

Ministry of Energy, Mines & Petroleum Resources  
Mining & Minerals Division  
BC Geological Survey

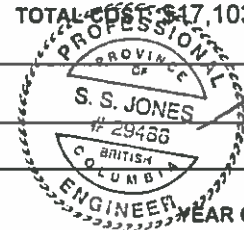
Assessment Report  
Title Page and Summary

TYPE OF REPORT [type of survey(s)]: Technical Work

TOTAL COST: \$17,103.05

AUTHOR(S): Scott Jones, P.Eng.

SIGNATURE(S):

  
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PROFESSIONAL ENGINEER  
BRITISH COLUMBIA

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): MX-150, MX-2-157, MX-2-111, MX-2-208

YEAR OF WORK: 2015

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S): 5602252 May 9, 2016

PROPERTY NAME: Harmony

CLAIM NAME(S) (on which the work was done): 357218, 357222

COMMODITIES SOUGHT: Gold

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: \_\_\_\_\_

MINING DIVISION: Skeena Mining District

NTS/BCGS: 103F/034

LATITUDE: 53 ° 31 ' \_\_\_\_\_ " LONGITUDE: 132 ° 13 ' \_\_\_\_\_ " (at centre of work)

OWNER(S):

1) Gibraltar Mines Ltd

2) \_\_\_\_\_

MAILING ADDRESS:

1500-1040 West Georgia Street

Vancouver, B.C. V6E 4H1

OPERATOR(S) [who paid for the work]:

1) Taseko Mines Limited

2) \_\_\_\_\_

MAILING ADDRESS:

1500-1040 West Georgia Street

Vancouver, B.C. V6E 4H1

PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):

Epithermal gold, Miocene, Sandspit fault, hydrothermal alteration, ARD/ML

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 25866, 25393, 25064, 24972, 24669,

14497, 24430, 24008, 23909

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
<b>GEOLOGICAL (scale, area)</b>			
Ground, mapping			
Photo interpretation			
<b>GEOPHYSICAL (line-kilometres)</b>			
<b>Ground</b>			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
<b>Airborne</b>			
<b>GEOCHEMICAL (number of samples analysed for...)</b>			
Soil			
Silt			
Rock			
Other			
<b>DRILLING (total metres; number of holes, size)</b>			
Core			
Non-core			
<b>RELATED TECHNICAL</b>			
Sampling/assaying			
Water sampling		357218, 357222	\$17,103.05
Petrographic			
Mineralographic			
Metallurgic			
<b>PROSPECTING (scale, area)</b>			
<b>PREPARATORY / PHYSICAL</b>			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other			
<b>TOTAL COST:</b>			<b>\$17,103.05</b>

# Assessment Report on the Technical Work Performed on the Harmony Property in 2015

Located in the Skeena Mining District  
British Columbia, Canada

NTS: 103F/034

BC Geological Survey  
Assessment Report  
36113

Located at approximately  
53° 31' N Latitude  
132° 13' W Longitude

Owner: Gibraltar Mines Ltd.

Operator: Taseko Mines Limited through its wholly owned subsidiary, Gibraltar Mines Ltd.

Title Numbers:

516582, 332935 - 332946, 324028, 324492 - 324494, 324497- 324499, 333004, 334640,  
334641, 357218 - 357223, 323709, 323711 - 323714, 323716, 332955, 333005, 252959,  
333027, 333026

Author:

Scott Jones, P.Eng

June, 2016

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## **1.0) SUMMARY**

The Harmony property (hereafter the “Property”) is held by Gibraltar Mines Ltd., itself a wholly-owned subsidiary of Taseko Mines Limited (“Taseko”). The Property is located on Graham Island, about 770 km northwest of Vancouver, British Columbia. Graham Island is the most northerly large island in the Haida Gwaii Islands archipelago (Figure 1).

The work program upon which this report is based was implemented between March 15, 2015 and October 1, 2015 and falls into the category of “technical exploration and development work”. Taseko was the operator of the work described in this report.

The work with respect to which assessment has been claimed comprises of: the collection and analysis of water samples to contribute to the characterization of acid rock drainage (ARD) and metal leaching (ML) potential of the deposit and tailings; and, to study the effectiveness of passive water treatment for potential future development of the project.

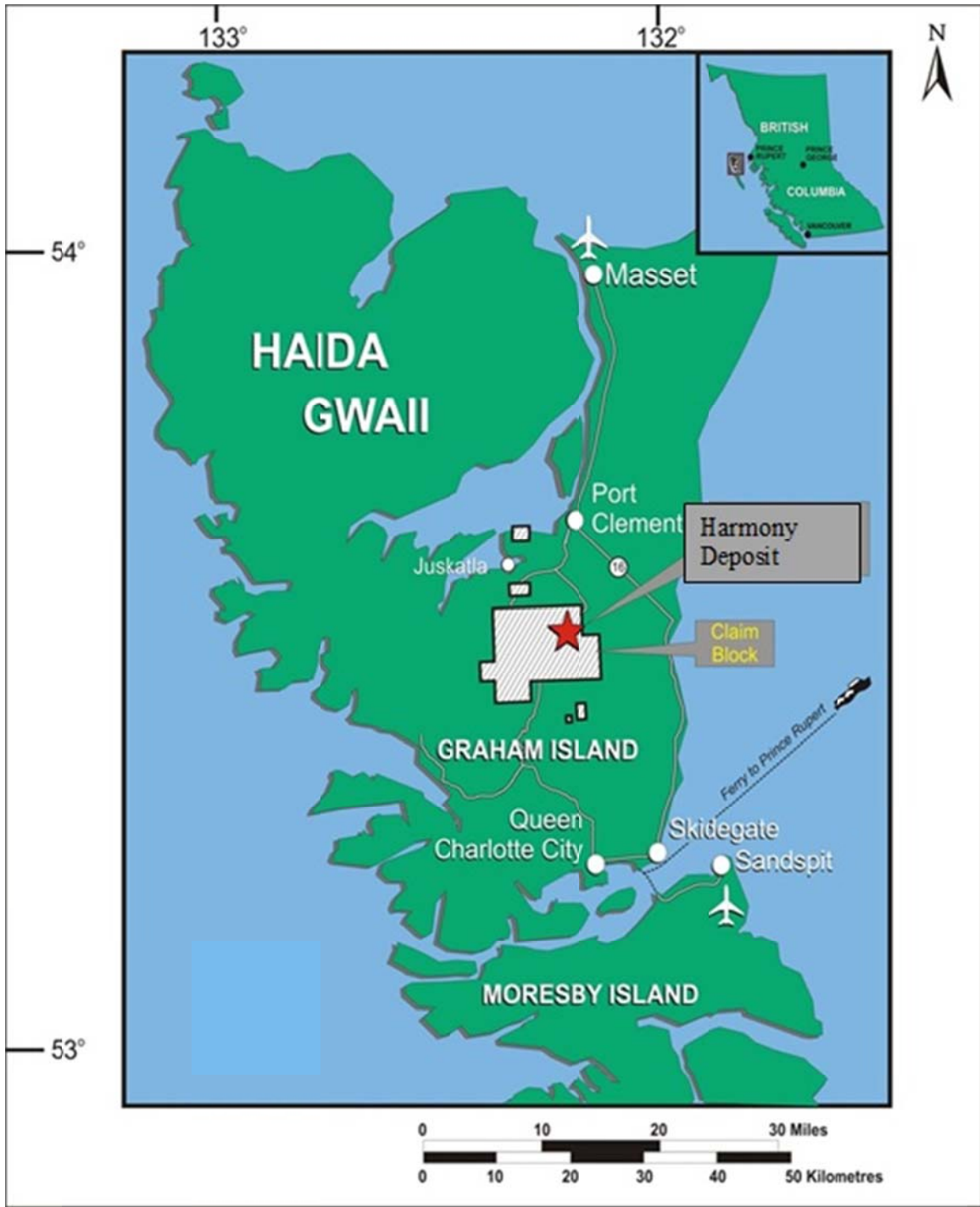
## **2.0) LOCATION AND ACCESS**

The Harmony property is located on Graham Island in the Haida Gwaii Islands archipelago, British Columbia. The property is centered on Latitude 53° 31' north, Longitude 132° 13' west on National Topographical System (“NTS”) map sheet 103F/034.

Access to the Specogna deposit is via logging roads 40 km from the town of Queen Charlotte City and 30 km from Port Clements. Daily flights from Vancouver land at the Sandspit Airport where taxi and ferry service is available to Queen Charlotte City. Freight can be transported from or to the mainland by scheduled or contract-freight services using B.C. Ferries or independent barge services.

The area is covered by second growth forest which lies within the Tree Farm License of a local logging company. A substantial portion of the claim area has been clear-cut logged, including the deposit area, and logging activity is ongoing.

Figure 1: Property Location Map



### **3.0) PHYSIOGRAPHY AND CLIMATE**

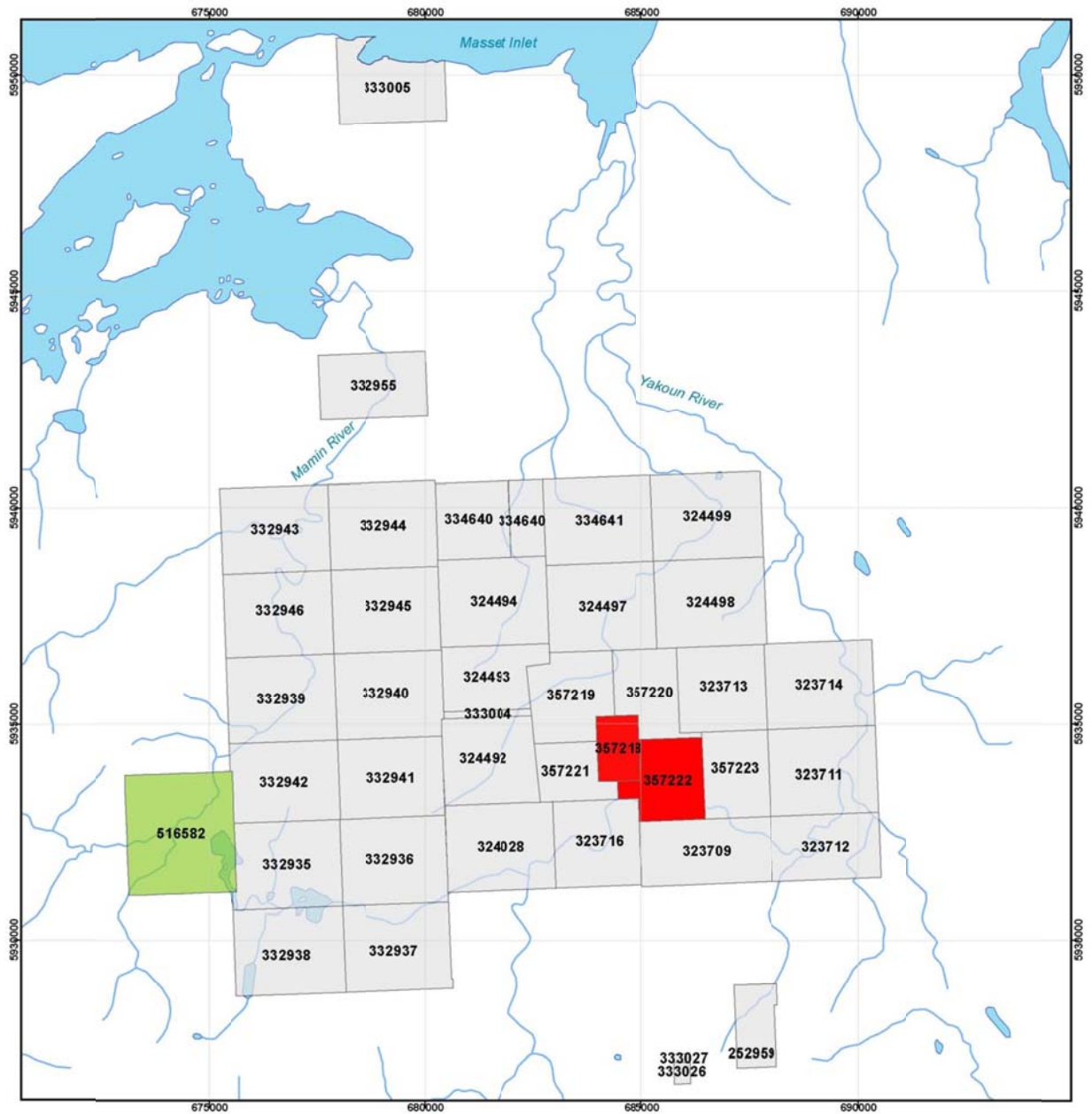
The property straddles the boundary between the relatively low and flat Haida Gwaii Lowlands to the east and the higher Skidegate Plateau (also known as the Queen Charlotte Ranges) to the west. The major northwest-trending Sandspit fault separates these physiographic provinces. Elevations range from about 70 m in the Yakoun River valley near the deposit to about 1000 m in the higher regions of the Skidegate Plateau.

The climate of the Haida Gwaii Islands is typical of British Columbia maritime areas, with average temperatures ranging from 1°C in January to 15° C in August. Annual average precipitation is about two metres. Rain falls on approximately 213 days of each year and snow on about 18 days of each year. Exploration and development activities can be carried out year round.

### **4.0) CLAIMS**

Taseko, through its wholly owned subsidiary Gibraltar Mines Ltd., is the 100% owner of the Aley mineral claims. Taseko was the operator of the program described in this report. In 2015, work was conducted on 2 of the 40 mineral claims which constitute the whole Harmony property (Figure 2). The work was conducted on claims 357218 and 357222, and the 2015 assessment work was applied to claim 516582.

Figure 2: Harmony Mineral Claims



**Harmony Mineral Claims Location**

Map Prepared by  
Taseko Mines Ltd.  
Date: 2016/May/24  
Data Sources:  
Province of British Columbia, Taseko Mines Ltd.  
Projection: UTM Zone 8, NAD 83

**Legend**

- Harmony Claims On Which 2015 Work Was Performed
- Harmony Claim To Which 2015 Work Value Was Applied
- Harmony Mineral Claims

1:118,312

Kilometers  
0 1.5 3 4.5 6 7.5

**Taseko** Harmony



## **5.0) EXPLORATION HISTORY**

The deposit was discovered by Efrem Specogna and Johnny Trinco in 1970 while prospecting along the trace of the Sandspit Fault. Subsequently, a succession of companies carried out exploration work on the deposit.

Drilling first commenced in 1971 by Kennco Exploration (Western) and continued during the 1970s and 1980s by Cominco, Quintana Minerals Corporation, Consolidated Cinola Mines' Energy Reserves Canada, and City Resources (Canada) Limited ("City Resources") or ("City"). By 1987 a total of 40,396 m had been drilled comprising 33,561 m of diamond drill core and 6,835 m of rotary drilling. In addition, a total of 583 m of adit entry and cross-cuts had been excavated.

This work led to a proposal in 1987 by City Resources to the British Columbia government to establish a 5,800 tonnes per day (2.1 million tonnes per year) processing facility involving pre-treatment of 31 million tonnes of open pit ore by nitric acid leaching (Arseno Process) followed by cyanidation and production of gold bullion.

Although City Resources was in the final stages of project certification by 1988, City decided not to continue with its proposal for corporate financial reasons that were not related to the Project. Permitting proceedings were suspended by the Company at the ministerial approval point of the final mine certification stage.

In 1991, Barrack Mines Ltd. commissioned Dr. Peter Dowd of Leeds University and Steffen, Robertson and Kirsten (SRK) to complete a re-evaluation of the deposit gold resource. Dowd/SRK reported a geological resource of 32,969,000 tonnes grading 2.26 g/t Au at a cut-off grade of 1.10 g/t. This historical mineral resource was prepared before the implementation of National Instrument 43-101 ("NI 43-101"), it does not use the categories of mineral resources and mineral reserves outlined in NI 43-101. The historical estimate is no longer relevant and should not be relied upon. Barrack deemed the project uneconomic due to low gold prices and high capital costs and suspended work on the property.

In December 1993, a group of Australian investors acquired Barrack's controlling interest and renamed the company Misty Mountain Gold Limited. In November 1994, Romulus Resources Limited entered into an option agreement with Misty Mountain Gold and in November 1995, the companies merged. The merged companies retained the name Misty Mountain Gold Limited.

In 1995-96, Misty Mountain Gold completed systematic grid drilling of 147 large-diameter holes totaling 34,627 m in the core of the Specogna deposit. The holes were spaced on a 20 m by 20 m grid pattern and angled at an inclination of  $-45^{\circ}$  and an azimuth of  $120^{\circ}$ . The objective of this work was to increase the gold resources and, at the same time, provide higher quality data and more reliable grade estimates. In late 1997, four deep (400 to 550 m) holes totaling 1,999 m were drilled to test for bonanza gold targets below the deposit.

Geophysical orientation/exploration surveys (IP/Resistivity) were also completed over the deposit and surrounding areas in order to define the deposit's geophysical signature and to explore prospective, adjacent lands.

Four holes totaling 575 m were drilled 80 to 280 m north of the deposit in late 1998 to test coincident chargeability/resistivity anomalies defined in the geophysical surveys.

There has been no exploration activity on the property since 1998.

Gibraltar Mines Ltd. acquired the project in 2001 through a transaction with Misty Mountain Gold Ltd. The claims are 100% owned by Gibraltar and there are no underlying royalties on the property.

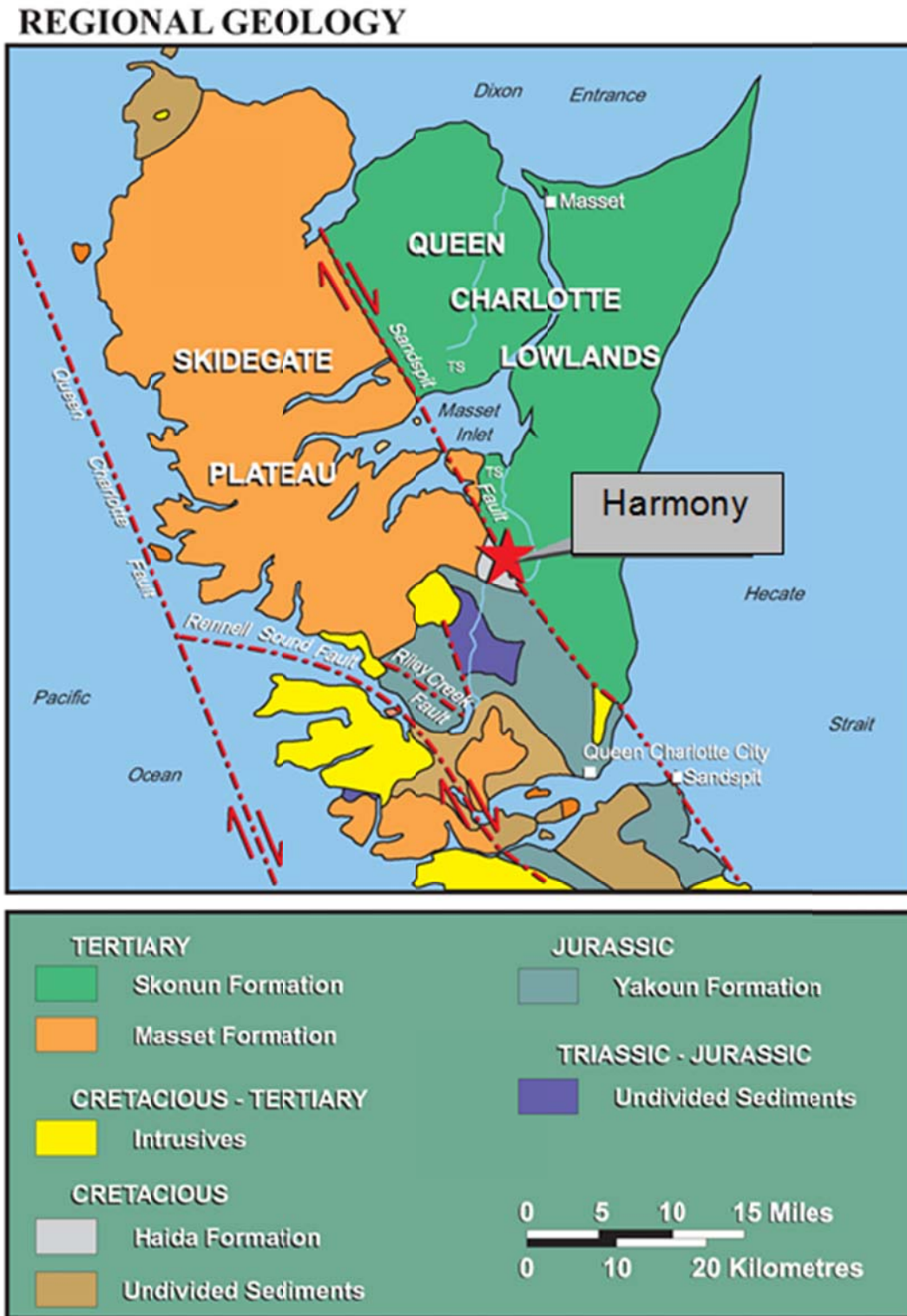
## **6.0) REGIONAL GEOLOGY**

The following overview of the regional geological setting of the Queen Charlotte Islands is extracted in part from Dietrich (1995), who also draws from studies by Lewis et al. (1991), Thompson et al. (1991), Rohr and Dietrich (1992), and Haggart (1991). Other excerpts are taken from studies by Van der Heyden (1989) and Rohr and Currie (1997). The overview also incorporates some aspects of regional geology as described in Christopher's (1997) Summary Report on the Harmony Gold Project and Sutherland Brown's (1968) Geology of the Queen Charlotte Islands, British Columbia.

The Queen Charlotte Islands and the offshore shelf areas of Dixon Entrance, Hecate Strait and Queen Charlotte Sound make up the Queen Charlotte Basin region. This region lies immediately east of the Pacific-North American plate boundary, within the Insular Tectonic Belt of the Canadian Cordillera. Further east, the basin is bounded by intrusive and metamorphic rocks of the Coast Plutonic Complex (Figure 3). Volcanic, plutonic and sedimentary rocks, ranging from Triassic to Tertiary in age, underlie the Queen Charlotte Basin region.

The basin itself consists essentially of a linked network of grabens and half grabens with as much as 6 km of Neogene basin fill. Previous interpretations of regional structure, including the Sandspit fault, relate geological evolution of the Queen Charlotte Basin to convergent and transcurrent interactions along the plate boundary. However, plate boundary forces are probably not the sole mechanism of formation, inasmuch as extensional faulting and the majority of magmatism occurred during a period of nearly pure strike-slip (i.e. non-compressive) movement. Current data support the idea that, inboard of the Queen Charlotte fault, a low-angle normal fault is responsible for the formation of a contemporaneous paired belt of subsidence and uplift beneath the basin and Coast Mountains respectively.

Figure 3: Regional Geology



## 7.0) PROPERTY GEOLOGY

The deposit, a low sulphidation epithermal gold deposit of Miocene age, is localized along the Sandspit fault. The Sandspit fault is a northwest-trending, east-dipping transform fault of dextral and normal displacement. The fault has juxtaposed Late Cretaceous mudstone of the Haida Formation to the west with Late Tertiary alluvial fan and shallow marine coarse clastic sediments of the Skonun Formation to the east. In the deposit area, a porphyritic dyke of mainly dacitic to locally andesitic composition intrudes the Haida mudstone and Skonun sediments along the Sandspit fault. Dykes and irregular bodies of rhyolite to trachyandesite occur within the Haida mudstone west of the Sandspit fault. The dykes at Specogna have been correlated with Neogene volcanic rocks of the Masset Formation. The major rock units, topography and mineralization outline are all shown in Figure 4.

Gold-bearing breccia, vein and stockwork development occurs along the fault and in subsidiary dilational structures extending upward into the thick hanging wall sequence of Skonun Formation clastic sediments. Gold mineralization is contained in an 800 m long zone that roughly parallels the fault. The gold zone is funnel-shaped in cross-section, is approximately 200 m wide at surface and narrows to approximately 50 m at 200 m depth below surface.

Mineralization is dominated by pyrite and marcasite which typically comprise 1 to 4% of the host rocks. Gold and silver occur as electrum. Visible gold is found predominantly in quartz/chalcedony veins; individual silver minerals have not been identified. Other sulphides are rare and have been largely identified microscopically or in flotation mineral concentrates.

Work by Champigny (Champigny, 1981), (Tolbert & Froc, 1988), City Resources (City Resources, 1986-88; unpublished drill logs), Christie (Christie, 1988), Misty Mountain Gold Limited (1995; unpublished drill logs) and (Deighton, 1996) provided a detailed account of the lithologies present at the Specogna Deposit. The following is a summary of the lithologies described by Deighton, 1996.

### **Cretaceous Haida Formation**

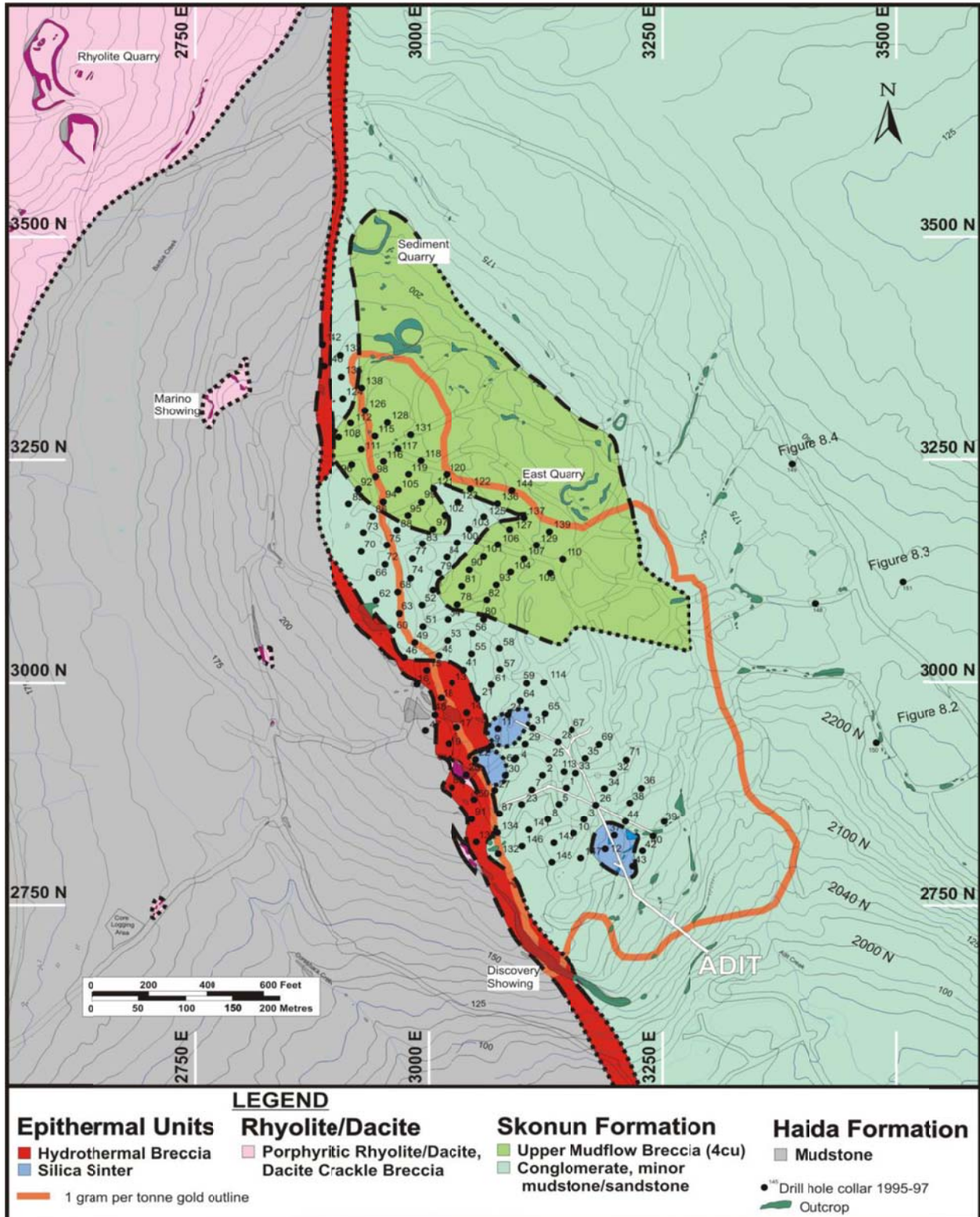
The Cretaceous Haida Formation consists of indurated dark grey to black shale with minor sandstone and siltstone beds. It occurs on the western side of the Specogna Fault and extends below the Tertiary volcanics to the west of the deposit.

### **Tertiary Skonun Formation**

Several units of coarse clastic Tertiary sediments outcrop east of the Specogna Fault.

Boulder conglomerate, the deepest Skonun unit encountered in the deposit area, is a coarse conglomerate with clasts of volcanic rocks up to 0.5 m in diameter in a consolidated mud and sand matrix.

Figure 4: Local Geology Setting



Pebble conglomerate with intercalated sandstone, siltstone and mudstone beds is a clast-supported polymictic pebble conglomerate in which clasts average 3 cm in diameter. Also present are beds of matrix-supported pebble conglomerate. The strata dip 15 to 20 degrees to the east. Clasts are predominantly felsic volcanic and plutonic rocks, although clasts of sedimentary and metamorphic rocks are also present. The intercalated sandstone and siltstone units have primary sedimentary structures which include plane and ripple laminations, graded bedding and cross bedding. Wood fragments are common, most are only a few millimetres long but rare logs may range up to a metre or more in length.

Two mud-flow units are present. The lower mud-flow unit is a sedimentary breccia with rhyolite and sedimentary rock clasts in a mud matrix. It contains approximately 30% clasts, 1 to 15 centimetre ("cm") in size but sedimentary rock clasts up to 2 m in diameter occur sporadically. Rhyolite clasts often have wispy angular outlines. Some wood fragments are present, including logs.

The upper mud-flow unit is a sandy, matrix-supported sedimentary breccia containing angular to subangular clasts 1 to 5 cm in diameter. Parts of the unit contain coarse clasts ranging up to a metre in diameter. They are predominantly volcanic and sedimentary rocks but some comprise quartz-vein clasts. The upper part of the unit contains beds of sandstone with abundant shells of bivalve molluscs (Champigny, 1981).

The upper mud-flow unit differs from the lower mud-flow unit in that it has matrix-rich sections with few clasts, beds of apparently conformable stratified fine sediment, concentrations of bivalve mollusc shells, and a much wider distribution.

### **Rhyolite**

A dyke of porphyritic rhyolite intrudes the Haida shale and Skonun sediments along the Specogna fault. The rhyolite is beige to creamy white when fresh, pale green where altered to sericite, has quartz and feldspar phenocrysts up to 6 millimetres in size and some parts are flow banded. It is tentatively correlated with the rhyolitic rocks of the Miocene Masset Formation.

### **Hydrothermal Breccias**

Also present is an intrusion-related phreatomagmatic breccia or diatreme of heterolithic hydrothermal breccias hosted in, and primarily composed of Skonun sediments and subordinate rhyolite. The breccias range from a silica cemented crackle breccia to quartz matrix supported breccia. They were probably formed by the intrusion of rhyolite dykes along the Specogna fault into wet Skonun sediments as suggested by the presence of sediment clasts within rhyolite fragments in intrusive breccia. Multiple episodes of brecciation are evident. Two re-worked breccia-mound derived sedimentary units, the lower and the upper mud-flow units of the Skonun Formation, are further evidence of repeated episodes of explosive brecciation (Madeisky, 1995).

Plant debris is occasionally encountered in various rock units at the deposit. It tends to be concentrated in finer grained sediments of the Skonun Formation, where it can comprise up to a few percent of the sediments. Carbon fragments are most abundant in mudstone and sandstone horizons. Lesser amounts occur in the lower mudflow breccia and matrix supported



conglomerate, and only minor amounts are found in the upper mudflow breccia and clast supported conglomerate. Plant debris typically forms thin wisps and laths, less than 1 millimetre ("mm") thick to thicker tabular fragments up to a few cm thick that parallel bedding in the mudstone and sandstone horizons

### **Alteration**

The deposit lies within an elongated zone of moderate to intense hydrothermal alteration which at surface extends over a known area of approximately 2 km<sup>2</sup>. Its western limit is bounded by the Sandspit fault and spatially, its distribution roughly mimics the deposit geometry.

There is an asymmetric zonation to the hydrothermal alteration, with a central, precious metals enriched, silicic-potassic (adularia) zone being enclosed to the east by an outer argillic zone. A smectite-illite clay overprinting event is also present in the silicic-potassic zone. The overall intensity of argillic alteration gradually diminishes outwards; 600 m east of the deposit, unaltered and unconsolidated Skonun sediments were encountered in drilling. The argillic zone becomes increasingly chloritic and more closely confined to the proximity of the Sandspit fault with depth.

### **Structure**

The deposit is located within the hanging wall portion of the Sandspit fault, a transform fault of regional extent, which defines the western margin of the Queen Charlotte Lowlands. The fault strikes 153° to 172° in the area of the deposit, averaging 162°, and dips 40° to 55° E. It comprises a zone up to 70 m wide that encloses blocks of Haida mudstone and porphyritic dacite. Gravity measurements suggest that the east side of the fault has been displaced vertically downward by 1500 m (Young and Chase, 1977).

### **Mineralization**

Gold mineralization is primarily contained in an 800 m long zone that roughly parallels the Sandspit fault. The gold zone is funnel-shaped in cross-section, approximately 250 m wide at surface and narrows to approximately 50 m at 0 m elevation.

A second, separate zone of gold mineralization occurs 290 m north of the previously described zone. Here, diamond drilling encountered an interval of sheared and pyritic but sparsely quartz veined dacite dyke along the Sandspit fault that graded 10.07 grams gold per tonne over 9.98 m.

Within the main mineralized zone of predominantly potassic and silicic alteration, elevated gold contents are common, albeit at lower concentrations than in hydrothermal veins and breccias. Visible gold, in the form of electrum, is found predominantly in quartz/chalcedony veins often at, or within a few centimetres of, vein margins. The majority of visible gold occurrences are confined either to the light grey siliceous rocks or, to a lesser extent, the dark brown-grey to grey chalcedonic silica.

Visible gold commonly occurs as elongate, irregular, sometimes dendritic particles, usually in tight clumps, typically 0.1 to 0.5 mm in size but occasionally up to 4 by 2 mm. Less common are beaded chains, up to a few mm in length, along vein contacts, flakes up to 0.9 by 1.2 mm and

rare, coarsely matted patches up to 4 by 9 mm in size. Gold also appears to be preferentially deposited on grains, blebs and fringes of pyrite and marcasite along vein margins. Visible gold may also occur on fragments of carbonized and silicified plant debris at vein contacts.

Apart from the association with veins and their relationship to the hanging wall of the fault, there appears to be no other structural control on the occurrence of visible gold. Gold is found in veins and breccias cutting all major geologic units encountered at Specogna. Visible gold is more frequently noted in veins which cut Skonun sediments, volumetrically the most abundant host rock. Few occurrences are noted in the Haida sediments.

## **8.0) 2015 WATER SAMPLING AND ANALYSIS**

### **8.1) Work Performed**

Site inspection and water sampling were undertaken by Taseko in April and August of 2015 as part of an ongoing program to:

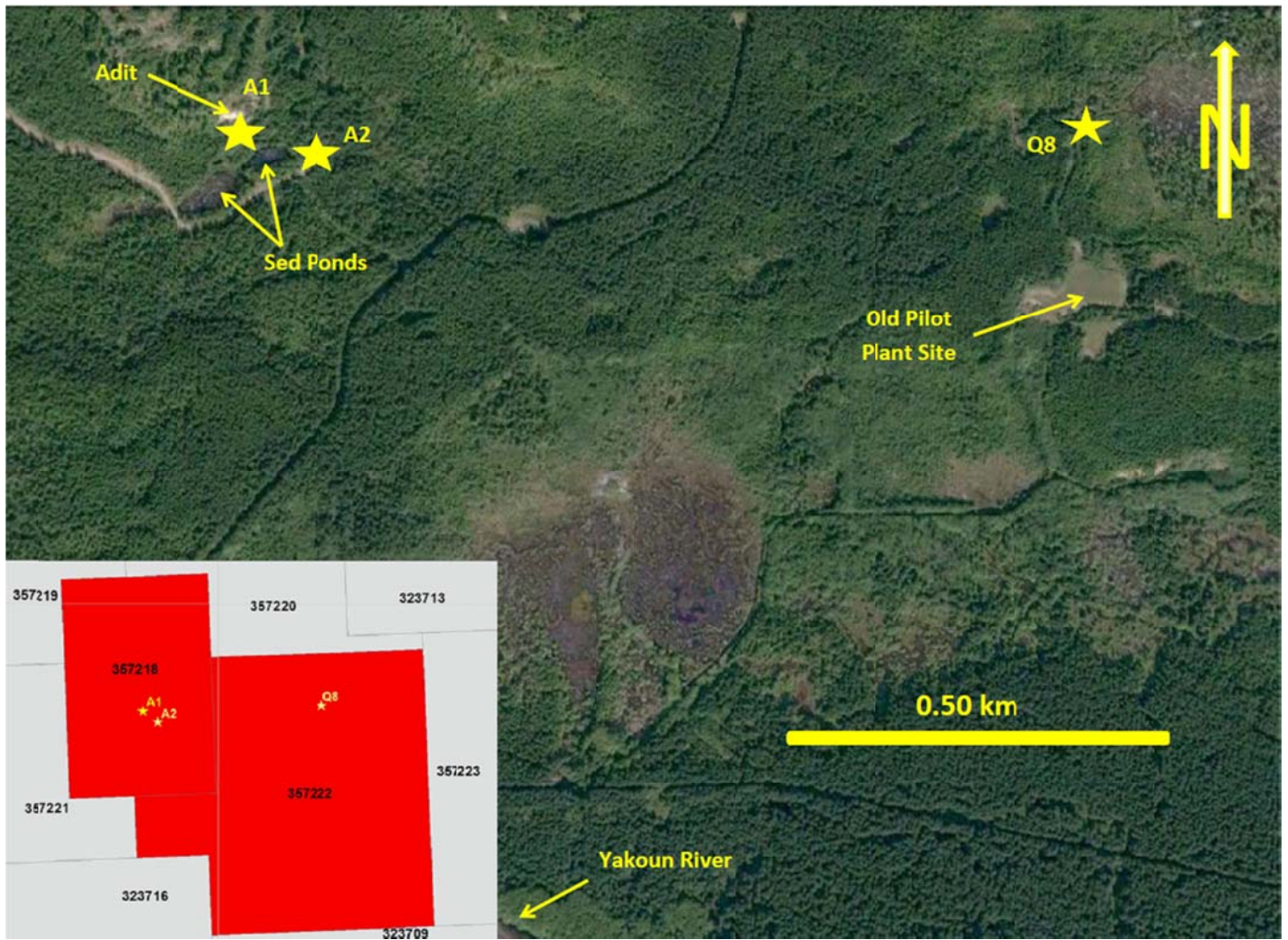
1. Characterize and evaluate the ARD and ML potential of the rockmass exposed by underground workings to provided data to be used in concert with historical process waste characterization in the prediction of water quality resulting from proposed development.
2. Characterize and evaluate the ARD and ML potential of the tailings generated from a pilot plant in the 1980's.
3. Evaluate the effectiveness of a passive water treatment system for removal of excessive nutrients, metals and sediment such that such a system could be considered in a future mine design for ensuring water quality from development activities would be suitable for discharge to the environment.

Water sampling was conducted at two sites on April 14, 2015 and August 11, 2015. The sample locations include the Adit drainage (station A1) and Adit settling pond discharge (station A2). Water sampling was also conducted at a point downstream from a pilot plant and tailings site operated in the 1980's (station Q8). The sample site locations are shown in Figure 5.

Water samples were collected as per British Columbia Field Sampling Manual for Continuous Monitoring and the Collection of Air, Air-Emissions, Water, Wastewater, Soil, Sediment, and Biological Samples (January 2003). Samples were submitted to ALS Burnaby for full analysis on April 15, 2015 and August 12, 2015. For quality control/assurance, a field duplicate was collected at station A2 and a field blank was collected.



Figure 5: Location of Work Performed



## 8.2) Raw Data

A summary of water quality data from stations A1, A2, and Q8 are compiled below in Tables 1, 2, and 3.

**Table 1: Station A1 Data**

Sample Data	April 14, 2016 Site A1	August 11, 2015 Site A1
Temperature (°C)	9.7	12.5
pH	6.19	8.8
Dissolved Oxygen (mg/L)	9.76	9.8
TDS (mg/L)	0.0910	NA
Turbidity (NTU)	8.69	NA
Conductivity (us/cm)	137	290
Hardness (as CaCO <sub>3</sub> )	26.4	41.5
Sulfate (SO <sub>4</sub> ) (mg/L)	17.8	31.5
<b>Base Cations (Dissolved)</b>		
Barium (mg/L)	0.0151	0.0117
Calcium (mg/L)	8.05	12.4
Chloride (mg/L)	10.5	23.7
Potassium (mg/L)	1.57	3.43
Magnesium (mg/L)	1.53	2.55
Sodium (mg/L)	13.6	41.9
Strontium (mg/L)	0.0309	0.0633
<b>Total Metals</b>		
Aluminum (mg/L)	0.617	0.113
Copper (mg/L)	0.00087	<0.00050
Iron (mg/L)	1.05	0.711
Manganese (mg/L)	0.124	0.101
Zinc (mg/L)	0.0082	0.0045
<b>Dissolved Metals</b>		
Aluminum (mg/L)	0.285	0.0314
Copper (mg/L)	0.00047	<0.00020
Iron (mg/L)	0.434	0.074
Manganese (mg/L)	0.115	0.0680
Zinc (mg/L)	0.0067	0.0020
<b>Nitrogen Species</b>		
Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050
Total Kjeldahl Nitrogen (mg/L)	0.122	0.059
Nitrate (mg/L)	0.0132	0.0095
Nitrite (mg/L)	<0.0010	<0.0010
<b>Phosphorous</b>		
Dissolved Ortho-Phosphate (mg/L)	0.0109	0.0385
Total Dissolved Phosphorous (mg/L)	0.066	0.0375
Total Phosphorous (mg/L)	0.0511	0.0944

Table 2: Station A2 Data

Sample Data	April 14, 2015 Site A2	August 11, 2015 Site A2
Temperature (°C)	6.2	16.9
pH	6.69	7.4
Dissolved Oxygen (mg/L)	10.10	4.0
TDS (mg/L)	0.0728	NA
Turbidity (NTU)	3.86	NA
Conductivity (us/cm)	110	208
Hardness (as CaCO <sub>3</sub> )	23.7	31.7
Sulfate (SO <sub>4</sub> ) (mg/L)	16.6	11.6
<b>Base Cations (Dissolved)</b>		
Barium (mg/L)	0.00998	0.0122
Calcium (mg/L)	7.24	9.58
Chloride (mg/L)	8.26	18.4
Potassium (mg/L)	1.2	2.38
Magnesium (mg/L)	1.36	1.88
Sodium (mg/L)	10.0	29.6
Strontium (mg/L)	0.0272	0.0417
<b>Total Metals</b>		
Aluminum (mg/L)	0.373	0.0430
Copper (mg/L)	0.00075	<0.00050
Iron (mg/L)	0.639	1.07
Manganese (mg/L)	0.0420	0.191
Zinc (mg/L)	0.0048	0.0038
<b>Dissolved Metals</b>		
Aluminum (mg/L)	0.208	0.0280
Copper (mg/L)	0.00049	<0.00020
Iron (mg/L)	0.312	0.639
Manganese (mg/L)	0.0383	0.181
Zinc (mg/L)	0.0040	<0.0010
<b>Nitrogen Species</b>		
Ammonia, Total (as N) (mg/L)	<0.0050	0.0093
Total Kjeldahl Nitrogen (mg/L)	0.180	0.310
Nitrate (mg/L)	0.0245	<0.0050
Nitrite (mg/L)	<0.0010	<0.0010
<b>Phosphorous</b>		
Dissolved Ortho-Phosphate (mg/L)	0.0024	0.0053
Total Dissolved Phosphorous (mg/L)	0.038	0.0182
Total Phosphorous (mg/L)	0.0254	0.0231

Table 3: Station Q8 Data

Sample Data	August 11, 2015 Site Q8
Temperature (°C)	15.9
pH	6.0
Dissolved Oxygen (mg/L)	5.9
TDS (mg/L)	N/A
Turbidity (NTU)	N/A
Conductivity (us/cm)	61.9
Hardness (as CaCO <sub>3</sub> )	16.9
Sulfate (SO <sub>4</sub> ) (mg/L)	1.73
<b>Base Cations (Dissolved)</b>	
Barium (mg/L)	0.01
Calcium (mg/L)	4.3
Chloride (mg/L)	7
Potassium (mg/L)	0.6
Magnesium (mg/L)	1.5
Sodium (mg/L)	6.4
Strontium (mg/L)	0.03
<b>Total Metals</b>	
Aluminum (mg/L)	0.46
Copper (mg/L)	<0.001
Iron (mg/L)	3.7
Manganese (mg/L)	0.1
Zinc (mg/L)	0.003
<b>Dissolved Metals</b>	
Aluminum (mg/L)	0.28
Copper (mg/L)	<0.001
Iron (mg/L)	1.31
Manganese (mg/L)	0.07
Zinc (mg/L)	0.002
<b>Nitrogen Species</b>	
Ammonia, Total (as N) (mg/L)	0.010
Total Kjeldahl Nitrogen (mg/L)	0.48
Nitrate (mg/L)	0.01
Nitrite (mg/L)	<0.001
<b>Phosphorous</b>	
Dissolved Ortho-Phosphate (mg/L)	0.02
Total Dissolved Phosphorous (mg/L)	0.04
Total Phosphorous (mg/L)	0.05

The Certificates of Analysis associated with this data are included in the Appendix 1 and 2.

### 8.3) Interpretation of Results and Analysis

This program is part of a larger multi-year data collection program. As a result, analysis related to long term ARD and metal leaching potential for both the deposit and tailings is premature.

Data is reviewed relative to the BC Water Quality and Canadian Council of Ministers of the Environment Guidelines for the Protection of Aquatic Life. To date, the passive treatment system is demonstrating effective reduction of sediment, nutrients, and most metals; Al and Fe are periodically elevated above guidelines in the water discharge as are baseline values for these two elements in the project area.

### 8.4) Conclusions

The function of the system has improved in recent years but further investigation is required before being able to provide firm conclusions as the function of this treatment system design as results vary over time and seasons.

It was concluded that sampling should continue on a biannual basis in 2016 to add to the ARD/ML database and to confirm the trends being observed with regard to metal concentrations.

### 8.5) Cost Statements

Costs associated with assessment work completed in 2015 are provided in Tables 4 and 5.

**Table 4: Cost of Sampling Equipment, Supplies and Analysis**

Service Provider	Equipment	Cost Basis	Subtotal	Total
Hoskin Scientific Limited	Field Measurement device rental (Apr.)	Is	\$314.58	\$314.58
ALS Canada Limited	Analysis (Apr.)	Is	\$989.40	\$989.40
Hoskin Scientific Limited	Field Measurement device rental (Apr.)	Is	\$382.51	\$382.51
ALS Canada Limited	Analysis (Aug.)	Is	\$1,326.50	\$1,326.50
<b>Total</b>			<b>\$3,012.99</b>	<b>\$3,012.99</b>

**Table 5: Cost of Taseko Labour and Disbursements**

<b>Category</b>	<b>Personnel</b>	<b>Cost Basis</b>	<b>Subtotal</b>	<b>Total</b>
Taseko Labour	2 people, 4 days (Apr)	\$934.75/day	\$3,739.00	\$3,739.00
Accommodation /meals	2 people, 4 days (Apr)	\$99.07/day/p	\$792.61	\$792.61
Transportation	2 people (Apr)	Is	\$2,614.60	\$2,614.60
Taseko Labour	2 people, 4 days (Aug)	\$834.75/day	\$3,339.00	\$3,339.00
Accommodation /meals	2 people, 4 days (Aug)	\$110.06/day/p	\$880.45	\$880.45
Transportation	2 people (Aug)	Is	\$2,724.40	\$2,724.40
<b>Total</b>			<b>\$14,090.06</b>	<b>\$14,090.06</b>

**REFERENCES**

**CHAMPIGNY, N. 1981.** *A Geological Evaluation of the Cinola (Specogna) Gold Deposit, Queen Charlotte Islands, British Columbia, Unpublished M.Sc. Thesis The University of British Columbia, 199 pages.*

**PETER CHRISTOPHER, PH.D., P.ENG., 1997.** *Peter Christopher & Associates Inc. – Summary Report – Harmony Gold Project – Specogna Deposit.*

**CHRISTIE, A.B. 1988.** *Cinola Gold Deposit, Queen Charlotte Islands, British Columbia Ministry of Energy, Mines and Petroleum Resources Geological Fieldwork, paper 1989-1.*

**DEIGHTON, J.R. 1996.** *Summary Report Harmony Project - Specogna Gold Deposit Unpublished Private Report for Misty Mountain Gold Ltd., 51 p.*

**DIETRICH, J.R., 1995.** *Petroleum resource potential of the Queen Charlotte Basin and environs, west coast Canada. Bulletin of Canadian Petroleum geology, v. 43 (1), pp20-34.*

**HAGGART, J.W., 1991.** *A synthesis of Cretaceous stratigraphy, Queen Charlotte Island, British Columbia. In: Evolution and Hydrocarbon Potential of the Queen Charlotte Basin, British Columbia. G. J. Woodsworth (ed.) Geological Survey of Canada, Paper 90-10, pp 253-277.*

**LEWIS, P. D., HAGGART, J.W., ANDERSON, R. G., HICKSON, C.J. THOMPSON, R.I. DIETRICH, J.R., AND ROHR, K.M.M. 1991.** *Triassic to Neogene geologic evolution of the Queen Charlotte region. Canadian Journal of Earth Sciences, v 28, pp 854-869.*

**MADEISKY, H.E. 1995.** *A lithochemical and Radiometric Study of Hydrothermal Alteration and Metal Zoning at the Cinola Epithermal Gold Deposit, Queen Charlotte Islands, British Columbia Private report for Misty Mountain Gold Limited.*

**NOWAK, M., REID, D., BOWER, B., TITLEY, E., NIOSI, D., AND GIROUX, G. H. 1997.** *Summary Report Resource Estimate for the Specogna Gold Deposit, Misty Mountain Gold Limited internal report, 79p.*

**ROHR, K.M., AND CURRIE, L., 1997.** *Queen Charlotte Basin and Coast Mountains: Paired belts of subsidence and uplift caused by a low-angle normal fault, Geology v 25 pp 819-822.*

**ROHR, K.M., AND DIETRICH, J.R. 1992.** *Strike-slip tectonics and development of the Tertiary Queen Charlotte Basin, offshore western Canada: evidence from seismic reflection data. Basin Research, v 4 pp 1-19.*

**SUTHERLAND BROWN, A., 1968.** *Geology of the Queen Charlotte Islands, British Columbia. B.C. Dept. of Mines & Pet. Res., Bull. 54.*

**THOMPSON, R.I., HAGGART, J.W., AND LEWIS, P.D., 1991.** *Late Triassic through early Tertiary evolution of the Queen Charlotte Basin, British Columbia with a perspective on hydrocarbon potential, in: Woodsworth, G.L. (ed.) Evolution and Hydrocarbon Potential of the Queen Charlotte Basin, British Columbia, Geological Survey of Canada, Paper 90-10 pp 3-30.*

**TOLBERT, R.S., N.V. FROC (1988).** *Geology of the Cinola Gold Deposit, Queen Charlotte Islands, B.C. Private Report for City Resources (Canada) Ltd.*

**VANDER HEYDEN, P. 1989.** *U-Pb and K-Ar geochronometry of the Coast Plutonic Complex 53° N to 54° N, British Columbia, and implications for the Insular-Intermontane Superterrane boundary; Ph.D. thesis, University of British Columbia, Vancouver, 253 p*

**YOUNG, I.F., AND CHASE, R.L. 1977.** *Gravity and seismic reflection profiles over the Sandspit fault Queen Charlotte Island (103G/1E) British Columbia Energy Mines and Petroleum Resources Geological Fieldwork Paper 1977-1 pp 59-64.*

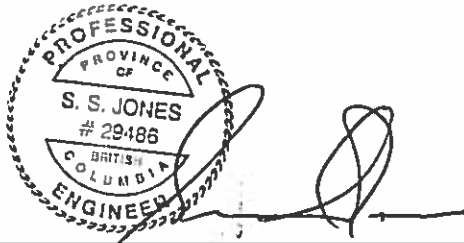


## STATEMENT OF AUTHOR'S QUALIFICATIONS

I, Scott Jones, hereby state:

1. That I prepared this report in my capacity as Vice-President, Engineering of Taseko Mines Limited, with offices located at 15th Floor, 1040 W. Georgia St. Vancouver, BC, V6E 4H8.
2. That I am a graduate of McGill University (B.Eng. Mining, 1985) and have been employed by Taseko Mines Limited. Since 2006.
3. That I have the relevant education and experience to act as a qualified person in the reporting of the work carried out in 2015 on the Harmony Property and described in this report.
4. That the accompanying Cost Statements in Section 8.5 are an accurate statement of expenditures on the project.

Signed on June 1, 2016



Scott Jones, B. Eng. Mining. P.Eng.

# **Appendix 1**

## **April 2015 ALS Certificate of Analysis**



GIBRALTAR MINES LIMITED  
ATTN: Sonia Meili  
15th Floor, 1040 W. Georgia St  
Vancouver BC V6E 4H1

Date Received: 15-APR-15  
Report Date: 23-APR-15 17:59 (MT)  
Version: FINAL

Client Phone: 250-392-3100

## Certificate of Analysis

**Lab Work Order #:** L1599388  
Project P.O. #: 168  
Job Reference: HARMONY WATER SAMPLING  
C of C Numbers: 14-443697  
Legal Site Desc:

Dean Watt, B.Sc.  
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700  
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

## ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1599388-1 Water 14-APR-15 11:00 A1	L1599388-2 Water 14-APR-15 11:00 DUPLICATE	L1599388-3 Water 14-APR-15 11:00 FIELD BLANK	L1599388-4 Water 14-APR-15 12:00 A2
Grouping	Analyte				
<b>WATER</b>					
<b>Physical Tests</b>	Conductivity (uS/cm)	137	136	<2.0	110
	Hardness (as CaCO3) (mg/L)	26.4	26.6	<0.50	23.7
	pH (pH)	7.36	7.45	5.34	7.34
<b>Anions and Nutrients</b>	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050
	Chloride (Cl) (mg/L)	10.5	10.2	<0.50	8.26
	Fluoride (F) (mg/L)	0.094	0.091	<0.020	0.069
	Nitrate (as N) (mg/L)	0.0132	0.0137	<0.0050	0.0245
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Total Kjeldahl Nitrogen (mg/L)	0.122	0.116	<0.050	0.180
	Orthophosphate-Dissolved (as P) (mg/L)	0.0109	0.0129	<0.0010	0.0024
	Phosphorus (P)-Total (mg/L)	0.0511	0.0497	<0.0020	0.0254
	Phosphorus (P)-Total Dissolved (mg/L)	0.066	0.057	<0.0020	0.038
Sulfate (SO4) (mg/L)	17.8	17.1	<0.30	16.6	
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)	0.617	0.662	<0.0030	0.373
	Antimony (Sb)-Total (mg/L)	0.00099	0.00103	<0.00010	0.00052
	Arsenic (As)-Total (mg/L)	0.00974	0.0101	<0.00010	0.00533
	Barium (Ba)-Total (mg/L)	0.0167	0.0171	<0.000050	0.0105
	Beryllium (Be)-Total (mg/L)	0.000065	0.000066	<0.000020	0.000029
	Bismuth (Bi)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050
	Boron (B)-Total (mg/L)	0.052	0.040	<0.010	0.028
	Cadmium (Cd)-Total (mg/L)	0.0000075	0.0000114	<0.0000050	0.0000070
	Calcium (Ca)-Total (mg/L)	7.67	7.80	<0.050	6.95
	Chromium (Cr)-Total (mg/L)	0.00037	0.00035	<0.00010	0.00017
	Cobalt (Co)-Total (mg/L)	0.00084	0.00087	<0.00010	0.00024
	Copper (Cu)-Total (mg/L)	0.00087	0.00089	<0.00050	0.00075
	Iron (Fe)-Total (mg/L)	1.05	1.13	<0.010	0.639
	Lead (Pb)-Total (mg/L)	0.000082	0.000094	<0.000050	<0.000050
	Lithium (Li)-Total (mg/L)	0.0068	0.0068	<0.0010	0.0043
	Magnesium (Mg)-Total (mg/L)	1.49	1.51	<0.10	1.31
	Manganese (Mn)-Total (mg/L)	0.124	0.129	<0.00010	0.0420
	Mercury (Hg)-Total (mg/L)	0.0000441	0.0000417	<0.0000050	0.0000189
	Molybdenum (Mo)-Total (mg/L)	0.000162	0.000158	<0.000050	0.000068
	Nickel (Ni)-Total (mg/L)	0.00084	0.00090	<0.00050	<0.00050
	Phosphorus (P)-Total (mg/L)	0.050	0.054	<0.050	<0.050
	Potassium (K)-Total (mg/L)	1.57	1.61	<0.10	1.15
Rubidium (Rb)-Total (mg/L)	0.00264	0.00252	<0.00020	0.00192	

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1599388-1 Water 14-APR-15 11:00 A1	L1599388-2 Water 14-APR-15 11:00 DUPLICATE	L1599388-3 Water 14-APR-15 11:00 FIELD BLANK	L1599388-4 Water 14-APR-15 12:00 A2
Grouping	Analyte				
<b>WATER</b>					
<b>Total Metals</b>	Selenium (Se)-Total (mg/L)	0.000241	0.000238	<0.000050	0.000142
	Silicon (Si)-Total (mg/L)	6.23	6.38	<0.050	4.30
	Silver (Ag)-Total (mg/L)	0.000020	0.000024	<0.000010	0.000010
	Sodium (Na)-Total (mg/L)	13.6	13.8	<0.050	10.5
	Strontium (Sr)-Total (mg/L)	0.0301	0.0296	<0.00020	0.0270
	Sulfur (S)-Total (mg/L)	6.04	6.06	<0.50	5.88
	Thallium (Tl)-Total (mg/L)	0.000189	0.000198	<0.000010	0.000049
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)	0.00696	0.00769	<0.00030	0.00298
	Uranium (U)-Total (mg/L)	0.000012	0.000015	<0.000010	<0.000010
	Vanadium (V)-Total (mg/L)	0.00083	0.00093	<0.00050	<0.00050
	Zinc (Zn)-Total (mg/L)	0.0082	0.0083	<0.0030	0.0048
<b>Dissolved Metals</b>	Dissolved Mercury Filtration Location				FIELD
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.285	0.286	<0.0010	0.208
	Antimony (Sb)-Dissolved (mg/L)	0.00081	0.00084	<0.00010	0.00048
	Arsenic (As)-Dissolved (mg/L)	0.00570	0.00581	<0.00010	0.00266
	Barium (Ba)-Dissolved (mg/L)	0.0151	0.0150	<0.000050	0.00998
	Beryllium (Be)-Dissolved (mg/L)	0.000043	0.000043	<0.000020	0.000020
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050
	Boron (B)-Dissolved (mg/L)	0.045	0.039	<0.010	0.026
	Cadmium (Cd)-Dissolved (mg/L)	0.0000092	0.0000093	<0.0000050	<0.0000050
	Calcium (Ca)-Dissolved (mg/L)	8.05	8.12	<0.050	7.24
	Chromium (Cr)-Dissolved (mg/L)	0.00012	0.00016	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	0.00075	0.00076	<0.00010	0.00021
	Copper (Cu)-Dissolved (mg/L)	0.00047	0.00038	<0.00020	0.00049
	Iron (Fe)-Dissolved (mg/L)	0.434	0.437	<0.010	0.312
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)	0.0068	0.0070	<0.0010	0.0042
	Magnesium (Mg)-Dissolved (mg/L)	1.53	1.54	<0.10	1.36
	Manganese (Mn)-Dissolved (mg/L)	0.115	0.117	<0.00010	0.0383
	Mercury (Hg)-Dissolved (mg/L)				0.0000094
	Molybdenum (Mo)-Dissolved (mg/L)	0.000105	0.000112	<0.000050	0.000052
	Nickel (Ni)-Dissolved (mg/L)	0.00072	0.00076	<0.00050	<0.00050
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Dissolved (mg/L)	1.57	1.59	<0.10	1.20
	Selenium (Se)-Dissolved (mg/L)	0.000181	0.000180	<0.000050	0.000119

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1599388-1 Water 14-APR-15 11:00 A1	L1599388-2 Water 14-APR-15 11:00 DUPLICATE	L1599388-3 Water 14-APR-15 11:00 FIELD BLANK	L1599388-4 Water 14-APR-15 12:00 A2
Grouping	Analyte				
<b>WATER</b>					
<b>Dissolved Metals</b>	Silicon (Si)-Dissolved (mg/L)	5.96	6.05	<0.050	4.29
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	13.6	13.9	<0.050	10.0
	Strontium (Sr)-Dissolved (mg/L)	0.0309	0.0310	<0.00020	0.0272
	Sulfur (S)-Dissolved (mg/L)	6.17	6.20	<0.50	5.80
	Thallium (Tl)-Dissolved (mg/L)	0.000187	0.000188	<0.000010	0.000049
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	0.00122	0.00127	<0.00030	0.00089
	Uranium (U)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050
	Zinc (Zn)-Dissolved (mg/L)	0.0067	0.0066	<0.0010	0.0040

\* 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	Bromide (Br)	DLM	L1599388-1, -2, -3, -4
Matrix Spike	Phosphorus (P)-Total	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Arsenic (As)-Dissolved	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Antimony (Sb)-Dissolved	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Arsenic (As)-Dissolved	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Aluminum (Al)-Dissolved	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Fluoride (F)	MS-B	L1599388-1, -2, -3, -4
Matrix Spike	Total Kjeldahl Nitrogen	MSTN	L1599388-1, -2, -3, -4

**Qualifiers for Individual Parameters Listed:**

Qualifier	Description
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.
MSTN	TKN Matrix Spike recovery was low due to interference from high nitrate, which causes negative bias on TKN.

**Test Method References:**

ALS Test Code	Matrix	Test Description	Method Reference**
<b>BE-D-L-CCMS-VA</b>	Water	Diss. Be (low) in Water by CRC ICPMS	APHA 3030B/6020A (mod)
Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
<b>BE-T-L-CCMS-VA</b>	Water	Total Be (Low) in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
<b>BR-L-IC-N-VA</b>	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
<b>CL-IC-N-VA</b>	Water	Chloride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
<b>EC-PCT-VA</b>	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.
This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.			
<b>F-IC-N-VA</b>	Water	Fluoride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			

## Reference Information

<b>HARDNESS-CALC-VA</b>	Water	Hardness	APHA 2340B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO <sub>3</sub> equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			
<b>HG-D-CVAA-VA</b>	Water	Diss. Mercury in Water by CVAAS or CVAFS	APHA 3030B/EPA 1631E (mod)
Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.			
<b>HG-T-CVAA-VA</b>	Water	Total Mercury in Water by CVAAS or CVAFS	EPA 1631E (mod)
Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.			
<b>MET-D-CCMS-VA</b>	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)
Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
<b>MET-DIS-LOW-ICP-VA</b>	Water	Dissolved Metals in Water by ICPOES	EPA 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).			
<b>MET-T-CCMS-VA</b>	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
<b>MET-TOT-LOW-ICP-VA</b>	Water	Total Metals in Water by ICPOES	EPA 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 (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).			
<b>NH3-F-VA</b>	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.			
<b>NO2-L-IC-N-VA</b>	Water	Nitrite in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
<b>NO3-L-IC-N-VA</b>	Water	Nitrate in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
<b>P-T-PRES-COL-VA</b>	Water	Total P in Water by Colour	APHA 4500-P Phosphorus
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.			
<b>P-TD-PRES-COL-VA</b>	Water	Total Dissolved P in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorus is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
<b>PH-PCT-VA</b>	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.			
<b>PH-PCT-VA</b>	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.			
<b>PO4-DO-COL-VA</b>	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorus
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.			



## Reference Information

**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.

**S-TOT-ICP-VA**                      Water              Total 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.

**SO4-IC-N-VA**                      Water              Sulfate in Water by IC                      EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**TKN-F-VA**                      Water              TKN in Water by Fluorescence                      APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

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\*\* 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
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

---

**Chain of Custody Numbers:**

14-443697

**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.*



L1599388-COFC

<b>Report To</b>		<b>Report Format / Distribution</b>			<b>Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)</b>												
Company: <u>Taseko Mines / Gibraltar Mine</u>		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL)			R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3pm)												
Contact: <u>Sonia Meili</u>		Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			P <input type="checkbox"/> Priority (2-4 business days if received by 3pm)												
Address: <u>15th Floor 1040 W. Georgia St. Vancouver, BC V6E 4H1</u>		<input type="checkbox"/> Criteria on Report - provide details below if box checked			E <input type="checkbox"/> Emergency (1-2 business days if received by 3pm)												
Phone: <u>(250) 392-3100</u>		Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			E2 <input type="checkbox"/> Same day or weekend emergency if received by 10am - contact ALS for surcharge.												
		Email 1 or Fax <u>Smeili@taseko.com</u>			Specify Date Required for E2, E or P:												
		Email 2			<b>Analysis Request</b>												
<b>Invoice To</b>		<b>Invoice Distribution</b>			Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below												
Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX															
Copy of Invoice with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Email 1 or Fax <u>Smeili@taseko.com</u>															
Company: <u>Gibraltar Mine</u>		Email 2															
Contact:																	
<b>Project Information</b>		<b>Oil and Gas Required Fields (client use)</b>															
ALS Quote #:		Approver ID:															
Job #: <u>Heavy water sampling</u>		GL Account:															
PO / AFE:		Activity Code:															
LSD:		Location:															
ALS Lab Work Order # (lab use only)		ALS Contact: <u>Dean Watt</u>			Sampler: <u>Smeili</u>												
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)			Date (dd-mm-yy)	Time (hh:mm)	Sample Type	Ammonia, Cl, F, NO <sub>2</sub> , NO <sub>3</sub> , SO <sub>4</sub>	Conductivity, pH, TD, Phosphate	Total Phosphorus, Orthophosphate	Ammonia, TKN	Total metals	Total mercury	Dissolved metals	Dissolved Mercury	Number of Containers		
	<u>A1</u>			<u>14-04-15</u>	<u>11 AM</u>	<u>water</u>	X	X	X	X	X	X	X	X	5		
	<u>Duplicate</u>			<u>14-04-15</u>	<u>11 AM</u>	<u>water</u>	X	X	X	X	X	X	X	X	5		
	<u>Field Blank</u>			<u>14-04-15</u>	<u>11 AM</u>	<u>water</u>	X	X	X	X	X	X	X	X	5		
	<u>A2</u>			<u>14-04-15</u>	<u>12 PM</u>	<u>water</u>	X	X	X	X	X	X	X	X	6		
<b>Short Holding Time</b> <b>Rush Processing</b>																	
<b>Drinking Water (DW) Samples<sup>1</sup> (client use)</b>		<b>Special Instructions / Specify Criteria to add on report (client use)</b>			<b>SAMPLE CONDITION AS RECEIVED (lab use only)</b>												
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<u>Please note dissolved Hg samples @ A1 field blank &amp; Duplicate were in correctly preserved. Please get dissolved Hg from dissolved metals if possible.</u>			Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>												
Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					Ice packs Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>												
					Cooling Initiated <input type="checkbox"/>												
					INITIAL COOLER TEMPERATURES °C					FINAL COOLER TEMPERATURES °C							
					6.6												
<b>SHIPMENT RELEASE (client use)</b>		<b>INITIAL SHIPMENT RECEPTION (lab use only)</b>			<b>FINAL SHIPMENT RECEPTION (lab use only)</b>												
Released by: <u>Sonia Meili</u>		Date: <u>Apr. 14, 2015</u> Time: <u>3 PM</u>			Received by: <u>J. Watt</u>			Date: <u>April 15</u> Time: <u>4:50</u>									

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FRM-02/04 v04 Rev 01/12 October 2, 13

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If only water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

## **Appendix 2**

### **August 2015 ALS Certificate of Analysis**



GIBRALTAR MINES LIMITED  
ATTN: Sonia Meili  
301-172 2nd Ave N  
Williams Lake BC V2G 1Z6

Date Received: 12-AUG-15  
Report Date: 24-AUG-15 17:55 (MT)  
Version: FINAL

Client Phone: 250-392-3100

## Certificate of Analysis

Lab Work Order #: L1656908  
Project P.O. #: 168  
Job Reference:  
C of C Numbers: 14-491214  
Legal Site Desc:

Dean Watt, B.Sc.  
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700  
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L1656908-1 WATER 11-AUG-15 11:30 A1	L1656908-2 WATER 11-AUG-15 10:30 A2	L1656908-3 WATER 11-AUG-15 14:16 Q8	L1656908-4 WATER 11-AUG-15 10:30 DUPLICATE	L1656908-5 WATER 11-AUG-15 10:30 FIELD BLANK	
Grouping	Analyte					
<b>WATER</b>						
<b>Physical Tests</b>	Conductivity (uS/cm)	290	208	61.9	205	<2.0
	Hardness (as CaCO3) (mg/L)	41.5	31.7	16.9	32.6	<0.50
<b>Anions and Nutrients</b>	Ammonia, Total (as N) (mg/L)	<0.0050	0.0093	0.0104	0.0099	<0.0050
	Bromide (Br) (mg/L)	0.106	0.081	0.056	0.077	<0.050
	Chloride (Cl) (mg/L)	23.7	18.4	6.66	18.4	<0.50
	Fluoride (F) (mg/L)	0.235	0.161	0.027	0.159	<0.020
	Nitrate (as N) (mg/L)	0.0095	<0.0050	0.0114	<0.0050	<0.0050
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Total Kjeldahl Nitrogen (mg/L)	0.059	0.310	0.477	0.323	<0.050
	Orthophosphate-Dissolved (as P) (mg/L)	0.0385	0.0053	0.0159	0.0050	<0.0010
	Phosphorus (P)-Total Dissolved (mg/L)	0.0375	0.0182	0.0361	0.0191	<0.0020
	Phosphorus (P)-Total (mg/L)	0.0944	0.0231	0.0466	0.0261	<0.0020
	Sulfate (SO4) (mg/L)	31.5	11.6	1.73	11.6	<0.30
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)	0.113	0.0430	0.461	0.0396	<0.0030
	Antimony (Sb)-Total (mg/L)	0.00032	0.00018	<0.00010	0.00016	<0.00010
	Arsenic (As)-Total (mg/L)	0.0154	0.0118	0.0123	0.0112	<0.00010
	Barium (Ba)-Total (mg/L)	0.0128	0.0131	0.00803	0.0131	<0.000050
	Beryllium (Be)-Total (mg/L)	0.000032	<0.000020	0.000038	<0.000020	<0.000020
	Bismuth (Bi)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Boron (B)-Total (mg/L)	0.109	0.077	0.011	0.076	<0.010
	Cadmium (Cd)-Total (mg/L)	<0.0000050	<0.0000050	0.0000071	<0.0000050	<0.0000050
	Calcium (Ca)-Total (mg/L)	11.9	9.92	4.41	10.2	<0.050
	Chromium (Cr)-Total (mg/L)	0.00016	0.00012	0.00059	0.00010	<0.00010
	Cobalt (Co)-Total (mg/L)	0.00032	0.00010	0.00055	<0.00010	<0.00010
	Copper (Cu)-Total (mg/L)	<0.00050	<0.00050	0.00081	<0.00050	<0.00050
	Iron (Fe)-Total (mg/L)	0.711	1.07	3.70	1.04	<0.010
	Lead (Pb)-Total (mg/L)	<0.000050	<0.000050	0.000110	<0.000050	<0.000050
	Lithium (Li)-Total (mg/L)	0.0185	0.0091	<0.0010	0.0089	<0.0010
	Magnesium (Mg)-Total (mg/L)	2.46	1.98	1.46	2.02	<0.10
	Manganese (Mn)-Total (mg/L)	0.101	0.191	0.124	0.189	<0.00010
	Mercury (Hg)-Total (mg/L)	0.0000092	<0.0000050	0.0000132	<0.0000050	<0.0000050
	Molybdenum (Mo)-Total (mg/L)	0.000277	0.000169	0.000203	0.000173	<0.000050
	Nickel (Ni)-Total (mg/L)	<0.00050	<0.00050	0.00061	<0.00050	<0.00050
	Phosphorus (P)-Total (mg/L)	0.095	<0.050	0.066	<0.050	<0.050
	Potassium (K)-Total (mg/L)	3.38	2.61	0.57	2.46	<0.10
	Selenium (Se)-Total (mg/L)	0.000069	0.000106	0.000121	0.000095	<0.000050
	Silicon (Si)-Total (mg/L)	9.67	1.93	4.62	1.89	<0.050

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1656908-1 WATER 11-AUG-15 11:30 A1	L1656908-2 WATER 11-AUG-15 10:30 A2	L1656908-3 WATER 11-AUG-15 14:16 Q8	L1656908-4 WATER 11-AUG-15 10:30 DUPLICATE	L1656908-5 WATER 11-AUG-15 10:30 FIELD BLANK
Grouping	Analyte					
<b>WATER</b>						
<b>Total Metals</b>	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)	40.2	30.2	6.19	29.8	<0.050
	Strontium (Sr)-Total (mg/L)	0.0604	0.0435	0.0263	0.0444	<0.00020
	Sulfur (S)-Total (mg/L)	10.1	4.09	0.82	4.13	<0.50
	Thallium (Tl)-Total (mg/L)	0.000059	0.000027	<0.000010	0.000025	<0.000010
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)	0.00075	0.00072	0.00963	0.00071	<0.00030
	Uranium (U)-Total (mg/L)	<0.000010	<0.000010	0.000015	<0.000010	<0.000010
	Vanadium (V)-Total (mg/L)	<0.00050	<0.00050	0.00294	<0.00050	<0.00050
	Zinc (Zn)-Total (mg/L)	0.0045	0.0038	0.0034	<0.0030	<0.0030
	Zirconium (Zr)-Total (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
<b>Dissolved Metals</b>	Dissolved Mercury Filtration Location	LAB	LAB	LAB	LAB	LAB
	Dissolved Metals Filtration Location	LAB	LAB	LAB	LAB	LAB
	Aluminum (Al)-Dissolved (mg/L)	0.0314	0.0280	0.283	0.0254	<0.0010
	Antimony (Sb)-Dissolved (mg/L)	0.00024	0.00013	<0.00010	0.00013	<0.00010
	Arsenic (As)-Dissolved (mg/L)	0.00939	0.00871	0.00397	0.00914	<0.00010
	Barium (Ba)-Dissolved (mg/L)	0.0117	0.0122	0.00621	0.0127	<0.000050
	Beryllium (Be)-Dissolved (mg/L)	<0.000020	<0.000020	0.000023	<0.000020	<0.000020
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Boron (B)-Dissolved (mg/L)	0.112	0.071	<0.010	0.072	<0.010
	Cadmium (Cd)-Dissolved (mg/L)	<0.0000050	<0.0000050	0.0000065	0.0000056	<0.0000050
	Calcium (Ca)-Dissolved (mg/L)	12.4	9.58	4.34	9.81	<0.050
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	0.00041	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	0.00017	<0.00010	0.00030	<0.00010	<0.00010
	Copper (Cu)-Dissolved (mg/L)	<0.00020	<0.00020	0.00069	0.00022	<0.00020
	Iron (Fe)-Dissolved (mg/L)	0.074	0.639	1.31	0.636	<0.010
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)	0.0196	0.0086	<0.0010	0.0085	<0.0010
	Magnesium (Mg)-Dissolved (mg/L)	2.55	1.88	1.48	1.96	<0.10
	Manganese (Mn)-Dissolved (mg/L)	0.0680	0.181	0.0736	0.169	<0.00010
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	0.0000101	<0.0000050	<0.0000050
	Molybdenum (Mo)-Dissolved (mg/L)	0.000290	0.000143	0.000161	0.000144	<0.000050
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	<0.00050	0.00069	<0.00050	<0.00050
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Dissolved (mg/L)	3.43	2.38	0.56	2.36	<0.10
	Selenium (Se)-Dissolved (mg/L)	<0.000050	0.000074	0.000098	0.000058	<0.000050
	Silicon (Si)-Dissolved (mg/L)	10.0	1.85	4.73	1.82	<0.050

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1656908-1	L1656908-2	L1656908-3	L1656908-4	L1656908-5
		Description	WATER	WATER	WATER	WATER	WATER
		Sampled Date	11-AUG-15	11-AUG-15	11-AUG-15	11-AUG-15	11-AUG-15
		Sampled Time	11:30	10:30	14:16	10:30	10:30
		Client ID	A1	A2	Q8	DUPLICATE	FIELD BLANK
Grouping	Analyte						
<b>WATER</b>							
<b>Dissolved Metals</b>	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	41.9	29.6	6.36	28.0	<0.050	<0.050
	Strontium (Sr)-Dissolved (mg/L)	0.0633	0.0417	0.0252	0.0403	<0.00020	<0.00020
	Sulfur (S)-Dissolved (mg/L)	10.4	3.99	0.75	3.94	<0.50	<0.50
	Thallium (Tl)-Dissolved (mg/L)	0.000053	0.000023	<0.000010	0.000023	<0.000010	<0.000010
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00030	0.00400	<0.00030	<0.00030	<0.00030
	Uranium (U)-Dissolved (mg/L)	<0.000010	<0.000010	0.000010	<0.000010	<0.000010	<0.000010
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	0.00073	<0.00050	<0.00050	<0.00050
	Zinc (Zn)-Dissolved (mg/L)	0.0020	<0.0010	0.0022	0.0012	<0.0010	<0.0010
	Zirconium (Zr)-Dissolved (mg/L)	<0.00030	<0.00030	0.00043	<0.00030	<0.00030	<0.00030

\* 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)
Method Blank	Conductivity	B	L1656908-1, -2, -3, -4, -5
Duplicate	Aluminum (Al)-Dissolved	DLA	L1656908-3
Duplicate	Antimony (Sb)-Dissolved	DLA	L1656908-3
Duplicate	Arsenic (As)-Dissolved	DLA	L1656908-3
Duplicate	Bismuth (Bi)-Dissolved	DLA	L1656908-3
Duplicate	Boron (B)-Dissolved	DLA	L1656908-3
Duplicate	Cadmium (Cd)-Dissolved	DLA	L1656908-3
Duplicate	Chromium (Cr)-Dissolved	DLA	L1656908-3
Duplicate	Lead (Pb)-Dissolved	DLA	L1656908-3
Duplicate	Nickel (Ni)-Dissolved	DLA	L1656908-3
Duplicate	Selenium (Se)-Dissolved	DLA	L1656908-3
Duplicate	Silver (Ag)-Dissolved	DLA	L1656908-3
Duplicate	Thallium (Tl)-Dissolved	DLA	L1656908-3
Duplicate	Tin (Sn)-Dissolved	DLA	L1656908-3
Duplicate	Titanium (Ti)-Dissolved	DLA	L1656908-3
Duplicate	Vanadium (V)-Dissolved	DLA	L1656908-3
Duplicate	Zinc (Zn)-Dissolved	DLA	L1656908-3
Duplicate	Zirconium (Zr)-Dissolved	DLA	L1656908-3
Duplicate	Chloride (Cl)	DLM	L1656908-1, -2, -3, -4, -5
Duplicate	Nitrite (as N)	DLM	L1656908-1, -2, -3, -4, -5
Duplicate	Bromide (Br)	DLM	L1656908-1, -2, -3, -4, -5
Duplicate	Nitrite (as N)	DLM	L1656908-1, -2, -3, -4, -5
Duplicate	Nitrate (as N)	DLM	L1656908-1, -2, -3, -4, -5
Method Blank	Barium (Ba)-Dissolved	MB-LOR	L1656908-1, -2, -4, -5
Matrix Spike	Phosphorus (P)-Total Dissolved	MS-B	L1656908-1, -2, -3, -4, -5
Matrix Spike	Phosphorus (P)-Total Dissolved	MS-B	L1656908-1, -2, -3, -4, -5
Matrix Spike	Barium (Ba)-Total	MS-B	L1656908-1, -2, -3, -4, -5
Matrix Spike	Manganese (Mn)-Total	MS-B	L1656908-1, -2, -3, -4, -5
Matrix Spike	Sodium (Na)-Total	MS-B	L1656908-1, -2, -3, -4, -5
Matrix Spike	Strontium (Sr)-Total	MS-B	L1656908-1, -2, -3, -4, -5
Matrix Spike	Phosphorus (P)-Total	MS-B	L1656908-1, -2, -3, -4, -5
Matrix Spike	Total Kjeldahl Nitrogen	MS-B	L1656908-1, -2, -3, -4, -5
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L1656908-1, -2, -4, -5
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1656908-1, -2, -4, -5
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1656908-1, -2, -4, -5
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1656908-1, -2, -4, -5

**Qualifiers for Individual Parameters Listed:**

Qualifier	Description
B	Method Blank exceeds ALS DQO. All associated sample results are at least 5 times greater than blank levels and are considered reliable.
DLA	Detection Limit adjusted for required dilution
DLM	Detection Limit Adjusted due to sample matrix effects.
MB-LOR	Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.
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**
<b>BE-D-L-CCMS-VA</b>	Water	Diss. Be (low) in Water by CRC ICPMS	APHA 3030B/6020A (mod)
Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			



## Reference Information

<b>BE-T-L-CCMS-VA</b>	Water	Total Be (Low) in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
<b>BR-L-IC-N-VA</b>	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
<b>CL-IC-N-VA</b>	Water	Chloride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
<b>EC-PCT-VA</b>	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.
This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.			
<b>F-IC-N-VA</b>	Water	Fluoride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
<b>HARDNESS-CALC-VA</b>	Water	Hardness	APHA 2340B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO <sub>3</sub> equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			
<b>HG-D-CVAA-VA</b>	Water	Diss. Mercury in Water by CVAAS or CVAFS	APHA 3030B/EPA 1631E (mod)
Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.			
<b>HG-T-CVAA-VA</b>	Water	Total Mercury in Water by CVAAS or CVAFS	EPA 1631E (mod)
Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.			
<b>MET-D-CCMS-VA</b>	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)
Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
<b>MET-DIS-LOW-ICP-VA</b>	Water	Dissolved Metals in Water by ICPOES	EPA 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).			
<b>MET-T-CCMS-VA</b>	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
<b>MET-TOT-LOW-ICP-VA</b>	Water	Total Metals in Water by ICPOES	EPA 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 (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).			
<b>NH3-F-VA</b>	Water	Ammonia in Water by Fluorescence	APHA 4500 NH3-NITROGEN (AMMONIA)
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.			
<b>NH3-F-VA</b>	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.			
<b>NO2-L-IC-N-VA</b>	Water	Nitrite in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
<b>NO3-L-IC-N-VA</b>	Water	Nitrate in Water by IC (Low Level)	EPA 300.1 (mod)

## Reference Information

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**P-T-PRES-COL-VA**      Water      Total P in Water by Colour      APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

**P-TD-COL-VA**      Water      Total Dissolved P in Water by Colour      APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorus is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.

**PO4-DO-COL-VA**      Water      Diss. Orthophosphate in Water by Colour      APHA 4500-P Phosphorus

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.

**S-TOT-ICP-VA**      Water      Total 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.

**SO4-IC-N-VA**      Water      Sulfate in Water by IC      EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**TKN-F-VA**      Water      TKN in Water by Fluorescence      APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

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\*\* 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:*

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Laboratory Definition Code	Laboratory Location
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**Chain of Custody Numbers:**

14-491214

### 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.*

