400	12400		mg/L	0.1	20	14-JUN-13
WG1699914-2 LCS								
Sulfate (SO4)			106.3		%		85-115	14-JUN-13
WG1699914-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	14-JUN-13
WG1699914-4 MS		**L1316379-10**						
Sulfate (SO4)			N/A	MS-B	%		-	14-JUN-13
CARBONS-DOC-VA	**Water**							
Batch R2641235								
WG1697382-6 LCS								
Dissolved Organic Carbon			108.5		%		80-120	30-JUN-13
WG1697382-5 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	30-JUN-13
WG1697382-2 MS		**L1316343-1**						
Dissolved Organic Carbon			104.4		%		70-130	30-JUN-13
Batch R2641786								
WG1699338-3 LCS								
Dissolved Organic Carbon			99.6		%		80-120	01-JUL-13
WG1699338-2 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	01-JUL-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CARBONS-DOC-VA	**Water**							
Batch R2641900								
WG1699475-1 DUP		**L1316379-10**						
Dissolved Organic Carbon		8.76	9.01		mg/L	2.9	20	30-JUN-13
WG1699475-4 LCS								
Dissolved Organic Carbon			108.5		%		80-120	30-JUN-13
WG1699475-3 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	30-JUN-13
WG1699475-2 MS		**L1316379-10**						
Dissolved Organic Carbon			N/A	MS-B	%		-	30-JUN-13
CN-FREE-CFA-VA	**Water**							
Batch R2642477								
WG1700073-3 DUP		**L1316379-10**						
Cyanide, Free		<0.020	<0.020	RPD-NA	mg/L	N/A	20	28-JUN-13
WG1700073-2 LCS								
Cyanide, Free			101.0		%		80-120	28-JUN-13
WG1700073-1 MB								
Cyanide, Free			<0.0050		mg/L		0.005	28-JUN-13
WG1700073-4 MS		**L1316379-10**						
Cyanide, Free			77.0		%		70-130	28-JUN-13
FE2-D-COL-VA	**Water**							
Batch R2633546								
WG1689893-5 DUP		**L1316379-10**						
Ferrous Iron, Dissolved		912	914		mg/L	0.2	20	17-JUN-13
WG1689893-2 LCS								
Ferrous Iron, Dissolved			103.6		%		80-120	17-JUN-13
WG1689893-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	17-JUN-13
WG1689893-4 MS		**L1316343-1**						
Ferrous Iron, Dissolved			107.0		%		70-130	17-JUN-13
WG1689893-6 MS		**L1316379-10**						
Ferrous Iron, Dissolved			90.4		%		70-130	17-JUN-13
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2633814								
WG1689998-3 LCS								
Mercury (Hg)-Dissolved			98.6		%		80-120	18-JUN-13
WG1689998-1 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	18-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2634898								
WG1689998-4 DUP		**L1316379-10**						
Mercury (Hg)-Dissolved		0.000024	0.000023		mg/L	5.7	20	19-JUN-13
WG1689998-5 MS		**L1316379-10**						
Mercury (Hg)-Dissolved			92.8		%		70-130	19-JUN-13
MET-D-CCMS-VA	**Water**							
Batch R2633494								
WG1689998-2 CRM		**VA-HIGH-WATRM**						
Aluminum (Al)-Dissolved			98.4		%		80-120	17-JUN-13
Antimony (Sb)-Dissolved			101.8		%		80-120	17-JUN-13
Arsenic (As)-Dissolved			97.9		%		80-120	17-JUN-13
Barium (Ba)-Dissolved			98.9		%		80-120	17-JUN-13
Beryllium (Be)-Dissolved			95.5		%		80-120	17-JUN-13
Boron (B)-Dissolved			90.4		%		80-120	17-JUN-13
Cadmium (Cd)-Dissolved			99.9		%		80-120	17-JUN-13
Chromium (Cr)-Dissolved			98.6		%		80-120	17-JUN-13
Cobalt (Co)-Dissolved			95.2		%		80-120	17-JUN-13
Copper (Cu)-Dissolved			94.1		%		80-120	17-JUN-13
Lead (Pb)-Dissolved			98.5		%		80-120	17-JUN-13
Lithium (Li)-Dissolved			97.0		%		80-120	17-JUN-13
Manganese (Mn)-Dissolved			96.0		%		80-120	17-JUN-13
Molybdenum (Mo)-Dissolved			97.6		%		80-120	17-JUN-13
Nickel (Ni)-Dissolved			95.8		%		80-120	17-JUN-13
Potassium (K)-Dissolved			96.8		%		80-120	17-JUN-13
Selenium (Se)-Dissolved			96.4		%		80-120	17-JUN-13
Silver (Ag)-Dissolved			99.0		%		80-120	17-JUN-13
Sodium (Na)-Dissolved			99.5		%		80-120	17-JUN-13
Strontium (Sr)-Dissolved			97.3		%		80-120	17-JUN-13
Thallium (Tl)-Dissolved			99.3		%		80-120	17-JUN-13
Titanium (Ti)-Dissolved			88.0		%		80-120	17-JUN-13
Uranium (U)-Dissolved			98.5		%		80-120	17-JUN-13
Vanadium (V)-Dissolved			97.2		%		80-120	17-JUN-13
Zinc (Zn)-Dissolved			94.6		%		80-120	17-JUN-13
WG1689998-4 DUP		**L1316379-10**						
Aluminum (Al)-Dissolved		5.09	5.39		mg/L	5.7	20	27-JUN-13
Antimony (Sb)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	27-JUN-13
Arsenic (As)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	27-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2633494								
WG1689998-4 DUP		**L1316379-10**						
Barium (Ba)-Dissolved		0.027	0.029		mg/L	5.7	20	27-JUN-13
Beryllium (Be)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	27-JUN-13
Boron (B)-Dissolved		<2.0	<2.0	RPD-NA	mg/L	N/A	20	27-JUN-13
Cadmium (Cd)-Dissolved		1.31	1.36		mg/L	3.6	20	27-JUN-13
Chromium (Cr)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	27-JUN-13
Cobalt (Co)-Dissolved		2.91	2.99		mg/L	2.6	20	27-JUN-13
Copper (Cu)-Dissolved		1.73	1.80		mg/L	3.7	20	27-JUN-13
Lead (Pb)-Dissolved		0.042	0.041		mg/L	4.3	20	27-JUN-13
Lithium (Li)-Dissolved		0.13	0.13		mg/L	5.4	20	27-JUN-13
Manganese (Mn)-Dissolved		169	174		mg/L	3.0	20	27-JUN-13
Molybdenum (Mo)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	27-JUN-13
Nickel (Ni)-Dissolved		3.35	3.49		mg/L	4.1	20	27-JUN-13
Potassium (K)-Dissolved		16	17		mg/L	5.1	20	27-JUN-13
Selenium (Se)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	27-JUN-13
Silver (Ag)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	27-JUN-13
Sodium (Na)-Dissolved		56	59		mg/L	3.7	20	27-JUN-13
Strontium (Sr)-Dissolved		3.96	4.09		mg/L	3.4	20	27-JUN-13
Thallium (Tl)-Dissolved		0.0028	0.0027		mg/L	3.8	20	27-JUN-13
Titanium (Ti)-Dissolved		<2.0	<2.0	RPD-NA	mg/L	N/A	20	27-JUN-13
Uranium (U)-Dissolved		0.0252	0.0251		mg/L	0.4	20	27-JUN-13
Vanadium (V)-Dissolved		<0.20	<0.20	RPD-NA	mg/L	N/A	20	27-JUN-13
Zinc (Zn)-Dissolved		1690	1750		mg/L	3.3	20	27-JUN-13
WG1689998-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	17-JUN-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	17-JUN-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	17-JUN-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2633494								
WG1689998-1 MB								
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	17-JUN-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	17-JUN-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	17-JUN-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	17-JUN-13
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	17-JUN-13
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	17-JUN-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	17-JUN-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	17-JUN-13
WG1689998-5 MS		**L1316379-10**						
Aluminum (Al)-Dissolved			117.2		%		70-130	25-JUN-13
Antimony (Sb)-Dissolved			102.5		%		70-130	25-JUN-13
Arsenic (As)-Dissolved			105.1		%		70-130	27-JUN-13
Barium (Ba)-Dissolved			103.3		%		70-130	25-JUN-13
Beryllium (Be)-Dissolved			96.3		%		70-130	25-JUN-13
Boron (B)-Dissolved			92.5		%		70-130	25-JUN-13
Cadmium (Cd)-Dissolved			N/A	MS-B	%		-	25-JUN-13
Chromium (Cr)-Dissolved			96.1		%		70-130	25-JUN-13
Cobalt (Co)-Dissolved			167.7	MS-B	%		70-130	25-JUN-13
Copper (Cu)-Dissolved			N/A	MS-B	%		-	27-JUN-13
Lead (Pb)-Dissolved			100.9		%		70-130	25-JUN-13
Lithium (Li)-Dissolved			100.6		%		70-130	25-JUN-13
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	25-JUN-13
Molybdenum (Mo)-Dissolved			103.3		%		70-130	25-JUN-13
Nickel (Ni)-Dissolved			136.9	MS-B	%		70-130	25-JUN-13
Potassium (K)-Dissolved			98.8		%		70-130	25-JUN-13
Selenium (Se)-Dissolved			97.9		%		70-130	25-JUN-13
Silver (Ag)-Dissolved			100.9		%		70-130	25-JUN-13
Sodium (Na)-Dissolved			110.9		%		70-130	25-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2633494								
WG1689998-5 MS		**L1316379-10**						
Strontium (Sr)-Dissolved			195.4	MS-B	%		70-130	25-JUN-13
Thallium (Tl)-Dissolved			98.5		%		70-130	25-JUN-13
Titanium (Ti)-Dissolved			99.5		%		70-130	25-JUN-13
Uranium (U)-Dissolved			104.1		%		70-130	25-JUN-13
Vanadium (V)-Dissolved			97.8		%		70-130	25-JUN-13
Zinc (Zn)-Dissolved			N/A	MS-B	%		-	25-JUN-13
MET-DIS-ICP-VA	**Water**							
Batch R2633893								
WG1689998-2 CRM		**VA-HIGH-WATRM**						
Calcium (Ca)-Dissolved			98.3		%		80-120	18-JUN-13
Iron (Fe)-Dissolved			99.4		%		80-120	18-JUN-13
Magnesium (Mg)-Dissolved			102.5		%		80-120	18-JUN-13
Phosphorus (P)-Dissolved			99.5		%		80-120	18-JUN-13
Silicon (Si)-Dissolved			99.1		%		80-120	18-JUN-13
WG1689998-1 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	18-JUN-13
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	18-JUN-13
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	18-JUN-13
Phosphorus (P)-Dissolved			<0.30		mg/L		0.3	18-JUN-13
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	18-JUN-13
Batch R2639755								
WG1689998-4 DUP		**L1316379-10**						
Calcium (Ca)-Dissolved		502	501		mg/L	0.3	20	26-JUN-13
Iron (Fe)-Dissolved		821	822		mg/L	0.1	20	26-JUN-13
Magnesium (Mg)-Dissolved		1470	1470		mg/L	0.1	20	26-JUN-13
Phosphorus (P)-Dissolved		<1.5	<1.5	RPD-NA	mg/L	N/A	20	26-JUN-13
Silicon (Si)-Dissolved		12.1	12.1		mg/L	0.2	20	26-JUN-13
WG1689998-5 MS		**L1316379-10**						
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	26-JUN-13
Iron (Fe)-Dissolved			N/A	MS-B	%		-	26-JUN-13
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	26-JUN-13
NH3-F-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-F-VA	**Water**							
Batch R2634754								
WG1689429-2 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			105.3		%		85-115	19-JUN-13
WG1689429-6 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			100.7		%		85-115	19-JUN-13
WG1689429-4 DUP		**L1316379-10**						
Ammonia, Total (as N)		0.673	0.631		mg/L	6.5	20	19-JUN-13
WG1689429-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	19-JUN-13
WG1689429-3 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	19-JUN-13
WG1689429-5 MS		**L1316379-10**						
Ammonia, Total (as N)			N/A	MS-B	%		-	19-JUN-13
PH-PCT-VA	**Water**							
Batch R2634711								
WG1691294-25 CRM		**VA-PH7-BUF**						
pH			7.02		pH		6.9-7.1	19-JUN-13
WG1691294-26 CRM		**VA-PH7-BUF**						
pH			7.04		pH		6.9-7.1	19-JUN-13
WG1691294-27 CRM		**VA-PH7-BUF**						
pH			7.03		pH		6.9-7.1	19-JUN-13
WG1691294-28 CRM		**VA-PH7-BUF**						
pH			7.02		pH		6.9-7.1	19-JUN-13
WG1691294-29 CRM		**VA-PH7-BUF**						
pH			7.02		pH		6.9-7.1	19-JUN-13
WG1691294-30 CRM		**VA-PH7-BUF**						
pH			7.02		pH		6.9-7.1	19-JUN-13
WG1691294-31 CRM		**VA-PH7-BUF**						
pH			7.02		pH		6.9-7.1	19-JUN-13
WG1691294-32 CRM		**VA-PH7-BUF**						
pH			7.00		pH		6.9-7.1	19-JUN-13
Batch R2635377								
WG1691354-26 CRM		**VA-PH7-BUF**						
pH			7.08		pH		6.9-7.1	19-JUN-13
WG1691354-33 DUP		**L1316379-13**						
pH		4.38	4.08	J	pH	0.30	0.3	19-JUN-13
PO4-DO-COL-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PO4-DO-COL-VA	**Water**							
Batch R2633164								
WG1689230-2 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			95.3		%		80-120	14-JUN-13
WG1689230-6 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			88.4		%		80-120	14-JUN-13
WG1689230-3 DUP		**L1316379-10**						
Orthophosphate-Dissolved (as P)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	14-JUN-13
WG1689230-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	14-JUN-13
WG1689230-5 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	14-JUN-13
WG1689230-4 MS		**L1316379-10**						
Orthophosphate-Dissolved (as P)			93.1		%		70-130	14-JUN-13
S-DIS-ICP-VA	**Water**							
Batch R2633893								
WG1689998-2 CRM		**VA-HIGH-WATRM**						
Sulfur (S)-Dissolved			101.9		%		80-120	18-JUN-13
WG1689998-1 MB								
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	18-JUN-13
Batch R2639755								
WG1689998-4 DUP		**L1316379-10**						
Sulfur (S)-Dissolved		3850	3860		mg/L	0.1	20	26-JUN-13
WG1689998-5 MS		**L1316379-10**						
Sulfur (S)-Dissolved			N/A	MS-B	%		-	26-JUN-13
TDS-VA	**Water**							
Batch R2633139								
WG1689232-3 DUP		**L1316379-10**						
Total Dissolved Solids		19500	18900		mg/L	2.8	20	14-JUN-13
WG1689232-2 LCS								
Total Dissolved Solids			103.5		%		85-115	14-JUN-13
WG1689232-1 MB								
Total Dissolved Solids			<10		mg/L		10	14-JUN-13
TSS-LOW-VA	**Water**							
Batch R2633060								
WG1689247-2 LCS								
Total Suspended Solids			93.3		%		85-115	15-JUN-13
WG1689247-1 MB								
Total Suspended Solids			<1.0		mg/L		1	15-JUN-13

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	1	11-JUN-13 10:00	19-JUN-13 23:52	0.25	206	hours	EHTR-FM
	2	11-JUN-13 10:00	19-JUN-13 23:52	0.25	206	hours	EHTR-FM
	3	11-JUN-13 12:10	19-JUN-13 23:52	0.25	204	hours	EHTR-FM
	4	11-JUN-13 13:35	19-JUN-13 23:52	0.25	202	hours	EHTR-FM
	5	11-JUN-13 13:35	19-JUN-13 23:52	0.25	202	hours	EHTR-FM
	6	11-JUN-13 14:10	19-JUN-13 23:52	0.25	202	hours	EHTR-FM
	7	11-JUN-13 16:00	19-JUN-13 23:52	0.25	200	hours	EHTR-FM
	8	11-JUN-13 10:10	19-JUN-13 23:25	0.25	205	hours	EHTR-FM
	9	11-JUN-13 17:15	19-JUN-13 23:52	0.25	199	hours	EHTR-FM
	10	11-JUN-13 12:45	19-JUN-13 23:52	0.25	203	hours	EHTR-FM
	11	11-JUN-13 16:20	19-JUN-13 23:52	0.25	199	hours	EHTR-FM
	12	11-JUN-13 16:40	19-JUN-13 23:52	0.25	199	hours	EHTR-FM
	13	12-JUN-13 10:30	19-JUN-13 23:52	0.25	181	hours	EHTR-FM
	14	12-JUN-13 12:20	19-JUN-13 23:25	0.25	179	hours	EHTR-FM
Cyanides							
Free Cyanide in water by CFA							
	1	11-JUN-13 10:00	28-JUN-13 12:47	14	17	days	EHT
	2	11-JUN-13 10:00	28-JUN-13 12:47	14	17	days	EHT
	6	11-JUN-13 14:10	28-JUN-13 12:47	14	17	days	EHT
	10	11-JUN-13 12:45	28-JUN-13 12:47	14	17	days	EHT
	11	11-JUN-13 16:20	28-JUN-13 12:47	14	17	days	EHT
	12	11-JUN-13 16:40	28-JUN-13 12:47	14	17	days	EHT
	13	12-JUN-13 10:30	28-JUN-13 12:47	14	16	days	EHT

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1316379 were received on 13-JUN-13 09:00.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



L1316379-COFC

CH2MHILL

CHAIN OF CUSTODY RECORD

6/12/2013 1:35:53 PM

Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.07.EM.SS.02.0
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-015
Project FARO MINE SEEP SAMPLING 2013
Turnaround Time 10 Days
Shipping Date: 6/12/2013
COC Number: ALS06121304

	DATE	TIME	Matrix	Container:	500ml Poly	125mL Poly	250ml Poly	125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	250ml Poly	250ml glass		Number of Containers	COMMENTS
				Preservatives:	4C	NaOH, 4'C	HNO3, 4'C	HCl, 4'C	4C	4C	4'C	4'C	4'C	4'C	H2SO4, pH<2, 4'C	HNO3, 4'C	H2SO4, pH<2, 4C			
				Filtered:	NA	NA	Field	Field	NA	NA	NA	NA	NA	NA	Field	Field	NA			
				Holding Time:	14	14	180/28	180	14	14	7	7	3	3	28	180/28	28			
					Acidity - Run Hot H2O2	(ASTM 7237) Free Cyanide	(E245.7) Field Filtered Dissolved Hg	(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity - Run Hot H2O2 if Fe >15ppm	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM4110B) CL F NO2 NO3 and SO4	(SM4500P) ortho-Phosphate	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia			
CH-MILL-03_SESP13	6/11/2013	10:00	Water		X	X	X	X		X	X	X	X	X	X	X	X		8	
CH-MILL-903_SESP13	6/11/2013	10:00	Water		X	X	X	X		X	X	X	X	X	X	X	X		8	
FCS-2_SESP13	6/11/2013	12:10	Water		X		X	X		X	X	X	X	X	X	X	X		7	
FCS-4_SESP13	6/11/2013	13:35	Water		X		X	X		X	X	X	X	X	X	X	X		7	
FCS-94_SESP13	6/11/2013	13:35	Water		X		X	X		X	X	X	X	X	X	X	X		7	
SRK-FD09_SESP13	6/11/2013	14:10	Water		X	X	X	X		X	X	X	X	X	X	X	X		8	
SRK-FD13_SESP13	6/11/2013	16:00	Water		X		X	X		X	X	X	X	X	X	X	X		7	
SRK-FD19_SESP13	6/11/2013	10:10	Water				X	X	X	X	X	X	X	X	X	X	X		7	
SRK-FD24_SESP13	6/11/2013	17:15	Water		X		X	X		X	X	X	X	X	X	X	X		7	
SRK-FD31_SESP13	6/11/2013	12:45	Water		X	X	X	X		X	X	X	X	X	X	X	X		8	LAB DUP/MS
SRK-FD56_SESP13	6/11/2013	16:20	Water		X	X	X	X		X	X	X	X	X	X	X	X		8	
SRK-FD956_SESP13	6/11/2013	16:40	Water		X	X	X	X		X	X	X	X	X	X	X	X		8	
FCS-5_SESP13	6/12/2013	10:30	Water		X	X	X	X		X	X	X	X	X	X	X	X		8	
SRK-FD18_SESP13	6/12/2013	12:20	Water				X	X	X	X	X	X	X	X	X	X	X		7	

Signatures		Date/Time
Approved by		6/12/13
Sampled by	Travis Howell	1340
Relinquished by		
Received by		6/13/13
Relinquished by		
Received by		6.2

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

ATTN:
Sample Custody
and
Amber Springer

Special Instructions:
PO: 604564 on Invoice Perform Lab Dup/MS on the samples

Report Copy to
Bernice Kidd
(530) 229-3203

CH2M HILL, INC
ATTN: Bernice Kidd
2525 Airpark Drive
Redding CA 96001

Date Received: 13-JUN-13
Report Date: 04-JUL-13 11:34 (MT)
Version: FINAL

Client Phone: 530-229-3203

Certificate of Analysis

Lab Work Order #: L1316410

Project P.O. #: 472645.06.AD.01.04.13 "PO=604564"
Job Reference: FARO MINE SEEP SAMPLING 2013 SW-015
C of C Numbers: ALS06121302
Legal Site Desc:

Amber Springer
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1316410-1	L1316410-2			
	Description	Water	Water			
	Sampled Date	10-JUN-13	10-JUN-13			
	Sampled Time	15:15	16:50			
	Client ID	SRK-FD01_SESP13	SRK-FD37_SESP13			
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	3270	5480			
	pH (pH)	7.32				
	Total Suspended Solids (mg/L)	77.4	213			
	Total Dissolved Solids (mg/L)	5150	146000			
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	201				
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)		67600			
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	205				
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0				
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0				
	Alkalinity, Total (as CaCO3) (mg/L)	205				
	Ammonia, Total (as N) (mg/L)	0.0259	0.0123			
	Chloride (Cl) (mg/L)	<10 DLA	<50 DLA			
	Fluoride (F) (mg/L)	<0.40 DLA	16.1			
	Nitrate (as N) (mg/L)	1.58	<0.50 DLA			
	Nitrite (as N) (mg/L)	<0.020 DLA	<0.10 DLA			
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	47.7			
	Sulfate (SO4) (mg/L)	3630	89800			
Cyanides	Cyanide, Free (mg/L)	<0.0050	<0.020 DLM			
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	6.56	28.7			
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD			
	Aluminum (Al)-Dissolved (mg/L)	0.167	940			
	Antimony (Sb)-Dissolved (mg/L)	<0.0020 DLA	1.71			
	Arsenic (As)-Dissolved (mg/L)	<0.0020 DLA	385			
	Barium (Ba)-Dissolved (mg/L)	0.0288	<0.25 DLA			
	Beryllium (Be)-Dissolved (mg/L)	<0.0020 DLA	<0.50 DLA			
	Boron (B)-Dissolved (mg/L)	<0.20 DLA	<50 DLA			
	Cadmium (Cd)-Dissolved (mg/L)	0.0861	60.9			
	Calcium (Ca)-Dissolved (mg/L)	533	360			
	Chromium (Cr)-Dissolved (mg/L)	<0.0020 DLA	0.92			
	Cobalt (Co)-Dissolved (mg/L)	0.0788	22.5			
	Copper (Cu)-Dissolved (mg/L)	0.0761	1100			
	Iron (Fe)-Dissolved (mg/L)	4.47	10400			
	Ferrous Iron, Dissolved (mg/L)	4.26	7290			
	Lead (Pb)-Dissolved (mg/L)	0.0016	4.98			
	Lithium (Li)-Dissolved (mg/L)	0.046	2.6			
	Magnesium (Mg)-Dissolved (mg/L)	471	1110			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1316410-1	L1316410-2			
	Description	Water	Water			
	Sampled Date	10-JUN-13	10-JUN-13			
	Sampled Time	15:15	16:50			
	Client ID	SRK-FD01_SESP13	SRK-FD37_SESP13			
Grouping	**Analyte**					
WATER						
Dissolved Metals	Manganese (Mn)-Dissolved (mg/L)	9.72	841			
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	0.000056			
	Molybdenum (Mo)-Dissolved (mg/L)	<0.0010 DLA	<0.25 DLA			
	Nickel (Ni)-Dissolved (mg/L)	0.309	19.7			
	Phosphorus (P)-Dissolved (mg/L)	<0.60 DLA	19			
	Potassium (K)-Dissolved (mg/L)	9.2	<250 DLA			
	Selenium (Se)-Dissolved (mg/L)	0.0035	<0.50 DLA			
	Silicon (Si)-Dissolved (mg/L)	5.13	47.0			
	Silicon (as SiO2)-Dissolved (mg/L)	11.0	100			
	Silver (Ag)-Dissolved (mg/L)	<0.00020 DLA	<0.050 DLA			
	Sodium (Na)-Dissolved (mg/L)	26.0	<250 DLA			
	Strontium (Sr)-Dissolved (mg/L)	2.90	3.3			
	Sulfur (S)-Dissolved (mg/L)	1050	27800 DLA			
	Thallium (Tl)-Dissolved (mg/L)	0.00060	<0.050 DLA			
	Titanium (Ti)-Dissolved (mg/L)	<0.20 DLA	<50 DLA			
	Uranium (U)-Dissolved (mg/L)	0.00704	2.60			
	Vanadium (V)-Dissolved (mg/L)	<0.020 DLA	<5.0 DLA			
	Zinc (Zn)-Dissolved (mg/L)	116	35400			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Antimony (Sb)-Dissolved	DLA	L1316410-1, -2
Duplicate	Arsenic (As)-Dissolved	DLA	L1316410-1, -2
Duplicate	Beryllium (Be)-Dissolved	DLA	L1316410-1, -2
Duplicate	Boron (B)-Dissolved	DLA	L1316410-1, -2
Duplicate	Chromium (Cr)-Dissolved	DLA	L1316410-1, -2
Duplicate	Molybdenum (Mo)-Dissolved	DLA	L1316410-1, -2
Duplicate	Silver (Ag)-Dissolved	DLA	L1316410-1, -2
Duplicate	Titanium (Ti)-Dissolved	DLA	L1316410-1, -2
Duplicate	Vanadium (V)-Dissolved	DLA	L1316410-1, -2
Duplicate	Phosphorus (P)-Dissolved	DLA	L1316410-1, -2
Matrix Spike	Cadmium (Cd)-Dissolved	MS-B	L1316410-1, -2
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1316410-1, -2
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1316410-1, -2
Matrix Spike	Zinc (Zn)-Dissolved	MS-B	L1316410-1, -2
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1316410-1, -2
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1316410-1, -2
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L1316410-1, -2
Matrix Spike	Dissolved Organic Carbon	MS-B	L1316410-1
Matrix Spike	Sulfate (SO4)	MS-B	L1316410-1, -2

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
DLM	Detection Limit Adjusted For Sample Matrix Effects
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-H2O2-MAN-VA	Water	Acidity by Hot Peroxide Manual Titration	APHA - ACIDITY (2310)

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". The procedure involves preliminary sample treatment by the hot peroxide procedure, and Acidity is subsequently determined by potentiometric titration to a specified endpoint (i.e. pH = 8.3).

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-CL-IC-WR	Water	Chloride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-F-IC-WR	Water	Fluoride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-NO2-IC-WR	Water	Nitrite Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

Reference Information

ANIONS-NO3-IC-WR	Water	Nitrate Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-SO4-IC-WR	Water	Sulphate by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CN-FREE-CFA-VA	Water	Free Cyanide in water by CFA	ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

FE2-D-COL-VA	Water	Diss. Ferrous Iron in Water by Colour	James W. Ball et al (1999)

This analysis is carried out using procedures adapted from "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedures involves preliminary sample filtration (0.1um filter) and Ferrous Iron is determined using the "FerroZine" colorimteric method.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA	Water	Dissolved Mercury in Water by CVAFS(Low)	EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA	Water	Dissolved Metals in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

S-DIS-ICP-VA	Water	Dissolved Sulfur in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA

Reference Information

Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

SIO2-D-CALC-VA Water Dissolved Silicon (reported as Silica) CALCULATION

Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-LOW-VA Water Total Suspended Solids by Grav. (1 mg/L) APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

ALS06121302

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Client: CH2M HILL, INC
2525 Airpark Drive
Redding CA 96001
Contact: Bernice Kidd

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-H2O2-MAN-VA	**Water**							
Batch R2634731								
WG1691956-2 CRM		**VA-ACY-M-CONTROL**						
Acidity-Hot Peroxide Treated (as CaCO3)			98.9		%		85-115	19-JUN-13
WG1691956-1 MB								
Acidity-Hot Peroxide Treated (as CaCO3)			<25		mg/L		25	19-JUN-13
ACY-PCT-VA	**Water**							
Batch R2636259								
WG1691376-9 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			94.5		%		85-115	19-JUN-13
WG1691376-33 DUP		**L1316410-1**						
Acidity (as CaCO3)		201	210		mg/L	4.1	20	19-JUN-13
ALK-SCR-VA	**Water**							
Batch R2637009								
WG1693971-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			94.8		%		85-115	23-JUN-13
WG1693971-5 CRM		**VA-ALKM-CONTROL**						
Alkalinity, Total (as CaCO3)			101.0		%		85-115	23-JUN-13
WG1693971-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	23-JUN-13
WG1693971-4 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	23-JUN-13
WG1693971-7 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	23-JUN-13
ANIONS-CL-IC-WR	**Water**							
Batch R2642291								
WG1699914-2 LCS								
Chloride (Cl)			103.0		%		85-115	14-JUN-13
WG1699914-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	14-JUN-13
WG1699914-4 MS		**L1316379-10**						
Chloride (Cl)			103.7		%		75-125	14-JUN-13
ANIONS-F-IC-WR	**Water**							
Batch R2642291								
WG1699914-2 LCS								
Fluoride (F)			104.6		%		85-115	14-JUN-13
WG1699914-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	14-JUN-13
WG1699914-4 MS		**L1316379-10**						

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-F-IC-WR	**Water**							
Batch R2642291								
WG1699914-4 MS		**L1316379-10**						
Fluoride (F)			115.5		%		75-125	14-JUN-13
ANIONS-NO2-IC-WR	**Water**							
Batch R2642291								
WG1699914-2 LCS								
Nitrite (as N)			98.6		%		85-115	14-JUN-13
WG1699914-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	14-JUN-13
WG1699914-4 MS		**L1316379-10**						
Nitrite (as N)			93.6		%		75-125	14-JUN-13
ANIONS-NO3-IC-WR	**Water**							
Batch R2642291								
WG1699914-2 LCS								
Nitrate (as N)			103.7		%		85-115	14-JUN-13
WG1699914-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	14-JUN-13
WG1699914-4 MS		**L1316379-10**						
Nitrate (as N)			103.4		%		75-125	14-JUN-13
ANIONS-SO4-IC-WR	**Water**							
Batch R2642291								
WG1699914-2 LCS								
Sulfate (SO4)			106.3		%		85-115	14-JUN-13
WG1699914-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	14-JUN-13
WG1699914-4 MS		**L1316379-10**						
Sulfate (SO4)			N/A	MS-B	%		-	14-JUN-13
CARBONS-DOC-VA	**Water**							
Batch R2641235								
WG1697382-6 LCS								
Dissolved Organic Carbon			108.5		%		80-120	30-JUN-13
WG1697382-5 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	30-JUN-13
WG1697382-2 MS		**L1316343-1**						
Dissolved Organic Carbon			104.4		%		70-130	30-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CARBONS-DOC-VA	**Water**							
Batch R2641900								
WG1699475-4 LCS								
Dissolved Organic Carbon			108.5		%		80-120	30-JUN-13
WG1699475-3 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	30-JUN-13
WG1699475-2 MS		**L1316379-10**						
Dissolved Organic Carbon			N/A	MS-B	%		-	30-JUN-13
Batch R2642664								
WG1700207-3 LCS								
Dissolved Organic Carbon			107.8		%		80-120	02-JUL-13
WG1700207-2 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	02-JUL-13
CN-FREE-CFA-VA	**Water**							
Batch R2638569								
WG1694540-3 DUP		**L1316410-1**						
Cyanide, Free		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	24-JUN-13
WG1694540-2 LCS								
Cyanide, Free			100.9		%		80-120	24-JUN-13
WG1694540-1 MB								
Cyanide, Free			<0.0050		mg/L		0.005	24-JUN-13
FE2-D-COL-VA	**Water**							
Batch R2633546								
WG1689893-2 LCS								
Ferrous Iron, Dissolved			103.6		%		80-120	17-JUN-13
WG1689893-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	17-JUN-13
WG1689893-4 MS		**L1316343-1**						
Ferrous Iron, Dissolved			107.0		%		70-130	17-JUN-13
WG1689893-6 MS		**L1316379-10**						
Ferrous Iron, Dissolved			90.4		%		70-130	17-JUN-13
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2633814								
WG1689951-3 LCS								
Mercury (Hg)-Dissolved			98.8		%		80-120	18-JUN-13
WG1689951-1 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	18-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2633849								
WG1689951-4 DUP		**L1316410-1**						
Mercury (Hg)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	18-JUN-13
WG1689951-5 MS		**L1316410-1**						
Mercury (Hg)-Dissolved			99.6		%		70-130	18-JUN-13
MET-D-CCMS-VA	**Water**							
Batch R2633494								
WG1689951-2 CRM		**VA-HIGH-WATRM**						
Aluminum (Al)-Dissolved			119.4		%		80-120	17-JUN-13
Antimony (Sb)-Dissolved			101.2		%		80-120	17-JUN-13
Barium (Ba)-Dissolved			117.2		%		80-120	17-JUN-13
Beryllium (Be)-Dissolved			99.7		%		80-120	17-JUN-13
Boron (B)-Dissolved			96.1		%		80-120	17-JUN-13
Cobalt (Co)-Dissolved			116.4		%		80-120	17-JUN-13
Copper (Cu)-Dissolved			115.2		%		80-120	17-JUN-13
Lead (Pb)-Dissolved			100.4		%		80-120	17-JUN-13
Lithium (Li)-Dissolved			100.9		%		80-120	17-JUN-13
Manganese (Mn)-Dissolved			118.0		%		80-120	17-JUN-13
Molybdenum (Mo)-Dissolved			101.1		%		80-120	17-JUN-13
Nickel (Ni)-Dissolved			117.4		%		80-120	17-JUN-13
Selenium (Se)-Dissolved			98.8		%		80-120	17-JUN-13
Silver (Ag)-Dissolved			99.8		%		80-120	17-JUN-13
Strontium (Sr)-Dissolved			99.7		%		80-120	17-JUN-13
Thallium (Tl)-Dissolved			100.7		%		80-120	17-JUN-13
Uranium (U)-Dissolved			99.2		%		80-120	17-JUN-13
Vanadium (V)-Dissolved			119.1		%		80-120	17-JUN-13
Zinc (Zn)-Dissolved			115.3		%		80-120	17-JUN-13
WG1689951-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	17-JUN-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	17-JUN-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2633494								
WG1689951-1 MB								
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	17-JUN-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	17-JUN-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	17-JUN-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	17-JUN-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	17-JUN-13
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	17-JUN-13
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	17-JUN-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	17-JUN-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	17-JUN-13
Batch R2634463								
WG1689951-2 CRM		**VA-HIGH-WATRM**						
Arsenic (As)-Dissolved			103.0		%		80-120	27-JUN-13
Cadmium (Cd)-Dissolved			103.9		%		80-120	27-JUN-13
Chromium (Cr)-Dissolved			101.2		%		80-120	27-JUN-13
Potassium (K)-Dissolved			100.8		%		80-120	27-JUN-13
Sodium (Na)-Dissolved			102.4		%		80-120	27-JUN-13
Titanium (Ti)-Dissolved			101.5		%		80-120	27-JUN-13
WG1689951-4 DUP		**L1316410-1**						
Aluminum (Al)-Dissolved		0.167	0.181		mg/L	7.7	20	27-JUN-13
Antimony (Sb)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	25-JUN-13
Arsenic (As)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	25-JUN-13
Barium (Ba)-Dissolved		0.0288	0.0280		mg/L	2.9	20	25-JUN-13
Beryllium (Be)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	25-JUN-13
Boron (B)-Dissolved		<0.20	<0.20	RPD-NA	mg/L	N/A	20	25-JUN-13
Cadmium (Cd)-Dissolved		0.0861	0.0858		mg/L	0.4	20	25-JUN-13
Chromium (Cr)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	25-JUN-13
Cobalt (Co)-Dissolved		0.0788	0.0830		mg/L	5.2	20	25-JUN-13
Copper (Cu)-Dissolved		0.0761	0.0737		mg/L	3.3	20	25-JUN-13
Lead (Pb)-Dissolved		0.0016	0.0017		mg/L	8.7	20	25-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2634463								
WG1689951-4 DUP		**L1316410-1**						
Lithium (Li)-Dissolved		0.046	0.047		mg/L	2.4	20	25-JUN-13
Manganese (Mn)-Dissolved		9.72	9.71		mg/L	0.1	20	25-JUN-13
Molybdenum (Mo)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	25-JUN-13
Nickel (Ni)-Dissolved		0.309	0.314		mg/L	1.5	20	25-JUN-13
Potassium (K)-Dissolved		9.2	8.8		mg/L	3.8	20	25-JUN-13
Selenium (Se)-Dissolved		0.0035	0.0033		mg/L	4.8	20	25-JUN-13
Silver (Ag)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	25-JUN-13
Sodium (Na)-Dissolved		26.0	25.0		mg/L	3.8	20	25-JUN-13
Strontium (Sr)-Dissolved		2.90	2.91		mg/L	0.0	20	25-JUN-13
Thallium (Tl)-Dissolved		0.00060	0.00059		mg/L	2.6	20	25-JUN-13
Titanium (Ti)-Dissolved		<0.20	<0.20	RPD-NA	mg/L	N/A	20	25-JUN-13
Uranium (U)-Dissolved		0.00704	0.00663		mg/L	6.0	20	25-JUN-13
Vanadium (V)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	25-JUN-13
Zinc (Zn)-Dissolved		116	114		mg/L	1.6	20	25-JUN-13
WG1689951-1 MB								
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	18-JUN-13
WG1689951-5 MS		**L1316410-1**						
Aluminum (Al)-Dissolved			92.4		%		70-130	27-JUN-13
Antimony (Sb)-Dissolved			98.4		%		70-130	25-JUN-13
Arsenic (As)-Dissolved			99.6		%		70-130	25-JUN-13
Barium (Ba)-Dissolved			98.8		%		70-130	25-JUN-13
Beryllium (Be)-Dissolved			95.2		%		70-130	25-JUN-13
Boron (B)-Dissolved			89.2		%		70-130	25-JUN-13
Cadmium (Cd)-Dissolved			N/A	MS-B	%		-	25-JUN-13
Chromium (Cr)-Dissolved			93.3		%		70-130	25-JUN-13
Cobalt (Co)-Dissolved			94.7		%		70-130	25-JUN-13
Copper (Cu)-Dissolved			93.1		%		70-130	25-JUN-13
Lead (Pb)-Dissolved			94.1		%		70-130	25-JUN-13
Lithium (Li)-Dissolved			92.8		%		70-130	25-JUN-13
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	25-JUN-13
Molybdenum (Mo)-Dissolved			99.4		%		70-130	25-JUN-13
Nickel (Ni)-Dissolved			94.1		%		70-130	25-JUN-13
Potassium (K)-Dissolved			92.0		%		70-130	25-JUN-13
Selenium (Se)-Dissolved			99.9		%		70-130	25-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2634463								
WG1689951-5 MS		**L1316410-1**						
Silver (Ag)-Dissolved			92.0		%		70-130	25-JUN-13
Sodium (Na)-Dissolved			92.3		%		70-130	25-JUN-13
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	25-JUN-13
Thallium (Tl)-Dissolved			95.4		%		70-130	25-JUN-13
Titanium (Ti)-Dissolved			99.8		%		70-130	25-JUN-13
Uranium (U)-Dissolved			96.6		%		70-130	25-JUN-13
Vanadium (V)-Dissolved			94.5		%		70-130	25-JUN-13
Zinc (Zn)-Dissolved			N/A	MS-B	%		-	25-JUN-13
MET-DIS-ICP-VA	**Water**							
Batch R2634471								
WG1689951-2 CRM		**VA-HIGH-WATRM**						
Calcium (Ca)-Dissolved			102.8		%		80-120	18-JUN-13
Iron (Fe)-Dissolved			94.4		%		80-120	18-JUN-13
Magnesium (Mg)-Dissolved			107.5		%		80-120	18-JUN-13
Phosphorus (P)-Dissolved			99.7		%		80-120	18-JUN-13
Silicon (Si)-Dissolved			103.0		%		80-120	18-JUN-13
WG1689951-1 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	18-JUN-13
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	18-JUN-13
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	18-JUN-13
Phosphorus (P)-Dissolved			<0.30		mg/L		0.3	18-JUN-13
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	18-JUN-13
Batch R2639755								
WG1689951-4 DUP		**L1316410-1**						
Calcium (Ca)-Dissolved		533	531		mg/L	0.2	20	26-JUN-13
Iron (Fe)-Dissolved		4.47	4.49		mg/L	0.4	20	26-JUN-13
Magnesium (Mg)-Dissolved		471	469		mg/L	0.3	20	26-JUN-13
Phosphorus (P)-Dissolved		<0.60	<0.60	RPD-NA	mg/L	N/A	20	26-JUN-13
Silicon (Si)-Dissolved		5.13	5.19		mg/L	1.1	20	26-JUN-13
WG1689951-5 MS		**L1316410-1**						
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	26-JUN-13
Iron (Fe)-Dissolved			89.2		%		70-130	26-JUN-13
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	26-JUN-13
NH3-F-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-F-VA	**Water**							
Batch R2634755								
WG1690296-2 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			104.8		%		85-115	19-JUN-13
WG1690296-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	19-JUN-13
WG1690296-4 MS		**L1316343-1**						
Ammonia, Total (as N)			103.5		%		75-125	19-JUN-13
PH-PCT-VA	**Water**							
Batch R2636259								
WG1691376-25 CRM		**VA-PH7-BUF**						
pH			7.02		pH		6.9-7.1	19-JUN-13
WG1691376-33 DUP		**L1316410-1**						
pH		7.32	7.27	J	pH	0.05	0.3	19-JUN-13
PO4-DO-COL-VA	**Water**							
Batch R2633438								
WG1689226-2 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			103.0		%		80-120	14-JUN-13
WG1689226-7 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			93.3		%		80-120	14-JUN-13
WG1689226-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	14-JUN-13
WG1689226-6 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	14-JUN-13
WG1689226-4 MS		**L1316343-1**						
Orthophosphate-Dissolved (as P)			89.8		%		70-130	14-JUN-13
S-DIS-ICP-VA	**Water**							
Batch R2634471								
WG1689951-2 CRM		**VA-HIGH-WATRM**						
Sulfur (S)-Dissolved			102.9		%		80-120	18-JUN-13
WG1689951-1 MB								
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	18-JUN-13
Batch R2639755								
WG1689951-4 DUP		**L1316410-1**						
Sulfur (S)-Dissolved		1050	1060		mg/L	0.9	20	26-JUN-13
WG1689951-5 MS		**L1316410-1**						
Sulfur (S)-Dissolved			N/A	MS-B	%		-	26-JUN-13
TDS-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TDS-VA	**Water**							
Batch R2633120								
WG1689243-3 DUP		**L1316410-1**						
Total Dissolved Solids		5150	5010		mg/L	2.8	20	15-JUN-13
WG1689243-4 DUP		**L1316410-2**						
Total Dissolved Solids		146000	159000		mg/L	8.8	20	15-JUN-13
WG1689243-2 LCS								
Total Dissolved Solids			95.1		%		85-115	15-JUN-13
WG1689243-1 MB								
Total Dissolved Solids			<10		mg/L		10	15-JUN-13
TSS-LOW-VA	**Water**							
Batch R2633030								
WG1689248-2 LCS								
Total Suspended Solids			101.3		%		85-115	15-JUN-13
WG1689248-1 MB								
Total Suspended Solids			<1.0		mg/L		1	15-JUN-13

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	1	10-JUN-13 15:15	19-JUN-13 23:41	0.25	224	hours	EHTR-FM
Anions and Nutrients							
Diss. Orthophosphate in Water by Colour							
	1	10-JUN-13 15:15	14-JUN-13 19:49	3	4	days	EHTL
	2	10-JUN-13 16:50	14-JUN-13 20:12	3	4	days	EHTL
Nitrate Nitrogen by Ion Chromatography							
	1	10-JUN-13 15:15	14-JUN-13 14:10	3	4	days	EHTL
	2	10-JUN-13 16:50	14-JUN-13 14:10	3	4	days	EHTL
Nitrite Nitrogen by Ion Chromatography							
	1	10-JUN-13 15:15	14-JUN-13 14:10	3	4	days	EHTL
	2	10-JUN-13 16:50	14-JUN-13 14:10	3	4	days	EHTL

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1316410 were received on 13-JUN-13 09:00.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CH2MHILL

CHAIN OF CUSTODY RECORD

6/13/2013 10:24:52 AM

Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.07.EM.SS.02.0
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-015
Project FARO MINE SEEP SAMPLING 2013
Turnaround Time 10 Days
Shipping Date: 6/12/2013
COC Number: ALS06121302

	DATE	TIME	Matrix	(ASTM 7237) Free Cyanide	(E245.7) Field Filtered Dissolved Hg	(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity - Run Hot H2O2 if Fe >15ppm	(SM2310_HP) Acidity - Run Hot H2O2	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM4110B) CL F NO2 NO3 and SO4	(SM4500P) ortho-Phosphate	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia	Number of Containers	COMMENTS
Container:				125mL Poly	250ml Poly	125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	250ml Poly	250ml glass		
Preservatives:				NaOH, 4'C	HNO3, 4'C	HCl, 4'C	4C	4C	4C	4'C	4'C	4'C	4'C	H2SO4, pH<2, 4'C	HNO3, 4'C	H2SO4, pH<2, 4C		
Filtered:				NA	Field	Field	NA	NA	NA	NA	NA	NA	NA	Field	Field	NA		
Holding Time:				14	180/28	180	14	14	14	7	7	3	3	28	180/28	28		
SRK-FD01_SESP13	6/10/2013	15:15	Water	X	X	X	X		X	X	X	X	X	X	X	X	8	
SRK-FD37_SESP13	6/10/2013	16:50	Water	X	X	X		X		X	X	X	X	X	X	X	8	
																TOTAL NUMBER OF CONTAINERS	16	



Signatures		Date/Time
Approved by		
Sampled by		
Relinquished by		
Received by		6/13/13 9:00
Relinquished by		
Received by		9:9

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

ATTN:
Sample Custody
and
Amber Springer

Special Instructions:
PO: 604564 on Invoice Perform Lab Dup/MS on the samples

Report Copy to
Bernice Kidd
(530) 229-3203

CH2M HILL, INC
ATTN: Bernice Kidd
2525 Airpark Drive
Redding CA 96001

Date Received: 13-JUN-13
Report Date: 05-JUL-13 11:39 (MT)
Version: FINAL

Client Phone: 530-229-3203

Certificate of Analysis

Lab Work Order #: L1316422

Project P.O. #: 472645.06.AD.01.04.13 PO=604564
Job Reference: FARO MINE SEEP SAMPLING 2013 SW-015
C of C Numbers: ALS06121303
Legal Site Desc:

Amber Springer
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1316422-1 Water 11-JUN-13 08:15 E_015_13_001	L1316422-2 Water 11-JUN-13 08:15 E_015_13_002	L1316422-3 Water 11-JUN-13 09:10 E_015_13_003	L1316422-4 Water 11-JUN-13 08:22 E_015_13_004	L1316422-5 Water 12-JUN-13 09:00 E_015_13_005
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	0.0119			0.0083	
	Chloride (Cl) (mg/L)	<0.50			<0.50	
	Fluoride (F) (mg/L)	<0.020			<0.020	
	Nitrate (as N) (mg/L)	<0.0050			<0.0050	
	Nitrite (as N) (mg/L)	<0.0010			<0.0010	
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010			<0.0010	
	Sulfate (SO4) (mg/L)	<0.50			0.79	
Cyanides	Cyanide, Free (mg/L)	<0.0050			<0.0050	
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.79	1.47	1.76	1.15	1.08
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	<0.0010	0.0022	0.0185	0.0482	<0.0010
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Dissolved (mg/L)	<0.00010	<0.00010	0.00352	0.00029	<0.00010
	Barium (Ba)-Dissolved (mg/L)	0.000184	0.000633	0.000850	0.00122	0.000497
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Boron (B)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)	0.000053	0.000019	0.00116	0.00326	0.000017
	Calcium (Ca)-Dissolved (mg/L)	<0.050	0.082	0.061	<0.050	<0.050
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010	0.00041	0.00110	<0.00010
	Copper (Cu)-Dissolved (mg/L)	0.00031	<0.00020	0.0189	0.0571	<0.00020
	Iron (Fe)-Dissolved (mg/L)	<0.030	<0.030	0.197	0.439	<0.030
	Ferrous Iron, Dissolved (mg/L)	<0.020	<0.020	0.088	0.119	<0.020
	Lead (Pb)-Dissolved (mg/L)	0.000133	0.000383	0.00169	0.000799	0.000110
	Lithium (Li)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Magnesium (Mg)-Dissolved (mg/L)	<0.10	<0.10	<0.10	<0.10	<0.10
	Manganese (Mn)-Dissolved (mg/L)	0.00105	0.00112	0.0150	0.0401	0.000226
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	0.00086	<0.00050
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Selenium (Se)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Silicon (Si)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Silicon (as SiO2)-Dissolved (mg/L)	<0.20	<0.20	<0.20	<0.20	<0.20

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1316422-6				
	Description	Water				
	Sampled Date	12-JUN-13				
	Sampled Time	09:10				
	Client ID	E_015_13_006				
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	<0.50				
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	0.0085				
	Chloride (Cl) (mg/L)	<0.50				
	Fluoride (F) (mg/L)	<0.020				
	Nitrate (as N) (mg/L)	<0.0050				
	Nitrite (as N) (mg/L)	<0.0010				
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010				
	Sulfate (SO4) (mg/L)	<0.50				
Cyanides	Cyanide, Free (mg/L)	<0.0050				
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	0.55				
Dissolved Metals	Dissolved Metals Filtration Location	FIELD				
	Aluminum (Al)-Dissolved (mg/L)	<0.0010				
	Antimony (Sb)-Dissolved (mg/L)	<0.00010				
	Arsenic (As)-Dissolved (mg/L)	<0.00010				
	Barium (Ba)-Dissolved (mg/L)	<0.000050				
	Beryllium (Be)-Dissolved (mg/L)	<0.00010				
	Boron (B)-Dissolved (mg/L)	<0.010				
	Cadmium (Cd)-Dissolved (mg/L)	<0.000010				
	Calcium (Ca)-Dissolved (mg/L)	<0.050				
	Chromium (Cr)-Dissolved (mg/L)	<0.00010				
	Cobalt (Co)-Dissolved (mg/L)	<0.00010				
	Copper (Cu)-Dissolved (mg/L)	<0.00020				
	Iron (Fe)-Dissolved (mg/L)	<0.030				
	Ferrous Iron, Dissolved (mg/L)	<0.020				
	Lead (Pb)-Dissolved (mg/L)	<0.000050				
	Lithium (Li)-Dissolved (mg/L)	<0.00050				
	Magnesium (Mg)-Dissolved (mg/L)	<0.10				
	Manganese (Mn)-Dissolved (mg/L)	<0.000050				
	Mercury (Hg)-Dissolved (mg/L)	<0.000010				
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050				
	Nickel (Ni)-Dissolved (mg/L)	<0.00050				
	Phosphorus (P)-Dissolved (mg/L)	<0.30				
	Potassium (K)-Dissolved (mg/L)	<0.050				
	Selenium (Se)-Dissolved (mg/L)	<0.00010				
	Silicon (Si)-Dissolved (mg/L)	<0.050				
	Silicon (as SiO2)-Dissolved (mg/L)	<0.20				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1316422-1 Water 11-JUN-13 08:15 E_015_13_001	L1316422-2 Water 11-JUN-13 08:15 E_015_13_002	L1316422-3 Water 11-JUN-13 09:10 E_015_13_003	L1316422-4 Water 11-JUN-13 08:22 E_015_13_004	L1316422-5 Water 12-JUN-13 09:00 E_015_13_005
WATER						
Dissolved Metals	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	<0.050	<0.050	0.110	<0.050	<0.050
	Strontium (Sr)-Dissolved (mg/L)	<0.00020	0.00039	0.00063	<0.00020	<0.00020
	Sulfur (S)-Dissolved (mg/L)	<0.50	<0.50	0.58	1.51	<0.50
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)	<0.000010	<0.000010	0.000041	0.000125	<0.000010
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	0.0467	0.0324	0.673	1.81	0.0040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1316422-6				
	Description	Water				
	Sampled Date	12-JUN-13				
	Sampled Time	09:10				
	Client ID	E_015_13_006				
Grouping	**Analyte**					
WATER						
Dissolved Metals	Silver (Ag)-Dissolved (mg/L)	<0.000010				
	Sodium (Na)-Dissolved (mg/L)	<0.050				
	Strontium (Sr)-Dissolved (mg/L)	<0.00020				
	Sulfur (S)-Dissolved (mg/L)	<0.50				
	Thallium (Tl)-Dissolved (mg/L)	<0.000010				
	Titanium (Ti)-Dissolved (mg/L)	<0.010				
	Uranium (U)-Dissolved (mg/L)	<0.000010				
	Vanadium (V)-Dissolved (mg/L)	<0.0010				
	Zinc (Zn)-Dissolved (mg/L)	<0.0010				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Cyanide, Free	DLM	L1316422-1
Duplicate	Cyanide, Free	DLM	L1316422-1
Duplicate	Cyanide, Free	DLM	L1316422-1
Duplicate	Cyanide, Free	DLM	L1316422-1
Duplicate	Cyanide, Free	DLM	L1316422-1
Duplicate	Cyanide, Free	DLM	L1316422-1
Duplicate	Cyanide, Free	DLM	L1316422-4, -6
Duplicate	Cyanide, Free	DLM	L1316422-4, -6
Matrix Spike	Dissolved Organic Carbon	MS-B	L1316422-1, -2, -3
Matrix Spike	Sulfate (SO4)	MS-B	L1316422-1, -4, -6

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLM	Detection Limit Adjusted For Sample Matrix Effects
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ANIONS-CL-IC-WR	Water	Chloride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-F-IC-WR	Water	Fluoride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-NO2-IC-WR	Water	Nitrite Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-NO3-IC-WR	Water	Nitrate Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-SO4-IC-WR	Water	Sulphate by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CN-FREE-CFA-VA	Water	Free Cyanide in water by CFA	ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

FE2-D-COL-VA	Water	Diss. Ferrous Iron in Water by Colour	James W. Ball et al (1999)

This analysis is carried out using procedures adapted from "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedures involves preliminary sample filtration (0.1um filter) and Ferrous Iron is determined using the "FerroZine" colorimteric method.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA	Water	Dissolved Mercury in Water by CVAFS(Low)	EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

Reference Information

MET-D-CCMS-VA Water Dissolved Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

S-DIS-ICP-VA Water Dissolved Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

SIO2-D-CALC-VA Water Dissolved Silicon (reported as Silica) CALCULATION

Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

ALS06121303

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1316422 Report Date: 05-JUL-13

Client: CH2M HILL, INC
2525 Airpark Drive
Redding CA 96001
Contact: Bernice Kidd

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-CL-IC-WR	**Water**							
Batch R2642291								
WG1699914-2 LCS								
Chloride (Cl)			103.0		%		85-115	14-JUN-13
WG1699914-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	14-JUN-13
WG1699914-4 MS		**L1316379-10**						
Chloride (Cl)			103.7		%		75-125	14-JUN-13
ANIONS-F-IC-WR	**Water**							
Batch R2642291								
WG1699914-2 LCS								
Fluoride (F)			104.6		%		85-115	14-JUN-13
WG1699914-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	14-JUN-13
WG1699914-4 MS		**L1316379-10**						
Fluoride (F)			115.5		%		75-125	14-JUN-13
ANIONS-NO2-IC-WR	**Water**							
Batch R2642291								
WG1699914-2 LCS								
Nitrite (as N)			98.6		%		85-115	14-JUN-13
WG1699914-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	14-JUN-13
WG1699914-4 MS		**L1316379-10**						
Nitrite (as N)			93.6		%		75-125	14-JUN-13
ANIONS-NO3-IC-WR	**Water**							
Batch R2642291								
WG1699914-2 LCS								
Nitrate (as N)			103.7		%		85-115	14-JUN-13
WG1699914-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	14-JUN-13
WG1699914-4 MS		**L1316379-10**						
Nitrate (as N)			103.4		%		75-125	14-JUN-13
ANIONS-SO4-IC-WR	**Water**							
Batch R2642291								
WG1699914-2 LCS								
Sulfate (SO4)			106.3		%		85-115	14-JUN-13
WG1699914-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	14-JUN-13
WG1699914-4 MS		**L1316379-10**						

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-SO4-IC-WR	**Water**							
Batch R2642291								
WG1699914-4 MS		**L1316379-10**						
Sulfate (SO4)			N/A	MS-B	%		-	14-JUN-13
CARBONS-DOC-VA	**Water**							
Batch R2641786								
WG1699338-3 LCS								
Dissolved Organic Carbon			99.6		%		80-120	01-JUL-13
WG1699338-2 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	01-JUL-13
Batch R2641900								
WG1699475-4 LCS								
Dissolved Organic Carbon			108.5		%		80-120	30-JUN-13
WG1699475-3 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	30-JUN-13
WG1699475-2 MS		**L1316379-10**						
Dissolved Organic Carbon			N/A	MS-B	%		-	30-JUN-13
CN-FREE-CFA-VA	**Water**							
Batch R2641282								
WG1698224-2 LCS								
Cyanide, Free			101.0		%		80-120	28-JUN-13
WG1698224-1 MB								
Cyanide, Free			<0.0050		mg/L		0.005	28-JUN-13
WG1698224-4 MS		**L1316343-1**						
Cyanide, Free			97.0		%		70-130	28-JUN-13
Batch R2642485								
WG1700078-2 LCS								
Cyanide, Free			101.0		%		80-120	28-JUN-13
WG1700078-1 MB								
Cyanide, Free			<0.0050		mg/L		0.005	28-JUN-13
WG1700078-10 MS		**L1317621-1**						
Cyanide, Free			98.7		%		70-130	28-JUN-13
WG1700078-4 MS		**L1316422-1**						
Cyanide, Free			99.3		%		70-130	28-JUN-13
WG1700078-6 MS		**L1316438-1**						
Cyanide, Free			115.4		%		70-130	28-JUN-13
WG1700078-8 MS		**L1316792-7**						
Cyanide, Free			103.6		%		70-130	28-JUN-13
FE2-D-COL-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
FE2-D-COL-VA	**Water**							
Batch R2634665								
WG1690831-3 DUP		**L1316422-2**						
Ferrous Iron, Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	19-JUN-13
WG1690831-2 LCS								
Ferrous Iron, Dissolved			104.8		%		80-120	19-JUN-13
WG1690831-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	19-JUN-13
WG1690831-4 MS		**L1316422-2**						
Ferrous Iron, Dissolved			104.0		%		70-130	19-JUN-13
WG1690831-6 MS		**L1316792-7**						
Ferrous Iron, Dissolved			108.0		%		70-130	19-JUN-13
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2633814								
WG1690004-8 LCS								
Mercury (Hg)-Dissolved			99.2		%		80-120	18-JUN-13
WG1690004-6 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	18-JUN-13
Batch R2634898								
WG1690004-9 DUP		**L1316422-1**						
Mercury (Hg)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	19-JUN-13
WG1690004-10 MS		**L1316422-1**						
Mercury (Hg)-Dissolved			98.7		%		70-130	19-JUN-13
MET-D-CCMS-VA	**Water**							
Batch R2633494								
WG1690004-7 CRM		**VA-HIGH-WATRM**						
Aluminum (Al)-Dissolved			99.8		%		80-120	17-JUN-13
Antimony (Sb)-Dissolved			98.4		%		80-120	17-JUN-13
Arsenic (As)-Dissolved			99.8		%		80-120	17-JUN-13
Barium (Ba)-Dissolved			102.2		%		80-120	17-JUN-13
Beryllium (Be)-Dissolved			98.2		%		80-120	17-JUN-13
Boron (B)-Dissolved			93.1		%		80-120	17-JUN-13
Cadmium (Cd)-Dissolved			102.6		%		80-120	17-JUN-13
Chromium (Cr)-Dissolved			98.8		%		80-120	17-JUN-13
Cobalt (Co)-Dissolved			96.7		%		80-120	17-JUN-13
Copper (Cu)-Dissolved			96.4		%		80-120	17-JUN-13
Lead (Pb)-Dissolved			99.1		%		80-120	17-JUN-13
Lithium (Li)-Dissolved			99.9		%		80-120	17-JUN-13
Manganese (Mn)-Dissolved			97.5		%		80-120	17-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2633494								
WG1690004-7 CRM		**VA-HIGH-WATRM**						
Molybdenum (Mo)-Dissolved			102.1		%		80-120	17-JUN-13
Nickel (Ni)-Dissolved			97.4		%		80-120	17-JUN-13
Potassium (K)-Dissolved			98.7		%		80-120	17-JUN-13
Selenium (Se)-Dissolved			100.0		%		80-120	17-JUN-13
Silver (Ag)-Dissolved			97.6		%		80-120	17-JUN-13
Sodium (Na)-Dissolved			101.7		%		80-120	17-JUN-13
Strontium (Sr)-Dissolved			99.0		%		80-120	17-JUN-13
Thallium (Tl)-Dissolved			99.6		%		80-120	17-JUN-13
Titanium (Ti)-Dissolved			105.2		%		80-120	17-JUN-13
Uranium (U)-Dissolved			100.7		%		80-120	17-JUN-13
Vanadium (V)-Dissolved			99.4		%		80-120	17-JUN-13
Zinc (Zn)-Dissolved			95.6		%		80-120	17-JUN-13
WG1690004-9 DUP		**L1316422-1**						
Aluminum (Al)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	25-JUN-13
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-JUN-13
Arsenic (As)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-JUN-13
Barium (Ba)-Dissolved		0.000184	0.000198		mg/L	7.7	20	25-JUN-13
Beryllium (Be)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-JUN-13
Boron (B)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-JUN-13
Cadmium (Cd)-Dissolved		0.000053	0.000060		mg/L	12	20	25-JUN-13
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-JUN-13
Cobalt (Co)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-JUN-13
Copper (Cu)-Dissolved		0.00031	0.00031		mg/L	0.8	20	25-JUN-13
Lead (Pb)-Dissolved		0.000133	0.000123		mg/L	7.9	20	25-JUN-13
Lithium (Li)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	25-JUN-13
Manganese (Mn)-Dissolved		0.00105	0.00116		mg/L	9.6	20	25-JUN-13
Molybdenum (Mo)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	25-JUN-13
Nickel (Ni)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	25-JUN-13
Potassium (K)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	25-JUN-13
Selenium (Se)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-JUN-13
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	25-JUN-13
Sodium (Na)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	25-JUN-13
Strontium (Sr)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	25-JUN-13
Thallium (Tl)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	25-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2633494								
WG1690004-9 DUP		**L1316422-1**						
Titanium (Ti)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-JUN-13
Uranium (U)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	25-JUN-13
Vanadium (V)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	25-JUN-13
Zinc (Zn)-Dissolved		0.0467	0.0460		mg/L	1.6	20	25-JUN-13
WG1690004-6 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	17-JUN-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	17-JUN-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	17-JUN-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	17-JUN-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	17-JUN-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	17-JUN-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	17-JUN-13
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	17-JUN-13
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	17-JUN-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	17-JUN-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	17-JUN-13
WG1690004-10 MS		**L1316422-1**						
Aluminum (Al)-Dissolved			94.7		%		70-130	25-JUN-13
Antimony (Sb)-Dissolved			98.3		%		70-130	25-JUN-13
Arsenic (As)-Dissolved			98.6		%		70-130	25-JUN-13
Barium (Ba)-Dissolved			95.4		%		70-130	25-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2633494								
WG1690004-10 MS		**L1316422-1**						
Beryllium (Be)-Dissolved			99.4		%		70-130	25-JUN-13
Boron (B)-Dissolved			96.0		%		70-130	25-JUN-13
Cadmium (Cd)-Dissolved			95.7		%		70-130	25-JUN-13
Chromium (Cr)-Dissolved			92.0		%		70-130	25-JUN-13
Cobalt (Co)-Dissolved			93.5		%		70-130	25-JUN-13
Copper (Cu)-Dissolved			93.4		%		70-130	25-JUN-13
Lead (Pb)-Dissolved			95.2		%		70-130	25-JUN-13
Lithium (Li)-Dissolved			97.3		%		70-130	25-JUN-13
Manganese (Mn)-Dissolved			93.9		%		70-130	25-JUN-13
Molybdenum (Mo)-Dissolved			99.6		%		70-130	25-JUN-13
Nickel (Ni)-Dissolved			93.5		%		70-130	25-JUN-13
Potassium (K)-Dissolved			91.7		%		70-130	25-JUN-13
Selenium (Se)-Dissolved			97.6		%		70-130	25-JUN-13
Silver (Ag)-Dissolved			93.8		%		70-130	25-JUN-13
Sodium (Na)-Dissolved			93.1		%		70-130	25-JUN-13
Strontium (Sr)-Dissolved			98.5		%		70-130	25-JUN-13
Thallium (Tl)-Dissolved			96.6		%		70-130	25-JUN-13
Titanium (Ti)-Dissolved			98.1		%		70-130	25-JUN-13
Uranium (U)-Dissolved			97.0		%		70-130	25-JUN-13
Vanadium (V)-Dissolved			92.3		%		70-130	25-JUN-13
Zinc (Zn)-Dissolved			93.2		%		70-130	25-JUN-13
MET-DIS-ICP-VA	**Water**							
Batch R2633893								
WG1690004-7 CRM		**VA-HIGH-WATRM**						
Calcium (Ca)-Dissolved			99.0		%		80-120	18-JUN-13
Iron (Fe)-Dissolved			100.7		%		80-120	18-JUN-13
Magnesium (Mg)-Dissolved			100.7		%		80-120	18-JUN-13
Phosphorus (P)-Dissolved			99.0		%		80-120	18-JUN-13
Silicon (Si)-Dissolved			100.1		%		80-120	18-JUN-13
WG1690004-6 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	18-JUN-13
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	18-JUN-13
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	18-JUN-13
Phosphorus (P)-Dissolved			<0.30		mg/L		0.3	18-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA	**Water**							
Batch R2633893								
WG1690004-6 MB								
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	18-JUN-13
Batch R2639755								
WG1690004-9 DUP		**L1316422-1**						
Calcium (Ca)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	26-JUN-13
Iron (Fe)-Dissolved		<0.030	<0.030	RPD-NA	mg/L	N/A	20	26-JUN-13
Magnesium (Mg)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	26-JUN-13
Phosphorus (P)-Dissolved		<0.30	<0.30	RPD-NA	mg/L	N/A	20	26-JUN-13
Silicon (Si)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	26-JUN-13
WG1690004-10 MS		**L1316422-1**						
Calcium (Ca)-Dissolved			107.1		%		70-130	26-JUN-13
Iron (Fe)-Dissolved			97.4		%		70-130	26-JUN-13
Magnesium (Mg)-Dissolved			100.4		%		70-130	26-JUN-13
NH3-F-VA	**Water**							
Batch R2634755								
WG1690296-2 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			104.8		%		85-115	19-JUN-13
WG1690296-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	19-JUN-13
WG1690296-4 MS		**L1316343-1**						
Ammonia, Total (as N)			103.5		%		75-125	19-JUN-13
PO4-DO-COL-VA	**Water**							
Batch R2633438								
WG1689226-2 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			103.0		%		80-120	14-JUN-13
WG1689226-7 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			93.3		%		80-120	14-JUN-13
WG1689226-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	14-JUN-13
WG1689226-6 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	14-JUN-13
WG1689226-4 MS		**L1316343-1**						
Orthophosphate-Dissolved (as P)			89.8		%		70-130	14-JUN-13
S-DIS-ICP-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
S-DIS-ICP-VA	**Water**							
Batch R2633893								
WG1690004-7 CRM		**VA-HIGH-WATRM**						
Sulfur (S)-Dissolved			101.6		%		80-120	18-JUN-13
WG1690004-6 MB								
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	18-JUN-13
Batch R2639755								
WG1690004-9 DUP		**L1316422-1**						
Sulfur (S)-Dissolved		<0.50	<0.50	RPD-NA	mg/L	N/A	20	26-JUN-13
WG1690004-10 MS		**L1316422-1**						
Sulfur (S)-Dissolved			100.6		%		70-130	26-JUN-13

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Cyanides							
Free Cyanide in water by CFA							
	1	11-JUN-13 08:15	28-JUN-13 11:57	14	17	days	EHT
	4	11-JUN-13 08:22	28-JUN-13 12:55	14	17	days	EHT
	6	12-JUN-13 09:10	28-JUN-13 12:55	14	16	days	EHT

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1316422 were received on 13-JUN-13 09:00.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CH2MHILL

CHAIN OF CUSTODY RECORD

6/12/2013 12:51:44 PM

Project Name Faro
Location Faro Mine Complex - Faro YK
Project Number 472645.07.EM.SS.02.0
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-015
Project FARO MINE SEEP SAMPLING 2013
Turnaround Time 10 Days
Shipping Date: 6/12/2013
COC Number: ALS06121303

	Container:	125mL Poly	250ml Poly	125ml Poly	500ml Poly	500ml Poly	250ml Glass	250ml Poly	250ml glass		
	Preservatives:	NaOH, 4°C	HNO3, 4°C	HCl, 4°C	4°C	4°C	H2SO4, pH<2, 4°C	HNO3, 4°C	H2SO4, pH<2, 4C		
	Filtered:	NA	Field	Field	NA	NA	Field	Field	NA		
	Holding Time:	14	180/28	180	3	3	28	180/28	28		
		(ASTM 7237) Free Cyanide	(E245.7) Field Filtered Dissolved Hg	(Ferrozine Method) Field Filtered Ferrous Iron	(SM4110B) Cl, F, NO2, NO3, and SO4	(SM4500P) ortho-Phosphate	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia	Number of Containers	COMMENTS
DATE	TIME	Matrix									
E_015_13_001	6/11/2013	8:15	Water	X	X	X	X	X	X	X	X	6	
E_015_13_002	6/11/2013	8:15	Water		X	X			X	X		3	
E_015_13_003	6/11/2013	9:10	Water		X	X			X	X		3	
E_015_13_004	6/11/2013	8:22	Water	X	X	X	X	X	X	X	X	6	
E_015_13_005	6/12/2013	9:00	Water		X	X			X	X		3	
E_015_13_006	6/12/2013	9:10	Water	X	X	X	X	X	X	X	X	6	
										TOTAL NUMBER OF CONTAINERS		27	



L1316422-COFC

Signatures		Date/Time
Approved by		
Sampled by		6/12/13 1300
Relinquished by		
Received by		6/13/13
Relinquished by		
Received by		7.8

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

ATTN:
Sample Custody
and
Amber Springer

Special Instructions:
PO: 604564 on Invoice Perform Lab Dup/MS on the samples

Report Copy to
Bernice Kidd
(530) 229-3203

CH2M HILL, INC
ATTN: Bernice Kidd
2525 Airpark Drive
Redding CA 96001

Date Received: 13-JUN-13
Report Date: 03-JUL-13 15:48 (MT)
Version: FINAL

Client Phone: 530-229-3203

Certificate of Analysis

Lab Work Order #: L1316438

Project P.O. #: 472645.06.AD.01.04.13 PO=604564
Job Reference: FARO MINE SEEP SAMPLING 2013 SW-015
C of C Numbers: ALS06121304
Legal Site Desc:

Amber Springer
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1316438-1				
	Description	Water				
	Sampled Date	12-JUN-13				
	Sampled Time	08:30				
	Client ID	SRK-FD30_SESP13				
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	1200				
	pH (pH)	8.11				
	Total Suspended Solids (mg/L)	36.8				
	Total Dissolved Solids (mg/L)	1530				
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	6.3				
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	189				
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0				
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0				
	Alkalinity, Total (as CaCO3) (mg/L)	189				
	Ammonia, Total (as N) (mg/L)	0.0056				
	Chloride (Cl) (mg/L)	<5.0 DLA				
	Fluoride (F) (mg/L)	2.13				
	Nitrate (as N) (mg/L)	<0.050 DLA				
	Nitrite (as N) (mg/L)	<0.010 DLA				
	Orthophosphate-Dissolved (as P) (mg/L)	0.0012				
	Sulfate (SO4) (mg/L)	1010				
Cyanides	Cyanide, Free (mg/L)	<0.010 DLM				
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.22				
Dissolved Metals	Dissolved Metals Filtration Location	FIELD				
	Aluminum (Al)-Dissolved (mg/L)	0.0917				
	Antimony (Sb)-Dissolved (mg/L)	0.00016				
	Arsenic (As)-Dissolved (mg/L)	0.00062				
	Barium (Ba)-Dissolved (mg/L)	0.0152				
	Beryllium (Be)-Dissolved (mg/L)	<0.00010				
	Boron (B)-Dissolved (mg/L)	<0.010				
	Cadmium (Cd)-Dissolved (mg/L)	0.00630				
	Calcium (Ca)-Dissolved (mg/L)	130				
	Chromium (Cr)-Dissolved (mg/L)	<0.00010				
	Cobalt (Co)-Dissolved (mg/L)	0.0292				
	Copper (Cu)-Dissolved (mg/L)	0.00194				
	Iron (Fe)-Dissolved (mg/L)	0.128				
	Ferrous Iron, Dissolved (mg/L)	0.076				
	Lead (Pb)-Dissolved (mg/L)	0.00311				
	Lithium (Li)-Dissolved (mg/L)	0.0700				
	Magnesium (Mg)-Dissolved (mg/L)	212				
	Manganese (Mn)-Dissolved (mg/L)	0.770				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1316438-1				
	Description	Water				
	Sampled Date	12-JUN-13				
	Sampled Time	08:30				
	Client ID	SRK-FD30_SESP13				
Grouping	**Analyte**					
WATER						
Dissolved Metals	Mercury (Hg)-Dissolved (mg/L)	<0.000010				
	Molybdenum (Mo)-Dissolved (mg/L)	0.000666				
	Nickel (Ni)-Dissolved (mg/L)	0.0693				
	Phosphorus (P)-Dissolved (mg/L)	<0.30				
	Potassium (K)-Dissolved (mg/L)	13.3				
	Selenium (Se)-Dissolved (mg/L)	0.00108				
	Silicon (Si)-Dissolved (mg/L)	0.575				
	Silicon (as SiO2)-Dissolved (mg/L)	1.23				
	Silver (Ag)-Dissolved (mg/L)	<0.000010				
	Sodium (Na)-Dissolved (mg/L)	2.48				
	Strontium (Sr)-Dissolved (mg/L)	0.386				
	Sulfur (S)-Dissolved (mg/L)	315				
	Thallium (Tl)-Dissolved (mg/L)	0.000876				
	Titanium (Ti)-Dissolved (mg/L)	<0.010				
	Uranium (U)-Dissolved (mg/L)	0.00299				
	Vanadium (V)-Dissolved (mg/L)	<0.0010				
	Zinc (Zn)-Dissolved (mg/L)	5.46				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Cyanide, Free	DLM	L1316438-1
Duplicate	Cyanide, Free	DLM	L1316438-1
Matrix Spike	Cadmium (Cd)-Dissolved	MS-B	L1316438-1
Matrix Spike	Cobalt (Co)-Dissolved	MS-B	L1316438-1
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1316438-1
Matrix Spike	Nickel (Ni)-Dissolved	MS-B	L1316438-1
Matrix Spike	Potassium (K)-Dissolved	MS-B	L1316438-1
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1316438-1
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1316438-1
Matrix Spike	Zinc (Zn)-Dissolved	MS-B	L1316438-1
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1316438-1
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1316438-1
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L1316438-1
Matrix Spike	Sulfate (SO4)	MS-B	L1316438-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
DLM	Detection Limit Adjusted For Sample Matrix Effects
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-CL-IC-WR	Water	Chloride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-F-IC-WR	Water	Fluoride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-NO2-IC-WR	Water	Nitrite Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-NO3-IC-WR	Water	Nitrate Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-SO4-IC-WR	Water	Sulphate by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)

Reference Information

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CN-FREE-CFA-VA Water Free Cyanide in water by CFA ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

FE2-D-COL-VA Water Diss. Ferrous Iron in Water by Colour James W. Ball et al (1999)

This analysis is carried out using procedures adapted from "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedures involves preliminary sample filtration (0.1um filter) and Ferrous Iron is determined using the "FerroZine" colorimteric method.

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

MET-D-CCMS-VA Water Dissolved Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

S-DIS-ICP-VA Water Dissolved Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

SIO2-D-CALC-VA Water Dissolved Silicon (reported as Silica) CALCULATION

Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

Reference Information

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-LOW-VA Water Total Suspended Solids by Grav. (1 mg/L) APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

ALS06121304

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1316438 Report Date: 03-JUL-13

Client: CH2M HILL, INC
2525 Airpark Drive
Redding CA 96001
Contact: Bernice Kidd

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-PCT-VA	**Water**							
Batch R2636259								
WG1691376-9 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			94.5		%		85-115	19-JUN-13
WG1691376-34 DUP		**L1316438-1**						
Acidity (as CaCO3)		6.3	6.1		mg/L	3.0	20	19-JUN-13
ALK-SCR-VA	**Water**							
Batch R2637533								
WG1694921-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			97.2		%		85-115	25-JUN-13
WG1694921-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	25-JUN-13
Batch R2642178								
WG1699481-2 CRM		**VA-ALKM-CONTROL**						
Alkalinity, Total (as CaCO3)			101.0		%		85-115	25-JUN-13
WG1699481-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	25-JUN-13
ANIONS-CL-IC-WR	**Water**							
Batch R2642291								
WG1699914-2 LCS								
Chloride (Cl)			103.0		%		85-115	14-JUN-13
WG1699914-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	14-JUN-13
WG1699914-4 MS		**L1316379-10**						
Chloride (Cl)			103.7		%		75-125	14-JUN-13
ANIONS-F-IC-WR	**Water**							
Batch R2642291								
WG1699914-2 LCS								
Fluoride (F)			104.6		%		85-115	14-JUN-13
WG1699914-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	14-JUN-13
WG1699914-4 MS		**L1316379-10**						
Fluoride (F)			115.5		%		75-125	14-JUN-13
ANIONS-NO2-IC-WR	**Water**							
Batch R2642291								
WG1699914-2 LCS								
Nitrite (as N)			98.6		%		85-115	14-JUN-13
WG1699914-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	14-JUN-13
WG1699914-4		**L1316379-10**						

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO2-IC-WR	**Water**							
Batch R2642291								
WG1699914-4 MS		**L1316379-10**						
Nitrite (as N)			93.6		%		75-125	14-JUN-13
ANIONS-NO3-IC-WR	**Water**							
Batch R2642291								
WG1699914-2 LCS								
Nitrate (as N)			103.7		%		85-115	14-JUN-13
WG1699914-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	14-JUN-13
WG1699914-4 MS		**L1316379-10**						
Nitrate (as N)			103.4		%		75-125	14-JUN-13
ANIONS-SO4-IC-WR	**Water**							
Batch R2642291								
WG1699914-2 LCS								
Sulfate (SO4)			106.3		%		85-115	14-JUN-13
WG1699914-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	14-JUN-13
WG1699914-4 MS		**L1316379-10**						
Sulfate (SO4)			N/A	MS-B	%		-	14-JUN-13
CARBONS-DOC-VA	**Water**							
Batch R2641786								
WG1699338-3 LCS								
Dissolved Organic Carbon			99.6		%		80-120	01-JUL-13
WG1699338-2 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	01-JUL-13
CN-FREE-CFA-VA	**Water**							
Batch R2642485								
WG1700078-5 DUP		**L1316438-1**						
Cyanide, Free		<0.010	<0.010	RPD-NA	mg/L	N/A	20	28-JUN-13
WG1700078-2 LCS								
Cyanide, Free			101.0		%		80-120	28-JUN-13
WG1700078-1 MB								
Cyanide, Free			<0.0050		mg/L		0.005	28-JUN-13
WG1700078-10 MS		**L1317621-1**						
Cyanide, Free			98.7		%		70-130	28-JUN-13
WG1700078-4 MS		**L1316422-1**						
Cyanide, Free			99.3		%		70-130	28-JUN-13
WG1700078-6 MS		**L1316438-1**						

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CN-FREE-CFA-VA	**Water**							
Batch R2642485								
WG1700078-6 MS		**L1316438-1**						
Cyanide, Free			115.4		%		70-130	28-JUN-13
WG1700078-8 MS		**L1316792-7**						
Cyanide, Free			103.6		%		70-130	28-JUN-13
FE2-D-COL-VA	**Water**							
Batch R2633546								
WG1689893-2 LCS								
Ferrous Iron, Dissolved			103.6		%		80-120	17-JUN-13
WG1689893-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	17-JUN-13
WG1689893-4 MS		**L1316343-1**						
Ferrous Iron, Dissolved			107.0		%		70-130	17-JUN-13
WG1689893-6 MS		**L1316379-10**						
Ferrous Iron, Dissolved			90.4		%		70-130	17-JUN-13
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2633814								
WG1690000-3 LCS								
Mercury (Hg)-Dissolved			99.5		%		80-120	18-JUN-13
WG1690000-1 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	18-JUN-13
Batch R2634898								
WG1690000-4 DUP		**L1316438-1**						
Mercury (Hg)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	19-JUN-13
WG1690000-5 MS		**L1316438-1**						
Mercury (Hg)-Dissolved			93.2		%		70-130	19-JUN-13
MET-D-CCMS-VA	**Water**							
Batch R2633494								
WG1690000-2 CRM		**VA-HIGH-WATRM**						
Aluminum (Al)-Dissolved			99.0		%		80-120	17-JUN-13
Antimony (Sb)-Dissolved			99.0		%		80-120	17-JUN-13
Arsenic (As)-Dissolved			99.4		%		80-120	17-JUN-13
Barium (Ba)-Dissolved			100.8		%		80-120	17-JUN-13
Beryllium (Be)-Dissolved			97.9		%		80-120	17-JUN-13
Boron (B)-Dissolved			92.9		%		80-120	17-JUN-13
Cadmium (Cd)-Dissolved			102.1		%		80-120	17-JUN-13
Chromium (Cr)-Dissolved			99.5		%		80-120	17-JUN-13
Cobalt (Co)-Dissolved			95.6		%		80-120	17-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2633494								
WG1690000-2 CRM		**VA-HIGH-WATRM**						
Copper (Cu)-Dissolved			94.9		%		80-120	17-JUN-13
Lead (Pb)-Dissolved			97.8		%		80-120	17-JUN-13
Lithium (Li)-Dissolved			99.6		%		80-120	17-JUN-13
Manganese (Mn)-Dissolved			96.1		%		80-120	17-JUN-13
Molybdenum (Mo)-Dissolved			101.6		%		80-120	17-JUN-13
Nickel (Ni)-Dissolved			97.6		%		80-120	17-JUN-13
Potassium (K)-Dissolved			99.7		%		80-120	17-JUN-13
Selenium (Se)-Dissolved			99.2		%		80-120	17-JUN-13
Silver (Ag)-Dissolved			98.2		%		80-120	17-JUN-13
Sodium (Na)-Dissolved			101.5		%		80-120	17-JUN-13
Strontium (Sr)-Dissolved			100.3		%		80-120	17-JUN-13
Thallium (Tl)-Dissolved			98.3		%		80-120	17-JUN-13
Titanium (Ti)-Dissolved			100.6		%		80-120	17-JUN-13
Uranium (U)-Dissolved			98.9		%		80-120	17-JUN-13
Vanadium (V)-Dissolved			99.0		%		80-120	17-JUN-13
Zinc (Zn)-Dissolved			94.7		%		80-120	17-JUN-13
WG1690000-4 DUP		**L1316438-1**						
Aluminum (Al)-Dissolved		0.0917	0.103		mg/L	11	20	28-JUN-13
Antimony (Sb)-Dissolved		0.00016	0.00014		mg/L	16	20	25-JUN-13
Arsenic (As)-Dissolved		0.00062	0.00062		mg/L	0.9	20	25-JUN-13
Barium (Ba)-Dissolved		0.0152	0.0151		mg/L	0.6	20	25-JUN-13
Beryllium (Be)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-JUN-13
Boron (B)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-JUN-13
Cadmium (Cd)-Dissolved		0.00630	0.00624		mg/L	1.1	20	25-JUN-13
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-JUN-13
Cobalt (Co)-Dissolved		0.0292	0.0293		mg/L	0.4	20	25-JUN-13
Copper (Cu)-Dissolved		0.00194	0.00201		mg/L	4.0	20	25-JUN-13
Lead (Pb)-Dissolved		0.00311	0.00310		mg/L	0.4	20	25-JUN-13
Lithium (Li)-Dissolved		0.0700	0.0699		mg/L	0.2	20	25-JUN-13
Manganese (Mn)-Dissolved		0.770	0.765		mg/L	0.7	20	25-JUN-13
Molybdenum (Mo)-Dissolved		0.000666	0.000632		mg/L	5.3	20	25-JUN-13
Nickel (Ni)-Dissolved		0.0693	0.0691		mg/L	0.4	20	25-JUN-13
Potassium (K)-Dissolved		13.3	13.6		mg/L	2.0	20	25-JUN-13
Selenium (Se)-Dissolved		0.00108	0.00103		mg/L	4.2	20	25-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2633494								
WG1690000-4 DUP		**L1316438-1**						
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	28-JUN-13
Sodium (Na)-Dissolved		2.48	2.42		mg/L	2.1	20	25-JUN-13
Strontium (Sr)-Dissolved		0.386	0.382		mg/L	1.1	20	25-JUN-13
Thallium (Tl)-Dissolved		0.000876	0.000864		mg/L	1.3	20	25-JUN-13
Titanium (Ti)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-JUN-13
Uranium (U)-Dissolved		0.00299	0.00293		mg/L	2.0	20	25-JUN-13
Vanadium (V)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	25-JUN-13
Zinc (Zn)-Dissolved		5.46	5.49		mg/L	0.5	20	25-JUN-13
WG1690000-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	17-JUN-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	17-JUN-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	17-JUN-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	17-JUN-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	17-JUN-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	17-JUN-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	17-JUN-13
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	17-JUN-13
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	17-JUN-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	17-JUN-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	17-JUN-13
WG1690000-5 MS		**L1316438-1**						

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2633494								
WG1690000-5 MS		**L1316438-1**						
Aluminum (Al)-Dissolved			89.1		%		70-130	27-JUN-13
Antimony (Sb)-Dissolved			101.8		%		70-130	25-JUN-13
Arsenic (As)-Dissolved			104.8		%		70-130	25-JUN-13
Barium (Ba)-Dissolved			94.1		%		70-130	25-JUN-13
Beryllium (Be)-Dissolved			94.4		%		70-130	25-JUN-13
Boron (B)-Dissolved			93.9		%		70-130	25-JUN-13
Cadmium (Cd)-Dissolved			N/A	MS-B	%		-	25-JUN-13
Chromium (Cr)-Dissolved			93.9		%		70-130	25-JUN-13
Cobalt (Co)-Dissolved			N/A	MS-B	%		-	25-JUN-13
Copper (Cu)-Dissolved			90.8		%		70-130	25-JUN-13
Lead (Pb)-Dissolved			91.8		%		70-130	25-JUN-13
Lithium (Li)-Dissolved			86.2		%		70-130	25-JUN-13
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	25-JUN-13
Molybdenum (Mo)-Dissolved			99.4		%		70-130	25-JUN-13
Nickel (Ni)-Dissolved			N/A	MS-B	%		-	25-JUN-13
Potassium (K)-Dissolved			N/A	MS-B	%		-	25-JUN-13
Selenium (Se)-Dissolved			106.2		%		70-130	25-JUN-13
Silver (Ag)-Dissolved			101.1		%		70-130	27-JUN-13
Sodium (Na)-Dissolved			N/A	MS-B	%		-	25-JUN-13
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	25-JUN-13
Thallium (Tl)-Dissolved			95.3		%		70-130	25-JUN-13
Titanium (Ti)-Dissolved			106.3		%		70-130	25-JUN-13
Uranium (U)-Dissolved			96.8		%		70-130	25-JUN-13
Vanadium (V)-Dissolved			96.6		%		70-130	25-JUN-13
Zinc (Zn)-Dissolved			N/A	MS-B	%		-	25-JUN-13
MET-DIS-ICP-VA	**Water**							
Batch R2633893								
WG1690000-2 CRM		**VA-HIGH-WATRM**						
Calcium (Ca)-Dissolved			99.2		%		80-120	18-JUN-13
Iron (Fe)-Dissolved			99.9		%		80-120	18-JUN-13
Magnesium (Mg)-Dissolved			100.1		%		80-120	18-JUN-13
Phosphorus (P)-Dissolved			99.5		%		80-120	18-JUN-13
Silicon (Si)-Dissolved			99.9		%		80-120	18-JUN-13
WG1690000-1 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA	**Water**							
Batch R2633893								
WG1690000-1 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	18-JUN-13
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	18-JUN-13
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	18-JUN-13
Phosphorus (P)-Dissolved			<0.30		mg/L		0.3	18-JUN-13
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	18-JUN-13
Batch R2639755								
WG1690000-4 DUP		**L1316438-1**						
Calcium (Ca)-Dissolved		130	130		mg/L	0.1	20	26-JUN-13
Iron (Fe)-Dissolved		0.128	0.129		mg/L	0.9	20	26-JUN-13
Magnesium (Mg)-Dissolved		212	213		mg/L	0.7	20	26-JUN-13
Phosphorus (P)-Dissolved		<0.30	<0.30	RPD-NA	mg/L	N/A	20	26-JUN-13
Silicon (Si)-Dissolved		0.575	0.567		mg/L	1.5	20	26-JUN-13
WG1690000-5 MS		**L1316438-1**						
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	26-JUN-13
Iron (Fe)-Dissolved			91.8		%		70-130	26-JUN-13
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	26-JUN-13
NH3-F-VA	**Water**							
Batch R2639854								
WG1696504-2 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			104.0		%		85-115	27-JUN-13
WG1696504-3 DUP		**L1316438-1**						
Ammonia, Total (as N)		0.0056	0.0052		mg/L	7.8	20	27-JUN-13
WG1696504-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	27-JUN-13
WG1696504-4 MS		**L1316438-1**						
Ammonia, Total (as N)			100.9		%		75-125	27-JUN-13
PH-PCT-VA	**Water**							
Batch R2636259								
WG1691376-25 CRM		**VA-PH7-BUF**						
pH			7.02		pH		6.9-7.1	19-JUN-13
WG1691376-34 DUP		**L1316438-1**						
pH		8.11	8.11	J	pH	0.00	0.3	19-JUN-13
PO4-DO-COL-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PO4-DO-COL-VA	**Water**							
Batch R2633438								
WG1689226-2 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			103.0		%		80-120	14-JUN-13
WG1689226-7 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			93.3		%		80-120	14-JUN-13
WG1689226-5 DUP		**L1316438-1**						
Orthophosphate-Dissolved (as P)		0.0012	0.0011		mg/L	6.0	20	14-JUN-13
WG1689226-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	14-JUN-13
WG1689226-6 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	14-JUN-13
WG1689226-4 MS		**L1316343-1**						
Orthophosphate-Dissolved (as P)			89.8		%		70-130	14-JUN-13
S-DIS-ICP-VA	**Water**							
Batch R2633893								
WG1690000-2 CRM		**VA-HIGH-WATRM**						
Sulfur (S)-Dissolved			101.0		%		80-120	18-JUN-13
WG1690000-1 MB								
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	18-JUN-13
Batch R2639755								
WG1690000-4 DUP		**L1316438-1**						
Sulfur (S)-Dissolved		315	316		mg/L	0.4	20	26-JUN-13
WG1690000-5 MS		**L1316438-1**						
Sulfur (S)-Dissolved			N/A	MS-B	%		-	26-JUN-13
TDS-VA	**Water**							
Batch R2633117								
WG1689244-3 DUP		**L1316438-1**						
Total Dissolved Solids		1530	1500		mg/L	1.9	20	15-JUN-13
WG1689244-2 LCS								
Total Dissolved Solids			96.5		%		85-115	15-JUN-13
WG1689244-1 MB								
Total Dissolved Solids			<10		mg/L		10	15-JUN-13
TSS-LOW-VA	**Water**							
Batch R2633044								
WG1689249-2 LCS								
Total Suspended Solids			98.7		%		85-115	15-JUN-13
WG1689249-1 MB								
Total Suspended Solids			<1.0		mg/L		1	15-JUN-13

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	1	12-JUN-13 08:30	19-JUN-13 23:41	0.25	183	hours	EHTR-FM
Cyanides							
Free Cyanide in water by CFA							
	1	12-JUN-13 08:30	28-JUN-13 12:55	14	16	days	EHT

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1316438 were received on 13-JUN-13 09:00.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CH2MHILL

CHAIN OF CUSTODY RECORD

6/13/2013 10:32:14 AM

Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.07.EM.SS.02.0
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-015
Project FARO MINE SEEP SAMPLING 2013
Turnaround Time 10 Days
Shipping Date: 6/12/2013
COC Number: ALS06121304

	DATE	TIME	Matrix	Container:	125mL Poly	250ml Poly	125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	250ml Poly	250ml glass		Number of Containers	COMMENTS
				Preservatives:	NaOH, 4°C	HNO3, 4°C	HCl, 4°C	4C	4C	4C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C	HNO3, 4°C	H2SO4, pH<2, 4C			
				Filtered:	NA	Field	Field	NA	NA	NA	NA	NA	NA	NA	Field	Field	NA			
				Holding Time:	14	180/28	180	14	14	14	7	7	3	3	28	180/28	28			
					(ASTM 7237) Free Cyanide	(E245.7) Field Filtered Dissolved Hg	(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity – Run Hot H2O2 if Fe >15ppm	(SM2310_HP) Acidity – Run Hot H2O2	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM4110B) CL F NO2 NO3 and SO4	(SM4500P) ortho-Phosphate	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia			
SRK-FD30_SESP13	6/12/2013	8:30	Water		X	X	X	X		X	X	X	X	X	X	X	X		8	
																		TOTAL NUMBER OF CONTAINERS	113	

L1316438-COFC

Signatures		Date/Time
Approved by		
Sampled by		
Relinquished by		
Received by		6/13/13
Relinquished by		
Received by		7.0

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

ATTN:
Sample Custody
and
Amber Springer

Special Instructions:
PO: 604564 on Invoice Perform Lab Dup/MS on the samples

Report Copy to
Bernice Kidd
(530) 229-3203

CH2M HILL, INC
ATTN: Bernice Kidd
2525 Airpark Drive
Redding CA 96001

Date Received: 14-JUN-13
Report Date: 16-AUG-13 11:26 (MT)
Version: FINAL REV. 2

Client Phone: 530-229-3203

Certificate of Analysis

Lab Work Order #: L1316792

Project P.O. #: 472645.06.AD.01.04.13 "PO= 604564"
Job Reference: FARO MINE SEEP SAMPLING 2013 SW-015
C of C Numbers: ALS06131301
Legal Site Desc:

Comments:

16-AUG-13: Corrected sample id's to match the chain of custody.

Amber Springer
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1316792-1	L1316792-2	L1316792-3	L1316792-4	L1316792-5
	Description	Water	Water	Water	Water	Water
	Sampled Date	12-JUN-13	12-JUN-13	12-JUN-13	12-JUN-13	12-JUN-13
	Sampled Time	15:07	14:05	16:20	15:30	16:10
	Client ID	A30_SESP13	CH-FP-23_SESP13	CH-FP-30_SESP13	CH-FP-34_SESP13	CH-FP-35_SESP13
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	468	1870	59.4	207	539
	pH (pH)		7.29	8.13	8.01	
	Total Suspended Solids (mg/L)	2.5	99.2	873	<1.0	1330
	Total Dissolved Solids (mg/L)	1240	2880	94	290	932
Anions and Nutrients	Acidity (as CaCO3) (mg/L)		70.1	1.6	3.5	
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)	360				<25
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)		125	59.0	100	
	Alkalinity, Carbonate (as CaCO3) (mg/L)		<2.0	<2.0	<2.0	
	Alkalinity, Hydroxide (as CaCO3) (mg/L)		<2.0	<2.0	<2.0	
	Alkalinity, Total (as CaCO3) (mg/L)		125	59.0	100	
	Ammonia, Total (as N) (mg/L)	0.0242	<0.0050	0.0058	<0.0050	0.0081
	Chloride (Cl) (mg/L)	<5.0 DLA	<10 DLA	<0.50	<0.50	<5.0 DLA
	Fluoride (F) (mg/L)	0.75	0.98	0.424	0.190	0.95
	Nitrate (as N) (mg/L)	0.114	0.39	0.162	0.155	0.213
	Nitrite (as N) (mg/L)	<0.010 DLA	<0.020 DLA	<0.0010	<0.0010	<0.010 DLA
	Orthophosphate-Dissolved (as P) (mg/L)	0.0028	<0.0010	0.0040	<0.0010	<0.0010
	Sulfate (SO4) (mg/L)	798	1930	12.8	116	604
Cyanides	Cyanide, Free (mg/L)					
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	2.54	2.17	1.74	1.16	1.47
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	15.0	0.0185	0.0663	0.0206	0.111
	Antimony (Sb)-Dissolved (mg/L)	<0.0010 DLA	<0.00050 DLA	<0.00010	<0.00010	<0.00050 DLA
	Arsenic (As)-Dissolved (mg/L)	<0.0010 DLA	<0.00050 DLA	0.00016	0.00082	<0.00050 DLA
	Barium (Ba)-Dissolved (mg/L)	0.0142	0.0105	0.0278	0.0690	0.0207
	Beryllium (Be)-Dissolved (mg/L)	0.0056	<0.00050 DLA	<0.00010	<0.00010	0.00060
	Boron (B)-Dissolved (mg/L)	<0.10 DLA	<0.050 DLA	<0.010	<0.010	<0.050 DLA
	Cadmium (Cd)-Dissolved (mg/L)	0.110	0.103	0.000215	0.00206	0.0698
	Calcium (Ca)-Dissolved (mg/L)	56.3	274	18.0	61.5	112
	Chromium (Cr)-Dissolved (mg/L)	0.0127	<0.00050 DLA	0.00038	0.00024	<0.00050 DLA
	Cobalt (Co)-Dissolved (mg/L)	0.232	0.0271	0.00042	0.00012	0.0456
	Copper (Cu)-Dissolved (mg/L)	1.66	0.0380	0.00259	0.00285	0.0972
	Iron (Fe)-Dissolved (mg/L)	20.6	0.061	0.077	0.161	0.032
	Ferrous Iron, Dissolved (mg/L)	1.02	0.026	0.027	<0.020	<0.020
	Lead (Pb)-Dissolved (mg/L)	0.577	0.00881	0.00164	0.00612	0.00235
	Lithium (Li)-Dissolved (mg/L)	0.0430	0.0971	0.0106	0.0158	0.0344
	Magnesium (Mg)-Dissolved (mg/L)	79.5	288	3.54	12.9	63.0

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1316792-6	L1316792-7	L1316792-8	L1316792-9	L1316792-10
	Description	Water	Water	Water	Water	Water
	Sampled Date	12-JUN-13	12-JUN-13	12-JUN-13	12-JUN-13	12-JUN-13
	Sampled Time	10:50	13:00	15:00	09:10	16:30
	Client ID	CH-FP-37_SESP13	CH-RCTA-04_SESP13	FP10_SESP13	SRK-FD26_SESP13	SRK-FD40_SESP13
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	1640	710	800	740	523
	pH (pH)	8.22	5.63	7.87	7.78	
	Total Suspended Solids (mg/L)	2.8	114	57.8	17.2	<1.0
	Total Dissolved Solids (mg/L)	2220	1740	1110	1020	1350
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	3.4		8.2	10.6	
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)		221			543
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	221	6.6	175	189	
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0	
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0	
	Alkalinity, Total (as CaCO3) (mg/L)	221	6.6	175	189	
	Ammonia, Total (as N) (mg/L)	<0.0050	0.230	0.0082	0.0208	0.0203
	Chloride (Cl) (mg/L)	<10 DLA	<5.0 DLA	<5.0 DLA	<5.0 DLA	<5.0 DLA
	Fluoride (F) (mg/L)	0.69	<0.20 DLA	0.52	0.45	0.70
	Nitrate (as N) (mg/L)	<0.10 DLA	0.087	4.47 DLA	4.70 DLA	0.110
	Nitrite (as N) (mg/L)	<0.020 DLA	<0.010 DLA	<0.010	<0.010 DLA	<0.010 DLA
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	0.0105
	Sulfate (SO4) (mg/L)	1450	1070	620	546	939
Cyanides	Cyanide, Free (mg/L)		<0.010 DLM			
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	2.47	1.85	3.39	3.71	2.85
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0305	0.0131	0.0082	0.0350	15.2
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00050 DLA	<0.00010	<0.00010	<0.0010 DLA
	Arsenic (As)-Dissolved (mg/L)	0.00078	<0.00050 DLA	0.00033	0.00031	0.0014
	Barium (Ba)-Dissolved (mg/L)	0.0189	0.0295	0.0141	0.0185	0.0148
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.00050 DLA	<0.00010	<0.00010	0.0060
	Boron (B)-Dissolved (mg/L)	<0.010	<0.050 DLA	<0.010	<0.010	<0.10 DLA
	Cadmium (Cd)-Dissolved (mg/L)	0.000142	0.000841	0.00507	0.00374	0.115
	Calcium (Ca)-Dissolved (mg/L)	214	224	134	124	65.0
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00050 DLA	<0.00010	<0.00010	0.0130
	Cobalt (Co)-Dissolved (mg/L)	0.00828	0.0898	0.00171	0.00499	0.240
	Copper (Cu)-Dissolved (mg/L)	0.00126	0.0013	0.00308	0.00725	1.74
	Iron (Fe)-Dissolved (mg/L)	0.100	187	<0.030	0.041	38.4
	Ferrous Iron, Dissolved (mg/L)	<0.020	213	<0.020	0.041	0.561
	Lead (Pb)-Dissolved (mg/L)	0.00161	0.00378	0.00130	0.000310	0.188
	Lithium (Li)-Dissolved (mg/L)	0.0539	0.0115	0.0343	0.0356	0.0440
	Magnesium (Mg)-Dissolved (mg/L)	269	36.9	113	104	87.7

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1316792-11	L1316792-12			
	Description	Water	Water			
	Sampled Date	12-JUN-13	13-JUN-13			
	Sampled Time	16:30	09:25			
	Client ID	SRK-FD940_SESP13	SRK-FD05_SESP13			
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	523	1140			
	pH (pH)		7.68			
	Total Suspended Solids (mg/L)	2.2	1.4			
	Total Dissolved Solids (mg/L)	1420	1640			
Anions and Nutrients	Acidity (as CaCO3) (mg/L)		15.9			
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)	391				
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)		219			
	Alkalinity, Carbonate (as CaCO3) (mg/L)		<2.0			
	Alkalinity, Hydroxide (as CaCO3) (mg/L)		<2.0			
	Alkalinity, Total (as CaCO3) (mg/L)		219			
	Ammonia, Total (as N) (mg/L)	0.0203	<0.0050			
	Chloride (Cl) (mg/L)	<5.0 DLA	<5.0 DLA			
	Fluoride (F) (mg/L)	0.74	0.39			
	Nitrate (as N) (mg/L)	0.107	17.7			
	Nitrite (as N) (mg/L)	<0.010 DLA	<0.010 DLA			
	Orthophosphate-Dissolved (as P) (mg/L)	0.0107	<0.0010			
	Sulfate (SO4) (mg/L)	930	904			
Cyanides	Cyanide, Free (mg/L)		<0.0050			
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	2.84	3.84			
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD			
	Aluminum (Al)-Dissolved (mg/L)	15.8	0.0337			
	Antimony (Sb)-Dissolved (mg/L)	<0.0010 DLA	0.00013			
	Arsenic (As)-Dissolved (mg/L)	0.0018	0.00033			
	Barium (Ba)-Dissolved (mg/L)	0.0156	0.0291			
	Beryllium (Be)-Dissolved (mg/L)	0.0060	<0.00010			
	Boron (B)-Dissolved (mg/L)	<0.10 DLA	0.010			
	Cadmium (Cd)-Dissolved (mg/L)	0.120	0.00504			
	Calcium (Ca)-Dissolved (mg/L)	64.8	174			
	Chromium (Cr)-Dissolved (mg/L)	0.0139	<0.00010			
	Cobalt (Co)-Dissolved (mg/L)	0.249	0.00060			
	Copper (Cu)-Dissolved (mg/L)	1.79	0.00247			
	Iron (Fe)-Dissolved (mg/L)	38.5	0.067			
	Ferrous Iron, Dissolved (mg/L)	0.578	<0.020			
	Lead (Pb)-Dissolved (mg/L)	0.194	0.00306			
	Lithium (Li)-Dissolved (mg/L)	0.0437	0.0323			
	Magnesium (Mg)-Dissolved (mg/L)	87.7	171			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1316792-1	L1316792-2	L1316792-3	L1316792-4	L1316792-5
	Description	Water	Water	Water	Water	Water
	Sampled Date	12-JUN-13	12-JUN-13	12-JUN-13	12-JUN-13	12-JUN-13
	Sampled Time	15:07	14:05	16:20	15:30	16:10
	Client ID	A30_SESP13	CH-FP-23_SESP13	CH-FP-30_SESP13	CH-FP-34_SESP13	CH-FP-35_SESP13
Grouping	**Analyte**					
WATER						
Dissolved Metals	Manganese (Mn)-Dissolved (mg/L)	5.19	3.57	0.0110	0.0184	3.00
	Mercury (Hg)-Dissolved (mg/L)	0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	<0.00050 DLA	<0.00025 DLA	0.000773	0.000346	<0.00025 DLA
	Nickel (Ni)-Dissolved (mg/L)	0.197	0.258	0.00074	0.00787	0.177
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	1.30	6.46	0.716	1.19	2.06
	Selenium (Se)-Dissolved (mg/L)	<0.0010 DLA	<0.00050 DLA	0.00023	0.00017	<0.00050 DLA
	Silicon (Si)-Dissolved (mg/L)	7.97	2.38	6.24	8.17	10.6
	Silicon (as SiO2)-Dissolved (mg/L)	17.1	5.10	13.3	17.5	22.7
	Silver (Ag)-Dissolved (mg/L)	0.00060	<0.000050 DLA	<0.000010	<0.000010	<0.000050 DLA
	Sodium (Na)-Dissolved (mg/L)	2.93	5.51	2.73	5.06	5.21
	Strontium (Sr)-Dissolved (mg/L)	0.259	0.624	0.101	0.215	0.324
	Sulfur (S)-Dissolved (mg/L)	257	593	3.99	37.3	188
	Thallium (Tl)-Dissolved (mg/L)	0.00050	0.00215	<0.000010	<0.000010	<0.000050 DLA
	Titanium (Ti)-Dissolved (mg/L)	<0.10 DLA	<0.050 DLA	<0.010	<0.010	<0.050 DLA
	Uranium (U)-Dissolved (mg/L)	0.0122	0.00251	0.00169	0.00296	0.000810
	Vanadium (V)-Dissolved (mg/L)	<0.010 DLA	<0.0050 DLA	<0.0010	<0.0010	<0.0050 DLA
	Zinc (Zn)-Dissolved (mg/L)	66.0	40.1	0.121	1.82	43.2

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1316792-6 Water 12-JUN-13 10:50 CH-FP-37_SESP13	L1316792-7 Water 12-JUN-13 13:00 CH-RCTA-04_SESP13	L1316792-8 Water 12-JUN-13 15:00 FP10_SESP13	L1316792-9 Water 12-JUN-13 09:10 SRK-FD26_SESP13	L1316792-10 Water 12-JUN-13 16:30 SRK-FD40_SESP13
WATER						
Dissolved Metals	Manganese (Mn)-Dissolved (mg/L)	0.500	21.5	0.109	0.292	5.46
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	<0.00025 DLA	0.000061	<0.000050	<0.00050 DLA
	Nickel (Ni)-Dissolved (mg/L)	0.0330	0.0669	0.0398	0.0422	0.195
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	4.03	3.14	4.19	3.95	1.30
	Selenium (Se)-Dissolved (mg/L)	0.00086	<0.00050 DLA	0.00094	0.00094	<0.0010 DLA
	Silicon (Si)-Dissolved (mg/L)	1.99	5.76	4.17	4.83	7.64
	Silicon (as SiO2)-Dissolved (mg/L)	4.26	12.3	8.93	11.4	16.3
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000050 DLA	<0.000010	<0.000010	0.00024
	Sodium (Na)-Dissolved (mg/L)	4.79	10.0	6.30	6.13	3.07
	Strontium (Sr)-Dissolved (mg/L)	0.826	0.579	0.405	0.430	0.331
	Sulfur (S)-Dissolved (mg/L)	455	345	195	175	298
	Thallium (Tl)-Dissolved (mg/L)	0.000341	0.000077	0.000099	0.000072	0.00051
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.050 DLA	<0.010	<0.010	<0.10 DLA
	Uranium (U)-Dissolved (mg/L)	0.00367	0.000751	0.00335	0.00400	0.0124
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0050 DLA	<0.0010	<0.0010	<0.010 DLA
	Zinc (Zn)-Dissolved (mg/L)	0.0434	10.1	3.08	3.37	68.6

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1316792-11	L1316792-12			
	Description	Water	Water			
	Sampled Date	12-JUN-13	13-JUN-13			
	Sampled Time	16:30	09:25			
	Client ID	SRK-FD940_SESP13	SRK-FD05_SESP13			
Grouping	**Analyte**					
WATER						
Dissolved Metals	Manganese (Mn)-Dissolved (mg/L)	5.46	0.0135			
	Mercury (Hg)-Dissolved (mg/L)	0.000011	<0.000010			
	Molybdenum (Mo)-Dissolved (mg/L)	<0.00050 DLA	0.000171			
	Nickel (Ni)-Dissolved (mg/L)	0.204	0.0685			
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30			
	Potassium (K)-Dissolved (mg/L)	1.31	4.63			
	Selenium (Se)-Dissolved (mg/L)	<0.0010 DLA	0.00396			
	Silicon (Si)-Dissolved (mg/L)	7.57	5.17			
	Silicon (as SiO2)-Dissolved (mg/L)	16.2	11.1			
	Silver (Ag)-Dissolved (mg/L)	0.00023	<0.000010			
	Sodium (Na)-Dissolved (mg/L)	3.23	9.18			
	Strontium (Sr)-Dissolved (mg/L)	0.340	0.694			
	Sulfur (S)-Dissolved (mg/L)	295	285			
	Thallium (Tl)-Dissolved (mg/L)	0.00052	0.000204			
	Titanium (Ti)-Dissolved (mg/L)	<0.10 DLA	<0.010			
	Uranium (U)-Dissolved (mg/L)	0.0125	0.0163			
	Vanadium (V)-Dissolved (mg/L)	<0.010 DLA	<0.0010			
	Zinc (Zn)-Dissolved (mg/L)	71.9	8.31			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Antimony (Sb)-Dissolved	DLA	L1316792-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Arsenic (As)-Dissolved	DLA	L1316792-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Beryllium (Be)-Dissolved	DLA	L1316792-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Boron (B)-Dissolved	DLA	L1316792-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Chromium (Cr)-Dissolved	DLA	L1316792-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Molybdenum (Mo)-Dissolved	DLA	L1316792-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Selenium (Se)-Dissolved	DLA	L1316792-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Silver (Ag)-Dissolved	DLA	L1316792-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Titanium (Ti)-Dissolved	DLA	L1316792-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Vanadium (V)-Dissolved	DLA	L1316792-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Cyanide, Free	DLM	L1316792-12, -7
Duplicate	Cyanide, Free	DLM	L1316792-12, -7
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1316792-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Iron (Fe)-Dissolved	MS-B	L1316792-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L1316792-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Ammonia, Total (as N)	MS-B	L1316792-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1316792-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1316792-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1316792-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Zinc (Zn)-Dissolved	MS-B	L1316792-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfate (SO4)	MS-B	L1316792-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
DLM	Detection Limit Adjusted For Sample Matrix Effects
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-H2O2-MAN-VA	Water	Acidity by Hot Peroxide Manual Titration	APHA - ACIDITY (2310)

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". The procedure involves preliminary sample treatment by the hot peroxide procedure, and Acidity is subsequently determined by potentiometric titration to a specified endpoint (i.e. pH = 8.3).

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-CL-IC-WR	Water	Chloride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-F-IC-WR	Water	Fluoride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-NO2-IC-WR	Water	Nitrite Nitrogen by Ion Chromatography	EPA 300.1

Reference Information

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-NO3-IC-WR	Water	Nitrate Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-SO4-IC-WR	Water	Sulphate by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CN-FREE-CFA-VA	Water	Free Cyanide in water by CFA	ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

FE2-D-COL-VA	Water	Diss. Ferrous Iron in Water by Colour	James W. Ball et al (1999)

This analysis is carried out using procedures adapted from "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedures involves preliminary sample filtration (0.1um filter) and Ferrous Iron is determined using the "FerroZine" colorimteric method.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA	Water	Dissolved Mercury in Water by CVAFS(Low)	EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA	Water	Dissolved Metals in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

S-DIS-ICP-VA	Water	Dissolved Sulfur in Water by ICPOES	EPA SW-846 3005A/6010B

Reference Information

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

SIO2-D-CALC-VA Water Dissolved Silicon (reported as Silica) CALCULATION

Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-LOW-VA Water Total Suspended Solids by Grav. (1 mg/L) APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

ALS06131301

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1316792 Report Date: 16-AUG-13

Client: CH2M HILL, INC
2525 Airpark Drive
Redding CA 96001
Contact: Bernice Kidd

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-H2O2-MAN-VA	**Water**							
Batch R2634732								
WG1691959-2 CRM		**VA-ACY-M-CONTROL**						
Acidity-Hot Peroxide Treated (as CaCO3)			98.3		%		85-115	19-JUN-13
WG1691959-3 DUP		**L1316792-7**						
Acidity-Hot Peroxide Treated (as CaCO3)		221	252		mg/L	13	20	19-JUN-13
WG1691959-1 MB								
Acidity-Hot Peroxide Treated (as CaCO3)			<25		mg/L		25	19-JUN-13
Batch R2638090								
WG1695571-2 CRM		**VA-ACY-M-CONTROL**						
Acidity-Hot Peroxide Treated (as CaCO3)			99.0		%		85-115	25-JUN-13
WG1695571-3 DUP		**L1316792-1**						
Acidity-Hot Peroxide Treated (as CaCO3)		360	360		mg/L	0.0	20	25-JUN-13
WG1695571-1 MB								
Acidity-Hot Peroxide Treated (as CaCO3)			<25		mg/L		25	25-JUN-13
ACY-PCT-VA	**Water**							
Batch R2638483								
WG1695597-9 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			100.0		%		85-115	25-JUN-13
ALK-SCR-VA	**Water**							
Batch R2637533								
WG1694921-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			97.2		%		85-115	25-JUN-13
WG1694921-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	25-JUN-13
Batch R2642242								
WG1699485-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			97.2		%		85-115	25-JUN-13
WG1699485-4 CRM		**VA-ALKM-CONTROL**						
Alkalinity, Total (as CaCO3)			101.0		%		85-115	25-JUN-13
WG1699485-5 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			98.2		%		85-115	03-JUL-13
WG1699485-3 DUP		**L1316792-7**						
Alkalinity, Total (as CaCO3)		6.6	6.7		mg/L	1.2	20	03-JUL-13
WG1699485-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	25-JUN-13
WG1699485-6 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	03-JUL-13
ANIONS-CL-IC-WR	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-CL-IC-WR	**Water**							
Batch R2642646								
WG1700204-3 DUP		**L1316792-7**						
Chloride (Cl)		<5.0	<5.0	RPD-NA	mg/L	N/A	20	15-JUN-13
WG1700204-2 LCS								
Chloride (Cl)			103.1		%		85-115	15-JUN-13
WG1700204-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	15-JUN-13
WG1700204-4 MS		**L1316792-7**						
Chloride (Cl)			104.2		%		75-125	15-JUN-13
ANIONS-F-IC-WR	**Water**							
Batch R2642646								
WG1700204-3 DUP		**L1316792-7**						
Fluoride (F)		<0.20	<0.20	RPD-NA	mg/L	N/A	20	15-JUN-13
WG1700204-2 LCS								
Fluoride (F)			105.0		%		85-115	15-JUN-13
WG1700204-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	15-JUN-13
WG1700204-4 MS		**L1316792-7**						
Fluoride (F)			115.4		%		75-125	15-JUN-13
ANIONS-NO2-IC-WR	**Water**							
Batch R2642646								
WG1700204-3 DUP		**L1316792-7**						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	15-JUN-13
WG1700204-2 LCS								
Nitrite (as N)			100.6		%		85-115	15-JUN-13
WG1700204-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	15-JUN-13
WG1700204-4 MS		**L1316792-7**						
Nitrite (as N)			98.0		%		75-125	15-JUN-13
ANIONS-NO3-IC-WR	**Water**							
Batch R2642646								
WG1700204-3 DUP		**L1316792-7**						
Nitrate (as N)		0.087	0.082		mg/L	6.0	20	15-JUN-13
WG1700204-2 LCS								
Nitrate (as N)			104.1		%		85-115	15-JUN-13
WG1700204-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	15-JUN-13
WG1700204-4 MS		**L1316792-7**						
Nitrate (as N)			104.9		%		75-125	15-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-SO4-IC-WR	**Water**							
Batch R2642646								
WG1700204-3 DUP		**L1316792-7**						
Sulfate (SO4)		1070	1080		mg/L	0.9	20	15-JUN-13
WG1700204-2 LCS								
Sulfate (SO4)			105.9		%		85-115	15-JUN-13
WG1700204-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	15-JUN-13
WG1700204-4 MS		**L1316792-7**						
Sulfate (SO4)			N/A	MS-B	%		-	15-JUN-13
CARBONS-DOC-VA	**Water**							
Batch R2641235								
WG1697382-6 LCS								
Dissolved Organic Carbon			108.5		%		80-120	30-JUN-13
WG1697382-5 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	30-JUN-13
WG1697382-2 MS		**L1316343-1**						
Dissolved Organic Carbon			104.4		%		70-130	30-JUN-13
Batch R2641786								
WG1699338-1 DUP		**L1316792-7**						
Dissolved Organic Carbon		1.85	1.89		mg/L	2.0	20	01-JUL-13
WG1699338-3 LCS								
Dissolved Organic Carbon			99.6		%		80-120	01-JUL-13
WG1699338-2 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	01-JUL-13
Batch R2641901								
WG1699477-2 LCS								
Dissolved Organic Carbon			108.8		%		80-120	30-JUN-13
WG1699477-1 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	30-JUN-13
CN-FREE-CFA-VA	**Water**							
Batch R2642485								
WG1700078-7 DUP		**L1316792-7**						
Cyanide, Free		<0.010	<0.010	RPD-NA	mg/L	N/A	20	28-JUN-13
WG1700078-2 LCS								
Cyanide, Free			101.0		%		80-120	28-JUN-13
WG1700078-1 MB								
Cyanide, Free			<0.0050		mg/L		0.005	28-JUN-13
WG1700078-10 MS		**L1317621-1**						
Cyanide, Free			98.7		%		70-130	28-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CN-FREE-CFA-VA	**Water**							
Batch R2642485								
WG1700078-4 MS		**L1316422-1**						
Cyanide, Free			99.3		%		70-130	28-JUN-13
WG1700078-6 MS		**L1316438-1**						
Cyanide, Free			115.4		%		70-130	28-JUN-13
WG1700078-8 MS		**L1316792-7**						
Cyanide, Free			103.6		%		70-130	28-JUN-13
FE2-D-COL-VA	**Water**							
Batch R2634665								
WG1690831-5 DUP		**L1316792-7**						
Ferrous Iron, Dissolved		213	213		mg/L	0.0	20	19-JUN-13
WG1690831-2 LCS								
Ferrous Iron, Dissolved			104.8		%		80-120	19-JUN-13
WG1690831-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	19-JUN-13
WG1690831-4 MS		**L1316422-2**						
Ferrous Iron, Dissolved			104.0		%		70-130	19-JUN-13
WG1690831-6 MS		**L1316792-7**						
Ferrous Iron, Dissolved			108.0		%		70-130	19-JUN-13
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2633814								
WG1689935-3 LCS								
Mercury (Hg)-Dissolved			98.5		%		80-120	18-JUN-13
WG1689935-1 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	18-JUN-13
Batch R2633849								
WG1689935-4 DUP		**L1316792-7**						
Mercury (Hg)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	18-JUN-13
WG1689935-5 MS		**L1316792-7**						
Mercury (Hg)-Dissolved			107.6		%		70-130	18-JUN-13
MET-D-CCMS-VA	**Water**							
Batch R2633494								
WG1689935-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	17-JUN-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2633494								
WG1689935-1 MB								
Boron (B)-Dissolved			<0.010		mg/L		0.01	17-JUN-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	17-JUN-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	17-JUN-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	17-JUN-13
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	17-JUN-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	17-JUN-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	17-JUN-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	17-JUN-13
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	17-JUN-13
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	17-JUN-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	17-JUN-13
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	17-JUN-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	17-JUN-13
Batch R2634463								
WG1689935-2 CRM		**VA-HIGH-WATRM**						
Aluminum (Al)-Dissolved			102.6		%		80-120	17-JUN-13
Antimony (Sb)-Dissolved			100.9		%		80-120	17-JUN-13
Arsenic (As)-Dissolved			100.4		%		80-120	17-JUN-13
Barium (Ba)-Dissolved			98.6		%		80-120	17-JUN-13
Beryllium (Be)-Dissolved			97.6		%		80-120	17-JUN-13
Boron (B)-Dissolved			93.0		%		80-120	17-JUN-13
Cadmium (Cd)-Dissolved			101.4		%		80-120	17-JUN-13
Chromium (Cr)-Dissolved			101.3		%		80-120	17-JUN-13
Cobalt (Co)-Dissolved			98.0		%		80-120	17-JUN-13
Copper (Cu)-Dissolved			97.2		%		80-120	17-JUN-13
Lead (Pb)-Dissolved			97.2		%		80-120	17-JUN-13
Lithium (Li)-Dissolved			98.7		%		80-120	17-JUN-13
Manganese (Mn)-Dissolved			97.5		%		80-120	17-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2634463								
WG1689935-2 CRM		**VA-HIGH-WATRM**						
Molybdenum (Mo)-Dissolved			100.7		%		80-120	17-JUN-13
Nickel (Ni)-Dissolved			99.2		%		80-120	17-JUN-13
Potassium (K)-Dissolved			101.6		%		80-120	17-JUN-13
Selenium (Se)-Dissolved			98.7		%		80-120	17-JUN-13
Silver (Ag)-Dissolved			98.4		%		80-120	17-JUN-13
Sodium (Na)-Dissolved			102.5		%		80-120	17-JUN-13
Strontium (Sr)-Dissolved			99.5		%		80-120	17-JUN-13
Thallium (Tl)-Dissolved			96.8		%		80-120	17-JUN-13
Titanium (Ti)-Dissolved			102.0		%		80-120	17-JUN-13
Uranium (U)-Dissolved			97.2		%		80-120	17-JUN-13
Vanadium (V)-Dissolved			100.1		%		80-120	17-JUN-13
Zinc (Zn)-Dissolved			96.5		%		80-120	17-JUN-13
WG1689935-4 DUP		**L1316792-7**						
Aluminum (Al)-Dissolved		0.0131	0.0131		mg/L	0.2	20	27-JUN-13
Antimony (Sb)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	27-JUN-13
Arsenic (As)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	27-JUN-13
Barium (Ba)-Dissolved		0.0295	0.0292		mg/L	1.0	20	27-JUN-13
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	27-JUN-13
Boron (B)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	27-JUN-13
Cadmium (Cd)-Dissolved		0.000841	0.000846		mg/L	0.6	20	27-JUN-13
Chromium (Cr)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	27-JUN-13
Cobalt (Co)-Dissolved		0.0898	0.0916		mg/L	1.9	20	27-JUN-13
Copper (Cu)-Dissolved		0.0013	0.0013		mg/L	1.2	20	27-JUN-13
Lead (Pb)-Dissolved		0.00378	0.00381		mg/L	1.0	20	27-JUN-13
Lithium (Li)-Dissolved		0.0115	0.0140		mg/L	20	20	27-JUN-13
Manganese (Mn)-Dissolved		21.5	21.6		mg/L	0.2	20	27-JUN-13
Molybdenum (Mo)-Dissolved		<0.00025	<0.00025	RPD-NA	mg/L	N/A	20	27-JUN-13
Nickel (Ni)-Dissolved		0.0669	0.0684		mg/L	2.1	20	27-JUN-13
Potassium (K)-Dissolved		3.14	3.21		mg/L	2.0	20	27-JUN-13
Selenium (Se)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	27-JUN-13
Silver (Ag)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	27-JUN-13
Sodium (Na)-Dissolved		10.0	10.1		mg/L	1.2	20	27-JUN-13
Strontium (Sr)-Dissolved		0.579	0.633		mg/L	8.9	20	27-JUN-13
Thallium (Tl)-Dissolved		0.000077	0.000134	J	mg/L	0.000057	0.0001	27-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2634463								
WG1689935-4 DUP		**L1316792-7**						
Titanium (Ti)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	27-JUN-13
Uranium (U)-Dissolved		0.000751	0.000777		mg/L	3.5	20	27-JUN-13
Vanadium (V)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	27-JUN-13
Zinc (Zn)-Dissolved		10.1	10.4		mg/L	2.9	20	27-JUN-13
WG1689935-1 MB								
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	18-JUN-13
WG1689935-5 MS		**L1316792-7**						
Aluminum (Al)-Dissolved			93.7		%		70-130	27-JUN-13
Antimony (Sb)-Dissolved			94.1		%		70-130	27-JUN-13
Arsenic (As)-Dissolved			101.0		%		70-130	27-JUN-13
Barium (Ba)-Dissolved			98.3		%		70-130	27-JUN-13
Beryllium (Be)-Dissolved			86.6		%		70-130	27-JUN-13
Boron (B)-Dissolved			80.3		%		70-130	27-JUN-13
Cadmium (Cd)-Dissolved			96.0		%		70-130	27-JUN-13
Chromium (Cr)-Dissolved			92.9		%		70-130	27-JUN-13
Cobalt (Co)-Dissolved			93.2		%		70-130	27-JUN-13
Copper (Cu)-Dissolved			93.8		%		70-130	27-JUN-13
Lead (Pb)-Dissolved			88.5		%		70-130	27-JUN-13
Lithium (Li)-Dissolved			90.0		%		70-130	27-JUN-13
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	27-JUN-13
Molybdenum (Mo)-Dissolved			95.4		%		70-130	27-JUN-13
Nickel (Ni)-Dissolved			94.5		%		70-130	27-JUN-13
Potassium (K)-Dissolved			94.2		%		70-130	27-JUN-13
Selenium (Se)-Dissolved			95.8		%		70-130	27-JUN-13
Silver (Ag)-Dissolved			92.0		%		70-130	27-JUN-13
Sodium (Na)-Dissolved			N/A	MS-B	%		-	27-JUN-13
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	27-JUN-13
Thallium (Tl)-Dissolved			89.9		%		70-130	27-JUN-13
Titanium (Ti)-Dissolved			103.6		%		70-130	27-JUN-13
Uranium (U)-Dissolved			92.2		%		70-130	27-JUN-13
Vanadium (V)-Dissolved			96.1		%		70-130	27-JUN-13
Zinc (Zn)-Dissolved			N/A	MS-B	%		-	27-JUN-13
MET-DIS-ICP-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA	**Water**							
Batch R2633893								
WG1689935-2 CRM		**VA-HIGH-WATRM**						
Calcium (Ca)-Dissolved			99.0		%		80-120	18-JUN-13
Iron (Fe)-Dissolved			99.7		%		80-120	18-JUN-13
Magnesium (Mg)-Dissolved			100.4		%		80-120	18-JUN-13
Phosphorus (P)-Dissolved			99.2		%		80-120	18-JUN-13
Silicon (Si)-Dissolved			101.1		%		80-120	18-JUN-13
WG1689935-1 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	18-JUN-13
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	18-JUN-13
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	18-JUN-13
Phosphorus (P)-Dissolved			<0.30		mg/L		0.3	18-JUN-13
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	18-JUN-13
Batch R2638002								
WG1689935-4 DUP		**L1316792-7**						
Calcium (Ca)-Dissolved		224	218		mg/L	2.3	20	24-JUN-13
Iron (Fe)-Dissolved		187	183		mg/L	2.4	20	24-JUN-13
Magnesium (Mg)-Dissolved		36.9	36.7		mg/L	0.5	20	24-JUN-13
Phosphorus (P)-Dissolved		<0.30	<0.30	RPD-NA	mg/L	N/A	20	24-JUN-13
Silicon (Si)-Dissolved		5.76	5.71		mg/L	0.9	20	24-JUN-13
WG1689935-5 MS		**L1316792-7**						
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	24-JUN-13
Iron (Fe)-Dissolved			N/A	MS-B	%		-	24-JUN-13
Magnesium (Mg)-Dissolved			94.4		%		70-130	24-JUN-13
NH3-F-VA	**Water**							
Batch R2641264								
WG1697450-11 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			90.4		%		85-115	28-JUN-13
WG1697450-12 DUP		**L1316792-7**						
Ammonia, Total (as N)		0.230	0.227		mg/L	1.2	20	28-JUN-13
WG1697450-10 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	28-JUN-13
WG1697450-13 MS		**L1316792-7**						
Ammonia, Total (as N)			N/A	MS-B	%		-	28-JUN-13
PH-PCT-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-PCT-VA	**Water**							
Batch R2636132								
WG1692286-25 CRM		**VA-PH7-BUF**						
pH			7.01		pH		6.9-7.1	20-JUN-13
WG1692286-33 DUP		**L1316792-7**						
pH		5.63	5.40	J	pH	0.23	0.3	20-JUN-13
PO4-DO-COL-VA	**Water**							
Batch R2634284								
WG1689443-2 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			92.5		%		80-120	15-JUN-13
WG1689443-6 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			92.5		%		80-120	15-JUN-13
WG1689443-3 DUP		**L1316792-7**						
Orthophosphate-Dissolved (as P)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	15-JUN-13
WG1689443-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	15-JUN-13
WG1689443-5 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	15-JUN-13
WG1689443-4 MS		**L1316792-7**						
Orthophosphate-Dissolved (as P)			88.3		%		70-130	15-JUN-13
S-DIS-ICP-VA	**Water**							
Batch R2633893								
WG1689935-2 CRM		**VA-HIGH-WATRM**						
Sulfur (S)-Dissolved			101.3		%		80-120	18-JUN-13
WG1689935-1 MB								
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	18-JUN-13
Batch R2638002								
WG1689935-4 DUP		**L1316792-7**						
Sulfur (S)-Dissolved		345	341		mg/L	1.1	20	24-JUN-13
WG1689935-5 MS		**L1316792-7**						
Sulfur (S)-Dissolved			N/A	MS-B	%		-	24-JUN-13
TDS-VA	**Water**							
Batch R2635326								
WG1691615-3 DUP		**L1316792-7**						
Total Dissolved Solids		1740	1720		mg/L	1.1	20	19-JUN-13
WG1691615-2 LCS								
Total Dissolved Solids			102.9		%		85-115	19-JUN-13
WG1691615-1 MB								
Total Dissolved Solids			<10		mg/L		10	19-JUN-13
TSS-LOW-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TSS-LOW-VA	**Water**							
Batch R2635442								
WG1691149-3 DUP		**L1316792-7**						
Total Suspended Solids		114	115		mg/L	1.1	20	18-JUN-13
WG1691149-2 LCS								
Total Suspended Solids			97.2		%		85-115	18-JUN-13
WG1691149-1 MB								
Total Suspended Solids			<1.0		mg/L		1	18-JUN-13

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	2	12-JUN-13 14:05	20-JUN-13 23:41	0.25	202	hours	EHTR-FM
	3	12-JUN-13 16:20	20-JUN-13 23:41	0.25	199	hours	EHTR-FM
	4	12-JUN-13 15:30	20-JUN-13 23:41	0.25	200	hours	EHTR-FM
	6	12-JUN-13 10:50	20-JUN-13 23:41	0.25	205	hours	EHTR-FM
	7	12-JUN-13 13:00	20-JUN-13 23:41	0.25	203	hours	EHTR-FM
	8	12-JUN-13 15:00	20-JUN-13 23:41	0.25	201	hours	EHTR-FM
	9	12-JUN-13 09:10	20-JUN-13 23:41	0.25	206	hours	EHTR-FM
	12	13-JUN-13 09:25	20-JUN-13 23:41	0.25	182	hours	EHTR-FM
Anions and Nutrients							
Alkalinity by colour or titration							
	7	12-JUN-13 13:00	03-JUL-13 09:00	14	21	days	EHT
Cyanides							
Free Cyanide in water by CFA							
	7	12-JUN-13 13:00	28-JUN-13 12:55	14	16	days	EHT
	12	13-JUN-13 09:25	28-JUN-13 12:55	14	15	days	EHT

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1316792 were received on 14-JUN-13 09:45.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

L1316792-COFC

CH2MHILL

CHAIN OF CUSTODY RECORD

6/13/2013 10:40:30 AM

Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.07.EM.SS.02.0
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-015
Project FARO MINE SEEP SAMPLING 2013
Turnaround Time 10 Days
Shipping Date: 6/13/2013
COC Number: ALS06131301

	DATE	TIME	Matrix	(ASTM 7237) Free Cyanide	(E245.7) Field Filtered Dissolved Hg	(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity – Run Hot H2O2 if Fe >15ppm	(SM2310_HP) Acidity – Run Hot H2O2	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM4110B) CL F NO2 NO3 and SO4	(SM4500P) ortho-Phosphate	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia	Number of Containers	COMMENTS
Container:				125mL Poly	250ml Poly	125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	250ml Poly	250ml glass		
Preservatives:				NaOH, 4'C	HNO3, 4'C	HCl, 4'C	4C	4C	4C	4'C	4'C	4'C	4'C	H2SO4, pH<2, 4'C	HNO3, 4'C	H2SO4, pH<2, 4C		
Filtered:				NA	Field	Field	NA	NA	NA	NA	NA	NA	NA	Field	Field	NA		
Holding Time:				14	180/28	180	14	14	14	7	7	3	3	28	180/28	28		
A30_SESP13	6/12/2013	15:07	Water		X	X		X		X	X	X	X	X	X	X		
CH-FP-23_SESP13	6/12/2013	14:05	Water		X	X	X		X	X	X	X	X	X	X	X	7	
CH-FP-30_SESP13	6/12/2013	16:20	Water		X	X	X		X	X	X	X	X	X	X	X	7	
CH-FP-34_SESP13	6/12/2013	15:30	Water		X	X	X		X	X	X	X	X	X	X	X	7	
CH-FP-35_SESP13	6/12/2013	16:10	Water		X	X		X		X	X	X	X	X	X	X	7	
CH-FP-37_SESP13	6/12/2013	10:50	Water		X	X	X		X	X	X	X	X	X	X	X	7	
CH-RCTA-04_SESP13	6/12/2013	13:00	Water	X	X	X	X		X	X	X	X	X	X	X	X	8	LAB DUP/MS
FP10_SESP13	6/12/2013	15:00	Water		X	X	X		X	X	X	X	X	X	X	X	7	
SRK-FD26_SESP13	6/12/2013	9:10	Water		X	X	X		X	X	X	X	X	X	X	X	7	
SRK-FD40_SESP13	6/12/2013	16:30	Water		X	X		X		X	X	X	X	X	X	X	7	
SRK-FD940_SESP13	6/12/2013	16:30	Water		X	X		X		X	X	X	X	X	X	X	7	
SRK-FD05_SESP13	6/13/2013	9:25	Water	X	X	X	X		X	X	X	X	X	X	X	X	8	
																TOTAL NUMBER OF CONTAINERS	86	

Signatures	Date/Time
Approved by	06/13/13 1060
Sampled by	
Relinquished by	
Received by	06-14-13 9:45
Relinquished by	
Received by	5.5, 4.7, 5.1

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

ATTN:
Sample Custody and Amber Springer

Special Instructions:
PO: 604564 on Invoice Perform Lab Dup/MS on the samples

Report Copy to
Bernice Kidd
(530) 229-3203

CH2M HILL, INC
ATTN: Bernice Kidd
2525 Airpark Drive
Redding CA 96001

Date Received: 15-JUN-13
Report Date: 05-JUL-13 11:52 (MT)
Version: FINAL

Client Phone: 530-229-3203

Certificate of Analysis

Lab Work Order #: L1317509

Project P.O. #: 472645.06.AD.01.04.13 "PO= 604564"
Job Reference: FARO MINE SEEP SAMPLING 2013 SW-015
C of C Numbers: ALS06141301
Legal Site Desc:

Amber Springer
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1317509-1	L1317509-2	L1317509-3	L1317509-4	L1317509-5
	Description	Water	Water	Water	Water	Water
	Sampled Date	13-JUN-13	13-JUN-13	13-JUN-13	13-JUN-13	13-JUN-13
	Sampled Time	17:00	15:30	12:30	11:50	11:15
	Client ID	CH-GP-19_SESP13	CH-GP-22_SESP13	CH-GP-27_SESP13	CH-VP-17_SESP13	CH-VP-18_SESP13
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	751	763	771	1820	2120
	pH (pH)	7.90	8.21	8.44		
	Total Suspended Solids (mg/L)	88.4	2230	70.8	66.4	149
	Total Dissolved Solids (mg/L)	1020	1050	963	9100	7180
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	11.9	2.1	<1.0		
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)				2900	1980
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	342	155	265		
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<2.0	4.0		
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<2.0	<1.0		
	Alkalinity, Total (as CaCO3) (mg/L)	342	155	269		
	Ammonia, Total (as N) (mg/L)	0.366	0.0665	0.0073	0.198	0.145
	Chloride (Cl) (mg/L)	<5.0	<5.0	<5.0	<10	<10
	Fluoride (F) (mg/L)	<0.20	0.33	<0.20	3.52	2.19
	Nitrate (as N) (mg/L)	<0.050	0.175	0.344	<0.10	<0.10
	Nitrite (as N) (mg/L)	<0.010	<0.010	<0.010	<0.020	<0.020
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	0.0021	<0.0010	0.0024	<0.0010
	Sulfate (SO4) (mg/L)	433	632	420	5610	3700
Cyanides	Cyanide, Free (mg/L)					
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	7.73	2.41	1.25	2.41	1.97
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.121	0.0025	0.0164	28.2	16.4
	Antimony (Sb)-Dissolved (mg/L)	<0.00020 DLA	0.00065	0.00465	<0.010 DLA	<0.010 DLA
	Arsenic (As)-Dissolved (mg/L)	0.00239	0.00084	0.00189	0.143	0.035
	Barium (Ba)-Dissolved (mg/L)	0.0939	0.0507	0.0188	0.0086	0.0189
	Beryllium (Be)-Dissolved (mg/L)	<0.00020 DLA	<0.00010	<0.00010	<0.010 DLA	<0.010 DLA
	Boron (B)-Dissolved (mg/L)	<0.020 DLA	<0.010	<0.010	<1.0 DLA	<1.0 DLA
	Cadmium (Cd)-Dissolved (mg/L)	0.000441	0.000076	0.000738	1.15	0.575
	Calcium (Ca)-Dissolved (mg/L)	202	221	110	284	318
	Chromium (Cr)-Dissolved (mg/L)	0.00040	<0.00010	<0.00010	<0.010 DLA	<0.010 DLA
	Cobalt (Co)-Dissolved (mg/L)	0.0198	0.00026	0.0102	3.18	3.05
	Copper (Cu)-Dissolved (mg/L)	0.00407	0.00125	0.00162	9.85	0.601
	Iron (Fe)-Dissolved (mg/L)	8.60	<0.030	<0.030	1010	467
	Ferrous Iron, Dissolved (mg/L)	10.9	<0.020	<0.020	1000	472
	Lead (Pb)-Dissolved (mg/L)	0.00384	0.000153	0.00515	1.43	1.12
	Lithium (Li)-Dissolved (mg/L)	<0.0010 DLA	0.00554	0.0263	0.090	0.053
	Magnesium (Mg)-Dissolved (mg/L)	59.5	51.6	121	269	322

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1317509-6	L1317509-7	L1317509-8	L1317509-9	L1317509-10
	Description	Water	Water	Water	Water	Water
	Sampled Date	13-JUN-13	13-JUN-13	13-JUN-13	13-JUN-13	13-JUN-13
	Sampled Time	13:15	15:00	10:30	13:30	15:15
	Client ID	CH-VP-20_SESP13	GP02_SESP13	GP09_SESP13	GP12_SESP13	SRK-GD01_SESP13
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	1370	423	935	466	1560
	pH (pH)		8.29	8.16	3.29	7.59
	Total Suspended Solids (mg/L)	310	9800	70.7	171	3.2
	Total Dissolved Solids (mg/L)	6930	526	1200	909	2190
Anions and Nutrients	Acidity (as CaCO3) (mg/L)		<1.0	4.0		26.8
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)	2200			138	
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)		186	349	<2.0	359
	Alkalinity, Carbonate (as CaCO3) (mg/L)		<1.0	<2.0	<2.0	<2.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)		<1.0	<2.0	<2.0	<2.0
	Alkalinity, Total (as CaCO3) (mg/L)		186	349	<2.0	359
	Ammonia, Total (as N) (mg/L)	0.0807	0.0339	0.0089	0.116	0.0107
	Chloride (Cl) (mg/L)	<10	<0.50	<5.0	<5.0	<10
	Fluoride (F) (mg/L)	2.04	0.243	0.21	0.31	<0.40
	Nitrate (as N) (mg/L)	<0.10	0.130	0.502	<0.050	5.79
	Nitrite (as N) (mg/L)	<0.020	0.0011	<0.010	<0.010	<0.020
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	0.0023	<0.0010	<0.0010	<0.0010
	Sulfate (SO4) (mg/L)	4350	227	570	605	1260
Cyanides	Cyanide, Free (mg/L)					<0.010 DLM
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	2.11	2.88	0.67	0.87	3.64
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	13.0	0.0020	0.0052	0.484	0.0109
	Antimony (Sb)-Dissolved (mg/L)	<0.010 DLA	0.00129	0.00021	0.00515	0.00064
	Arsenic (As)-Dissolved (mg/L)	0.015	0.00264	0.00043	0.249	0.00156
	Barium (Ba)-Dissolved (mg/L)	0.0100	0.0274	0.0316	0.0199	0.0359
	Beryllium (Be)-Dissolved (mg/L)	<0.010 DLA	<0.00010	<0.00010	<0.00050 DLA	<0.00010
	Boron (B)-Dissolved (mg/L)	<1.0 DLA	<0.010	<0.010	<0.050 DLA	<0.010
	Cadmium (Cd)-Dissolved (mg/L)	0.636	<0.000010	0.000147	0.0373	0.00317
	Calcium (Ca)-Dissolved (mg/L)	253	128	115	112	284
	Chromium (Cr)-Dissolved (mg/L)	<0.010 DLA	<0.00010	<0.00010	<0.00050 DLA	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	2.18	0.00023	0.00033	0.132	0.00272
	Copper (Cu)-Dissolved (mg/L)	4.04	0.00035	0.00114	0.329	0.00229
	Iron (Fe)-Dissolved (mg/L)	750	<0.030	<0.030	47.7	<0.030
	Ferrous Iron, Dissolved (mg/L)	689	0.027	<0.020	55.2	0.044
	Lead (Pb)-Dissolved (mg/L)	1.56	0.000086	0.000643	0.157	0.000860
	Lithium (Li)-Dissolved (mg/L)	<0.050 DLA	0.00225	0.0288	0.0095	0.0228
	Magnesium (Mg)-Dissolved (mg/L)	179	24.8	157	45.1	208

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1317509-11	L1317509-12	L1317509-13	L1317509-14	L1317509-15
	Description	Water	Water	Water	Water	Water
	Sampled Date	13-JUN-13	13-JUN-13	13-JUN-13	13-JUN-13	13-JUN-13
	Sampled Time	13:50	13:15	09:15	17:15	16:20
	Client ID	SRK-GD05_SESP13	SRK-GD06_SESP13	SRK-GD09_SESP13	SRK-GD11_SESP13	SRK-GD19_SESP13
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	2750	2710	385	1150	1970
	pH (pH)	8.09	8.03	8.34	7.62	7.40
	Total Suspended Solids (mg/L)	4.4	3.2	18.6	1.4	176
	Total Dissolved Solids (mg/L)	4230	3950	460	1540	3230
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	16.6	24.6	<1.0	26.1	130
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)					
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	807	779	223	373	133
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<20	<20	<1.0	<2.0	<2.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<20	<20	<1.0	<2.0	<2.0
	Alkalinity, Total (as CaCO3) (mg/L)	807	779	223	373	133
	Ammonia, Total (as N) (mg/L)	<0.0050	0.0062	<0.0050	0.0067	0.0240
	Chloride (Cl) (mg/L)	<10	<10	<0.50	<5.0	<10
	Fluoride (F) (mg/L)	<0.40	<0.40	0.119	<0.20	<0.40
	Nitrate (as N) (mg/L)	10.2	12.5	1.86	4.91	0.38
	Nitrite (as N) (mg/L)	<0.020	<0.020	<0.0010	<0.010	<0.020
	Orthophosphate-Dissolved (as P) (mg/L)	0.0033	0.0011	<0.0010	<0.0010	<0.0010
	Sulfate (SO4) (mg/L)	2330	2260	150	805	2130
Cyanides	Cyanide, Free (mg/L)	<0.010 DLM	<0.010 DLM	<0.0050	<0.010 DLM	<0.010 DLM
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	3.59	8.84	4.01	2.78	2.08
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0076	0.0066	0.0119	0.0047	<0.010 DLA
	Antimony (Sb)-Dissolved (mg/L)	0.00126	0.00103	<0.00010	0.00064	<0.0010 DLA
	Arsenic (As)-Dissolved (mg/L)	0.00430	0.00395	0.00035	0.00085	0.0019
	Barium (Ba)-Dissolved (mg/L)	0.0228	0.0168	0.0618	0.0158	0.0121
	Beryllium (Be)-Dissolved (mg/L)	<0.00020 DLA	<0.00020 DLA	<0.00010	<0.00010	<0.0010 DLA
	Boron (B)-Dissolved (mg/L)	<0.020 DLA	<0.020 DLA	<0.010	<0.010	<0.10 DLA
	Cadmium (Cd)-Dissolved (mg/L)	0.00165	0.00248	0.000021	0.00536	0.107
	Calcium (Ca)-Dissolved (mg/L)	439	444	92.0	195	362
	Chromium (Cr)-Dissolved (mg/L)	<0.00020 DLA	<0.00020 DLA	0.00013	<0.00010	<0.0010 DLA
	Cobalt (Co)-Dissolved (mg/L)	0.00281	0.00126	<0.00010	0.0471	0.603
	Copper (Cu)-Dissolved (mg/L)	0.00190	0.00179	0.00040	0.0914	0.0059
	Iron (Fe)-Dissolved (mg/L)	<0.030	<0.030	<0.030	<0.030	9.15
	Ferrous Iron, Dissolved (mg/L)	<0.020	<0.020	<0.020	0.027	9.81
	Lead (Pb)-Dissolved (mg/L)	0.00168	0.00235	0.000278	0.00246	<0.00050 DLA
	Lithium (Li)-Dissolved (mg/L)	0.0458	0.0517	0.00111	0.0157	0.0437
	Magnesium (Mg)-Dissolved (mg/L)	401	388	37.8	161	258

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1317509-16	L1317509-17	L1317509-18	L1317509-19	
	Description	Water	Water	Water	Water	
	Sampled Date	13-JUN-13	13-JUN-13	13-JUN-13	13-JUN-13	
	Sampled Time	17:15	16:30	17:10	15:00	
	Client ID	SRK-GD911_SESP13	SRK-VD02_SESP13	SRK-VD03_SESP13	SRK-VD09_SESP13	
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	1140	2120	3890	2290	
	pH (pH)	7.69	7.31	6.41		
	Total Suspended Solids (mg/L)	2.0	626	55.5	59.4	
	Total Dissolved Solids (mg/L)	1530	3450	9350	5630	
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	27.5	147			
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)			1440	1390	
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	371	292	43.8		
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<2.0	<2.0		
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<2.0	<2.0		
	Alkalinity, Total (as CaCO3) (mg/L)	371	292	43.8		
	Ammonia, Total (as N) (mg/L)	0.0069	1.19	2.10	0.0065	
	Chloride (Cl) (mg/L)	<5.0	<10	<25	<10	
	Fluoride (F) (mg/L)	0.21	<0.40	1.1	1.79	
	Nitrate (as N) (mg/L)	4.94	0.45	<0.25	<0.10	
	Nitrite (as N) (mg/L)	<0.010	<0.020	<0.050	<0.020	
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Sulfate (SO4) (mg/L)	805	2140	6200	3470	
Cyanides	Cyanide, Free (mg/L)	<0.010 DLM	<0.010 DLM	<0.020 DLM		
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	2.89	2.86	3.90	2.34	
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	
	Aluminum (Al)-Dissolved (mg/L)	0.0050	0.105	0.31	54.1	
	Antimony (Sb)-Dissolved (mg/L)	0.00066	<0.0010 DLA	<0.010 DLA	<0.0050 DLA	
	Arsenic (As)-Dissolved (mg/L)	0.00083	0.0052	0.110	0.0178	
	Barium (Ba)-Dissolved (mg/L)	0.0171	0.0585	0.0184	0.0178	
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.0010 DLA	<0.010 DLA	0.0094	
	Boron (B)-Dissolved (mg/L)	<0.010	<0.10 DLA	<1.0 DLA	<0.50 DLA	
	Cadmium (Cd)-Dissolved (mg/L)	0.00527	0.0643	0.248	0.521	
	Calcium (Ca)-Dissolved (mg/L)	191	466	378	419	
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.0010 DLA	<0.010 DLA	0.0054	
	Cobalt (Co)-Dissolved (mg/L)	0.0465	0.522	3.44	1.91	
	Copper (Cu)-Dissolved (mg/L)	0.0904	0.0111	<0.020 DLA	2.50	
	Iron (Fe)-Dissolved (mg/L)	0.033	8.11	241	132	
	Ferrous Iron, Dissolved (mg/L)	<0.020	8.9	279	130	
	Lead (Pb)-Dissolved (mg/L)	0.00281	0.0209	0.0057	1.35	
	Lithium (Li)-Dissolved (mg/L)	0.0171	0.0454	0.076	0.168	
	Magnesium (Mg)-Dissolved (mg/L)	162	231	715	301	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1317509-1	L1317509-2	L1317509-3	L1317509-4	L1317509-5
	Description	Water	Water	Water	Water	Water
	Sampled Date	13-JUN-13	13-JUN-13	13-JUN-13	13-JUN-13	13-JUN-13
	Sampled Time	17:00	15:30	12:30	11:50	11:15
	Client ID	CH-GP-19_SESP13	CH-GP-22_SESP13	CH-GP-27_SESP13	CH-VP-17_SESP13	CH-VP-18_SESP13
Grouping	**Analyte**					
WATER						
Dissolved Metals	Manganese (Mn)-Dissolved (mg/L)	17.5	0.132	0.0415	188	121
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	0.000012	0.000045
	Molybdenum (Mo)-Dissolved (mg/L)	0.00191	0.00317	0.00157	<0.0050 DLA	<0.0050
	Nickel (Ni)-Dissolved (mg/L)	0.0094	0.00249	0.0832	1.86	2.45
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.60 DLA	<0.60 DLA
	Potassium (K)-Dissolved (mg/L)	2.94	5.75	2.60	<5.0 DLA	<5.0 DLA
	Selenium (Se)-Dissolved (mg/L)	<0.00020 DLA	0.00496	0.00046	<0.010 DLA	<0.010 DLA
	Silicon (Si)-Dissolved (mg/L)	4.86	2.68	1.15	14.3	8.97
	Silicon (as SiO2)-Dissolved (mg/L)	10.4	5.73	2.47	30.5	19.2
	Silver (Ag)-Dissolved (mg/L)	<0.000020 DLA	<0.000010	<0.000010	<0.0010 DLA	<0.0010 DLA
	Sodium (Na)-Dissolved (mg/L)	11.2	15.3	2.74	<5.0 DLA	<5.0 DLA
	Strontium (Sr)-Dissolved (mg/L)	0.756	0.649	0.670	0.745	1.07
	Sulfur (S)-Dissolved (mg/L)	150	205	159	1680	1340
	Thallium (Tl)-Dissolved (mg/L)	0.000084	0.000023	0.000660	0.0052	0.0011
	Titanium (Ti)-Dissolved (mg/L)	<0.020 DLA	<0.010	<0.010	<1.0 DLA	<1.0 DLA
	Uranium (U)-Dissolved (mg/L)	0.0339	0.0658	0.0135	0.0409	0.0287
	Vanadium (V)-Dissolved (mg/L)	<0.0020 DLA	<0.0010	<0.0010	<0.10 DLA	<0.10 DLA
	Zinc (Zn)-Dissolved (mg/L)	0.0774	0.0028	0.828	735	568

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1317509-6	L1317509-7	L1317509-8	L1317509-9	L1317509-10
	Description	Water	Water	Water	Water	Water
	Sampled Date	13-JUN-13	13-JUN-13	13-JUN-13	13-JUN-13	13-JUN-13
	Sampled Time	13:15	15:00	10:30	13:30	15:15
	Client ID	CH-VP-20_SESP13	GP02_SESP13	GP09_SESP13	GP12_SESP13	SRK-GD01_SESP13
Grouping	**Analyte**					
WATER						
Dissolved Metals	Manganese (Mn)-Dissolved (mg/L)	161	0.0574	0.00690	7.05	0.0650
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	<0.0050 DLA	0.00272	0.00149	<0.00025 DLA	0.000722
	Nickel (Ni)-Dissolved (mg/L)	1.20	0.00180	0.0147	0.125	0.198
	Phosphorus (P)-Dissolved (mg/L)	<0.60 DLA	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	<5.0 DLA	2.67	2.88	1.75	4.78
	Selenium (Se)-Dissolved (mg/L)	<0.010 DLA	0.00067	0.00042	<0.00050 DLA	0.00054
	Silicon (Si)-Dissolved (mg/L)	12.0	3.55	1.14	3.48	3.21
	Silicon (as SiO2)-Dissolved (mg/L)	25.7	7.60	2.43	7.44	6.87
	Silver (Ag)-Dissolved (mg/L)	<0.0010 DLA	<0.000010	<0.000010	<0.000050 DLA	<0.000010
	Sodium (Na)-Dissolved (mg/L)	<5.0 DLA	7.63	3.08	6.73	5.54
	Strontium (Sr)-Dissolved (mg/L)	0.568	0.373	0.531	0.369	0.871
	Sulfur (S)-Dissolved (mg/L)	1170	76.2	187	196	388
	Thallium (Tl)-Dissolved (mg/L)	0.0060	<0.000010	0.000114	0.0110	0.000751
	Titanium (Ti)-Dissolved (mg/L)	<1.0 DLA	<0.010	<0.010	<0.050 DLA	<0.010
	Uranium (U)-Dissolved (mg/L)	0.0220	0.0234	0.0206	0.00131	0.0245
	Vanadium (V)-Dissolved (mg/L)	<0.10 DLA	0.0010	<0.0010	<0.0050 DLA	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	419	0.0010	0.0663	34.0	6.64

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1317509-11	L1317509-12	L1317509-13	L1317509-14	L1317509-15
	Description	Water	Water	Water	Water	Water
	Sampled Date	13-JUN-13	13-JUN-13	13-JUN-13	13-JUN-13	13-JUN-13
	Sampled Time	13:50	13:15	09:15	17:15	16:20
	Client ID	SRK-GD05_SESP13	SRK-GD06_SESP13	SRK-GD09_SESP13	SRK-GD11_SESP13	SRK-GD19_SESP13
Grouping	**Analyte**					
WATER						
Dissolved Metals	Manganese (Mn)-Dissolved (mg/L)	0.0618	0.0820	0.00159	1.17	10.6
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	0.00094	0.00079	0.000075	0.000560	<0.00050 DLA
	Nickel (Ni)-Dissolved (mg/L)	0.377	0.619	<0.00050	0.243	1.57
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	7.51	7.81	0.342	2.97	5.40
	Selenium (Se)-Dissolved (mg/L)	0.00053	0.00025	0.00031	0.00098	0.0028
	Silicon (Si)-Dissolved (mg/L)	4.72	4.04	2.10	2.55	2.42
	Silicon (as SiO2)-Dissolved (mg/L)	10.1	8.64	4.48	5.46	5.19
	Silver (Ag)-Dissolved (mg/L)	<0.000020 DLA	<0.000020 DLA	<0.000010	<0.000010	<0.00010 DLA
	Sodium (Na)-Dissolved (mg/L)	13.9	15.3	1.06	3.56	4.12
	Strontium (Sr)-Dissolved (mg/L)	1.63	1.87	0.271	0.703	1.19
	Sulfur (S)-Dissolved (mg/L)	686	667	49.1	251	667
	Thallium (Tl)-Dissolved (mg/L)	0.000490	0.000563	<0.000010	0.000510	0.00910
	Titanium (Ti)-Dissolved (mg/L)	<0.020 DLA	<0.020 DLA	<0.010	<0.010	<0.10 DLA
	Uranium (U)-Dissolved (mg/L)	0.0588	0.0664	0.00112	0.0122	0.00219
	Vanadium (V)-Dissolved (mg/L)	<0.0020 DLA	<0.0020 DLA	<0.0010	<0.0010	<0.010 DLA
	Zinc (Zn)-Dissolved (mg/L)	2.95	4.08	0.0101	7.29	84.0

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1317509-16	L1317509-17	L1317509-18	L1317509-19	
	Description	Water	Water	Water	Water	
	Sampled Date	13-JUN-13	13-JUN-13	13-JUN-13	13-JUN-13	
	Sampled Time	17:15	16:30	17:10	15:00	
	Client ID	SRK-GD911_SESP13	SRK-VD02_SESP13	SRK-VD03_SESP13	SRK-VD09_SESP13	
Grouping	**Analyte**					
WATER						
Dissolved Metals	Manganese (Mn)-Dissolved (mg/L)	1.15	29.9	205	76.6	
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	0.000014	<0.000010	0.000041	
	Molybdenum (Mo)-Dissolved (mg/L)	0.000567	<0.00050 DLA	0.0077	<0.0025 DLA	
	Nickel (Ni)-Dissolved (mg/L)	0.238	1.27	5.10	2.43	
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.60 DLA	<0.60 DLA	
	Potassium (K)-Dissolved (mg/L)	2.95	9.04	6.1	<2.5 DLA	
	Selenium (Se)-Dissolved (mg/L)	0.00091	<0.0010 DLA	<0.010 DLA	<0.0050 DLA	
	Silicon (Si)-Dissolved (mg/L)	2.48	5.30	7.12	12.6	
	Silicon (as SiO2)-Dissolved (mg/L)	5.31	11.3	15.2	27.0	
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.00010 DLA	<0.0010 DLA	<0.00050 DLA	
	Sodium (Na)-Dissolved (mg/L)	3.26	5.25	9.4	<2.5 DLA	
	Strontium (Sr)-Dissolved (mg/L)	0.725	1.50	1.38	1.28	
	Sulfur (S)-Dissolved (mg/L)	256	690	1750	1150	
	Thallium (Tl)-Dissolved (mg/L)	0.000574	0.00110	0.0028	0.00279	
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.10 DLA	<1.0 DLA	<0.50 DLA	
	Uranium (U)-Dissolved (mg/L)	0.0129	0.0107	0.0047	0.0823	
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.010 DLA	<0.10 DLA	<0.050 DLA	
	Zinc (Zn)-Dissolved (mg/L)	7.17	75.2	659	401	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Cyanide, Free	DLM	L1317509-10, -11, -12, -13, -14, -15, -16, -17, -18
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1317509-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1317509-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L1317509-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1317509-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1317509-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Nickel (Ni)-Dissolved	MS-B	L1317509-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Potassium (K)-Dissolved	MS-B	L1317509-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1317509-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1317509-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Uranium (U)-Dissolved	MS-B	L1317509-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Zinc (Zn)-Dissolved	MS-B	L1317509-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfate (SO4)	MS-B	L1317509-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -3, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
DLM	Detection Limit Adjusted For Sample Matrix Effects
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-H2O2-MAN-VA	Water	Acidity by Hot Peroxide Manual Titration	APHA - ACIDITY (2310)

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". The procedure involves preliminary sample treatment by the hot peroxide procedure, and Acidity is subsequently determined by potentiometric titration to a specified endpoint (i.e. pH = 8.3).

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 "Alkalinity"

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-CL-IC-WR	Water	Chloride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

Reference Information

ANIONS-F-IC-WR	Water	Fluoride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-NO2-IC-WR	Water	Nitrite Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-NO3-IC-WR	Water	Nitrate Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-SO4-IC-WR	Water	Sulphate by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CN-FREE-CFA-VA	Water	Free Cyanide in water by CFA	ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

FE2-D-COL-VA	Water	Diss. Ferrous Iron in Water by Colour	James W. Ball et al (1999)

This analysis is carried out using procedures adapted from "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedures involves preliminary sample filtration (0.1um filter) and Ferrous Iron is determined using the "FerroZine" colorimteric method.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA	Water	Dissolved Mercury in Water by CVAFS(Low)	EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA	Water	Dissolved Metals in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

Reference Information

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

S-DIS-ICP-VA Water Dissolved Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

SIO2-D-CALC-VA Water Dissolved Silicon (reported as Silica) CALCULATION

Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-LOW-VA Water Total Suspended Solids by Grav. (1 mg/L) APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

ALS06141301

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Client: CH2M HILL, INC
2525 Airpark Drive
Redding CA 96001
Contact: Bernice Kidd

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-H2O2-MAN-VA	**Water**							
Batch R2635591								
WG1692958-2 CRM		**VA-ACY-M-CONTROL**						
Acidity-Hot Peroxide Treated (as CaCO3)			99.0		%		85-115	21-JUN-13
WG1692958-1 MB								
Acidity-Hot Peroxide Treated (as CaCO3)			<25		mg/L		25	21-JUN-13
Batch R2639683								
WG1697204-2 CRM		**VA-ACY-M-CONTROL**						
Acidity-Hot Peroxide Treated (as CaCO3)			99.6		%		85-115	27-JUN-13
WG1697204-3 DUP		**L1317509-9**						
Acidity-Hot Peroxide Treated (as CaCO3)		138	138		mg/L	0.0	20	27-JUN-13
WG1697204-1 MB								
Acidity-Hot Peroxide Treated (as CaCO3)			<25		mg/L		25	27-JUN-13
ACY-PCT-VA	**Water**							
Batch R2636224								
WG1692290-9 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			102.5		%		85-115	20-JUN-13
WG1692290-33 DUP		**L1317509-10**						
Acidity (as CaCO3)		26.8	25.4		mg/L	5.5	20	20-JUN-13
ALK-PCT-VA	**Water**							
Batch R2638529								
WG1695189-9 CRM		**VA-ALK-PCT-CONTROL**						
Alkalinity, Total (as CaCO3)			101.4		%		85-115	25-JUN-13
WG1695189-1 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	25-JUN-13
Alkalinity, Bicarbonate (as CaCO3)			<1.0		mg/L		1	25-JUN-13
Alkalinity, Carbonate (as CaCO3)			<1.0		mg/L		1	25-JUN-13
Alkalinity, Hydroxide (as CaCO3)			<1.0		mg/L		1	25-JUN-13
ALK-SCR-VA	**Water**							
Batch R2637533								
WG1694921-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			97.2		%		85-115	25-JUN-13
WG1694921-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	25-JUN-13
Batch R2642233								
WG1699487-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			98.4		%		85-115	25-JUN-13
WG1699487-4 CRM		**VA-ALKM-CONTROL**						
Alkalinity, Total (as CaCO3)			101.0		%		85-115	25-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-SCR-VA	**Water**							
Batch R2642233								
WG1699487-3 DUP		**L1317509-10**						
Alkalinity, Total (as CaCO3)		359	353		mg/L	1.7	20	25-JUN-13
WG1699487-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	25-JUN-13
ANIONS-CL-IC-WR	**Water**							
Batch R2643118								
WG1700799-3 DUP		**L1317509-7**						
Chloride (Cl)		<0.50	<0.50	RPD-NA	mg/L	N/A	20	18-JUN-13
WG1700799-2 LCS								
Chloride (Cl)			102.3		%		85-115	18-JUN-13
WG1700799-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	18-JUN-13
WG1700799-4 MS		**L1317509-7**						
Chloride (Cl)			103.5		%		75-125	18-JUN-13
ANIONS-F-IC-WR	**Water**							
Batch R2643118								
WG1700799-3 DUP		**L1317509-7**						
Fluoride (F)		0.243	0.244		mg/L	0.3	20	18-JUN-13
WG1700799-2 LCS								
Fluoride (F)			103.3		%		85-115	18-JUN-13
WG1700799-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	18-JUN-13
WG1700799-4 MS		**L1317509-7**						
Fluoride (F)			103.7		%		75-125	18-JUN-13
ANIONS-NO2-IC-WR	**Water**							
Batch R2643118								
WG1700799-3 DUP		**L1317509-7**						
Nitrite (as N)		0.0011	<0.0010	RPD-NA	mg/L	N/A	20	18-JUN-13
WG1700799-2 LCS								
Nitrite (as N)			100.9		%		85-115	18-JUN-13
WG1700799-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	18-JUN-13
WG1700799-4 MS		**L1317509-7**						
Nitrite (as N)			97.4		%		75-125	18-JUN-13
ANIONS-NO3-IC-WR	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO3-IC-WR	**Water**							
Batch R2643118								
WG1700799-3 DUP		**L1317509-7**						
Nitrate (as N)		0.130	0.130		mg/L	0.5	20	18-JUN-13
WG1700799-2 LCS								
Nitrate (as N)			103.4		%		85-115	18-JUN-13
WG1700799-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	18-JUN-13
WG1700799-4 MS		**L1317509-7**						
Nitrate (as N)			103.7		%		75-125	18-JUN-13
ANIONS-SO4-IC-WR	**Water**							
Batch R2643118								
WG1700799-3 DUP		**L1317509-7**						
Sulfate (SO4)		227	228		mg/L	0.4	20	18-JUN-13
WG1700799-2 LCS								
Sulfate (SO4)			104.4		%		85-115	18-JUN-13
WG1700799-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	18-JUN-13
WG1700799-4 MS		**L1317509-7**						
Sulfate (SO4)			N/A	MS-B	%		-	18-JUN-13
CARBONS-DOC-VA	**Water**							
Batch R2641786								
WG1699338-3 LCS								
Dissolved Organic Carbon			99.6		%		80-120	01-JUL-13
WG1699338-2 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	01-JUL-13
Batch R2641787								
WG1699339-1 DUP		**L1317509-10**						
Dissolved Organic Carbon		3.64	3.73		mg/L	2.6	20	01-JUL-13
WG1699339-3 LCS								
Dissolved Organic Carbon			103.3		%		80-120	01-JUL-13
WG1699339-2 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	01-JUL-13
CN-FREE-CFA-VA	**Water**							
Batch R2643132								
WG1700820-3 DUP		**L1317509-10**						
Cyanide, Free		<0.010	<0.010	RPD-NA	mg/L	N/A	20	28-JUN-13
WG1700820-2 LCS								
Cyanide, Free			101.0		%		80-120	28-JUN-13
WG1700820-1 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CN-FREE-CFA-VA	**Water**							
Batch R2643132								
WG1700820-1 MB								
Cyanide, Free			<0.0050		mg/L		0.005	28-JUN-13
WG1700820-4 MS		**L1317509-10**						
Cyanide, Free			98.4		%		70-130	28-JUN-13
FE2-D-COL-VA	**Water**							
Batch R2635431								
WG1691948-3 DUP		**L1317509-10**						
Ferrous Iron, Dissolved		0.044	0.033	J	mg/L	0.011	0.04	20-JUN-13
WG1691948-2 LCS								
Ferrous Iron, Dissolved			103.2		%		80-120	20-JUN-13
WG1691948-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	20-JUN-13
WG1691948-4 MS		**L1317509-10**						
Ferrous Iron, Dissolved			103.6		%		70-130	20-JUN-13
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2634898								
WG1691557-4 DUP		**L1317509-10**						
Mercury (Hg)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	19-JUN-13
WG1691557-5 MS		**L1317509-10**						
Mercury (Hg)-Dissolved			82.6		%		70-130	19-JUN-13
Batch R2635416								
WG1691557-3 LCS								
Mercury (Hg)-Dissolved			105.6		%		80-120	20-JUN-13
WG1691557-1 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	20-JUN-13
MET-D-CCMS-VA	**Water**							
Batch R2635401								
WG1691557-2 CRM		**VA-HIGH-WATRM**						
Aluminum (Al)-Dissolved			100.3		%		80-120	19-JUN-13
Antimony (Sb)-Dissolved			100.5		%		80-120	19-JUN-13
Arsenic (As)-Dissolved			99.4		%		80-120	19-JUN-13
Barium (Ba)-Dissolved			100.1		%		80-120	19-JUN-13
Beryllium (Be)-Dissolved			100.7		%		80-120	19-JUN-13
Boron (B)-Dissolved			90.6		%		80-120	19-JUN-13
Cadmium (Cd)-Dissolved			102.6		%		80-120	19-JUN-13
Chromium (Cr)-Dissolved			99.4		%		80-120	19-JUN-13
Cobalt (Co)-Dissolved			97.0		%		80-120	19-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2635401								
WG1691557-2 CRM		**VA-HIGH-WATRM**						
Copper (Cu)-Dissolved			95.8		%		80-120	19-JUN-13
Lead (Pb)-Dissolved			101.2		%		80-120	19-JUN-13
Lithium (Li)-Dissolved			100.2		%		80-120	19-JUN-13
Manganese (Mn)-Dissolved			96.9		%		80-120	19-JUN-13
Molybdenum (Mo)-Dissolved			103.2		%		80-120	19-JUN-13
Nickel (Ni)-Dissolved			97.0		%		80-120	19-JUN-13
Potassium (K)-Dissolved			98.6		%		80-120	19-JUN-13
Selenium (Se)-Dissolved			99.7		%		80-120	19-JUN-13
Silver (Ag)-Dissolved			99.9		%		80-120	19-JUN-13
Sodium (Na)-Dissolved			96.9		%		80-120	19-JUN-13
Strontium (Sr)-Dissolved			100.4		%		80-120	19-JUN-13
Thallium (Tl)-Dissolved			99.2		%		80-120	19-JUN-13
Titanium (Ti)-Dissolved			105.2		%		80-120	19-JUN-13
Uranium (U)-Dissolved			101.1		%		80-120	19-JUN-13
Vanadium (V)-Dissolved			100.2		%		80-120	19-JUN-13
Zinc (Zn)-Dissolved			96.1		%		80-120	19-JUN-13
WG1691557-4 DUP		**L1317509-10**						
Aluminum (Al)-Dissolved		0.0109	0.0096		mg/L	13	20	27-JUN-13
Antimony (Sb)-Dissolved		0.00064	0.00060		mg/L	6.6	20	27-JUN-13
Arsenic (As)-Dissolved		0.00156	0.00161		mg/L	3.4	20	27-JUN-13
Barium (Ba)-Dissolved		0.0359	0.0373		mg/L	3.8	20	27-JUN-13
Beryllium (Be)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	27-JUN-13
Boron (B)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	27-JUN-13
Cadmium (Cd)-Dissolved		0.00317	0.00322		mg/L	1.5	20	27-JUN-13
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	27-JUN-13
Cobalt (Co)-Dissolved		0.00272	0.00279		mg/L	2.4	20	27-JUN-13
Copper (Cu)-Dissolved		0.00229	0.00231		mg/L	1.0	20	27-JUN-13
Lead (Pb)-Dissolved		0.000860	0.000786		mg/L	9.0	20	27-JUN-13
Lithium (Li)-Dissolved		0.0228	0.0215		mg/L	6.1	20	27-JUN-13
Manganese (Mn)-Dissolved		0.0650	0.0658		mg/L	1.3	20	27-JUN-13
Molybdenum (Mo)-Dissolved		0.000722	0.000690		mg/L	4.6	20	27-JUN-13
Nickel (Ni)-Dissolved		0.198	0.203		mg/L	2.8	20	27-JUN-13
Potassium (K)-Dissolved		4.78	4.81		mg/L	0.8	20	27-JUN-13
Selenium (Se)-Dissolved		0.00054	0.00052		mg/L	2.9	20	27-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2635401								
WG1691557-4 DUP		**L1317509-10**						
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	27-JUN-13
Sodium (Na)-Dissolved		5.54	5.59		mg/L	0.9	20	27-JUN-13
Strontium (Sr)-Dissolved		0.871	0.822		mg/L	5.7	20	27-JUN-13
Thallium (Tl)-Dissolved		0.000751	0.000712		mg/L	5.3	20	27-JUN-13
Titanium (Ti)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	27-JUN-13
Uranium (U)-Dissolved		0.0245	0.0233		mg/L	5.0	20	27-JUN-13
Vanadium (V)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	27-JUN-13
Zinc (Zn)-Dissolved		6.64	6.71		mg/L	1.0	20	27-JUN-13
WG1691557-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	19-JUN-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	19-JUN-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	19-JUN-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	19-JUN-13
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	19-JUN-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	19-JUN-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	19-JUN-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	19-JUN-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	19-JUN-13
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	19-JUN-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	19-JUN-13
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	19-JUN-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	19-JUN-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	19-JUN-13
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	19-JUN-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	19-JUN-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	19-JUN-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	19-JUN-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	19-JUN-13
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	19-JUN-13
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	19-JUN-13
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	19-JUN-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	19-JUN-13
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	19-JUN-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	19-JUN-13
WG1691557-5 MS		**L1317509-10**						

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2635401								
WG1691557-5 MS		**L1317509-10**						
Aluminum (Al)-Dissolved			96.7		%		70-130	27-JUN-13
Antimony (Sb)-Dissolved			98.5		%		70-130	27-JUN-13
Arsenic (As)-Dissolved			106.7		%		70-130	27-JUN-13
Barium (Ba)-Dissolved			N/A	MS-B	%		-	27-JUN-13
Beryllium (Be)-Dissolved			90.3		%		70-130	27-JUN-13
Boron (B)-Dissolved			88.4		%		70-130	27-JUN-13
Cadmium (Cd)-Dissolved			99.0		%		70-130	27-JUN-13
Chromium (Cr)-Dissolved			97.1		%		70-130	27-JUN-13
Cobalt (Co)-Dissolved			94.6		%		70-130	27-JUN-13
Copper (Cu)-Dissolved			92.8		%		70-130	27-JUN-13
Lead (Pb)-Dissolved			89.1		%		70-130	27-JUN-13
Lithium (Li)-Dissolved			94.4		%		70-130	27-JUN-13
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	27-JUN-13
Molybdenum (Mo)-Dissolved			97.5		%		70-130	27-JUN-13
Nickel (Ni)-Dissolved			N/A	MS-B	%		-	27-JUN-13
Potassium (K)-Dissolved			N/A	MS-B	%		-	27-JUN-13
Selenium (Se)-Dissolved			105.4		%		70-130	27-JUN-13
Silver (Ag)-Dissolved			91.3		%		70-130	27-JUN-13
Sodium (Na)-Dissolved			N/A	MS-B	%		-	27-JUN-13
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	27-JUN-13
Thallium (Tl)-Dissolved			91.3		%		70-130	27-JUN-13
Titanium (Ti)-Dissolved			110.5		%		70-130	27-JUN-13
Uranium (U)-Dissolved			N/A	MS-B	%		-	27-JUN-13
Vanadium (V)-Dissolved			102.0		%		70-130	27-JUN-13
Zinc (Zn)-Dissolved			N/A	MS-B	%		-	27-JUN-13
MET-DIS-ICP-VA	**Water**							
Batch R2635192								
WG1691557-2 CRM		**VA-HIGH-WATRM**						
Calcium (Ca)-Dissolved			100.5		%		80-120	19-JUN-13
Iron (Fe)-Dissolved			95.7		%		80-120	19-JUN-13
Magnesium (Mg)-Dissolved			96.9		%		80-120	19-JUN-13
Phosphorus (P)-Dissolved			99.0		%		80-120	19-JUN-13
Silicon (Si)-Dissolved			103.3		%		80-120	19-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA	**Water**							
Batch R2635397								
WG1691557-1 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	20-JUN-13
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	20-JUN-13
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	20-JUN-13
Phosphorus (P)-Dissolved			<0.30		mg/L		0.3	20-JUN-13
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	20-JUN-13
Batch R2638002								
WG1691557-4 DUP		**L1317509-10**						
Calcium (Ca)-Dissolved		284	285		mg/L	0.4	20	24-JUN-13
Iron (Fe)-Dissolved		<0.030	<0.030	RPD-NA	mg/L	N/A	20	24-JUN-13
Magnesium (Mg)-Dissolved		208	208		mg/L	0.1	20	24-JUN-13
Phosphorus (P)-Dissolved		<0.30	<0.30	RPD-NA	mg/L	N/A	20	24-JUN-13
Silicon (Si)-Dissolved		3.21	3.18		mg/L	1.1	20	24-JUN-13
WG1691557-5 MS		**L1317509-10**						
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	24-JUN-13
Iron (Fe)-Dissolved			85.7		%		70-130	24-JUN-13
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	24-JUN-13
NH3-F-VA	**Water**							
Batch R2641263								
WG1697452-2 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			92.3		%		85-115	01-JUL-13
WG1697452-3 DUP		**L1317509-10**						
Ammonia, Total (as N)		0.0107	0.0134	J	mg/L	0.0026	0.01	01-JUL-13
WG1697452-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	01-JUL-13
WG1697452-4 MS		**L1317509-10**						
Ammonia, Total (as N)			84.0		%		75-125	01-JUL-13
PH-PCT-VA	**Water**							
Batch R2636224								
WG1692290-25 CRM		**VA-PH7-BUF**						
pH			7.01		pH		6.9-7.1	20-JUN-13
WG1692290-33 DUP		**L1317509-10**						
pH		7.59	7.70	J	pH	0.11	0.3	20-JUN-13
PO4-DO-COL-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PO4-DO-COL-VA	**Water**							
Batch R2635473								
WG1691122-2 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			92.8		%		80-120	18-JUN-13
WG1691122-7 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			85.9		%		80-120	18-JUN-13
WG1691122-3 DUP		**L1317509-10**						
Orthophosphate-Dissolved (as P)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	18-JUN-13
WG1691122-5 DUP		**L1317509-19**						
Orthophosphate-Dissolved (as P)		<0.0010	0.0010	RPD-NA	mg/L	N/A	20	18-JUN-13
WG1691122-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	18-JUN-13
WG1691122-6 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	18-JUN-13
WG1691122-4 MS		**L1317509-10**						
Orthophosphate-Dissolved (as P)			100.6		%		70-130	18-JUN-13
S-DIS-ICP-VA	**Water**							
Batch R2635192								
WG1691557-2 CRM		**VA-HIGH-WATRM**						
Sulfur (S)-Dissolved			99.4		%		80-120	19-JUN-13
Batch R2635397								
WG1691557-1 MB								
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	20-JUN-13
Batch R2638002								
WG1691557-4 DUP		**L1317509-10**						
Sulfur (S)-Dissolved		388	385		mg/L	0.7	20	24-JUN-13
WG1691557-5 MS		**L1317509-10**						
Sulfur (S)-Dissolved			N/A	MS-B	%		-	24-JUN-13
TDS-VA	**Water**							
Batch R2636348								
WG1693150-3 DUP		**L1317509-10**						
Total Dissolved Solids		2190	2180		mg/L	0.3	20	21-JUN-13
WG1693150-2 LCS								
Total Dissolved Solids			97.8		%		85-115	21-JUN-13
WG1693150-1 MB								
Total Dissolved Solids			<10		mg/L		10	21-JUN-13
TSS-LOW-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TSS-LOW-VA	**Water**							
Batch R2636502								
WG1693146-2 LCS								
Total Suspended Solids			89.3		%		85-115	21-JUN-13
WG1693146-1 MB								
Total Suspended Solids			<1.0		mg/L		1	21-JUN-13

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
Total Dissolved Solids by Gravimetric							
	1	13-JUN-13 17:00	21-JUN-13 10:39	7	8	days	EHT
	2	13-JUN-13 15:30	21-JUN-13 10:39	7	8	days	EHT
	3	13-JUN-13 12:30	21-JUN-13 10:39	7	8	days	EHT
	4	13-JUN-13 11:50	21-JUN-13 10:39	7	8	days	EHT
	5	13-JUN-13 11:15	21-JUN-13 10:39	7	8	days	EHT
	6	13-JUN-13 13:15	21-JUN-13 10:39	7	8	days	EHT
	7	13-JUN-13 15:00	21-JUN-13 10:39	7	8	days	EHT
	8	13-JUN-13 10:30	21-JUN-13 10:39	7	8	days	EHT
	9	13-JUN-13 13:30	21-JUN-13 10:39	7	8	days	EHT
	10	13-JUN-13 15:15	21-JUN-13 10:39	7	8	days	EHT
	11	13-JUN-13 13:50	21-JUN-13 10:39	7	8	days	EHT
	12	13-JUN-13 13:15	21-JUN-13 10:39	7	8	days	EHT
	13	13-JUN-13 09:15	21-JUN-13 10:39	7	8	days	EHT
	14	13-JUN-13 17:15	21-JUN-13 10:39	7	8	days	EHT
	15	13-JUN-13 16:20	21-JUN-13 10:39	7	8	days	EHT
	16	13-JUN-13 17:15	21-JUN-13 10:39	7	8	days	EHT
	17	13-JUN-13 16:30	21-JUN-13 10:39	7	8	days	EHT
	18	13-JUN-13 17:10	21-JUN-13 10:39	7	8	days	EHT
	19	13-JUN-13 15:00	21-JUN-13 10:39	7	8	days	EHT
Total Suspended Solids by Grav. (1 mg/L)							
	1	13-JUN-13 17:00	21-JUN-13 09:44	7	8	days	EHT
	2	13-JUN-13 15:30	21-JUN-13 09:44	7	8	days	EHT
	3	13-JUN-13 12:30	21-JUN-13 09:44	7	8	days	EHT
	4	13-JUN-13 11:50	21-JUN-13 09:44	7	8	days	EHT
	5	13-JUN-13 11:15	21-JUN-13 09:44	7	8	days	EHT
	6	13-JUN-13 13:15	21-JUN-13 09:44	7	8	days	EHT
	7	13-JUN-13 15:00	21-JUN-13 09:44	7	8	days	EHT
	8	13-JUN-13 10:30	21-JUN-13 09:44	7	8	days	EHT
	9	13-JUN-13 13:30	21-JUN-13 09:44	7	8	days	EHT
	10	13-JUN-13 15:15	21-JUN-13 09:44	7	8	days	EHT
	11	13-JUN-13 13:50	21-JUN-13 09:44	7	8	days	EHT
	12	13-JUN-13 13:15	21-JUN-13 09:44	7	8	days	EHT
	13	13-JUN-13 09:15	21-JUN-13 09:44	7	8	days	EHT
	14	13-JUN-13 17:15	21-JUN-13 09:44	7	8	days	EHT
	15	13-JUN-13 16:20	21-JUN-13 09:44	7	8	days	EHT
	16	13-JUN-13 17:15	21-JUN-13 09:44	7	8	days	EHT
	17	13-JUN-13 16:30	21-JUN-13 09:44	7	8	days	EHT
	18	13-JUN-13 17:10	21-JUN-13 09:44	7	8	days	EHT
	19	13-JUN-13 15:00	21-JUN-13 09:44	7	8	days	EHT
pH by Meter (Automated)							
	1	13-JUN-13 17:00	20-JUN-13 23:58	0.25	175	hours	EHTR-FM
	2	13-JUN-13 15:30	20-JUN-13 23:58	0.25	176	hours	EHTR-FM
	3	13-JUN-13 12:30	20-JUN-13 23:58	0.25	180	hours	EHTR-FM
	7	13-JUN-13 15:00	20-JUN-13 23:58	0.25	177	hours	EHTR-FM
	8	13-JUN-13 10:30	20-JUN-13 23:58	0.25	181	hours	EHTR-FM
	9	13-JUN-13 13:30	20-JUN-13 23:58	0.25	179	hours	EHTR-FM
	10	13-JUN-13 15:15	20-JUN-13 23:58	0.25	177	hours	EHTR-FM
	11	13-JUN-13 13:50	20-JUN-13 23:58	0.25	178	hours	EHTR-FM
	12	13-JUN-13 13:15	20-JUN-13 23:58	0.25	179	hours	EHTR-FM
	13	13-JUN-13 09:15	20-JUN-13 23:58	0.25	183	hours	EHTR-FM
	14	13-JUN-13 17:15	20-JUN-13 23:58	0.25	175	hours	EHTR-FM
	15	13-JUN-13 16:20	20-JUN-13 23:58	0.25	176	hours	EHTR-FM
	16	13-JUN-13 17:15	20-JUN-13 23:58	0.25	175	hours	EHTR-FM
	17	13-JUN-13 16:30	20-JUN-13 23:58	0.25	175	hours	EHTR-FM
	18	13-JUN-13 17:10	20-JUN-13 23:58	0.25	175	hours	EHTR-FM
Anions and Nutrients							

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Anions and Nutrients							
Diss. Orthophosphate in Water by Colour							
	1	13-JUN-13 17:00	18-JUN-13 22:07	3	5	days	EHT
	2	13-JUN-13 15:30	18-JUN-13 22:07	3	5	days	EHT
	3	13-JUN-13 12:30	18-JUN-13 22:07	3	5	days	EHTL
	4	13-JUN-13 11:50	18-JUN-13 22:07	3	5	days	EHTL
	5	13-JUN-13 11:15	18-JUN-13 22:07	3	5	days	EHTL
	6	13-JUN-13 13:15	18-JUN-13 22:07	3	5	days	EHTL
	7	13-JUN-13 15:00	18-JUN-13 22:07	3	5	days	EHT
	8	13-JUN-13 10:30	18-JUN-13 22:12	3	5	days	EHTL
	9	13-JUN-13 13:30	18-JUN-13 22:12	3	5	days	EHT
	10	13-JUN-13 15:15	18-JUN-13 22:12	3	5	days	EHT
	11	13-JUN-13 13:50	18-JUN-13 22:12	3	5	days	EHT
	12	13-JUN-13 13:15	18-JUN-13 22:12	3	5	days	EHTL
	13	13-JUN-13 09:15	18-JUN-13 22:12	3	6	days	EHTL
	14	13-JUN-13 17:15	18-JUN-13 22:12	3	5	days	EHT
	15	13-JUN-13 16:20	18-JUN-13 22:15	3	5	days	EHT
	16	13-JUN-13 17:15	18-JUN-13 22:15	3	5	days	EHT
	17	13-JUN-13 16:30	18-JUN-13 22:15	3	5	days	EHT
	18	13-JUN-13 17:10	18-JUN-13 22:15	3	5	days	EHT
	19	13-JUN-13 15:00	18-JUN-13 22:15	3	5	days	EHT
Nitrate Nitrogen by Ion Chromatography							
	1	13-JUN-13 17:00	18-JUN-13 16:09	3	5	days	EHT
	2	13-JUN-13 15:30	18-JUN-13 16:09	3	5	days	EHT
	3	13-JUN-13 12:30	18-JUN-13 16:09	3	5	days	EHTL
	4	13-JUN-13 11:50	18-JUN-13 16:09	3	5	days	EHTL
	5	13-JUN-13 11:15	18-JUN-13 16:09	3	5	days	EHTL
	6	13-JUN-13 13:15	18-JUN-13 16:09	3	5	days	EHTL
	7	13-JUN-13 15:00	18-JUN-13 16:09	3	5	days	EHT
	8	13-JUN-13 10:30	18-JUN-13 16:09	3	5	days	EHTL
	9	13-JUN-13 13:30	18-JUN-13 16:09	3	5	days	EHT
	10	13-JUN-13 15:15	18-JUN-13 16:09	3	5	days	EHT
	11	13-JUN-13 13:50	18-JUN-13 16:09	3	5	days	EHT
	12	13-JUN-13 13:15	18-JUN-13 16:09	3	5	days	EHTL
	13	13-JUN-13 09:15	18-JUN-13 16:09	3	5	days	EHTL
	14	13-JUN-13 17:15	18-JUN-13 16:09	3	5	days	EHT
	15	13-JUN-13 16:20	18-JUN-13 16:09	3	5	days	EHT
	16	13-JUN-13 17:15	18-JUN-13 16:09	3	5	days	EHT
	17	13-JUN-13 16:30	18-JUN-13 16:09	3	5	days	EHT
	18	13-JUN-13 17:10	18-JUN-13 16:09	3	5	days	EHT
	19	13-JUN-13 15:00	18-JUN-13 16:09	3	5	days	EHT
Nitrite Nitrogen by Ion Chromatography							
	1	13-JUN-13 17:00	18-JUN-13 16:09	3	5	days	EHT
	2	13-JUN-13 15:30	18-JUN-13 16:09	3	5	days	EHT
	3	13-JUN-13 12:30	18-JUN-13 16:09	3	5	days	EHTL
	4	13-JUN-13 11:50	18-JUN-13 16:09	3	5	days	EHTL
	5	13-JUN-13 11:15	18-JUN-13 16:09	3	5	days	EHTL
	6	13-JUN-13 13:15	18-JUN-13 16:09	3	5	days	EHTL
	7	13-JUN-13 15:00	18-JUN-13 16:09	3	5	days	EHT
	8	13-JUN-13 10:30	18-JUN-13 16:09	3	5	days	EHTL
	9	13-JUN-13 13:30	18-JUN-13 16:09	3	5	days	EHT
	10	13-JUN-13 15:15	18-JUN-13 16:09	3	5	days	EHT
	11	13-JUN-13 13:50	18-JUN-13 16:09	3	5	days	EHT
	12	13-JUN-13 13:15	18-JUN-13 16:09	3	5	days	EHTL
	13	13-JUN-13 09:15	18-JUN-13 16:09	3	5	days	EHTL
	14	13-JUN-13 17:15	18-JUN-13 16:09	3	5	days	EHT
	15	13-JUN-13 16:20	18-JUN-13 16:09	3	5	days	EHT
	16	13-JUN-13 17:15	18-JUN-13 16:09	3	5	days	EHT
	17	13-JUN-13 16:30	18-JUN-13 16:09	3	5	days	EHT

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Anions and Nutrients							
Nitrite Nitrogen by Ion Chromatography							
	18	13-JUN-13 17:10	18-JUN-13 16:09	3	5	days	EHT
	19	13-JUN-13 15:00	18-JUN-13 16:09	3	5	days	EHT
Cyanides							
Free Cyanide in water by CFA							
	10	13-JUN-13 15:15	28-JUN-13 11:26	14	15	days	EHT
	11	13-JUN-13 13:50	28-JUN-13 11:26	14	15	days	EHT
	12	13-JUN-13 13:15	28-JUN-13 11:26	14	15	days	EHT
	13	13-JUN-13 09:15	28-JUN-13 11:26	14	15	days	EHT
	14	13-JUN-13 17:15	28-JUN-13 11:26	14	15	days	EHT
	15	13-JUN-13 16:20	28-JUN-13 11:26	14	15	days	EHT
	16	13-JUN-13 17:15	28-JUN-13 11:26	14	15	days	EHT
	17	13-JUN-13 16:30	28-JUN-13 11:26	14	15	days	EHT
	18	13-JUN-13 17:10	28-JUN-13 11:26	14	15	days	EHT

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1317509 were received on 15-JUN-13 13:10.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

L1317509-COFC

CH2MHILL

CHAIN OF CUSTODY RECORD

6/14/2013 12:48:09 PM

Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.07.EM.SS.02.0
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-015
Project FARO MINE SEEP SAMPLING 2013
Turnaround Time 10 Days
Shipping Date: 6/14/2013
COC Number: ALS06141301

	DATE	TIME	Matrix	(ASTM 7237) Free Cyanide	(E245.7) Field Filtered Dissolved Hg	(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity - Run Hot H2O2	(SM2310) Acidity - Run Hot H2O2 if Fe >15ppm	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM4110B) CL F NO2 NO3 and SO4	(SM4500P) ortho-Phosphate	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia		Number of Containers	COMMENTS
Container:				125mL Poly	250ml Poly	125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	250ml Poly	250ml glass			
Preservatives:				NaOH, 4'C	HNO3, 4'C	HCl, 4'C	4C	4C	4C	4'C	4'C	4'C	4'C	H2SO4, pH<2, 4'C	HNO3, 4'C	H2SO4, pH<2, 4C			
Filtered:				NA	Field	Field	NA	NA	NA	NA	NA	NA	NA	Field	Field	NA			
Holding Time:				14	180/28	180	14	14	14	7	7	3	3	28	180/28	28			
CH-GP-19_SESP13	6/13/2013	17:00	Water		X	X		X	X	X	X	X	X	X	X	X		7	
CH-GP-22_SESP13	6/13/2013	15:30	Water		X	X		X	X	X	X	X	X	X	X	X		7	
CH-GP-27_SESP13	6/13/2013	12:30	Water		X	X		X	X	X	X	X	X	X	X	X		7	
CH-VP-17_SESP13	6/13/2013	11:50	Water		X	X	X			X	X	X	X	X	X	X		7	
CH-VP-18_SESP13	6/13/2013	11:15	Water		X	X	X			X	X	X	X	X	X	X		7	
CH-VP-20_SESP13	6/13/2013	13:15	Water		X	X	X			X	X	X	X	X	X	X		7	
GP02_SESP13	6/13/2013	15:00	Water		X	X		X	X	X	X	X	X	X	X	X		7	
GP09_SESP13	6/13/2013	10:30	Water		X	X		X	X	X	X	X	X	X	X	X		7	
GP12_SESP13	6/13/2013	13:30	Water		X	X		X	X	X	X	X	X	X	X	X		7	
SRK-GD01_SESP13	6/13/2013	15:15	Water	X	X	X		X	X	X	X	X	X	X	X	X		8	LAB DUP/MS
SRK-GD05_SESP13	6/13/2013	13:50	Water	X	X	X		X	X	X	X	X	X	X	X	X		8	
SRK-GD06_SESP13	6/13/2013	13:15	Water	X	X	X		X	X	X	X	X	X	X	X	X		8	
SRK-GD09_SESP13	6/13/2013	9:15	Water	X	X	X		X	X	X	X	X	X	X	X	X		8	
SRK-GD11_SESP13	6/13/2013	17:15	Water	X	X	X		X	X	X	X	X	X	X	X	X		8	

	Signatures	Date/Time
Approved by		
Sampled by		
Relinquished by		6/15/13 13:10
Received by		6/15/13 13:10
Relinquished by		
Received by		

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

ATTN:
Sample Custody
and
Amber Springer

Special Instructions:
PO: 604564 on Invoice Perform Lab Dup/MS on the samples

Report Copy to
Bernice Kidd
(530) 229-3203

9.1, 11.7, 11.6, 8.0

CH2MHILL **CHAIN OF CUSTODY RECORD** *6/14/2013 12:48:10 PM* Page 2 OF 2

Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.07.EM.SS.02.0
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-015
Project FARO MINE SEEP SAMPLING 2013
Turnaround Time 10 Days
Shipping Date: 6/14/2013
COC Number: ALS06141301

	Container:	125mL Poly	250ml Poly	125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	250ml Poly	250ml glass			
	Preservatives:	NaOH, 4'C	HNO3, 4'C	HCl, 4'C	4C	4C	4C	4'C	4'C	4'C	4'C	H2SO4, pH<2, 4'C	HNO3, 4'C	H2SO4, pH<2, 4C			
	Filtered:	NA	Field	Field	NA	NA	NA	NA	NA	NA	NA	Field	Field	NA			
	Holding Time:	14	180/28	180	14	14	14	7	7	3	3	28	180/28	28			
		(ASTM 7237) Free Cyanide	(E245.7) Field Filtered Dissolved Hg	(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity – Run Hot H2O2	(SM2310) Acidity – Run Hot H2O2 if Fe >15ppm	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM4110B) CL F NO2 NO3 and SO4	(SM4500P) ortho-Phosphate	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia		Number of Containers	COMMENTS
SRK-GD19_SESP13	6/13/2013 16:20 Water	X	X	X		X	X	X	X	X	X	X	X	X		8	
SRK-GD911_SESP13	6/13/2013 17:15 Water	X	X	X		X	X	X	X	X	X	X	X	X		8	
SRK-VD02_SESP13	6/13/2013 16:30 Water	X	X	X		X	X	X	X	X	X	X	X	X		8	
SRK-VD03_SESP13	6/13/2013 17:10 Water	X	X	X		X	X	X	X	X	X	X	X	X		8	
SRK-VD09_SESP13	6/13/2013 15:00 Water		X	X	X			X	X	X		X	X	X		7	
														TOTAL NUMBER OF CONTAINERS		142	

L1317509-COFC

Signatures	Date/Time
Approved by	
Sampled by	
Relinquished by	6/15/13 1310
Received by	
Relinquished by	
Received by	

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

ATTN:
Sample Custody
and
Amber Springer

Special Instructions:
PO: 604564 on Invoice Perform Lab Dup/MS on the samples

Report Copy to
Bernice Kidd
(530) 229-3203

CH2M HILL, INC
ATTN: Bernice Kidd
2525 Airpark Drive
Redding CA 96001

Date Received: 15-JUN-13
Report Date: 05-JUL-13 12:39 (MT)
Version: FINAL

Client Phone: 530-229-3203

Certificate of Analysis

Lab Work Order #: L1317530

Project P.O. #: 472645.06.AD.01.04.13 "PO: 604564"
Job Reference: FARO MINE SEEP SAMPLING 2013 SW-015
C of C Numbers: ALS06141303
Legal Site Desc:

Amber Springer
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1317530-1	L1317530-2	L1317530-3	L1317530-4	L1317530-5
	Description	Water	Water	Water	Water	Water
	Sampled Date	14-JUN-13	14-JUN-13	14-JUN-13	14-JUN-13	14-JUN-13
	Sampled Time	09:00	09:45	10:30	12:00	12:00
	Client ID	CH-FD-66_SESP13	SRK-GD13_SESP13	SRK-VD01_SESP13	SRK-VD04_SESP13	SRK-VD05_SESP13
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	4560	1600	1530	14300	29700
	pH (pH)		8.13			
	Total Suspended Solids (mg/L)	325	5.8	162	262	604
	Total Dissolved Solids (mg/L)	77100	1860	1100	89100	106000
Anions and Nutrients	Acidity (as CaCO3) (mg/L)		8.3			
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)	36400		268	28000	29300
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)		418			
	Alkalinity, Carbonate (as CaCO3) (mg/L)		<2.0			
	Alkalinity, Hydroxide (as CaCO3) (mg/L)		<2.0			
	Alkalinity, Total (as CaCO3) (mg/L)		418			
	Ammonia, Total (as N) (mg/L)	<0.0050 DLA	<0.0050 DLA	0.0090 DLA	0.812 DLA	2.80 DLA
	Chloride (Cl) (mg/L)	<50	<10 DLA	<10	<50	<50
	Fluoride (F) (mg/L)	41.8 DLA	<0.40	0.40 DLA	40.7 DLA	39.1 DLA
	Nitrate (as N) (mg/L)	<0.50 DLA	20.1 DLA	<0.10 DLA	<0.50 DLA	<0.50 DLA
	Nitrite (as N) (mg/L)	<0.10	<0.020	<0.020	<0.10	<0.10
	Orthophosphate-Dissolved (as P) (mg/L)	1.11	0.0041	<0.0010	<0.10	0.41
	Sulfate (SO4) (mg/L)	47200	1110 DLM	1740 DLM	49100 DLM	60000 DLM
Cyanides	Cyanide, Free (mg/L)		<0.010	<0.010	<0.10	<0.10
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	31.7	5.24	1.41	24.7	33.4
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	612	0.0025	2.49	605	670
	Antimony (Sb)-Dissolved (mg/L)	<0.20 DLA	0.00043	<0.0010 DLA	<0.10 DLA	<0.10 DLA
	Arsenic (As)-Dissolved (mg/L)	21.3	0.00331	0.0037	0.30	0.21
	Barium (Ba)-Dissolved (mg/L)	<0.10 DLA	0.0302	0.00880	0.058	0.082
	Beryllium (Be)-Dissolved (mg/L)	0.32	<0.00010	<0.0010 DLA	<0.10 DLA	<0.10 DLA
	Boron (B)-Dissolved (mg/L)	<20 DLA	<0.010	<0.10 DLA	<10 DLA	<10 DLA
	Cadmium (Cd)-Dissolved (mg/L)	17.7	0.000089	0.135	8.76	8.83
	Calcium (Ca)-Dissolved (mg/L)	529	296	182	433	430
	Chromium (Cr)-Dissolved (mg/L)	0.51	<0.00010	<0.0010 DLA	<0.10 DLA	<0.10 DLA
	Cobalt (Co)-Dissolved (mg/L)	11.2	0.00062	0.374	17.7	19.5
	Copper (Cu)-Dissolved (mg/L)	337	0.00142	0.422	3.20	8.94
	Iron (Fe)-Dissolved (mg/L)	11700	<0.030	10.1	5230	8700
	Ferrous Iron, Dissolved (mg/L)	5360	0.031	10.8	4180	7850
	Lead (Pb)-Dissolved (mg/L)	0.26	0.000156	0.417	0.340	2.45
	Lithium (Li)-Dissolved (mg/L)	<1.0 DLA	0.0138	0.0369	<0.50 DLA	0.55
	Magnesium (Mg)-Dissolved (mg/L)	786	218	262	3210	6950

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1317530-6	L1317530-7	L1317530-8		
	Description	Water	Water	Water		
	Sampled Date	14-JUN-13	14-JUN-13	14-JUN-13		
	Sampled Time	12:30	11:15	12:00		
	Client ID	SRK-VD10_SESP13	SRK-VD12_SESP13	SRK-VD905_SESP13		
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	8160	4880	28300		
	pH (pH)	5.06				
	Total Suspended Solids (mg/L)	146	140	485		
	Total Dissolved Solids (mg/L)	22600	15100	103000		
Anions and Nutrients	Acidity (as CaCO3) (mg/L)					
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)	4450	5250	28500		
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	28.6				
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0				
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0				
	Alkalinity, Total (as CaCO3) (mg/L)	28.6				
	Ammonia, Total (as N) (mg/L)	6.18	0.680	2.72		
	Chloride (Cl) (mg/L)	<25 DLA	<25 DLA	<50 DLA		
	Fluoride (F) (mg/L)	3.6	5.0	40.6		
	Nitrate (as N) (mg/L)	<0.25 DLA	5.84	<0.50 DLA		
	Nitrite (as N) (mg/L)	<0.050 DLA	<0.050 DLA	<0.10 DLA		
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	2.86	0.0070		
	Sulfate (SO4) (mg/L)	14100	8730	62700		
Cyanides	Cyanide, Free (mg/L)	<0.020 DLM	<0.020 DLM	<0.10 DLM		
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	15.4	6.53	33.2		
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD		
	Aluminum (Al)-Dissolved (mg/L)	6.42	131	624		
	Antimony (Sb)-Dissolved (mg/L)	<0.020 DLA	<0.020 DLA	<0.10 DLA		
	Arsenic (As)-Dissolved (mg/L)	<0.020 DLA	5.13	0.10		
	Barium (Ba)-Dissolved (mg/L)	0.016	0.143	0.085		
	Beryllium (Be)-Dissolved (mg/L)	<0.020 DLA	<0.020 DLA	<0.10 DLA		
	Boron (B)-Dissolved (mg/L)	<2.0 DLA	<2.0 DLA	<10 DLA		
	Cadmium (Cd)-Dissolved (mg/L)	0.161	1.37	8.64		
	Calcium (Ca)-Dissolved (mg/L)	455	345	409		
	Chromium (Cr)-Dissolved (mg/L)	<0.020 DLA	0.115	<0.10 DLA		
	Cobalt (Co)-Dissolved (mg/L)	6.53	6.45	18.5		
	Copper (Cu)-Dissolved (mg/L)	0.054	12.8	8.31		
	Iron (Fe)-Dissolved (mg/L)	1390	748	8270		
	Ferrous Iron, Dissolved (mg/L)	1290	166	7890		
	Lead (Pb)-Dissolved (mg/L)	<0.010 DLA	0.300	2.37		
	Lithium (Li)-Dissolved (mg/L)	<0.10 DLA	<0.10 DLA	0.69		
	Magnesium (Mg)-Dissolved (mg/L)	1710	977	6620		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1317530-1	L1317530-2	L1317530-3	L1317530-4	L1317530-5
	Description	Water	Water	Water	Water	Water
	Sampled Date	14-JUN-13	14-JUN-13	14-JUN-13	14-JUN-13	14-JUN-13
	Sampled Time	09:00	09:45	10:30	12:00	12:00
	Client ID	CH-FD-66_SESP13	SRK-GD13_SESP13	SRK-VD01_SESP13	SRK-VD04_SESP13	SRK-VD05_SESP13
Grouping	**Analyte**					
WATER						
Dissolved Metals	Manganese (Mn)-Dissolved (mg/L)	249	0.00715	22.0	2500	3690
	Mercury (Hg)-Dissolved (mg/L)	0.000201	<0.000010	<0.000010	0.000086	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	<0.10 DLA	0.00114	<0.00050 DLA	<0.050 DLA	<0.050 DLA
	Nickel (Ni)-Dissolved (mg/L)	6.7	0.120	0.803	12.0	16.6
	Phosphorus (P)-Dissolved (mg/L)	8.0	<0.30	<0.30	<6.0 DLA	<15 DLA
	Potassium (K)-Dissolved (mg/L)	<100 DLA	3.29	2.39	<50 DLA	<50 DLA
	Selenium (Se)-Dissolved (mg/L)	<0.20 DLA	0.00339	0.0017	<0.10 DLA	<0.10 DLA
	Silicon (Si)-Dissolved (mg/L)	111	4.22	2.70	23.0	10.2
	Silicon (as SiO2)-Dissolved (mg/L)	236	8.70	5.78	49.2	21.8
	Silver (Ag)-Dissolved (mg/L)	<0.020 DLA	<0.000010	<0.00010 DLA	<0.010 DLA	<0.010 DLA
	Sodium (Na)-Dissolved (mg/L)	<100 DLA	5.48	1.38	<50 DLA	<50 DLA
	Strontium (Sr)-Dissolved (mg/L)	1.20	1.09	0.780	1.26	1.92
	Sulfur (S)-Dissolved (mg/L)	17500	357	575	14100	23300
	Thallium (Tl)-Dissolved (mg/L)	<0.020 DLA	0.000073	0.00202	<0.010 DLA	<0.010 DLA
	Titanium (Ti)-Dissolved (mg/L)	<20 DLA	<0.010	<0.10 DLA	<10 DLA	<10 DLA
	Uranium (U)-Dissolved (mg/L)	1.20	0.0274	0.00647	1.13	1.69
	Vanadium (V)-Dissolved (mg/L)	<2.0 DLA	<0.0010	<0.010 DLA	<1.0 DLA	<1.0 DLA
	Zinc (Zn)-Dissolved (mg/L)	12700	0.301	87.3	7890	9770

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1317530-6	L1317530-7	L1317530-8		
	Description	Water	Water	Water		
	Sampled Date	14-JUN-13	14-JUN-13	14-JUN-13		
	Sampled Time	12:30	11:15	12:00		
	Client ID	SRK-VD10_SESP13	SRK-VD12_SESP13	SRK-VD905_SESP13		
Grouping	**Analyte**					
WATER						
Dissolved Metals	Manganese (Mn)-Dissolved (mg/L)	830	250	3470		
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	0.000091	<0.000010		
	Molybdenum (Mo)-Dissolved (mg/L)	<0.010 DLA	<0.010 DLA	<0.050 DLA		
	Nickel (Ni)-Dissolved (mg/L)	4.62	9.38	15.9		
	Phosphorus (P)-Dissolved (mg/L)	<3.0 DLA	4.3	<15 DLA		
	Potassium (K)-Dissolved (mg/L)	<10 DLA	<10 DLA	<50 DLA		
	Selenium (Se)-Dissolved (mg/L)	<0.020 DLA	<0.020 DLA	<0.10 DLA		
	Silicon (Si)-Dissolved (mg/L)	12.7	14.0	10.6		
	Silicon (as SiO2)-Dissolved (mg/L)	27.1	29.8	22.7		
	Silver (Ag)-Dissolved (mg/L)	<0.0020 DLA	<0.0020 DLA	<0.010 DLA		
	Sodium (Na)-Dissolved (mg/L)	16	<10 DLA	<50 DLA		
	Strontium (Sr)-Dissolved (mg/L)	2.08	1.06	1.77		
	Sulfur (S)-Dissolved (mg/L)	4590	3200	22100		
	Thallium (Tl)-Dissolved (mg/L)	0.0040	<0.0020 DLA	<0.010 DLA		
	Titanium (Ti)-Dissolved (mg/L)	<2.0 DLA	<2.0 DLA	<10 DLA		
	Uranium (U)-Dissolved (mg/L)	0.0043	0.241	1.64		
	Vanadium (V)-Dissolved (mg/L)	<0.20 DLA	<0.20 DLA	<1.0 DLA		
	Zinc (Zn)-Dissolved (mg/L)	1470	1230	9880		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Antimony (Sb)-Dissolved	DLA	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Beryllium (Be)-Dissolved	DLA	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Boron (B)-Dissolved	DLA	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Chromium (Cr)-Dissolved	DLA	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Lithium (Li)-Dissolved	DLA	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Molybdenum (Mo)-Dissolved	DLA	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Potassium (K)-Dissolved	DLA	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Selenium (Se)-Dissolved	DLA	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Silver (Ag)-Dissolved	DLA	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Sodium (Na)-Dissolved	DLA	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Thallium (Tl)-Dissolved	DLA	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Titanium (Ti)-Dissolved	DLA	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Vanadium (V)-Dissolved	DLA	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Phosphorus (P)-Dissolved	DLA	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Cyanide, Free	DLM	L1317530-2, -3, -4, -5, -6, -7, -8
Matrix Spike	Aluminum (Al)-Dissolved	MS-B	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Cadmium (Cd)-Dissolved	MS-B	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Cobalt (Co)-Dissolved	MS-B	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Zinc (Zn)-Dissolved	MS-B	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Iron (Fe)-Dissolved	MS-B	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Ammonia, Total (as N)	MS-B	L1317530-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Dissolved Organic Carbon	MS-B	L1317530-1, -4, -5, -6, -8

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
DLM	Detection Limit Adjusted For Sample Matrix Effects
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-H2O2-MAN-VA	Water	Acidity by Hot Peroxide Manual Titration	APHA - ACIDITY (2310)

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". The procedure involves preliminary sample treatment by the hot peroxide procedure, and Acidity is subsequently determined by potentiometric titration to a specified endpoint (i.e. pH = 8.3).

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-CL-IC-WR	Water	Chloride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-F-IC-WR	Water	Fluoride by Ion Chromatography	EPA 300.1

Reference Information

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-NO2-IC-WR	Water	Nitrite Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-NO3-IC-WR	Water	Nitrate Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-SO4-IC-WR	Water	Sulphate by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CN-FREE-CFA-VA	Water	Free Cyanide in water by CFA	ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

FE2-D-COL-VA	Water	Diss. Ferrous Iron in Water by Colour	James W. Ball et al (1999)

This analysis is carried out using procedures adapted from "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedures involves preliminary sample filtration (0.1um filter) and Ferrous Iron is determined using the "FerroZine" colorimteric method.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA	Water	Dissolved Mercury in Water by CVAFS(Low)	EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA	Water	Dissolved Metals in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

Reference Information

PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

S-DIS-ICP-VA	Water	Dissolved Sulfur in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

SIO2-D-CALC-VA	Water	Dissolved Silicon (reported as Silica)	CALCULATION

Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).

TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-LOW-VA	Water	Total Suspended Solids by Grav. (1 mg/L)	APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

ALS06141303

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1317530 Report Date: 05-JUL-13

Client: CH2M HILL, INC
2525 Airpark Drive
Redding CA 96001
Contact: Bernice Kidd

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-H2O2-MAN-VA	**Water**							
Batch R2635591								
WG1692958-2 CRM		**VA-ACY-M-CONTROL**						
Acidity-Hot Peroxide Treated (as CaCO3)			99.0		%		85-115	21-JUN-13
WG1692958-3 DUP		**L1317530-4**						
Acidity-Hot Peroxide Treated (as CaCO3)		28000	28400		mg/L	1.3	20	21-JUN-13
WG1692958-1 MB								
Acidity-Hot Peroxide Treated (as CaCO3)			<25		mg/L		25	21-JUN-13
ACY-PCT-VA	**Water**							
Batch R2636224								
WG1692290-9 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			102.5		%		85-115	20-JUN-13
ALK-SCR-VA	**Water**							
Batch R2637533								
WG1694921-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			97.2		%		85-115	25-JUN-13
WG1694921-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	25-JUN-13
Batch R2642248								
WG1699488-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			97.2		%		85-115	25-JUN-13
WG1699488-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	25-JUN-13
ANIONS-CL-IC-WR	**Water**							
Batch R2643134								
WG1700813-2 LCS								
Chloride (Cl)			102.4		%		85-115	18-JUN-13
WG1700813-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	18-JUN-13
WG1700813-4 MS		**L1317621-1**						
Chloride (Cl)			101.9		%		75-125	18-JUN-13
ANIONS-F-IC-WR	**Water**							
Batch R2643134								
WG1700813-2 LCS								
Fluoride (F)			101.9		%		85-115	18-JUN-13
WG1700813-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	18-JUN-13
WG1700813-4 MS		**L1317621-1**						

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-F-IC-WR	**Water**							
Batch R2643134								
WG1700813-4 MS		**L1317621-1**						
Fluoride (F)			105.0		%		75-125	18-JUN-13
ANIONS-NO2-IC-WR	**Water**							
Batch R2643134								
WG1700813-2 LCS								
Nitrite (as N)			103.0		%		85-115	18-JUN-13
WG1700813-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	18-JUN-13
WG1700813-4 MS		**L1317621-1**						
Nitrite (as N)			100.5		%		75-125	18-JUN-13
ANIONS-NO3-IC-WR	**Water**							
Batch R2643134								
WG1700813-2 LCS								
Nitrate (as N)			103.4		%		85-115	18-JUN-13
WG1700813-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	18-JUN-13
WG1700813-4 MS		**L1317621-1**						
Nitrate (as N)			103.0		%		75-125	18-JUN-13
ANIONS-SO4-IC-WR	**Water**							
Batch R2643134								
WG1700813-2 LCS								
Sulfate (SO4)			105.6		%		85-115	18-JUN-13
WG1700813-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	18-JUN-13
WG1700813-4 MS		**L1317621-1**						
Sulfate (SO4)			106.3		%		75-125	18-JUN-13
CARBONS-DOC-VA	**Water**							
Batch R2641786								
WG1699338-3 LCS								
Dissolved Organic Carbon			99.6		%		80-120	01-JUL-13
WG1699338-2 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	01-JUL-13
Batch R2642664								
WG1700207-1 DUP		**L1317530-4**						
Dissolved Organic Carbon		24.7	24.5		mg/L	0.9	20	02-JUL-13
WG1700207-3 LCS								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CARBONS-DOC-VA	**Water**							
Batch R2642664								
WG1700207-3 LCS								
Dissolved Organic Carbon			107.8		%		80-120	02-JUL-13
WG1700207-2 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	02-JUL-13
WG1700207-4 MS		**L1317530-4**						
Dissolved Organic Carbon			N/A	MS-B	%		-	02-JUL-13
CN-FREE-CFA-VA	**Water**							
Batch R2642501								
WG1700085-3 DUP		**L1317530-4**						
Cyanide, Free		<0.10	<0.10	RPD-NA	mg/L	N/A	20	28-JUN-13
WG1700085-2 LCS								
Cyanide, Free			101.0		%		80-120	28-JUN-13
WG1700085-1 MB								
Cyanide, Free			<0.0050		mg/L		0.005	28-JUN-13
WG1700085-4 MS		**L1317530-4**						
Cyanide, Free			97.4		%		70-130	28-JUN-13
FE2-D-COL-VA	**Water**							
Batch R2637139								
WG1692513-3 DUP		**L1317530-4**						
Ferrous Iron, Dissolved		4180	4200		mg/L	0.5	20	21-JUN-13
WG1692513-2 LCS								
Ferrous Iron, Dissolved			104.1		%		80-120	21-JUN-13
WG1692513-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	21-JUN-13
WG1692513-4 MS		**L1317530-4**						
Ferrous Iron, Dissolved			124		%		70-130	21-JUN-13
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2635416								
WG1691562-3 LCS								
Mercury (Hg)-Dissolved			105.6		%		80-120	20-JUN-13
WG1691562-1 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	20-JUN-13
Batch R2638895								
WG1691562-4 DUP		**L1317530-4**						
Mercury (Hg)-Dissolved		0.000086	0.000081		mg/L	6.8	20	26-JUN-13
WG1691562-5 MS		**L1317530-4**						
Mercury (Hg)-Dissolved			87.9		%		70-130	26-JUN-13
MET-D-CCMS-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2635401								
WG1691562-2 CRM		**VA-HIGH-WATRM**						
Aluminum (Al)-Dissolved			99.9		%		80-120	19-JUN-13
Antimony (Sb)-Dissolved			98.5		%		80-120	19-JUN-13
Arsenic (As)-Dissolved			99.8		%		80-120	19-JUN-13
Barium (Ba)-Dissolved			100.7		%		80-120	19-JUN-13
Beryllium (Be)-Dissolved			94.0		%		80-120	19-JUN-13
Boron (B)-Dissolved			85.4		%		80-120	19-JUN-13
Cadmium (Cd)-Dissolved			100.8		%		80-120	19-JUN-13
Chromium (Cr)-Dissolved			99.5		%		80-120	19-JUN-13
Cobalt (Co)-Dissolved			96.8		%		80-120	19-JUN-13
Copper (Cu)-Dissolved			96.0		%		80-120	19-JUN-13
Lead (Pb)-Dissolved			97.2		%		80-120	19-JUN-13
Lithium (Li)-Dissolved			92.3		%		80-120	19-JUN-13
Manganese (Mn)-Dissolved			96.2		%		80-120	19-JUN-13
Molybdenum (Mo)-Dissolved			96.2		%		80-120	19-JUN-13
Nickel (Ni)-Dissolved			96.8		%		80-120	19-JUN-13
Potassium (K)-Dissolved			99.4		%		80-120	19-JUN-13
Selenium (Se)-Dissolved			99.6		%		80-120	19-JUN-13
Silver (Ag)-Dissolved			96.9		%		80-120	19-JUN-13
Sodium (Na)-Dissolved			100.5		%		80-120	19-JUN-13
Strontium (Sr)-Dissolved			93.9		%		80-120	19-JUN-13
Thallium (Tl)-Dissolved			97.0		%		80-120	19-JUN-13
Titanium (Ti)-Dissolved			105.6		%		80-120	19-JUN-13
Uranium (U)-Dissolved			99.0		%		80-120	19-JUN-13
Vanadium (V)-Dissolved			99.1		%		80-120	19-JUN-13
Zinc (Zn)-Dissolved			96.3		%		80-120	19-JUN-13
WG1691562-4 DUP		**L1317530-4**						
Aluminum (Al)-Dissolved		605	613		mg/L	1.3	20	25-JUN-13
Antimony (Sb)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	25-JUN-13
Arsenic (As)-Dissolved		0.30	0.29		mg/L	4.5	20	25-JUN-13
Barium (Ba)-Dissolved		0.058	0.051		mg/L	12	20	25-JUN-13
Beryllium (Be)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	25-JUN-13
Boron (B)-Dissolved		<10	<10	RPD-NA	mg/L	N/A	20	25-JUN-13
Cadmium (Cd)-Dissolved		8.76	8.48		mg/L	3.2	20	25-JUN-13
Chromium (Cr)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	25-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2635401								
WG1691562-4 DUP		**L1317530-4**						
Cobalt (Co)-Dissolved		17.7	18.6		mg/L	4.9	20	25-JUN-13
Copper (Cu)-Dissolved		3.20	3.07		mg/L	4.3	20	25-JUN-13
Lead (Pb)-Dissolved		0.340	0.359		mg/L	5.5	20	25-JUN-13
Lithium (Li)-Dissolved		<0.50	<0.50	RPD-NA	mg/L	N/A	20	25-JUN-13
Manganese (Mn)-Dissolved		2500	2650		mg/L	5.5	20	25-JUN-13
Molybdenum (Mo)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	25-JUN-13
Nickel (Ni)-Dissolved		12.0	12.5		mg/L	4.1	20	25-JUN-13
Potassium (K)-Dissolved		<50	<50	RPD-NA	mg/L	N/A	20	25-JUN-13
Selenium (Se)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	25-JUN-13
Silver (Ag)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-JUN-13
Sodium (Na)-Dissolved		<50	<50	RPD-NA	mg/L	N/A	20	25-JUN-13
Strontium (Sr)-Dissolved		1.26	1.33		mg/L	5.6	20	25-JUN-13
Thallium (Tl)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-JUN-13
Titanium (Ti)-Dissolved		<10	<10	RPD-NA	mg/L	N/A	20	25-JUN-13
Uranium (U)-Dissolved		1.13	1.16		mg/L	2.6	20	25-JUN-13
Vanadium (V)-Dissolved		<1.0	<1.0	RPD-NA	mg/L	N/A	20	25-JUN-13
Zinc (Zn)-Dissolved		7890	8220		mg/L	4.1	20	25-JUN-13
WG1691562-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	19-JUN-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	19-JUN-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	19-JUN-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	19-JUN-13
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	19-JUN-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	19-JUN-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	19-JUN-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	19-JUN-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	19-JUN-13
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	19-JUN-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	19-JUN-13
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	19-JUN-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	19-JUN-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	19-JUN-13
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	19-JUN-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	19-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2635401								
WG1691562-1 MB								
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	19-JUN-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	19-JUN-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	19-JUN-13
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	19-JUN-13
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	19-JUN-13
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	19-JUN-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	19-JUN-13
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	19-JUN-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	19-JUN-13
WG1691562-5 MS		**L1317530-4**						
Aluminum (Al)-Dissolved			353.0	MS-B	%		70-130	25-JUN-13
Antimony (Sb)-Dissolved			99.7		%		70-130	25-JUN-13
Arsenic (As)-Dissolved			104.2		%		70-130	25-JUN-13
Barium (Ba)-Dissolved			101.7		%		70-130	25-JUN-13
Beryllium (Be)-Dissolved			89.5		%		70-130	25-JUN-13
Boron (B)-Dissolved			82.3		%		70-130	25-JUN-13
Cadmium (Cd)-Dissolved			273.0	MS-B	%		70-130	25-JUN-13
Chromium (Cr)-Dissolved			96.9		%		70-130	25-JUN-13
Cobalt (Co)-Dissolved			174.3	MS-B	%		70-130	25-JUN-13
Copper (Cu)-Dissolved			100.0		%		70-130	25-JUN-13
Lead (Pb)-Dissolved			92.3		%		70-130	25-JUN-13
Lithium (Li)-Dissolved			89.4		%		70-130	25-JUN-13
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	25-JUN-13
Molybdenum (Mo)-Dissolved			101.8		%		70-130	25-JUN-13
Nickel (Ni)-Dissolved			122.5		%		70-130	25-JUN-13
Potassium (K)-Dissolved			95.9		%		70-130	25-JUN-13
Selenium (Se)-Dissolved			96.9		%		70-130	25-JUN-13
Silver (Ag)-Dissolved			97.8		%		70-130	25-JUN-13
Sodium (Na)-Dissolved			96.6		%		70-130	25-JUN-13
Strontium (Sr)-Dissolved			100.6		%		70-130	25-JUN-13
Thallium (Tl)-Dissolved			89.6		%		70-130	25-JUN-13
Titanium (Ti)-Dissolved			103.4		%		70-130	25-JUN-13
Uranium (U)-Dissolved			112.8		%		70-130	25-JUN-13
Vanadium (V)-Dissolved			97.0		%		70-130	25-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2635401								
WG1691562-5 MS		**L1317530-4**						
Zinc (Zn)-Dissolved			N/A	MS-B	%		-	25-JUN-13
MET-DIS-ICP-VA	**Water**							
Batch R2635192								
WG1691562-2 CRM		**VA-HIGH-WATRM**						
Calcium (Ca)-Dissolved			102.6		%		80-120	19-JUN-13
Iron (Fe)-Dissolved			98.7		%		80-120	19-JUN-13
Magnesium (Mg)-Dissolved			97.3		%		80-120	19-JUN-13
Phosphorus (P)-Dissolved			99.5		%		80-120	19-JUN-13
Silicon (Si)-Dissolved			106.0		%		80-120	19-JUN-13
Batch R2635397								
WG1691562-1 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	20-JUN-13
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	20-JUN-13
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	20-JUN-13
Phosphorus (P)-Dissolved			<0.30		mg/L		0.3	20-JUN-13
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	20-JUN-13
Batch R2639755								
WG1691562-4 DUP		**L1317530-4**						
Calcium (Ca)-Dissolved		433	428		mg/L	1.2	20	26-JUN-13
Iron (Fe)-Dissolved		5230	5130		mg/L	1.8	20	26-JUN-13
Magnesium (Mg)-Dissolved		3210	3170		mg/L	1.1	20	26-JUN-13
Phosphorus (P)-Dissolved		<6.0	<6.0	RPD-NA	mg/L	N/A	20	26-JUN-13
Silicon (Si)-Dissolved		23.0	22.9		mg/L	0.3	20	26-JUN-13
WG1691562-5 MS		**L1317530-4**						
Calcium (Ca)-Dissolved			99.7		%		70-130	26-JUN-13
Iron (Fe)-Dissolved			N/A	MS-B	%		-	26-JUN-13
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	26-JUN-13
NH3-F-VA	**Water**							
Batch R2641848								
WG1697453-2 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			108.3		%		85-115	02-JUL-13
WG1697453-3 DUP		**L1317530-4**						
Ammonia, Total (as N)		0.812	0.755		mg/L	7.3	20	02-JUL-13
WG1697453-1 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-F-VA	**Water**							
Batch R2641848								
WG1697453-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	02-JUL-13
WG1697453-4 MS		**L1317530-4**						
Ammonia, Total (as N)			N/A	MS-B	%		-	02-JUL-13
PH-PCT-VA	**Water**							
Batch R2636224								
WG1692290-25 CRM		**VA-PH7-BUF**						
pH			7.01		pH		6.9-7.1	20-JUN-13
PO4-DO-COL-VA	**Water**							
Batch R2634770								
WG1691132-2 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			96.0		%		80-120	18-JUN-13
WG1691132-7 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			92.0		%		80-120	18-JUN-13
WG1691132-3 DUP		**L1317530-4**						
Orthophosphate-Dissolved (as P)		<0.10	<0.10	RPD-NA	mg/L	N/A	20	20-JUN-13
WG1691132-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	18-JUN-13
WG1691132-6 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	18-JUN-13
WG1691132-4 MS		**L1317530-4**						
Orthophosphate-Dissolved (as P)			88.1		%		70-130	20-JUN-13
S-DIS-ICP-VA	**Water**							
Batch R2635192								
WG1691562-2 CRM		**VA-HIGH-WATRM**						
Sulfur (S)-Dissolved			100.2		%		80-120	19-JUN-13
Batch R2635397								
WG1691562-1 MB								
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	20-JUN-13
Batch R2639755								
WG1691562-4 DUP		**L1317530-4**						
Sulfur (S)-Dissolved		14100	13900		mg/L	1.2	20	26-JUN-13
WG1691562-5 MS		**L1317530-4**						
Sulfur (S)-Dissolved			N/A	MS-B	%		-	26-JUN-13
TDS-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TDS-VA	**Water**							
Batch R2636338								
WG1693157-3 DUP		**L1317530-4**						
Total Dissolved Solids		89100	86900		mg/L	2.5	20	21-JUN-13
WG1693157-2 LCS								
Total Dissolved Solids			97.5		%		85-115	21-JUN-13
WG1693157-1 MB								
Total Dissolved Solids			<10		mg/L		10	21-JUN-13
TSS-LOW-VA	**Water**							
Batch R2636501								
WG1693161-2 LCS								
Total Suspended Solids			104.0		%		85-115	21-JUN-13
WG1693161-1 MB								
Total Suspended Solids			<1.0		mg/L		1	21-JUN-13

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	2	14-JUN-13 09:45	20-JUN-13 23:58	0.25	158	hours	EHTR-FM
	6	14-JUN-13 12:30	20-JUN-13 23:58	0.25	156	hours	EHTR-FM
Anions and Nutrients							
Diss. Orthophosphate in Water by Colour							
	1	14-JUN-13 09:00	20-JUN-13 21:04	3	7	days	EHT
	2	14-JUN-13 09:45	18-JUN-13 22:31	3	5	days	EHT
	3	14-JUN-13 10:30	18-JUN-13 22:31	3	5	days	EHT
	4	14-JUN-13 12:00	20-JUN-13 21:04	3	6	days	EHT
	5	14-JUN-13 12:00	18-JUN-13 22:31	3	4	days	EHT
	6	14-JUN-13 12:30	18-JUN-13 23:45	3	4	days	EHT
	7	14-JUN-13 11:15	18-JUN-13 22:31	3	4	days	EHT
	8	14-JUN-13 12:00	18-JUN-13 22:31	3	4	days	EHT
Nitrate Nitrogen by Ion Chromatography							
	1	14-JUN-13 09:00	18-JUN-13 14:10	3	4	days	EHT
	2	14-JUN-13 09:45	18-JUN-13 14:10	3	4	days	EHT
	3	14-JUN-13 10:30	18-JUN-13 14:10	3	4	days	EHT
	4	14-JUN-13 12:00	18-JUN-13 14:10	3	4	days	EHT
	5	14-JUN-13 12:00	18-JUN-13 14:10	3	4	days	EHT
	6	14-JUN-13 12:30	18-JUN-13 14:10	3	4	days	EHT
	7	14-JUN-13 11:15	18-JUN-13 14:10	3	4	days	EHT
	8	14-JUN-13 12:00	18-JUN-13 14:10	3	4	days	EHT
Nitrite Nitrogen by Ion Chromatography							
	1	14-JUN-13 09:00	18-JUN-13 14:10	3	4	days	EHT
	2	14-JUN-13 09:45	18-JUN-13 14:10	3	4	days	EHT
	3	14-JUN-13 10:30	18-JUN-13 14:10	3	4	days	EHT
	4	14-JUN-13 12:00	18-JUN-13 14:10	3	4	days	EHT
	5	14-JUN-13 12:00	18-JUN-13 14:10	3	4	days	EHT
	6	14-JUN-13 12:30	18-JUN-13 14:10	3	4	days	EHT
	7	14-JUN-13 11:15	18-JUN-13 14:10	3	4	days	EHT
	8	14-JUN-13 12:00	18-JUN-13 14:10	3	4	days	EHT

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1317530 were received on 15-JUN-13 13:10.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CH2MHILL

CHAIN OF CUSTODY RECORD

6/14/2013 3:39:40 PM

Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.07.EM.SS.02.0
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-015
Project FARO MINE SEEP SAMPLING 2013
Turnaround Time 10 Days
Shipping Date: 6/14/2013
COC Number: ALS06141303

	Container:	125mL Poly	250ml Poly	125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	250ml Poly	250ml glass			
	Preservatives:	NaOH, 4'C	HNO3, 4'C	HCl, 4'C	4C	4C	4C	4'C	4'C	4'C	4'C	H2SO4, pH<2, 4'C	HNO3, 4'C	H2SO4, pH<2, 4C			
	Filtered:	NA	Field	Field	NA	NA	NA	NA	NA	NA	NA	Field	Field	NA			
	Holding Time:	14	180/28	180	14	14	14	7	7	3	3	28	180/28	28			
		(ASTM 7237) Free Cyanide	(E245.7) Field Filtered Dissolved Hg	(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity - Run Hot H2O2	(SM2310) Acidity - Run Hot H2O2 if Fe >15ppm	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM4110B) CL F NO2 NO3 and SO4	(SM4500P) ortho-Phosphate	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia		Number of Containers	COMMENTS
	DATE / TIME / Matrix																
CH-FD-66_SESP13	6/14/2013 9:00 Water		X	X	X			X	X	X	X	X	X	X		7	
SRK-GD13_SESP13	6/14/2013 9:45 Water	X	X	X		X	X	X	X	X	X	X	X	X		8	
SRK-VD01_SESP13	6/14/2013 10:30 Water	X	X	X	X			X	X	X	X	X	X	X		8	
SRK-VD04_SESP13	6/14/2013 12:00 Water	X	X	X	X			X	X	X	X	X	X	X		8	LAB DUP/MS
SRK-VD05_SESP13	6/14/2013 12:00 Water	X	X	X	X			X	X	X	X	X	X	X		8	
SRK-VD10_SESP13	6/14/2013 12:30 Water	X	X	X	X		X	X	X	X	X	X	X	X		8	
SRK-VD12_SESP13	6/14/2013 11:15 Water	X	X	X	X			X	X	X	X	X	X	X		8	
SRK-VD905_SESP13	6/14/2013 12:00 Water	X	X	X	X			X	X	X	X	X	X	X		8	
														TOTAL NUMBER OF CONTAINERS		63	



L1317530-COFC

	Signatures	Date/Time
Approved by		
Sampled by		6/15/13 1310
Relinquished by		
Received by		
Relinquished by	Daisha Zu.	6/15/13 15:10
Received by		C.4, 14.9

Shippin
Method of Shipment:
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

Sample Custody and Amber Springer

ecial Instructions:
. O: 604564 on Invoice Perform Lab Dup/MS on the samples

Report Copy to
Bernice Kidd
(530) 229-3203

CH2M HILL, INC
ATTN: Bernice Kidd
2525 Airpark Drive
Redding CA 96001

Date Received: 15-JUN-13
Report Date: 03-JUL-13 15:55 (MT)
Version: FINAL

Client Phone: 530-229-3203

Certificate of Analysis

Lab Work Order #: L1317621

Project P.O. #: 472645.06.AD.01.04.13 PO=604564
Job Reference: WASTE ROCK DUMP MW 2013 SW-014B
C of C Numbers: ALS06141302
Legal Site Desc:

Amber Springer
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1317621-1				
	Description	Water				
	Sampled Date	14-JUN-13				
	Sampled Time	08:15				
	Client ID	EB_014_13_002				
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	<0.50				
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	<0.0050				
	Chloride (Cl) (mg/L)	<0.50				
	Fluoride (F) (mg/L)	<0.020				
	Nitrate (as N) (mg/L)	<0.0050				
	Nitrite (as N) (mg/L)	<0.0010				
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010				
	Sulfate (SO4) (mg/L)	<0.50				
Cyanides	Cyanide, Free (mg/L)	<0.0050				
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	<0.50				
Dissolved Metals	Dissolved Metals Filtration Location	FIELD				
	Aluminum (Al)-Dissolved (mg/L)	<0.0010				
	Antimony (Sb)-Dissolved (mg/L)	<0.00010				
	Arsenic (As)-Dissolved (mg/L)	<0.00010				
	Barium (Ba)-Dissolved (mg/L)	<0.000050				
	Beryllium (Be)-Dissolved (mg/L)	<0.00010				
	Boron (B)-Dissolved (mg/L)	<0.010				
	Cadmium (Cd)-Dissolved (mg/L)	0.000023				
	Calcium (Ca)-Dissolved (mg/L)	0.081				
	Chromium (Cr)-Dissolved (mg/L)	<0.00010				
	Cobalt (Co)-Dissolved (mg/L)	<0.00010				
	Copper (Cu)-Dissolved (mg/L)	<0.00020				
	Iron (Fe)-Dissolved (mg/L)	<0.030				
	Ferrous Iron, Dissolved (mg/L)	<0.020				
	Lead (Pb)-Dissolved (mg/L)	<0.000050				
	Lithium (Li)-Dissolved (mg/L)	<0.00050				
	Magnesium (Mg)-Dissolved (mg/L)	<0.10				
	Manganese (Mn)-Dissolved (mg/L)	0.000609				
	Mercury (Hg)-Dissolved (mg/L)	<0.000010				
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050				
	Nickel (Ni)-Dissolved (mg/L)	<0.00050				
	Phosphorus (P)-Dissolved (mg/L)	<0.30				
	Potassium (K)-Dissolved (mg/L)	<0.050				
	Selenium (Se)-Dissolved (mg/L)	<0.00010				
	Silicon (Si)-Dissolved (mg/L)	<0.050				
	Silicon (as SiO2)-Dissolved (mg/L)	<0.20				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1317621-1				
	Description	Water				
	Sampled Date	14-JUN-13				
	Sampled Time	08:15				
	Client ID	EB_014_13_002				
Grouping	**Analyte**					
WATER						
Dissolved Metals	Silver (Ag)-Dissolved (mg/L)	<0.000010				
	Sodium (Na)-Dissolved (mg/L)	<0.050				
	Strontium (Sr)-Dissolved (mg/L)	<0.00020				
	Sulfur (S)-Dissolved (mg/L)	<0.50				
	Thallium (Tl)-Dissolved (mg/L)	<0.000010				
	Titanium (Ti)-Dissolved (mg/L)	<0.010				
	Uranium (U)-Dissolved (mg/L)	<0.000010				
	Vanadium (V)-Dissolved (mg/L)	<0.0010				
	Zinc (Zn)-Dissolved (mg/L)	0.0065				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Cyanide, Free	DLM	L1317621-1
Duplicate	Cyanide, Free	DLM	L1317621-1
Matrix Spike	Sulfate (SO4)	MS-B	L1317621-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLM	Detection Limit Adjusted For Sample Matrix Effects
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ANIONS-CL-IC-WR	Water	Chloride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-F-IC-WR	Water	Fluoride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-NO2-IC-WR	Water	Nitrite Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-NO3-IC-WR	Water	Nitrate Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-SO4-IC-WR	Water	Sulphate by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CN-FREE-CFA-VA	Water	Free Cyanide in water by CFA	ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

FE2-D-COL-VA	Water	Diss. Ferrous Iron in Water by Colour	James W. Ball et al (1999)

This analysis is carried out using procedures adapted from "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedures involves preliminary sample filtration (0.1um filter) and Ferrous Iron is determined using the "FerroZine" colorimteric method.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA	Water	Dissolved Mercury in Water by CVAFS(Low)	EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA	Water	Dissolved Metals in Water by ICPOES	EPA SW-846 3005A/6010B

Reference Information

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

S-DIS-ICP-VA Water Dissolved Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

SIO2-D-CALC-VA Water Dissolved Silicon (reported as Silica) CALCULATION

Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

ALS06141302

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Client: CH2M HILL, INC
2525 Airpark Drive
Redding CA 96001
Contact: Bernice Kidd

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-CL-IC-WR	**Water**							
Batch R2638147								
WG1694509-7 DUP		**L1317621-1**						
Chloride (Cl)		<0.50	<0.50	RPD-NA	mg/L	N/A	20	18-JUN-13
WG1694509-2 LCS								
Chloride (Cl)			102.3		%		85-115	18-JUN-13
WG1694509-6 LCS								
Chloride (Cl)			102.4		%		85-115	18-JUN-13
WG1694509-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	18-JUN-13
WG1694509-5 MB								
Chloride (Cl)			<0.50		mg/L		0.5	18-JUN-13
WG1694509-4 MS		**L1317509-7**						
Chloride (Cl)			103.5		%		75-125	18-JUN-13
WG1694509-8 MS		**L1317621-1**						
Chloride (Cl)			101.9		%		75-125	18-JUN-13
ANIONS-F-IC-WR	**Water**							
Batch R2638147								
WG1694509-7 DUP		**L1317621-1**						
Fluoride (F)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	18-JUN-13
WG1694509-2 LCS								
Fluoride (F)			103.3		%		85-115	18-JUN-13
WG1694509-6 LCS								
Fluoride (F)			101.9		%		85-115	18-JUN-13
WG1694509-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	18-JUN-13
WG1694509-5 MB								
Fluoride (F)			<0.020		mg/L		0.02	18-JUN-13
WG1694509-4 MS		**L1317509-7**						
Fluoride (F)			103.7		%		75-125	18-JUN-13
WG1694509-8 MS		**L1317621-1**						
Fluoride (F)			105.0		%		75-125	18-JUN-13
ANIONS-NO2-IC-WR	**Water**							
Batch R2638147								
WG1694509-7 DUP		**L1317621-1**						
Nitrite (as N)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	18-JUN-13
WG1694509-2 LCS								
Nitrite (as N)			100.9		%		85-115	18-JUN-13
WG1694509-6 LCS								
Nitrite (as N)			103.0		%		85-115	18-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO2-IC-WR	**Water**							
Batch R2638147								
WG1694509-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	18-JUN-13
WG1694509-5 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	18-JUN-13
WG1694509-4 MS		**L1317509-7**						
Nitrite (as N)			97.4		%		75-125	18-JUN-13
WG1694509-8 MS		**L1317621-1**						
Nitrite (as N)			100.5		%		75-125	18-JUN-13
ANIONS-NO3-IC-WR	**Water**							
Batch R2638147								
WG1694509-7 DUP		**L1317621-1**						
Nitrate (as N)		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	18-JUN-13
WG1694509-2 LCS								
Nitrate (as N)			103.4		%		85-115	18-JUN-13
WG1694509-6 LCS								
Nitrate (as N)			103.4		%		85-115	18-JUN-13
WG1694509-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	18-JUN-13
WG1694509-5 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	18-JUN-13
WG1694509-4 MS		**L1317509-7**						
Nitrate (as N)			103.7		%		75-125	18-JUN-13
WG1694509-8 MS		**L1317621-1**						
Nitrate (as N)			103.0		%		75-125	18-JUN-13
ANIONS-SO4-IC-WR	**Water**							
Batch R2638147								
WG1694509-7 DUP		**L1317621-1**						
Sulfate (SO4)		<0.50	<0.50	RPD-NA	mg/L	N/A	20	18-JUN-13
WG1694509-2 LCS								
Sulfate (SO4)			104.4		%		85-115	18-JUN-13
WG1694509-6 LCS								
Sulfate (SO4)			105.6		%		85-115	18-JUN-13
WG1694509-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	18-JUN-13
WG1694509-5 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	18-JUN-13
WG1694509-4 MS		**L1317509-7**						
Sulfate (SO4)			N/A	MS-B	%		-	18-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-SO4-IC-WR	**Water**							
Batch R2638147								
WG1694509-8 MS		**L1317621-1**						
Sulfate (SO4)			106.3		%		75-125	18-JUN-13
CARBONS-DOC-VA	**Water**							
Batch R2641787								
WG1699339-3 LCS								
Dissolved Organic Carbon			103.3		%		80-120	01-JUL-13
WG1699339-2 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	01-JUL-13
CN-FREE-CFA-VA	**Water**							
Batch R2642485								
WG1700078-9 DUP		**L1317621-1**						
Cyanide, Free		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	28-JUN-13
WG1700078-2 LCS								
Cyanide, Free			101.0		%		80-120	28-JUN-13
WG1700078-1 MB								
Cyanide, Free			<0.0050		mg/L		0.005	28-JUN-13
WG1700078-10 MS		**L1317621-1**						
Cyanide, Free			98.7		%		70-130	28-JUN-13
WG1700078-4 MS		**L1316422-1**						
Cyanide, Free			99.3		%		70-130	28-JUN-13
WG1700078-6 MS		**L1316438-1**						
Cyanide, Free			115.4		%		70-130	28-JUN-13
WG1700078-8 MS		**L1316792-7**						
Cyanide, Free			103.6		%		70-130	28-JUN-13
FE2-D-COL-VA	**Water**							
Batch R2637139								
WG1692513-2 LCS								
Ferrous Iron, Dissolved			104.1		%		80-120	21-JUN-13
WG1692513-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	21-JUN-13
WG1692513-4 MS		**L1317530-4**						
Ferrous Iron, Dissolved			124		%		70-130	21-JUN-13
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2634898								
WG1691559-4 DUP		**L1317621-1**						
Mercury (Hg)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	19-JUN-13
WG1691559-5 MS		**L1317621-1**						

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2634898								
WG1691559-5 MS		**L1317621-1**						
Mercury (Hg)-Dissolved			96.6		%		70-130	19-JUN-13
Batch R2635416								
WG1691559-3 LCS								
Mercury (Hg)-Dissolved			103.0		%		80-120	20-JUN-13
WG1691559-1 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	20-JUN-13
MET-D-CCMS-VA	**Water**							
Batch R2635401								
WG1691559-2 CRM		**VA-HIGH-WATRM**						
Aluminum (Al)-Dissolved			97.9		%		80-120	19-JUN-13
Antimony (Sb)-Dissolved			100.0		%		80-120	19-JUN-13
Arsenic (As)-Dissolved			99.1		%		80-120	19-JUN-13
Barium (Ba)-Dissolved			101.9		%		80-120	19-JUN-13
Beryllium (Be)-Dissolved			101.2		%		80-120	19-JUN-13
Boron (B)-Dissolved			90.7		%		80-120	19-JUN-13
Cadmium (Cd)-Dissolved			103.0		%		80-120	19-JUN-13
Chromium (Cr)-Dissolved			98.3		%		80-120	19-JUN-13
Cobalt (Co)-Dissolved			96.8		%		80-120	19-JUN-13
Copper (Cu)-Dissolved			95.5		%		80-120	19-JUN-13
Lead (Pb)-Dissolved			97.0		%		80-120	19-JUN-13
Lithium (Li)-Dissolved			99.9		%		80-120	19-JUN-13
Manganese (Mn)-Dissolved			98.0		%		80-120	19-JUN-13
Molybdenum (Mo)-Dissolved			102.4		%		80-120	19-JUN-13
Nickel (Ni)-Dissolved			95.5		%		80-120	19-JUN-13
Potassium (K)-Dissolved			98.8		%		80-120	19-JUN-13
Selenium (Se)-Dissolved			99.7		%		80-120	19-JUN-13
Silver (Ag)-Dissolved			98.3		%		80-120	19-JUN-13
Sodium (Na)-Dissolved			98.1		%		80-120	19-JUN-13
Strontium (Sr)-Dissolved			100.3		%		80-120	19-JUN-13
Thallium (Tl)-Dissolved			96.6		%		80-120	19-JUN-13
Titanium (Ti)-Dissolved			101.5		%		80-120	19-JUN-13
Uranium (U)-Dissolved			98.2		%		80-120	19-JUN-13
Vanadium (V)-Dissolved			98.6		%		80-120	19-JUN-13
Zinc (Zn)-Dissolved			93.8		%		80-120	19-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2635401								
WG1691559-4 DUP		**L1317621-1**						
Aluminum (Al)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	25-JUN-13
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-JUN-13
Arsenic (As)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-JUN-13
Barium (Ba)-Dissolved		<0.000050	0.000064	RPD-NA	mg/L	N/A	20	25-JUN-13
Beryllium (Be)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-JUN-13
Boron (B)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-JUN-13
Cadmium (Cd)-Dissolved		0.000023	0.000017	J	mg/L	0.000006	0.00002	25-JUN-13
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-JUN-13
Cobalt (Co)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-JUN-13
Copper (Cu)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	25-JUN-13
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	25-JUN-13
Lithium (Li)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	25-JUN-13
Manganese (Mn)-Dissolved		0.000609	0.000640		mg/L	5.0	20	27-JUN-13
Molybdenum (Mo)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	25-JUN-13
Nickel (Ni)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	25-JUN-13
Potassium (K)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	25-JUN-13
Selenium (Se)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-JUN-13
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	25-JUN-13
Sodium (Na)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	25-JUN-13
Strontium (Sr)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	25-JUN-13
Thallium (Tl)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	25-JUN-13
Titanium (Ti)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-JUN-13
Uranium (U)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	25-JUN-13
Vanadium (V)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	25-JUN-13
Zinc (Zn)-Dissolved		0.0065	0.0063		mg/L	2.3	20	27-JUN-13
WG1691559-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	19-JUN-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	19-JUN-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	19-JUN-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	19-JUN-13
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	19-JUN-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	19-JUN-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	19-JUN-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	19-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2635401								
WG1691559-1 MB								
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	19-JUN-13
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	19-JUN-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	19-JUN-13
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	19-JUN-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	19-JUN-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	19-JUN-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	19-JUN-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	19-JUN-13
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	19-JUN-13
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	19-JUN-13
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	19-JUN-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	19-JUN-13
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	19-JUN-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	19-JUN-13
WG1691559-5 MS		**L1317621-1**						
Aluminum (Al)-Dissolved			99.8		%		70-130	25-JUN-13
Antimony (Sb)-Dissolved			101.8		%		70-130	25-JUN-13
Arsenic (As)-Dissolved			106.0		%		70-130	25-JUN-13
Barium (Ba)-Dissolved			100.1		%		70-130	25-JUN-13
Beryllium (Be)-Dissolved			97.5		%		70-130	25-JUN-13
Boron (B)-Dissolved			93.6		%		70-130	25-JUN-13
Cadmium (Cd)-Dissolved			100.7		%		70-130	25-JUN-13
Chromium (Cr)-Dissolved			95.9		%		70-130	25-JUN-13
Cobalt (Co)-Dissolved			97.1		%		70-130	25-JUN-13
Copper (Cu)-Dissolved			97.9		%		70-130	25-JUN-13
Lead (Pb)-Dissolved			96.0		%		70-130	25-JUN-13
Lithium (Li)-Dissolved			98.4		%		70-130	25-JUN-13
Manganese (Mn)-Dissolved			90.6		%		70-130	25-JUN-13
Molybdenum (Mo)-Dissolved			99.0		%		70-130	25-JUN-13
Nickel (Ni)-Dissolved			96.5		%		70-130	25-JUN-13
Potassium (K)-Dissolved			96.4		%		70-130	25-JUN-13
Selenium (Se)-Dissolved			106.5		%		70-130	25-JUN-13
Silver (Ag)-Dissolved			98.4		%		70-130	25-JUN-13
Sodium (Na)-Dissolved			98.8		%		70-130	25-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2635401								
WG1691559-5 MS		**L1317621-1**						
Strontium (Sr)-Dissolved			95.1		%		70-130	25-JUN-13
Thallium (Tl)-Dissolved			94.2		%		70-130	25-JUN-13
Titanium (Ti)-Dissolved			106.5		%		70-130	25-JUN-13
Uranium (U)-Dissolved			94.9		%		70-130	25-JUN-13
Vanadium (V)-Dissolved			97.1		%		70-130	25-JUN-13
Zinc (Zn)-Dissolved			95.2		%		70-130	25-JUN-13
Batch R2635455								
WG1691559-1 MB								
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	20-JUN-13
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	20-JUN-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	20-JUN-13
MET-DIS-ICP-VA	**Water**							
Batch R2635192								
WG1691559-2 CRM		**VA-HIGH-WATRM**						
Calcium (Ca)-Dissolved			102.3		%		80-120	19-JUN-13
Iron (Fe)-Dissolved			96.7		%		80-120	19-JUN-13
Magnesium (Mg)-Dissolved			97.6		%		80-120	19-JUN-13
Phosphorus (P)-Dissolved			100.2		%		80-120	19-JUN-13
Silicon (Si)-Dissolved			104.1		%		80-120	19-JUN-13
Batch R2635397								
WG1691559-1 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	20-JUN-13
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	20-JUN-13
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	20-JUN-13
Phosphorus (P)-Dissolved			<0.30		mg/L		0.3	20-JUN-13
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	20-JUN-13
Batch R2639755								
WG1691559-4 DUP		**L1317621-1**						
Calcium (Ca)-Dissolved		0.081	0.089		mg/L	9.9	20	26-JUN-13
Iron (Fe)-Dissolved		<0.030	<0.030	RPD-NA	mg/L	N/A	20	26-JUN-13
Magnesium (Mg)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	26-JUN-13
Phosphorus (P)-Dissolved		<0.30	<0.30	RPD-NA	mg/L	N/A	20	26-JUN-13
Silicon (Si)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	26-JUN-13
WG1691559-5 MS		**L1317621-1**						
Calcium (Ca)-Dissolved			104.8		%		70-130	26-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA	**Water**							
Batch R2639755								
WG1691559-5 MS		**L1317621-1**						
Iron (Fe)-Dissolved			96.7		%		70-130	26-JUN-13
Magnesium (Mg)-Dissolved			99.97		%		70-130	26-JUN-13
NH3-F-VA	**Water**							
Batch R2641269								
WG1697454-2 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			91.8		%		85-115	28-JUN-13
WG1697454-3 DUP		**L1317621-1**						
Ammonia, Total (as N)		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	28-JUN-13
WG1697454-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	28-JUN-13
WG1697454-4 MS		**L1317621-1**						
Ammonia, Total (as N)			84.1		%		75-125	28-JUN-13
PO4-DO-COL-VA	**Water**							
Batch R2634770								
WG1691132-2 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			96.0		%		80-120	18-JUN-13
WG1691132-7 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			92.0		%		80-120	18-JUN-13
WG1691132-5 DUP		**L1317621-1**						
Orthophosphate-Dissolved (as P)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	18-JUN-13
WG1691132-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	18-JUN-13
WG1691132-6 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	18-JUN-13
WG1691132-4 MS		**L1317530-4**						
Orthophosphate-Dissolved (as P)			88.1		%		70-130	20-JUN-13
S-DIS-ICP-VA	**Water**							
Batch R2635192								
WG1691559-2 CRM		**VA-HIGH-WATRM**						
Sulfur (S)-Dissolved			99.8		%		80-120	19-JUN-13
Batch R2635397								
WG1691559-1 MB								
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	20-JUN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
S-DIS-ICP-VA	**Water**							
Batch R2639755								
WG1691559-4 DUP		**L1317621-1**						
Sulfur (S)-Dissolved		<0.50	<0.50	RPD-NA	mg/L	N/A	20	26-JUN-13
WG1691559-5 MS		**L1317621-1**						
Sulfur (S)-Dissolved			99.4		%		70-130	26-JUN-13

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Anions and Nutrients							
Diss. Orthophosphate in Water by Colour							
	1	14-JUN-13 08:15	18-JUN-13 23:48	3	5	days	EHT
Nitrate Nitrogen by Ion Chromatography							
	1	14-JUN-13 08:15	18-JUN-13 12:46	3	4	days	EHT
Nitrite Nitrogen by Ion Chromatography							
	1	14-JUN-13 08:15	18-JUN-13 12:46	3	4	days	EHT

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1317621 were received on 15-JUN-13 13:10.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CH2MHILL

CHAIN OF CUSTODY RECORD

6/14/2013 2:56:17 PM

Project Name Faro
Location Faro Mine Complex - Faro YK
Project Number 472645.07.EM.RM.02.0
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-014
Project WASTE ROCK DUMP MW 2013 SW-014B
Turnaround Time 3 Days
Shipping Date: 6/14/2013
COC Number: ALS06141302

	DATE	TIME	Matrix	(ASTM 7237) Free Cyanide	(E245.7) Field Filtered Dissolved Hg	(Ferrozine Method) Field Filtered Ferrous Iron	(SM4110B) Cl, F, NO2, NO3, and SO4	(SM4500P) ortho-Phosphate	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia		Number of Containers	COMMENTS
Container:				125mL Poly	250ml Poly	125ml Poly	500ml Poly	500ml Poly	250ml Glass	250ml Poly	250ml glass			
Preservatives:				NaOH, 4'C	HNO3, 4'C	HCl, 4'C	4'C	4'C	H2SO4, pH<2, 4'C	HNO3, 4'C	H2SO4, pH<2, 4C			
Filtered:				NA	Field	Field	NA	NA	Field	Field	NA			
Holding Time:				14	180/28	180	3	3	28	180/28	28			
EB_014_13_002	6/14/2013	8:15	Water	X	X	X	X	X	X	X	X		6	
												TOTAL NUMBER OF CONTAINERS	6	

L1317621-COFC

	Signatures	Date/Time
Approved by		6/15/13
Sampled by		
Relinquished by		1310
Received by		
Relinquished by		6/15/13 1310
Received by	Daisha Zuo	15.2

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

ATTN:
Sample Custody
and
Amber Springer

Special Instructions:
Perform Lab Dup/MS on these samples

Report Copy to
Bernice Kidd
(530) 229-3203

15.2°C 1.1°C 11.3 11.6 8.2 6.4

CH2M HILL, INC
ATTN: Bernice Kidd
2525 Airpark Drive
Redding CA 96001

Date Received: 04-JUL-13
Report Date: 19-JUL-13 14:49 (MT)
Version: FINAL

Client Phone: 530-229-3203

Certificate of Analysis

Lab Work Order #: L1327470

Project P.O. #: 472645.06.AD.01.04.13 PO=604564
Job Reference: WASTE ROCK DUMP MW 2013 SW-014B
C of C Numbers: ALS07041302
Legal Site Desc:

Amber Springer
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1327470-1				
	Description	Water				
	Sampled Date	04-JUL-13				
	Sampled Time	12:00				
	Client ID	CH12-014-MW012_GW0613				
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	1240				
	pH (pH)	7.83				
	Total Suspended Solids (mg/L)	151				
	Total Dissolved Solids (mg/L)	1560				
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	13.8				
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	382				
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0				
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0				
	Alkalinity, Total (as CaCO3) (mg/L)	382				
	Ammonia, Total (as N) (mg/L)	0.0473				
	Chloride (Cl) (mg/L)	<5.0 DLA				
	Fluoride (F) (mg/L)	<0.20 DLA				
	Nitrate (as N) (mg/L)	<0.050 DLA				
	Nitrite (as N) (mg/L)	<0.010 DLA				
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010				
	Sulfate (SO4) (mg/L)	851				
Cyanides	Cyanide, Free (mg/L)	<0.0050				
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.12				
Dissolved Metals	Dissolved Metals Filtration Location	FIELD				
	Aluminum (Al)-Dissolved (mg/L)	0.0672				
	Antimony (Sb)-Dissolved (mg/L)	<0.00010				
	Arsenic (As)-Dissolved (mg/L)	0.0155				
	Barium (Ba)-Dissolved (mg/L)	0.0456				
	Beryllium (Be)-Dissolved (mg/L)	<0.00010				
	Boron (B)-Dissolved (mg/L)	<0.010				
	Cadmium (Cd)-Dissolved (mg/L)	0.000012				
	Calcium (Ca)-Dissolved (mg/L)	303				
	Chromium (Cr)-Dissolved (mg/L)	0.00492				
	Cobalt (Co)-Dissolved (mg/L)	0.00068				
	Copper (Cu)-Dissolved (mg/L)	0.00049				
	Iron (Fe)-Dissolved (mg/L)	7.28				
	Ferrous Iron, Dissolved (mg/L)	8.0				
	Lead (Pb)-Dissolved (mg/L)	0.00184				
	Lithium (Li)-Dissolved (mg/L)	0.0149				
	Magnesium (Mg)-Dissolved (mg/L)	118				
	Manganese (Mn)-Dissolved (mg/L)	0.351				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1327470-1				
	Description	Water				
	Sampled Date	04-JUL-13				
	Sampled Time	12:00				
	Client ID	CH12-014-MW012_GW0613				
Grouping	**Analyte**					
WATER						
Dissolved Metals	Mercury (Hg)-Dissolved (mg/L)	<0.000010				
	Molybdenum (Mo)-Dissolved (mg/L)	0.00177				
	Nickel (Ni)-Dissolved (mg/L)	0.00486				
	Phosphorus (P)-Dissolved (mg/L)	<0.30				
	Potassium (K)-Dissolved (mg/L)	3.25				
	Selenium (Se)-Dissolved (mg/L)	<0.00010				
	Silicon (Si)-Dissolved (mg/L)	5.46				
	Silicon (as SiO2)-Dissolved (mg/L)	11.7				
	Silver (Ag)-Dissolved (mg/L)	<0.000010				
	Sodium (Na)-Dissolved (mg/L)	7.58				
	Strontium (Sr)-Dissolved (mg/L)	1.81				
	Sulfur (S)-Dissolved (mg/L)	268				
	Thallium (Tl)-Dissolved (mg/L)	<0.000010				
	Titanium (Ti)-Dissolved (mg/L)	<0.010				
	Uranium (U)-Dissolved (mg/L)	0.0219				
	Vanadium (V)-Dissolved (mg/L)	<0.0010				
	Zinc (Zn)-Dissolved (mg/L)	0.0095				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Phosphorus (P)-Dissolved	DLA	L1327470-1
Duplicate	Antimony (Sb)-Dissolved	DLA	L1327470-1
Duplicate	Beryllium (Be)-Dissolved	DLA	L1327470-1
Duplicate	Boron (B)-Dissolved	DLA	L1327470-1
Duplicate	Chromium (Cr)-Dissolved	DLA	L1327470-1
Duplicate	Copper (Cu)-Dissolved	DLA	L1327470-1
Duplicate	Molybdenum (Mo)-Dissolved	DLA	L1327470-1
Duplicate	Selenium (Se)-Dissolved	DLA	L1327470-1
Duplicate	Silver (Ag)-Dissolved	DLA	L1327470-1
Duplicate	Titanium (Ti)-Dissolved	DLA	L1327470-1
Duplicate	Vanadium (V)-Dissolved	DLA	L1327470-1
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1327470-1
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1327470-1
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L1327470-1
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1327470-1
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1327470-1
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1327470-1
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1327470-1
Matrix Spike	Uranium (U)-Dissolved	MS-B	L1327470-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-CL-IC-WR	Water	Chloride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-F-IC-WR	Water	Fluoride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-NO2-IC-WR	Water	Nitrite Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-NO3-IC-WR	Water	Nitrate Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

		Sulphate by Ion Chromatography	EPA 300.1

Reference Information

ANIONS-SO4-IC-WR Water

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

CARBONS-DOC-VA Water Dissolved organic carbon by combustion APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CN-FREE-CFA-VA Water Free Cyanide in water by CFA ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

FE2-D-COL-VA Water Diss. Ferrous Iron in Water by Colour James W. Ball et al (1999)

This analysis is carried out using procedures adapted from "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedures involves preliminary sample filtration (0.1um filter) and Ferrous Iron is determined using the "FerroZine" colorimteric method.

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

MET-D-CCMS-VA Water Dissolved Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

S-DIS-ICP-VA Water Dissolved Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents

Reference Information

all non-volatile forms of sulfur present in a particular sample.

SIO2-D-CALC-VA Water Dissolved Silicon (reported as Silica) CALCULATION

Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-LOW-VA Water Total Suspended Solids by Grav. (1 mg/L) APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

ALS07041302

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Client: CH2M HILL, INC
2525 Airpark Drive
Redding CA 96001
Contact: Bernice Kidd

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-PCT-VA	**Water**							
Batch R2645814								
WG1702499-9 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			101.2		%		85-115	08-JUL-13
ALK-SCR-VA	**Water**							
Batch R2644521								
WG1702152-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			97.7		%		85-115	06-JUL-13
WG1702152-5 CRM		**VA-ALKM-CONTROL**						
Alkalinity, Total (as CaCO3)			96.2		%		85-115	06-JUL-13
WG1702152-3 DUP		**L1327470-1**						
Alkalinity, Total (as CaCO3)		382	385		mg/L	0.7	20	06-JUL-13
WG1702152-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	06-JUL-13
WG1702152-4 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	06-JUL-13
WG1702152-6 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	06-JUL-13
ANIONS-CL-IC-WR	**Water**							
Batch R2647486								
WG1705229-2 LCS								
Chloride (Cl)			95.1		%		85-115	05-JUL-13
WG1705229-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	05-JUL-13
ANIONS-F-IC-WR	**Water**							
Batch R2647486								
WG1705229-2 LCS								
Fluoride (F)			96.2		%		85-115	05-JUL-13
WG1705229-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	05-JUL-13
ANIONS-NO2-IC-WR	**Water**							
Batch R2647486								
WG1705229-2 LCS								
Nitrite (as N)			95.7		%		85-115	05-JUL-13
WG1705229-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	05-JUL-13
ANIONS-NO3-IC-WR	**Water**							

Quality Control Report

Workorder: L1327470 Report Date: 19-JUL-13

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO3-IC-WR	**Water**							
Batch R2647486								
WG1705229-2 LCS								
Nitrate (as N)			96.4		%		85-115	05-JUL-13
WG1705229-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	05-JUL-13
ANIONS-SO4-IC-WR	**Water**							
Batch R2647486								
WG1705229-2 LCS								
Sulfate (SO4)			98.2		%		85-115	05-JUL-13
WG1705229-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	05-JUL-13
CARBONS-DOC-VA	**Water**							
Batch R2650868								
WG1708518-4 LCS								
Dissolved Organic Carbon			96.0		%		80-120	16-JUL-13
WG1708518-3 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	16-JUL-13
WG1708518-2 MS		**L1327472-1**						
Dissolved Organic Carbon			99.2		%		70-130	16-JUL-13
CN-FREE-CFA-VA	**Water**							
Batch R2652734								
WG1709775-3 DUP		**L1327470-1**						
Cyanide, Free		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	18-JUL-13
WG1709775-2 LCS								
Cyanide, Free			101.2		%		80-120	18-JUL-13
WG1709775-1 MB								
Cyanide, Free			<0.0050		mg/L		0.005	18-JUL-13
WG1709775-4 MS		**L1327470-1**						
Cyanide, Free			95.9		%		70-130	18-JUL-13
FE2-D-COL-VA	**Water**							
Batch R2646464								
WG1702636-2 LCS								
Ferrous Iron, Dissolved			102.8		%		80-120	08-JUL-13
WG1702636-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	08-JUL-13
WG1702636-4 MS		**L1327472-1**						
Ferrous Iron, Dissolved			101.7		%		70-130	08-JUL-13
HG-DIS-LOW-CVAFS-VA	**Water**							

Quality Control Report

Workorder: L1327470 Report Date: 19-JUL-13

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2648707								
WG1705565-3 LCS								
Mercury (Hg)-Dissolved			84.8		%		80-120	12-JUL-13
WG1705565-1 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	12-JUL-13
WG1705565-5 MS		**L1327470-1**						
Mercury (Hg)-Dissolved			85.9		%		70-130	12-JUL-13
MET-D-CCMS-VA	**Water**							
Batch R2648701								
WG1705565-2 CRM		**VA-HIGH-WATRM**						
Aluminum (Al)-Dissolved			102.6		%		80-120	12-JUL-13
Antimony (Sb)-Dissolved			102.2		%		80-120	12-JUL-13
Arsenic (As)-Dissolved			102.3		%		80-120	12-JUL-13
Barium (Ba)-Dissolved			100.4		%		80-120	12-JUL-13
Beryllium (Be)-Dissolved			95.5		%		80-120	12-JUL-13
Boron (B)-Dissolved			92.4		%		80-120	12-JUL-13
Cadmium (Cd)-Dissolved			102.8		%		80-120	12-JUL-13
Chromium (Cr)-Dissolved			103.8		%		80-120	12-JUL-13
Cobalt (Co)-Dissolved			99.9		%		80-120	12-JUL-13
Copper (Cu)-Dissolved			98.8		%		80-120	12-JUL-13
Lead (Pb)-Dissolved			100.6		%		80-120	12-JUL-13
Lithium (Li)-Dissolved			95.9		%		80-120	12-JUL-13
Manganese (Mn)-Dissolved			100.3		%		80-120	12-JUL-13
Molybdenum (Mo)-Dissolved			98.1		%		80-120	12-JUL-13
Nickel (Ni)-Dissolved			98.8		%		80-120	12-JUL-13
Potassium (K)-Dissolved			105.2		%		80-120	12-JUL-13
Selenium (Se)-Dissolved			99.4		%		80-120	12-JUL-13
Silver (Ag)-Dissolved			99.1		%		80-120	12-JUL-13
Sodium (Na)-Dissolved			103.5		%		80-120	12-JUL-13
Strontium (Sr)-Dissolved			95.9		%		80-120	12-JUL-13
Thallium (Tl)-Dissolved			99.6		%		80-120	12-JUL-13
Titanium (Ti)-Dissolved			92.6		%		80-120	12-JUL-13
Uranium (U)-Dissolved			101.5		%		80-120	12-JUL-13
Vanadium (V)-Dissolved			102.7		%		80-120	12-JUL-13
Zinc (Zn)-Dissolved			97.0		%		80-120	12-JUL-13
WG1705565-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	12-JUL-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2648701								
WG1705565-1 MB								
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	12-JUL-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	12-JUL-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	12-JUL-13
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	12-JUL-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	12-JUL-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	12-JUL-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	12-JUL-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	12-JUL-13
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	12-JUL-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	12-JUL-13
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	12-JUL-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	12-JUL-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	12-JUL-13
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	12-JUL-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	12-JUL-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	12-JUL-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	12-JUL-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	12-JUL-13
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	12-JUL-13
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	12-JUL-13
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	12-JUL-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	12-JUL-13
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	12-JUL-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	12-JUL-13
WG1705565-5 MS		**L1327470-1**						
Aluminum (Al)-Dissolved			115.3		%		70-130	15-JUL-13
Antimony (Sb)-Dissolved			105.8		%		70-130	15-JUL-13
Arsenic (As)-Dissolved			109.2		%		70-130	15-JUL-13
Barium (Ba)-Dissolved			N/A	MS-B	%		-	15-JUL-13
Beryllium (Be)-Dissolved			95.5		%		70-130	15-JUL-13
Boron (B)-Dissolved			101.4		%		70-130	15-JUL-13
Cadmium (Cd)-Dissolved			95.4		%		70-130	15-JUL-13
Chromium (Cr)-Dissolved			94.4		%		70-130	15-JUL-13
Cobalt (Co)-Dissolved			92.7		%		70-130	15-JUL-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2648701								
WG1705565-5 MS		**L1327470-1**						
Copper (Cu)-Dissolved			86.5		%		70-130	15-JUL-13
Lead (Pb)-Dissolved			90.1		%		70-130	15-JUL-13
Lithium (Li)-Dissolved			92.5		%		70-130	15-JUL-13
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	15-JUL-13
Molybdenum (Mo)-Dissolved			104.5		%		70-130	15-JUL-13
Nickel (Ni)-Dissolved			88.2		%		70-130	15-JUL-13
Potassium (K)-Dissolved			99.9		%		70-130	15-JUL-13
Selenium (Se)-Dissolved			108.7		%		70-130	15-JUL-13
Silver (Ag)-Dissolved			96.0		%		70-130	15-JUL-13
Sodium (Na)-Dissolved			N/A	MS-B	%		-	15-JUL-13
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	15-JUL-13
Thallium (Tl)-Dissolved			92.5		%		70-130	15-JUL-13
Titanium (Ti)-Dissolved			116.1		%		70-130	15-JUL-13
Uranium (U)-Dissolved			N/A	MS-B	%		-	15-JUL-13
Vanadium (V)-Dissolved			101.9		%		70-130	15-JUL-13
Zinc (Zn)-Dissolved			86.1		%		70-130	15-JUL-13
MET-DIS-ICP-VA	**Water**							
Batch R2648300								
WG1705565-2 CRM		**VA-HIGH-WATRM**						
Calcium (Ca)-Dissolved			101.3		%		80-120	11-JUL-13
Iron (Fe)-Dissolved			98.6		%		80-120	11-JUL-13
Magnesium (Mg)-Dissolved			101.8		%		80-120	11-JUL-13
Phosphorus (P)-Dissolved			100.3		%		80-120	11-JUL-13
Silicon (Si)-Dissolved			102.7		%		80-120	11-JUL-13
WG1705565-1 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	11-JUL-13
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	11-JUL-13
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	11-JUL-13
Phosphorus (P)-Dissolved			<0.30		mg/L		0.3	11-JUL-13
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	11-JUL-13
WG1705565-5 MS		**L1327470-1**						
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	11-JUL-13
Iron (Fe)-Dissolved			90.4		%		70-130	11-JUL-13
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	11-JUL-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-F-VA	**Water**							
Batch R2652280								
WG1710045-2 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			100.5		%		85-115	18-JUL-13
WG1710045-3 DUP		**L1327470-1**						
Ammonia, Total (as N)		0.0473	0.0446		mg/L	5.9	20	18-JUL-13
WG1710045-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	18-JUL-13
WG1710045-4 MS		**L1327470-1**						
Ammonia, Total (as N)			96.0		%		75-125	18-JUL-13
PH-PCT-VA	**Water**							
Batch R2645814								
WG1702499-25 CRM		**VA-PH7-BUF**						
pH			7.02		pH		6.9-7.1	08-JUL-13
PO4-DO-COL-VA	**Water**							
Batch R2644322								
WG1701979-2 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			90.7		%		80-120	05-JUL-13
WG1701979-6 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			90.3		%		80-120	05-JUL-13
WG1701979-3 DUP		**L1327470-1**						
Orthophosphate-Dissolved (as P)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	05-JUL-13
WG1701979-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	05-JUL-13
WG1701979-5 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	05-JUL-13
WG1701979-4 MS		**L1327471-2**						
Orthophosphate-Dissolved (as P)			93.9		%		70-130	05-JUL-13
S-DIS-ICP-VA	**Water**							
Batch R2648300								
WG1705565-2 CRM		**VA-HIGH-WATRM**						
Sulfur (S)-Dissolved			100.3		%		80-120	11-JUL-13
WG1705565-1 MB								
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	11-JUL-13
WG1705565-5 MS		**L1327470-1**						
Sulfur (S)-Dissolved			N/A	MS-B	%		-	11-JUL-13
TDS-VA	**Water**							

Quality Control Report

Workorder: L1327470 Report Date: 19-JUL-13

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TDS-VA	**Water**							
Batch R2648330								
WG1705424-3 DUP		**L1327470-1**						
Total Dissolved Solids		1560	1450		mg/L	7.1	20	11-JUL-13
WG1705424-2 LCS								
Total Dissolved Solids			101.4		%		85-115	11-JUL-13
WG1705424-1 MB								
Total Dissolved Solids			<10		mg/L		10	11-JUL-13
TSS-LOW-VA	**Water**							
Batch R2645821								
WG1702856-2 LCS								
Total Suspended Solids			96.2		%		85-115	08-JUL-13
WG1702856-4 LCS								
Total Suspended Solids			95.0		%		85-115	08-JUL-13
WG1702856-1 MB								
Total Suspended Solids			<1.0		mg/L		1	08-JUL-13
WG1702856-3 MB								
Total Suspended Solids			<1.0		mg/L		1	08-JUL-13

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	1	04-JUL-13 12:00	08-JUL-13 23:00	0.25	107	hours	EHTR-FM

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1327470 were received on 04-JUL-13 22:00.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CH2MHILL

CHAIN OF CUSTODY RECORD

7/4/2013 1:33:33 PM Page 1 OF 1

Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.06.AD.01.04.13
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-014
Project WASTE ROCK DUMP MW 2013 SW-014B
Turnaround Time 3 Days
Shipping Date: 7/4/2013
COC Number: ALS07041302

	DATE	TIME	Matrix	(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity - Run Hot H2O2 if Fe >15ppm	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered Metals Analyte List Table 1	Ammonia (EM/SM4500NH3) Ammonia	ASTM 7237 Free Cyanide	E245.7-Diss Field Filtered Dissolved Hg	SM4110B CL F NO2 NO3 and SO4	SM4500P ortho-Phosphate		Number of Containers	COMMENTS
Container:				125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	250ml Poly	250ml glass	125mL Poly	250ml Poly	500ml Poly	500ml Poly			
Preservatives:				HCl, 4°C	4C	4C	4°C	4°C	H2SO4, pH<2, 4°C	HNO3, 4°C	H2SO4, pH<2, 4C	NaOH, 4°C	HNO3, 4°C	4°C	4°C			
Filtered:				Field	NA	NA	NA	NA	Field	Field	NA	NA	Field	NA	NA			
Holding Time:				180	14	14	7	7	28	180/28	28	14	180/28	3	3			
CH12-014-MW012_GW0613	7/4/2013		Water	X	X	X	X	X	X	X	X	X	X	X	X		8	
																TOTAL NUMBER OF CONTAINERS	8	

L1327470-COFC

Signatures	Date/Time
Approved by	
Sampled by	07/04/2013
Relinquished by	
Received by	15:30
Relinquished by	
Received by	22:00 04-Jul-13

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

ATTN:
Sample Custody
and
Amber Springer

Special Instructions:
Perform Lab Dup/MS on these samples

Report Copy to
Bernice Kidd
(530) 229-3203

CH2M HILL, INC
ATTN: Bernice Kidd
2525 Airpark Drive
Redding CA 96001

Date Received: 04-JUL-13
Report Date: 19-JUL-13 12:15 (MT)
Version: FINAL

Client Phone: 530-229-3203

Certificate of Analysis

Lab Work Order #: L1327471

Project P.O. #: 472645.06.AD.01.04.13, PO=604564
Job Reference: FARO MINE SEEP SAMPLING 2013 SW-015
C of C Numbers: ALS07041301
Legal Site Desc:

Amber Springer
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1327471-1	L1327471-2			
	Description	Water	Water			
	Sampled Date	03-JUL-13	03-JUL-13			
	Sampled Time	16:45	15:30			
	Client ID	CH-RCTA-07_SESP13	SRK-FD49_SESP13			
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	1330	2630			
	pH (pH)	5.20	7.49			
	Total Suspended Solids (mg/L)	2200	254			
	Total Dissolved Solids (mg/L)	6790	3960			
Anions and Nutrients	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)	2070	<25			
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	18.9	34.7			
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<2.0			
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<2.0			
	Alkalinity, Total (as CaCO3) (mg/L)	18.9	34.7			
	Ammonia, Total (as N) (mg/L)	0.716	<0.0050			
	Chloride (Cl) (mg/L)	<10 DLA	<10 DLA			
	Fluoride (F) (mg/L)	<0.40 DLA	<0.40 DLA			
	Nitrate (as N) (mg/L)	0.20	<0.10 DLA			
	Nitrite (as N) (mg/L)	<0.020 DLA	<0.020 DLA			
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010			
	Sulfate (SO4) (mg/L)	4420	2450			
Cyanides	Cyanide, Free (mg/L)	<0.020 DLM	<0.0050			
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	3.25	2.29			
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD			
	Aluminum (Al)-Dissolved (mg/L)	0.198	0.0485			
	Antimony (Sb)-Dissolved (mg/L)	<0.0010 DLA	<0.00020 DLA			
	Arsenic (As)-Dissolved (mg/L)	0.0015	<0.00020 DLA			
	Barium (Ba)-Dissolved (mg/L)	0.0211	0.0186			
	Beryllium (Be)-Dissolved (mg/L)	<0.0010 DLA	<0.00020 DLA			
	Boron (B)-Dissolved (mg/L)	<0.10 DLA	<0.020 DLA			
	Cadmium (Cd)-Dissolved (mg/L)	0.00127	0.00256			
	Calcium (Ca)-Dissolved (mg/L)	380	229			
	Chromium (Cr)-Dissolved (mg/L)	<0.0010 DLA	<0.00020 DLA			
	Cobalt (Co)-Dissolved (mg/L)	0.0924	0.0187			
	Copper (Cu)-Dissolved (mg/L)	<0.0020 DLA	0.00090			
	Iron (Fe)-Dissolved (mg/L)	1370	<0.030			
	Ferrous Iron, Dissolved (mg/L)	210 DLM	0.212			
	Lead (Pb)-Dissolved (mg/L)	0.00096	0.00085			
	Lithium (Li)-Dissolved (mg/L)	0.0270	0.156			
	Magnesium (Mg)-Dissolved (mg/L)	92.2	500			
	Manganese (Mn)-Dissolved (mg/L)	39.4	1.25			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1327471-1	L1327471-2			
	Description	Water	Water			
	Sampled Date	03-JUL-13	03-JUL-13			
	Sampled Time	16:45	15:30			
	Client ID	CH-RCTA-07_SESP13	SRK-FD49_SESP13			
Grouping	**Analyte**					
WATER						
Dissolved Metals	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010			
	Molybdenum (Mo)-Dissolved (mg/L)	<0.00050 DLA	<0.00010 DLA			
	Nickel (Ni)-Dissolved (mg/L)	0.0766	0.131			
	Phosphorus (P)-Dissolved (mg/L)	<0.60 DLA	<0.30			
	Potassium (K)-Dissolved (mg/L)	6.30	10.1			
	Selenium (Se)-Dissolved (mg/L)	<0.0010 DLA	0.00178			
	Silicon (Si)-Dissolved (mg/L)	8.77	1.75			
	Silicon (as SiO2)-Dissolved (mg/L)	18.8	3.74			
	Silver (Ag)-Dissolved (mg/L)	<0.00010 DLA	<0.000020 DLA			
	Sodium (Na)-Dissolved (mg/L)	17.4	7.42			
	Strontium (Sr)-Dissolved (mg/L)	1.16	0.615			
	Sulfur (S)-Dissolved (mg/L)	1290	828			
	Thallium (Tl)-Dissolved (mg/L)	0.00036	0.000246			
	Titanium (Ti)-Dissolved (mg/L)	<0.10 DLA	<0.020 DLA			
	Uranium (U)-Dissolved (mg/L)	0.00567	0.000036			
	Vanadium (V)-Dissolved (mg/L)	<0.010 DLA	<0.0020 DLA			
	Zinc (Zn)-Dissolved (mg/L)	41.9	1.81			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Phosphorus (P)-Dissolved	DLA	L1327471-1, -2
Duplicate	Antimony (Sb)-Dissolved	DLA	L1327471-1, -2
Duplicate	Beryllium (Be)-Dissolved	DLA	L1327471-1, -2
Duplicate	Boron (B)-Dissolved	DLA	L1327471-1, -2
Duplicate	Chromium (Cr)-Dissolved	DLA	L1327471-1, -2
Duplicate	Copper (Cu)-Dissolved	DLA	L1327471-1, -2
Duplicate	Molybdenum (Mo)-Dissolved	DLA	L1327471-1, -2
Duplicate	Selenium (Se)-Dissolved	DLA	L1327471-1, -2
Duplicate	Silver (Ag)-Dissolved	DLA	L1327471-1, -2
Duplicate	Titanium (Ti)-Dissolved	DLA	L1327471-1, -2
Duplicate	Vanadium (V)-Dissolved	DLA	L1327471-1, -2
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1327471-1, -2
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1327471-1, -2
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L1327471-1, -2
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1327471-1, -2
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1327471-1, -2
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1327471-1, -2
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1327471-1, -2
Matrix Spike	Uranium (U)-Dissolved	MS-B	L1327471-1, -2

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
DLM	Detection Limit Adjusted For Sample Matrix Effects
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-H2O2-MAN-VA	Water	Acidity by Hot Peroxide Manual Titration	APHA - ACIDITY (2310)

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". The procedure involves preliminary sample treatment by the hot peroxide procedure, and Acidity is subsequently determined by potentiometric titration to a specified endpoint (i.e. pH = 8.3).

ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-CL-IC-WR	Water	Chloride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-F-IC-WR	Water	Fluoride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-NO2-IC-WR	Water	Nitrite Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-NO3-IC-WR	Water	Nitrate Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-SO4-IC-WR	Water	Sulphate by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision

Reference Information

1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

CARBONS-DOC-VA Water Dissolved organic carbon by combustion APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CN-FREE-CFA-VA Water Free Cyanide in water by CFA ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

FE2-D-COL-VA Water Diss. Ferrous Iron in Water by Colour James W. Ball et al (1999)

This analysis is carried out using procedures adapted from "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedures involves preliminary sample filtration (0.1um filter) and Ferrous Iron is determined using the "FerroZine" colorimteric method.

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

MET-D-CCMS-VA Water Dissolved Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

S-DIS-ICP-VA Water Dissolved Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

SIO2-D-CALC-VA Water Dissolved Silicon (reported as Silica) CALCULATION

Reference Information

Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).

TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-LOW-VA	Water	Total Suspended Solids by Grav. (1 mg/L)	APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

ALS07041301

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Client: CH2M HILL, INC
2525 Airpark Drive
Redding CA 96001
Contact: Bernice Kidd

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-H2O2-MAN-VA	**Water**							
Batch R2647857								
WG1705492-2 CRM		**VA-ACY-M-CONTROL**						
Acidity-Hot Peroxide Treated (as CaCO3)			97.9		%		85-115	11-JUL-13
WG1705492-3 DUP		**L1327471-2**						
Acidity-Hot Peroxide Treated (as CaCO3)		<25	<25	RPD-NA	mg/L	N/A	20	11-JUL-13
WG1705492-1 MB								
Acidity-Hot Peroxide Treated (as CaCO3)			<25		mg/L		25	11-JUL-13
Batch R2650280								
WG1708072-2 CRM		**VA-ACY-M-CONTROL**						
Acidity-Hot Peroxide Treated (as CaCO3)			97.9		%		85-115	16-JUL-13
WG1708072-3 DUP		**L1327471-1**						
Acidity-Hot Peroxide Treated (as CaCO3)		2070	2090		mg/L	1.0	20	16-JUL-13
WG1708072-1 MB								
Acidity-Hot Peroxide Treated (as CaCO3)			<25		mg/L		25	16-JUL-13
ALK-SCR-VA	**Water**							
Batch R2644521								
WG1702152-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			97.7		%		85-115	06-JUL-13
WG1702152-5 CRM		**VA-ALKM-CONTROL**						
Alkalinity, Total (as CaCO3)			96.2		%		85-115	06-JUL-13
WG1702152-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	06-JUL-13
WG1702152-4 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	06-JUL-13
WG1702152-6 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	06-JUL-13
ANIONS-CL-IC-WR	**Water**							
Batch R2647486								
WG1705229-2 LCS								
Chloride (Cl)			95.1		%		85-115	05-JUL-13
WG1705229-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	05-JUL-13
ANIONS-F-IC-WR	**Water**							
Batch R2647486								
WG1705229-2 LCS								
Fluoride (F)			96.2		%		85-115	05-JUL-13
WG1705229-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	05-JUL-13
ANIONS-NO2-IC-WR	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO2-IC-WR	**Water**							
Batch R2647486								
WG1705229-2 LCS								
Nitrite (as N)			95.7		%		85-115	05-JUL-13
WG1705229-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	05-JUL-13
ANIONS-NO3-IC-WR	**Water**							
Batch R2647486								
WG1705229-2 LCS								
Nitrate (as N)			96.4		%		85-115	05-JUL-13
WG1705229-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	05-JUL-13
ANIONS-SO4-IC-WR	**Water**							
Batch R2647486								
WG1705229-2 LCS								
Sulfate (SO4)			98.2		%		85-115	05-JUL-13
WG1705229-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	05-JUL-13
CARBONS-DOC-VA	**Water**							
Batch R2650868								
WG1708518-1 DUP		**L1327471-1**						
Dissolved Organic Carbon		3.25	3.12		mg/L	4.0	20	16-JUL-13
WG1708518-4 LCS								
Dissolved Organic Carbon			96.0		%		80-120	16-JUL-13
WG1708518-3 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	16-JUL-13
WG1708518-2 MS		**L1327472-1**						
Dissolved Organic Carbon			99.2		%		70-130	16-JUL-13
CN-FREE-CFA-VA	**Water**							
Batch R2651871								
WG1708856-3 DUP		**L1327471-2**						
Cyanide, Free		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	17-JUL-13
WG1708856-2 LCS								
Cyanide, Free			101.2		%		80-120	17-JUL-13
WG1708856-1 MB								
Cyanide, Free			<0.0050		mg/L		0.005	17-JUL-13
WG1708856-4 MS		**L1327471-2**						
Cyanide, Free			107.0		%		70-130	17-JUL-13
FE2-D-COL-VA	**Water**							

Quality Control Report

Workorder: L1327471 Report Date: 19-JUL-13

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
FE2-D-COL-VA	**Water**							
Batch R2646464								
WG1702636-2 LCS								
Ferrous Iron, Dissolved			102.8		%		80-120	08-JUL-13
WG1702636-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	08-JUL-13
WG1702636-4 MS		**L1327472-1**						
Ferrous Iron, Dissolved			101.7		%		70-130	08-JUL-13
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2648707								
WG1705565-4 DUP		**L1327471-1**						
Mercury (Hg)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	12-JUL-13
WG1705565-3 LCS								
Mercury (Hg)-Dissolved			84.8		%		80-120	12-JUL-13
WG1705565-1 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	12-JUL-13
WG1705565-5 MS		**L1327470-1**						
Mercury (Hg)-Dissolved			85.9		%		70-130	12-JUL-13
MET-D-CCMS-VA	**Water**							
Batch R2648701								
WG1705565-2 CRM		**VA-HIGH-WATRM**						
Aluminum (Al)-Dissolved			102.6		%		80-120	12-JUL-13
Antimony (Sb)-Dissolved			102.2		%		80-120	12-JUL-13
Arsenic (As)-Dissolved			102.3		%		80-120	12-JUL-13
Barium (Ba)-Dissolved			100.4		%		80-120	12-JUL-13
Beryllium (Be)-Dissolved			95.5		%		80-120	12-JUL-13
Boron (B)-Dissolved			92.4		%		80-120	12-JUL-13
Cadmium (Cd)-Dissolved			102.8		%		80-120	12-JUL-13
Chromium (Cr)-Dissolved			103.8		%		80-120	12-JUL-13
Cobalt (Co)-Dissolved			99.9		%		80-120	12-JUL-13
Copper (Cu)-Dissolved			98.8		%		80-120	12-JUL-13
Lead (Pb)-Dissolved			100.6		%		80-120	12-JUL-13
Lithium (Li)-Dissolved			95.9		%		80-120	12-JUL-13
Manganese (Mn)-Dissolved			100.3		%		80-120	12-JUL-13
Molybdenum (Mo)-Dissolved			98.1		%		80-120	12-JUL-13
Nickel (Ni)-Dissolved			98.8		%		80-120	12-JUL-13
Potassium (K)-Dissolved			105.2		%		80-120	12-JUL-13
Selenium (Se)-Dissolved			99.4		%		80-120	12-JUL-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2648701								
WG1705565-2 CRM		**VA-HIGH-WATRM**						
Silver (Ag)-Dissolved			99.1		%		80-120	12-JUL-13
Sodium (Na)-Dissolved			103.5		%		80-120	12-JUL-13
Strontium (Sr)-Dissolved			95.9		%		80-120	12-JUL-13
Thallium (Tl)-Dissolved			99.6		%		80-120	12-JUL-13
Titanium (Ti)-Dissolved			92.6		%		80-120	12-JUL-13
Uranium (U)-Dissolved			101.5		%		80-120	12-JUL-13
Vanadium (V)-Dissolved			102.7		%		80-120	12-JUL-13
Zinc (Zn)-Dissolved			97.0		%		80-120	12-JUL-13
WG1705565-4 DUP		**L1327471-1**						
Aluminum (Al)-Dissolved		0.198	0.201		mg/L	1.5	20	15-JUL-13
Antimony (Sb)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	15-JUL-13
Arsenic (As)-Dissolved		0.0015	0.0014		mg/L	4.0	20	15-JUL-13
Barium (Ba)-Dissolved		0.0211	0.0211		mg/L	0.3	20	15-JUL-13
Beryllium (Be)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	15-JUL-13
Boron (B)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	15-JUL-13
Cadmium (Cd)-Dissolved		0.00127	0.00127		mg/L	0.2	20	15-JUL-13
Chromium (Cr)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	15-JUL-13
Cobalt (Co)-Dissolved		0.0924	0.0937		mg/L	1.4	20	15-JUL-13
Copper (Cu)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	15-JUL-13
Lead (Pb)-Dissolved		0.00096	0.00096		mg/L	0.2	20	15-JUL-13
Lithium (Li)-Dissolved		0.0270	0.0196	J	mg/L	0.0074	0.01	15-JUL-13
Manganese (Mn)-Dissolved		39.4	38.8		mg/L	1.5	20	15-JUL-13
Molybdenum (Mo)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	15-JUL-13
Nickel (Ni)-Dissolved		0.0766	0.0777		mg/L	1.4	20	15-JUL-13
Potassium (K)-Dissolved		6.30	6.17		mg/L	2.1	20	15-JUL-13
Selenium (Se)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	15-JUL-13
Silver (Ag)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-JUL-13
Sodium (Na)-Dissolved		17.4	17.2		mg/L	1.0	20	15-JUL-13
Strontium (Sr)-Dissolved		1.16	1.17		mg/L	1.2	20	15-JUL-13
Thallium (Tl)-Dissolved		0.00036	0.00038		mg/L	4.6	20	15-JUL-13
Titanium (Ti)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	15-JUL-13
Uranium (U)-Dissolved		0.00567	0.00575		mg/L	1.4	20	15-JUL-13
Vanadium (V)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	15-JUL-13
Zinc (Zn)-Dissolved		41.9	42.2		mg/L	0.6	20	15-JUL-13
WG1705565-1 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2648701								
WG1705565-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	12-JUL-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	12-JUL-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	12-JUL-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	12-JUL-13
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	12-JUL-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	12-JUL-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	12-JUL-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	12-JUL-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	12-JUL-13
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	12-JUL-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	12-JUL-13
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	12-JUL-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	12-JUL-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	12-JUL-13
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	12-JUL-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	12-JUL-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	12-JUL-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	12-JUL-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	12-JUL-13
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	12-JUL-13
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	12-JUL-13
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	12-JUL-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	12-JUL-13
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	12-JUL-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	12-JUL-13
WG1705565-5 MS		**L1327470-1**						
Aluminum (Al)-Dissolved			115.3		%		70-130	15-JUL-13
Antimony (Sb)-Dissolved			105.8		%		70-130	15-JUL-13
Arsenic (As)-Dissolved			109.2		%		70-130	15-JUL-13
Barium (Ba)-Dissolved			N/A	MS-B	%		-	15-JUL-13
Beryllium (Be)-Dissolved			95.5		%		70-130	15-JUL-13
Boron (B)-Dissolved			101.4		%		70-130	15-JUL-13
Cadmium (Cd)-Dissolved			95.4		%		70-130	15-JUL-13
Chromium (Cr)-Dissolved			94.4		%		70-130	15-JUL-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2648701								
WG1705565-5 MS		**L1327470-1**						
Cobalt (Co)-Dissolved			92.7		%		70-130	15-JUL-13
Copper (Cu)-Dissolved			86.5		%		70-130	15-JUL-13
Lead (Pb)-Dissolved			90.1		%		70-130	15-JUL-13
Lithium (Li)-Dissolved			92.5		%		70-130	15-JUL-13
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	15-JUL-13
Molybdenum (Mo)-Dissolved			104.5		%		70-130	15-JUL-13
Nickel (Ni)-Dissolved			88.2		%		70-130	15-JUL-13
Potassium (K)-Dissolved			99.9		%		70-130	15-JUL-13
Selenium (Se)-Dissolved			108.7		%		70-130	15-JUL-13
Silver (Ag)-Dissolved			96.0		%		70-130	15-JUL-13
Sodium (Na)-Dissolved			N/A	MS-B	%		-	15-JUL-13
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	15-JUL-13
Thallium (Tl)-Dissolved			92.5		%		70-130	15-JUL-13
Titanium (Ti)-Dissolved			116.1		%		70-130	15-JUL-13
Uranium (U)-Dissolved			N/A	MS-B	%		-	15-JUL-13
Vanadium (V)-Dissolved			101.9		%		70-130	15-JUL-13
Zinc (Zn)-Dissolved			86.1		%		70-130	15-JUL-13
MET-DIS-ICP-VA	**Water**							
Batch R2648300								
WG1705565-2 CRM		**VA-HIGH-WATRM**						
Calcium (Ca)-Dissolved			101.3		%		80-120	11-JUL-13
Iron (Fe)-Dissolved			98.6		%		80-120	11-JUL-13
Magnesium (Mg)-Dissolved			101.8		%		80-120	11-JUL-13
Phosphorus (P)-Dissolved			100.3		%		80-120	11-JUL-13
Silicon (Si)-Dissolved			102.7		%		80-120	11-JUL-13
WG1705565-1 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	11-JUL-13
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	11-JUL-13
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	11-JUL-13
Phosphorus (P)-Dissolved			<0.30		mg/L		0.3	11-JUL-13
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	11-JUL-13
WG1705565-5 MS		**L1327470-1**						
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	11-JUL-13
Iron (Fe)-Dissolved			90.4		%		70-130	11-JUL-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA	**Water**							
Batch R2648300								
WG1705565-5 MS		**L1327470-1**						
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	11-JUL-13
Batch R2648635								
WG1705565-4 DUP		**L1327471-1**						
Calcium (Ca)-Dissolved		380	378		mg/L	0.6	20	12-JUL-13
Iron (Fe)-Dissolved		1370	1360		mg/L	0.7	20	12-JUL-13
Magnesium (Mg)-Dissolved		92.2	91.6		mg/L	0.7	20	12-JUL-13
Phosphorus (P)-Dissolved		<0.60	<0.60	RPD-NA	mg/L	N/A	20	12-JUL-13
Silicon (Si)-Dissolved		8.77	8.72		mg/L	0.6	20	12-JUL-13
NH3-F-VA	**Water**							
Batch R2652280								
WG1710045-2 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			100.5		%		85-115	18-JUL-13
WG1710045-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	18-JUL-13
WG1710045-4 MS		**L1327470-1**						
Ammonia, Total (as N)			96.0		%		75-125	18-JUL-13
PH-PCT-VA	**Water**							
Batch R2645814								
WG1702499-25 CRM		**VA-PH7-BUF**						
pH			7.02		pH		6.9-7.1	08-JUL-13
WG1702499-33 DUP		**L1327471-1**						
pH		5.20	5.16	J	pH	0.04	0.3	08-JUL-13
PO4-DO-COL-VA	**Water**							
Batch R2644322								
WG1701979-2 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			90.7		%		80-120	05-JUL-13
WG1701979-6 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			90.3		%		80-120	05-JUL-13
WG1701979-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	05-JUL-13
WG1701979-5 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	05-JUL-13
WG1701979-4 MS		**L1327471-2**						
Orthophosphate-Dissolved (as P)			93.9		%		70-130	05-JUL-13
S-DIS-ICP-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
S-DIS-ICP-VA	**Water**							
Batch R2648300								
WG1705565-2 CRM		**VA-HIGH-WATRM**						
Sulfur (S)-Dissolved			100.3		%		80-120	11-JUL-13
WG1705565-1 MB								
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	11-JUL-13
WG1705565-5 MS		**L1327470-1**						
Sulfur (S)-Dissolved			N/A	MS-B	%		-	11-JUL-13
Batch R2648635								
WG1705565-4 DUP		**L1327471-1**						
Sulfur (S)-Dissolved		1290	1280		mg/L	1.1	20	12-JUL-13
TDS-VA	**Water**							
Batch R2646769								
WG1703818-3 DUP		**L1327471-2**						
Total Dissolved Solids		3960	3840		mg/L	3.3	20	09-JUL-13
WG1703818-2 LCS								
Total Dissolved Solids			86.5		%		85-115	09-JUL-13
WG1703818-1 MB								
Total Dissolved Solids			<10		mg/L		10	09-JUL-13
TSS-LOW-VA	**Water**							
Batch R2645862								
WG1701996-2 LCS								
Total Suspended Solids			113.3		%		85-115	06-JUL-13
WG1701996-1 MB								
Total Suspended Solids			<1.0		mg/L		1	06-JUL-13

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	1	03-JUL-13 16:45	08-JUL-13 23:00	0.25	126	hours	EHTR-FM
	2	03-JUL-13 15:30	08-JUL-13 23:00	0.25	127	hours	EHTR-FM

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1327471 were received on 04-JUL-13 22:00.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CH2MHILL

CHAIN OF CUSTODY RECORD

7/4/2013 1:27:15 PM

Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.06.AD.01.04.13
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-015
Project FARO MINE SEEP SAMPLING 2013
Turnaround Time 10 Days
Shipping Date: 7/1/2013
COC Number: ALS07041301

	DATE	TIME	Matrix	(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity - Run Hot H2O2 if Fe >15ppm	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia	ASTM 7237 Free Cyanide	E245.7-Diss Field Filtered Dissolved Hg	SM2310 _HP Acidity - Run Hot H2O2	SM4110B CL F NO2 NO3 and SO4	SM4500P ortho-Phosphate	Number of Containers	COMMENTS
Container:				125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	250ml Poly	250ml glass	125mL Poly	250ml Poly	500ml Poly	500ml Poly	500ml Poly		
Preservatives:				HCl, 4'C	4C	4C	4'C	4'C	H2SO4, pH<2, 4'C	HNO3, 4'C	H2SO4, pH<2, 4C	NaOH, 4'C	HNO3, 4'C	4C	4'C	4'C		
Filtered:				Field	NA	NA	NA	NA	Field	Field	NA	NA	Field	NA	NA	NA		
Holding Time:				180	14	14	7	7	28	180/28	28	14	180/28	14	3	3		
CH-RCTA-07_SESP13	7/3/2013	16:45	Water	X	X	X	X	X	X	X	X	X	X		X	X	8	
SRK-FD49_SESP13	7/3/2013	15:30	Water	X		X	X	X	X	X	X	X	X	X	X	X	8	
																TOTAL NUMBER OF CONTAINERS	16	



L1327471-COFC

	Signatures	Date/Time
Approved by		
Sampled by		07/04/2013
Relinquished by		15:30
Received by		
Relinquished by		22:00 04-JUL-13
Received by		

Shipping Details

Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

ATTN:

Sample Custody
and
Amber Springer

Special Instructions:

PO: 604564 on Invoice Perform Lab Dup/MS on these samples

Report Copy to
Bernice Kidd
(530) 229-3203

CH2M HILL, INC
ATTN: Bernice Kidd
2525 Airpark Drive
Redding CA 96001

Date Received: 04-JUL-13
Report Date: 19-JUL-13 12:24 (MT)
Version: FINAL

Client Phone: 530-229-3203

Certificate of Analysis

Lab Work Order #: L1327472

Project P.O. #: 472645.06.AD.01.04.13 PO=604564
Job Reference: WASTE ROCK DUMP MW 2013 SW-014B
C of C Numbers: ALS07031301
Legal Site Desc:

Amber Springer
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1327472-1				
	Description	Water				
	Sampled Date	02-JUL-13				
	Sampled Time	18:00				
	Client ID	CH12-014-MW011_GW0613				
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	2780				
	pH (pH)	7.46				
	Total Suspended Solids (mg/L)	3.9				
	Total Dissolved Solids (mg/L)	3930				
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	49.2				
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	646				
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<20				
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<20				
	Alkalinity, Total (as CaCO3) (mg/L)	646				
	Ammonia, Total (as N) (mg/L)	0.0601				
	Chloride (Cl) (mg/L)	1.04				
	Fluoride (F) (mg/L)	0.113				
	Nitrate (as N) (mg/L)	7.58				
	Nitrite (as N) (mg/L)	<0.020 DLM				
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010				
	Sulfate (SO4) (mg/L)	2270				
Cyanides	Cyanide, Free (mg/L)	<0.0050				
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	2.97				
Dissolved Metals	Dissolved Metals Filtration Location	FIELD				
	Aluminum (Al)-Dissolved (mg/L)	<0.0020 DLA				
	Antimony (Sb)-Dissolved (mg/L)	0.00055				
	Arsenic (As)-Dissolved (mg/L)	0.00028				
	Barium (Ba)-Dissolved (mg/L)	0.0187				
	Beryllium (Be)-Dissolved (mg/L)	<0.00020 DLA				
	Boron (B)-Dissolved (mg/L)	<0.020 DLA				
	Cadmium (Cd)-Dissolved (mg/L)	0.000127				
	Calcium (Ca)-Dissolved (mg/L)	472				
	Chromium (Cr)-Dissolved (mg/L)	0.00046				
	Cobalt (Co)-Dissolved (mg/L)	0.0197				
	Copper (Cu)-Dissolved (mg/L)	0.00130				
	Iron (Fe)-Dissolved (mg/L)	0.070				
	Ferrous Iron, Dissolved (mg/L)	0.076				
	Lead (Pb)-Dissolved (mg/L)	0.00016				
	Lithium (Li)-Dissolved (mg/L)	0.0356				
	Magnesium (Mg)-Dissolved (mg/L)	388				
	Manganese (Mn)-Dissolved (mg/L)	0.909				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1327472-1				
	Description	Water				
	Sampled Date	02-JUL-13				
	Sampled Time	18:00				
	Client ID	CH12-014-MW011_GW0613				
Grouping	**Analyte**					
WATER						
Dissolved Metals	Mercury (Hg)-Dissolved (mg/L)	<0.000010				
	Molybdenum (Mo)-Dissolved (mg/L)	0.00062				
	Nickel (Ni)-Dissolved (mg/L)	0.171				
	Phosphorus (P)-Dissolved (mg/L)	<0.30				
	Potassium (K)-Dissolved (mg/L)	6.98				
	Selenium (Se)-Dissolved (mg/L)	0.00027				
	Silicon (Si)-Dissolved (mg/L)	4.30				
	Silicon (as SiO2)-Dissolved (mg/L)	9.20				
	Silver (Ag)-Dissolved (mg/L)	<0.000020 DLA				
	Sodium (Na)-Dissolved (mg/L)	10.5				
	Strontium (Sr)-Dissolved (mg/L)	1.18				
	Sulfur (S)-Dissolved (mg/L)	673				
	Thallium (Tl)-Dissolved (mg/L)	<0.000020 DLA				
	Titanium (Ti)-Dissolved (mg/L)	<0.020 DLA				
	Uranium (U)-Dissolved (mg/L)	0.0519				
	Vanadium (V)-Dissolved (mg/L)	<0.0020 DLA				
	Zinc (Zn)-Dissolved (mg/L)	1.75				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Phosphorus (P)-Dissolved	DLA	L1327472-1
Duplicate	Antimony (Sb)-Dissolved	DLA	L1327472-1
Duplicate	Beryllium (Be)-Dissolved	DLA	L1327472-1
Duplicate	Boron (B)-Dissolved	DLA	L1327472-1
Duplicate	Chromium (Cr)-Dissolved	DLA	L1327472-1
Duplicate	Copper (Cu)-Dissolved	DLA	L1327472-1
Duplicate	Molybdenum (Mo)-Dissolved	DLA	L1327472-1
Duplicate	Selenium (Se)-Dissolved	DLA	L1327472-1
Duplicate	Silver (Ag)-Dissolved	DLA	L1327472-1
Duplicate	Titanium (Ti)-Dissolved	DLA	L1327472-1
Duplicate	Vanadium (V)-Dissolved	DLA	L1327472-1
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1327472-1
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1327472-1
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L1327472-1
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1327472-1
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1327472-1
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1327472-1
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1327472-1
Matrix Spike	Uranium (U)-Dissolved	MS-B	L1327472-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
DLM	Detection Limit Adjusted For Sample Matrix Effects
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-CL-IC-WR	Water	Chloride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-F-IC-WR	Water	Fluoride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-NO2-IC-WR	Water	Nitrite Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-NO3-IC-WR	Water	Nitrate Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19,

Reference Information

Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-SO4-IC-WR Water Sulphate by Ion Chromatography EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

CARBONS-DOC-VA Water Dissolved organic carbon by combustion APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CN-FREE-CFA-VA Water Free Cyanide in water by CFA ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

FE2-D-COL-VA Water Diss. Ferrous Iron in Water by Colour James W. Ball et al (1999)

This analysis is carried out using procedures adapted from "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedures involves preliminary sample filtration (0.1um filter) and Ferrous Iron is determined using the "FerroZine" colorimteric method.

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

MET-D-CCMS-VA Water Dissolved Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

S-DIS-ICP-VA Water Dissolved Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Reference Information

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

SIO2-D-CALC-VA Water Dissolved Silicon (reported as Silica) CALCULATION

Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-LOW-VA Water Total Suspended Solids by Grav. (1 mg/L) APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

ALS07031301

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1327472 Report Date: 19-JUL-13

Client: CH2M HILL, INC
2525 Airpark Drive
Redding CA 96001
Contact: Bernice Kidd

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-PCT-VA	**Water**							
Batch R2645814								
WG1702499-9 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			101.2		%		85-115	08-JUL-13
WG1702499-34 DUP		**L1327472-1**						
Acidity (as CaCO3)		49.2	47.9		mg/L	2.6	20	08-JUL-13
ALK-SCR-VA	**Water**							
Batch R2644521								
WG1702152-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			97.7		%		85-115	06-JUL-13
WG1702152-5 CRM		**VA-ALKM-CONTROL**						
Alkalinity, Total (as CaCO3)			96.2		%		85-115	06-JUL-13
WG1702152-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	06-JUL-13
WG1702152-4 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	06-JUL-13
WG1702152-6 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	06-JUL-13
ANIONS-CL-IC-WR	**Water**							
Batch R2647486								
WG1705229-2 LCS								
Chloride (Cl)			95.1		%		85-115	05-JUL-13
WG1705229-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	05-JUL-13
ANIONS-F-IC-WR	**Water**							
Batch R2647486								
WG1705229-2 LCS								
Fluoride (F)			96.2		%		85-115	05-JUL-13
WG1705229-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	05-JUL-13
ANIONS-NO2-IC-WR	**Water**							
Batch R2647486								
WG1705229-2 LCS								
Nitrite (as N)			95.7		%		85-115	05-JUL-13
WG1705229-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	05-JUL-13
ANIONS-NO3-IC-WR	**Water**							

Quality Control Report

Workorder: L1327472 Report Date: 19-JUL-13

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO3-IC-WR	**Water**							
Batch R2647486								
WG1705229-2 LCS								
Nitrate (as N)			96.4		%		85-115	05-JUL-13
WG1705229-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	05-JUL-13
ANIONS-SO4-IC-WR	**Water**							
Batch R2647486								
WG1705229-2 LCS								
Sulfate (SO4)			98.2		%		85-115	05-JUL-13
WG1705229-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	05-JUL-13
CARBONS-DOC-VA	**Water**							
Batch R2650868								
WG1708518-4 LCS								
Dissolved Organic Carbon			96.0		%		80-120	16-JUL-13
WG1708518-3 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	16-JUL-13
WG1708518-2 MS		**L1327472-1**						
Dissolved Organic Carbon			99.2		%		70-130	16-JUL-13
CN-FREE-CFA-VA	**Water**							
Batch R2650974								
WG1707954-3 DUP		**L1327472-1**						
Cyanide, Free		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	16-JUL-13
WG1707954-2 LCS								
Cyanide, Free			100.2		%		80-120	16-JUL-13
WG1707954-1 MB								
Cyanide, Free			<0.0050		mg/L		0.005	16-JUL-13
WG1707954-4 MS		**L1327472-1**						
Cyanide, Free			98.7		%		70-130	16-JUL-13
FE2-D-COL-VA	**Water**							
Batch R2646464								
WG1702636-3 DUP		**L1327472-1**						
Ferrous Iron, Dissolved		0.076	0.074		mg/L	2.4	20	08-JUL-13
WG1702636-2 LCS								
Ferrous Iron, Dissolved			102.8		%		80-120	08-JUL-13
WG1702636-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	08-JUL-13
WG1702636-4 MS		**L1327472-1**						

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
FE2-D-COL-VA	**Water**							
Batch R2646464								
WG1702636-4 MS		**L1327472-1**						
Ferrous Iron, Dissolved			101.7		%		70-130	08-JUL-13
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2648707								
WG1705565-3 LCS								
Mercury (Hg)-Dissolved			84.8		%		80-120	12-JUL-13
WG1705565-1 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	12-JUL-13
WG1705565-5 MS		**L1327470-1**						
Mercury (Hg)-Dissolved			85.9		%		70-130	12-JUL-13
MET-D-CCMS-VA	**Water**							
Batch R2648701								
WG1705565-2 CRM		**VA-HIGH-WATRM**						
Aluminum (Al)-Dissolved			102.6		%		80-120	12-JUL-13
Antimony (Sb)-Dissolved			102.2		%		80-120	12-JUL-13
Arsenic (As)-Dissolved			102.3		%		80-120	12-JUL-13
Barium (Ba)-Dissolved			100.4		%		80-120	12-JUL-13
Beryllium (Be)-Dissolved			95.5		%		80-120	12-JUL-13
Boron (B)-Dissolved			92.4		%		80-120	12-JUL-13
Cadmium (Cd)-Dissolved			102.8		%		80-120	12-JUL-13
Chromium (Cr)-Dissolved			103.8		%		80-120	12-JUL-13
Cobalt (Co)-Dissolved			99.9		%		80-120	12-JUL-13
Copper (Cu)-Dissolved			98.8		%		80-120	12-JUL-13
Lead (Pb)-Dissolved			100.6		%		80-120	12-JUL-13
Lithium (Li)-Dissolved			95.9		%		80-120	12-JUL-13
Manganese (Mn)-Dissolved			100.3		%		80-120	12-JUL-13
Molybdenum (Mo)-Dissolved			98.1		%		80-120	12-JUL-13
Nickel (Ni)-Dissolved			98.8		%		80-120	12-JUL-13
Potassium (K)-Dissolved			105.2		%		80-120	12-JUL-13
Selenium (Se)-Dissolved			99.4		%		80-120	12-JUL-13
Silver (Ag)-Dissolved			99.1		%		80-120	12-JUL-13
Sodium (Na)-Dissolved			103.5		%		80-120	12-JUL-13
Strontium (Sr)-Dissolved			95.9		%		80-120	12-JUL-13
Thallium (Tl)-Dissolved			99.6		%		80-120	12-JUL-13
Titanium (Ti)-Dissolved			92.6		%		80-120	12-JUL-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2648701								
WG1705565-2 CRM		**VA-HIGH-WATRM**						
Uranium (U)-Dissolved			101.5		%		80-120	12-JUL-13
Vanadium (V)-Dissolved			102.7		%		80-120	12-JUL-13
Zinc (Zn)-Dissolved			97.0		%		80-120	12-JUL-13
WG1705565-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	12-JUL-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	12-JUL-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	12-JUL-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	12-JUL-13
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	12-JUL-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	12-JUL-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	12-JUL-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	12-JUL-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	12-JUL-13
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	12-JUL-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	12-JUL-13
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	12-JUL-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	12-JUL-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	12-JUL-13
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	12-JUL-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	12-JUL-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	12-JUL-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	12-JUL-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	12-JUL-13
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	12-JUL-13
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	12-JUL-13
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	12-JUL-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	12-JUL-13
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	12-JUL-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	12-JUL-13
WG1705565-5 MS		**L1327470-1**						
Aluminum (Al)-Dissolved			115.3		%		70-130	15-JUL-13
Antimony (Sb)-Dissolved			105.8		%		70-130	15-JUL-13
Arsenic (As)-Dissolved			109.2		%		70-130	15-JUL-13
Barium (Ba)-Dissolved			N/A	MS-B	%		-	15-JUL-13
Beryllium (Be)-Dissolved			95.5		%		70-130	15-JUL-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2648701								
WG1705565-5 MS		**L1327470-1**						
Boron (B)-Dissolved			101.4		%		70-130	15-JUL-13
Cadmium (Cd)-Dissolved			95.4		%		70-130	15-JUL-13
Chromium (Cr)-Dissolved			94.4		%		70-130	15-JUL-13
Cobalt (Co)-Dissolved			92.7		%		70-130	15-JUL-13
Copper (Cu)-Dissolved			86.5		%		70-130	15-JUL-13
Lead (Pb)-Dissolved			90.1		%		70-130	15-JUL-13
Lithium (Li)-Dissolved			92.5		%		70-130	15-JUL-13
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	15-JUL-13
Molybdenum (Mo)-Dissolved			104.5		%		70-130	15-JUL-13
Nickel (Ni)-Dissolved			88.2		%		70-130	15-JUL-13
Potassium (K)-Dissolved			99.9		%		70-130	15-JUL-13
Selenium (Se)-Dissolved			108.7		%		70-130	15-JUL-13
Silver (Ag)-Dissolved			96.0		%		70-130	15-JUL-13
Sodium (Na)-Dissolved			N/A	MS-B	%		-	15-JUL-13
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	15-JUL-13
Thallium (Tl)-Dissolved			92.5		%		70-130	15-JUL-13
Titanium (Ti)-Dissolved			116.1		%		70-130	15-JUL-13
Uranium (U)-Dissolved			N/A	MS-B	%		-	15-JUL-13
Vanadium (V)-Dissolved			101.9		%		70-130	15-JUL-13
Zinc (Zn)-Dissolved			86.1		%		70-130	15-JUL-13
MET-DIS-ICP-VA	**Water**							
Batch R2648300								
WG1705565-2 CRM		**VA-HIGH-WATRM**						
Calcium (Ca)-Dissolved			101.3		%		80-120	11-JUL-13
Iron (Fe)-Dissolved			98.6		%		80-120	11-JUL-13
Magnesium (Mg)-Dissolved			101.8		%		80-120	11-JUL-13
Phosphorus (P)-Dissolved			100.3		%		80-120	11-JUL-13
Silicon (Si)-Dissolved			102.7		%		80-120	11-JUL-13
WG1705565-1 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	11-JUL-13
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	11-JUL-13
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	11-JUL-13
Phosphorus (P)-Dissolved			<0.30		mg/L		0.3	11-JUL-13
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	11-JUL-13
WG1705565-5 MS		**L1327470-1**						

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA	**Water**							
Batch R2648300								
WG1705565-5 MS		**L1327470-1**						
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	11-JUL-13
Iron (Fe)-Dissolved			90.4		%		70-130	11-JUL-13
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	11-JUL-13
NH3-F-VA	**Water**							
Batch R2652280								
WG1710045-2 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			100.5		%		85-115	18-JUL-13
WG1710045-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	18-JUL-13
WG1710045-4 MS		**L1327470-1**						
Ammonia, Total (as N)			96.0		%		75-125	18-JUL-13
PH-PCT-VA	**Water**							
Batch R2645814								
WG1702499-25 CRM		**VA-PH7-BUF**						
pH			7.02		pH		6.9-7.1	08-JUL-13
WG1702499-34 DUP		**L1327472-1**						
pH		7.46	7.48	J	pH	0.02	0.3	08-JUL-13
PO4-DO-COL-VA	**Water**							
Batch R2644322								
WG1701979-2 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			90.7		%		80-120	05-JUL-13
WG1701979-6 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			90.3		%		80-120	05-JUL-13
WG1701979-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	05-JUL-13
WG1701979-5 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	05-JUL-13
WG1701979-4 MS		**L1327471-2**						
Orthophosphate-Dissolved (as P)			93.9		%		70-130	05-JUL-13
S-DIS-ICP-VA	**Water**							
Batch R2648300								
WG1705565-2 CRM		**VA-HIGH-WATRM**						
Sulfur (S)-Dissolved			100.3		%		80-120	11-JUL-13
WG1705565-1 MB								
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	11-JUL-13
WG1705565-5 MS		**L1327470-1**						

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
S-DIS-ICP-VA	**Water**							
Batch R2648300								
WG1705565-5 MS		**L1327470-1**						
Sulfur (S)-Dissolved			N/A	MS-B	%		-	11-JUL-13
TDS-VA	**Water**							
Batch R2646766								
WG1703834-3 DUP		**L1327472-1**						
Total Dissolved Solids		3930	4060		mg/L	3.3	20	09-JUL-13
WG1703834-2 LCS								
Total Dissolved Solids			91.3		%		85-115	09-JUL-13
WG1703834-1 MB								
Total Dissolved Solids			<10		mg/L		10	09-JUL-13
TSS-LOW-VA	**Water**							
Batch R2645101								
WG1701998-2 LCS								
Total Suspended Solids			111.9		%		85-115	06-JUL-13
WG1701998-1 MB								
Total Suspended Solids			<1.0		mg/L		1	06-JUL-13

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	1	02-JUL-13 18:00	08-JUL-13 23:00	0.25	149	hours	EHTR-FM

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1327472 were received on 04-JUL-13 22:00.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CH2MHILL

CHAIN OF CUSTODY RECORD

7/3/2013 1:34:28 PM

Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.06.AD.01.04.13
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-014
Project WASTE ROCK DUMP MW 2013 SW-014B
Turnaround Time 10 Days
Shipping Date: 7/3/2013
COC Number: ALS07031301

	Container:	125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	250ml Poly	250ml glass	125mL Poly	250ml Poly	500ml Poly	500ml Poly			
	Preservatives:	HCl, 4'C	4C	4C	4'C	4'C	H2SO4, pH<2, 4'C	HNO3, 4'C	H2SO4, pH<2, 4C	NaOH, 4'C	HNO3, 4'C	4'C	4'C			
	Filtered:	Field	NA	NA	NA	NA	Field	Field	NA	NA	Field	NA	NA			
	Holding Time:	180	14	14	7	7	28	180/28	28	14	180/28	3	3			
		(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity - Run Hot H2O2 if Fe >15ppm	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia	ASTM 7237 Free Cyanide	E245.7-Diss Field Filtered Dissolved Hg	SM4110B CL F NO2 NO3 and SO4	SM4500P ortho-Phosphate		Number of Containers	COMMENTS
DATE / TIME / Matrix																
CH12-014-MW011_GW0613	7/2/2013 18:00 Water	X	X	X	X	X	X	X	X	X	X	X	X		8	
														TOTAL NUMBER OF CONTAINERS	8	

L1327472-COFC

Signatures	Date/Time
Approved by	
Sampled by	07/03/2013
Relinquished by	13:44
Received by	
Relinquished by	1.1
Received by	22:00 04-Jul-13

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

ATTN:
Sample Custody
and
Amber Springer

Special Instructions:
Perform Lab Dup/MS on these samples

Report Copy to
Bernice Kidd
(530) 229-3203

CH2M HILL, INC
ATTN: Bernice Kidd
2525 Airpark Drive
Redding CA 96001

Date Received: 10-JUL-13
Report Date: 24-JUL-13 17:09 (MT)
Version: FINAL

Client Phone: 530-229-3203

Certificate of Analysis

Lab Work Order #: L1330009

Project P.O. #: 472645.06.AD.01.04.13, PO=604564
Job Reference: WASTE ROCK DUMP MW 2013 SW-014B
C of C Numbers: ALS07081301
Legal Site Desc:

Amber Springer
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1330009-1				
	Description	Water				
	Sampled Date	08-JUL-13				
	Sampled Time	17:25				
	Client ID	CH12-014-MW013_GW0613				
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	4220				
	pH (pH)	7.08				
	Total Suspended Solids (mg/L)	31.0				
	Total Dissolved Solids (mg/L)	6530				
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	181				
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	1190				
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<20				
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<20				
	Alkalinity, Total (as CaCO3) (mg/L)	1190				
	Ammonia, Total (as N) (mg/L)	0.0701				
	Chloride (Cl) (mg/L)	<10 DLA				
	Fluoride (F) (mg/L)	<0.40 DLA				
	Nitrate (as N) (mg/L)	<0.10 DLA				
	Nitrite (as N) (mg/L)	<0.020 DLA				
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010				
	Sulfate (SO4) (mg/L)	3560				
Cyanides	Cyanide, Free (mg/L)	<0.0050				
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	12.4				
Dissolved Metals	Dissolved Metals Filtration Location	FIELD				
	Aluminum (Al)-Dissolved (mg/L)	0.0123				
	Antimony (Sb)-Dissolved (mg/L)	<0.00050 DLA				
	Arsenic (As)-Dissolved (mg/L)	0.00122				
	Barium (Ba)-Dissolved (mg/L)	0.0168				
	Beryllium (Be)-Dissolved (mg/L)	<0.00050 DLA				
	Boron (B)-Dissolved (mg/L)	<0.050 DLA				
	Cadmium (Cd)-Dissolved (mg/L)	0.00592				
	Calcium (Ca)-Dissolved (mg/L)	703				
	Chromium (Cr)-Dissolved (mg/L)	<0.00050 DLA				
	Cobalt (Co)-Dissolved (mg/L)	0.0420				
	Copper (Cu)-Dissolved (mg/L)	0.0058				
	Iron (Fe)-Dissolved (mg/L)	6.64				
	Ferrous Iron, Dissolved (mg/L)	7.33				
	Lead (Pb)-Dissolved (mg/L)	0.0105				
	Lithium (Li)-Dissolved (mg/L)	0.0330				
	Magnesium (Mg)-Dissolved (mg/L)	599				
	Manganese (Mn)-Dissolved (mg/L)	11.3				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1330009-1				
	Description	Water				
	Sampled Date	08-JUL-13				
	Sampled Time	17:25				
	Client ID	CH12-014-MW013_GW0613				
Grouping	**Analyte**					
WATER						
Dissolved Metals	Mercury (Hg)-Dissolved (mg/L)	<0.000010				
	Molybdenum (Mo)-Dissolved (mg/L)	0.00156				
	Nickel (Ni)-Dissolved (mg/L)	0.113				
	Phosphorus (P)-Dissolved (mg/L)	<0.30				
	Potassium (K)-Dissolved (mg/L)	3.40				
	Selenium (Se)-Dissolved (mg/L)	<0.00050 DLA				
	Silicon (Si)-Dissolved (mg/L)	11.5				
	Silicon (as SiO2)-Dissolved (mg/L)	24.7				
	Silver (Ag)-Dissolved (mg/L)	<0.000050 DLA				
	Sodium (Na)-Dissolved (mg/L)	16.2				
	Strontium (Sr)-Dissolved (mg/L)	2.07				
	Sulfur (S)-Dissolved (mg/L)	972				
	Thallium (Tl)-Dissolved (mg/L)	0.000175				
	Titanium (Ti)-Dissolved (mg/L)	<0.050 DLA				
	Uranium (U)-Dissolved (mg/L)	0.0824				
	Vanadium (V)-Dissolved (mg/L)	<0.0050 DLA				
	Zinc (Zn)-Dissolved (mg/L)	8.15				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Antimony (Sb)-Dissolved	DLA	L1330009-1
Duplicate	Beryllium (Be)-Dissolved	DLA	L1330009-1
Duplicate	Boron (B)-Dissolved	DLA	L1330009-1
Duplicate	Chromium (Cr)-Dissolved	DLA	L1330009-1
Duplicate	Selenium (Se)-Dissolved	DLA	L1330009-1
Duplicate	Silver (Ag)-Dissolved	DLA	L1330009-1
Duplicate	Titanium (Ti)-Dissolved	DLA	L1330009-1
Duplicate	Vanadium (V)-Dissolved	DLA	L1330009-1
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1330009-1
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1330009-1
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L1330009-1
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1330009-1
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1330009-1
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1330009-1
Matrix Spike	Uranium (U)-Dissolved	MS-B	L1330009-1
Matrix Spike	Zinc (Zn)-Dissolved	MS-B	L1330009-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-CL-IC-WR	Water	Chloride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-F-IC-WR	Water	Fluoride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-NO2-IC-WR	Water	Nitrite Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-NO3-IC-WR	Water	Nitrate Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-SO4-IC-WR	Water	Sulphate by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

Reference Information

CARBONS-DOC-VA Water Dissolved organic carbon by combustion APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CN-FREE-CFA-VA Water Free Cyanide in water by CFA ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

FE2-D-COL-VA Water Diss. Ferrous Iron in Water by Colour James W. Ball et al (1999)

This analysis is carried out using procedures adapted from "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedures involves preliminary sample filtration (0.1um filter) and Ferrous Iron is determined using the "FerroZine" colorimteric method.

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

MET-D-CCMS-VA Water Dissolved Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

S-DIS-ICP-VA Water Dissolved Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

SIO2-D-CALC-VA Water Dissolved Silicon (reported as Silica) CALCULATION

Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).

Reference Information

TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-LOW-VA	Water	Total Suspended Solids by Grav. (1 mg/L)	APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

ALS07081301

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Client: CH2M HILL, INC
2525 Airpark Drive
Redding CA 96001
Contact: Bernice Kidd

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-PCT-VA	**Water**							
Batch R2649419								
WG1705761-9 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			96.2		%		85-115	12-JUL-13
WG1705761-33 DUP		**L1330009-1**						
Acidity (as CaCO3)		181	158		mg/L	14	20	12-JUL-13
WG1705761-34 MB								
Acidity (as CaCO3)			<1.0		mg/L		1	12-JUL-13
ALK-SCR-VA	**Water**							
Batch R2648735								
WG1705938-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			95.3		%		85-115	12-JUL-13
WG1705938-5 CRM		**VA-ALKM-CONTROL**						
Alkalinity, Total (as CaCO3)			98.5		%		85-115	12-JUL-13
WG1705938-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	12-JUL-13
WG1705938-4 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	12-JUL-13
WG1705938-7 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	12-JUL-13
ANIONS-CL-IC-WR	**Water**							
Batch R2650132								
WG1707934-2 LCS								
Chloride (Cl)			99.7		%		85-115	11-JUL-13
WG1707934-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	11-JUL-13
ANIONS-F-IC-WR	**Water**							
Batch R2650132								
WG1707934-2 LCS								
Fluoride (F)			99.8		%		85-115	11-JUL-13
WG1707934-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	11-JUL-13
ANIONS-NO2-IC-WR	**Water**							
Batch R2650132								
WG1707934-2 LCS								
Nitrite (as N)			100.2		%		85-115	11-JUL-13
WG1707934-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	11-JUL-13
ANIONS-NO3-IC-WR	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO3-IC-WR	**Water**							
Batch R2650132								
WG1707934-2 LCS								
Nitrate (as N)			100.8		%		85-115	11-JUL-13
WG1707934-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	11-JUL-13
ANIONS-SO4-IC-WR	**Water**							
Batch R2650132								
WG1707934-2 LCS								
Sulfate (SO4)			103.1		%		85-115	11-JUL-13
WG1707934-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	11-JUL-13
CARBONS-DOC-VA	**Water**							
Batch R2655630								
WG1713624-2 LCS								
Dissolved Organic Carbon			98.2		%		80-120	19-JUL-13
WG1713624-1 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	19-JUL-13
CN-FREE-CFA-VA	**Water**							
Batch R2654512								
WG1711937-3 DUP		**L1330009-1**						
Cyanide, Free		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	22-JUL-13
WG1711937-2 LCS								
Cyanide, Free			105.5		%		80-120	22-JUL-13
WG1711937-1 MB								
Cyanide, Free			<0.0050		mg/L		0.005	22-JUL-13
WG1711937-4 MS		**L1330009-1**						
Cyanide, Free			106.2		%		70-130	22-JUL-13
FE2-D-COL-VA	**Water**							
Batch R2650252								
WG1707118-3 DUP		**L1330009-1**						
Ferrous Iron, Dissolved		7.33	7.23		mg/L	1.3	20	15-JUL-13
WG1707118-2 LCS								
Ferrous Iron, Dissolved			103.7		%		80-120	15-JUL-13
WG1707118-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	15-JUL-13
WG1707118-4 MS		**L1330009-1**						
Ferrous Iron, Dissolved			102.8		%		70-130	15-JUL-13
HG-DIS-LOW-CVAFS-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2649671								
WG1707283-3 LCS								
Mercury (Hg)-Dissolved			101.0		%		80-120	15-JUL-13
Batch R2650372								
WG1707283-1 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	16-JUL-13
Batch R2651235								
WG1707283-4 DUP		**L1330009-1**						
Mercury (Hg)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	17-JUL-13
WG1707283-5 MS		**L1330009-1**						
Mercury (Hg)-Dissolved			73.8		%		70-130	17-JUL-13
MET-D-CCMS-VA	**Water**							
Batch R2650471								
WG1707283-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	16-JUL-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	16-JUL-13
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	16-JUL-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	16-JUL-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	16-JUL-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	16-JUL-13
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	16-JUL-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	16-JUL-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	16-JUL-13
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	16-JUL-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	16-JUL-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	16-JUL-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	16-JUL-13
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	16-JUL-13
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	16-JUL-13
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	16-JUL-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2650471								
WG1707283-1 MB								
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	16-JUL-13
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	16-JUL-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	16-JUL-13
Batch R2650990								
WG1707283-1 MB								
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Batch R2651198								
WG1707283-2 CRM		**VA-HIGH-WATRM**						
Aluminum (Al)-Dissolved			96.6		%		80-120	16-JUL-13
Antimony (Sb)-Dissolved			101.7		%		80-120	16-JUL-13
Arsenic (As)-Dissolved			96.9		%		80-120	16-JUL-13
Barium (Ba)-Dissolved			96.2		%		80-120	16-JUL-13
Beryllium (Be)-Dissolved			98.1		%		80-120	16-JUL-13
Boron (B)-Dissolved			91.7		%		80-120	16-JUL-13
Cadmium (Cd)-Dissolved			99.5		%		80-120	16-JUL-13
Chromium (Cr)-Dissolved			95.0		%		80-120	16-JUL-13
Cobalt (Co)-Dissolved			93.9		%		80-120	16-JUL-13
Copper (Cu)-Dissolved			96.9		%		80-120	16-JUL-13
Lead (Pb)-Dissolved			101.2		%		80-120	16-JUL-13
Lithium (Li)-Dissolved			101.7		%		80-120	16-JUL-13
Manganese (Mn)-Dissolved			96.1		%		80-120	16-JUL-13
Molybdenum (Mo)-Dissolved			99.3		%		80-120	16-JUL-13
Nickel (Ni)-Dissolved			89.2		%		80-120	16-JUL-13
Potassium (K)-Dissolved			96.2		%		80-120	16-JUL-13
Selenium (Se)-Dissolved			94.7		%		80-120	16-JUL-13
Silver (Ag)-Dissolved			101.9		%		80-120	16-JUL-13
Sodium (Na)-Dissolved			98.9		%		80-120	16-JUL-13
Strontium (Sr)-Dissolved			98.2		%		80-120	16-JUL-13
Thallium (Tl)-Dissolved			101.2		%		80-120	16-JUL-13
Titanium (Ti)-Dissolved			99.3		%		80-120	16-JUL-13
Uranium (U)-Dissolved			100.5		%		80-120	16-JUL-13
Vanadium (V)-Dissolved			96.2		%		80-120	16-JUL-13
Zinc (Zn)-Dissolved			94.0		%		80-120	16-JUL-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2652670								
WG1707283-4 DUP		**L1330009-1**						
Aluminum (Al)-Dissolved		0.0123	0.0112		mg/L	9.5	20	18-JUL-13
Antimony (Sb)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-JUL-13
Arsenic (As)-Dissolved		0.00122	0.00113		mg/L	7.4	20	18-JUL-13
Barium (Ba)-Dissolved		0.0168	0.0166		mg/L	1.2	20	18-JUL-13
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-JUL-13
Boron (B)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	18-JUL-13
Cadmium (Cd)-Dissolved		0.00592	0.00599		mg/L	1.1	20	18-JUL-13
Chromium (Cr)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-JUL-13
Cobalt (Co)-Dissolved		0.0420	0.0426		mg/L	1.4	20	18-JUL-13
Copper (Cu)-Dissolved		0.0058	0.0057		mg/L	1.3	20	18-JUL-13
Lead (Pb)-Dissolved		0.0105	0.0105		mg/L	0.2	20	18-JUL-13
Lithium (Li)-Dissolved		0.0330	0.0322		mg/L	2.3	20	18-JUL-13
Manganese (Mn)-Dissolved		11.3	11.4		mg/L	0.4	20	18-JUL-13
Molybdenum (Mo)-Dissolved		0.00156	0.00155		mg/L	1.0	20	18-JUL-13
Nickel (Ni)-Dissolved		0.113	0.113		mg/L	0.2	20	18-JUL-13
Potassium (K)-Dissolved		3.40	3.37		mg/L	1.0	20	18-JUL-13
Selenium (Se)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-JUL-13
Silver (Ag)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	18-JUL-13
Sodium (Na)-Dissolved		16.2	16.6		mg/L	2.0	20	18-JUL-13
Strontium (Sr)-Dissolved		2.07	2.03		mg/L	1.8	20	18-JUL-13
Thallium (Tl)-Dissolved		0.000175	0.000175		mg/L	0.1	20	18-JUL-13
Titanium (Ti)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	18-JUL-13
Uranium (U)-Dissolved		0.0824	0.0804		mg/L	2.5	20	18-JUL-13
Vanadium (V)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	18-JUL-13
Zinc (Zn)-Dissolved		8.15	8.39		mg/L	2.9	20	18-JUL-13
WG1707283-5 MS		**L1330009-1**						
Aluminum (Al)-Dissolved			95.6		%		70-130	18-JUL-13
Antimony (Sb)-Dissolved			107.5		%		70-130	18-JUL-13
Arsenic (As)-Dissolved			108.1		%		70-130	18-JUL-13
Barium (Ba)-Dissolved			98.4		%		70-130	18-JUL-13
Beryllium (Be)-Dissolved			93.0		%		70-130	18-JUL-13
Boron (B)-Dissolved			94.5		%		70-130	18-JUL-13
Cadmium (Cd)-Dissolved			95.8		%		70-130	18-JUL-13
Chromium (Cr)-Dissolved			95.7		%		70-130	18-JUL-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2652670								
WG1707283-5 MS		**L1330009-1**						
Cobalt (Co)-Dissolved			89.8		%		70-130	18-JUL-13
Copper (Cu)-Dissolved			87.9		%		70-130	18-JUL-13
Lead (Pb)-Dissolved			90.5		%		70-130	18-JUL-13
Lithium (Li)-Dissolved			96.0		%		70-130	18-JUL-13
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	18-JUL-13
Molybdenum (Mo)-Dissolved			109.3		%		70-130	18-JUL-13
Nickel (Ni)-Dissolved			87.1		%		70-130	18-JUL-13
Potassium (K)-Dissolved			91.8		%		70-130	18-JUL-13
Selenium (Se)-Dissolved			111.8		%		70-130	18-JUL-13
Silver (Ag)-Dissolved			95.0		%		70-130	18-JUL-13
Sodium (Na)-Dissolved			N/A	MS-B	%		-	18-JUL-13
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	18-JUL-13
Thallium (Tl)-Dissolved			92.1		%		70-130	18-JUL-13
Titanium (Ti)-Dissolved			116.8		%		70-130	18-JUL-13
Uranium (U)-Dissolved			N/A	MS-B	%		-	18-JUL-13
Vanadium (V)-Dissolved			98.6		%		70-130	18-JUL-13
Zinc (Zn)-Dissolved			N/A	MS-B	%		-	18-JUL-13
MET-DIS-ICP-VA	**Water**							
Batch R2650127								
WG1707283-2 CRM		**VA-HIGH-WATRM**						
Calcium (Ca)-Dissolved			100.9		%		80-120	15-JUL-13
Iron (Fe)-Dissolved			96.8		%		80-120	15-JUL-13
Magnesium (Mg)-Dissolved			97.8		%		80-120	15-JUL-13
Phosphorus (P)-Dissolved			100.3		%		80-120	15-JUL-13
Silicon (Si)-Dissolved			101.8		%		80-120	15-JUL-13
WG1707283-1 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	15-JUL-13
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	15-JUL-13
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	15-JUL-13
Phosphorus (P)-Dissolved			<0.30		mg/L		0.3	15-JUL-13
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	15-JUL-13
Batch R2650458								
WG1707283-4 DUP		**L1330009-1**						
Calcium (Ca)-Dissolved		703	705		mg/L	0.3	20	16-JUL-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA	**Water**							
Batch R2650458								
WG1707283-4 DUP		**L1330009-1**						
Iron (Fe)-Dissolved		6.64	6.64		mg/L	0.0	20	16-JUL-13
Magnesium (Mg)-Dissolved		599	599		mg/L	0.0	20	16-JUL-13
Phosphorus (P)-Dissolved		<0.30	<0.30	RPD-NA	mg/L	N/A	20	16-JUL-13
Silicon (Si)-Dissolved		11.5	11.6		mg/L	0.4	20	16-JUL-13
WG1707283-5 MS		**L1330009-1**						
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	16-JUL-13
Iron (Fe)-Dissolved			94.9		%		70-130	16-JUL-13
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	16-JUL-13
NH3-F-VA	**Water**							
Batch R2654661								
WG1712352-2 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			97.0		%		85-115	23-JUL-13
WG1712352-3 DUP		**L1330009-1**						
Ammonia, Total (as N)		0.0701	0.0669		mg/L	4.6	20	23-JUL-13
WG1712352-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	23-JUL-13
WG1712352-4 MS		**L1330009-1**						
Ammonia, Total (as N)			95.1		%		75-125	23-JUL-13
PH-PCT-VA	**Water**							
Batch R2649419								
WG1705761-31 CRM		**VA-PH7-BUF**						
pH			7.04		pH		6.9-7.1	12-JUL-13
WG1705761-33 DUP		**L1330009-1**						
pH		7.08	7.15	J	pH	0.07	0.3	12-JUL-13
PO4-DO-COL-VA	**Water**							
Batch R2648015								
WG1705606-2 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			87.4		%		80-120	11-JUL-13
WG1705606-6 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			85.2		%		80-120	11-JUL-13
WG1705606-3 DUP		**L1330009-1**						
Orthophosphate-Dissolved (as P)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	11-JUL-13
WG1705606-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	11-JUL-13
WG1705606-5 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	11-JUL-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PO4-DO-COL-VA	**Water**							
Batch R2648015								
WG1705606-4 MS		**L1330009-1**						
Orthophosphate-Dissolved (as P)			89.3		%		70-130	11-JUL-13
S-DIS-ICP-VA	**Water**							
Batch R2650127								
WG1707283-2 CRM		**VA-HIGH-WATRM**						
Sulfur (S)-Dissolved			106.3		%		80-120	15-JUL-13
WG1707283-1 MB								
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	15-JUL-13
Batch R2650458								
WG1707283-4 DUP		**L1330009-1**						
Sulfur (S)-Dissolved		972	972		mg/L	0.0	20	16-JUL-13
WG1707283-5 MS		**L1330009-1**						
Sulfur (S)-Dissolved			N/A	MS-B	%		-	16-JUL-13
TDS-VA	**Water**							
Batch R2650351								
WG1707436-3 DUP		**L1330009-1**						
Total Dissolved Solids		6530	5660		mg/L	14	20	15-JUL-13
WG1707436-2 LCS								
Total Dissolved Solids			104.0		%		85-115	15-JUL-13
WG1707436-1 MB								
Total Dissolved Solids			<10		mg/L		10	15-JUL-13
TSS-LOW-VA	**Water**							
Batch R2650385								
WG1707513-2 LCS								
Total Suspended Solids			86.7		%		85-115	15-JUL-13
WG1707513-1 MB								
Total Suspended Solids			<1.0		mg/L		1	15-JUL-13

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	1	08-JUL-13 17:25	12-JUL-13 23:00	0.25	102	hours	EHTR-FM

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1330009 were received on 10-JUL-13 09:55.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CH2MHILL

CHAIN OF CUSTODY RECORD

7/9/2013 9:32:45 AM

Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.06.AD.01.04.13
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-014
Project WASTE ROCK DUMP MW 2013 SW-014B
Turnaround Time 3 Days
Shipping Date: 7/9/2013
COC Number: ALS07081301

	Container:	500ml Poly	125mL Poly	500ml Poly	250ml Poly	125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	250ml Poly	250mi glass			
	Preservatives:	4'C	NaOH, 4'C	4'C	HNO3, 4'C	HCl, 4'C	4C	4C	4'C	4'C	H2SO4, pH<2, 4'C	HNO3, 4'C	H2SO4, pH<2, 4C			
	Filtered:	NA	NA	NA	Field	Field	NA	NA	NA	NA	Field	Field	NA			
	Holding Time:	3	14	3	180/28	180	14	14	7	7	28	180/28	28			
		CL F NO2 NO3 and SO4	Free Cyanide	ortho-Phosphate	Field Filtered Dissolved Hg	(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity – Run Hot H2O2 if Fe >15ppm	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia		Number of Containers	COMMENTS
CH12-014-MW013_GW0613	7/8/2013 17:25 Water	X	X	X	X	X	X	X	X	X	X	X	X		8	
														TOTAL NUMBER OF CONTAINERS	8	

DATE TIME Matrix

L1330009-COFC

	Signatures	Date/Time
Approved by		
Sampled by		7/9/13 1400
Relinquished by		
Received by		7/10/13
Relinquished by		
Received by		5.0°C 9:15

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

ATTN:
Sample Custody
and
Amber Springer

Special Instructions:
Perform Lab Dup/MS on these samples

Report Copy to
Bernice Kidd
(530) 229-3203

CH2M HILL, INC
ATTN: Bernice Kidd
2525 Airpark Drive
Redding CA 96001

Date Received: 13-SEP-13
Report Date: 03-OCT-13 15:54 (MT)
Version: FINAL

Client Phone: 530-229-3203

Certificate of Analysis

Lab Work Order #: L1362505

Project P.O. #: 472645.06.AD.01.04.13 "PO:604564"
Job Reference: FARO MINE SEEP SAMPLING 2013 SW-015
C of C Numbers: ALS09121301
Legal Site Desc:

Amber Springer
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1362505-1	L1362505-2	L1362505-3	L1362505-4	L1362505-5
	Description	Water	Water	Water	Water	Water
	Sampled Date	11-SEP-13	11-SEP-13	11-SEP-13	11-SEP-13	11-SEP-13
	Sampled Time	15:30	10:30	14:20	12:45	12:15
	Client ID	CH-MILL-03_SEFL13	SRK-FD01_SEFL13	SRK-FD14_SEFL13	SRK-FD26_SEFL13	SRK-FD37_SEFL13
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	3720	2970	2050	995	6700
	pH (pH)	4.59	6.87	7.93	7.85	
	Total Suspended Solids (mg/L)	130	13.0	273	12.5	134
	Total Dissolved Solids (mg/L)	14900	4920	3340	1470	191000 AI
Anions and Nutrients	Acidity (as CaCO3) (mg/L)		215	17.3	23.2	
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)	4230				86300
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	16.3	224	141	207	
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0	
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0	
	Alkalinity, Total (as CaCO3) (mg/L)	16.3	224	141	207	
	Ammonia, Total (as N) (mg/L)	0.345	0.0118	0.0166	0.0062	0.0141
	Chloride (Cl) (mg/L)	<25 DLA	<10 DLA	<10 DLA	<5.0 DLA	<50 DLA
	Fluoride (F) (mg/L)	1.5	<0.40 DLA	3.30	0.33	25.1
	Nitrate (as N) (mg/L)	<0.25 DLA	1.12	0.25 DLA	4.06 DLA	<0.50 DLA
	Nitrite (as N) (mg/L)	<0.050 DLA	<0.020 DLA	<0.020 DLA	<0.010 DLA	<0.10 DLA
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	47 HTD
	Sulfate (SO4) (mg/L)	8700	3020	2170	806	104000
Cyanides	Cyanide, Free (mg/L)	<0.020 DLM	<0.0050			<0.50 DLM
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	8.07	4.70	<0.50	2.19	43.9
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	<0.50 DLA	0.069	0.0051	0.0946	1040
	Antimony (Sb)-Dissolved (mg/L)	<0.050 DLA	<0.0010 DLA	0.00065	<0.00010	2.04
	Arsenic (As)-Dissolved (mg/L)	<0.050 DLA	<0.0010 DLA	<0.00020 DLA	0.00016	352
	Barium (Ba)-Dissolved (mg/L)	<0.025 DLA	0.0276	0.00702	0.0225	<0.25 DLA
	Beryllium (Be)-Dissolved (mg/L)	<0.050 DLA	<0.0010 DLA	<0.00020 DLA	<0.00010	<0.50 DLA
	Boron (B)-Dissolved (mg/L)	<5.0 DLA	<0.10 DLA	<0.020 DLA	<0.010	<50 DLA
	Cadmium (Cd)-Dissolved (mg/L)	0.411	0.0600	0.00813	0.00666	62.6
	Calcium (Ca)-Dissolved (mg/L)	402	460	239	153	423
	Chromium (Cr)-Dissolved (mg/L)	<0.050 DLA	<0.0010 DLA	<0.00020 DLA	<0.00010	0.92
	Cobalt (Co)-Dissolved (mg/L)	2.76	0.0548	0.00021	0.0288	23.1
	Copper (Cu)-Dissolved (mg/L)	<0.10 DLA	0.0601	0.00136	0.0107	1030
	Iron (Fe)-Dissolved (mg/L)	694	2.23	<0.030	0.309	13000
	Ferrous Iron, Dissolved (mg/L)	780	2.62	<0.020	0.277	10500
	Lead (Pb)-Dissolved (mg/L)	0.047	0.00821	0.00966	0.000269	2.62
	Lithium (Li)-Dissolved (mg/L)	<0.25 DLA	0.0400	0.170	0.0363	<2.5 DLA

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1362505-6	L1362505-7	L1362505-8		
	Description	Water	Water	Water		
	Sampled Date	12-SEP-13	12-SEP-13	12-SEP-13		
	Sampled Time	10:00	11:15	10:45		
	Client ID	SRK-FD12_SEFL13	SRK-FD13_SEFL13	SRK-FD31_SEFL13		
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	6890	12700	6940		
	pH (pH)	5.43		5.11		
	Total Suspended Solids (mg/L)	131	295	196		
	Total Dissolved Solids (mg/L)	17500	58500 AI	16300		
Anions and Nutrients	Acidity (as CaCO3) (mg/L)					
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)	3080	20400	2920		
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	122		44.4		
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0		<2.0		
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0		<2.0		
	Alkalinity, Total (as CaCO3) (mg/L)	122		44.4		
	Ammonia, Total (as N) (mg/L)	0.678	<0.0050 RRV	0.724		
	Chloride (Cl) (mg/L)	<25 DLA	<50 DLA	<25 DLA		
	Fluoride (F) (mg/L)	1.3	44.5	1.4		
	Nitrate (as N) (mg/L)	7.03	1.14	2.45		
	Nitrite (as N) (mg/L)	<0.050 DLA	<0.10 DLA	<0.050 DLA		
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	2.06 HTD	<0.0010		
	Sulfate (SO4) (mg/L)	10400	33300	9920		
Cyanides	Cyanide, Free (mg/L)	<0.010 DLM		<0.0050		
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	7.29	14.9	6.70		
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD		
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD		
	Aluminum (Al)-Dissolved (mg/L)	<0.20 DLA	380	0.34		
	Antimony (Sb)-Dissolved (mg/L)	<0.020 DLA	<0.050 DLA	<0.020 DLA		
	Arsenic (As)-Dissolved (mg/L)	<0.020 DLA	4.59	<0.020 DLA		
	Barium (Ba)-Dissolved (mg/L)	0.017	0.028	0.019		
	Beryllium (Be)-Dissolved (mg/L)	<0.020 DLA	0.133	<0.020 DLA		
	Boron (B)-Dissolved (mg/L)	<2.0 DLA	<5.0 DLA	<2.0 DLA		
	Cadmium (Cd)-Dissolved (mg/L)	0.632	4.75	0.630		
	Calcium (Ca)-Dissolved (mg/L)	455	409	479		
	Chromium (Cr)-Dissolved (mg/L)	<0.020 DLA	0.524	<0.020 DLA		
	Cobalt (Co)-Dissolved (mg/L)	2.29	8.64	2.26		
	Copper (Cu)-Dissolved (mg/L)	<0.040 DLA	54.4	0.208		
	Iron (Fe)-Dissolved (mg/L)	632	4800	579		
	Ferrous Iron, Dissolved (mg/L)	<1000 DLM	2880	700		
	Lead (Pb)-Dissolved (mg/L)	<0.010 DLA	0.113	<0.010 DLA		
	Lithium (Li)-Dissolved (mg/L)	0.26	1.13	0.22		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1362505-1	L1362505-2	L1362505-3	L1362505-4	L1362505-5
	Description	Water	Water	Water	Water	Water
	Sampled Date	11-SEP-13	11-SEP-13	11-SEP-13	11-SEP-13	11-SEP-13
	Sampled Time	15:30	10:30	14:20	12:45	12:15
	Client ID	CH-MILL-03_SEFL13	SRK-FD01_SEFL13	SRK-FD14_SEFL13	SRK-FD26_SEFL13	SRK-FD37_SEFL13
Grouping	**Analyte**					
WATER						
Dissolved Metals	Magnesium (Mg)-Dissolved (mg/L)	660	442	354	149	1370
	Manganese (Mn)-Dissolved (mg/L)	149	5.94	0.0190	0.899	837
	Mercury (Hg)-Dissolved (mg/L)	0.000074	<0.000010	<0.000010	<0.000010	0.00338
	Molybdenum (Mo)-Dissolved (mg/L)	<0.025 DLA	<0.00050 DLA	0.00181	<0.000050	<0.25 DLA
	Nickel (Ni)-Dissolved (mg/L)	3.21	0.257	0.0793	0.0680	18.2
	Phosphorus (P)-Dissolved (mg/L)	<1.5 DLA	<0.30	<0.30	<0.30	19
	Potassium (K)-Dissolved (mg/L)	<25 DLA	8.75	19.2	4.47	<250 DLA
	Selenium (Se)-Dissolved (mg/L)	<0.050 DLA	0.0017	0.00314	0.00071	<0.50 DLA
	Silicon (Si)-Dissolved (mg/L)	11.1	5.37	0.646	5.76	64.3
	Silicon (as SiO2)-Dissolved (mg/L)	23.8	11.5	1.38	12.3	137
	Silver (Ag)-Dissolved (mg/L)	<0.0050 DLA	<0.00010 DLA	0.000020	<0.000010	<0.050 DLA
	Sodium (Na)-Dissolved (mg/L)	115	27.0	113	8.16	<250 DLA
	Strontium (Sr)-Dissolved (mg/L)	2.59	2.78	3.30	0.611	1.1
	Sulfur (S)-Dissolved (mg/L)	2800	914	676	255	33500
	Thallium (Tl)-Dissolved (mg/L)	<0.0050 DLA	0.00049	0.00112	0.000069	<0.050 DLA
	Titanium (Ti)-Dissolved (mg/L)	<5.0 DLA	<0.10 DLA	<0.020 DLA	<0.010	<50 DLA
	Uranium (U)-Dissolved (mg/L)	<0.0050 DLA	0.00547	0.120	0.00675	2.98
	Vanadium (V)-Dissolved (mg/L)	<0.50 DLA	<0.010 DLA	<0.0020 DLA	<0.0010	<5.0 DLA
	Zinc (Zn)-Dissolved (mg/L)	1880	87.7	3.33	5.66	35800

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1362505-6	L1362505-7	L1362505-8		
	Description	Water	Water	Water		
	Sampled Date	12-SEP-13	12-SEP-13	12-SEP-13		
	Sampled Time	10:00	11:15	10:45		
	Client ID	SRK-FD12_SEFL13	SRK-FD13_SEFL13	SRK-FD31_SEFL13		
Grouping	**Analyte**					
WATER						
Dissolved Metals	Magnesium (Mg)-Dissolved (mg/L)	1400	2820	1390		
	Manganese (Mn)-Dissolved (mg/L)	146	379	142		
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	0.000093	<0.000010		
	Molybdenum (Mo)-Dissolved (mg/L)	<0.010 DLA	<0.025 DLA	<0.010 DLA		
	Nickel (Ni)-Dissolved (mg/L)	2.58	13.6	2.69		
	Phosphorus (P)-Dissolved (mg/L)	<1.5 DLA	7.3	<3.0 DLA		
	Potassium (K)-Dissolved (mg/L)	17	<25 DLA	16		
	Selenium (Se)-Dissolved (mg/L)	<0.020 DLA	<0.050 DLA	<0.020 DLA		
	Silicon (Si)-Dissolved (mg/L)	8.28	43.1	9.52		
	Silicon (as SiO2)-Dissolved (mg/L)	17.7	92.2	20.4		
	Silver (Ag)-Dissolved (mg/L)	<0.0020 DLA	<0.0050 DLA	<0.0020 DLA		
	Sodium (Na)-Dissolved (mg/L)	67	<25 DLA	53		
	Strontium (Sr)-Dissolved (mg/L)	3.95	0.58	3.79		
	Sulfur (S)-Dissolved (mg/L)	3290	10400	3230		
	Thallium (Tl)-Dissolved (mg/L)	0.0027	<0.0050 DLA	0.0024		
	Titanium (Ti)-Dissolved (mg/L)	<2.0 DLA	<5.0 DLA	<2.0 DLA		
	Uranium (U)-Dissolved (mg/L)	0.0129	0.384	0.0124		
	Vanadium (V)-Dissolved (mg/L)	<0.20 DLA	<0.50 DLA	<0.20 DLA		
	Zinc (Zn)-Dissolved (mg/L)	1280	4010	1260		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Additional Comments for Sample Listed:

Samplenum	Matrix	Report Remarks	Sample Comments
L1362505-7	Water	Note: a matrix spike was added to sample 7 but the recovery was 14% and then 34%, the sample colour (yellow) and recovery of matrix spike indicates matrix interference of some kind	

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Antimony (Sb)-Dissolved	DLA	L1362505-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Arsenic (As)-Dissolved	DLA	L1362505-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Beryllium (Be)-Dissolved	DLA	L1362505-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Boron (B)-Dissolved	DLA	L1362505-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Chromium (Cr)-Dissolved	DLA	L1362505-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Molybdenum (Mo)-Dissolved	DLA	L1362505-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Silver (Ag)-Dissolved	DLA	L1362505-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Titanium (Ti)-Dissolved	DLA	L1362505-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Vanadium (V)-Dissolved	DLA	L1362505-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Cyanide, Free	DLM	L1362505-1, -2, -5, -6, -8
Matrix Spike	Dissolved Organic Carbon	MS-B	L1362505-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1362505-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Zinc (Zn)-Dissolved	MS-B	L1362505-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1362505-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Iron (Fe)-Dissolved	MS-B	L1362505-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1362505-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L1362505-1, -2, -3, -4, -5, -6, -7, -8

Qualifiers for Individual Parameters Listed:

Qualifier	Description
AI	Analytical interferences may be present. Result may be biased high.
DLA	Detection Limit Adjusted For required dilution
DLM	Detection Limit Adjusted For Sample Matrix Effects
HTD	Hold time exceeded for re-analysis or dilution, but initial testing was conducted within hold time.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RRV	Reported Result Verified By Repeat Analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-H2O2-MAN-VA	Water	Acidity by Hot Peroxide Manual Titration	APHA - ACIDITY (2310)

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". The procedure involves preliminary sample treatment by the hot peroxide procedure, and Acidity is subsequently determined by potentiometric titration to a specified endpoint (i.e. pH = 8.3).

ACY-MAN-VA	Water	Acidity by Manual Titration	APHA - ACIDITY (2310)

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

Reference Information

ANIONS-CL-IC-WR	Water	Chloride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-F-IC-WR	Water	Fluoride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-NO2-IC-WR	Water	Nitrite Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-NO3-IC-WR	Water	Nitrate Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-SO4-IC-WR	Water	Sulphate by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CN-FREE-CFA-VA	Water	Free Cyanide in water by CFA	ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

FE2-D-COL-VA	Water	Diss. Ferrous Iron in Water by Colour	James W. Ball et al (1999)

This analysis is carried out using procedures adapted from "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedures involves preliminary sample filtration (0.1um filter) and Ferrous Iron is determined using the "FerroZine" colorimteric method.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA	Water	Dissolved Mercury in Water by CVAFS(Low)	EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA	Water	Dissolved Metals in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

Reference Information

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

S-DIS-ICP-VA	Water	Dissolved Sulfur in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

SIO2-D-CALC-VA	Water	Dissolved Silicon (reported as Silica)	CALCULATION

Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).

TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-LOW-VA	Water	Total Suspended Solids by Grav. (1 mg/L)	APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

ALS09121301

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Client: CH2M HILL, INC
2525 Airpark Drive
Redding CA 96001
Contact: Bernice Kidd

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-H2O2-MAN-VA	**Water**							
Batch R2702526								
WG1756609-2 CRM		**VA-ACY-M-CONTROL**						
Acidity-Hot Peroxide Treated (as CaCO3)			97.9		%		85-115	27-SEP-13
WG1756609-3 DUP		**L1362505-1**						
Acidity-Hot Peroxide Treated (as CaCO3)		4230	4330		mg/L	2.4	20	27-SEP-13
WG1756609-1 MB								
Acidity-Hot Peroxide Treated (as CaCO3)			<25		mg/L		25	27-SEP-13
ACY-PCT-VA	**Water**							
Batch R2694860								
WG1747687-9 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			107.3		%		85-115	16-SEP-13
ALK-SCR-VA	**Water**							
Batch R2693383								
WG1747286-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			103.5		%		85-115	14-SEP-13
WG1747286-5 CRM		**VA-ALKM-CONTROL**						
Alkalinity, Total (as CaCO3)			104.2		%		85-115	14-SEP-13
WG1747286-3 DUP		**L1362505-4**						
Alkalinity, Total (as CaCO3)		207	210		mg/L	1.6	20	14-SEP-13
WG1747286-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	14-SEP-13
WG1747286-4 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	14-SEP-13
ANIONS-CL-IC-WR	**Water**							
Batch R2696643								
WG1750705-2 LCS								
Chloride (Cl)			97.5		%		85-115	13-SEP-13
WG1750705-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	13-SEP-13
ANIONS-F-IC-WR	**Water**							
Batch R2696643								
WG1750705-2 LCS								
Fluoride (F)			98.4		%		85-115	13-SEP-13
WG1750705-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	13-SEP-13
ANIONS-NO2-IC-WR	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO2-IC-WR	**Water**							
Batch R2696643								
WG1750705-2 LCS								
Nitrite (as N)			98.6		%		85-115	13-SEP-13
WG1750705-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	13-SEP-13
ANIONS-NO3-IC-WR	**Water**							
Batch R2696643								
WG1750705-2 LCS								
Nitrate (as N)			98.0		%		85-115	13-SEP-13
WG1750705-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	13-SEP-13
ANIONS-SO4-IC-WR	**Water**							
Batch R2696643								
WG1750705-2 LCS								
Sulfate (SO4)			97.4		%		85-115	13-SEP-13
WG1750705-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	13-SEP-13
CARBONS-DOC-VA	**Water**							
Batch R2694803								
WG1748187-1 DUP		**L1362505-3**						
Dissolved Organic Carbon		<0.50	<0.50	RPD-NA	mg/L	N/A	20	16-SEP-13
WG1748187-2 DUP		**L1362505-6**						
Dissolved Organic Carbon		7.29	6.94		mg/L	5.0	20	16-SEP-13
WG1748187-5 LCS								
Dissolved Organic Carbon			99.96		%		80-120	16-SEP-13
WG1748187-6 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	16-SEP-13
WG1748187-3 MS		**L1362505-8**						
Dissolved Organic Carbon			N/A	MS-B	%		-	16-SEP-13
CN-FREE-CFA-VA	**Water**							
Batch R2699510								
WG1752992-3 DUP		**L1362505-1**						
Cyanide, Free		<0.020	<0.020	RPD-NA	mg/L	N/A	20	23-SEP-13
WG1752992-2 LCS								
Cyanide, Free			100.8		%		80-120	23-SEP-13
WG1752992-1 MB								
Cyanide, Free			<0.0050		mg/L		0.005	23-SEP-13
WG1752992-4 MS		**L1362505-1**						

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CN-FREE-CFA-VA	**Water**							
Batch R2699510								
WG1752992-4 MS		**L1362505-1**						
Cyanide, Free			124.2		%		70-130	23-SEP-13
FE2-D-COL-VA	**Water**							
Batch R2696825								
WG1750853-3 DUP		**L1362505-3**						
Ferrous Iron, Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	18-SEP-13
WG1750853-2 LCS								
Ferrous Iron, Dissolved			102.8		%		80-120	18-SEP-13
WG1750853-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	18-SEP-13
WG1750853-4 MS		**L1362505-3**						
Ferrous Iron, Dissolved			97.0		%		70-130	18-SEP-13
Batch R2700072								
WG1750906-2 LCS								
Ferrous Iron, Dissolved			103.5		%		80-120	19-SEP-13
WG1750906-6 LCS								
Ferrous Iron, Dissolved			113.5		%		80-120	19-SEP-13
WG1750906-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	19-SEP-13
WG1750906-5 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	19-SEP-13
WG1750906-4 MS		**L1363247-1**						
Ferrous Iron, Dissolved			102.2		%		70-130	19-SEP-13
WG1750906-7 MS		**L1363288-4**						
Ferrous Iron, Dissolved			97.7		%		70-130	20-SEP-13
Batch R2706594								
WG1759471-2 LCS								
Ferrous Iron, Dissolved			102.2		%		80-120	02-OCT-13
WG1759471-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	02-OCT-13
WG1759471-3 MS		**L1363247-10**						
Ferrous Iron, Dissolved			96.3		%		70-130	02-OCT-13
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2693968								
WG1747376-2 LCS								
Mercury (Hg)-Dissolved			98.2		%		80-120	15-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2695717								
WG1747376-3 DUP		**L1362505-1**						
Mercury (Hg)-Dissolved		0.000074	0.000073		mg/L	1.7	20	17-SEP-13
Batch R2695953								
WG1747376-4 MS		**L1362505-5**						
Mercury (Hg)-Dissolved			110.5		%		70-130	18-SEP-13
Batch R2700321								
WG1747376-1 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	24-SEP-13
MET-D-CCMS-VA	**Water**							
Batch R2699902								
WG1747380-2 CRM		**VA-HIGH-WATRM**						
Aluminum (Al)-Dissolved			96.8		%		80-120	23-SEP-13
Antimony (Sb)-Dissolved			101.9		%		80-120	23-SEP-13
Arsenic (As)-Dissolved			99.8		%		80-120	23-SEP-13
Barium (Ba)-Dissolved			98.0		%		80-120	23-SEP-13
Beryllium (Be)-Dissolved			98.1		%		80-120	23-SEP-13
Boron (B)-Dissolved			90.6		%		80-120	23-SEP-13
Cadmium (Cd)-Dissolved			96.6		%		80-120	23-SEP-13
Chromium (Cr)-Dissolved			95.0		%		80-120	23-SEP-13
Cobalt (Co)-Dissolved			95.6		%		80-120	23-SEP-13
Copper (Cu)-Dissolved			94.3		%		80-120	23-SEP-13
Lead (Pb)-Dissolved			97.0		%		80-120	23-SEP-13
Lithium (Li)-Dissolved			98.6		%		80-120	23-SEP-13
Manganese (Mn)-Dissolved			97.4		%		80-120	23-SEP-13
Molybdenum (Mo)-Dissolved			100.2		%		80-120	23-SEP-13
Nickel (Ni)-Dissolved			96.7		%		80-120	23-SEP-13
Potassium (K)-Dissolved			93.8		%		80-120	23-SEP-13
Selenium (Se)-Dissolved			99.2		%		80-120	23-SEP-13
Silver (Ag)-Dissolved			102.6		%		80-120	23-SEP-13
Sodium (Na)-Dissolved			99.5		%		80-120	23-SEP-13
Strontium (Sr)-Dissolved			98.5		%		80-120	23-SEP-13
Thallium (Tl)-Dissolved			97.8		%		80-120	23-SEP-13
Titanium (Ti)-Dissolved			101.3		%		80-120	23-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2699902								
WG1747380-2 CRM		**VA-HIGH-WATRM**						
Uranium (U)-Dissolved			99.9		%		80-120	23-SEP-13
Vanadium (V)-Dissolved			99.2		%		80-120	23-SEP-13
Zinc (Zn)-Dissolved			99.5		%		80-120	23-SEP-13
WG1747380-4 DUP		**L1362505-2**						
Aluminum (Al)-Dissolved		0.069	0.070		mg/L	2.4	20	24-SEP-13
Antimony (Sb)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	24-SEP-13
Arsenic (As)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	24-SEP-13
Barium (Ba)-Dissolved		0.0276	0.0278		mg/L	0.8	20	24-SEP-13
Beryllium (Be)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	24-SEP-13
Boron (B)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	24-SEP-13
Cadmium (Cd)-Dissolved		0.0600	0.0607		mg/L	1.2	20	24-SEP-13
Chromium (Cr)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	24-SEP-13
Cobalt (Co)-Dissolved		0.0548	0.0551		mg/L	0.6	20	24-SEP-13
Copper (Cu)-Dissolved		0.0601	0.0609		mg/L	1.4	20	24-SEP-13
Lead (Pb)-Dissolved		0.00821	0.00818		mg/L	0.4	20	24-SEP-13
Lithium (Li)-Dissolved		0.0400	0.0402		mg/L	0.6	20	24-SEP-13
Manganese (Mn)-Dissolved		5.94	6.02		mg/L	1.3	20	24-SEP-13
Molybdenum (Mo)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	24-SEP-13
Nickel (Ni)-Dissolved		0.257	0.262		mg/L	1.8	20	24-SEP-13
Potassium (K)-Dissolved		8.75	8.79		mg/L	0.5	20	24-SEP-13
Selenium (Se)-Dissolved		0.0017	0.0019		mg/L	9.8	20	24-SEP-13
Silver (Ag)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	24-SEP-13
Sodium (Na)-Dissolved		27.0	27.2		mg/L	0.7	20	24-SEP-13
Strontium (Sr)-Dissolved		2.78	2.83		mg/L	1.7	20	24-SEP-13
Thallium (Tl)-Dissolved		0.00049	0.00047		mg/L	4.3	20	24-SEP-13
Titanium (Ti)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	24-SEP-13
Uranium (U)-Dissolved		0.00547	0.00548		mg/L	0.2	20	24-SEP-13
Vanadium (V)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	24-SEP-13
Zinc (Zn)-Dissolved		87.7	87.7		mg/L	0.0	20	24-SEP-13
WG1747380-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	23-SEP-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	23-SEP-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	23-SEP-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	23-SEP-13
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	23-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2699902								
WG1747380-1 MB								
Boron (B)-Dissolved			<0.010		mg/L		0.01	23-SEP-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	23-SEP-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	23-SEP-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	23-SEP-13
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	23-SEP-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	23-SEP-13
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	23-SEP-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	23-SEP-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	23-SEP-13
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	23-SEP-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	23-SEP-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	23-SEP-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	23-SEP-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	23-SEP-13
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	23-SEP-13
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	23-SEP-13
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	23-SEP-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	23-SEP-13
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	23-SEP-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	23-SEP-13
WG1747380-5 MS		**L1362505-1**						
Aluminum (Al)-Dissolved			93.5		%		70-130	24-SEP-13
Antimony (Sb)-Dissolved			100.8		%		70-130	24-SEP-13
Arsenic (As)-Dissolved			98.0		%		70-130	24-SEP-13
Barium (Ba)-Dissolved			100.6		%		70-130	24-SEP-13
Beryllium (Be)-Dissolved			93.8		%		70-130	24-SEP-13
Boron (B)-Dissolved			94.9		%		70-130	24-SEP-13
Cadmium (Cd)-Dissolved			99.6		%		70-130	24-SEP-13
Chromium (Cr)-Dissolved			91.3		%		70-130	24-SEP-13
Cobalt (Co)-Dissolved			99.3		%		70-130	24-SEP-13
Copper (Cu)-Dissolved			96.8		%		70-130	24-SEP-13
Lead (Pb)-Dissolved			96.6		%		70-130	24-SEP-13
Lithium (Li)-Dissolved			93.6		%		70-130	24-SEP-13
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	24-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2699902								
WG1747380-5 MS		**L1362505-1**						
Molybdenum (Mo)-Dissolved			99.7		%		70-130	24-SEP-13
Nickel (Ni)-Dissolved			98.7		%		70-130	24-SEP-13
Potassium (K)-Dissolved			95.1		%		70-130	24-SEP-13
Selenium (Se)-Dissolved			96.6		%		70-130	24-SEP-13
Silver (Ag)-Dissolved			95.4		%		70-130	24-SEP-13
Sodium (Na)-Dissolved			95.4		%		70-130	24-SEP-13
Strontium (Sr)-Dissolved			98.3		%		70-130	24-SEP-13
Thallium (Tl)-Dissolved			96.4		%		70-130	24-SEP-13
Titanium (Ti)-Dissolved			96.5		%		70-130	24-SEP-13
Uranium (U)-Dissolved			97.3		%		70-130	24-SEP-13
Vanadium (V)-Dissolved			95.0		%		70-130	24-SEP-13
Zinc (Zn)-Dissolved			N/A	MS-B	%		-	24-SEP-13
MET-DIS-ICP-VA	**Water**							
Batch R2699304								
WG1747380-4 DUP		**L1362505-2**						
Calcium (Ca)-Dissolved		460	461		mg/L	0.2	20	22-SEP-13
Iron (Fe)-Dissolved		2.23	2.19		mg/L	1.8	20	22-SEP-13
Magnesium (Mg)-Dissolved		442	419		mg/L	5.2	20	22-SEP-13
Phosphorus (P)-Dissolved		<0.30	<0.30	RPD-NA	mg/L	N/A	20	22-SEP-13
Silicon (Si)-Dissolved		5.37	5.24		mg/L	2.3	20	22-SEP-13
Batch R2701572								
WG1747380-5 MS		**L1362505-1**						
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	25-SEP-13
Iron (Fe)-Dissolved			N/A	MS-B	%		-	25-SEP-13
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	25-SEP-13
Batch R2702609								
WG1747380-2 CRM		**VA-HIGH-WATRM**						
Calcium (Ca)-Dissolved			101.2		%		80-120	22-SEP-13
Iron (Fe)-Dissolved			95.9		%		80-120	22-SEP-13
Magnesium (Mg)-Dissolved			101.0		%		80-120	22-SEP-13
Phosphorus (P)-Dissolved			99.0		%		80-120	22-SEP-13
Silicon (Si)-Dissolved			102.4		%		80-120	22-SEP-13
WG1747380-1 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	22-SEP-13
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	22-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA	**Water**							
Batch R2702609								
WG1747380-1 MB								
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	22-SEP-13
Phosphorus (P)-Dissolved			<0.30		mg/L		0.3	22-SEP-13
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	22-SEP-13
NH3-F-VA	**Water**							
Batch R2699835								
WG1752033-2 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			105.9		%		85-115	24-SEP-13
WG1752033-3 DUP		**L1362505-7**						
Ammonia, Total (as N)		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	24-SEP-13
WG1752033-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	24-SEP-13
WG1752033-4 MS		**L1362505-3**						
Ammonia, Total (as N)			106.3		%		75-125	24-SEP-13
PH-PCT-VA	**Water**							
Batch R2694860								
WG1747687-25 CRM		**VA-PH7-BUF**						
pH			7.07		pH		6.9-7.1	16-SEP-13
PO4-DO-COL-VA	**Water**							
Batch R2694242								
WG1747355-2 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			97.0		%		80-120	14-SEP-13
WG1747355-6 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			87.1		%		80-120	14-SEP-13
WG1747355-3 DUP		**L1362505-1**						
Orthophosphate-Dissolved (as P)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	14-SEP-13
WG1747355-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	14-SEP-13
WG1747355-5 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	14-SEP-13
WG1747355-4 MS		**L1362505-2**						
Orthophosphate-Dissolved (as P)			92.3		%		70-130	14-SEP-13
Batch R2696129								
WG1749229-2 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			88.0		%		80-120	17-SEP-13
WG1749229-9 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			95.0		%		80-120	17-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PO4-DO-COL-VA	**Water**							
Batch R2696129								
WG1749229-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	17-SEP-13
WG1749229-8 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	17-SEP-13
WG1749229-4 MS		**L1363247-2**						
Orthophosphate-Dissolved (as P)			86.7		%		70-130	17-SEP-13
WG1749229-6 MS		**L1363247-24**						
Orthophosphate-Dissolved (as P)			96.9		%		70-130	17-SEP-13
S-DIS-ICP-VA	**Water**							
Batch R2699304								
WG1747380-4 DUP		**L1362505-2**						
Sulfur (S)-Dissolved		914	902		mg/L	1.4	20	22-SEP-13
Batch R2701572								
WG1747380-5 MS		**L1362505-1**						
Sulfur (S)-Dissolved			N/A	MS-B	%		-	25-SEP-13
Batch R2702609								
WG1747380-2 CRM		**VA-HIGH-WATRM**						
Sulfur (S)-Dissolved			98.9		%		80-120	22-SEP-13
WG1747380-1 MB								
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	22-SEP-13
TDS-VA	**Water**							
Batch R2695055								
WG1748393-3 DUP		**L1362505-1**						
Total Dissolved Solids		14900	14800		mg/L	0.2	20	16-SEP-13
WG1748393-2 LCS								
Total Dissolved Solids			99.8		%		85-115	16-SEP-13
WG1748393-1 MB								
Total Dissolved Solids			<10		mg/L		10	16-SEP-13
TSS-LOW-VA	**Water**							
Batch R2695051								
WG1748352-2 LCS								
Total Suspended Solids			98.8		%		85-115	16-SEP-13
WG1748352-1 MB								
Total Suspended Solids			<1.0		mg/L		1	16-SEP-13

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	1	11-SEP-13 15:30	16-SEP-13 23:00	0.25	127	hours	EHTR-FM
	2	11-SEP-13 10:30	16-SEP-13 23:00	0.25	132	hours	EHTR-FM
	3	11-SEP-13 14:20	16-SEP-13 23:00	0.25	129	hours	EHTR-FM
	4	11-SEP-13 12:45	16-SEP-13 23:00	0.25	130	hours	EHTR-FM
	6	12-SEP-13 10:00	16-SEP-13 23:00	0.25	109	hours	EHTR-FM
	8	12-SEP-13 10:45	16-SEP-13 23:00	0.25	108	hours	EHTR-FM
Anions and Nutrients							
Acidity by Hot Peroxide Manual Titration							
	1	11-SEP-13 15:30	27-SEP-13 10:23	14	16	days	EHT
	5	11-SEP-13 12:15	27-SEP-13 10:23	14	16	days	EHT
	6	12-SEP-13 10:00	27-SEP-13 10:23	14	15	days	EHT
	7	12-SEP-13 11:15	27-SEP-13 10:23	14	15	days	EHT
	8	12-SEP-13 10:45	27-SEP-13 10:23	14	15	days	EHT
Diss. Orthophosphate in Water by Colour							
	5	11-SEP-13 12:15	17-SEP-13 18:38	3	6	days	EHT
	7	12-SEP-13 11:15	17-SEP-13 18:38	3	5	days	EHT
Dissolved Metals							
Diss. Ferrous Iron in Water by Colour							
	8	12-SEP-13 10:45	02-OCT-13 09:30	7	20	days	EHT

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1362505 were received on 13-SEP-13 10:15.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CH2MHILL **CHAIN OF CUSTODY RECORD** *9/12/2013 4:22:32 PM* Page 1 OF 1

Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.06.AD.01.04.13
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-015
Project FARO MINE SEEP SAMPLING 2013
Turnaround Time 10 Days
Shipping Date: 9/12/2013
COC Number: ALS09121301

				Container:	125mL Poly	40ml vial	125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	125ml Poly	250ml glass			
				Preservatives:	NaOH, 4'C	HCl, 4'C	HCl, 4'C	4C	4C	4'C	4'C	4'C	4'C	H2SO4, pH<2, 4'C	HNO3, 4'C	H2SO4, pH<2, 4C			
				Filtered:	NA	Field	Field	NA	NA	NA	NA	NA	NA	Field	Field	NA			
				Holding Time:	14	14	180	14	14	7	7	3	3	28	180/28	28			
	DATE	TIME	Matrix		Free Cyanide	(E245.7-Diss) Field Filtered Dissolved Hg	(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity - Run Hot H2O2 if Fe >15ppm	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM4110B) CL F NO2 NO3 and SO4	(SM4500P) ortho-Phosphate	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia		Number of Containers	COMMENTS
CH-MILL-03_SEFL13	9/11/2013	15:30	Water		x	x	x	x	x	x	x	x	x	x	x	x		9	
SRK-FD01_SEFL13	9/11/2013	10:30	Water		x	x	x	x	x	x	x	x	x	x	x	x		9	
SRK-FD14_SEFL13	9/11/2013	14:20	Water			x	x	x	x	x	x	x	x	x	x	x		8	
SRK-FD26_SEFL13	9/11/2013	12:45	Water			x	x	x	x	x	x	x	x	x	x	x		8	
SRK-FD37_SEFL13	9/11/2013	12:15	Water		x	x	x	x		x	x	x	x	x	x	x		9	
SRK-FD12_SEFL13	9/12/2013	10:00	Water		x	x	x	x	x	x	x	x	x	x	x	x		9	
SRK-FD13_SEFL13	9/12/2013	11:15	Water			x	x	x		x	x	x	x	x	x	x		8	
SRK-FD31_SEFL13	9/12/2013	10:45	Water		x	x	x	x	x	x	x	x	x	x	x	x		9	
																	AL NUMBER OF CONTAINERS	69	

L1362505-COFC

	Signatures	Date/Time
Approved by		09/12/13
Sampled by		G 1400
Relinquished by		
Received by		13-Sep-13 10:15
Relinquished by		2.1, 4.1
Received by		

Shipping Det
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

Sample Custody and Amber Springer

cial Instructions:
PO: 604564 on Invoice Perform Lab Dup/MS on these samples

Report Copy to
Bernice Kidd
(530) 229-3203

CH2M HILL, INC
ATTN: Bernice Kidd
2525 Airpark Drive
Redding CA

Date Received: 16-SEP-13
Report Date: 03-OCT-13 10:48 (MT)
Version: FINAL

Client Phone: 530-229-3203

Certificate of Analysis

Lab Work Order #: L1363247

Project P.O. #: 472645.06.AD.01.04.13 "PO:604564"
Job Reference: FARO MINE SEEP SAMPLING 2013 SW-015
C of C Numbers: ALS09151301
Legal Site Desc:

Amber Springer
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1363247-1	L1363247-2	L1363247-3	L1363247-4	L1363247-5
	Description	Water	Water	Water	Water	Water
	Sampled Date	14-SEP-13	12-SEP-13	12-SEP-13	12-SEP-13	12-SEP-13
	Sampled Time	14:00	14:00	13:50	15:30	14:45
	Client ID	GP09_SEFL13	CH-FP-38_SEFL13	CH-RCTA-03_SEFL13	CH-RCTA-05_SEFL13	CH-RCTA-07_SEFL13
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	1110	969	1230	271	526
	pH (pH)	8.08	5.47	5.79	8.07	6.17
	Total Suspended Solids (mg/L)	30.8	72.8	163	<1.0	107
	Total Dissolved Solids (mg/L)	1440	1560	3160	289	1090
Anions and Nutrients	Acidity (as CaCO3) (mg/L)		69.9		3.5	
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)			606		153
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	381	8.9	16.3	249	26.2
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<2.0	<2.0	<2.0	<2.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<2.0	<2.0	<2.0	<2.0
	Alkalinity, Total (as CaCO3) (mg/L)	381	8.9	16.3	249	26.2
	Ammonia, Total (as N) (mg/L)	0.0053	0.0422	0.217	<0.0050	0.0177
	Chloride (Cl) (mg/L)	<5.0 DLA	<5.0 DLA	<10 DLA	<0.50	<5.0 DLA
	Fluoride (F) (mg/L)	0.25	0.29	<0.40 DLA	0.263	<0.20 DLA
	Nitrate (as N) (mg/L)	1.07	0.068	<0.10 DLA	0.0666	<0.050 DLA
	Nitrite (as N) (mg/L)	<0.010 DLA	<0.010 DLA	<0.020 DLA	<0.0010	<0.010 DLA
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Sulfate (SO4) (mg/L)	703	995	1890	28.1	645
Cyanides	Cyanide, Free (mg/L)			<0.0050	<0.0050	<0.0050
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	0.55	1.01	1.29	2.99	1.31
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0014	0.0282	0.663	<0.0010	0.352
	Antimony (Sb)-Dissolved (mg/L)	0.00027	<0.00050 DLA	<0.00050 DLA	0.00016	<0.00020 DLA
	Arsenic (As)-Dissolved (mg/L)	0.00055	<0.00050 DLA	0.00124	0.00022	<0.00020 DLA
	Barium (Ba)-Dissolved (mg/L)	0.0177	0.00910	0.0154	0.0873	0.0227
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.00050 DLA	<0.00050 DLA	<0.00010	<0.00020 DLA
	Boron (B)-Dissolved (mg/L)	<0.010	<0.050 DLA	<0.050 DLA	<0.010	<0.020 DLA
	Cadmium (Cd)-Dissolved (mg/L)	0.000059	0.0442	0.00226	0.000015	0.00491
	Calcium (Ca)-Dissolved (mg/L)	129	168	408	78.0	174
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00050 DLA	<0.00050 DLA	0.00011	<0.00020 DLA
	Cobalt (Co)-Dissolved (mg/L)	0.00066	0.155	0.185	<0.00010	0.0252
	Copper (Cu)-Dissolved (mg/L)	<0.00020	0.103	0.0049	0.00077	0.00466
	Iron (Fe)-Dissolved (mg/L)	<0.030	6.27	451	<0.030	147
	Ferrous Iron, Dissolved (mg/L)	0.021	6.9	497	<0.020	139
	Lead (Pb)-Dissolved (mg/L)	0.00105	0.0349	0.00303	0.000058	0.00115
	Lithium (Li)-Dissolved (mg/L)	0.0396	0.0592	0.0311	0.00675	0.0129

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1363247-6	L1363247-7	L1363247-8	L1363247-9	L1363247-10
	Description	Water	Water	Water	Water	Water
	Sampled Date	13-SEP-13	13-SEP-13	13-SEP-13	13-SEP-13	13-SEP-13
	Sampled Time	13:00	13:30	11:55	13:05	11:55
	Client ID	A30_SEFL13	CH-FP-42_SEFL13	CH-FP-34_SEFL13	CH-FP-39_SEFL13	CH-FP-934_SEFL13
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	379	70.7	292	254	292
	pH (pH)		7.88	7.49	7.86	7.65
	Total Suspended Solids (mg/L)	15.7	3.9	4.2	<1.0	2.2
	Total Dissolved Solids (mg/L)	892	107	459	382	457
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	149	1.7	25.3	8.0	26.0
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)					
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)		60.7	82.1	68.4	83.2
	Alkalinity, Carbonate (as CaCO3) (mg/L)		<2.0	<2.0	<2.0	<2.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)		<2.0	<2.0	<2.0	<2.0
	Alkalinity, Total (as CaCO3) (mg/L)		60.7	82.1	68.4	83.2
	Ammonia, Total (as N) (mg/L)	0.0142	<0.0050	<0.0050	<0.0050	<0.0050
	Chloride (Cl) (mg/L)	<5.0 DLA	<0.50	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)	0.57	0.300	0.404	0.199	0.406
	Nitrate (as N) (mg/L)	0.266	0.231	0.208	0.161	0.208
	Nitrite (as N) (mg/L)	<0.010 DLA	<0.0010	<0.0010	<0.0010	<0.0010
	Orthophosphate-Dissolved (as P) (mg/L)	0.0029	0.0073	<0.0010	<0.0010	<0.0010
	Sulfate (SO4) (mg/L)	505	27.6	232	191	233
Cyanides	Cyanide, Free (mg/L)					
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.56	0.79	0.72	0.99	0.74
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	8.53	<0.0010	0.0763	0.0096	0.0619
	Antimony (Sb)-Dissolved (mg/L)	<0.00050 DLA	<0.00010	<0.00020 DLA	<0.00010	<0.00020 DLA
	Arsenic (As)-Dissolved (mg/L)	<0.00050 DLA	0.00012	<0.00020 DLA	0.00011	<0.00020 DLA
	Barium (Ba)-Dissolved (mg/L)	0.0216	0.0193	0.0296	0.0284	0.0279
	Beryllium (Be)-Dissolved (mg/L)	0.00387	<0.00010	0.00052	<0.00010	0.00048
	Boron (B)-Dissolved (mg/L)	<0.050 DLA	<0.010	<0.020 DLA	<0.010	<0.020 DLA
	Cadmium (Cd)-Dissolved (mg/L)	0.0766	<0.000010	0.0282	0.00732	0.0267
	Calcium (Ca)-Dissolved (mg/L)	57.7	21.6	72.5	65.6	73.1
	Chromium (Cr)-Dissolved (mg/L)	0.00423	0.00038	<0.00020 DLA	0.00015	0.00024
	Cobalt (Co)-Dissolved (mg/L)	0.120	<0.00010	0.0298	0.00032	0.0288
	Copper (Cu)-Dissolved (mg/L)	0.880	<0.00020	0.111	0.00241	0.107
	Iron (Fe)-Dissolved (mg/L)	2.08	<0.030	<0.030	<0.030	<0.030
	Ferrous Iron, Dissolved (mg/L)	0.372	<0.020	<0.020	0.024	<0.020
	Lead (Pb)-Dissolved (mg/L)	0.350	0.000051	0.00068	0.00127	0.00038
	Lithium (Li)-Dissolved (mg/L)	0.0388	0.00878	0.0208	0.0239	0.0201

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1363247-11	L1363247-12	L1363247-13	L1363247-14	L1363247-15
	Description	Water	Water	Water	Water	Water
	Sampled Date	13-SEP-13	13-SEP-13	13-SEP-13	13-SEP-13	13-SEP-13
	Sampled Time	17:00	12:00	10:15	15:50	14:05
	Client ID	FP05_SEFL13	GP12_SEFL13	SRK-FD05_SEFL13	SRK-FD18_SEFL13	SRK-FD40_SEFL13
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	764	480	202	92.0	412
	pH (pH)	8.00	6.33	8.04	7.70	
	Total Suspended Solids (mg/L)	104	115	15.5	1.1	12.4
	Total Dissolved Solids (mg/L)	1090	874	205	124	1040
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	8.7		30	30	232
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)		<25			
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	176	24.0	188	77.8	
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<1.0	<2.0	<2.0	
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<1.0	<2.0	<2.0	
	Alkalinity, Total (as CaCO3) (mg/L)	176	24.0	188	77.8	
	Ammonia, Total (as N) (mg/L)	<0.0050	0.287	<0.0050	<0.0050	0.0308
	Chloride (Cl) (mg/L)	<5.0 DLA	<5.0 DLA	<0.50	<0.50	<5.0 DLA
	Fluoride (F) (mg/L)	0.33	0.63	0.273	0.123	0.60
	Nitrate (as N) (mg/L)	10.1	<0.050 DLA	0.0067	0.0531	0.162
	Nitrite (as N) (mg/L)	<0.010 DLA	<0.010 DLA	<0.0010	<0.0010	<0.010 DLA
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	0.0019
	Sulfate (SO4) (mg/L)	573	523	17.7	20.1	647
Cyanides	Cyanide, Free (mg/L)			<0.0050		
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	2.57	0.66	1.03	2.74	1.28
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0022	0.0074	<0.0010	0.0039	10.1
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	0.0112	<0.00010	<0.00010	<0.0010 DLA
	Arsenic (As)-Dissolved (mg/L)	0.00018	0.184	<0.00010	0.00012	<0.0010 DLA
	Barium (Ba)-Dissolved (mg/L)	0.0205	0.0120	0.0918	0.0679	0.0193
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.00050 DLA	<0.00010	<0.00010	0.0041
	Boron (B)-Dissolved (mg/L)	<0.010	<0.050 DLA	<0.010	<0.010	<0.10 DLA
	Cadmium (Cd)-Dissolved (mg/L)	0.00322	0.0168	<0.000010	0.000239	0.0854
	Calcium (Ca)-Dissolved (mg/L)	116	111	54.9	28.9	56.9
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00050 DLA	<0.00010	<0.00010	0.0078
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	0.0994	<0.00010	<0.00010	0.186
	Copper (Cu)-Dissolved (mg/L)	0.00152	0.0070	0.00020	0.00306	1.26
	Iron (Fe)-Dissolved (mg/L)	<0.030	53.0	<0.030	<0.030	13.8
	Ferrous Iron, Dissolved (mg/L)	<0.020	44	<0.020	<0.020	1.32
	Lead (Pb)-Dissolved (mg/L)	0.000130	0.00106	<0.000050	0.000954	0.328
	Lithium (Li)-Dissolved (mg/L)	0.0257	0.0145	0.0119	0.00249	0.0378

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1363247-16	L1363247-17	L1363247-18	L1363247-19	L1363247-20
	Description	Water	Water	Water	Water	Water
	Sampled Date	13-SEP-13	14-SEP-13	14-SEP-13	14-SEP-13	14-SEP-13
	Sampled Time	14:05	13:30	12:00	13:30	14:18
	Client ID	SRK-FD940_SEFL13	CH-GP-19_SEFL13	CH-GP-27_SEFL13	CH-GP-919_SEFL13	FP02_SEFL13
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	409	1290	1030	1240	409
	pH (pH)		8.09	8.39	7.96	8.28
	Total Suspended Solids (mg/L)	129	36.1	2.6	31.7	402
	Total Dissolved Solids (mg/L)	1040	1770	1320	1760	449
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	273	10.0			
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)					
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)		470	336	476	302
	Alkalinity, Carbonate (as CaCO3) (mg/L)		<1.0	2.4	<1.0	<1.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)		<1.0	<1.0	<1.0	<1.0
	Alkalinity, Total (as CaCO3) (mg/L)		470	338	476	302
	Ammonia, Total (as N) (mg/L)	0.0299	0.519	<0.0050	0.479	<0.0050
	Chloride (Cl) (mg/L)	<5.0 DLA	<10 DLA	<5.0 DLA	<10 DLA	<0.50
	Fluoride (F) (mg/L)	0.59	<0.40 DLA	<0.20 DLA	<0.40 DLA	0.548
	Nitrate (as N) (mg/L)	0.157	<0.10 DLA	0.414	<0.10 DLA	0.0496
	Nitrite (as N) (mg/L)	<0.010 DLA	<0.020 DLA	<0.010 DLA	<0.020 DLA	<0.0010
	Orthophosphate-Dissolved (as P) (mg/L)	0.0019	<0.0010	<0.0010	<0.0010	<0.0010
	Sulfate (SO4) (mg/L)	647	868	639	852	122
Cyanides	Cyanide, Free (mg/L)					
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.26	9.99	0.58	10.8	0.92
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	10.2	0.0148	0.0013	0.0186	0.0030
	Antimony (Sb)-Dissolved (mg/L)	<0.0010 DLA	<0.00050 DLA	0.00358	<0.00050 DLA	<0.00010
	Arsenic (As)-Dissolved (mg/L)	<0.0010 DLA	0.00155	0.00163	0.00181	<0.00010
	Barium (Ba)-Dissolved (mg/L)	0.0195	0.126	0.0137	0.129	0.0434
	Beryllium (Be)-Dissolved (mg/L)	0.0039	<0.00050 DLA	<0.00010	<0.00050 DLA	<0.00010
	Boron (B)-Dissolved (mg/L)	<0.10 DLA	<0.050 DLA	<0.010	<0.050 DLA	0.010
	Cadmium (Cd)-Dissolved (mg/L)	0.0867	0.000206	0.00151	0.000218	<0.000010
	Calcium (Ca)-Dissolved (mg/L)	55.9	321	127	308	81.9
	Chromium (Cr)-Dissolved (mg/L)	0.0083	<0.00050 DLA	<0.00010	<0.00050 DLA	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	0.189	0.0286	0.00274	0.0295	<0.00010
	Copper (Cu)-Dissolved (mg/L)	1.28	<0.0010 DLA	0.00064	<0.0010 DLA	<0.00020
	Iron (Fe)-Dissolved (mg/L)	13.6	9.34	<0.030	12.4	<0.030
	Ferrous Iron, Dissolved (mg/L)	0.400	6.92	<0.020	13.0	<0.020
	Lead (Pb)-Dissolved (mg/L)	0.329	<0.00025 DLA	0.00384	<0.00025 DLA	<0.000050
	Lithium (Li)-Dissolved (mg/L)	0.0378	<0.0025 DLA	0.0360	<0.0025 DLA	0.0482

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID: L1363247-21 Description: Water Sampled Date: 14-SEP-13 Sampled Time: 16:16 Client ID: FP06_SEFL13	Sample ID: L1363247-22 Description: Water Sampled Date: 14-SEP-13 Sampled Time: 15:42 Client ID: FP09_SEFL13	Sample ID: L1363247-23 Description: Water Sampled Date: 14-SEP-13 Sampled Time: 13:01 Client ID: FP12_SEFL13	Sample ID: L1363247-24 Description: Water Sampled Date: 14-SEP-13 Sampled Time: 13:43 Client ID: FP13_SEFL13	Sample ID: L1363247-25 Description: Water Sampled Date: 14-SEP-13 Sampled Time: 12:13 Client ID: FP14_SEFL13
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	231	188	374	216	886
	pH (pH)	8.51	6.48	8.46	8.35	
	Total Suspended Solids (mg/L)	9.9	23.1	14.0	37.6	2.4
	Total Dissolved Solids (mg/L)	244	365	417	222	2990
Anions and Nutrients	Acidity (as CaCO3) (mg/L)		29.6			
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)					1020
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	200	25.1	291	199	
	Alkalinity, Carbonate (as CaCO3) (mg/L)	5.7	<2.0	6.4	<1.0	
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<2.0	<1.0	<1.0	
	Alkalinity, Total (as CaCO3) (mg/L)	206	25.1	297	199	
	Ammonia, Total (as N) (mg/L)	<0.0050	0.0062	<0.0050	<0.0050	<0.0050
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<0.50	<10 DLA
	Fluoride (F) (mg/L)	0.980	0.348	0.362	0.296	0.51
	Nitrate (as N) (mg/L)	0.0073	0.195	0.0074	0.0091	<0.10 DLA
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.020 DLA
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	0.0171
	Sulfate (SO4) (mg/L)	24.9	198	91.1	23.4	1780
Cyanides	Cyanide, Free (mg/L)					
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	2.32	0.69	0.91	0.85	0.85
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0023	0.0448	<0.0010	<0.0010	2.60
	Antimony (Sb)-Dissolved (mg/L)	0.00011	<0.00020 DLA	<0.00010	<0.00010	<0.0050 DLA
	Arsenic (As)-Dissolved (mg/L)	0.00036	<0.00020 DLA	<0.00010	<0.00010	0.0078
	Barium (Ba)-Dissolved (mg/L)	0.0298	0.0238	0.0527	0.0927	0.0033
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	0.00032	<0.00010	<0.00010	0.0063
	Boron (B)-Dissolved (mg/L)	<0.010	<0.020 DLA	<0.010	<0.010	<0.50 DLA
	Cadmium (Cd)-Dissolved (mg/L)	0.000025	0.0263	0.00130	0.000022	0.286
	Calcium (Ca)-Dissolved (mg/L)	55.5	37.2	85.1	57.0	134
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	0.00052	<0.00010	<0.00010	<0.0050 DLA
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	0.0422	0.00058	<0.00010	0.370
	Copper (Cu)-Dissolved (mg/L)	0.00110	0.102	0.00060	0.00028	1.53
	Iron (Fe)-Dissolved (mg/L)	<0.030	0.033	<0.030	<0.030	154
	Ferrous Iron, Dissolved (mg/L)	<0.020	0.027	<0.020	<0.020	9.7
	Lead (Pb)-Dissolved (mg/L)	0.000169	0.0131	0.000660	0.000269	1.05
	Lithium (Li)-Dissolved (mg/L)	0.0259	0.0196	0.0391	0.0174	0.043

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID: L1363247-26 Description: Water Sampled Date: 14-SEP-13 Sampled Time: 14:54 Client ID: FP15_SEFL13	Sample ID: L1363247-27 Description: Water Sampled Date: 14-SEP-13 Sampled Time: 15:13 Client ID: FP16_SEFL13	Sample ID: L1363247-28 Description: Water Sampled Date: 14-SEP-13 Sampled Time: 09:45 Client ID: GP02_SEFL13	Sample ID: L1363247-29 Description: Water Sampled Date: 14-SEP-13 Sampled Time: 10:45 Client ID: GP22_SEFL13	Sample ID: L1363247-30 Description: Water Sampled Date: 14-SEP-13 Sampled Time: 15:45 Client ID: SRK-GD01_SEFL13
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	409	518	681	260	2120
	pH (pH)	8.05		8.26	8.32	7.77
	Total Suspended Solids (mg/L)	1.4	34.4	82.3	20.0	11.0
	Total Dissolved Solids (mg/L)	580	1020	951	352	2990
Anions and Nutrients	Acidity (as CaCO3) (mg/L)		132	<1.0		36.1
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)					
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	79.4		252	148	585
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0		<2.0	<1.0	<20
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0		<2.0	<1.0	<20
	Alkalinity, Total (as CaCO3) (mg/L)	79.4		252	148	585
	Ammonia, Total (as N) (mg/L)	<0.0050	0.0122	0.0054	<0.0050	<0.0050
	Chloride (Cl) (mg/L)	<0.50	<5.0 DLA	<5.0 DLA	<0.50	<10 DLA
	Fluoride (F) (mg/L)	0.329	0.61	<0.20 DLA	0.312	<0.40 DLA
	Nitrate (as N) (mg/L)	0.0141	0.431	0.051	0.0438	5.76
	Nitrite (as N) (mg/L)	<0.0010	<0.010 DLA	<0.010 DLA	<0.0010	<0.020 DLA
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	0.0011	<0.0010
	Sulfate (SO4) (mg/L)	315	621	439	130	1570
Cyanides	Cyanide, Free (mg/L)					<0.0050
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	0.57	0.88	5.12	0.75	2.71
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0090	5.09	0.0070	0.0018	<0.0020 DLA
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00050 DLA	0.00014	0.00014	0.00076
	Arsenic (As)-Dissolved (mg/L)	<0.00010	<0.00050 DLA	0.00082	0.00037	0.00268
	Barium (Ba)-Dissolved (mg/L)	0.0125	0.0140	0.110	0.0489	0.0275
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	0.00294	<0.00010	<0.00010	<0.00020 DLA
	Boron (B)-Dissolved (mg/L)	<0.010	<0.050 DLA	<0.010	<0.010	<0.020 DLA
	Cadmium (Cd)-Dissolved (mg/L)	0.00157	0.0683	0.000050	0.000013	0.00106
	Calcium (Ca)-Dissolved (mg/L)	101	94.8	189	74.7	341
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	0.00253	0.00021	0.00012	<0.00020 DLA
	Cobalt (Co)-Dissolved (mg/L)	0.00080	0.0882	0.00010	0.00012	0.00109
	Copper (Cu)-Dissolved (mg/L)	0.00252	0.608	0.00179	0.00025	0.00151
	Iron (Fe)-Dissolved (mg/L)	<0.030	2.79	<0.030	<0.030	<0.030
	Ferrous Iron, Dissolved (mg/L)	<0.020	0.314	<0.020	<0.020	<0.020
	Lead (Pb)-Dissolved (mg/L)	0.00291	0.176	0.000202	<0.000050	0.00106
	Lithium (Li)-Dissolved (mg/L)	0.0250	0.0318	0.00057	0.00499	0.0308

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1363247-31				
	Description					
	Sampled Date	14-SEP-13				
	Sampled Time	15:40				
	Client ID	SRK-GD13_SEFL13				
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	1700				
	pH (pH)	8.14				
	Total Suspended Solids (mg/L)	3.1				
	Total Dissolved Solids (mg/L)	2080				
Anions and Nutrients	Acidity (as CaCO3) (mg/L)					
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)					
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	453				
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0				
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0				
	Alkalinity, Total (as CaCO3) (mg/L)	453				
	Ammonia, Total (as N) (mg/L)	<0.0050				
	Chloride (Cl) (mg/L)	<10 DLA				
	Fluoride (F) (mg/L)	<0.40 DLA				
	Nitrate (as N) (mg/L)	19.8				
	Nitrite (as N) (mg/L)	<0.020 DLA				
	Orthophosphate-Dissolved (as P) (mg/L)	0.0020				
	Sulfate (SO4) (mg/L)	1140				
Cyanides	Cyanide, Free (mg/L)	<0.0050				
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	3.73				
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD				
	Dissolved Metals Filtration Location	FIELD				
	Aluminum (Al)-Dissolved (mg/L)	0.0097				
	Antimony (Sb)-Dissolved (mg/L)	0.00041				
	Arsenic (As)-Dissolved (mg/L)	0.00248				
	Barium (Ba)-Dissolved (mg/L)	0.0276				
	Beryllium (Be)-Dissolved (mg/L)	<0.00020 DLA				
	Boron (B)-Dissolved (mg/L)	<0.020 DLA				
	Cadmium (Cd)-Dissolved (mg/L)	0.000089				
	Calcium (Ca)-Dissolved (mg/L)	304				
	Chromium (Cr)-Dissolved (mg/L)	<0.00020 DLA				
	Cobalt (Co)-Dissolved (mg/L)	0.00044				
	Copper (Cu)-Dissolved (mg/L)	0.00145				
	Iron (Fe)-Dissolved (mg/L)	0.035				
	Ferrous Iron, Dissolved (mg/L)	0.042				
	Lead (Pb)-Dissolved (mg/L)	0.00149				
	Lithium (Li)-Dissolved (mg/L)	0.0147				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1363247-1 Water 14-SEP-13 14:00 GP09_SEFL13	L1363247-2 Water 12-SEP-13 14:00 CH-FP-38_SEFL13	L1363247-3 Water 12-SEP-13 13:50 CH-RCTA-03_SEFL13	L1363247-4 Water 12-SEP-13 15:30 CH-RCTA-05_SEFL13	L1363247-5 Water 12-SEP-13 14:45 CH-RCTA-07_SEFL13
WATER						
Dissolved Metals	Magnesium (Mg)-Dissolved (mg/L)	192	134	52.4	18.6	22.1
	Manganese (Mn)-Dissolved (mg/L)	0.0152	6.32	32.0	0.000514	4.60
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	0.00145	<0.00025 DLA	<0.00025 DLA	0.000519	<0.00010 DLA
	Nickel (Ni)-Dissolved (mg/L)	0.0205	0.198	0.172	<0.00050	0.0255
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	3.75	4.54	5.33	1.68	3.37
	Selenium (Se)-Dissolved (mg/L)	0.00036	<0.00050 DLA	<0.00050 DLA	0.00065	<0.00020 DLA
	Silicon (Si)-Dissolved (mg/L)	1.58	5.91	10.0	4.59	5.45
	Silicon (as SiO2)-Dissolved (mg/L)	3.38	12.6	21.4	9.81	11.6
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000050 DLA	<0.000050 DLA	<0.000010	<0.000020 DLA
	Sodium (Na)-Dissolved (mg/L)	3.46	4.78	13.6	1.72	3.65
	Strontium (Sr)-Dissolved (mg/L)	0.614	0.464	1.13	0.274	0.579
	Sulfur (S)-Dissolved (mg/L)	230	332	614	9.46	208
	Thallium (Tl)-Dissolved (mg/L)	0.000144	0.00157	0.000117 DLA	<0.000010	0.000049
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.050 DLA	<0.050 DLA	<0.010	<0.020 DLA
	Uranium (U)-Dissolved (mg/L)	0.0243	0.000365	0.00352	0.00302	0.00347
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0050 DLA	<0.0050 DLA	<0.0010	<0.0020 DLA
	Zinc (Zn)-Dissolved (mg/L)	0.0385	35.5	17.9	0.0014	11.8

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1363247-6	L1363247-7	L1363247-8	L1363247-9	L1363247-10
	Description	Water	Water	Water	Water	Water
	Sampled Date	13-SEP-13	13-SEP-13	13-SEP-13	13-SEP-13	13-SEP-13
	Sampled Time	13:00	13:30	11:55	13:05	11:55
	Client ID	A30_SEFL13	CH-FP-42_SEFL13	CH-FP-34_SEFL13	CH-FP-39_SEFL13	CH-FP-934_SEFL13
Grouping	**Analyte**					
WATER						
Dissolved Metals	Magnesium (Mg)-Dissolved (mg/L)	56.9	4.08	26.8	21.9	26.6
	Manganese (Mn)-Dissolved (mg/L)	3.16	0.000102	1.52	0.0178	1.51
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	<0.00025 DLA	0.00100	0.00034	0.000135	0.00032
	Nickel (Ni)-Dissolved (mg/L)	0.146	<0.00050	0.0663	0.0288	0.0649
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	1.67	0.691	1.46	1.28	1.44
	Selenium (Se)-Dissolved (mg/L)	<0.00050 DLA	0.00029	<0.00020 DLA	0.00021	0.00020
	Silicon (Si)-Dissolved (mg/L)	13.2	6.44	9.47	9.20	9.47
	Silicon (as SiO2)-Dissolved (mg/L)	28.3	13.8	20.3	19.7	20.3
	Silver (Ag)-Dissolved (mg/L)	0.000635	<0.000010	<0.000020 DLA	<0.000010	<0.000020 DLA
	Sodium (Na)-Dissolved (mg/L)	3.92	2.49	4.89	4.26	4.57
	Strontium (Sr)-Dissolved (mg/L)	0.253	0.0983	0.247	0.223	0.242
	Sulfur (S)-Dissolved (mg/L)	167	6.27	79.2	64.6	79.3
	Thallium (Tl)-Dissolved (mg/L)	0.000191	<0.000010	<0.000020 DLA	0.000046	<0.000020 DLA
	Titanium (Ti)-Dissolved (mg/L)	<0.050 DLA	<0.010	<0.020 DLA	<0.010	<0.020 DLA
	Uranium (U)-Dissolved (mg/L)	0.00952	0.00228	0.00161	0.00116	0.00141
	Vanadium (V)-Dissolved (mg/L)	<0.0050 DLA	<0.0010	<0.0020 DLA	<0.0010	<0.0020 DLA
	Zinc (Zn)-Dissolved (mg/L)	47.3	<0.0010	16.8	5.79	16.7

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1363247-11 Water 13-SEP-13 17:00 FP05_SEFL13	L1363247-12 Water 13-SEP-13 12:00 GP12_SEFL13	L1363247-13 Water 13-SEP-13 10:15 SRK-FD05_SEFL13	L1363247-14 Water 13-SEP-13 15:50 SRK-FD18_SEFL13	L1363247-15 Water 13-SEP-13 14:05 SRK-FD40_SEFL13
WATER						
Dissolved Metals	Magnesium (Mg)-Dissolved (mg/L)	115	49.1	15.8	4.83	65.6
	Manganese (Mn)-Dissolved (mg/L)	0.000931	3.78	0.000156	0.00134	4.32
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	0.000130	0.00170	0.000768	0.000826	<0.00050 DLA
	Nickel (Ni)-Dissolved (mg/L)	0.0444	0.0656	<0.00050	0.00063	0.155
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	3.57	1.41	2.04	1.19	1.16
	Selenium (Se)-Dissolved (mg/L)	0.00224	<0.00050 DLA	0.00011	<0.00010	<0.0010 DLA
	Silicon (Si)-Dissolved (mg/L)	5.29	4.67	2.17	6.21	9.48
	Silicon (as SiO2)-Dissolved (mg/L)	11.3	9.99	4.64	13.3	20.3
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000050 DLA	<0.000010	<0.000010	0.00047
	Sodium (Na)-Dissolved (mg/L)	6.12	15.6	2.75	1.98	3.87
	Strontium (Sr)-Dissolved (mg/L)	0.453	0.480	0.595	0.0955	0.257
	Sulfur (S)-Dissolved (mg/L)	181	172	5.99	6.76	215
	Thallium (Tl)-Dissolved (mg/L)	0.000137	0.00391	0.000017	0.000058	0.00048
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.050 DLA	<0.010	<0.010	<0.10 DLA
	Uranium (U)-Dissolved (mg/L)	0.00890	0.00256	0.00136	0.000606	0.00903
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0050 DLA	<0.0010	<0.0010	<0.010 DLA
	Zinc (Zn)-Dissolved (mg/L)	5.64	18.3	<0.0010	0.0899	51.8

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1363247-16	L1363247-17	L1363247-18	L1363247-19	L1363247-20
	Description	Water	Water	Water	Water	Water
	Sampled Date	13-SEP-13	14-SEP-13	14-SEP-13	14-SEP-13	14-SEP-13
	Sampled Time	14:05	13:30	12:00	13:30	14:18
	Client ID	SRK-FD940_SEFL13	CH-GP-19_SEFL13	CH-GP-27_SEFL13	CH-GP-919_SEFL13	FP02_SEFL13
Grouping	**Analyte**					
WATER						
Dissolved Metals	Magnesium (Mg)-Dissolved (mg/L)	65.4	120	172	114	49.5
	Manganese (Mn)-Dissolved (mg/L)	4.27	21.5	0.00673	21.9	0.000249
	Mercury (Hg)-Dissolved (mg/L)	0.000053	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	<0.00050 DLA	0.00207	0.00185	0.00217	0.000940
	Nickel (Ni)-Dissolved (mg/L)	0.154	0.0162	0.0809	0.0153	<0.00050
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	1.19	4.51	3.12	4.20	4.68
	Selenium (Se)-Dissolved (mg/L)	<0.0010 DLA	<0.00050 DLA	0.00032	<0.00050 DLA	0.00019
	Silicon (Si)-Dissolved (mg/L)	9.29	6.18	1.49	6.11	0.999
	Silicon (as SiO2)-Dissolved (mg/L)	19.9	13.2	3.18	13.1	2.14
	Silver (Ag)-Dissolved (mg/L)	0.00051	<0.000050 DLA	<0.000010	<0.000050 DLA	<0.000010
	Sodium (Na)-Dissolved (mg/L)	4.30	18.7	4.09	17.9	20.8
	Strontium (Sr)-Dissolved (mg/L)	0.266	1.08	0.694	1.05	1.88
	Sulfur (S)-Dissolved (mg/L)	212	280	213	263	41.6
	Thallium (Tl)-Dissolved (mg/L)	0.00048	0.000057	0.00137	0.000067	0.000112
	Titanium (Ti)-Dissolved (mg/L)	<0.10 DLA	<0.050 DLA	<0.010	<0.050 DLA	<0.010
	Uranium (U)-Dissolved (mg/L)	0.00898	0.0395	0.0157	0.0420	0.00438
	Vanadium (V)-Dissolved (mg/L)	<0.010 DLA	<0.0050 DLA	<0.0010	<0.0050 DLA	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	52.7	0.0233	2.33	0.0258	0.0017

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1363247-21	L1363247-22	L1363247-23	L1363247-24	L1363247-25
	Description	Water	Water	Water	Water	Water
	Sampled Date	14-SEP-13	14-SEP-13	14-SEP-13	14-SEP-13	14-SEP-13
	Sampled Time	16:16	15:42	13:01	13:43	12:13
	Client ID	FP06_SEFL13	FP09_SEFL13	FP12_SEFL13	FP13_SEFL13	FP14_SEFL13
Grouping	**Analyte**					
WATER						
Dissolved Metals	Magnesium (Mg)-Dissolved (mg/L)	22.4	23.1	39.2	17.8	134
	Manganese (Mn)-Dissolved (mg/L)	0.000614	1.07	0.0385	0.000731	19.0
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	0.000015
	Molybdenum (Mo)-Dissolved (mg/L)	0.00129	0.00047	0.000564	0.000683	<0.0025 DLA
	Nickel (Ni)-Dissolved (mg/L)	0.00101	0.0511	0.00078	<0.00050	0.363
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	2.17	1.07	3.07	2.34	<2.5 DLA
	Selenium (Se)-Dissolved (mg/L)	0.00059	0.00025	0.00013	0.00012	<0.0050 DLA
	Silicon (Si)-Dissolved (mg/L)	5.23	8.46	1.54	2.06	3.86
	Silicon (as SiO2)-Dissolved (mg/L)	11.2	18.1	3.29	4.41	8.26
	Silver (Ag)-Dissolved (mg/L)	<0.000010	0.000118	<0.000010	<0.000010	<0.00050 DLA
	Sodium (Na)-Dissolved (mg/L)	3.20	3.24	5.60	5.93	3.9
	Strontium (Sr)-Dissolved (mg/L)	0.441	0.158	1.58	0.716	0.409
	Sulfur (S)-Dissolved (mg/L)	8.40	65.8	30.5	7.83	568
	Thallium (Tl)-Dissolved (mg/L)	0.000029	0.000058	0.000335	0.000069	0.00804
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.020 DLA	<0.010	<0.010	<0.50 DLA
	Uranium (U)-Dissolved (mg/L)	0.0131	0.000370	0.00348	0.00149	0.0160
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0020 DLA	<0.0010	<0.0010	<0.050 DLA
	Zinc (Zn)-Dissolved (mg/L)	0.0024	16.2	0.985	0.0149	237

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1363247-26 Water 14-SEP-13 14:54 FP15_SEFL13	L1363247-27 Water 14-SEP-13 15:13 FP16_SEFL13	L1363247-28 Water 14-SEP-13 09:45 GP02_SEFL13	L1363247-29 Water 14-SEP-13 10:45 GP22_SEFL13	L1363247-30 Water 14-SEP-13 15:45 SRK-GD01_SEFL13
WATER						
Dissolved Metals	Magnesium (Mg)-Dissolved (mg/L)	38.1	68.4	50.5	17.9	309
	Manganese (Mn)-Dissolved (mg/L)	0.0114	2.72	0.00598	0.0290	0.0460
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	0.000088	<0.00025 DLA	0.000429	0.000684	0.00083
	Nickel (Ni)-Dissolved (mg/L)	0.00678	0.154	0.00191	0.00134	0.229
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	2.51	1.79	2.17	1.94	6.50
	Selenium (Se)-Dissolved (mg/L)	0.00012	<0.00050 DLA	0.00015	0.00460	0.00056
	Silicon (Si)-Dissolved (mg/L)	4.61	12.1	7.26	5.90	3.85
	Silicon (as SiO2)-Dissolved (mg/L)	9.87	25.9	15.5	12.6	8.24
	Silver (Ag)-Dissolved (mg/L)	<0.000010	0.000171	<0.000010	<0.000010	<0.000020 DLA
	Sodium (Na)-Dissolved (mg/L)	5.22	4.44	14.3	8.63	8.53
	Strontium (Sr)-Dissolved (mg/L)	0.296	0.284	0.701	0.344	1.20
	Sulfur (S)-Dissolved (mg/L)	107	204	142	42.9	496
	Thallium (Tl)-Dissolved (mg/L)	0.000661	0.000170	<0.000010	<0.000010	0.000280
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.050 DLA	<0.010	<0.010	<0.020 DLA
	Uranium (U)-Dissolved (mg/L)	0.000619	0.00461	0.0180	0.0163	0.0457
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0050 DLA	<0.0010	<0.0010	<0.0020 DLA
	Zinc (Zn)-Dissolved (mg/L)	0.813	45.9	0.0106	<0.0010	2.25

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1363247-31				
	Description					
	Sampled Date	14-SEP-13				
	Sampled Time	15:40				
	Client ID	SRK-GD13_SEFL13				
Grouping	**Analyte**					
WATER						
Dissolved Metals	Magnesium (Mg)-Dissolved (mg/L)	229				
	Manganese (Mn)-Dissolved (mg/L)	0.0104				
	Mercury (Hg)-Dissolved (mg/L)	<0.000010				
	Molybdenum (Mo)-Dissolved (mg/L)	0.00141				
	Nickel (Ni)-Dissolved (mg/L)	0.0945				
	Phosphorus (P)-Dissolved (mg/L)	<0.30				
	Potassium (K)-Dissolved (mg/L)	3.28				
	Selenium (Se)-Dissolved (mg/L)	0.00248				
	Silicon (Si)-Dissolved (mg/L)	4.80				
	Silicon (as SiO2)-Dissolved (mg/L)	10.3				
	Silver (Ag)-Dissolved (mg/L)	<0.000020 DLA				
	Sodium (Na)-Dissolved (mg/L)	5.57				
	Strontium (Sr)-Dissolved (mg/L)	1.14				
	Sulfur (S)-Dissolved (mg/L)	372				
	Thallium (Tl)-Dissolved (mg/L)	0.000063				
	Titanium (Ti)-Dissolved (mg/L)	<0.020 DLA				
	Uranium (U)-Dissolved (mg/L)	0.0333				
	Vanadium (V)-Dissolved (mg/L)	<0.0020 DLA				
	Zinc (Zn)-Dissolved (mg/L)	0.231				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Antimony (Sb)-Dissolved	DLA	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Duplicate	Beryllium (Be)-Dissolved	DLA	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Duplicate	Boron (B)-Dissolved	DLA	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Duplicate	Chromium (Cr)-Dissolved	DLA	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Duplicate	Molybdenum (Mo)-Dissolved	DLA	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Duplicate	Selenium (Se)-Dissolved	DLA	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Duplicate	Silver (Ag)-Dissolved	DLA	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Duplicate	Titanium (Ti)-Dissolved	DLA	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Duplicate	Vanadium (V)-Dissolved	DLA	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Duplicate	Antimony (Sb)-Dissolved	DLA	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Duplicate	Beryllium (Be)-Dissolved	DLA	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Duplicate	Boron (B)-Dissolved	DLA	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Duplicate	Chromium (Cr)-Dissolved	DLA	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Duplicate	Copper (Cu)-Dissolved	DLA	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Duplicate	Lead (Pb)-Dissolved	DLA	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Duplicate	Lithium (Li)-Dissolved	DLA	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Duplicate	Selenium (Se)-Dissolved	DLA	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Duplicate	Silver (Ag)-Dissolved	DLA	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Duplicate	Titanium (Ti)-Dissolved	DLA	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Duplicate	Vanadium (V)-Dissolved	DLA	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Matrix Spike	Dissolved Organic Carbon	MS-B	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfate (SO4)	MS-B	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19,

Reference Information

	Parameter	Qualifier	Applies to Sample Number(s)
			-2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Matrix Spike	Cadmium (Cd)-Dissolved	MS-B	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Matrix Spike	Copper (Cu)-Dissolved	MS-B	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Matrix Spike	Zinc (Zn)-Dissolved	MS-B	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Matrix Spike	Aluminum (Al)-Dissolved	MS-B	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Matrix Spike	Cadmium (Cd)-Dissolved	MS-B	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Matrix Spike	Copper (Cu)-Dissolved	MS-B	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Matrix Spike	Lead (Pb)-Dissolved	MS-B	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9
Matrix Spike	Zinc (Zn)-Dissolved	MS-B	L1363247-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-H2O2-MAN-VA	Water	Acidity by Hot Peroxide Manual Titration	APHA - ACIDITY (2310)

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". The procedure involves preliminary sample treatment by the hot peroxide procedure, and Acidity is subsequently determined by potentiometric titration to a specified endpoint (i.e. pH = 8.3).

ACY-MAN-VA	Water	Acidity by Manual Titration	APHA - ACIDITY (2310)

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 "Alkalinity"

Reference Information

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ALK-PCT-VA Water Alkalinity by Auto. Titration APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ALK-SCR-VA Water Alkalinity by colour or titration EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-CL-IC-WR Water Chloride by Ion Chromatography EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-F-IC-WR Water Fluoride by Ion Chromatography EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-NO2-IC-WR Water Nitrite Nitrogen by Ion Chromatography EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-NO3-IC-WR Water Nitrate Nitrogen by Ion Chromatography EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-SO4-IC-WR Water Sulphate by Ion Chromatography EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

CARBONS-DOC-VA Water Dissolved organic carbon by combustion APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CN-FREE-CFA-VA Water Free Cyanide in water by CFA ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

FE2-D-COL-VA Water Diss. Ferrous Iron in Water by Colour James W. Ball et al (1999)

This analysis is carried out using procedures adapted from "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedures involves preliminary sample filtration (0.1um filter) and Ferrous Iron is determined using the "FerroZine" colorimteric method.

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

MET-D-CCMS-VA Water Dissolved Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United

Reference Information

States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PH-MAN-VA Water pH by Manual Meter APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.

It is recommended that this analysis be conducted in the field.

PH-MAN-VA Water pH by Manual Meter APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

S-DIS-ICP-VA Water Dissolved Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

SIO2-D-CALC-VA Water Dissolved Silicon (reported as Silica) CALCULATION

Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-LOW-VA Water Total Suspended Solids by Grav. (1 mg/L) APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

ALS09151301

Reference Information

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Client: CH2M HILL, INC
2525 Airpark Drive
Redding CA 96001
Contact: Bernice Kidd

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-H2O2-MAN-VA	**Water**							
Batch R2704309								
WG1757874-2 CRM		**VA-ACY-M-CONTROL**						
Acidity-Hot Peroxide Treated (as CaCO3)			97.9		%		85-115	30-SEP-13
WG1757874-1 MB								
Acidity-Hot Peroxide Treated (as CaCO3)			<25		mg/L		25	30-SEP-13
Batch R2705166								
WG1758431-2 CRM		**VA-ACY-M-CONTROL**						
Acidity-Hot Peroxide Treated (as CaCO3)			97.9		%		85-115	01-OCT-13
WG1758431-1 MB								
Acidity-Hot Peroxide Treated (as CaCO3)			<25		mg/L		25	01-OCT-13
ACY-MAN-VA	**Water**							
Batch R2696844								
WG1750874-2 CRM		**VA-ACY-M-CONTROL**						
Acidity (as CaCO3)			97.9		%		85-115	19-SEP-13
WG1750874-3 DUP		**L1363247-13**						
Acidity (as CaCO3)		30	30		mg/L	0.0	20	19-SEP-13
WG1750874-1 MB								
Acidity (as CaCO3)			<25		mg/L		25	19-SEP-13
ACY-PCT-VA	**Water**							
Batch R2697555								
WG1750339-9 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			101.5		%		85-115	19-SEP-13
WG1750339-33 DUP		**L1363247-10**						
Acidity (as CaCO3)		26.0	25.7		mg/L	1.0	20	19-SEP-13
WG1750339-1 MB								
Acidity (as CaCO3)			<1.0		mg/L		1	19-SEP-13
ALK-PCT-VA	**Water**							
Batch R2698704								
WG1751240-9 CRM		**VA-ALK-PCT-CONTROL**						
Alkalinity, Total (as CaCO3)			90.6		%		85-115	20-SEP-13
WG1751240-33 DUP		**L1363247-29**						
Alkalinity, Total (as CaCO3)		148	141		mg/L	4.8	20	20-SEP-13
Alkalinity, Bicarbonate (as CaCO3)		148	141		mg/L	4.8	20	20-SEP-13
Alkalinity, Carbonate (as CaCO3)		<1.0	<1.0	RPD-NA	mg/L	N/A	25	20-SEP-13
Alkalinity, Hydroxide (as CaCO3)		<1.0	<1.0	RPD-NA	mg/L	N/A	20	20-SEP-13
WG1751240-1 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	20-SEP-13
Alkalinity, Bicarbonate (as CaCO3)			<1.0		mg/L		1	20-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-PCT-VA	**Water**							
Batch R2698704								
WG1751240-1 MB								
Alkalinity, Carbonate (as CaCO3)			<1.0		mg/L		1	20-SEP-13
Alkalinity, Hydroxide (as CaCO3)			<1.0		mg/L		1	20-SEP-13
Batch R2699525								
WG1752582-9 CRM		**VA-ALK-PCT-CONTROL**						
Alkalinity, Total (as CaCO3)			95.4		%		85-115	23-SEP-13
WG1752582-33 DUP		**L1363247-20**						
Alkalinity, Total (as CaCO3)		302	301		mg/L	0.4	20	23-SEP-13
Alkalinity, Bicarbonate (as CaCO3)		302	301		mg/L	0.4	20	23-SEP-13
Alkalinity, Carbonate (as CaCO3)		<1.0	<1.0	RPD-NA	mg/L	N/A	25	23-SEP-13
Alkalinity, Hydroxide (as CaCO3)		<1.0	<1.0	RPD-NA	mg/L	N/A	20	23-SEP-13
WG1752582-1 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	23-SEP-13
Alkalinity, Bicarbonate (as CaCO3)			<1.0		mg/L		1	23-SEP-13
Alkalinity, Carbonate (as CaCO3)			<1.0		mg/L		1	23-SEP-13
Alkalinity, Hydroxide (as CaCO3)			<1.0		mg/L		1	23-SEP-13
ALK-SCR-VA	**Water**							
Batch R2695832								
WG1749647-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			98.8		%		85-115	18-SEP-13
WG1749647-5 CRM		**VA-ALKM-CONTROL**						
Alkalinity, Total (as CaCO3)			102.9		%		85-115	18-SEP-13
WG1749647-6 DUP		**L1363247-31**						
Alkalinity, Total (as CaCO3)		453	451		mg/L	0.4	20	18-SEP-13
WG1749647-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	18-SEP-13
WG1749647-4 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	18-SEP-13
WG1749647-7 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	18-SEP-13
ANIONS-CL-IC-WR	**Water**							
Batch R2698830								
WG1750442-7 DUP		**L1363247-13**						
Chloride (Cl)		<0.50	<0.50	RPD-NA	mg/L	N/A	20	16-SEP-13
WG1750442-2 LCS								
Chloride (Cl)			96.7		%		85-115	16-SEP-13
WG1750442-6 LCS								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-CL-IC-WR	**Water**							
Batch R2698830								
WG1750442-6 LCS								
Chloride (Cl)			96.5		%		85-115	16-SEP-13
WG1750442-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-13
WG1750442-5 MB								
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-13
WG1750442-4 MS		**L1363235-18**						
Chloride (Cl)			99.1		%		75-125	16-SEP-13
WG1750442-8 MS		**L1363247-14**						
Chloride (Cl)			98.7		%		75-125	16-SEP-13
ANIONS-F-IC-WR	**Water**							
Batch R2698830								
WG1750442-7 DUP		**L1363247-13**						
Fluoride (F)		0.273	0.272		mg/L	0.4	20	16-SEP-13
WG1750442-2 LCS								
Fluoride (F)			97.5		%		85-115	16-SEP-13
WG1750442-6 LCS								
Fluoride (F)			97.5		%		85-115	16-SEP-13
WG1750442-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-13
WG1750442-5 MB								
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-13
WG1750442-4 MS		**L1363235-18**						
Fluoride (F)			102.9		%		75-125	16-SEP-13
WG1750442-8 MS		**L1363247-14**						
Fluoride (F)			104.1		%		75-125	16-SEP-13
ANIONS-NO2-IC-WR	**Water**							
Batch R2698830								
WG1750442-7 DUP		**L1363247-13**						
Nitrite (as N)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	16-SEP-13
WG1750442-2 LCS								
Nitrite (as N)			97.0		%		85-115	16-SEP-13
WG1750442-6 LCS								
Nitrite (as N)			97.1		%		85-115	16-SEP-13
WG1750442-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-13
WG1750442-5 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO2-IC-WR	**Water**							
Batch R2698830								
WG1750442-4 MS		**L1363235-18**						
Nitrite (as N)			102.8		%		75-125	16-SEP-13
WG1750442-8 MS		**L1363247-14**						
Nitrite (as N)			102.0		%		75-125	16-SEP-13
ANIONS-NO3-IC-WR	**Water**							
Batch R2698830								
WG1750442-7 DUP		**L1363247-13**						
Nitrate (as N)		0.0067	0.0065		mg/L	3.4	20	16-SEP-13
WG1750442-2 LCS								
Nitrate (as N)			97.2		%		85-115	16-SEP-13
WG1750442-6 LCS								
Nitrate (as N)			97.2		%		85-115	16-SEP-13
WG1750442-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-13
WG1750442-5 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-13
WG1750442-4 MS		**L1363235-18**						
Nitrate (as N)			99.4		%		75-125	16-SEP-13
WG1750442-8 MS		**L1363247-14**						
Nitrate (as N)			98.0		%		75-125	16-SEP-13
ANIONS-SO4-IC-WR	**Water**							
Batch R2698830								
WG1750442-7 DUP		**L1363247-13**						
Sulfate (SO4)		17.7	17.7		mg/L	0.0	20	16-SEP-13
WG1750442-2 LCS								
Sulfate (SO4)			96.7		%		85-115	16-SEP-13
WG1750442-6 LCS								
Sulfate (SO4)			96.4		%		85-115	16-SEP-13
WG1750442-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-13
WG1750442-5 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-13
WG1750442-4 MS		**L1363235-18**						
Sulfate (SO4)			N/A	MS-B	%		-	16-SEP-13
WG1750442-8 MS		**L1363247-14**						
Sulfate (SO4)			94.7		%		75-125	16-SEP-13
CARBONS-DOC-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CARBONS-DOC-VA	**Water**							
Batch R2696568								
WG1749473-1 DUP		**L1363247-7**						
Dissolved Organic Carbon		0.79	0.71		mg/L	11	20	18-SEP-13
WG1749473-2 DUP		**L1363247-12**						
Dissolved Organic Carbon		0.66	0.69		mg/L	4.6	20	18-SEP-13
WG1749473-5 LCS								
Dissolved Organic Carbon			95.8		%		80-120	18-SEP-13
WG1749473-4 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	18-SEP-13
WG1749473-3 MS		**L1363247-17**						
Dissolved Organic Carbon			N/A	MS-B	%		-	18-SEP-13
Batch R2696569								
WG1749478-1 DUP		**L1363247-23**						
Dissolved Organic Carbon		0.91	0.86		mg/L	5.1	20	18-SEP-13
WG1749478-4 LCS								
Dissolved Organic Carbon			93.6		%		80-120	18-SEP-13
WG1749478-3 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	18-SEP-13
WG1749478-2 MS		**L1363288-4**						
Dissolved Organic Carbon			98.7		%		70-130	18-SEP-13
CN-FREE-CFA-VA	**Water**							
Batch R2699516								
WG1752995-3 DUP		**L1363247-31**						
Cyanide, Free		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	23-SEP-13
WG1752995-2 LCS								
Cyanide, Free			100.8		%		80-120	23-SEP-13
WG1752995-1 MB								
Cyanide, Free			<0.0050		mg/L		0.005	23-SEP-13
WG1752995-4 MS		**L1363247-31**						
Cyanide, Free			104.3		%		70-130	23-SEP-13
FE2-D-COL-VA	**Water**							
Batch R2700072								
WG1750906-3 DUP		**L1363247-1**						
Ferrous Iron, Dissolved		0.021	0.021		mg/L	1.0	20	19-SEP-13
WG1750906-2 LCS								
Ferrous Iron, Dissolved			103.5		%		80-120	19-SEP-13
WG1750906-6 LCS								
Ferrous Iron, Dissolved			113.5		%		80-120	19-SEP-13
WG1750906-1 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
FE2-D-COL-VA	**Water**							
Batch R2700072								
WG1750906-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	19-SEP-13
WG1750906-5 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	19-SEP-13
WG1750906-4 MS		**L1363247-1**						
Ferrous Iron, Dissolved			102.2		%		70-130	19-SEP-13
WG1750906-7 MS		**L1363288-4**						
Ferrous Iron, Dissolved			97.7		%		70-130	20-SEP-13
Batch R2700129								
WG1751889-2 LCS								
Ferrous Iron, Dissolved			100.3		%		80-120	20-SEP-13
WG1751889-6 LCS								
Ferrous Iron, Dissolved			99.0		%		80-120	20-SEP-13
WG1751889-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	20-SEP-13
WG1751889-5 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	20-SEP-13
WG1751889-4 MS		**L1363235-17**						
Ferrous Iron, Dissolved			95.8		%		70-130	20-SEP-13
WG1751889-8 MS		**L1364160-9**						
Ferrous Iron, Dissolved			98.5		%		70-130	20-SEP-13
Batch R2706594								
WG1759471-2 LCS								
Ferrous Iron, Dissolved			102.2		%		80-120	02-OCT-13
WG1759471-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	02-OCT-13
WG1759471-3 MS		**L1363247-10**						
Ferrous Iron, Dissolved			96.3		%		70-130	02-OCT-13
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2696881								
WG1750101-2 LCS								
Mercury (Hg)-Dissolved			95.2		%		80-120	19-SEP-13
Batch R2697527								
WG1750101-3 DUP		**L1363247-5**						
Mercury (Hg)-Dissolved		0.000010	0.000010		mg/L	1.4	20	19-SEP-13
WG1750101-6 DUP		**L1363247-19**						
Mercury (Hg)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	19-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2697527								
WG1750101-4 MS		**L1363247-11**						
Mercury (Hg)-Dissolved			81.6		%		70-130	19-SEP-13
WG1750101-5 MS		**L1363247-25**						
Mercury (Hg)-Dissolved			85.5		%		70-130	19-SEP-13
Batch R2700321								
WG1750101-1 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	24-SEP-13
MET-D-CCMS-VA	**Water**							
Batch R2697492								
WG1751097-5 CRM		**VA-HIGH-WATRM**						
Aluminum (Al)-Dissolved			97.9		%		80-120	19-SEP-13
Antimony (Sb)-Dissolved			96.7		%		80-120	19-SEP-13
Arsenic (As)-Dissolved			97.8		%		80-120	19-SEP-13
Barium (Ba)-Dissolved			95.3		%		80-120	19-SEP-13
Beryllium (Be)-Dissolved			95.8		%		80-120	19-SEP-13
Boron (B)-Dissolved			88.7		%		80-120	19-SEP-13
Cadmium (Cd)-Dissolved			95.4		%		80-120	19-SEP-13
Chromium (Cr)-Dissolved			97.3		%		80-120	19-SEP-13
Cobalt (Co)-Dissolved			95.8		%		80-120	19-SEP-13
Copper (Cu)-Dissolved			94.1		%		80-120	19-SEP-13
Lead (Pb)-Dissolved			97.7		%		80-120	19-SEP-13
Lithium (Li)-Dissolved			94.8		%		80-120	19-SEP-13
Manganese (Mn)-Dissolved			98.1		%		80-120	19-SEP-13
Molybdenum (Mo)-Dissolved			95.6		%		80-120	19-SEP-13
Nickel (Ni)-Dissolved			95.7		%		80-120	19-SEP-13
Potassium (K)-Dissolved			98.1		%		80-120	19-SEP-13
Selenium (Se)-Dissolved			98.7		%		80-120	19-SEP-13
Silver (Ag)-Dissolved			96.0		%		80-120	19-SEP-13
Sodium (Na)-Dissolved			101.4		%		80-120	19-SEP-13
Strontium (Sr)-Dissolved			95.2		%		80-120	19-SEP-13
Thallium (Tl)-Dissolved			97.1		%		80-120	19-SEP-13
Titanium (Ti)-Dissolved			95.0		%		80-120	19-SEP-13
Uranium (U)-Dissolved			98.8		%		80-120	19-SEP-13
Vanadium (V)-Dissolved			97.6		%		80-120	19-SEP-13
Zinc (Zn)-Dissolved			96.2		%		80-120	19-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2697846								
WG1751097-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	19-SEP-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	19-SEP-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	19-SEP-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	19-SEP-13
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	19-SEP-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	19-SEP-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	19-SEP-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	19-SEP-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	19-SEP-13
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	19-SEP-13
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	19-SEP-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	19-SEP-13
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	19-SEP-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	19-SEP-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	19-SEP-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	19-SEP-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	19-SEP-13
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	19-SEP-13
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	19-SEP-13
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	19-SEP-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	19-SEP-13
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	19-SEP-13
Batch R2698927								
WG1751097-3 DUP		**L1363247-3**						
Aluminum (Al)-Dissolved		0.663	0.698		mg/L	5.1	20	27-SEP-13
Antimony (Sb)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	27-SEP-13
Arsenic (As)-Dissolved		0.00124	0.00133		mg/L	7.0	20	27-SEP-13
Barium (Ba)-Dissolved		0.0154	0.0155		mg/L	0.7	20	27-SEP-13
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	27-SEP-13
Boron (B)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	27-SEP-13
Cadmium (Cd)-Dissolved		0.00226	0.00228		mg/L	1.0	20	27-SEP-13
Chromium (Cr)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	27-SEP-13
Cobalt (Co)-Dissolved		0.185	0.192		mg/L	3.5	20	27-SEP-13
Copper (Cu)-Dissolved		0.0049	0.0050		mg/L	3.0	20	27-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2698927								
WG1751097-3 DUP		**L1363247-3**						
Lead (Pb)-Dissolved		0.00303	0.00322		mg/L	6.1	20	27-SEP-13
Lithium (Li)-Dissolved		0.0311	0.0325		mg/L	4.3	20	27-SEP-13
Manganese (Mn)-Dissolved		32.0	33.7		mg/L	5.1	20	27-SEP-13
Molybdenum (Mo)-Dissolved		<0.00025	<0.00025	RPD-NA	mg/L	N/A	20	27-SEP-13
Nickel (Ni)-Dissolved		0.172	0.180		mg/L	4.4	20	27-SEP-13
Potassium (K)-Dissolved		5.33	5.50		mg/L	3.2	20	27-SEP-13
Selenium (Se)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	27-SEP-13
Silver (Ag)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	27-SEP-13
Sodium (Na)-Dissolved		13.6	13.8		mg/L	1.4	20	27-SEP-13
Strontium (Sr)-Dissolved		1.13	1.18		mg/L	4.2	20	27-SEP-13
Thallium (Tl)-Dissolved		0.000117	0.000126		mg/L	7.6	20	27-SEP-13
Titanium (Ti)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	27-SEP-13
Uranium (U)-Dissolved		0.00352	0.00368		mg/L	4.5	20	27-SEP-13
Vanadium (V)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	27-SEP-13
Zinc (Zn)-Dissolved		17.9	18.3		mg/L	2.3	20	27-SEP-13
WG1751097-7 DUP		**L1363247-19**						
Aluminum (Al)-Dissolved		0.0186	0.0172		mg/L	8.0	20	27-SEP-13
Antimony (Sb)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	27-SEP-13
Arsenic (As)-Dissolved		0.00181	0.00183		mg/L	0.9	20	27-SEP-13
Barium (Ba)-Dissolved		0.129	0.132		mg/L	2.6	20	27-SEP-13
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	27-SEP-13
Boron (B)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	27-SEP-13
Cadmium (Cd)-Dissolved		0.000218	0.000229		mg/L	5.0	20	27-SEP-13
Chromium (Cr)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	27-SEP-13
Cobalt (Co)-Dissolved		0.0295	0.0301		mg/L	2.0	20	27-SEP-13
Copper (Cu)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	27-SEP-13
Lead (Pb)-Dissolved		<0.00025	<0.00025	RPD-NA	mg/L	N/A	20	27-SEP-13
Lithium (Li)-Dissolved		<0.0025	<0.0025	RPD-NA	mg/L	N/A	20	27-SEP-13
Manganese (Mn)-Dissolved		21.9	21.9		mg/L	0.0	20	27-SEP-13
Molybdenum (Mo)-Dissolved		0.00217	0.00231		mg/L	6.2	20	27-SEP-13
Nickel (Ni)-Dissolved		0.0153	0.0154		mg/L	0.6	20	27-SEP-13
Potassium (K)-Dissolved		4.20	4.25		mg/L	1.4	20	27-SEP-13
Selenium (Se)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	27-SEP-13
Silver (Ag)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	27-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2698927								
WG1751097-7 DUP		**L1363247-19**						
Sodium (Na)-Dissolved		17.9	17.7		mg/L	0.7	20	27-SEP-13
Strontium (Sr)-Dissolved		1.05	1.07		mg/L	2.3	20	27-SEP-13
Thallium (Tl)-Dissolved		0.000067	0.000055		mg/L	19	20	27-SEP-13
Titanium (Ti)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	27-SEP-13
Uranium (U)-Dissolved		0.0420	0.0427		mg/L	1.6	20	27-SEP-13
Vanadium (V)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	27-SEP-13
Zinc (Zn)-Dissolved		0.0258	0.0267		mg/L	3.4	20	27-SEP-13
WG1751097-1 MB								
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	20-SEP-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	20-SEP-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	20-SEP-13
WG1751097-4 MS		**L1363247-8**						
Aluminum (Al)-Dissolved			95.4		%		70-130	27-SEP-13
Antimony (Sb)-Dissolved			105.7		%		70-130	27-SEP-13
Arsenic (As)-Dissolved			100.5		%		70-130	27-SEP-13
Barium (Ba)-Dissolved			106.6		%		70-130	27-SEP-13
Beryllium (Be)-Dissolved			96.5		%		70-130	27-SEP-13
Boron (B)-Dissolved			96.6		%		70-130	27-SEP-13
Cadmium (Cd)-Dissolved			N/A	MS-B	%		-	27-SEP-13
Chromium (Cr)-Dissolved			101.5		%		70-130	27-SEP-13
Cobalt (Co)-Dissolved			101.8		%		70-130	27-SEP-13
Copper (Cu)-Dissolved			N/A	MS-B	%		-	27-SEP-13
Lead (Pb)-Dissolved			99.7		%		70-130	27-SEP-13
Lithium (Li)-Dissolved			102.7		%		70-130	27-SEP-13
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	27-SEP-13
Molybdenum (Mo)-Dissolved			100.8		%		70-130	27-SEP-13
Nickel (Ni)-Dissolved			102.3		%		70-130	27-SEP-13
Potassium (K)-Dissolved			99.3		%		70-130	27-SEP-13
Selenium (Se)-Dissolved			103.0		%		70-130	27-SEP-13
Silver (Ag)-Dissolved			101.2		%		70-130	27-SEP-13
Sodium (Na)-Dissolved			N/A	MS-B	%		-	27-SEP-13
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	27-SEP-13
Thallium (Tl)-Dissolved			99.8		%		70-130	27-SEP-13
Titanium (Ti)-Dissolved			102.9		%		70-130	27-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2698927								
WG1751097-4 MS		**L1363247-8**						
Uranium (U)-Dissolved			101.1		%		70-130	27-SEP-13
Vanadium (V)-Dissolved			102.5		%		70-130	27-SEP-13
Zinc (Zn)-Dissolved			N/A	MS-B	%		-	27-SEP-13
WG1751097-6 MS		**L1363247-27**						
Aluminum (Al)-Dissolved			N/A	MS-B	%		-	27-SEP-13
Antimony (Sb)-Dissolved			96.5		%		70-130	27-SEP-13
Arsenic (As)-Dissolved			94.6		%		70-130	27-SEP-13
Barium (Ba)-Dissolved			97.4		%		70-130	27-SEP-13
Beryllium (Be)-Dissolved			93.9		%		70-130	27-SEP-13
Boron (B)-Dissolved			88.4		%		70-130	27-SEP-13
Cadmium (Cd)-Dissolved			N/A	MS-B	%		-	27-SEP-13
Chromium (Cr)-Dissolved			94.8		%		70-130	27-SEP-13
Cobalt (Co)-Dissolved			92.5		%		70-130	27-SEP-13
Copper (Cu)-Dissolved			N/A	MS-B	%		-	27-SEP-13
Lead (Pb)-Dissolved			N/A	MS-B	%		-	27-SEP-13
Lithium (Li)-Dissolved			95.5		%		70-130	27-SEP-13
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	27-SEP-13
Molybdenum (Mo)-Dissolved			95.3		%		70-130	27-SEP-13
Nickel (Ni)-Dissolved			94.8		%		70-130	27-SEP-13
Potassium (K)-Dissolved			91.0		%		70-130	27-SEP-13
Selenium (Se)-Dissolved			96.0		%		70-130	27-SEP-13
Silver (Ag)-Dissolved			94.8		%		70-130	27-SEP-13
Sodium (Na)-Dissolved			90.8		%		70-130	27-SEP-13
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	27-SEP-13
Thallium (Tl)-Dissolved			94.7		%		70-130	27-SEP-13
Titanium (Ti)-Dissolved			97.2		%		70-130	27-SEP-13
Uranium (U)-Dissolved			96.0		%		70-130	27-SEP-13
Vanadium (V)-Dissolved			94.3		%		70-130	27-SEP-13
Zinc (Zn)-Dissolved			N/A	MS-B	%		-	27-SEP-13
MET-DIS-ICP-VA	**Water**							
Batch R2697813								
WG1751097-5 CRM		**VA-HIGH-WATRM**						
Calcium (Ca)-Dissolved			97.1		%		80-120	20-SEP-13
Iron (Fe)-Dissolved			94.1		%		80-120	20-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA	**Water**							
Batch R2697813								
WG1751097-5 CRM		**VA-HIGH-WATRM**						
Magnesium (Mg)-Dissolved			99.3		%		80-120	20-SEP-13
Phosphorus (P)-Dissolved			101.8		%		80-120	20-SEP-13
Silicon (Si)-Dissolved			101.4		%		80-120	20-SEP-13
Batch R2698717								
WG1751097-1 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	21-SEP-13
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	21-SEP-13
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	21-SEP-13
Phosphorus (P)-Dissolved			<0.30		mg/L		0.3	21-SEP-13
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	21-SEP-13
Batch R2702560								
WG1751097-3 DUP		**L1363247-3**						
Calcium (Ca)-Dissolved		408	410		mg/L	0.6	20	26-SEP-13
Iron (Fe)-Dissolved		451	449		mg/L	0.5	20	26-SEP-13
Magnesium (Mg)-Dissolved		52.4	51.9		mg/L	1.1	20	26-SEP-13
Phosphorus (P)-Dissolved		<0.30	<0.30	RPD-NA	mg/L	N/A	20	26-SEP-13
Silicon (Si)-Dissolved		10.0	9.83		mg/L	1.8	20	26-SEP-13
WG1751097-7 DUP		**L1363247-19**						
Calcium (Ca)-Dissolved		308	303		mg/L	1.6	20	26-SEP-13
Iron (Fe)-Dissolved		12.4	12.2		mg/L	1.3	20	26-SEP-13
Magnesium (Mg)-Dissolved		114	112		mg/L	1.8	20	26-SEP-13
Phosphorus (P)-Dissolved		<0.30	<0.30	RPD-NA	mg/L	N/A	20	26-SEP-13
Silicon (Si)-Dissolved		6.11	6.09		mg/L	0.4	20	26-SEP-13
WG1751097-4 MS		**L1363247-8**						
Calcium (Ca)-Dissolved			94.6		%		70-130	26-SEP-13
Iron (Fe)-Dissolved			92.2		%		70-130	26-SEP-13
Magnesium (Mg)-Dissolved			94.8		%		70-130	26-SEP-13
WG1751097-6 MS		**L1363247-27**						
Calcium (Ca)-Dissolved			92.1		%		70-130	26-SEP-13
Iron (Fe)-Dissolved			90.8		%		70-130	26-SEP-13
Magnesium (Mg)-Dissolved			92.5		%		70-130	26-SEP-13
NH3-F-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-F-VA	**Water**							
Batch R2700923								
WG1753159-2 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			103.6		%		85-115	25-SEP-13
WG1753159-3 DUP		**L1363247-13**						
Ammonia, Total (as N)		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	25-SEP-13
WG1753159-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	25-SEP-13
WG1753159-4 MS		**L1363247-13**						
Ammonia, Total (as N)			99.5		%		75-125	25-SEP-13
Batch R2700924								
WG1755021-2 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			102.8		%		85-115	25-SEP-13
WG1755021-3 DUP		**L1363247-2**						
Ammonia, Total (as N)		0.0422	0.0415		mg/L	1.6	20	25-SEP-13
WG1755021-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	25-SEP-13
WG1755021-4 MS		**L1363247-2**						
Ammonia, Total (as N)			98.2		%		75-125	25-SEP-13
Batch R2701725								
WG1755573-2 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			98.7		%		85-115	26-SEP-13
WG1755573-3 DUP		**L1363247-18**						
Ammonia, Total (as N)		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	26-SEP-13
WG1755573-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	26-SEP-13
WG1755573-4 MS		**L1363247-18**						
Ammonia, Total (as N)			95.0		%		75-125	26-SEP-13
PH-MAN-VA	**Water**							
Batch R2696857								
WG1750907-1 CRM		**VA-PH7-BUF**						
pH			6.99		pH		6.9-7.1	19-SEP-13
WG1750907-2 DUP		**L1363247-13**						
pH		8.04	8.14	J	pH	0.10	0.3	19-SEP-13
PH-PCT-VA	**Water**							
Batch R2696763								
WG1749376-35 CRM		**VA-PH7-BUF**						
pH			7.04		pH		6.9-7.1	18-SEP-13
WG1749376-34 DUP		**L1363247-26**						
pH		8.05	8.02	J	pH	0.03	0.3	18-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-PCT-VA	**Water**							
Batch R2697555								
WG1750339-25 CRM		**VA-PH7-BUF**						
pH			7.01		pH		6.9-7.1	19-SEP-13
WG1750339-33 DUP		**L1363247-10**						
pH		7.65	7.67	J	pH	0.02	0.3	19-SEP-13
Batch R2698704								
WG1751240-25 CRM		**VA-PH7-BUF**						
pH			7.05		pH		6.9-7.1	20-SEP-13
PO4-DO-COL-VA	**Water**							
Batch R2696129								
WG1749229-2 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			88.0		%		80-120	17-SEP-13
WG1749229-9 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			95.0		%		80-120	17-SEP-13
WG1749229-3 DUP		**L1363247-1**						
Orthophosphate-Dissolved (as P)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	17-SEP-13
WG1749229-5 DUP		**L1363247-23**						
Orthophosphate-Dissolved (as P)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	17-SEP-13
WG1749229-7 DUP		**L1363247-31**						
Orthophosphate-Dissolved (as P)		0.0020	0.0023		mg/L	15	20	17-SEP-13
WG1749229-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	17-SEP-13
WG1749229-8 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	17-SEP-13
WG1749229-4 MS		**L1363247-2**						
Orthophosphate-Dissolved (as P)			86.7		%		70-130	17-SEP-13
WG1749229-6 MS		**L1363247-24**						
Orthophosphate-Dissolved (as P)			96.9		%		70-130	17-SEP-13
S-DIS-ICP-VA	**Water**							
Batch R2697813								
WG1751097-5 CRM		**VA-HIGH-WATRM**						
Sulfur (S)-Dissolved			100.2		%		80-120	20-SEP-13
Batch R2698717								
WG1751097-1 MB								
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	21-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
S-DIS-ICP-VA	**Water**							
Batch R2702560								
WG1751097-3 DUP		**L1363247-3**						
Sulfur (S)-Dissolved		614	611		mg/L	0.4	20	26-SEP-13
WG1751097-7 DUP		**L1363247-19**						
Sulfur (S)-Dissolved		263	260		mg/L	1.1	20	26-SEP-13
WG1751097-4 MS		**L1363247-8**						
Sulfur (S)-Dissolved			92.9		%		70-130	26-SEP-13
WG1751097-6 MS		**L1363247-27**						
Sulfur (S)-Dissolved			N/A	MS-B	%		-	26-SEP-13
TDS-VA	**Water**							
Batch R2696805								
WG1749280-3 DUP		**L1363247-1**						
Total Dissolved Solids		1440	1460		mg/L	2.0	20	18-SEP-13
WG1749280-6 DUP		**L1363247-25**						
Total Dissolved Solids		2990	3060		mg/L	2.1	20	18-SEP-13
WG1749280-2 LCS								
Total Dissolved Solids			100.9		%		85-115	18-SEP-13
WG1749280-5 LCS								
Total Dissolved Solids			100.2		%		85-115	18-SEP-13
WG1749280-1 MB								
Total Dissolved Solids			<10		mg/L		10	18-SEP-13
WG1749280-4 MB								
Total Dissolved Solids			<10		mg/L		10	18-SEP-13
TSS-LOW-VA	**Water**							
Batch R2695463								
WG1749281-2 LCS								
Total Suspended Solids			86.9		%		85-115	18-SEP-13
WG1749281-4 LCS								
Total Suspended Solids			94.3		%		85-115	18-SEP-13
WG1749281-1 MB								
Total Suspended Solids			<1.0		mg/L		1	18-SEP-13
WG1749281-3 MB								
Total Suspended Solids			<1.0		mg/L		1	18-SEP-13

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Manual Meter							
	13	13-SEP-13 10:15	19-SEP-13 09:10	0.25	143	hours	EHTR-FM
	14	13-SEP-13 15:50	19-SEP-13 09:10	0.25	137	hours	EHTR-FM
pH by Meter (Automated)							
	1	14-SEP-13 14:00	20-SEP-13 23:00	0.25	153	hours	EHTR-FM
	2	12-SEP-13 14:00	19-SEP-13 23:00	0.25	177	hours	EHTR-FM
	3	12-SEP-13 13:50	19-SEP-13 23:00	0.25	177	hours	EHTR-FM
	4	12-SEP-13 15:30	19-SEP-13 23:00	0.25	175	hours	EHTR-FM
	5	12-SEP-13 14:45	19-SEP-13 23:00	0.25	176	hours	EHTR-FM
	7	13-SEP-13 13:30	19-SEP-13 23:00	0.25	154	hours	EHTR-FM
	8	13-SEP-13 11:55	19-SEP-13 23:00	0.25	155	hours	EHTR-FM
	9	13-SEP-13 13:05	19-SEP-13 23:00	0.25	154	hours	EHTR-FM
	10	13-SEP-13 11:55	19-SEP-13 23:00	0.25	155	hours	EHTR-FM
	11	13-SEP-13 17:00	19-SEP-13 23:00	0.25	150	hours	EHTR-FM
	12	13-SEP-13 12:00	19-SEP-13 23:00	0.25	155	hours	EHTR-FM
	17	14-SEP-13 13:30	19-SEP-13 23:00	0.25	130	hours	EHTR-FM
	18	14-SEP-13 12:00	18-SEP-13 23:00	0.25	107	hours	EHTR-FM
	19	14-SEP-13 13:30	18-SEP-13 23:00	0.25	106	hours	EHTR-FM
	20	14-SEP-13 14:18	18-SEP-13 23:00	0.25	105	hours	EHTR-FM
	21	14-SEP-13 16:16	18-SEP-13 23:00	0.25	103	hours	EHTR-FM
	22	14-SEP-13 15:42	19-SEP-13 23:00	0.25	127	hours	EHTR-FM
	23	14-SEP-13 13:01	18-SEP-13 23:00	0.25	106	hours	EHTR-FM
	24	14-SEP-13 13:43	18-SEP-13 23:00	0.25	105	hours	EHTR-FM
	26	14-SEP-13 14:54	18-SEP-13 23:00	0.25	104	hours	EHTR-FM
	28	14-SEP-13 09:45	19-SEP-13 23:00	0.25	133	hours	EHTR-FM
	29	14-SEP-13 10:45	18-SEP-13 23:00	0.25	108	hours	EHTR-FM
	30	14-SEP-13 15:45	19-SEP-13 23:00	0.25	127	hours	EHTR-FM
	31	14-SEP-13 15:40	18-SEP-13 23:00	0.25	103	hours	EHTR-FM
Anions and Nutrients							
Acidity by Hot Peroxide Manual Titration							
	3	12-SEP-13 13:50	30-SEP-13 09:44	14	18	days	EHT
	5	12-SEP-13 14:45	30-SEP-13 09:44	14	18	days	EHT
	12	13-SEP-13 12:00	30-SEP-13 09:44	14	17	days	EHT
	25	14-SEP-13 12:13	01-OCT-13 02:40	14	17	days	EHT
Diss. Orthophosphate in Water by Colour							
	2	12-SEP-13 14:00	17-SEP-13 18:02	3	5	days	EHTR
	3	12-SEP-13 13:50	17-SEP-13 18:02	3	5	days	EHTR
	4	12-SEP-13 15:30	17-SEP-13 18:02	3	5	days	EHTR
	5	12-SEP-13 14:45	17-SEP-13 18:02	3	5	days	EHTR
	6	13-SEP-13 13:00	17-SEP-13 18:02	3	4	days	EHTL
	7	13-SEP-13 13:30	17-SEP-13 18:02	3	4	days	EHTL
	8	13-SEP-13 11:55	17-SEP-13 18:02	3	4	days	EHTL
	9	13-SEP-13 13:05	17-SEP-13 18:02	3	4	days	EHTL
	10	13-SEP-13 11:55	17-SEP-13 18:02	3	4	days	EHTL
	11	13-SEP-13 17:00	17-SEP-13 22:15	3	4	days	EHTL
	12	13-SEP-13 12:00	17-SEP-13 18:19	3	4	days	EHTL
	13	13-SEP-13 10:15	17-SEP-13 18:19	3	4	days	EHTL
	14	13-SEP-13 15:50	17-SEP-13 18:19	3	4	days	EHTL
	15	13-SEP-13 14:05	17-SEP-13 18:19	3	4	days	EHTL
	16	13-SEP-13 14:05	17-SEP-13 18:19	3	4	days	EHTL
Nitrate Nitrogen by Ion Chromatography							
	2	12-SEP-13 14:00	16-SEP-13 20:23	3	4	days	EHTR
	3	12-SEP-13 13:50	16-SEP-13 20:23	3	4	days	EHTR
	4	12-SEP-13 15:30	16-SEP-13 20:23	3	4	days	EHTR
	5	12-SEP-13 14:45	16-SEP-13 20:23	3	4	days	EHTR
Nitrite Nitrogen by Ion Chromatography							

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Anions and Nutrients							
Nitrite Nitrogen by Ion Chromatography							
	2	12-SEP-13 14:00	16-SEP-13 20:23	3	4	days	EHTR
	3	12-SEP-13 13:50	16-SEP-13 20:23	3	4	days	EHTR
	4	12-SEP-13 15:30	16-SEP-13 20:23	3	4	days	EHTR
	5	12-SEP-13 14:45	16-SEP-13 20:23	3	4	days	EHTR
Dissolved Metals							
Diss. Ferrous Iron in Water by Colour							
	10	13-SEP-13 11:55	02-OCT-13 09:30	7	19	days	EHT

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1363247 were received on 16-SEP-13 09:45.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CH2MHILL

CHAIN OF CUSTODY RECORD

9/16/2013 11:51:53 AM

L1363247-COFC

Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.06.AD.01.04.13
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-015
Project FARO MINE SEEP SAMPLING 2013
Turnaround Time 10 Days
Shipping Date: 9/15/2013
COC Number: ALS09151301

				Container:	125mL Poly	40ml vial	125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	125ml Poly	250ml glass		
				Preservatives:	NaOH, 4°C	HCl, 4°C	HCl, 4°C	4C	4C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C	HNO3, 4°C	H2SO4, pH<2, 4C		
				Filtered:	NA	Field	Field	NA	NA	NA	NA	NA	NA	Field	Field	NA		
				Holding Time:	14	14	180	14	14	7	7	3	3	28	180/28	28		
	DATE	TIME	Matrix		Free Cyanide	(E245.7-Diss) Field Filtered Dissolved Hg	(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity - Run Hot H2O2 if Fe >15ppm	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM4110B) CL F NO2 NO3 and SO4	(SM4500P) ortho-Phosphate	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia		IMENTS
GP09_SEFL13	9/14/2012	14:00	Water			X	X		X	X	X	X	X	X	X	X	8	
CH-FP-38_SEFL13	9/12/2013	14:00	Water			X	X	X	X	X	X	X	X	X	X	X	8	
CH-RCTA-03_SEFL13	9/12/2013	13:50	Water	X		X	X	X	X	X	X	X	X	X	X	X	9	
CH-RCTA-05_SEFL13	9/12/2013	15:30	Water	X		X	X	X	X	X	X	X	X	X	X	X	9	
CH-RCTA-07_SEFL13	9/12/2013	14:45	Water	X		X	X	X	X	X	X	X	X	X	X	X	9	
A30_SEFL13	9/13/2013	13:00	Water			X	X	X		X	X	X	X	X	X	X	8	
CH-FP-30_SEFL13	9/13/2013	13:30	Water			X	X	X	X	X	X	X	X	X	X	X	8	
CH-FP-34_SEFL13	9/13/2013	11:55	Water			X	X	X	X	X	X	X	X	X	X	X	8	
CH-FP-39_SEFL13	9/13/2013	13:05	Water			X	X	X	X	X	X	X	X	X	X	X	8	
CH-FP-934_SEFL13	9/13/2013	11:55	Water			X	X	X	X	X	X	X	X	X	X	X	8	
FP05_SEFL13	9/13/2013	17:00	Water			X	X	X	X	X	X	X	X	X	X	X	8	
GP12_SEFL13	9/13/2013	12:00	Water			X	X	X	X	X	X	X	X	X	X	X	8	
SRK-FD05_SEFL13	9/13/2013	10:15	Water	X	X	X	X	X	X	X	X	X	X	X	X	X	9	
SRK-FD18_SEFL13	9/13/2013	15:50	Water			X	X	X	X	X	X	X	X	X	X	X	8	

	Signatures	Date/Time
Approved by		
Sampled by		
Relinquished by		09/15/13
Received by		
Relinquished by		16-Sep-13. 9:45
Received by	0.2, 3.6, 2.1, 4.4	

Shipping Details

Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

ATTN:

Sample Custody
and
Amber Springer

Special Instructions:

PO: 604564 on Invoice Perform Lab Dup/MS on these samples

Report Copy to
Bernice Kidd
(530) 229-3203

CH2MHILL

CHAIN OF CUSTODY RECORD

9/16/2013 11:51:54 AM

Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.06.AD.01.04.13
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-015
Project FARO MINE SEEP SAMPLING 2013
Turnaround Time 10 Days
Shipping Date: 9/15/2013
COC Number: ALS09151301

	Container:	125mL Poly	40ml vial	125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	125ml Poly	250ml glass		Number of Containers	COMMENTS
	Preservatives:	NaOH, 4°C	HCl, 4°C	HCl, 4°C	4C	4C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C	HNO3, 4°C	H2SO4, pH<2, 4C			
	Filtered:	NA	Field	Field	NA	NA	NA	NA	NA	NA	Field	Field	NA			
	Holding Time:	14	14	180	14	14	7	7	3	3	28	180/28	28			
		Free Cyanide	(E245.7-Diss) Field Filtered Dissolved Hg	(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity – Run Hot H2O2 if Fe >15ppm	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM4110B) Cl, F, NO2, NO3 and SO4	(SM4500P) ortho-Phosphate	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia			
	DATE / TIME / Matrix															
SRK-FD40_SEFL13	9/13/2013 14:05 Water		X	X	X		X	X	X	X	X	X	X		8	
SRK-FD940_SEFL13	9/13/2013 14:05 Water		X	X	X		X	X	X	X	X	X	X		8	
CH-GP-19_SEFL13	9/14/2013 13:30 Water		X	X	X	X	X	X	X	X	X	X	X		8	
CH-GP-27_SEFL13	9/14/2013 12:00 Water		X	X		X	X	X	X	X	X	X	X		8	
CH-GP-919_SEFL13	9/14/2013 13:30 Water		X	X		X	X	X	X	X	X	X	X		8	
FP02_SEFL13	9/14/2013 14:18 Water		X	X		X	X	X	X	X	X	X	X		8	
FP06_SEFL13	9/14/2013 16:16 Water		X	X		X	X	X	X	X	X	X	X		8	
FP09_SEFL13	9/14/2013 15:42 Water		X	X	X	X	X	X	X	X	X	X	X		8	
FP12_SEFL13	9/14/2013 13:01 Water		X	X		X	X	X	X	X	X	X	X		8	
FP13_SEFL13	9/14/2013 13:43 Water		X	X		X	X	X	X	X	X	X	X		8	
FP14_SEFL13	9/14/2013 12:13 Water		X	X	X		X	X	X	X	X	X	X		8	
FP15_SEFL13	9/14/2013 14:54 Water		X	X		X	X	X	X	X	X	X	X		8	
FP16_SEFL13	9/14/2013 15:13 Water		X	X	X		X	X	X	X	X	X	X		8	
GP02_SEFL13	9/14/2013 9:45 Water		X	X	X	X	X	X	X	X	X	X	X		8	

Signatures

Approved by
Sampled by
Relinquished by
Received by
Relinquished by
Received by

Date/Time

09/15/13

Shipping Details

Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

ATTN:

Sample Custody
and
Amber Springer

Special Instructions:

PO: 604564 on Invoice Perform Lab Dup/MS on these samples

Report Copy to
Bernice Kidd
(530) 229-3203

CH2MHILL

CHAIN OF CUSTODY RECORD

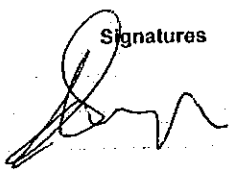
Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.06.AD.01.04.13
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-015
Project FARO MINE SEEP SAMPLING 2013
Turnaround Time 10 Days
Shipping Date: 9/15/2013
COC Number: ALS09151301

	Container:	125mL Poly	40ml vial	125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	125ml Poly	250ml glass			
	Preservatives:	NaOH, 4°C	HCl, 4°C	HCl, 4°C	4C	4C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C	HNO3, 4°C	H2SO4, pH<2, 4C			
	Filtered:	NA	Field	Field	NA	NA	NA	NA	NA	NA	Field	Field	NA			
	Holding Time:	14	14	180	14	14	7	7	3	3	28	180/28	28		Number of Containers	COMMENTS
		Free Cyanide	(E245.7-Diss) Field Filtered Dissolved Hg	(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity - Run Hot H2O2 if Fe >15ppm	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM4110B) CL F NO2 NO3 and SO4	(SM4500P) ortho-Phosphate	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia			
	DATE / TIME / Matrix															
GP22_SEFL13	9/14/2013 10:45 Water		X	X		X	X	X	X	X	X	X	X		8	
SRK-GD01_SEFL13	9/14/2013 15:45 Water	X	X	X	X	X	X	X	X	X	X	X	X		9	
SRK-GD13_SEFL13	9/14/2013 15:40 Water	X	X	X		X	X	X	X	X	X	X	X		9	
														TOTAL NUMBER OF CONTAINERS	254	

Approved by
Sampled by
Relinquished by
Received by
Relinquished by
Received by

Signatures



Date/Time
09/15/13

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

ATTN:
Sample Custody
and
Amber Springer

Special Instructions:
PO: 604564 on Invoice Perform Lab Dup/MS on these samples

Report Copy to
Bernice Kidd
(530) 229-3203

CH2M HILL, INC
ATTN: Bernice Kidd
2525 Airpark Drive
Redding CA 96001

Date Received: 16-SEP-13
Report Date: 30-SEP-13 13:51 (MT)
Version: FINAL

Client Phone: 530-229-3203

Certificate of Analysis

Lab Work Order #: L1363288

Project P.O. #: 472645.06.AD.01.04.13 "PO:604564"
Job Reference: WASTE ROCK DUMP MW 2013 SW-014B
C of C Numbers: ALS09151303
Legal Site Desc:

Amber Springer
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1363288-1	L1363288-2	L1363288-3	L1363288-4	
	Description	Water	Water	Water	Water	
	Sampled Date	12-SEP-13	13-SEP-13	13-SEP-13	14-SEP-13	
	Sampled Time	15:00	14:30	14:30	15:15	
	Client ID	CH12-014-MW007_GW0913	CH12-014-MW003_GW0913	CH12-014-MW903_GW0913	CH12-014-MW011_GW0913	
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	12800	2310	2300	2480	
	pH (pH)	6.51	7.63	7.47	7.61	
	Total Suspended Solids (mg/L)	14.5	11.7	10.6	1.5	
	Total Dissolved Solids (mg/L)	24400	3540	3530	3430	
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	2160	49.0	47.6	45.3	
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	271	486	488	558	
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<20	
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<20	
	Alkalinity, Total (as CaCO3) (mg/L)	271	486	488	558	
	Ammonia, Total (as N) (mg/L)	0.900	0.0667	0.0694	0.0055	
	Chloride (Cl) (mg/L)	<25 DLA	20	21	<10 DLA	
	Fluoride (F) (mg/L)	3.3	<0.40 DLA	<0.40 DLA	<0.40 DLA	
	Nitrate (as N) (mg/L)	1.37	<0.10 DLA	<0.10 DLA	3.91	
	Nitrite (as N) (mg/L)	0.509	<0.020 DLA	<0.020 DLA	<0.020 DLA	
	Orthophosphate-Dissolved (as P) (mg/L)	0.0137	<0.0010	<0.0010	<0.0010	
	Sulfate (SO4) (mg/L)	15200	1890	1880	1990	
Cyanides	Cyanide, Free (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	15.5	2.83	2.48	2.87	
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	
	Aluminum (Al)-Dissolved (mg/L)	2.38	0.0147	0.0137	0.0021	
	Antimony (Sb)-Dissolved (mg/L)	<0.020 DLA	<0.00050 DLA	<0.00050 DLA	0.00029	
	Arsenic (As)-Dissolved (mg/L)	0.020	<0.00050 DLA	<0.00050 DLA	0.00027	
	Barium (Ba)-Dissolved (mg/L)	0.048	0.0295	0.0295	0.0164	
	Beryllium (Be)-Dissolved (mg/L)	<0.020 DLA	<0.00050 DLA	<0.00050 DLA	<0.00020 DLA	
	Boron (B)-Dissolved (mg/L)	<2.0 DLA	<0.050 DLA	<0.050 DLA	<0.020 DLA	
	Cadmium (Cd)-Dissolved (mg/L)	1.75	0.00691	0.00590	0.00203	
	Calcium (Ca)-Dissolved (mg/L)	491	682	676	429	
	Chromium (Cr)-Dissolved (mg/L)	<0.020 DLA	0.00108	0.00074	0.00061	
	Cobalt (Co)-Dissolved (mg/L)	5.15	0.0122	0.0120	0.00189	
	Copper (Cu)-Dissolved (mg/L)	0.129	0.0519	0.0266	0.00273	
	Iron (Fe)-Dissolved (mg/L)	2.48	2.69	2.68	<0.030	
	Ferrous Iron, Dissolved (mg/L)	0.53	3.38	3.20	<0.020	
	Lead (Pb)-Dissolved (mg/L)	<0.010 DLA	0.00027	0.00030	0.00011	
	Lithium (Li)-Dissolved (mg/L)	0.15	0.0540	0.0521	0.0295	
	Magnesium (Mg)-Dissolved (mg/L)	2810	147	147	343	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1363288-1	L1363288-2	L1363288-3	L1363288-4	
	Description	Water	Water	Water	Water	
	Sampled Date	12-SEP-13	13-SEP-13	13-SEP-13	14-SEP-13	
	Sampled Time	15:00	14:30	14:30	15:15	
	Client ID	CH12-014-MW007_GW0913	CH12-014-MW003_GW0913	CH12-014-MW903_GW0913	CH12-014-MW011_GW0913	
Grouping	**Analyte**					
WATER						
Dissolved Metals	Manganese (Mn)-Dissolved (mg/L)	313	4.13	4.09	0.214	
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Molybdenum (Mo)-Dissolved (mg/L)	<0.010 DLA	0.00053	0.00054	0.00051	
	Nickel (Ni)-Dissolved (mg/L)	10.2	0.0632	0.0596	0.121	
	Phosphorus (P)-Dissolved (mg/L)	<1.5 DLA	<0.30	<0.30	<0.30	
	Potassium (K)-Dissolved (mg/L)	22	9.91	9.76	6.88	
	Selenium (Se)-Dissolved (mg/L)	<0.020 DLA	<0.00050 DLA	<0.00050 DLA	0.00021	
	Silicon (Si)-Dissolved (mg/L)	16.3	8.71	8.80	4.06	
	Silicon (as SiO2)-Dissolved (mg/L)	34.9	18.6	18.8	8.69	
	Silver (Ag)-Dissolved (mg/L)	<0.0020 DLA	<0.000050 DLA	<0.000050 DLA	<0.000020 DLA	
	Sodium (Na)-Dissolved (mg/L)	25	29.1	29.0	10.2	
	Strontium (Sr)-Dissolved (mg/L)	1.49	2.29	2.30	1.16	
	Sulfur (S)-Dissolved (mg/L)	4950	569	575	594	
	Thallium (Tl)-Dissolved (mg/L)	<0.0020 DLA	<0.000050 DLA	<0.000050 DLA	<0.000020 DLA	
	Titanium (Ti)-Dissolved (mg/L)	<2.0 DLA	<0.050 DLA	<0.050 DLA	<0.020 DLA	
	Uranium (U)-Dissolved (mg/L)	0.0313	0.0112	0.0109	0.0476	
	Vanadium (V)-Dissolved (mg/L)	<0.20 DLA	<0.0050 DLA	<0.0050 DLA	<0.0020 DLA	
	Zinc (Zn)-Dissolved (mg/L)	1530	0.327	0.290	1.11	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Phosphorus (P)-Dissolved	DLA	L1363288-1, -2, -3, -4
Duplicate	Antimony (Sb)-Dissolved	DLA	L1363288-1, -2, -3, -4
Duplicate	Arsenic (As)-Dissolved	DLA	L1363288-1, -2, -3, -4
Duplicate	Beryllium (Be)-Dissolved	DLA	L1363288-1, -2, -3, -4
Duplicate	Boron (B)-Dissolved	DLA	L1363288-1, -2, -3, -4
Duplicate	Chromium (Cr)-Dissolved	DLA	L1363288-1, -2, -3, -4
Duplicate	Lead (Pb)-Dissolved	DLA	L1363288-1, -2, -3, -4
Duplicate	Molybdenum (Mo)-Dissolved	DLA	L1363288-1, -2, -3, -4
Duplicate	Selenium (Se)-Dissolved	DLA	L1363288-1, -2, -3, -4
Duplicate	Silver (Ag)-Dissolved	DLA	L1363288-1, -2, -3, -4
Duplicate	Thallium (Tl)-Dissolved	DLA	L1363288-1, -2, -3, -4
Duplicate	Titanium (Ti)-Dissolved	DLA	L1363288-1, -2, -3, -4
Duplicate	Vanadium (V)-Dissolved	DLA	L1363288-1, -2, -3, -4
Matrix Spike	Sulfate (SO4)	MS-B	L1363288-1, -2, -3, -4
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1363288-1, -2, -3, -4
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1363288-1, -2, -3, -4
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L1363288-1, -2, -3, -4
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1363288-1, -2, -3, -4
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1363288-1, -2, -3, -4
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1363288-1, -2, -3, -4

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-CL-IC-WR	Water	Chloride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-F-IC-WR	Water	Fluoride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-NO2-IC-WR	Water	Nitrite Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-NO3-IC-WR	Water	Nitrate Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

Reference Information

ANIONS-SO4-IC-WR	Water	Sulphate by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CN-FREE-CFA-VA	Water	Free Cyanide in water by CFA	ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

FE2-D-COL-VA	Water	Diss. Ferrous Iron in Water by Colour	James W. Ball et al (1999)

This analysis is carried out using procedures adapted from "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedures involves preliminary sample filtration (0.1um filter) and Ferrous Iron is determined using the "FerroZine" colorimteric method.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA	Water	Dissolved Mercury in Water by CVAFS(Low)	EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA	Water	Dissolved Metals in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

S-DIS-ICP-VA	Water	Dissolved Sulfur in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents

Reference Information

all non-volatile forms of sulfur present in a particular sample.

SIO2-D-CALC-VA Water Dissolved Silicon (reported as Silica) CALCULATION

Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-LOW-VA Water Total Suspended Solids by Grav. (1 mg/L) APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

ALS09151303

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Client: CH2M HILL, INC
2525 Airpark Drive
Redding CA 96001
Contact: Bernice Kidd

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-PCT-VA	**Water**							
Batch R2697562								
WG1750347-9 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			102.3		%		85-115	19-SEP-13
WG1750347-34 DUP		**L1363288-3**						
Acidity (as CaCO3)		47.6	49.8		mg/L	4.6	20	19-SEP-13
ALK-SCR-VA	**Water**							
Batch R2695832								
WG1749647-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			98.8		%		85-115	18-SEP-13
WG1749647-5 CRM		**VA-ALKM-CONTROL**						
Alkalinity, Total (as CaCO3)			102.9		%		85-115	18-SEP-13
WG1749647-9 DUP		**L1363288-4**						
Alkalinity, Total (as CaCO3)		558	568		mg/L	1.9	20	18-SEP-13
WG1749647-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	18-SEP-13
WG1749647-4 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	18-SEP-13
WG1749647-7 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	18-SEP-13
ANIONS-CL-IC-WR	**Water**							
Batch R2698830								
WG1750442-2 LCS								
Chloride (Cl)			96.7		%		85-115	16-SEP-13
WG1750442-6 LCS								
Chloride (Cl)			96.5		%		85-115	16-SEP-13
WG1750442-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-13
WG1750442-5 MB								
Chloride (Cl)			<0.50		mg/L		0.5	16-SEP-13
WG1750442-4 MS		**L1363235-18**						
Chloride (Cl)			99.1		%		75-125	16-SEP-13
WG1750442-8 MS		**L1363247-14**						
Chloride (Cl)			98.7		%		75-125	16-SEP-13
ANIONS-F-IC-WR	**Water**							
Batch R2698830								
WG1750442-2 LCS								
Fluoride (F)			97.5		%		85-115	16-SEP-13
WG1750442-6 LCS								
Fluoride (F)			97.5		%		85-115	16-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-F-IC-WR	**Water**							
Batch R2698830								
WG1750442-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-13
WG1750442-5 MB								
Fluoride (F)			<0.020		mg/L		0.02	16-SEP-13
WG1750442-4 MS		**L1363235-18**						
Fluoride (F)			102.9		%		75-125	16-SEP-13
WG1750442-8 MS		**L1363247-14**						
Fluoride (F)			104.1		%		75-125	16-SEP-13
ANIONS-NO2-IC-WR	**Water**							
Batch R2698830								
WG1750442-2 LCS								
Nitrite (as N)			97.0		%		85-115	16-SEP-13
WG1750442-6 LCS								
Nitrite (as N)			97.1		%		85-115	16-SEP-13
WG1750442-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-13
WG1750442-5 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	16-SEP-13
WG1750442-4 MS		**L1363235-18**						
Nitrite (as N)			102.8		%		75-125	16-SEP-13
WG1750442-8 MS		**L1363247-14**						
Nitrite (as N)			102.0		%		75-125	16-SEP-13
ANIONS-NO3-IC-WR	**Water**							
Batch R2698830								
WG1750442-2 LCS								
Nitrate (as N)			97.2		%		85-115	16-SEP-13
WG1750442-6 LCS								
Nitrate (as N)			97.2		%		85-115	16-SEP-13
WG1750442-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-13
WG1750442-5 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	16-SEP-13
WG1750442-4 MS		**L1363235-18**						
Nitrate (as N)			99.4		%		75-125	16-SEP-13
WG1750442-8 MS		**L1363247-14**						
Nitrate (as N)			98.0		%		75-125	16-SEP-13
ANIONS-SO4-IC-WR	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-SO4-IC-WR	**Water**							
Batch R2698830								
WG1750442-2 LCS								
Sulfate (SO4)			96.7		%		85-115	16-SEP-13
WG1750442-6 LCS								
Sulfate (SO4)			96.4		%		85-115	16-SEP-13
WG1750442-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-13
WG1750442-5 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	16-SEP-13
WG1750442-4 MS		**L1363235-18**						
Sulfate (SO4)			N/A	MS-B	%		-	16-SEP-13
WG1750442-8 MS		**L1363247-14**						
Sulfate (SO4)			94.7		%		75-125	16-SEP-13
CARBONS-DOC-VA	**Water**							
Batch R2696569								
WG1749478-4 LCS								
Dissolved Organic Carbon			93.6		%		80-120	18-SEP-13
WG1749478-3 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	18-SEP-13
WG1749478-2 MS		**L1363288-4**						
Dissolved Organic Carbon			98.7		%		70-130	18-SEP-13
Batch R2698346								
WG1751657-1 DUP		**L1363288-1**						
Dissolved Organic Carbon		15.5	15.2		mg/L	2.3	20	20-SEP-13
WG1751657-4 LCS								
Dissolved Organic Carbon			95.9		%		80-120	20-SEP-13
WG1751657-3 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	20-SEP-13
CN-FREE-CFA-VA	**Water**							
Batch R2699522								
WG1752996-3 DUP		**L1363288-2**						
Cyanide, Free		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	23-SEP-13
WG1752996-2 LCS								
Cyanide, Free			100.8		%		80-120	23-SEP-13
WG1752996-1 MB								
Cyanide, Free			<0.0050		mg/L		0.005	23-SEP-13
WG1752996-4 MS		**L1363288-2**						
Cyanide, Free			100.5		%		70-130	23-SEP-13
FE2-D-COL-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
FE2-D-COL-VA	**Water**							
Batch R2700072								
WG1750906-8 DUP		**L1363288-4**						
Ferrous Iron, Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	20-SEP-13
WG1750906-2 LCS								
Ferrous Iron, Dissolved			103.5		%		80-120	19-SEP-13
WG1750906-6 LCS								
Ferrous Iron, Dissolved			113.5		%		80-120	19-SEP-13
WG1750906-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	19-SEP-13
WG1750906-5 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	19-SEP-13
WG1750906-4 MS		**L1363247-1**						
Ferrous Iron, Dissolved			102.2		%		70-130	19-SEP-13
WG1750906-7 MS		**L1363288-4**						
Ferrous Iron, Dissolved			97.7		%		70-130	20-SEP-13
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2696881								
WG1750099-2 LCS								
Mercury (Hg)-Dissolved			96.2		%		80-120	19-SEP-13
Batch R2697527								
WG1750099-3 DUP		**L1363288-1**						
Mercury (Hg)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	19-SEP-13
WG1750099-4 MS		**L1363288-3**						
Mercury (Hg)-Dissolved			75.3		%		70-130	19-SEP-13
Batch R2700321								
WG1750099-1 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	24-SEP-13
MET-D-CCMS-VA	**Water**							
Batch R2697492								
WG1751094-5 CRM		**VA-HIGH-WATRM**						
Aluminum (Al)-Dissolved			100.3		%		80-120	19-SEP-13
Antimony (Sb)-Dissolved			98.7		%		80-120	19-SEP-13
Arsenic (As)-Dissolved			97.8		%		80-120	19-SEP-13
Barium (Ba)-Dissolved			96.6		%		80-120	19-SEP-13
Beryllium (Be)-Dissolved			98.8		%		80-120	19-SEP-13
Boron (B)-Dissolved			90.9		%		80-120	19-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2697492								
WG1751094-5 CRM		**VA-HIGH-WATRM**						
Cadmium (Cd)-Dissolved			95.7		%		80-120	19-SEP-13
Chromium (Cr)-Dissolved			97.1		%		80-120	19-SEP-13
Cobalt (Co)-Dissolved			96.0		%		80-120	19-SEP-13
Copper (Cu)-Dissolved			94.2		%		80-120	19-SEP-13
Lead (Pb)-Dissolved			96.2		%		80-120	19-SEP-13
Lithium (Li)-Dissolved			98.7		%		80-120	19-SEP-13
Manganese (Mn)-Dissolved			99.4		%		80-120	19-SEP-13
Molybdenum (Mo)-Dissolved			96.7		%		80-120	19-SEP-13
Nickel (Ni)-Dissolved			96.4		%		80-120	19-SEP-13
Potassium (K)-Dissolved			99.1		%		80-120	19-SEP-13
Selenium (Se)-Dissolved			96.2		%		80-120	19-SEP-13
Silver (Ag)-Dissolved			98.3		%		80-120	19-SEP-13
Sodium (Na)-Dissolved			99.5		%		80-120	19-SEP-13
Strontium (Sr)-Dissolved			95.9		%		80-120	19-SEP-13
Thallium (Tl)-Dissolved			99.4		%		80-120	19-SEP-13
Titanium (Ti)-Dissolved			97.2		%		80-120	19-SEP-13
Uranium (U)-Dissolved			98.8		%		80-120	19-SEP-13
Vanadium (V)-Dissolved			99.1		%		80-120	19-SEP-13
Zinc (Zn)-Dissolved			92.5		%		80-120	19-SEP-13
Batch R2697846								
WG1751094-3 DUP		**L1363288-1**						
Aluminum (Al)-Dissolved		2.38	2.09		mg/L	13	20	26-SEP-13
Antimony (Sb)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	26-SEP-13
Arsenic (As)-Dissolved		0.020	<0.020	RPD-NA	mg/L	N/A	20	26-SEP-13
Barium (Ba)-Dissolved		0.048	0.047		mg/L	1.8	20	26-SEP-13
Beryllium (Be)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	26-SEP-13
Boron (B)-Dissolved		<2.0	<2.0	RPD-NA	mg/L	N/A	20	26-SEP-13
Cadmium (Cd)-Dissolved		1.75	1.78		mg/L	1.7	20	26-SEP-13
Chromium (Cr)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	26-SEP-13
Cobalt (Co)-Dissolved		5.15	5.23		mg/L	1.7	20	26-SEP-13
Copper (Cu)-Dissolved		0.129	0.130		mg/L	0.6	20	26-SEP-13
Lead (Pb)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	26-SEP-13
Lithium (Li)-Dissolved		0.15	0.16		mg/L	4.5	20	26-SEP-13
Manganese (Mn)-Dissolved		313	323		mg/L	3.3	20	26-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2697846								
WG1751094-3 DUP		**L1363288-1**						
Molybdenum (Mo)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	26-SEP-13
Nickel (Ni)-Dissolved		10.2	10.3		mg/L	1.4	20	26-SEP-13
Potassium (K)-Dissolved		22	22		mg/L	1.4	20	26-SEP-13
Selenium (Se)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	26-SEP-13
Silver (Ag)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	26-SEP-13
Sodium (Na)-Dissolved		25	23		mg/L	8.4	20	26-SEP-13
Strontium (Sr)-Dissolved		1.49	1.55		mg/L	3.8	20	26-SEP-13
Thallium (Tl)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	26-SEP-13
Titanium (Ti)-Dissolved		<2.0	<2.0	RPD-NA	mg/L	N/A	20	26-SEP-13
Uranium (U)-Dissolved		0.0313	0.0295		mg/L	5.8	20	26-SEP-13
Vanadium (V)-Dissolved		<0.20	<0.20	RPD-NA	mg/L	N/A	20	26-SEP-13
Zinc (Zn)-Dissolved		1530	1560		mg/L	1.9	20	26-SEP-13
WG1751094-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	19-SEP-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	19-SEP-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	19-SEP-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	19-SEP-13
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	19-SEP-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	19-SEP-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	19-SEP-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	19-SEP-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	19-SEP-13
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	19-SEP-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	19-SEP-13
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	19-SEP-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	19-SEP-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	19-SEP-13
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	19-SEP-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	19-SEP-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	19-SEP-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	19-SEP-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	19-SEP-13
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	19-SEP-13
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	19-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2697846								
WG1751094-1 MB								
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	19-SEP-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	19-SEP-13
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	19-SEP-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	19-SEP-13
WG1751094-4 MS		**L1363288-3**						
Aluminum (Al)-Dissolved			94.9		%		70-130	26-SEP-13
Antimony (Sb)-Dissolved			102.5		%		70-130	26-SEP-13
Arsenic (As)-Dissolved			103.4		%		70-130	26-SEP-13
Barium (Ba)-Dissolved			97.6		%		70-130	26-SEP-13
Beryllium (Be)-Dissolved			92.0		%		70-130	26-SEP-13
Boron (B)-Dissolved			89.4		%		70-130	26-SEP-13
Cadmium (Cd)-Dissolved			97.7		%		70-130	26-SEP-13
Chromium (Cr)-Dissolved			97.0		%		70-130	26-SEP-13
Cobalt (Co)-Dissolved			95.3		%		70-130	26-SEP-13
Copper (Cu)-Dissolved			92.5		%		70-130	26-SEP-13
Lead (Pb)-Dissolved			94.0		%		70-130	26-SEP-13
Lithium (Li)-Dissolved			87.5		%		70-130	26-SEP-13
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	26-SEP-13
Molybdenum (Mo)-Dissolved			98.9		%		70-130	26-SEP-13
Nickel (Ni)-Dissolved			95.0		%		70-130	26-SEP-13
Potassium (K)-Dissolved			94.8		%		70-130	26-SEP-13
Selenium (Se)-Dissolved			101.7		%		70-130	26-SEP-13
Silver (Ag)-Dissolved			96.2		%		70-130	26-SEP-13
Sodium (Na)-Dissolved			N/A	MS-B	%		-	26-SEP-13
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	26-SEP-13
Thallium (Tl)-Dissolved			95.0		%		70-130	26-SEP-13
Titanium (Ti)-Dissolved			100.4		%		70-130	26-SEP-13
Uranium (U)-Dissolved			100.8		%		70-130	26-SEP-13
Vanadium (V)-Dissolved			100.5		%		70-130	26-SEP-13
Zinc (Zn)-Dissolved			90.4		%		70-130	26-SEP-13
MET-DIS-ICP-VA	**Water**							
Batch R2697813								
WG1751094-5 CRM		**VA-HIGH-WATRM**						
Calcium (Ca)-Dissolved			98.7		%		80-120	20-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA	**Water**							
Batch R2697813								
WG1751094-5 CRM		**VA-HIGH-WATRM**						
Iron (Fe)-Dissolved			96.0		%		80-120	20-SEP-13
Magnesium (Mg)-Dissolved			99.4		%		80-120	20-SEP-13
Phosphorus (P)-Dissolved			101.4		%		80-120	20-SEP-13
Silicon (Si)-Dissolved			103.1		%		80-120	20-SEP-13
Batch R2698843								
WG1751094-1 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	23-SEP-13
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	23-SEP-13
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	23-SEP-13
Phosphorus (P)-Dissolved			<0.30		mg/L		0.3	23-SEP-13
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	23-SEP-13
Batch R2701572								
WG1751094-4 MS		**L1363288-3**						
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	25-SEP-13
Iron (Fe)-Dissolved			86.8		%		70-130	25-SEP-13
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	25-SEP-13
Batch R2701685								
WG1751094-3 DUP		**L1363288-1**						
Calcium (Ca)-Dissolved		491	492		mg/L	0.2	20	26-SEP-13
Iron (Fe)-Dissolved		2.48	2.48		mg/L	0.2	20	26-SEP-13
Magnesium (Mg)-Dissolved		2810	2820		mg/L	0.1	20	26-SEP-13
Phosphorus (P)-Dissolved		<1.5	<1.5	RPD-NA	mg/L	N/A	20	26-SEP-13
Silicon (Si)-Dissolved		16.3	16.3		mg/L	0.1	20	26-SEP-13
NH3-F-VA	**Water**							
Batch R2700924								
WG1755021-2 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			102.8		%		85-115	25-SEP-13
WG1755021-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	25-SEP-13
WG1755021-4 MS		**L1363247-2**						
Ammonia, Total (as N)			98.2		%		75-125	25-SEP-13
Batch R2701725								
WG1755573-2 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			98.7		%		85-115	26-SEP-13
WG1755573-1 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-F-VA	**Water**							
Batch R2701725								
WG1755573-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	26-SEP-13
WG1755573-4 MS		**L1363247-18**						
Ammonia, Total (as N)			95.0		%		75-125	26-SEP-13
PH-PCT-VA	**Water**							
Batch R2697562								
WG1750347-25 CRM		**VA-PH7-BUF**						
pH			6.95		pH		6.9-7.1	19-SEP-13
WG1750347-34 DUP		**L1363288-3**						
pH		7.47	7.46	J	pH	0.01	0.3	19-SEP-13
PO4-DO-COL-VA	**Water**							
Batch R2696129								
WG1749229-2 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			88.0		%		80-120	17-SEP-13
WG1749229-9 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			95.0		%		80-120	17-SEP-13
WG1749229-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	17-SEP-13
WG1749229-8 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	17-SEP-13
WG1749229-4 MS		**L1363247-2**						
Orthophosphate-Dissolved (as P)			86.7		%		70-130	17-SEP-13
WG1749229-6 MS		**L1363247-24**						
Orthophosphate-Dissolved (as P)			96.9		%		70-130	17-SEP-13
S-DIS-ICP-VA	**Water**							
Batch R2697813								
WG1751094-5 CRM		**VA-HIGH-WATRM**						
Sulfur (S)-Dissolved			99.9		%		80-120	20-SEP-13
Batch R2698843								
WG1751094-1 MB								
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	23-SEP-13
Batch R2701572								
WG1751094-4 MS		**L1363288-3**						
Sulfur (S)-Dissolved			N/A	MS-B	%		-	25-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
S-DIS-ICP-VA	**Water**							
Batch R2701685								
WG1751094-3 DUP		**L1363288-1**						
Sulfur (S)-Dissolved		4950	4940		mg/L	0.1	20	26-SEP-13
TDS-VA	**Water**							
Batch R2696759								
WG1749843-2 LCS								
Total Dissolved Solids			98.3		%		85-115	18-SEP-13
WG1749843-1 MB								
Total Dissolved Solids			<10		mg/L		10	18-SEP-13
TSS-LOW-VA	**Water**							
Batch R2696507								
WG1749593-2 LCS								
Total Suspended Solids			91.3		%		85-115	18-SEP-13
WG1749593-1 MB								
Total Suspended Solids			<1.0		mg/L		1	18-SEP-13

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	1	12-SEP-13 15:00	19-SEP-13 23:00	0.25	176	hours	EHTR-FM
	2	13-SEP-13 14:30	19-SEP-13 23:00	0.25	152	hours	EHTR-FM
	3	13-SEP-13 14:30	19-SEP-13 23:00	0.25	152	hours	EHTR-FM
	4	14-SEP-13 15:15	19-SEP-13 23:00	0.25	128	hours	EHTR-FM
Anions and Nutrients							
Diss. Orthophosphate in Water by Colour							
	1	12-SEP-13 15:00	17-SEP-13 22:15	3	5	days	EHTR
	2	13-SEP-13 14:30	17-SEP-13 22:15	3	4	days	EHTL
	3	13-SEP-13 14:30	17-SEP-13 22:15	3	4	days	EHTL
Nitrate Nitrogen by Ion Chromatography							
	1	12-SEP-13 15:00	16-SEP-13 20:23	3	4	days	EHTR
Nitrite Nitrogen by Ion Chromatography							
	1	12-SEP-13 15:00	16-SEP-13 20:23	3	4	days	EHTR

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1363288 were received on 16-SEP-13 09:45.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CH2MHILL **CHAIN OF CUSTODY RECORD** *9/15/2013 2:11:51 PM* Page 1 OF 1

Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.06.AD.01.04.13
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-014
Project WASTE ROCK DUMP MW 2013 SW-014B
Turnaround Time 10 Days
Shipping Date: 9/15/2013
COC Number: ALS09151303

				Container:	125mL Poly	40ml vial	125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	125ml Poly	250ml glass		Number of Containers	COMMENTS
				Preservatives:	NaOH, 4°C	HCl, 4°C	HCl, 4°C	4C	4C	4°C	4°C	4°C	4°C	H2SO4, pH<2 4°C	HNO3, 4°C	H2SO4, pH<2, 4C			
				Filtered:	NA	Field	Field	NA	NA	NA	NA	NA	NA	Field	Field	NA			
				Holding Time:	14	14	180	14	14	7	7	3	3	28	180/28	28			
					Free Cyanide	(E245.7-Diss) Field Filtered Dissolved Hg	(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity - Run Hot H2O2 if Fe >15ppm	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM4110B) CL F NO2 NO3 and SO4	(SM4500P) ortho- Phosphate	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia			
	DATE	TIME	Matrix																
CH12-014-MW007_GW0913	9/12/2013	15:00	Water		X	X	X	X	X	X	X	X	X	X	X	X		9	
CH12-014-MW003_GW0913	9/13/2013	14:30	Water		X	X	X	X	X	X	X	X	X	X	X	X		9	
CH12-014-MW903_GW0913	9/13/2013	14:30	Water		X	X	X	X	X	X	X	X	X	X	X	X		9	
CH12-014-MW011_GW0913	9/14/2013	15:15	Water		X	X	X	X	X	X	X	X	X	X	X	X		9	
																	TOTAL NUMBER OF CONTAINERS	36	

L1363288


L1363288-COFC

	Signatures	Date/Time
Approved by		
Sampled by		09/15/13
Relinquished by		
Received by		16-Sep-13
Relinquished by		
Received by	3.5	9845

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

ATTN:
Sample Custody
and
Amber Springer

Special Instructions:
Perform Lab Dup/MS on these samples

Report Copy to
Bernice Kidd
(530) 229-3203

CH2M HILL, INC
ATTN: Bernice Kidd
2525 Airpark Drive
Redding CA 96001

Date Received: 18-SEP-13
Report Date: 11-OCT-13 13:46 (MT)
Version: FINAL REV. 2

Client Phone: 530-229-3203

Certificate of Analysis

Lab Work Order #: L1364538

Project P.O. #: 472645.06.AD.01.04.13 "PO:604564"
Job Reference: FARO MINE SEEP SAMPLING 2013 SW-015
C of C Numbers: ALS09171301
Legal Site Desc:

Comments:

11-OCT-13: Additional QC data has been added for Dissolved Mercury (LCS).

Amber Springer
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1364538-1	L1364538-2	L1364538-3	L1364538-4	L1364538-5
	Description	Water	Water	Water	Water	Water
	Sampled Date	16-SEP-13	15-SEP-13	15-SEP-13	15-SEP-13	15-SEP-13
	Sampled Time	12:00	11:40	13:30	11:40	16:02
	Client ID	SRK-GD12_SEFL13	GP03_SEFL13	GP17_SEFL13	GP903_SEFL13	VP03_SEFL13
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	365	183	126	189	400
	pH (pH)	8.34	8.40	8.36	8.40	
	Total Suspended Solids (mg/L)	<1.0	44.2	43.2	58.3	104
	Total Dissolved Solids (mg/L)	421	252	166	256	1170
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)					306
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	265	149	129	142	
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	
	Alkalinity, Total (as CaCO3) (mg/L)	265	149	129	142	
	Ammonia, Total (as N) (mg/L)	<0.0050	0.0059	0.0051	0.0058	0.0287
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<0.50	DLA <5.0
	Fluoride (F) (mg/L)	0.122	0.352	0.436	0.352	0.81
	Nitrate (as N) (mg/L)	0.273	0.0227	0.0850	0.0226	DLA <0.050
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	DLA <0.010
	Orthophosphate-Dissolved (as P) (mg/L)	0.0015	0.0079	0.0107	0.0079	0.0014
	Sulfate (SO4) (mg/L)	91.0	64.1	11.5	64.0	734
Cyanides	Cyanide, Free (mg/L)	<0.0050				
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	3.85	0.83	0.92	1.55	<0.50
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0021	0.0017	0.0011	0.0034	5.71
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	0.00014	<0.00010	0.00013	DLA <0.0020
	Arsenic (As)-Dissolved (mg/L)	0.00064	0.00142	0.00129	0.00149	0.0055
	Barium (Ba)-Dissolved (mg/L)	0.0861	0.0747	0.0955	0.0769	0.0143
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	DLA <0.0020
	Boron (B)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	DLA <0.20
	Cadmium (Cd)-Dissolved (mg/L)	<0.000010	0.000012	<0.000010	0.000015	0.143
	Calcium (Ca)-Dissolved (mg/L)	77.8	51.9	38.5	53.8	84.9
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	0.00012	0.00018	<0.00010	0.0053
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	0.189
	Copper (Cu)-Dissolved (mg/L)	0.00077	0.00027	0.00024	0.00032	0.564
	Iron (Fe)-Dissolved (mg/L)	<0.030	<0.030	<0.030	<0.030	34.2
	Ferrous Iron, Dissolved (mg/L)	<0.020	<0.020	<0.020	<0.020	7.0
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	0.000300	0.530
	Lithium (Li)-Dissolved (mg/L)	0.00190	0.00352	0.00297	0.00356	0.028

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1364538-6	L1364538-7	L1364538-8	L1364538-9	L1364538-10
	Description	Water	Water	Water	Water	Water
	Sampled Date	16-SEP-13	16-SEP-13	16-SEP-13	16-SEP-13	16-SEP-13
	Sampled Time	13:00	13:00	15:40	11:50	13:15
	Client ID	SRK-GD06_SEFL13	SRK-GD906_SEFL13	SRK-VD03_SEFL13	SRK-VD04_SEFL13	SRK-VD05_SEFL13
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	2380	2350	6010	32700	38000
	pH (pH)	8.21	8.23	6.25		
	Total Suspended Solids (mg/L)	2.4	<1.0	39.0	26.1 AI	30.4 AI
	Total Dissolved Solids (mg/L)	3430	3480	13900	161000	153000
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	5.9	4.8			
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)			1760	46800	40600
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	643	659	158		
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<20	<20	<2.0		
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<20	<20	<2.0		
	Alkalinity, Total (as CaCO3) (mg/L)	643	659	158		
	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	4.54 DLA	0.188 DLA	0.488 DLA
	Chloride (Cl) (mg/L)	<10 DLA	<10 DLA	<25 DLA	<50 DLA	<50 DLA
	Fluoride (F) (mg/L)	<0.40 DLA	<0.40 DLA	<1.0 DLA	59.2 DLA	45.9 DLA
	Nitrate (as N) (mg/L)	6.15 DLA	6.10 DLA	<0.25 DLA	<0.50 DLA	<0.50 DLA
	Nitrite (as N) (mg/L)	<0.020	<0.020	<0.050	<0.10	<0.10
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	0.0011	<0.0010	0.0087	0.0104
	Sulfate (SO4) (mg/L)	1860	1830	8190 DLM	85200 DLM	87400 DLM
Cyanides	Cyanide, Free (mg/L)	<0.0050	<0.0050	<0.010	<0.50	<0.50
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	2.90	2.81	6.89	39.7	38.2
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0048	0.0021	0.30	1050 DLA	587 DLA
	Antimony (Sb)-Dissolved (mg/L)	0.00074	0.00082	<0.010 DLA	<0.20 DLA	<0.20 DLA
	Arsenic (As)-Dissolved (mg/L)	0.00343	0.00341	0.137	<0.20 DLA	<0.20 DLA
	Barium (Ba)-Dissolved (mg/L)	0.0148	0.0150	0.0115	<0.10 DLA	<0.10 DLA
	Beryllium (Be)-Dissolved (mg/L)	<0.00020 DLA	<0.00020 DLA	<0.010 DLA	<0.20 DLA	<0.20 DLA
	Boron (B)-Dissolved (mg/L)	<0.020 DLA	<0.020 DLA	<1.0 DLA	<20 DLA	<20 DLA
	Cadmium (Cd)-Dissolved (mg/L)	0.00179	0.00179	0.197	20.7	11.7
	Calcium (Ca)-Dissolved (mg/L)	405	402	435	519	513
	Chromium (Cr)-Dissolved (mg/L)	<0.00020 DLA	<0.00020 DLA	<0.010 DLA	<0.20 DLA	<0.20 DLA
	Cobalt (Co)-Dissolved (mg/L)	0.00079	0.00082	4.82	35.6	28.8
	Copper (Cu)-Dissolved (mg/L)	0.00146	0.00151	<0.020 DLA	<0.40 DLA	2.98
	Iron (Fe)-Dissolved (mg/L)	<0.030	<0.030	415 DLM	11300	11800
	Ferrous Iron, Dissolved (mg/L)	<0.020	<0.20 DLM	<20 DLM	12500	13500
	Lead (Pb)-Dissolved (mg/L)	0.00111	0.00101	0.0064	0.36	3.79
	Lithium (Li)-Dissolved (mg/L)	0.0405	0.0390	0.063	1.9	2.3

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1364538-11	L1364538-12	L1364538-13		
	Description	Water	Water	Water		
	Sampled Date	16-SEP-13	16-SEP-13	16-SEP-13		
	Sampled Time	11:15	14:43	11:15		
	Client ID	SRK-VD09_SEFL13	SRK-VD10_SEFL13	SRK-VD905_SEFL13		
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	3640	9310	38200		
	pH (pH)		3.58			
	Total Suspended Solids (mg/L)	90.1	95.6	68.0		
	Total Dissolved Solids (mg/L)	9790	27700	155000 AI		
Anions and Nutrients	Acidity (as CaCO3) (mg/L)					
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)	2370	6900	41300		
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)		<1.0			
	Alkalinity, Carbonate (as CaCO3) (mg/L)		<1.0			
	Alkalinity, Hydroxide (as CaCO3) (mg/L)		<1.0			
	Alkalinity, Total (as CaCO3) (mg/L)		<1.0			
	Ammonia, Total (as N) (mg/L)	<0.0050	5.96	0.444		
	Chloride (Cl) (mg/L)	<25 DLA	<25 DLA	<50 DLA		
	Fluoride (F) (mg/L)	5.3	2.9	43.5		
	Nitrate (as N) (mg/L)	<0.25 DLA	<0.25 DLA	<0.50 DLA		
	Nitrite (as N) (mg/L)	<0.050 DLA	<0.050 DLA	<0.10 DLA		
	Orthophosphate-Dissolved (as P) (mg/L)	0.0047	<0.0010	0.0090		
	Sulfate (SO4) (mg/L)	6120	17000	83900		
Cyanides	Cyanide, Free (mg/L)		<0.20 DLM	<0.50 DLM		
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	2.49	18.3	37.7		
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD		
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD		
	Aluminum (Al)-Dissolved (mg/L)	55.8	9.71	583		
	Antimony (Sb)-Dissolved (mg/L)	<0.010 DLA	<0.020 DLA	<0.20 DLA		
	Arsenic (As)-Dissolved (mg/L)	0.017	<0.020 DLA	<0.20 DLA		
	Barium (Ba)-Dissolved (mg/L)	0.0182	0.011	<0.10 DLA		
	Beryllium (Be)-Dissolved (mg/L)	<0.010 DLA	<0.020 DLA	<0.20 DLA		
	Boron (B)-Dissolved (mg/L)	<1.0 DLA	<2.0 DLA	<20 DLA		
	Cadmium (Cd)-Dissolved (mg/L)	0.622	0.100	11.6		
	Calcium (Ca)-Dissolved (mg/L)	435	426	517		
	Chromium (Cr)-Dissolved (mg/L)	<0.010 DLA	<0.020 DLA	<0.20 DLA		
	Cobalt (Co)-Dissolved (mg/L)	2.74	7.54	28.7		
	Copper (Cu)-Dissolved (mg/L)	0.182	<0.040 DLA	2.92		
	Iron (Fe)-Dissolved (mg/L)	474	1940	11900		
	Ferrous Iron, Dissolved (mg/L)	<20 DLM	2370	13400		
	Lead (Pb)-Dissolved (mg/L)	1.05	<0.010 DLA	3.85		
	Lithium (Li)-Dissolved (mg/L)	0.222	<0.10 DLA	2.1		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1364538-1	L1364538-2	L1364538-3	L1364538-4	L1364538-5
	Description	Water	Water	Water	Water	Water
	Sampled Date	16-SEP-13	15-SEP-13	15-SEP-13	15-SEP-13	15-SEP-13
	Sampled Time	12:00	11:40	13:30	11:40	16:02
	Client ID	SRK-GD12_SEFL13	GP03_SEFL13	GP17_SEFL13	GP903_SEFL13	VP03_SEFL13
Grouping	**Analyte**					
WATER						
Dissolved Metals	Magnesium (Mg)-Dissolved (mg/L)	41.5	12.9	7.18	13.3	45.6
	Manganese (Mn)-Dissolved (mg/L)	0.00116	0.00271	0.000820	0.00342	7.80
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	0.000149	0.00169	0.000612	0.00174	<0.0010 DLA
	Nickel (Ni)-Dissolved (mg/L)	0.00108	<0.00050	<0.00050	<0.00050	0.329
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	0.465	1.32	0.826	1.37	<1.0 DLA
	Selenium (Se)-Dissolved (mg/L)	<0.00010	0.00420	0.00292	0.00427	<0.0020 DLA
	Silicon (Si)-Dissolved (mg/L)	4.15	6.07	6.00	6.22	10.9
	Silicon (as SiO2)-Dissolved (mg/L)	8.88	13.0	12.8	13.3	23.2
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.00020 DLA
	Sodium (Na)-Dissolved (mg/L)	1.37	7.14	3.38	7.21	2.5
	Strontium (Sr)-Dissolved (mg/L)	0.315	0.295	0.230	0.303	0.312
	Sulfur (S)-Dissolved (mg/L)	31.0	20.9	3.85	21.3	244
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	0.00184
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.20 DLA
	Uranium (U)-Dissolved (mg/L)	0.00146	0.0108	0.00462	0.0116	0.0112
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.020 DLA
	Zinc (Zn)-Dissolved (mg/L)	0.0016	<0.0010	<0.0010	0.0038	92.2

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1364538-6	L1364538-7	L1364538-8	L1364538-9	L1364538-10
	Description	Water	Water	Water	Water	Water
	Sampled Date	16-SEP-13	16-SEP-13	16-SEP-13	16-SEP-13	16-SEP-13
	Sampled Time	13:00	13:00	15:40	11:50	13:15
	Client ID	SRK-GD06_SEFL13	SRK-GD906_SEFL13	SRK-VD03_SEFL13	SRK-VD04_SEFL13	SRK-VD05_SEFL13
Grouping	**Analyte**					
WATER						
Dissolved Metals	Magnesium (Mg)-Dissolved (mg/L)	333	327	1200	7620	8910
	Manganese (Mn)-Dissolved (mg/L)	0.0106	0.00965	289	5770	5280
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	0.000029	0.000042
	Molybdenum (Mo)-Dissolved (mg/L)	0.00042	0.00051	DLA <0.0050	DLA <0.10	DLA <0.10
	Nickel (Ni)-Dissolved (mg/L)	0.470	0.473	7.25	23.5	23.8
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	DLM <1.5	DLA <15	DLA <15
	Potassium (K)-Dissolved (mg/L)	7.15	7.13	11.3	DLA <100	DLA <100
	Selenium (Se)-Dissolved (mg/L)	DLA <0.00020	DLA <0.00020	DLA <0.010	DLA <0.20	DLA <0.20
	Silicon (Si)-Dissolved (mg/L)	4.89	4.92	8.70	34.3	16.4
	Silicon (as SiO2)-Dissolved (mg/L)	10.5	10.5	18.6	73.5	35.0
	Silver (Ag)-Dissolved (mg/L)	DLA <0.000020	DLA <0.000020	DLA <0.0010	DLA <0.020	DLA <0.020
	Sodium (Na)-Dissolved (mg/L)	12.8	12.9	12.5	DLA <100	DLA <100
	Strontium (Sr)-Dissolved (mg/L)	1.59	1.59	1.86	1.26	2.40
	Sulfur (S)-Dissolved (mg/L)	568	561	2740	30700	29700
	Thallium (Tl)-Dissolved (mg/L)	0.000543	0.000537	0.0031	DLA <0.020	DLA <0.020
	Titanium (Ti)-Dissolved (mg/L)	DLA <0.020	DLA <0.020	DLA <1.0	DLA <20	DLA <20
	Uranium (U)-Dissolved (mg/L)	0.0596	0.0573	0.0093	2.58	1.61
	Vanadium (V)-Dissolved (mg/L)	DLA <0.0020	DLA <0.0020	DLA <0.10	DLA <2.0	DLA <2.0
	Zinc (Zn)-Dissolved (mg/L)	3.15	3.07	731	17300	14600

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1364538-11	L1364538-12	L1364538-13		
	Description	Water	Water	Water		
	Sampled Date	16-SEP-13	16-SEP-13	16-SEP-13		
	Sampled Time	11:15	14:43	11:15		
	Client ID	SRK-VD09_SEFL13	SRK-VD10_SEFL13	SRK-VD905_SEFL13		
Grouping	**Analyte**					
WATER						
Dissolved Metals	Magnesium (Mg)-Dissolved (mg/L)	619	2000	8950		
	Manganese (Mn)-Dissolved (mg/L)	167	972	5190		
	Mercury (Hg)-Dissolved (mg/L)	0.000021	<0.000010	0.000038		
	Molybdenum (Mo)-Dissolved (mg/L)	<0.0050 DLA	<0.010 DLA	<0.10 DLA		
	Nickel (Ni)-Dissolved (mg/L)	3.90	4.66	23.4		
	Phosphorus (P)-Dissolved (mg/L)	<0.90 DLM	<3.0 DLM	<15 DLA		
	Potassium (K)-Dissolved (mg/L)	<5.0 DLA	<10 DLA	<100 DLA		
	Selenium (Se)-Dissolved (mg/L)	<0.010 DLA	<0.020 DLA	<0.20 DLA		
	Silicon (Si)-Dissolved (mg/L)	19.7	15.3	16.6		
	Silicon (as SiO2)-Dissolved (mg/L)	42.2	32.7	35.5		
	Silver (Ag)-Dissolved (mg/L)	<0.0010 DLA	<0.0020 DLA	<0.020 DLA		
	Sodium (Na)-Dissolved (mg/L)	<5.0 DLA	16	<100 DLA		
	Strontium (Sr)-Dissolved (mg/L)	1.52	2.00	2.45		
	Sulfur (S)-Dissolved (mg/L)	1970	5680	30000		
	Thallium (Tl)-Dissolved (mg/L)	0.0025	0.0030	<0.020 DLA		
	Titanium (Ti)-Dissolved (mg/L)	<1.0 DLA	<2.0 DLA	<20 DLA		
	Uranium (U)-Dissolved (mg/L)	0.0873	0.0080	1.62		
	Vanadium (V)-Dissolved (mg/L)	<0.10 DLA	<0.20 DLA	<2.0 DLA		
	Zinc (Zn)-Dissolved (mg/L)	607	1730	14300		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Antimony (Sb)-Dissolved	DLA	L1364538-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Beryllium (Be)-Dissolved	DLA	L1364538-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Boron (B)-Dissolved	DLA	L1364538-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Molybdenum (Mo)-Dissolved	DLA	L1364538-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Potassium (K)-Dissolved	DLA	L1364538-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Selenium (Se)-Dissolved	DLA	L1364538-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Silver (Ag)-Dissolved	DLA	L1364538-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Titanium (Ti)-Dissolved	DLA	L1364538-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Vanadium (V)-Dissolved	DLA	L1364538-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfate (SO4)	MS-B	L1364538-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1364538-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1364538-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L1364538-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Nickel (Ni)-Dissolved	MS-B	L1364538-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1364538-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1364538-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Uranium (U)-Dissolved	MS-B	L1364538-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Zinc (Zn)-Dissolved	MS-B	L1364538-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
AI	Analytical interferences may be present. Result may be biased high.
DLA	Detection Limit Adjusted For required dilution
DLM	Detection Limit Adjusted due to sample matrix effects.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-H2O2-MAN-VA	Water	Acidity by Hot Peroxide Manual Titration	APHA - ACIDITY (2310)

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". The procedure involves preliminary sample treatment by the hot peroxide procedure, and Acidity is subsequently determined by potentiometric titration to a specified endpoint (i.e. pH = 8.3).

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 "Alkalinity"

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-CL-IC-WR	Water	Chloride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-F-IC-WR	Water	Fluoride by Ion Chromatography	EPA 300.1

Reference Information

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-NO2-IC-WR	Water	Nitrite Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-NO3-IC-WR	Water	Nitrate Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-SO4-IC-WR	Water	Sulphate by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CN-FREE-CFA-VA	Water	Free Cyanide in water by CFA	ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

FE2-D-COL-VA	Water	Diss. Ferrous Iron in Water by Colour	James W. Ball et al (1999)

This analysis is carried out using procedures adapted from "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedures involves preliminary sample filtration (0.1um filter) and Ferrous Iron is determined using the "FerroZine" colorimteric method.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA	Water	Dissolved Mercury in Water by CVAFS(Low)	EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA	Water	Dissolved Metals in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

Reference Information

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

S-DIS-ICP-VA Water Dissolved Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

SIO2-D-CALC-VA Water Dissolved Silicon (reported as Silica) CALCULATION

Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-LOW-VA Water Total Suspended Solids by Grav. (1 mg/L) APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

ALS09171301

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1364538 Report Date: 11-OCT-13

Client: CH2M HILL, INC
2525 Airpark Drive
Redding CA 96001
Contact: Bernice Kidd

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-H2O2-MAN-VA	**Water**							
Batch R2704309								
WG1757874-2 CRM		**VA-ACY-M-CONTROL**						
Acidity-Hot Peroxide Treated (as CaCO3)			97.9		%		85-115	30-SEP-13
WG1757874-3 DUP		**L1364538-8**						
Acidity-Hot Peroxide Treated (as CaCO3)		1760	1820		mg/L	2.8	20	30-SEP-13
WG1757874-1 MB								
Acidity-Hot Peroxide Treated (as CaCO3)			<25		mg/L		25	30-SEP-13
Batch R2705166								
WG1758431-2 CRM		**VA-ACY-M-CONTROL**						
Acidity-Hot Peroxide Treated (as CaCO3)			97.9		%		85-115	01-OCT-13
WG1758431-1 MB								
Acidity-Hot Peroxide Treated (as CaCO3)			<25		mg/L		25	01-OCT-13
ACY-PCT-VA	**Water**							
Batch R2699662								
WG1752639-9 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			107.7		%		85-115	23-SEP-13
ALK-PCT-VA	**Water**							
Batch R2701220								
WG1754227-9 CRM		**VA-ALK-PCT-CONTROL**						
Alkalinity, Total (as CaCO3)			99.6		%		85-115	25-SEP-13
WG1754227-34 DUP		**L1364538-12**						
Alkalinity, Total (as CaCO3)		<1.0	<1.0	RPD-NA	mg/L	N/A	20	25-SEP-13
Alkalinity, Bicarbonate (as CaCO3)		<1.0	<1.0	RPD-NA	mg/L	N/A	20	25-SEP-13
Alkalinity, Carbonate (as CaCO3)		<1.0	<1.0	RPD-NA	mg/L	N/A	25	25-SEP-13
Alkalinity, Hydroxide (as CaCO3)		<1.0	<1.0	RPD-NA	mg/L	N/A	20	25-SEP-13
WG1754227-1 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	25-SEP-13
Alkalinity, Bicarbonate (as CaCO3)			<1.0		mg/L		1	25-SEP-13
Alkalinity, Carbonate (as CaCO3)			<1.0		mg/L		1	25-SEP-13
Alkalinity, Hydroxide (as CaCO3)			<1.0		mg/L		1	25-SEP-13
ALK-SCR-VA	**Water**							
Batch R2697604								
WG1751420-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			97.0		%		85-115	20-SEP-13
WG1751420-5 CRM		**VA-ALKM-CONTROL**						
Alkalinity, Total (as CaCO3)			94.0		%		85-115	20-SEP-13
WG1751420-1 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-SCR-VA	**Water**							
Batch R2697604								
WG1751420-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	20-SEP-13
WG1751420-4 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	20-SEP-13
WG1751420-6 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	20-SEP-13
ANIONS-CL-IC-WR	**Water**							
Batch R2699733								
WG1750497-3 DUP		**L1364538-1**						
Chloride (Cl)		<0.50	<0.50	RPD-NA	mg/L	N/A	20	18-SEP-13
WG1750497-2 LCS								
Chloride (Cl)			102.0		%		85-115	18-SEP-13
WG1750497-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	18-SEP-13
WG1750497-4 MS		**L1364538-2**						
Chloride (Cl)			100.8		%		75-125	18-SEP-13
ANIONS-F-IC-WR	**Water**							
Batch R2699733								
WG1750497-3 DUP		**L1364538-1**						
Fluoride (F)		0.122	0.120		mg/L	1.5	20	18-SEP-13
WG1750497-2 LCS								
Fluoride (F)			103.0		%		85-115	18-SEP-13
WG1750497-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	18-SEP-13
WG1750497-4 MS		**L1364538-2**						
Fluoride (F)			101.9		%		75-125	18-SEP-13
ANIONS-NO2-IC-WR	**Water**							
Batch R2699733								
WG1750497-3 DUP		**L1364538-1**						
Nitrite (as N)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	18-SEP-13
WG1750497-2 LCS								
Nitrite (as N)			102.4		%		85-115	18-SEP-13
WG1750497-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	18-SEP-13
WG1750497-4 MS		**L1364538-2**						
Nitrite (as N)			103.6		%		75-125	18-SEP-13
ANIONS-NO3-IC-WR	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO3-IC-WR	**Water**							
Batch R2699733								
WG1750497-3 DUP		**L1364538-1**						
Nitrate (as N)		0.273	0.272		mg/L	0.3	20	18-SEP-13
WG1750497-2 LCS								
Nitrate (as N)			102.5		%		85-115	18-SEP-13
WG1750497-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	18-SEP-13
WG1750497-4 MS		**L1364538-2**						
Nitrate (as N)			101.1		%		75-125	18-SEP-13
ANIONS-SO4-IC-WR	**Water**							
Batch R2699733								
WG1750497-3 DUP		**L1364538-1**						
Sulfate (SO4)		91.0	90.9		mg/L	0.1	20	18-SEP-13
WG1750497-2 LCS								
Sulfate (SO4)			100.2		%		85-115	18-SEP-13
WG1750497-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	18-SEP-13
WG1750497-4 MS		**L1364538-2**						
Sulfate (SO4)			N/A	MS-B	%		-	18-SEP-13
CARBONS-DOC-VA	**Water**							
Batch R2698346								
WG1751657-4 LCS								
Dissolved Organic Carbon			95.9		%		80-120	20-SEP-13
WG1751657-3 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	20-SEP-13
Batch R2698714								
WG1752494-1 DUP		**L1364538-11**						
Dissolved Organic Carbon		2.49	2.44		mg/L	2.1	20	22-SEP-13
WG1752494-4 LCS								
Dissolved Organic Carbon			99.0		%		80-120	22-SEP-13
WG1752494-3 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	22-SEP-13
WG1752494-2 MS		**L1364565-1**						
Dissolved Organic Carbon			100.3		%		70-130	22-SEP-13
CN-FREE-CFA-VA	**Water**							
Batch R2701333								
WG1754844-3 DUP		**L1364538-1**						
Cyanide, Free		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	25-SEP-13
WG1754844-2 LCS								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CN-FREE-CFA-VA	**Water**							
Batch R2701333								
WG1754844-2 LCS								
Cyanide, Free			101.4		%		80-120	25-SEP-13
WG1754844-1 MB								
Cyanide, Free			<0.0050		mg/L		0.005	25-SEP-13
WG1754844-4 MS		**L1364538-1**						
Cyanide, Free			99.7		%		70-130	25-SEP-13
FE2-D-COL-VA	**Water**							
Batch R2700181								
WG1752303-7 DUP		**L1364538-7**						
Ferrous Iron, Dissolved		<0.20	<0.20	RPD-NA	mg/L	N/A	20	21-SEP-13
WG1752303-10 LCS								
Ferrous Iron, Dissolved			100.9		%		80-120	21-SEP-13
WG1752303-2 LCS								
Ferrous Iron, Dissolved			101.5		%		80-120	21-SEP-13
WG1752303-6 LCS								
Ferrous Iron, Dissolved			102.2		%		80-120	21-SEP-13
WG1752303-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	21-SEP-13
WG1752303-5 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	21-SEP-13
WG1752303-9 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	21-SEP-13
WG1752303-12 MS		**L1365908-6**						
Ferrous Iron, Dissolved			99.6		%		70-130	21-SEP-13
WG1752303-4 MS		**L1364173-2**						
Ferrous Iron, Dissolved			100.8		%		70-130	21-SEP-13
WG1752303-8 MS		**L1364538-7**						
Ferrous Iron, Dissolved			109.5		%		70-130	21-SEP-13
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2699917								
WG1753160-3 DUP		**L1364538-5**						
Mercury (Hg)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	24-SEP-13
WG1753160-2 LCS								
Mercury (Hg)-Dissolved			97.9		%		80-120	24-SEP-13
WG1753160-4 MS		**L1364538-6**						
Mercury (Hg)-Dissolved			86.2		%		70-130	24-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2700321								
WG1753160-1 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	24-SEP-13
MET-D-CCMS-VA	**Water**							
Batch R2705571								
WG1751067-2 CRM		**VA-HIGH-WATRM**						
Aluminum (Al)-Dissolved			92.2		%		80-120	19-SEP-13
Antimony (Sb)-Dissolved			100.0		%		80-120	19-SEP-13
Arsenic (As)-Dissolved			88.2		%		80-120	19-SEP-13
Barium (Ba)-Dissolved			90.6		%		80-120	19-SEP-13
Beryllium (Be)-Dissolved			97.9		%		80-120	19-SEP-13
Boron (B)-Dissolved			90.8		%		80-120	19-SEP-13
Cadmium (Cd)-Dissolved			88.7		%		80-120	19-SEP-13
Chromium (Cr)-Dissolved			88.6		%		80-120	19-SEP-13
Cobalt (Co)-Dissolved			87.4		%		80-120	19-SEP-13
Copper (Cu)-Dissolved			86.5		%		80-120	19-SEP-13
Lead (Pb)-Dissolved			98.0		%		80-120	19-SEP-13
Lithium (Li)-Dissolved			97.5		%		80-120	19-SEP-13
Manganese (Mn)-Dissolved			88.3		%		80-120	19-SEP-13
Molybdenum (Mo)-Dissolved			96.3		%		80-120	19-SEP-13
Nickel (Ni)-Dissolved			86.5		%		80-120	19-SEP-13
Potassium (K)-Dissolved			89.5		%		80-120	19-SEP-13
Selenium (Se)-Dissolved			95.0		%		80-120	19-SEP-13
Silver (Ag)-Dissolved			97.5		%		80-120	19-SEP-13
Sodium (Na)-Dissolved			89.8		%		80-120	19-SEP-13
Strontium (Sr)-Dissolved			95.7		%		80-120	19-SEP-13
Thallium (Tl)-Dissolved			100.0		%		80-120	19-SEP-13
Titanium (Ti)-Dissolved			88.3		%		80-120	19-SEP-13
Uranium (U)-Dissolved			99.1		%		80-120	19-SEP-13
Vanadium (V)-Dissolved			89.6		%		80-120	19-SEP-13
Zinc (Zn)-Dissolved			86.3		%		80-120	19-SEP-13
WG1751067-4 DUP		**L1364538-5**						
Aluminum (Al)-Dissolved		5.71	5.62		mg/L	1.6	20	30-SEP-13
Antimony (Sb)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	30-SEP-13
Arsenic (As)-Dissolved		0.0055	0.0050		mg/L	10	20	30-SEP-13
Barium (Ba)-Dissolved		0.0143	0.0145		mg/L	0.9	20	30-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2705571								
WG1751067-4 DUP		**L1364538-5**						
Beryllium (Be)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	30-SEP-13
Boron (B)-Dissolved		<0.20	<0.20	RPD-NA	mg/L	N/A	20	30-SEP-13
Cadmium (Cd)-Dissolved		0.143	0.142		mg/L	0.3	20	30-SEP-13
Chromium (Cr)-Dissolved		0.0053	0.0040	J	mg/L	0.0013	0.004	30-SEP-13
Cobalt (Co)-Dissolved		0.189	0.187		mg/L	1.2	20	30-SEP-13
Copper (Cu)-Dissolved		0.564	0.560		mg/L	0.7	20	30-SEP-13
Lead (Pb)-Dissolved		0.530	0.533		mg/L	0.5	20	30-SEP-13
Lithium (Li)-Dissolved		0.028	0.027		mg/L	4.9	20	30-SEP-13
Manganese (Mn)-Dissolved		7.80	7.79		mg/L	0.2	20	30-SEP-13
Molybdenum (Mo)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	30-SEP-13
Nickel (Ni)-Dissolved		0.329	0.333		mg/L	1.0	20	30-SEP-13
Potassium (K)-Dissolved		<1.0	<1.0	RPD-NA	mg/L	N/A	20	30-SEP-13
Selenium (Se)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	30-SEP-13
Silver (Ag)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	30-SEP-13
Sodium (Na)-Dissolved		2.5	2.9		mg/L	12	20	30-SEP-13
Strontium (Sr)-Dissolved		0.312	0.305		mg/L	2.4	20	30-SEP-13
Thallium (Tl)-Dissolved		0.00184	0.00181		mg/L	1.3	20	30-SEP-13
Titanium (Ti)-Dissolved		<0.20	<0.20	RPD-NA	mg/L	N/A	20	30-SEP-13
Uranium (U)-Dissolved		0.0112	0.0109		mg/L	2.7	20	30-SEP-13
Vanadium (V)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	30-SEP-13
Zinc (Zn)-Dissolved		92.2	94.0		mg/L	2.0	20	30-SEP-13
WG1751067-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	01-OCT-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	01-OCT-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	01-OCT-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	01-OCT-13
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	01-OCT-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	01-OCT-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	01-OCT-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	19-SEP-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	01-OCT-13
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	01-OCT-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	01-OCT-13
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	01-OCT-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch	**R2705571**							
WG1751067-1	**MB**							
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	01-OCT-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	01-OCT-13
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	01-OCT-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	01-OCT-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	01-OCT-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	19-SEP-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	01-OCT-13
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	01-OCT-13
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	01-OCT-13
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	01-OCT-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	01-OCT-13
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	01-OCT-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	01-OCT-13
WG1751067-5	**MS**	**L1364538-6**						
Aluminum (Al)-Dissolved			101.1		%		70-130	30-SEP-13
Antimony (Sb)-Dissolved			96.0		%		70-130	30-SEP-13
Arsenic (As)-Dissolved			108.7		%		70-130	30-SEP-13
Barium (Ba)-Dissolved			101.2		%		70-130	30-SEP-13
Beryllium (Be)-Dissolved			99.7		%		70-130	30-SEP-13
Boron (B)-Dissolved			89.6		%		70-130	30-SEP-13
Cadmium (Cd)-Dissolved			103.5		%		70-130	30-SEP-13
Chromium (Cr)-Dissolved			102.3		%		70-130	30-SEP-13
Cobalt (Co)-Dissolved			99.5		%		70-130	30-SEP-13
Copper (Cu)-Dissolved			95.5		%		70-130	30-SEP-13
Lead (Pb)-Dissolved			96.3		%		70-130	30-SEP-13
Lithium (Li)-Dissolved			104.7		%		70-130	30-SEP-13
Manganese (Mn)-Dissolved			100.5		%		70-130	30-SEP-13
Molybdenum (Mo)-Dissolved			94.8		%		70-130	30-SEP-13
Nickel (Ni)-Dissolved			N/A	MS-B	%		-	30-SEP-13
Potassium (K)-Dissolved			100.1		%		70-130	30-SEP-13
Selenium (Se)-Dissolved			120.7		%		70-130	30-SEP-13
Silver (Ag)-Dissolved			78.9		%		70-130	30-SEP-13
Sodium (Na)-Dissolved			N/A	MS-B	%		-	30-SEP-13
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	30-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2705571								
WG1751067-5 MS		**L1364538-6**						
Thallium (Tl)-Dissolved			98.6		%		70-130	30-SEP-13
Titanium (Ti)-Dissolved			93.2		%		70-130	30-SEP-13
Uranium (U)-Dissolved			N/A	MS-B	%		-	30-SEP-13
Vanadium (V)-Dissolved			105.3		%		70-130	30-SEP-13
Zinc (Zn)-Dissolved			N/A	MS-B	%		-	30-SEP-13
MET-DIS-ICP-VA	**Water**							
Batch R2703907								
WG1751067-2 CRM		**VA-HIGH-WATRM**						
Calcium (Ca)-Dissolved			96.6		%		80-120	27-SEP-13
Iron (Fe)-Dissolved			95.2		%		80-120	27-SEP-13
Magnesium (Mg)-Dissolved			101.1		%		80-120	27-SEP-13
Phosphorus (P)-Dissolved			101.7		%		80-120	27-SEP-13
Silicon (Si)-Dissolved			107.2		%		80-120	27-SEP-13
WG1751067-4 DUP		**L1364538-5**						
Calcium (Ca)-Dissolved		84.9	84.1		mg/L	0.9	20	27-SEP-13
Iron (Fe)-Dissolved		34.2	33.9		mg/L	1.0	20	27-SEP-13
Magnesium (Mg)-Dissolved		45.6	44.7		mg/L	2.1	20	27-SEP-13
Phosphorus (P)-Dissolved		<0.30	<0.30	RPD-NA	mg/L	N/A	20	27-SEP-13
Silicon (Si)-Dissolved		10.9	10.8		mg/L	0.9	20	27-SEP-13
WG1751067-1 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	27-SEP-13
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	27-SEP-13
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	27-SEP-13
Phosphorus (P)-Dissolved			<0.30		mg/L		0.3	27-SEP-13
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	27-SEP-13
WG1751067-5 MS		**L1364538-6**						
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	27-SEP-13
Iron (Fe)-Dissolved			88.1		%		70-130	27-SEP-13
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	27-SEP-13
NH3-F-VA	**Water**							
Batch R2702479								
WG1755862-17 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			96.0		%		85-115	27-SEP-13
WG1755862-18 DUP		**L1364538-2**						
Ammonia, Total (as N)		0.0059	0.0062		mg/L	4.6	20	27-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-F-VA	**Water**							
Batch R2702479								
WG1755862-16 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	27-SEP-13
WG1755862-19 MS		**L1364538-2**						
Ammonia, Total (as N)			91.9		%		75-125	27-SEP-13
Batch R2703541								
WG1757230-2 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			96.8		%		85-115	29-SEP-13
WG1757230-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	29-SEP-13
WG1757230-4 MS		**L1365908-12**						
Ammonia, Total (as N)			96.1		%		75-125	29-SEP-13
PH-PCT-VA	**Water**							
Batch R2699662								
WG1752639-25 CRM		**VA-PH7-BUF**						
pH			7.04		pH		6.9-7.1	23-SEP-13
PO4-DO-COL-VA	**Water**							
Batch R2697899								
WG1751040-2 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			94.7		%		80-120	19-SEP-13
WG1751040-8 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			94.8		%		80-120	19-SEP-13
WG1751040-5 DUP		**L1364538-13**						
Orthophosphate-Dissolved (as P)		0.0090	0.0084		mg/L	7.8	20	19-SEP-13
WG1751040-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	19-SEP-13
WG1751040-7 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	19-SEP-13
WG1751040-4 MS		**L1364538-2**						
Orthophosphate-Dissolved (as P)			105.1		%		70-130	19-SEP-13
WG1751040-6 MS		**L1364565-1**						
Orthophosphate-Dissolved (as P)			98.9		%		70-130	19-SEP-13
S-DIS-ICP-VA	**Water**							
Batch R2703907								
WG1751067-2 CRM		**VA-HIGH-WATRM**						
Sulfur (S)-Dissolved			99.7		%		80-120	27-SEP-13
WG1751067-4 DUP		**L1364538-5**						
Sulfur (S)-Dissolved		244	239		mg/L	2.1	20	27-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
S-DIS-ICP-VA	**Water**							
Batch R2703907								
WG1751067-1 MB								
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	27-SEP-13
WG1751067-5 MS		**L1364538-6**						
Sulfur (S)-Dissolved			N/A	MS-B	%		-	27-SEP-13
TDS-VA	**Water**							
Batch R2698751								
WG1751375-3 DUP		**L1364538-1**						
Total Dissolved Solids		421	428		mg/L	1.6	20	20-SEP-13
WG1751375-2 LCS								
Total Dissolved Solids			102.2		%		85-115	20-SEP-13
WG1751375-1 MB								
Total Dissolved Solids			<10		mg/L		10	20-SEP-13
TSS-LOW-VA	**Water**							
Batch R2698629								
WG1751475-2 LCS								
Total Suspended Solids			92.4		%		85-115	20-SEP-13
WG1751475-1 MB								
Total Suspended Solids			<1.0		mg/L		1	20-SEP-13

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	1	16-SEP-13 12:00	23-SEP-13 23:00	0.25	179	hours	EHTR-FM
	2	15-SEP-13 11:40	23-SEP-13 23:00	0.25	203	hours	EHTR-FM
	3	15-SEP-13 13:30	23-SEP-13 23:00	0.25	202	hours	EHTR-FM
	4	15-SEP-13 11:40	23-SEP-13 23:00	0.25	203	hours	EHTR-FM
	6	16-SEP-13 13:00	23-SEP-13 23:00	0.25	178	hours	EHTR-FM
	7	16-SEP-13 13:00	23-SEP-13 23:00	0.25	178	hours	EHTR-FM
	8	16-SEP-13 15:40	23-SEP-13 23:00	0.25	175	hours	EHTR-FM
	12	16-SEP-13 14:43	23-SEP-13 23:00	0.25	176	hours	EHTR-FM
Anions and Nutrients							
Acidity by Hot Peroxide Manual Titration							
	5	15-SEP-13 16:02	01-OCT-13 02:40	14	15	days	EHT
Diss. Orthophosphate in Water by Colour							
	2	15-SEP-13 11:40	19-SEP-13 16:53	3	4	days	EHTL
	3	15-SEP-13 13:30	19-SEP-13 16:53	3	4	days	EHTL
	4	15-SEP-13 11:40	19-SEP-13 16:53	3	4	days	EHTL
	5	15-SEP-13 16:02	19-SEP-13 16:53	3	4	days	EHTL

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1364538 were received on 18-SEP-13 10:10.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CH2MHILL

CHAIN OF CUSTODY RECORD

9/17/2013 4:27:15 PM

Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.06.AD.01.04.13
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-015
Project FARO MINE SEEP SAMPLING 2013
Turnaround Time 10 Days
Shipping Date: 9/17/2013
COC Number: ALS09171301

				Container:	125mL Poly	40ml vial	125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	125ml Poly	250ml glass		
				Preservatives:	NaOH, 4'C	HCl, 4'C	HCl, 4'C	4C	4C	4'C	4'C	4'C	4'C	H2SO4, pH<2, 4'C	HNO3, 4'C	H2SO4, pH<2, 4C		
				Filtered:	NA	Field	Field	NA	NA	NA	NA	NA	NA	Field	Field	NA		
				Holding Time:	14	14	180	14	14	7	7	3	3	28	180/28	28		
	DATE	TIME	Matrix		Free Cyanide	(E245.7-Diss) Field Filtered Dissolved Hg	(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity - Run Hot H2O2 if Fe >15ppm	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM4110B) CL F NO2 NO3 and SO4	(SM4500P) ortho-Phosphate	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia		
SRK-GD12_SEFL13	9/16/2012	12:00	Water		X	X	X	X	X	X	X	X	X	X	X	X		
GP03_SEFL13	9/15/2013	11:40	Water			X	X	X	X	X	X	X	X	X	X	X		
GP17_SEFL13	9/15/2013	13:30	Water			X	X	X	X	X	X	X	X	X	X	X		
GP903_SEFL13	9/15/2013	11:40	Water			X	X	X	X	X	X	X	X	X	X	X		
VP03_SEFL13	9/15/2013	16:02	Water			X	X	X		X	X	X	X	X	X	X		
SRK-GD06_SEFL13	9/16/2013	13:00	Water		X	X	X	X	X	X	X	X	X	X	X	X		
SRK-GD906_SEFL13	9/16/2013	13:00	Water		X	X	X	X	X	X	X	X	X	X	X	X		
SRK-VD03_SEFL13	9/16/2013	15:40	Water		X	X	X	X	X	X	X	X	X	X	X	X		9
SRK-VD04_SEFL13	9/16/2013	11:50	Water		X	X	X	X		X	X	X	X	X	X	X		9
SRK-VD05_SEFL13	9/16/2013	13:15	Water		X	X	X	X		X	X	X	X	X	X	X		9
SRK-VD09_SEFL13	9/16/2013	11:15	Water			X	X	X		X	X	X	X	X	X	X		8
SRK-VD10_SEFL13	9/16/2013	14:43	Water		X	X	X	X	X	X	X	X	X	X	X	X		9
SRK-VD905_SEFL13	9/16/2013	11:15	Water		X	X	X	X		X	X	X	X	X	X	X		9
																	TOTAL NUMBER OF CONTAINERS	112

Nu



L1364538-COFC

IMENTS

Signatures	Date/Time
Approved by	
Sampled by	9/17/13 1330PM
Relinquished by	9/17/13
Received by	18-Sep-13 10:10
Relinquished by	0.4, 0.1, 0.9
Received by	

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

ATTN:
Sample Custody
and
Amber Springer

Special Instructions:
PO: 604564 on Invoice Perform Lab Dup/MS on these samples

Report Copy to
Bernice Kidd
(530) 229-3203

CH2M HILL, INC
ATTN: Bernice Kidd
2525 Airpark Drive
Redding CA 96001

Date Received: 18-SEP-13
Report Date: 01-OCT-13 17:08 (MT)
Version: FINAL

Client Phone: 530-229-3203

Certificate of Analysis

Lab Work Order #: L1364565

Project P.O. #: 472645.06.AD.01.04.13 "PO=604564"
Job Reference: WASTE ROCK DUMP MW 2013 SW-014B
C of C Numbers: ALS09171302
Legal Site Desc:

Amber Springer
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1364565-1				
	Description	Water				
	Sampled Date	16-SEP-13				
	Sampled Time	16:30				
	Client ID	CH12-014-MW012_GW0913				
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	1180				
	pH (pH)	7.82				
	Total Suspended Solids (mg/L)	2040				
	Total Dissolved Solids (mg/L)	1290				
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	15.0				
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	373				
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0				
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0				
	Alkalinity, Total (as CaCO3) (mg/L)	373				
	Ammonia, Total (as N) (mg/L)	0.0667				
	Chloride (Cl) (mg/L)	<5.0 DLA				
	Fluoride (F) (mg/L)	0.24				
	Nitrate (as N) (mg/L)	<0.050 DLA				
	Nitrite (as N) (mg/L)	<0.010 DLA				
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010				
	Sulfate (SO4) (mg/L)	817				
Cyanides	Cyanide, Free (mg/L)	<0.0050				
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	2.07				
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD				
	Dissolved Metals Filtration Location	FIELD				
	Aluminum (Al)-Dissolved (mg/L)	0.919				
	Antimony (Sb)-Dissolved (mg/L)	<0.00010				
	Arsenic (As)-Dissolved (mg/L)	0.0154				
	Barium (Ba)-Dissolved (mg/L)	0.0590				
	Beryllium (Be)-Dissolved (mg/L)	<0.00010				
	Boron (B)-Dissolved (mg/L)	<0.010				
	Cadmium (Cd)-Dissolved (mg/L)	0.000054				
	Calcium (Ca)-Dissolved (mg/L)	284				
	Chromium (Cr)-Dissolved (mg/L)	0.00277				
	Cobalt (Co)-Dissolved (mg/L)	0.00221				
	Copper (Cu)-Dissolved (mg/L)	0.00262				
	Iron (Fe)-Dissolved (mg/L)	7.67				
	Ferrous Iron, Dissolved (mg/L)	7.2				
	Lead (Pb)-Dissolved (mg/L)	0.00746				
	Lithium (Li)-Dissolved (mg/L)	0.0165				
	Magnesium (Mg)-Dissolved (mg/L)	115				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1364565-1				
	Description	Water				
	Sampled Date	16-SEP-13				
	Sampled Time	16:30				
	Client ID	CH12-014-MW012_GW0913				
Grouping	**Analyte**					
WATER						
Dissolved Metals	Manganese (Mn)-Dissolved (mg/L)	0.472				
	Mercury (Hg)-Dissolved (mg/L)	<0.000010				
	Molybdenum (Mo)-Dissolved (mg/L)	0.00149				
	Nickel (Ni)-Dissolved (mg/L)	0.00522				
	Phosphorus (P)-Dissolved (mg/L)	<0.30				
	Potassium (K)-Dissolved (mg/L)	3.27				
	Selenium (Se)-Dissolved (mg/L)	<0.00010				
	Silicon (Si)-Dissolved (mg/L)	8.26				
	Silicon (as SiO2)-Dissolved (mg/L)	17.7				
	Silver (Ag)-Dissolved (mg/L)	0.000021				
	Sodium (Na)-Dissolved (mg/L)	7.54				
	Strontium (Sr)-Dissolved (mg/L)	1.69				
	Sulfur (S)-Dissolved (mg/L)	262				
	Thallium (Tl)-Dissolved (mg/L)	0.000033				
	Titanium (Ti)-Dissolved (mg/L)	0.036				
	Uranium (U)-Dissolved (mg/L)	0.0231				
	Vanadium (V)-Dissolved (mg/L)	0.0021				
	Zinc (Zn)-Dissolved (mg/L)	0.0233				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Sulfate (SO4)	MS-B	L1364565-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-CL-IC-WR	Water	Chloride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-F-IC-WR	Water	Fluoride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-NO2-IC-WR	Water	Nitrite Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-NO3-IC-WR	Water	Nitrate Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-SO4-IC-WR	Water	Sulphate by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CN-FREE-CFA-VA	Water	Free Cyanide in water by CFA	ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

FE2-D-COL-VA	Water	Diss. Ferrous Iron in Water by Colour	James W. Ball et al (1999)

This analysis is carried out using procedures adapted from "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedures involves preliminary sample filtration (0.1um filter) and Ferrous Iron is determined using the "FerroZine" colorimteric method.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA	Water	Dissolved Mercury in Water by CVAFS(Low)	EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and

Reference Information

involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

MET-D-CCMS-VA Water Dissolved Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

S-DIS-ICP-VA Water Dissolved Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

SIO2-D-CALC-VA Water Dissolved Silicon (reported as Silica) CALCULATION

Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-LOW-VA Water Total Suspended Solids by Grav. (1 mg/L) APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

ALS09171302

Reference Information

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Client: CH2M HILL, INC
2525 Airpark Drive
Redding CA 96001
Contact: Bernice Kidd

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-PCT-VA	**Water**							
Batch R2701337								
WG1754375-2 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			101.7		%		85-115	25-SEP-13
WG1754375-5 DUP		**L1364565-1**						
Acidity (as CaCO3)		15.0	14.1		mg/L	6.3	20	25-SEP-13
ALK-SCR-VA	**Water**							
Batch R2697604								
WG1751420-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			97.0		%		85-115	20-SEP-13
WG1751420-5 CRM		**VA-ALKM-CONTROL**						
Alkalinity, Total (as CaCO3)			94.0		%		85-115	20-SEP-13
WG1751420-3 DUP		**L1364565-1**						
Alkalinity, Total (as CaCO3)		373	371		mg/L	0.6	20	20-SEP-13
WG1751420-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	20-SEP-13
WG1751420-4 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	20-SEP-13
WG1751420-6 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	20-SEP-13
ANIONS-CL-IC-WR	**Water**							
Batch R2699733								
WG1750497-2 LCS								
Chloride (Cl)			102.0		%		85-115	18-SEP-13
WG1750497-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	18-SEP-13
WG1750497-4 MS		**L1364538-2**						
Chloride (Cl)			100.8		%		75-125	18-SEP-13
ANIONS-F-IC-WR	**Water**							
Batch R2699733								
WG1750497-2 LCS								
Fluoride (F)			103.0		%		85-115	18-SEP-13
WG1750497-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	18-SEP-13
WG1750497-4 MS		**L1364538-2**						
Fluoride (F)			101.9		%		75-125	18-SEP-13
ANIONS-NO2-IC-WR	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO2-IC-WR	**Water**							
Batch R2699733								
WG1750497-2 LCS								
Nitrite (as N)			102.4		%		85-115	18-SEP-13
WG1750497-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	18-SEP-13
WG1750497-4 MS		**L1364538-2**						
Nitrite (as N)			103.6		%		75-125	18-SEP-13
ANIONS-NO3-IC-WR	**Water**							
Batch R2699733								
WG1750497-2 LCS								
Nitrate (as N)			102.5		%		85-115	18-SEP-13
WG1750497-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	18-SEP-13
WG1750497-4 MS		**L1364538-2**						
Nitrate (as N)			101.1		%		75-125	18-SEP-13
ANIONS-SO4-IC-WR	**Water**							
Batch R2699733								
WG1750497-2 LCS								
Sulfate (SO4)			100.2		%		85-115	18-SEP-13
WG1750497-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	18-SEP-13
WG1750497-4 MS		**L1364538-2**						
Sulfate (SO4)			N/A	MS-B	%		-	18-SEP-13
CARBONS-DOC-VA	**Water**							
Batch R2698714								
WG1752494-4 LCS								
Dissolved Organic Carbon			99.0		%		80-120	22-SEP-13
WG1752494-3 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	22-SEP-13
WG1752494-2 MS		**L1364565-1**						
Dissolved Organic Carbon			100.3		%		70-130	22-SEP-13
CN-FREE-CFA-VA	**Water**							
Batch R2701338								
WG1754846-3 DUP		**L1364565-1**						
Cyanide, Free		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	25-SEP-13
WG1754846-2 LCS								
Cyanide, Free			101.4		%		80-120	25-SEP-13
WG1754846-1 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CN-FREE-CFA-VA	**Water**							
Batch R2701338								
WG1754846-1 MB								
Cyanide, Free			<0.0050		mg/L		0.005	25-SEP-13
WG1754846-4 MS		**L1364565-1**						
Cyanide, Free			102.3		%		70-130	25-SEP-13
FE2-D-COL-VA	**Water**							
Batch R2700181								
WG1752303-10 LCS								
Ferrous Iron, Dissolved			100.9		%		80-120	21-SEP-13
WG1752303-2 LCS								
Ferrous Iron, Dissolved			101.5		%		80-120	21-SEP-13
WG1752303-6 LCS								
Ferrous Iron, Dissolved			102.2		%		80-120	21-SEP-13
WG1752303-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	21-SEP-13
WG1752303-5 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	21-SEP-13
WG1752303-9 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	21-SEP-13
WG1752303-12 MS		**L1365908-6**						
Ferrous Iron, Dissolved			99.6		%		70-130	21-SEP-13
WG1752303-4 MS		**L1364173-2**						
Ferrous Iron, Dissolved			100.8		%		70-130	21-SEP-13
WG1752303-8 MS		**L1364538-7**						
Ferrous Iron, Dissolved			109.5		%		70-130	21-SEP-13
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2699917								
WG1753163-3 DUP		**L1364565-1**						
Mercury (Hg)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	24-SEP-13
WG1753163-2 LCS								
Mercury (Hg)-Dissolved			96.7		%		80-120	24-SEP-13
Batch R2700321								
WG1753163-1 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	24-SEP-13
MET-D-CCMS-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2705571								
WG1751071-2 CRM		**VA-HIGH-WATRM**						
Aluminum (Al)-Dissolved			99.3		%		80-120	19-SEP-13
Antimony (Sb)-Dissolved			98.4		%		80-120	19-SEP-13
Arsenic (As)-Dissolved			97.6		%		80-120	19-SEP-13
Barium (Ba)-Dissolved			97.4		%		80-120	19-SEP-13
Beryllium (Be)-Dissolved			97.8		%		80-120	19-SEP-13
Boron (B)-Dissolved			91.1		%		80-120	19-SEP-13
Cadmium (Cd)-Dissolved			96.6		%		80-120	19-SEP-13
Chromium (Cr)-Dissolved			97.9		%		80-120	19-SEP-13
Cobalt (Co)-Dissolved			95.3		%		80-120	19-SEP-13
Copper (Cu)-Dissolved			94.7		%		80-120	19-SEP-13
Lead (Pb)-Dissolved			98.5		%		80-120	19-SEP-13
Lithium (Li)-Dissolved			97.9		%		80-120	19-SEP-13
Manganese (Mn)-Dissolved			96.7		%		80-120	19-SEP-13
Molybdenum (Mo)-Dissolved			99.0		%		80-120	19-SEP-13
Nickel (Ni)-Dissolved			96.3		%		80-120	19-SEP-13
Potassium (K)-Dissolved			99.2		%		80-120	19-SEP-13
Selenium (Se)-Dissolved			99.7		%		80-120	19-SEP-13
Silver (Ag)-Dissolved			98.4		%		80-120	19-SEP-13
Sodium (Na)-Dissolved			100.5		%		80-120	19-SEP-13
Strontium (Sr)-Dissolved			97.1		%		80-120	19-SEP-13
Thallium (Tl)-Dissolved			102.6		%		80-120	19-SEP-13
Titanium (Ti)-Dissolved			103.9		%		80-120	19-SEP-13
Uranium (U)-Dissolved			101.7		%		80-120	19-SEP-13
Vanadium (V)-Dissolved			98.3		%		80-120	19-SEP-13
Zinc (Zn)-Dissolved			94.8		%		80-120	19-SEP-13
WG1751071-4 DUP		**L1364565-1**						
Aluminum (Al)-Dissolved		0.919	1.05		mg/L	13	20	30-SEP-13
Antimony (Sb)-Dissolved		<0.00010	0.00010	RPD-NA	mg/L	N/A	20	30-SEP-13
Arsenic (As)-Dissolved		0.0154	0.0157		mg/L	2.0	20	30-SEP-13
Barium (Ba)-Dissolved		0.0590	0.0594		mg/L	0.6	20	30-SEP-13
Beryllium (Be)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	30-SEP-13
Boron (B)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	30-SEP-13
Cadmium (Cd)-Dissolved		0.000054	0.000053		mg/L	2.6	20	30-SEP-13
Chromium (Cr)-Dissolved		0.00277	0.00314		mg/L	12	20	30-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2705571								
WG1751071-4 DUP		**L1364565-1**						
Cobalt (Co)-Dissolved		0.00221	0.00231		mg/L	4.6	20	30-SEP-13
Copper (Cu)-Dissolved		0.00262	0.00271		mg/L	3.5	20	30-SEP-13
Lead (Pb)-Dissolved		0.00746	0.00730		mg/L	2.1	20	30-SEP-13
Lithium (Li)-Dissolved		0.0165	0.0165		mg/L	0.3	20	30-SEP-13
Manganese (Mn)-Dissolved		0.472	0.473		mg/L	0.3	20	30-SEP-13
Molybdenum (Mo)-Dissolved		0.00149	0.00150		mg/L	0.6	20	30-SEP-13
Nickel (Ni)-Dissolved		0.00522	0.00528		mg/L	1.2	20	30-SEP-13
Potassium (K)-Dissolved		3.27	3.34		mg/L	2.3	20	30-SEP-13
Selenium (Se)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	30-SEP-13
Silver (Ag)-Dissolved		0.000021	0.000019		mg/L	8.4	20	30-SEP-13
Sodium (Na)-Dissolved		7.54	7.42		mg/L	1.7	20	30-SEP-13
Strontium (Sr)-Dissolved		1.69	1.71		mg/L	1.1	20	30-SEP-13
Thallium (Tl)-Dissolved		0.000033	0.000031		mg/L	6.0	20	30-SEP-13
Titanium (Ti)-Dissolved		0.036	0.024	J	mg/L	0.011	0.02	30-SEP-13
Uranium (U)-Dissolved		0.0231	0.0233		mg/L	0.8	20	30-SEP-13
Vanadium (V)-Dissolved		0.0021	0.0023		mg/L	7.1	20	30-SEP-13
Zinc (Zn)-Dissolved		0.0233	0.0228		mg/L	2.5	20	30-SEP-13
WG1751071-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	01-OCT-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	01-OCT-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	01-OCT-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	01-OCT-13
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	01-OCT-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	01-OCT-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	01-OCT-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	19-SEP-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	01-OCT-13
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	01-OCT-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	01-OCT-13
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	01-OCT-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	01-OCT-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	01-OCT-13
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	01-OCT-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	01-OCT-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2705571								
WG1751071-1 MB								
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	01-OCT-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	19-SEP-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	01-OCT-13
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	01-OCT-13
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	01-OCT-13
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	01-OCT-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	01-OCT-13
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	01-OCT-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	01-OCT-13
MET-DIS-ICP-VA	**Water**							
Batch R2703907								
WG1751071-2 CRM		**VA-HIGH-WATRM**						
Calcium (Ca)-Dissolved			98.8		%		80-120	27-SEP-13
Iron (Fe)-Dissolved			97.9		%		80-120	27-SEP-13
Magnesium (Mg)-Dissolved			101.7		%		80-120	27-SEP-13
Phosphorus (P)-Dissolved			101.1		%		80-120	27-SEP-13
Silicon (Si)-Dissolved			110.1		%		80-120	27-SEP-13
WG1751071-4 DUP		**L1364565-1**						
Calcium (Ca)-Dissolved		284	281		mg/L	1.0	20	27-SEP-13
Iron (Fe)-Dissolved		7.67	7.52		mg/L	1.9	20	27-SEP-13
Magnesium (Mg)-Dissolved		115	113		mg/L	1.8	20	27-SEP-13
Phosphorus (P)-Dissolved		<0.30	<0.30	RPD-NA	mg/L	N/A	20	27-SEP-13
Silicon (Si)-Dissolved		8.26	8.10		mg/L	2.0	20	27-SEP-13
WG1751071-1 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	27-SEP-13
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	27-SEP-13
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	27-SEP-13
Phosphorus (P)-Dissolved			<0.30		mg/L		0.3	27-SEP-13
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	27-SEP-13
NH3-F-VA	**Water**							
Batch R2702479								
WG1755862-17 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			96.0		%		85-115	27-SEP-13
WG1755862-16 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	27-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-F-VA	**Water**							
Batch R2702479								
WG1755862-19 MS		**L1364538-2**						
Ammonia, Total (as N)			91.9		%		75-125	27-SEP-13
PH-PCT-VA	**Water**							
Batch R2701337								
WG1754375-4 CRM		**VA-PH7-BUF**						
pH			7.02		pH		6.9-7.1	25-SEP-13
WG1754375-5 DUP		**L1364565-1**						
pH		7.82	7.89	J	pH	0.07	0.3	25-SEP-13
PO4-DO-COL-VA	**Water**							
Batch R2697899								
WG1751040-2 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			94.7		%		80-120	19-SEP-13
WG1751040-8 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			94.8		%		80-120	19-SEP-13
WG1751040-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	19-SEP-13
WG1751040-7 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	19-SEP-13
WG1751040-4 MS		**L1364538-2**						
Orthophosphate-Dissolved (as P)			105.1		%		70-130	19-SEP-13
WG1751040-6 MS		**L1364565-1**						
Orthophosphate-Dissolved (as P)			98.9		%		70-130	19-SEP-13
S-DIS-ICP-VA	**Water**							
Batch R2703907								
WG1751071-2 CRM		**VA-HIGH-WATRM**						
Sulfur (S)-Dissolved			100.9		%		80-120	27-SEP-13
WG1751071-4 DUP		**L1364565-1**						
Sulfur (S)-Dissolved		262	260		mg/L	0.7	20	27-SEP-13
WG1751071-1 MB								
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	27-SEP-13
TDS-VA	**Water**							
Batch R2698751								
WG1751375-2 LCS								
Total Dissolved Solids			102.2		%		85-115	20-SEP-13
WG1751375-1 MB								
Total Dissolved Solids			<10		mg/L		10	20-SEP-13
	Water							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TSS-LOW-VA	**Water**							
Batch R2698629								
WG1751475-3 DUP		**L1364565-1**						
Total Suspended Solids		2040	2050		mg/L	0.4	20	20-SEP-13
WG1751475-2 LCS								
Total Suspended Solids			92.4		%		85-115	20-SEP-13
WG1751475-1 MB								
Total Suspended Solids			<1.0		mg/L		1	20-SEP-13

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	1	16-SEP-13 16:30	25-SEP-13 23:00	0.25	222	hours	EHTR-FM

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1364565 were received on 18-SEP-13 10:10.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CH2MHILL

CHAIN OF CUSTODY RECORD

9/17/2013 4:05:01 PM

Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.06.AD.01.04.13
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-014
Project WASTE ROCK DUMP MW 2013 SW-014B
Turnaround Time 3 Days
Shipping Date: 9/17/2013
COC Number: ALS09171302

	Container:	125mL Poly	40ml vial	125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	125ml Poly	250ml glass			
	Preservatives:	NaOH, 4'C	HCl, 4'C	HCl, 4'C	4C	4C	4'C	4'C	4'C	4'C	H2SO4, pH<2, 4'C	HNO3, 4'C	H2SO4, pH<2, 4C			
	Filtered:	NA	Field	Field	NA	NA	NA	NA	NA	NA	Field	Field	NA			
	Holding Time:	14	14	180	14	14	7	7	3	3	28	180/28	28			
		Free Cyanide	(E245.7-Diss) Field Filtered Dissolved Hg	(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity - Run Hot H2O2 if Fe >15ppm	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM4110B) CL F NO2 NO3 and SO4	(SM4500P) ortho-Phosphate	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia		Number of Containers	COMMENTS
DATE / TIME / Matrix																
CH12-014-MW012_GW0913	9/16/2013 16:30 Water	X	X	X	X	X	X	X	X	X	X	X	X		9	
														TOTAL NUMBER OF CONTAINERS	9	



L1364565-COFC

	Signatures	Date/Time
Approved by		
Sampled by		09/17/13 @ 13:30PM
Relinquished by		
Received by		
Relinquished by		18-Sep-13 1040
Received by		0.4

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

ATTN:
Sample Custody
and
Amber Springer

Special Instructions:
Perform Lab Dup/MS on these samples

Report Copy to
Bernice Kidd
(530) 229-3203

CH2M HILL, INC
ATTN: Bernice Kidd
2525 Airpark Drive
Redding CA 96001

Date Received: 20-SEP-13
Report Date: 11-OCT-13 13:03 (MT)
Version: FINAL REV. 2

Client Phone: 530-229-3203

Certificate of Analysis

Lab Work Order #: L1365908

Project P.O. #: 472645.06.AD.01.04.13 "PO:604564"
Job Reference: FARO MINE SEEP SAMPLING 2013 SW-015
C of C Numbers: ALS09191301
Legal Site Desc:

Comments:

11-OCT-13: Alkalinity data and associated QC has been added for L1365908-5.

Amber Springer
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1365908-1 Water 16-SEP-13 08:45 E_015_13_007	L1365908-2 Water 17-SEP-13 11:45 CH-FD72_SEFL13	L1365908-3 Water 17-SEP-13 15:45 CH-FP41_SEFL13	L1365908-4 Water 17-SEP-13 10:00 CH-VP-17_SEFL13	L1365908-5 Water 17-SEP-13 11:00 CH-VP-20_SEFL13
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	<0.50	10100	891	1690	1250
	pH (pH)			5.88		3.88
	Total Suspended Solids (mg/L)		34.9	72.3	97.6	63.4
	Total Dissolved Solids (mg/L)		18600	1490	8960	7060
Anions and Nutrients	Acidity (as CaCO3) (mg/L)			85.4		
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)		2040		3980	3260
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)			7.8		<1.0
	Alkalinity, Carbonate (as CaCO3) (mg/L)			<2.0		<1.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)			<2.0		<1.0
	Alkalinity, Total (as CaCO3) (mg/L)			7.8		<1.0
	Ammonia, Total (as N) (mg/L)		1.31 DLA	0.0388 DLA	0.271 DLA	0.161 DLA
	Chloride (Cl) (mg/L)		<25	<5.0	<10	<10
	Fluoride (F) (mg/L)		5.9 DLA	0.32	2.49 DLA	1.29 DLA
	Nitrate (as N) (mg/L)		<0.25 DLA	0.087 DLA	<0.10 DLA	<0.10 DLA
	Nitrite (as N) (mg/L)		<0.050	<0.010	<0.020	<0.020
	Orthophosphate-Dissolved (as P) (mg/L)		<0.0010	<0.0010	0.0652	<0.0010
	Sulfate (SO4) (mg/L)		12000 DLM	981	5340	3880
Cyanides	Cyanide, Total (mg/L)		<0.050			
	Cyanide, Free (mg/L)					
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	<0.50	9.56	0.90	1.70	1.42
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0089	21.2 DLA	0.0435 DLA	18.2 DLA	3.89 DLA
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.010	<0.00050 DLA	<0.010	<0.0050
	Arsenic (As)-Dissolved (mg/L)	<0.00010	0.029	<0.00050	1.14	0.0489
	Barium (Ba)-Dissolved (mg/L)	0.000471	0.0328	0.00914 DLA	0.0079 DLA	0.0040 DLA
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	0.012 DLA	<0.00050 DLA	<0.010 DLA	<0.0050 DLA
	Boron (B)-Dissolved (mg/L)	<0.010	<1.0	<0.050	<1.0	<0.50
	Cadmium (Cd)-Dissolved (mg/L)	0.000016	0.399	0.0449	0.756	0.451
	Calcium (Ca)-Dissolved (mg/L)	<0.050	464 DLA	154 DLA	250 DLA	217 DLA
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.010	<0.00050	<0.010	<0.0050
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	3.28	0.153	2.90	2.01
	Copper (Cu)-Dissolved (mg/L)	<0.00020	0.173	0.135	4.91	0.372
	Iron (Fe)-Dissolved (mg/L)	<0.030	126	6.28	1280	1170
	Ferrous Iron, Dissolved (mg/L)	<0.020	146	7.8	479	599
	Lead (Pb)-Dissolved (mg/L)	0.000496	0.0471	0.0507	1.26	1.19

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1365908-6	L1365908-7	L1365908-8	L1365908-9	L1365908-10
Sample ID		L1365908-6	L1365908-7	L1365908-8	L1365908-9	L1365908-10
Description		Water	Water	Water	Water	Water
Sampled Date		17-SEP-13	17-SEP-13	17-SEP-13	17-SEP-13	17-SEP-13
Sampled Time		08:45	15:20	12:45	13:40	10:10
Client ID		E_015_13_008	SRK-FD24_SEFL13	SRK-FD30_SEFL13	SRK-FD51_SEFL13	SRK-FD54_SEFL13
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	<0.50	918	1030	299	11000
	pH (pH)			6.74		6.79
	Total Suspended Solids (mg/L)		24.1	20.2	9.9	387
	Total Dissolved Solids (mg/L)		1580	1380	484	21200
Anions and Nutrients	Acidity (as CaCO3) (mg/L)		148	88.0	9.7	1830
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)					
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)			35.6		164
	Alkalinity, Carbonate (as CaCO3) (mg/L)			<2.0		<2.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)			<2.0		<2.0
	Alkalinity, Total (as CaCO3) (mg/L)			35.6		164
	Ammonia, Total (as N) (mg/L)		0.0435	0.0168	<0.0050	1.56
	Chloride (Cl) (mg/L)		<5.0 DLA	<5.0 DLA	0.73	<25 DLA
	Fluoride (F) (mg/L)		0.37	1.34	0.287	1.6
	Nitrate (as N) (mg/L)		0.072	<0.050 DLA	0.161	0.64
	Nitrite (as N) (mg/L)		<0.010 DLA	<0.010 DLA	<0.0010	<0.050 DLA
	Orthophosphate-Dissolved (as P) (mg/L)		<0.0010	<0.0010	<0.0010	0.0021
	Sulfate (SO4) (mg/L)		1060	1190	274	13400
Cyanides	Cyanide, Total (mg/L)					
	Cyanide, Free (mg/L)			<0.0050		<0.050 DLM
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	<0.50	1.16	2.24	1.27	15.6
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	<0.0010	3.69	0.525	0.0514	0.30
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00050 DLA	<0.00050 DLA	<0.00010	<0.020 DLA
	Arsenic (As)-Dissolved (mg/L)	<0.00010	0.00085	0.00132	0.00018	<0.020 DLA
	Barium (Ba)-Dissolved (mg/L)	<0.000050	0.00824	0.0182	0.0190	0.025
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	0.00178	0.00062	<0.00010	<0.020 DLA
	Boron (B)-Dissolved (mg/L)	<0.010	<0.050 DLA	<0.050 DLA	<0.010	<2.0 DLA
	Cadmium (Cd)-Dissolved (mg/L)	<0.000010	0.0512	0.00870	0.00718	0.815
	Calcium (Ca)-Dissolved (mg/L)	<0.050	156	131	72.4	503
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	0.00080	0.00104	<0.00010	<0.020 DLA
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	0.180	0.150	0.00644	3.53
	Copper (Cu)-Dissolved (mg/L)	<0.00020	0.401	0.0080	0.0705	<0.040 DLA
	Iron (Fe)-Dissolved (mg/L)	<0.030	10.8	6.48	0.075	<0.15 DLA
	Ferrous Iron, Dissolved (mg/L)	<0.020	13.3	0.371	0.069	<0.20 DLM
	Lead (Pb)-Dissolved (mg/L)	<0.000050	0.724	0.00811	0.0416	<0.010 DLA

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1365908-11 Water 17-SEP-13 11:10 SRK-FD56_SEFL13	L1365908-12 Water 17-SEP-13 15:00 SRK-FD68_SEFL13	L1365908-13 Water 19-SEP-13 12:00 CH-FP-35_SEFL13	L1365908-14 Water 19-SEP-13 11:00 SRK-FD19_SEFL13
WATER					
Physical Tests	Hardness (as CaCO3) (mg/L)	9380	3270	777	5670
	pH (pH)		4.60	4.85	6.81
	Total Suspended Solids (mg/L)	34.1	493	14.4	139
	Total Dissolved Solids (mg/L)	17800	5260	1580	9490
Anions and Nutrients	Acidity (as CaCO3) (mg/L)		214	240	456
	Acidity-Hot Peroxide Treated (as CaCO3) (mg/L)	2350			
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)		11.3	5.9	151
	Alkalinity, Carbonate (as CaCO3) (mg/L)		<2.0	<2.0	<2.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)		<2.0	<2.0	<2.0
	Alkalinity, Total (as CaCO3) (mg/L)		11.3	5.9	151
	Ammonia, Total (as N) (mg/L)	1.23	<0.0050	<0.0050	0.141
	Chloride (Cl) (mg/L)	DLA <25	DLA <10	DLA <5.0	DLA <25
	Fluoride (F) (mg/L)	4.8	2.05	1.63	1.0
	Nitrate (as N) (mg/L)	0.57	0.68	0.407	1.62
	Nitrite (as N) (mg/L)	DLA <0.050	DLA <0.020	DLA <0.010	DLA <0.050
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Sulfate (SO4) (mg/L)	11500	3370	993	6300
Cyanides	Cyanide, Total (mg/L)				
	Cyanide, Free (mg/L)				
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	5.57	1.37	0.71	6.28
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	6.10	18.0	7.76	1.96
	Antimony (Sb)-Dissolved (mg/L)	DLA <0.010	DLA <0.00050	DLA <0.0020	DLA <0.0050
	Arsenic (As)-Dissolved (mg/L)	DLA <0.010	0.00291	DLA <0.0020	DLA <0.0050
	Barium (Ba)-Dissolved (mg/L)	0.0213	0.0123	0.0130	0.0427
	Beryllium (Be)-Dissolved (mg/L)	DLA <0.010	0.00636	0.0078	DLA <0.0050
	Boron (B)-Dissolved (mg/L)	DLA <1.0	DLA <0.050	DLA <0.20	DLA <0.50
	Cadmium (Cd)-Dissolved (mg/L)	0.485	0.121	0.164	0.217
	Calcium (Ca)-Dissolved (mg/L)	463	376	139	563
	Chromium (Cr)-Dissolved (mg/L)	DLA <0.010	0.00052	DLA <0.0020	DLA <0.0050
	Cobalt (Co)-Dissolved (mg/L)	2.61	0.191	0.198	0.877
	Copper (Cu)-Dissolved (mg/L)	0.109	1.50	1.12	1.00
	Iron (Fe)-Dissolved (mg/L)	294	0.099	<0.030	1.69
	Ferrous Iron, Dissolved (mg/L)	290	0.158	0.022	1.10
	Lead (Pb)-Dissolved (mg/L)	0.237	0.150	0.0249	0.0026

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1365908-1 Water 16-SEP-13 08:45 E_015_13_007	L1365908-2 Water 17-SEP-13 11:45 CH-FD72_SEFL13	L1365908-3 Water 17-SEP-13 15:45 CH-FP41_SEFL13	L1365908-4 Water 17-SEP-13 10:00 CH-VP-17_SEFL13	L1365908-5 Water 17-SEP-13 11:00 CH-VP-20_SEFL13
WATER						
Dissolved Metals	Lithium (Li)-Dissolved (mg/L)	<0.00050	0.383	0.0574	0.098	0.063
	Magnesium (Mg)-Dissolved (mg/L)	<0.10	2170	123	259	172
	Manganese (Mn)-Dissolved (mg/L)	0.00838	163	6.33	185	141
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000050 DLM
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	<0.0050 DLA	<0.00025 DLA	<0.0050 DLA	<0.0025 DLA
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	4.54	0.188	1.56	0.900
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<1.5 DLA	<0.30	<0.60 DLA	<0.60 DLA
	Potassium (K)-Dissolved (mg/L)	<0.050	16.1	4.43	<5.0 DLA	<2.5 DLA
	Selenium (Se)-Dissolved (mg/L)	<0.00010	<0.010 DLA	<0.00050 DLA	<0.010 DLA	<0.0050 DLA
	Silicon (Si)-Dissolved (mg/L)	<0.050	11.7	6.07	12.9	9.72
	Silicon (as SiO2)-Dissolved (mg/L)	<0.20	24.9	13.0	27.5	20.8
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.0010 DLA	<0.000050 DLA	<0.0010 DLA	<0.00050 DLA
	Sodium (Na)-Dissolved (mg/L)	<0.050	73.7	4.87	<5.0 DLA	<2.5 DLA
	Strontium (Sr)-Dissolved (mg/L)	<0.00020	2.23	0.475	0.810	0.620
	Sulfur (S)-Dissolved (mg/L)	<0.50	4080	330	1800	1340
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	0.0043	0.00161	0.0041	0.00486
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<1.0 DLA	<0.050 DLA	<1.0 DLA	<0.50 DLA
	Uranium (U)-Dissolved (mg/L)	<0.000010	0.0047	0.000371	0.0261	0.00765
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.10 DLA	<0.0050 DLA	<0.10 DLA	<0.050 DLA
	Zinc (Zn)-Dissolved (mg/L)	0.0325	901	34.8	630	333

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1365908-6 Water 17-SEP-13 08:45 E_015_13_008	L1365908-7 Water 17-SEP-13 15:20 SRK-FD24_SEFL13	L1365908-8 Water 17-SEP-13 12:45 SRK-FD30_SEFL13	L1365908-9 Water 17-SEP-13 13:40 SRK-FD51_SEFL13	L1365908-10 Water 17-SEP-13 10:10 SRK-FD54_SEFL13
WATER						
Dissolved Metals	Lithium (Li)-Dissolved (mg/L)	<0.00050	0.0567	0.105	0.0271	0.22
	Magnesium (Mg)-Dissolved (mg/L)	<0.10	128	171	28.8	2370
	Manganese (Mn)-Dissolved (mg/L)	<0.000050	7.29	8.83	0.0305	322
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	<0.00025 DLA	<0.00025 DLA	<0.000050	<0.010 DLA
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	0.208	0.381	0.0119	8.00
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<1.5 DLA
	Potassium (K)-Dissolved (mg/L)	<0.050	4.39	6.77	2.55	16
	Selenium (Se)-Dissolved (mg/L)	<0.00010	<0.00050 DLA	<0.00050 DLA	0.00025	<0.020 DLA
	Silicon (Si)-Dissolved (mg/L)	<0.050	6.94	2.78	5.98	18.7
	Silicon (as SiO2)-Dissolved (mg/L)	<0.20	14.8	5.94	12.8	40.0
	Silver (Ag)-Dissolved (mg/L)	<0.000010	0.000073	<0.000050 DLA	0.000059	<0.0020 DLA
	Sodium (Na)-Dissolved (mg/L)	<0.050	4.66	9.25	3.39	34
	Strontium (Sr)-Dissolved (mg/L)	<0.00020	0.455	0.847	0.259	2.34
	Sulfur (S)-Dissolved (mg/L)	<0.50	342	356	91.1	4470
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	0.00176	0.000386	0.000366	<0.0020 DLA
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.050 DLA	<0.050 DLA	<0.010	<2.0 DLA
	Uranium (U)-Dissolved (mg/L)	<0.000010	0.00312	0.000394	0.000138	<0.0020 DLA
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0050 DLA	<0.0050 DLA	<0.0010	<0.20 DLA
	Zinc (Zn)-Dissolved (mg/L)	<0.0010	40.0	32.8	2.18	1280

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1365908-11	L1365908-12	L1365908-13	L1365908-14	
	Description	Water	Water	Water	Water	
	Sampled Date	17-SEP-13	17-SEP-13	19-SEP-13	19-SEP-13	
	Sampled Time	11:10	15:00	12:00	11:00	
	Client ID	SRK-FD56_SEFL13	SRK-FD68_SEFL13	CH-FP-35_SEFL13	SRK-FD19_SEFL13	
Grouping	**Analyte**					
WATER						
Dissolved Metals	Lithium (Li)-Dissolved (mg/L)	0.264	0.0759	0.043	0.069	
	Magnesium (Mg)-Dissolved (mg/L)	2000	565	104	1040	
	Manganese (Mn)-Dissolved (mg/L)	154	5.07	9.41	61.4	
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Molybdenum (Mo)-Dissolved (mg/L)	<0.0050 DLA	<0.00025 DLA	<0.0010 DLA	<0.0025 DLA	
	Nickel (Ni)-Dissolved (mg/L)	3.99	0.492	0.381	1.07	
	Phosphorus (P)-Dissolved (mg/L)	<1.5 DLA	<0.60	<0.30	<0.90	
	Potassium (K)-Dissolved (mg/L)	15.2	11.2	2.7	9.4	
	Selenium (Se)-Dissolved (mg/L)	<0.010 DLA	0.00227	<0.0020 DLA	<0.0050 DLA	
	Silicon (Si)-Dissolved (mg/L)	7.78	6.70	16.8	7.13	
	Silicon (as SiO2)-Dissolved (mg/L)	16.6	14.3	35.9	15.3	
	Silver (Ag)-Dissolved (mg/L)	<0.0010 DLA	0.000064	<0.00020 DLA	<0.00050 DLA	
	Sodium (Na)-Dissolved (mg/L)	81.3	10.2	6.0	20.0	
	Strontium (Sr)-Dissolved (mg/L)	1.79	1.53	0.416	3.14	
	Sulfur (S)-Dissolved (mg/L)	3900	1110	319 DLA	1990 DLA	
	Thallium (Tl)-Dissolved (mg/L)	0.0067	0.000147	<0.00020 DLA	<0.00050 DLA	
	Titanium (Ti)-Dissolved (mg/L)	<1.0 DLA	<0.050 DLA	<0.20 DLA	<0.50 DLA	
	Uranium (U)-Dissolved (mg/L)	0.0485	0.0288	0.00614	0.00968	
	Vanadium (V)-Dissolved (mg/L)	<0.10 DLA	<0.0050 DLA	<0.020 DLA	<0.050 DLA	
	Zinc (Zn)-Dissolved (mg/L)	952	45.4	97.1	257	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Sulfate (SO4)	MS-B	L1365908-10, -11, -12, -13, -14, -2, -3, -4, -5, -7, -8, -9
Matrix Spike	Dissolved Organic Carbon	MS-B	L1365908-10
Matrix Spike	Cadmium (Cd)-Dissolved	MS-B	L1365908-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Cobalt (Co)-Dissolved	MS-B	L1365908-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Lead (Pb)-Dissolved	MS-B	L1365908-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1365908-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Zinc (Zn)-Dissolved	MS-B	L1365908-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L1365908-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1365908-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Iron (Fe)-Dissolved	MS-B	L1365908-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
DLM	Detection Limit Adjusted due to sample matrix effects.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-H2O2-MAN-VA	Water	Acidity by Hot Peroxide Manual Titration	APHA - ACIDITY (2310)

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". The procedure involves preliminary sample treatment by the hot peroxide procedure, and Acidity is subsequently determined by potentiometric titration to a specified endpoint (i.e. pH = 8.3).

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 "Alkalinity"

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-CL-IC-WR	Water	Chloride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-F-IC-WR	Water	Fluoride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-NO2-IC-WR	Water	Nitrite Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision

Reference Information

1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-NO3-IC-WR Water Nitrate Nitrogen by Ion Chromatography EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-SO4-IC-WR Water Sulphate by Ion Chromatography EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

CARBONS-DOC-VA Water Dissolved organic carbon by combustion APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CN-FREE-CFA-VA Water Free Cyanide in water by CFA ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

CN-T-CFA-VA Water Total Cyanide in water by CFA ISO 14403:2002

This analysis is carried out using procedures adapted from ISO Method 14403:2002 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.

FE2-D-COL-VA Water Diss. Ferrous Iron in Water by Colour James W. Ball et al (1999)

This analysis is carried out using procedures adapted from "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedures involves preliminary sample filtration (0.1um filter) and Ferrous Iron is determined using the "FerroZine" colorimteric method.

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

MET-D-CCMS-VA Water Dissolved Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

Reference Information

PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

S-DIS-ICP-VA	Water	Dissolved Sulfur in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

SIO2-D-CALC-VA	Water	Dissolved Silicon (reported as Silica)	CALCULATION

Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).

TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-LOW-VA	Water	Total Suspended Solids by Grav. (1 mg/L)	APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

ALS09191301

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Client: CH2M HILL, INC
2525 Airpark Drive
Redding CA 96001
Contact: Bernice Kidd

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-H2O2-MAN-VA	**Water**							
Batch R2705166								
WG1758431-2 CRM		**VA-ACY-M-CONTROL**						
Acidity-Hot Peroxide Treated (as CaCO3)			97.9		%		85-115	01-OCT-13
WG1758431-3 DUP		**L1365908-5**						
Acidity-Hot Peroxide Treated (as CaCO3)		3260	3260		mg/L	0.0	20	01-OCT-13
WG1758431-1 MB								
Acidity-Hot Peroxide Treated (as CaCO3)			<25		mg/L		25	01-OCT-13
ACY-PCT-VA	**Water**							
Batch R2702343								
WG1755261-9 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			104.6		%		85-115	26-SEP-13
WG1755261-33 DUP		**L1365908-7**						
Acidity (as CaCO3)		148	147		mg/L	0.6	20	26-SEP-13
ALK-PCT-VA	**Water**							
Batch R2710452								
WG1761706-34 CRM		**VA-ALK-PCT-CONTROL**						
Alkalinity, Total (as CaCO3)			89.3		%		85-115	04-OCT-13
WG1761706-33 DUP		**L1365908-5**						
Alkalinity, Total (as CaCO3)		<1.0	<1.0	RPD-NA	mg/L	N/A	20	04-OCT-13
Alkalinity, Bicarbonate (as CaCO3)		<1.0	<1.0	RPD-NA	mg/L	N/A	20	04-OCT-13
Alkalinity, Carbonate (as CaCO3)		<1.0	<1.0	RPD-NA	mg/L	N/A	25	04-OCT-13
Alkalinity, Hydroxide (as CaCO3)		<1.0	<1.0	RPD-NA	mg/L	N/A	20	04-OCT-13
WG1761706-1 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	04-OCT-13
Alkalinity, Bicarbonate (as CaCO3)			<1.0		mg/L		1	04-OCT-13
Alkalinity, Carbonate (as CaCO3)			<1.0		mg/L		1	04-OCT-13
Alkalinity, Hydroxide (as CaCO3)			<1.0		mg/L		1	04-OCT-13
ALK-SCR-VA	**Water**							
Batch R2701963								
WG1755665-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			99.8		%		85-115	26-SEP-13
WG1755665-5 CRM		**VA-ALKM-CONTROL**						
Alkalinity, Total (as CaCO3)			97.3		%		85-115	26-SEP-13
WG1755665-3 DUP		**L1365908-12**						
Alkalinity, Total (as CaCO3)		11.3	11.3		mg/L	0.5	20	26-SEP-13
WG1755665-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	26-SEP-13
WG1755665-4 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-SCR-VA	**Water**							
Batch R2701963								
WG1755665-4 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	26-SEP-13
WG1755665-6 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	26-SEP-13
ANIONS-CL-IC-WR	**Water**							
Batch R2700637								
WG1752925-3 DUP		**L1365908-9**						
Chloride (Cl)		0.73	0.74		mg/L	0.6	20	20-SEP-13
WG1752925-2 LCS								
Chloride (Cl)			101.3		%		85-115	20-SEP-13
WG1752925-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	20-SEP-13
WG1752925-4 MS		**L1365908-9**						
Chloride (Cl)			101.2		%		75-125	20-SEP-13
ANIONS-F-IC-WR	**Water**							
Batch R2700637								
WG1752925-3 DUP		**L1365908-9**						
Fluoride (F)		0.287	0.288		mg/L	0.4	20	20-SEP-13
WG1752925-2 LCS								
Fluoride (F)			102.3		%		85-115	20-SEP-13
WG1752925-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	20-SEP-13
WG1752925-4 MS		**L1365908-9**						
Fluoride (F)			100.2		%		75-125	20-SEP-13
ANIONS-NO2-IC-WR	**Water**							
Batch R2700637								
WG1752925-3 DUP		**L1365908-9**						
Nitrite (as N)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	20-SEP-13
WG1752925-2 LCS								
Nitrite (as N)			100.8		%		85-115	20-SEP-13
WG1752925-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	20-SEP-13
WG1752925-4 MS		**L1365908-9**						
Nitrite (as N)			102.5		%		75-125	20-SEP-13
ANIONS-NO3-IC-WR	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO3-IC-WR	**Water**							
Batch R2700637								
WG1752925-3 DUP		**L1365908-9**						
Nitrate (as N)		0.161	0.160		mg/L	0.1	20	20-SEP-13
WG1752925-2 LCS								
Nitrate (as N)			101.8		%		85-115	20-SEP-13
WG1752925-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	20-SEP-13
WG1752925-4 MS		**L1365908-9**						
Nitrate (as N)			101.0		%		75-125	20-SEP-13
ANIONS-SO4-IC-WR	**Water**							
Batch R2700637								
WG1752925-3 DUP		**L1365908-9**						
Sulfate (SO4)		274	275		mg/L	0.1	20	20-SEP-13
WG1752925-2 LCS								
Sulfate (SO4)			99.5		%		85-115	20-SEP-13
WG1752925-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	20-SEP-13
WG1752925-4 MS		**L1365908-9**						
Sulfate (SO4)			N/A	MS-B	%		-	20-SEP-13
CARBONS-DOC-VA	**Water**							
Batch R2699389								
WG1752767-1 DUP		**L1365908-3**						
Dissolved Organic Carbon		0.90	0.84		mg/L	6.4	20	23-SEP-13
WG1752767-2 DUP		**L1365908-13**						
Dissolved Organic Carbon		0.71	0.84		mg/L	16	20	23-SEP-13
WG1752767-5 LCS								
Dissolved Organic Carbon			92.7		%		80-120	23-SEP-13
WG1752767-4 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	23-SEP-13
WG1752767-3 MS		**L1365983-2**						
Dissolved Organic Carbon			104.1		%		70-130	23-SEP-13
Batch R2701317								
WG1753874-1 DUP		**L1365908-10**						
Dissolved Organic Carbon		15.6	15.3		mg/L	2.2	20	25-SEP-13
WG1753874-4 LCS								
Dissolved Organic Carbon			94.3		%		80-120	25-SEP-13
WG1753874-3 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	25-SEP-13
WG1753874-2 MS		**L1365908-10**						

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CARBONS-DOC-VA	**Water**							
Batch R2701317								
WG1753874-2 MS		**L1365908-10**						
Dissolved Organic Carbon			N/A	MS-B	%		-	25-SEP-13
CN-FREE-CFA-VA	**Water**							
Batch R2704471								
WG1757843-3 DUP		**L1365908-8**						
Cyanide, Free		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	30-SEP-13
WG1757843-2 LCS								
Cyanide, Free			99.6		%		80-120	30-SEP-13
WG1757843-1 MB								
Cyanide, Free			<0.0050		mg/L		0.005	30-SEP-13
WG1757843-4 MS		**L1365908-8**						
Cyanide, Free			98.5		%		70-130	30-SEP-13
CN-T-CFA-VA	**Water**							
Batch R2705584								
WG1757848-4 DUP		**L1365908-2**						
Cyanide, Total		<0.050	<0.050	RPD-NA	mg/L	N/A	20	30-SEP-13
WG1757848-3 IRM		**ALS-TCN-IRM1**						
Cyanide, Total			90.3		%		75-105	30-SEP-13
WG1757848-2 LCS								
Cyanide, Total			103.0		%		80-120	30-SEP-13
WG1757848-1 MB								
Cyanide, Total			<0.0050		mg/L		0.005	30-SEP-13
WG1757848-5 MS		**L1365908-2**						
Cyanide, Total			73.5		%		70-130	30-SEP-13
FE2-D-COL-VA	**Water**							
Batch R2700181								
WG1752303-11 DUP		**L1365908-6**						
Ferrous Iron, Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	21-SEP-13
WG1752303-10 LCS								
Ferrous Iron, Dissolved			100.9		%		80-120	21-SEP-13
WG1752303-2 LCS								
Ferrous Iron, Dissolved			101.5		%		80-120	21-SEP-13
WG1752303-6 LCS								
Ferrous Iron, Dissolved			102.2		%		80-120	21-SEP-13
WG1752303-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	21-SEP-13
WG1752303-5 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
FE2-D-COL-VA	**Water**							
Batch R2700181								
WG1752303-5 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	21-SEP-13
WG1752303-9 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	21-SEP-13
WG1752303-12 MS		**L1365908-6**						
Ferrous Iron, Dissolved			99.6		%		70-130	21-SEP-13
WG1752303-4 MS		**L1364173-2**						
Ferrous Iron, Dissolved			100.8		%		70-130	21-SEP-13
WG1752303-8 MS		**L1364538-7**						
Ferrous Iron, Dissolved			109.5		%		70-130	21-SEP-13
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2699917								
WG1753058-3 DUP		**L1365908-6**						
Mercury (Hg)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	24-SEP-13
WG1753058-1 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	25-SEP-13
Batch R2700321								
WG1753058-4 MS		**L1365908-5**						
Mercury (Hg)-Dissolved			99.2		%		70-130	24-SEP-13
Batch R2700758								
WG1753058-2 LCS								
Mercury (Hg)-Dissolved			99.5		%		80-120	25-SEP-13
MET-D-CCMS-VA	**Water**							
Batch R2698676								
WG1752263-2 CRM		**VA-HIGH-WATRM**						
Aluminum (Al)-Dissolved			98.9		%		80-120	21-SEP-13
Antimony (Sb)-Dissolved			99.4		%		80-120	21-SEP-13
Arsenic (As)-Dissolved			96.4		%		80-120	21-SEP-13
Barium (Ba)-Dissolved			96.4		%		80-120	21-SEP-13
Beryllium (Be)-Dissolved			95.9		%		80-120	21-SEP-13
Boron (B)-Dissolved			82.1		%		80-120	21-SEP-13
Cadmium (Cd)-Dissolved			95.0		%		80-120	21-SEP-13
Chromium (Cr)-Dissolved			95.8		%		80-120	21-SEP-13
Cobalt (Co)-Dissolved			94.5		%		80-120	21-SEP-13
Copper (Cu)-Dissolved			92.0		%		80-120	21-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2698676								
WG1752263-2 CRM		**VA-HIGH-WATRM**						
Lead (Pb)-Dissolved			98.2		%		80-120	21-SEP-13
Lithium (Li)-Dissolved			96.2		%		80-120	21-SEP-13
Manganese (Mn)-Dissolved			98.5		%		80-120	21-SEP-13
Molybdenum (Mo)-Dissolved			97.5		%		80-120	21-SEP-13
Nickel (Ni)-Dissolved			95.7		%		80-120	21-SEP-13
Potassium (K)-Dissolved			92.9		%		80-120	21-SEP-13
Selenium (Se)-Dissolved			95.3		%		80-120	21-SEP-13
Silver (Ag)-Dissolved			97.4		%		80-120	21-SEP-13
Sodium (Na)-Dissolved			91.9		%		80-120	21-SEP-13
Strontium (Sr)-Dissolved			96.5		%		80-120	21-SEP-13
Thallium (Tl)-Dissolved			96.6		%		80-120	21-SEP-13
Titanium (Ti)-Dissolved			97.8		%		80-120	21-SEP-13
Uranium (U)-Dissolved			100.4		%		80-120	21-SEP-13
Vanadium (V)-Dissolved			97.3		%		80-120	21-SEP-13
Zinc (Zn)-Dissolved			96.2		%		80-120	21-SEP-13
Batch R2699004								
WG1752263-4 DUP		**L1365908-6**						
Aluminum (Al)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-OCT-13
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	01-OCT-13
Arsenic (As)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	01-OCT-13
Barium (Ba)-Dissolved		<0.000050	0.000061	RPD-NA	mg/L	N/A	20	02-OCT-13
Beryllium (Be)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	01-OCT-13
Boron (B)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	01-OCT-13
Cadmium (Cd)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	01-OCT-13
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	01-OCT-13
Cobalt (Co)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	01-OCT-13
Copper (Cu)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	01-OCT-13
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	01-OCT-13
Lithium (Li)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	01-OCT-13
Manganese (Mn)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	02-OCT-13
Molybdenum (Mo)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	01-OCT-13
Nickel (Ni)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	01-OCT-13
Potassium (K)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	01-OCT-13
Selenium (Se)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	01-OCT-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2699004								
WG1752263-4 DUP		**L1365908-6**						
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	01-OCT-13
Sodium (Na)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	01-OCT-13
Strontium (Sr)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	01-OCT-13
Thallium (Tl)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	01-OCT-13
Titanium (Ti)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	01-OCT-13
Uranium (U)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	01-OCT-13
Vanadium (V)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	01-OCT-13
Zinc (Zn)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	01-OCT-13
WG1752263-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	21-SEP-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	21-SEP-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	21-SEP-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	21-SEP-13
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	21-SEP-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	21-SEP-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	21-SEP-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	21-SEP-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	21-SEP-13
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	21-SEP-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	21-SEP-13
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	21-SEP-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	21-SEP-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	21-SEP-13
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	21-SEP-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	21-SEP-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	21-SEP-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	21-SEP-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	21-SEP-13
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	21-SEP-13
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	21-SEP-13
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	21-SEP-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	21-SEP-13
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	21-SEP-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	21-SEP-13
WG1752263-5 MS		**L1365908-5**						

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2699004								
WG1752263-5 MS		**L1365908-5**						
Aluminum (Al)-Dissolved			100.2		%		70-130	01-OCT-13
Antimony (Sb)-Dissolved			98.9		%		70-130	01-OCT-13
Arsenic (As)-Dissolved			98.6		%		70-130	01-OCT-13
Barium (Ba)-Dissolved			97.3		%		70-130	01-OCT-13
Beryllium (Be)-Dissolved			90.6		%		70-130	01-OCT-13
Boron (B)-Dissolved			89.1		%		70-130	01-OCT-13
Cadmium (Cd)-Dissolved			N/A	MS-B	%		-	01-OCT-13
Chromium (Cr)-Dissolved			99.6		%		70-130	01-OCT-13
Cobalt (Co)-Dissolved			N/A	MS-B	%		-	01-OCT-13
Copper (Cu)-Dissolved			99.5		%		70-130	01-OCT-13
Lead (Pb)-Dissolved			N/A	MS-B	%		-	01-OCT-13
Lithium (Li)-Dissolved			92.9		%		70-130	01-OCT-13
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	01-OCT-13
Molybdenum (Mo)-Dissolved			95.3		%		70-130	01-OCT-13
Nickel (Ni)-Dissolved			101.5		%		70-130	01-OCT-13
Potassium (K)-Dissolved			100.5		%		70-130	01-OCT-13
Selenium (Se)-Dissolved			98.4		%		70-130	01-OCT-13
Silver (Ag)-Dissolved			98.7		%		70-130	01-OCT-13
Sodium (Na)-Dissolved			98.0		%		70-130	01-OCT-13
Strontium (Sr)-Dissolved			89.5		%		70-130	01-OCT-13
Thallium (Tl)-Dissolved			97.8		%		70-130	01-OCT-13
Titanium (Ti)-Dissolved			101.3		%		70-130	01-OCT-13
Uranium (U)-Dissolved			97.7		%		70-130	01-OCT-13
Vanadium (V)-Dissolved			99.4		%		70-130	01-OCT-13
Zinc (Zn)-Dissolved			N/A	MS-B	%		-	01-OCT-13
MET-DIS-ICP-VA	**Water**							
Batch R2698843								
WG1752263-2 CRM		**VA-HIGH-WATRM**						
Calcium (Ca)-Dissolved			104.4		%		80-120	23-SEP-13
Iron (Fe)-Dissolved			96.9		%		80-120	23-SEP-13
Magnesium (Mg)-Dissolved			101.4		%		80-120	23-SEP-13
Phosphorus (P)-Dissolved			99.2		%		80-120	23-SEP-13
Silicon (Si)-Dissolved			102.1		%		80-120	23-SEP-13
WG1752263-1 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA	**Water**							
Batch R2698843								
WG1752263-1 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	23-SEP-13
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	23-SEP-13
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	23-SEP-13
Phosphorus (P)-Dissolved			<0.30		mg/L		0.3	23-SEP-13
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	23-SEP-13
Batch R2708002								
WG1752263-4 DUP		**L1365908-6**						
Calcium (Ca)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	03-OCT-13
Iron (Fe)-Dissolved		<0.030	<0.030	RPD-NA	mg/L	N/A	20	03-OCT-13
Magnesium (Mg)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	03-OCT-13
Phosphorus (P)-Dissolved		<0.30	<0.30	RPD-NA	mg/L	N/A	20	03-OCT-13
Silicon (Si)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	03-OCT-13
WG1752263-5 MS		**L1365908-5**						
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	03-OCT-13
Iron (Fe)-Dissolved			N/A	MS-B	%		-	03-OCT-13
Magnesium (Mg)-Dissolved			101.1		%		70-130	03-OCT-13
NH3-F-VA	**Water**							
Batch R2703541								
WG1757230-2 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			96.8		%		85-115	29-SEP-13
WG1757230-3 DUP		**L1365908-12**						
Ammonia, Total (as N)		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	29-SEP-13
WG1757230-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	29-SEP-13
WG1757230-4 MS		**L1365908-12**						
Ammonia, Total (as N)			96.1		%		75-125	29-SEP-13
PH-PCT-VA	**Water**							
Batch R2702343								
WG1755261-25 CRM		**VA-PH7-BUF**						
pH			7.05		pH		6.9-7.1	26-SEP-13
PO4-DO-COL-VA	**Water**							
Batch R2700012								
WG1752275-2 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			94.0		%		80-120	21-SEP-13
WG1752275-6 CRM		**VA-OPO4-CONTROL**						

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PO4-DO-COL-VA	**Water**							
Batch R2700012								
WG1752275-6 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			91.4		%		80-120	21-SEP-13
WG1752275-3 DUP		**L1365908-3**						
Orthophosphate-Dissolved (as P)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	21-SEP-13
WG1752275-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	21-SEP-13
WG1752275-5 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	21-SEP-13
WG1752275-4 MS		**L1365908-2**						
Orthophosphate-Dissolved (as P)			100.5		%		70-130	21-SEP-13
S-DIS-ICP-VA	**Water**							
Batch R2698843								
WG1752263-2 CRM		**VA-HIGH-WATRM**						
Sulfur (S)-Dissolved			99.9		%		80-120	23-SEP-13
WG1752263-1 MB								
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	23-SEP-13
Batch R2708002								
WG1752263-4 DUP		**L1365908-6**						
Sulfur (S)-Dissolved		<0.50	<0.50	RPD-NA	mg/L	N/A	20	03-OCT-13
WG1752263-5 MS		**L1365908-5**						
Sulfur (S)-Dissolved			N/A	MS-B	%		-	03-OCT-13
TDS-VA	**Water**							
Batch R2699722								
WG1752795-3 DUP		**L1365908-2**						
Total Dissolved Solids		18600	18200		mg/L	2.1	20	23-SEP-13
WG1752795-2 LCS								
Total Dissolved Solids			89.0		%		85-115	23-SEP-13
WG1752795-1 MB								
Total Dissolved Solids			<10		mg/L		10	23-SEP-13
TSS-LOW-VA	**Water**							
Batch R2699336								
WG1752790-2 LCS								
Total Suspended Solids			101.9		%		85-115	23-SEP-13
WG1752790-1 MB								
Total Suspended Solids			<1.0		mg/L		1	23-SEP-13

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	3	17-SEP-13 15:45	26-SEP-13 23:00	0.25	223	hours	EHTR-FM
	5	17-SEP-13 11:00	26-SEP-13 23:00	0.25	228	hours	EHTR-FM
	8	17-SEP-13 12:45	26-SEP-13 23:00	0.25	226	hours	EHTR-FM
	10	17-SEP-13 10:10	26-SEP-13 23:00	0.25	229	hours	EHTR-FM
	12	17-SEP-13 15:00	26-SEP-13 23:00	0.25	224	hours	EHTR-FM
	13	19-SEP-13 12:00	26-SEP-13 23:00	0.25	179	hours	EHTR-FM
	14	19-SEP-13 11:00	26-SEP-13 23:00	0.25	180	hours	EHTR-FM
Anions and Nutrients							
Alkalinity by Auto. Titration							
	5	17-SEP-13 11:00	04-OCT-13 13:00	14	17	days	EHT
Diss. Orthophosphate in Water by Colour							
	2	17-SEP-13 11:45	21-SEP-13 14:02	72	98	hours	EHTL
	3	17-SEP-13 15:45	21-SEP-13 14:05	3	4	days	EHTL
	4	17-SEP-13 10:00	21-SEP-13 14:05	3	4	days	EHTL
	5	17-SEP-13 11:00	21-SEP-13 14:05	3	4	days	EHTL
	7	17-SEP-13 15:20	21-SEP-13 14:15	3	4	days	EHTL
	8	17-SEP-13 12:45	21-SEP-13 14:15	3	4	days	EHTL
	9	17-SEP-13 13:40	21-SEP-13 14:15	3	4	days	EHTL
	10	17-SEP-13 10:10	21-SEP-13 14:15	3	4	days	EHTL
	11	17-SEP-13 11:10	21-SEP-13 14:15	3	4	days	EHTL
	12	17-SEP-13 15:00	21-SEP-13 14:15	3	4	days	EHTL
Nitrate Nitrogen by Ion Chromatography							
	2	17-SEP-13 11:45	20-SEP-13 19:15	72	79	hours	EHTL
Nitrite Nitrogen by Ion Chromatography							
	2	17-SEP-13 11:45	20-SEP-13 19:15	72	79	hours	EHTL

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1365908 were received on 20-SEP-13 09:20.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CH2MHILL

CHAIN OF CUSTODY RECORD

9/19/2013 3:54:25 PM

Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.06.AD.01.04.13
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-015
Project FARO MINE SEEP SAMPLING 2013
Turnaround Time 10 Days
Shipping Date: 9/19/2013
COC Number: ALS09191301

	Container:	125mL Poly	125mL Poly	40ml vial	125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	125ml Poly	250ml glass	
	Preservatives:	NaOH, 4°C	NaOH, 4°C	HCl, 4°C	HCl, 4°C	4C	4C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C	HNO3, 4°C	H2SO4, pH<2, 4C	
	Filtered:	NA	NA	Field	Field	NA	NA	NA	NA	NA	NA	Field	Field	NA	
	Holding Time:	14	14	14	180	14	14	7	7	3	3	28	180/28	28	
		Cyanide	Free Cyanide	(E245.7-Diss) Field Filtered Dissolved Hg	(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity – Run Hot H2O2 if Fe >15ppm	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM4110B) CL F NO2 NO3 and SO4	(SM4500P) ortho-Phosphate	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia	
DATE	TIME	Matrix													
E_015_13_007	9/16/2013	8:45	Water			X	X								4
CH-FD72_SEFL13	9/17/2013	11:10	Water	X		X	X	X		X	X	X	X	X	9
CH-FP41_SEFL13	9/17/2013	15:45	Water			X	X	X	X	X	X	X	X	X	8
CH-VP-17_SEFL13	9/17/2013	10:00	Water			X	X	X		X	X	X	X	X	8
CH-VP-20_SEFL13	9/17/2013	11:00	Water			X	X	X	X	X	X	X	X	X	8
E_015_13_008	9/17/2013	8:45	Water			X	X					X	X		4
SRK-FD24_SEFL13	9/17/2013	15:20	Water			X	X	X		X	X	X	X	X	8
SRK-FD30_SEFL13	9/17/2013	12:45	Water		X	X	X	X	X	X	X	X	X	X	9
SRK-FD51_SEFL13	9/17/2013	13:40	Water			X	X	X		X	X	X	X	X	8
SRK-FD54_SEFL13	9/17/2013	10:10	Water		X	X	X	X	X	X	X	X	X	X	9
SRK-FD56_SEFL13	9/17/2013	11:10	Water			X	X	X		X	X	X	X	X	8
SRK-FD68_SEFL13	9/17/2013	15:00	Water			X	X	X	X	X	X	X	X	X	8
CH-FP-35_SEFL13	9/19/2013	12:00	Water			X	X	X	X	X	X	X	X	X	8
SRK-FD19_SEFL13	9/19/2013	11:00	Water			X	X	X	X	X	X	X	X	X	8



	Signatures	Date/Time
Approved by		
Sampled by		
Relinquished by		09/19/13
Received by		
Relinquished by	2084-13	0.4, 1.0, 0.8
Received by		9:20

Shipping Details

Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

ATTN:

Sample Custody
and
Amber Springer

Special Instructions:

PO: 604564 on Invoice Perform Lab Dup/MS on these samples

Report Copy to
Bernice Kidd
(530) 229-3203

CH2MHILL

CHAIN OF CUSTODY RECORD

9/19/2013 3:54:25 PM

Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.06.AD.01.04.13
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-015
Project FARO MINE SEEP SAMPLING 2013
Turnaround Time 10 Days
Shipping Date: 9/19/2013
COC Number: ALS09191301

	Container:	125mL Poly	125mL Poly	40ml vial	125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	125ml Poly	250ml glass		
	Preservatives:	NaOH, 4'C	NaOH, 4'C	HCl, 4'C	HCl, 4'C	4C	4C	4'C	4'C	4'C	4'C	H2SO4, pH<2, 4'C	HNO3, 4'C	H2SO4, pH<2, 4C		
	Filtered:	NA	NA	Field	Field	NA	NA	NA	NA	NA	NA	Field	Field	NA		
	Holding Time:	14	14	14	180	14	14	7	7	3	3	28	180/28	28		
DATE	TIME	Matrix	Cyanide	Free Cyanide	(E245.7-Diss) Field Filtered Dissolved Hg	(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity - Run Hot H2O2 if Fe >15ppm	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM4110B) CL F NO2 NO3 and SO4	(SM4500P) ortho-Phosphate	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia	Number of Containers	COMMENTS

CH2M HILL, INC
ATTN: Bernice Kidd
2525 Airpark Drive
Redding CA 96001

Date Received: 20-SEP-13
Report Date: 07-OCT-13 14:47 (MT)
Version: FINAL

Client Phone: 530-229-3203

Certificate of Analysis

Lab Work Order #: L1365983

Project P.O. #: 472645.06.AD.01.04.13 "PO:PO=604564"
Job Reference: WASTE ROCK DUMP MW 2013 SW-014B
C of C Numbers: ALS09191302
Legal Site Desc:

Amber Springer
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1365983-1	L1365983-2			
	Description	Water	Water			
	Sampled Date	17-SEP-13	17-SEP-13			
	Sampled Time	12:30	17:15			
	Client ID	CH12-014-MW013_GW0913	EB_014_13_003			
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	4230	43.8			
	pH (pH)	7.57				
	Total Suspended Solids (mg/L)	29.0				
	Total Dissolved Solids (mg/L)	6120				
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	112				
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	1190				
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<20				
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<20				
	Alkalinity, Total (as CaCO3) (mg/L)	1190				
	Ammonia, Total (as N) (mg/L)	0.0666	<0.0050			
	Chloride (Cl) (mg/L)	<10 DLA	<0.50			
	Fluoride (F) (mg/L)	<0.40 DLA	<0.020			
	Nitrate (as N) (mg/L)	<0.10 DLA	<0.0050			
	Nitrite (as N) (mg/L)	<0.020 DLA	<0.0010			
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010			
	Sulfate (SO4) (mg/L)	3370	<0.50			
Cyanides	Cyanide, Free (mg/L)	<0.0050	<0.0050			
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	11.1	<0.50			
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD			
	Dissolved Metals Filtration Location	FIELD	FIELD			
	Aluminum (Al)-Dissolved (mg/L)	<0.0050 DLA	0.0010			
	Antimony (Sb)-Dissolved (mg/L)	<0.00050 DLA	<0.00010			
	Arsenic (As)-Dissolved (mg/L)	0.00114	<0.00010			
	Barium (Ba)-Dissolved (mg/L)	0.0160	0.000726			
	Beryllium (Be)-Dissolved (mg/L)	<0.00050 DLA	<0.00010			
	Boron (B)-Dissolved (mg/L)	<0.050 DLA	<0.010			
	Cadmium (Cd)-Dissolved (mg/L)	0.00501	<0.000010			
	Calcium (Ca)-Dissolved (mg/L)	666	6.99			
	Chromium (Cr)-Dissolved (mg/L)	0.00088	<0.00010			
	Cobalt (Co)-Dissolved (mg/L)	0.0379	<0.00010			
	Copper (Cu)-Dissolved (mg/L)	0.0077	<0.00020			
	Iron (Fe)-Dissolved (mg/L)	6.12	0.070			
	Ferrous Iron, Dissolved (mg/L)	8.2	<0.020			
	Lead (Pb)-Dissolved (mg/L)	0.0110	0.000322			
	Lithium (Li)-Dissolved (mg/L)	0.0303	<0.00050			
	Magnesium (Mg)-Dissolved (mg/L)	623	6.40			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1365983-1	L1365983-2			
	Description	Water	Water			
	Sampled Date	17-SEP-13	17-SEP-13			
	Sampled Time	12:30	17:15			
	Client ID	CH12-014-MW013_GW0913	EB_014_13_003			
Grouping	**Analyte**					
WATER						
Dissolved Metals	Manganese (Mn)-Dissolved (mg/L)	10.5	0.000554			
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010			
	Molybdenum (Mo)-Dissolved (mg/L)	0.00162	<0.000050			
	Nickel (Ni)-Dissolved (mg/L)	0.105	<0.00050			
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30			
	Potassium (K)-Dissolved (mg/L)	3.02	<0.050			
	Selenium (Se)-Dissolved (mg/L)	<0.00050 DLA	<0.00010			
	Silicon (Si)-Dissolved (mg/L)	11.0	0.116			
	Silicon (as SiO2)-Dissolved (mg/L)	23.5	0.25			
	Silver (Ag)-Dissolved (mg/L)	<0.000050 DLA	<0.000010			
	Sodium (Na)-Dissolved (mg/L)	11.9	<0.050			
	Strontium (Sr)-Dissolved (mg/L)	2.00	<0.00020			
	Sulfur (S)-Dissolved (mg/L)	994	8.77			
	Thallium (Tl)-Dissolved (mg/L)	0.000195	<0.000010			
	Titanium (Ti)-Dissolved (mg/L)	<0.050 DLA	<0.010			
	Uranium (U)-Dissolved (mg/L)	0.0861	<0.000010			
	Vanadium (V)-Dissolved (mg/L)	<0.0050 DLA	<0.0010			
	Zinc (Zn)-Dissolved (mg/L)	8.58	0.0034			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Aluminum (Al)-Dissolved	DLA	L1365983-1, -2
Duplicate	Antimony (Sb)-Dissolved	DLA	L1365983-1, -2
Duplicate	Beryllium (Be)-Dissolved	DLA	L1365983-1, -2
Duplicate	Boron (B)-Dissolved	DLA	L1365983-1, -2
Duplicate	Selenium (Se)-Dissolved	DLA	L1365983-1, -2
Duplicate	Silver (Ag)-Dissolved	DLA	L1365983-1, -2
Duplicate	Titanium (Ti)-Dissolved	DLA	L1365983-1, -2
Duplicate	Vanadium (V)-Dissolved	DLA	L1365983-1, -2
Matrix Spike	Sulfate (SO4)	MS-B	L1365983-1, -2

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-CL-IC-WR	Water	Chloride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-F-IC-WR	Water	Fluoride by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-NO2-IC-WR	Water	Nitrite Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-NO3-IC-WR	Water	Nitrate Nitrogen by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-SO4-IC-WR	Water	Sulphate by Ion Chromatography	EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CN-FREE-CFA-VA	Water	Free Cyanide in water by CFA	ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

FE2-D-COL-VA	Water	Diss. Ferrous Iron in Water by Colour	James W. Ball et al (1999)

Reference Information

This analysis is carried out using procedures adapted from "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedures involves preliminary sample filtration (0.1um filter) and Ferrous Iron is determined using the "FerroZine" colorimteric method.

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

MET-D-CCMS-VA Water Dissolved Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

S-DIS-ICP-VA Water Dissolved Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

SIO2-D-CALC-VA Water Dissolved Silicon (reported as Silica) CALCULATION

Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-LOW-VA Water Total Suspended Solids by Grav. (1 mg/L) APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Reference Information

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

ALS09191302

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Client: CH2M HILL, INC
2525 Airpark Drive
Redding CA 96001
Contact: Bernice Kidd

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-PCT-VA	**Water**							
Batch R2701597								
WG1755250-9 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			104.6		%		85-115	26-SEP-13
Batch R2702365								
WG1755276-10 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			103.8		%		85-115	26-SEP-13
WG1755276-11 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			103.5		%		85-115	26-SEP-13
WG1755276-12 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			103.6		%		85-115	26-SEP-13
WG1755276-13 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			104.3		%		85-115	26-SEP-13
WG1755276-14 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			104.5		%		85-115	26-SEP-13
WG1755276-15 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			104.6		%		85-115	26-SEP-13
WG1755276-16 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			105.6		%		85-115	26-SEP-13
WG1755276-9 CRM		**VA-ACY-CONTROL**						
Acidity (as CaCO3)			99.6		%		85-115	26-SEP-13
ALK-SCR-VA	**Water**							
Batch R2701963								
WG1755665-2 CRM		**VA-ALKL-CONTROL**						
Alkalinity, Total (as CaCO3)			99.8		%		85-115	26-SEP-13
WG1755665-5 CRM		**VA-ALKM-CONTROL**						
Alkalinity, Total (as CaCO3)			97.3		%		85-115	26-SEP-13
WG1755665-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	26-SEP-13
WG1755665-4 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	26-SEP-13
WG1755665-6 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	26-SEP-13
ANIONS-CL-IC-WR	**Water**							
Batch R2700637								
WG1752925-2 LCS								
Chloride (Cl)			101.3		%		85-115	20-SEP-13
WG1752925-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	20-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-CL-IC-WR	**Water**							
Batch R2700637								
WG1752925-4 MS		**L1365908-9**						
Chloride (Cl)			101.2		%		75-125	20-SEP-13
ANIONS-F-IC-WR	**Water**							
Batch R2700637								
WG1752925-2 LCS								
Fluoride (F)			102.3		%		85-115	20-SEP-13
WG1752925-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	20-SEP-13
WG1752925-4 MS		**L1365908-9**						
Fluoride (F)			100.2		%		75-125	20-SEP-13
ANIONS-NO2-IC-WR	**Water**							
Batch R2700637								
WG1752925-2 LCS								
Nitrite (as N)			100.8		%		85-115	20-SEP-13
WG1752925-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	20-SEP-13
WG1752925-4 MS		**L1365908-9**						
Nitrite (as N)			102.5		%		75-125	20-SEP-13
ANIONS-NO3-IC-WR	**Water**							
Batch R2700637								
WG1752925-2 LCS								
Nitrate (as N)			101.8		%		85-115	20-SEP-13
WG1752925-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	20-SEP-13
WG1752925-4 MS		**L1365908-9**						
Nitrate (as N)			101.0		%		75-125	20-SEP-13
ANIONS-SO4-IC-WR	**Water**							
Batch R2700637								
WG1752925-2 LCS								
Sulfate (SO4)			99.5		%		85-115	20-SEP-13
WG1752925-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	20-SEP-13
WG1752925-4 MS		**L1365908-9**						
Sulfate (SO4)			N/A	MS-B	%		-	20-SEP-13
CARBONS-DOC-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CARBONS-DOC-VA	**Water**							
Batch R2699389								
WG1752767-5 LCS								
Dissolved Organic Carbon			92.7		%		80-120	23-SEP-13
WG1752767-4 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	23-SEP-13
WG1752767-3 MS		**L1365983-2**						
Dissolved Organic Carbon			104.1		%		70-130	23-SEP-13
CN-FREE-CFA-VA	**Water**							
Batch R2704472								
WG1757851-3 DUP		**L1365983-1**						
Cyanide, Free		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	30-SEP-13
WG1757851-2 LCS								
Cyanide, Free			99.6		%		80-120	30-SEP-13
WG1757851-1 MB								
Cyanide, Free			<0.0050		mg/L		0.005	30-SEP-13
WG1757851-4 MS		**L1365983-1**						
Cyanide, Free			85.0		%		70-130	30-SEP-13
FE2-D-COL-VA	**Water**							
Batch R2700181								
WG1752303-10 LCS								
Ferrous Iron, Dissolved			100.9		%		80-120	21-SEP-13
WG1752303-2 LCS								
Ferrous Iron, Dissolved			101.5		%		80-120	21-SEP-13
WG1752303-6 LCS								
Ferrous Iron, Dissolved			102.2		%		80-120	21-SEP-13
WG1752303-1 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	21-SEP-13
WG1752303-5 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	21-SEP-13
WG1752303-9 MB								
Ferrous Iron, Dissolved			<0.020		mg/L		0.02	21-SEP-13
WG1752303-12 MS		**L1365908-6**						
Ferrous Iron, Dissolved			99.6		%		70-130	21-SEP-13
WG1752303-4 MS		**L1364173-2**						
Ferrous Iron, Dissolved			100.8		%		70-130	21-SEP-13
WG1752303-8 MS		**L1364538-7**						
Ferrous Iron, Dissolved			109.5		%		70-130	21-SEP-13
HG-DIS-LOW-CVAFS-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-DIS-LOW-CVAFS-VA	**Water**							
Batch R2699917								
WG1753091-3 DUP		**L1365983-1**						
Mercury (Hg)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	24-SEP-13
WG1753091-1 MB								
Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	25-SEP-13
WG1753091-4 MS		**L1365983-2**						
Mercury (Hg)-Dissolved			97.8		%		70-130	24-SEP-13
Batch R2700758								
WG1753091-2 LCS								
Mercury (Hg)-Dissolved			99.4		%		80-120	25-SEP-13
MET-D-CCMS-VA	**Water**							
Batch R2698676								
WG1752265-2 CRM		**VA-HIGH-WATRM**						
Aluminum (Al)-Dissolved			100.7		%		80-120	21-SEP-13
Antimony (Sb)-Dissolved			101.1		%		80-120	21-SEP-13
Arsenic (As)-Dissolved			98.1		%		80-120	21-SEP-13
Barium (Ba)-Dissolved			98.7		%		80-120	21-SEP-13
Beryllium (Be)-Dissolved			97.6		%		80-120	21-SEP-13
Boron (B)-Dissolved			85.2		%		80-120	21-SEP-13
Cadmium (Cd)-Dissolved			98.2		%		80-120	21-SEP-13
Chromium (Cr)-Dissolved			98.5		%		80-120	21-SEP-13
Cobalt (Co)-Dissolved			95.6		%		80-120	21-SEP-13
Copper (Cu)-Dissolved			92.7		%		80-120	21-SEP-13
Lead (Pb)-Dissolved			101.9		%		80-120	21-SEP-13
Lithium (Li)-Dissolved			99.3		%		80-120	21-SEP-13
Manganese (Mn)-Dissolved			98.0		%		80-120	21-SEP-13
Molybdenum (Mo)-Dissolved			100.7		%		80-120	21-SEP-13
Nickel (Ni)-Dissolved			96.0		%		80-120	21-SEP-13
Potassium (K)-Dissolved			93.8		%		80-120	21-SEP-13
Selenium (Se)-Dissolved			98.6		%		80-120	21-SEP-13
Silver (Ag)-Dissolved			101.4		%		80-120	21-SEP-13
Sodium (Na)-Dissolved			92.0		%		80-120	21-SEP-13
Strontium (Sr)-Dissolved			99.2		%		80-120	21-SEP-13
Thallium (Tl)-Dissolved			101.9		%		80-120	21-SEP-13
Titanium (Ti)-Dissolved			98.4		%		80-120	21-SEP-13
Uranium (U)-Dissolved			106.0		%		80-120	21-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2698676								
WG1752265-2 CRM		**VA-HIGH-WATRM**						
Vanadium (V)-Dissolved			99.2		%		80-120	21-SEP-13
Zinc (Zn)-Dissolved			96.9		%		80-120	21-SEP-13
Batch R2699004								
WG1752265-4 DUP		**L1365983-1**						
Aluminum (Al)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	01-OCT-13
Antimony (Sb)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	01-OCT-13
Arsenic (As)-Dissolved		0.00114	0.00116		mg/L	1.5	20	01-OCT-13
Barium (Ba)-Dissolved		0.0160	0.0161		mg/L	0.8	20	01-OCT-13
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	01-OCT-13
Boron (B)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	01-OCT-13
Cadmium (Cd)-Dissolved		0.00501	0.00509		mg/L	1.5	20	01-OCT-13
Chromium (Cr)-Dissolved		0.00088	0.00066	J	mg/L	0.00022	0.001	01-OCT-13
Cobalt (Co)-Dissolved		0.0379	0.0374		mg/L	1.3	20	01-OCT-13
Copper (Cu)-Dissolved		0.0077	0.0077		mg/L	0.2	20	01-OCT-13
Lead (Pb)-Dissolved		0.0110	0.0110		mg/L	0.1	20	01-OCT-13
Lithium (Li)-Dissolved		0.0303	0.0285		mg/L	6.0	20	01-OCT-13
Manganese (Mn)-Dissolved		10.5	10.5		mg/L	0.0	20	01-OCT-13
Molybdenum (Mo)-Dissolved		0.00162	0.00144		mg/L	11	20	01-OCT-13
Nickel (Ni)-Dissolved		0.105	0.105		mg/L	0.6	20	01-OCT-13
Potassium (K)-Dissolved		3.02	3.03		mg/L	0.4	20	01-OCT-13
Selenium (Se)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	01-OCT-13
Silver (Ag)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	01-OCT-13
Sodium (Na)-Dissolved		11.9	12.5		mg/L	4.9	20	01-OCT-13
Strontium (Sr)-Dissolved		2.00	2.00		mg/L	0.2	20	01-OCT-13
Thallium (Tl)-Dissolved		0.000195	0.000171		mg/L	14	20	01-OCT-13
Titanium (Ti)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	01-OCT-13
Uranium (U)-Dissolved		0.0861	0.0862		mg/L	0.1	20	01-OCT-13
Vanadium (V)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	01-OCT-13
Zinc (Zn)-Dissolved		8.58	8.54		mg/L	0.5	20	01-OCT-13
WG1752265-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	21-SEP-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	21-SEP-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	21-SEP-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	21-SEP-13
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	21-SEP-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2699004								
WG1752265-1 MB								
Boron (B)-Dissolved			<0.010		mg/L		0.01	21-SEP-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	21-SEP-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	21-SEP-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	21-SEP-13
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	21-SEP-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	21-SEP-13
Lithium (Li)-Dissolved			<0.00050		mg/L		0.0005	21-SEP-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	21-SEP-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	21-SEP-13
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	21-SEP-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	21-SEP-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	21-SEP-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	21-SEP-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	21-SEP-13
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	21-SEP-13
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	21-SEP-13
Titanium (Ti)-Dissolved			<0.010		mg/L		0.01	21-SEP-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	21-SEP-13
Vanadium (V)-Dissolved			<0.0010		mg/L		0.001	21-SEP-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	21-SEP-13
WG1752265-5 MS		**L1365983-2**						
Aluminum (Al)-Dissolved			89.5		%		70-130	01-OCT-13
Antimony (Sb)-Dissolved			101.8		%		70-130	01-OCT-13
Arsenic (As)-Dissolved			88.9		%		70-130	01-OCT-13
Barium (Ba)-Dissolved			93.4		%		70-130	01-OCT-13
Beryllium (Be)-Dissolved			102.8		%		70-130	01-OCT-13
Boron (B)-Dissolved			101.0		%		70-130	01-OCT-13
Cadmium (Cd)-Dissolved			93.0		%		70-130	01-OCT-13
Chromium (Cr)-Dissolved			88.2		%		70-130	01-OCT-13
Cobalt (Co)-Dissolved			88.9		%		70-130	01-OCT-13
Copper (Cu)-Dissolved			89.9		%		70-130	01-OCT-13
Lead (Pb)-Dissolved			97.9		%		70-130	01-OCT-13
Lithium (Li)-Dissolved			103.3		%		70-130	01-OCT-13
Manganese (Mn)-Dissolved			89.5		%		70-130	01-OCT-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	**Water**							
Batch R2699004								
WG1752265-5 MS		**L1365983-2**						
Molybdenum (Mo)-Dissolved			98.3		%		70-130	01-OCT-13
Nickel (Ni)-Dissolved			89.1		%		70-130	01-OCT-13
Potassium (K)-Dissolved			87.6		%		70-130	01-OCT-13
Selenium (Se)-Dissolved			101.5		%		70-130	01-OCT-13
Silver (Ag)-Dissolved			100.5		%		70-130	01-OCT-13
Sodium (Na)-Dissolved			88.8		%		70-130	01-OCT-13
Strontium (Sr)-Dissolved			101.6		%		70-130	01-OCT-13
Thallium (Tl)-Dissolved			97.5		%		70-130	01-OCT-13
Titanium (Ti)-Dissolved			88.3		%		70-130	01-OCT-13
Uranium (U)-Dissolved			96.8		%		70-130	01-OCT-13
Vanadium (V)-Dissolved			87.8		%		70-130	01-OCT-13
Zinc (Zn)-Dissolved			87.5		%		70-130	01-OCT-13
MET-DIS-ICP-VA	**Water**							
Batch R2698843								
WG1752265-2 CRM		**VA-HIGH-WATRM**						
Calcium (Ca)-Dissolved			104.2		%		80-120	23-SEP-13
Iron (Fe)-Dissolved			96.3		%		80-120	23-SEP-13
Magnesium (Mg)-Dissolved			101.9		%		80-120	23-SEP-13
Phosphorus (P)-Dissolved			100.1		%		80-120	23-SEP-13
Silicon (Si)-Dissolved			101.8		%		80-120	23-SEP-13
WG1752265-1 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	23-SEP-13
Iron (Fe)-Dissolved			<0.030		mg/L		0.03	23-SEP-13
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	23-SEP-13
Phosphorus (P)-Dissolved			<0.30		mg/L		0.3	23-SEP-13
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	23-SEP-13
Batch R2705462								
WG1752265-5 MS		**L1365983-2**						
Calcium (Ca)-Dissolved			90.4		%		70-130	29-SEP-13
Iron (Fe)-Dissolved			94.3		%		70-130	29-SEP-13
Magnesium (Mg)-Dissolved			90.8		%		70-130	29-SEP-13
Batch R2708002								
WG1752265-4 DUP		**L1365983-1**						
Calcium (Ca)-Dissolved		666	653		mg/L	2.0	20	03-OCT-13
Iron (Fe)-Dissolved		6.12	6.02		mg/L	1.5	20	03-OCT-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA	**Water**							
Batch R2708002								
WG1752265-4 DUP		**L1365983-1**						
Magnesium (Mg)-Dissolved		623	646		mg/L	3.6	20	03-OCT-13
Phosphorus (P)-Dissolved		<0.30	<0.30	RPD-NA	mg/L	N/A	20	03-OCT-13
Silicon (Si)-Dissolved		11.0	10.9		mg/L	0.7	20	03-OCT-13
NH3-F-VA	**Water**							
Batch R2703541								
WG1757230-2 CRM		**VA-NH3-F**						
Ammonia, Total (as N)			96.8		%		85-115	29-SEP-13
WG1757230-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	29-SEP-13
WG1757230-4 MS		**L1365908-12**						
Ammonia, Total (as N)			96.1		%		75-125	29-SEP-13
PH-PCT-VA	**Water**							
Batch R2701597								
WG1755250-25 CRM		**VA-PH7-BUF**						
pH			7.05		pH		6.9-7.1	26-SEP-13
Batch R2702365								
WG1755276-25 CRM		**VA-PH7-BUF**						
pH			7.01		pH		6.9-7.1	26-SEP-13
WG1755276-26 CRM		**VA-PH7-BUF**						
pH			7.02		pH		6.9-7.1	26-SEP-13
WG1755276-27 CRM		**VA-PH7-BUF**						
pH			7.01		pH		6.9-7.1	26-SEP-13
WG1755276-28 CRM		**VA-PH7-BUF**						
pH			7.03		pH		6.9-7.1	26-SEP-13
WG1755276-29 CRM		**VA-PH7-BUF**						
pH			7.05		pH		6.9-7.1	26-SEP-13
WG1755276-30 CRM		**VA-PH7-BUF**						
pH			7.06		pH		6.9-7.1	26-SEP-13
WG1755276-31 CRM		**VA-PH7-BUF**						
pH			7.05		pH		6.9-7.1	26-SEP-13
WG1755276-32 CRM		**VA-PH7-BUF**						
pH			7.05		pH		6.9-7.1	26-SEP-13
PO4-DO-COL-VA	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PO4-DO-COL-VA	**Water**							
Batch R2700012								
WG1752275-2 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			94.0		%		80-120	21-SEP-13
WG1752275-6 CRM		**VA-OPO4-CONTROL**						
Orthophosphate-Dissolved (as P)			91.4		%		80-120	21-SEP-13
WG1752275-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	21-SEP-13
WG1752275-5 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	21-SEP-13
WG1752275-4 MS		**L1365908-2**						
Orthophosphate-Dissolved (as P)			100.5		%		70-130	21-SEP-13
S-DIS-ICP-VA	**Water**							
Batch R2698843								
WG1752265-2 CRM		**VA-HIGH-WATRM**						
Sulfur (S)-Dissolved			101.4		%		80-120	23-SEP-13
WG1752265-1 MB								
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	23-SEP-13
Batch R2705462								
WG1752265-5 MS		**L1365983-2**						
Sulfur (S)-Dissolved			91.8		%		70-130	29-SEP-13
TDS-VA	**Water**							
Batch R2699722								
WG1752795-2 LCS								
Total Dissolved Solids			89.0		%		85-115	23-SEP-13
WG1752795-1 MB								
Total Dissolved Solids			<10		mg/L		10	23-SEP-13
TSS-LOW-VA	**Water**							
Batch R2699336								
WG1752790-2 LCS								
Total Suspended Solids			101.9		%		85-115	23-SEP-13
WG1752790-1 MB								
Total Suspended Solids			<1.0		mg/L		1	23-SEP-13

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	1	17-SEP-13 12:30	26-SEP-13 23:00	0.25	227	hours	EHTR-FM
Anions and Nutrients							
Diss. Orthophosphate in Water by Colour							
	1	17-SEP-13 12:30	21-SEP-13 14:15	3	4	days	EHTL
	2	17-SEP-13 17:15	21-SEP-13 14:15	3	4	days	EHTL

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1365983 were received on 20-SEP-13 09:20.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

Project Name Faro Mine
Location Faro Mine Complex - Faro YK
Project Number 472645.06.AD.01.04.13
Project Manager BT Thomas
Sample Manager Charles Shewen

Task Order SW-014
Project WASTE ROCK DUMP MW 2013 SW-014B
Turnaround Time 10 Days
Shipping Date: 9/19/2013
COC Number: ALS09191302

	DATE	TIME	Matrix	Container:	125mL Poly	40ml vial	125ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	500ml Poly	250ml Glass	125ml Poly	250ml glass		Number of Containers	COMMENTS
				Preservatives:	NaOH, 4'C	HCl, 4'C	HCl, 4'C	4C	4C	4'C	4'C	4'C	4'C	4'C	H2SO4, pH<2, 4'C	HNO3, 4'C	H2SO4, pH<2, 4C			
				Filtered:	NA	Field	Field	NA	NA	NA	NA	NA	NA	NA	Field	Field	NA			
				Holding Time:	14	14	180	14	14	7	7	3	3	3	28	180/28	28			
					Free Cyanide	(E245.7-Diss) Field Filtered Dissolved Hg	(Ferrozine Method) Field Filtered Ferrous Iron	(SM2310) Acidity - Run Hot H2O2 if Fe >15ppm	(SM2320B) Alkalinity	(SM2540C) TDS	(SM2540D) TSS	(SM4110B) CL F NO2 NO3 and SO4	(SM4110B) Cl, F, NO2, NO3, and SO4	(SM4500P) ortho-Phosphate	(SM5310) Field Filtered DOC	(SW6010B/SW6020A) Field Filtered For Metals Analyte List see Table 1	Ammonia (JEM/SM4500NH3) Ammonia			
CH12-014-MW013_GW0913	9/17/2013	12:30	Water		X	X	X	X	X	X	X	X		X	X	X	X		9	
EB_014_13_003	9/17/2013	17:15	Water		X	X	X						X	X	X	X	X		7	
																		TOTAL NUMBER OF CONTAINERS	16	

L1365983-COFC

	Signatures	Date/Time
Approved by		
Sampled by		09/17/13
Relinquished by		
Received by		
Relinquished by	20-Sep-13	0.8
Received by		9:10

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: ALS Vancouver
Lab Phone: (604) 253-4188

ATTN:
Sample Custody
and
Amber Springer

Special Instructions:
Perform Lab Dup/MS on these samples

Report Copy to
Bernice Kidd
(530) 229-3203