NI 43-101 TECHNICAL REPORT
FOR THE
ALPINE PROPERTY
BRITISH COLUMBIA, CANADA

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1.0 SUMMARY

Introduction

The Alpine Property (the "Property") is located 22.5 kilometres north-northeast of Nelson, British Columbia, Canada. Braveheart Resources Inc. ("Braveheart") has entered into a Letter of Intent to earn a 100 % interest in the Property over a six-year period. At the time of writing Braveheart is in year three of the agreement.

Braveheart is a Canadian based junior exploration company focused on building shareholder wealth through aggressive gold-silver exploration in a favourable and proven mining jurisdiction; the West Kootenays in southeast British Columbia. Braveheart's shares are listed for trading on the TSX Venture Exchange under the symbol "BHT" (Source: J. Decker, P.Eng. www.braveheartresourcesinc.com/overview).

In October 2017, Giroux Consultants Ltd., ("Giroux") was retained by Braveheart to complete an Inferred Mineral Resource Estimate for the Property, more specifically in the area immediately surrounding the historic Alpine Mine workings and the 2017 surface exploration diamond drill holes. Giroux agreed to complete portions of the Data Verification (Item 12.0) and the Inferred Mineral Resource Estimate (Item 14), and engaged TerraLogic Exploration Inc. ("TerraLogic") to author all other outstanding Items in the National Instrument ("NI") 43-101 Technical Report ("Report") to fulfill the requirement set forth in the NI 43-101 Standards of Disclosure for Mineral Projects. Work completed by Giroux between October 2017 and January 2018 consummated in the production of an Inferred Mineral Resource Estimate as described within Item 14 of the following Report that was disclosed publicly by Braveheart in a news release on January 22nd, 2018.

The following Report provides a summary of the work history for the time period 1896-2016, the 2017 exploration program, the Inferred Mineral Resource Estimate, and conclusions and recommendations for further exploration and development work on the Property.

Property Description and Ownership

The Property is centered on Mt. Cornfield in the Kokanee Range of the Selkirk Mountains, located approximately 22.5 kilometers north-northeast of the City of Nelson in southern British Columbia.

The Property hosts five documented British Columbia Minfile Occurrences, one of which is the past-producing Alpine mine which is currently the core asset, and primary exploration target held by Braveheart. The Alpine mine was developed in 1939, with principal production occurring in 1940-41, with additional albeit minor production from 1946-1948 and again in 1988. Historic production reports suggest that the Alpine mine produced 11,500 oz gold, 7,200 oz silver, 49 tons lead and 17 tons zinc (MINFILE 082FNW127, April 2014).

The 13 mineral claims and 15 crown grants which comprise the Property are centred at Latitude 49°41'8.01" N, Longitude 117°15'6.59" W (Degrees, Minutes, Seconds) or 5503700 mN / 481835 mE (UTM Nad 83 Zone 11N) on 1:50,000 scale National Topographic System ("NTS") Map sheet 82F011. The 2,602.1 hectare land package is located within the Nelson and Slocan Mining Divisions. Braveheart Resources Inc. ("Braveheart") entered into an agreement by means of a Letter Of Intent with Mr. Allen Matovich and Mr. Theodore Muraro (signed November 2nd,

2016) to acquire 100% of the Property for a combination of cash (CAD$3,385,000) and shares (1,400,000) over a six-year period ending on December 15th, 2021.

Geology and Mineralization

The Property is underlain by diorite-granodiorite of the Nelson Batholith which is mid-Jurassic in age (172.5 ± 5.0 Ma to 161.5 ± 1.5 Ma, Ghosh, 1995). The Batholith is part of a larger suite of granitoids intrusions which were emplaced in the southern portion of Quesnellia, a large terrane in the western Canadian Cordillera, in an evolving and changing tectonic environment (Ghosh, 1995). On the Property the batholith is cross-cut by numerous pegmatite, aplite, and lamprophyre dikes.

Gold-silver-lead-zinc mineralization at the past-producing Alpine mine (MINFILE 082FNW127, April 2014) is hosted within an east-west trending, moderately north-dipping (~25-30 degree) shear structure which cross-cuts the Nelson Batholith. The structure pre-dates mineralization and was a focusing mechanism for the emplacement of pegmatite, aplite and early lamprophyre dikes. Mineralization is comprised of native gold, galena, pyrite and sphalerite contained within quartz-dominated gangue. Gold occurs as very fine-coarse disseminated particles, wiry crystals contained within drusy vugs in the quartz gangue, and in close spatial association with the following sulphide species: pyrite, galena and sphalerite. Chlorite, epidote, hematite, sericite and silica alteration of the host rock is common, but not always observed enveloping the mineralized vein system. The Alpine mine vein is exposed over a 300.0 metre strike length on the number six and ten LEVELS of the past-producing Alpine mine, and 170.0 metres down-dip between the number five and ten LEVELS. Within the mine workings the vein ranges in thickness from 0.3 to + 2.0 metres. Surface exploration suggests that the strike length of the vein may be extended up to approximately 1,600.0 metres to the west from historic workings, and drilling completed during the 2017 exploration program extended the vein-system up to 220.0 metres down-dip from the historic workings.

Status of Exploration

Braveheart's initial work on the Property began in the winter of 2017 with the application for a *Mines Act* permit. Upon issuance of the Mines Act permit, the 2017 exploration program was initiated in August and continued through mid-October, 2017. The program included: surface and underground geochemical sampling, where samples were collected to verify work completed by previous operators; a LiDAR survey to provide detailed topographic data and aerial photos for the Project; and a twelve hole, 1,733.1 metre diamond drill program to support the production of a maiden Inferred Mineral Resource Estimate. In addition, Braveheart completed base line water quality sampling and an archaeological desktop review.

Development and Operations

No development work has been completed by Braveheart on the Property. Historic development of the Alpine mine includes over 1,650.0 metres of underground drifts, cross-cuts and raises dating back to the late 1800s, with the most recent development completed in 1988 by Cove Resources.

Minfile records (Minfile Number 082FNW127) for past production at the Alpine mine report production starting in 1915, then from 1938 to 1942, from 1946 to 1948 and finally in 1988. The records (see Table 14-10) appear incomplete as they report a total of 16,810 tonnes mined and a total of 17,108 tonnes milled. Also the tonnes mined in 1942 seem very low for the amount of

gold and silver recovered. The total recovered metal from the Alpine mine is reported as 356,360 grams of gold (11,457 oz) and 222,044 grams silver (7,139 oz).

Mineral Resource and Mineral Reserve Estimates

The Inferred Mineral Resource Estimate utilized extensive underground sampling assay data from the 1988 program completed by Cove Resources after a select sub-set of the data was compared by the Author against samples collected in 2017. The high-density data points for gold grade and vein thickness provided by the 1988 underground program allowed for detailed modelling of the vein system and inferred Mineral Resource Estimation. The data from the historic underground workings was then utilized to interpolate the deposit down-dip using the 2017 drill hole data.

At this stage of development there are no measured or indicated resources present within the Alpine Vein. The total resource within the remaining Alpine Vein is classified as Inferred.

To establish reasonable expectation of economic extraction and an estimate of an economic cut-off for the Alpine Vein, research was conducted to establish reasonable mine operating cost estimates over a broad range of underground mining operations. It is recognized that this high level estimate is very preliminary in nature and includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves. The estimate of cost is only approximate and may be materially affected by lower metal prices, lower process recoveries, environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.

The methods sourced various reports and economic assessments for a number of underground mining operations globally. The Average from all PEA Analysis that were researched have the following parameters:

Mining Cost -	$105/tonne
Processing Cost -	$30/tonne
G&A Cost-	$25/tonne
Total Cost-	$160/tonne
Contingency 30%	$50/tonne
Total Cost with Contingency	**$210/tonne**

An economic cut-off can then be obtained by the formula:

Cut-off = Total cost / Recovery / Price per unit of metal

Where: Total cost = CAD$210 / tonne
Gold price = USD $1300 / ounce
Exchange rate = 0.78
Gold price = USD $1300 ÷ 0.78 = CAD$1667 / ounce = CAD$53.6 / gram
Assumed Gold Recovery (see Section 13) = 84.0 % or 0.84

Cut-off = $210 /tonne ÷ 0.84 ÷ $53.6/ gram = 4.7 g/t say 5.0 g/t gold

As a result a cut-off of 5.0 g/t gold has been highlighted as a possible economic cut-off for underground extraction at this point in the properties development. Results using this cost

demonstrated that there is potential value to be achieved in mining at the Alpine mine. Further investigation and development is required in order to determine the definitive value of the project.

Inferred Mineral Resource Estimate within the Alpine Vein for gold (Au)

Au Cut-off (g/t)	Tonnes> Cut-off (tonnes)	Grade > Cut-off Au (g/t)	Contained Au Ozs
2.0	366,000	12.96	153,000
2.5	338,000	13.87	151,000
3.0	324,000	14.36	149,000
3.5	310,000	14.84	148,000
4.0	290,000	15.62	145,000
5.0	**268,000**	**16.52**	**142,000**
6.0	242,000	17.71	138,000
7.0	205,000	19.76	130,000
8.0	182,000	21.29	124,000
9.0	168,000	22.32	121,000
10.0	160,000	22.94	118,000
12.0	144,000	24.28	113,000
15.0	128,000	25.64	106,000
20.0	88,000	29.49	83,000
25.0	54,000	33.82	59,000

A large portion of the Inferred Mineral Resource Estimate is based upon widely spaced drill holes down-dip of the historic workings. This may represent a risk as there is uncertainty over the continuity of mineralization, and total contained tonnes on mineralized material between the 2017 drill holes. Future drilling activities in this area may reduce the total contained ounces in future Mineral Resource Estimates. If the Alpine mine underground workings are rehabilitated in advance of underground development by Braveheart it is strongly recommended that detailed sampling be completed throughout the workings to add confidence to the existing geologic and geochemical model supporting the Mineral Resource Estimate.

Conclusions

The 2017 exploration drilling program confirmed the down-dip extension of the Vein system north of the historic Alpine mine. The Vein intersections in drill core ranged from millimeter scale to 1.70 metres, with grades ranging from trace to 66.1 g/t gold. Highlights from the 2017 exploration drill program include: 19.1 g/t gold over 1.70 metres in drill hole AL17007 and 38.0 g/t gold over 1.40 metres in drill hole AL17008. Underground investigations and sampling on the 6 LEVEL of the historic Alpine mine revealed vein widths ranging from 0.20 metres to 2.20 metres, which is consistent with historic government and company reports. A limited number of samples collected from the underground workings on the 6 LEVEL in 2017 returned grades ranging from 0.06 g/t gold over 1.05 metres up to 54.60 g/t gold over 1.25 metres. Both the 2017 diamond dill data and underground sampling data confirmed reported grades from historical exploration and mining programs in 1988 and 1989, with exception to the 1988 surface drilling results reported by Cove Resources Inc., which are considered spurious by the Authors and were excluded from the Inferred Mineral Resource Estimate.

The mineralized vein defined in the Inferred Mineral Resource Estimate displays an inherent sampling error or “nugget effect” due to the heterogeneous distribution of gold within the

system. Future exploration programs should employ methods (*e.g.*, increase core diameter from BTW to NQ or HQ) designed to increase sample size to mitigate the nugget effect.

Specific gravity should be determined from new drill holes on pieces of whole core from the AV vein using wax or plastic wrap and the Archimedes method of weight in air compared to weight in water.

Recommendations

Proposed exploration work designed to advance the property has been suggested as outlined below. A recommended budget to advance the Property specifically addressing surface exploration only is CAD$ 1,550,000.00. The Authors cannot provide accurate estimates for the costs associated with rehabilitation of access roads, mine workings, the development of a mine plan, baseline environmental studies and community engagement or the underground development associated with obtaining a bulk sample. The recommended exploration activities could occur as standalone work programs, staged according to the amount of available exploration expenditures for a given year, and the goals of the corporation at any given point in time.

The following recommendations are suggested to advance the Alpine Property.

Alpine Mine Resource Area:

- Rehabilitate access road to the Property;
- Rehabilitate underground workings and complete detailed underground sampling and geologic mapping to support and refine the current Inferred Mineral Resource Estimate;
- Apply for a bulk sample exploration permit (up to 10,000 t) for the Alpine mine which would include producing an engineered mine plan;
- Extraction of bulk sample material and related metallurgical testing;
- Mechanical trenching of waste dump piles on the 5, 6 and 10 LEVELS to provide average gold grade from large bulk samples to determine potential economics of processing the material to recover gold ounces;
- Surface diamond drilling program (approximately 1,750 metres) designed to infill the Mineral Resource Estimate with a goal of doubling the drill density pierce points from the 2017 program;
- Continued baseline environmental studies including, but not limited to: Acid Rock Drainage and Metal Leaching (“ARD/ML”) modeling and the development of an appropriate waste rock management plan, water quality sampling, monitoring of fish and wildlife;
- Community engagement including, but not limited to: public meetings to disclose corporate goals, potential economic benefits and strategies to mitigate negative environmental impacts associated with exploration and development on the Property; engagement with local First Nation Governments to address any question they may have pertaining to development of a mineral resource within their Traditional Territory;
- For all diamond drilling specific gravity determinations should be made on pieces of whole core from the AV vein using wax or plastic wrap and the Archimedes method of weight in air compared to weight in water.
- Upgrade the Inferred Mineral Resource Estimate where applicable.

Alpine Vein Step-out Exploration:

- Surface diamond drilling program (approximately 1,750 metres) designed to explore both the western strike extension and the down-dip potential of the Alpine Vein (west and north of the historic mine workings);

Black Prince and Cold Blow Exploration:

- Rehabilitate access road to the Property;
- Surface mapping and sampling of the historic mineral occurrences;
- Prospecting and surface geochemical sampling where surface conditions permit;
- Exploratory diamond drilling if warranted designed to test the continuity of the mineralized vein systems.

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APPENDICES

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Appendix II – Statement of Qualifications

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Appendix VII – Water Quality Sampling Memorandum

Appendix VIII – Archaeological Desktop Review

2.0 INTRODUCTION

The Authors were retained by Braveheart to complete a NI 43-101 Technical Report (the "Report") for the Property.

Braveheart is a Canadian based junior exploration company focused on building shareholder wealth through aggressive gold-silver exploration in a favourable and proven mining jurisdiction; the West Kootenays in southeast British Columbia. Braveheart's shares are listed for trading on the TSX Venture Exchange under the symbol "BHT" (source: J. Decker, P.Eng. www.braveheartresourcesinc.com/overview).

The purpose of the following Report is to summarize the work history of the property for the time period 1896-2016, the 2017 exploration program including an inferred mineral resource estimate, conclusions and provide recommendations for further exploration and development work on the Property. The report is written to comply with the NI 43-101 Standards of Disclosure for Mineral Projects set out in Form 43-101F1 for the Canadian Securities Commission.

The Report is based on geological and geochemical data published by various scientific journals, the British Columbia provincial government, including: mineral descriptions and references therein from British Columbia MINFILE (http://minfile.ca/), reports published on British Columbia Property File (http://minfile.ca/), and technical work summarized as internal and assessment reports that have been authored by various owners and operators on the property, including Braveheart. These sources of information are cited throughout the Report and listed under References in Section 27.

Gary Giroux, P.Eng. is the qualified person responsible for the Resource Estimate and verification of data used for the Resource Estimate. Mr. Giroux is a qualified person by virtue of education, experience and membership in a professional association. He is independent of the company applying all of the tests in Section 1.5 of National Instrument 43-101. Mr. Giroux has not visited the Property.

Michael McCuaig, P.Geo. of TerraLogic Exploration Inc., is the qualified person responsible for all Items in the report with the exception of Item 12.5-12.6, Item 14.0 and their reference in Items 1.0, 25.0 and 26.0. Mr. McCuaig is a qualified person by virtue of education, experience and membership in a professional association. He is independent of Braveheart applying all of the tests in Section 1.5 of National Instrument 43-101. Mr. McCuaig worked on the Property from August 8th-9th 2017 and August 23rd-September 6th, 2017 as an independent consultant on behalf of Braveheart. The author was able to visit surface outcrops of the Alpine Vein containing gold mineralization, all known documented historic surface (1988-1989) and 2017 diamond drill sites, the abandoned Alpine mine workings, and reviewed drill core from the 2017 exploration program. Other documented mineral occurrences within the extent of the Project tenement have not been visited by either of the authors, and are not currently considered material to the project.

All coordinates presented in the Report are in Universal Transverse Mercator ("UTM"), North American Datum 1983 ("NAD83") in Zone 11 North ("Zone 11N") of British Columbia, Canada. All measurements are provided in metric units with exception to historic records of mine development and production from Minfile which remain in imperial units. All dollar amounts are presented in Canadian dollars.

3.0 RELIANCE ON OTHER EXPERTS

The Authors have used sources of information that are listed in the 'References' section, Item 27.0. The Report is a compilation of private and publicly available information including data collected by Braveheart during the 2017 exploration program on the Property, and earlier work conducted by various companies filed as internal reports, British Columbia Provincial Government assessment reports and, to a lesser degree, government reports including published geological maps. The information in the historic reports is considered to be accurate by the Authors, unless otherwise stated in the following Report, and references to these reports are detailed in Item 27 and cited in the body of the text.

The Author has relied on technical work completed for Item 12.0 from both Mr. Chris Gallagher of TerraLogic Exploration Inc. and Mr. Gary Giroux, P.Eng.

The Author is not a Qualified Person with regard to land tenure in British Columbia and has not independently verified the legal status of the property. The ownership of the property has been verified, in part, by the examination of public records available for the mineral tenures and crown grants as listed in Appendix I. These records are maintained by the Mineral Titles Branch of the Ministry of Energy and Mines and related governmental agencies, which are available through their online website portal: https://www.mtonline.gov.bc.ca. The author has noticed discrepancies between tenure numbers in the Letter Of Intent in comparison to the mineral claims for which the 2017 exploration work was filed on. Personal communication with A. Matlock of Braveheart acknowledged the mistakes in the original Letter Of Intent and the company is currently working toward obtaining a ratified "Schedule A".

4.0 PROPERTY DESCRIPTION AND LOCATION

The mineral claims and crown grants which comprise the Property are centred on Mt. Cornfield at Latitude 49°41'8.01" N, Longitude 117°15'6.59" W (Degrees, Minutes, Seconds) or 5503700 mN / 481835 mE (UTM NAD83 Zone 11N) on National Topographic System ("NTS") Map sheet 82F011 (Figures 4.1 & 4.2). The property is located within the Traditional Territory of the Ktunaxa First Nation.

The 2,602.1 hectare Property is located within the Nelson/Slocan Mining Divisions and is comprised of 13 mineral claims (12 of which formed the original claim group in the Letter Of Intent agreement "Schedule A" are pending new "good to" expiry dates based upon approval of a technical work report for Statement Of Work Event Number 5670756 submitted to the government in February 2018) and 15 crown grants which are currently in good standing, and are listed in tabular form in Appendix I, and shown on Figure 4.2. All claims are contiguous, and were acquired either by traditional ground staking or on-line staking as mineral cells on the British Columbia Mineral Titles Online ("MTO") viewer (https://www.mtonline.gov.bc.ca). The mineral claims overlie the crown grants. To the best of the Author's knowledge the mineral tenure and crown grants appear to be clear of all liens, charges, or royalties aside from the binding terms of the Letter Of Intent agreement as outlined in Appendix I. The exception to this would be that the northern boundary of the property partially overlaps with Kokanee Glacier Provincial Park. Mineral exploration is prohibited within the park thereby sterilizing this small portion of the property to exploration and development. The Author has noted several errors in the tenure schedule outlined in the original Letter Of Intent in Appendix I. A copy of the tenure schedule can also be found in Appendix I as downloaded from the MTO viewer on 5/3/2018 which matches the tenure schedule in the Statement Of Work Event Number 5670756.

In British Columbia, the owner of a mineral claim acquires the right to the minerals which were available at the time of claim location and as defined in the Mineral Tenure Act of British Columbia. Surface and placer rights are not included, nor are the rights of the underlying crown grants. Claims are valid for one year and the anniversary date is the annual occurrence of the date of record (the staking completion date of the claim). To maintain a claim in good standing the claim holder must, on or before the anniversary date of the claim: (a) record the exploration, development, and/or physical work carried out on that claim during the current anniversary year; or (b) pay cash in lieu of work. A report detailing work done and expenditures must be filed with, and approved by, British Columbia Mineral Titles Online.

In British Columbia, the owner of a crown grant acquires the right to the minerals, and in some instances surface rights as specified in the original grant document. To the extent of the Authors knowledge, crown grants are legally surveyed parcels of land which remain in good standing indefinitely so long as the owner pays the agreed upon yearly taxes and/or fee schedule. All crown grants outlined in the Letter Of Intent have been provided in Appendix I.

Exploration work completed on crown granted land cannot be applied as exploration expenditures on an overlying mineral claim in British Columbia. The technical work "assessment expenditures" can be credited to a company's Portable Assessment Credit account ("PAC'), and can be used in accordance with the Mineral Titles Act of British Columbia.

The following is provided as open citation from the Permit Enclosed Letter dated August 15th, 2017 regarding Mines Act Permit MX-5-808; Approval Number 17-0500014-0815 written by Nadia Bruemmer, P.Geo., Inspector Of Mines.

"The Property has two open Mines Act permits (MX-5-141 and MX-5-190) within the current Multi-Year Area-Based ("MYAB") permit area. Any disturbance of old workings will result in the assumption of reclamation liability. The work and liability should be acknowledged prior to any disturbance of the previously permitted disturbance or historical disturbances. The disturbances include adits (possibly over seven openings), trenches, drill pads (possibly over three sites), roads, access trails, waste rock piles, tailings and likely other undocumented mining disturbances." The outstanding Mines Act permits (MX-5-141 & 190) and the historic mining disturbances related to the development of the Alpine mine are considered an encumbrance to the Property and a liability to Braveheart. The Author cannot comment on the scope or cost related to the reclamation liabilities associated with the aforementioned permitted or historic mining disturbances at the time of writing.

The Property, and more specifically the historic Alpine mine is located on Mt. Cornfield, which forms the upper catchment of the Sitkum Creek watershed and in part the upper tributaries of Duhamel and Lemon creek watersheds. Both the Duhamel and Sitkum creek catchment basins are registered community watersheds with the Province of British Columbia, providing drinking water to over 600 local residents. Lemon Creek is not a registered community watershed, but there are registered water license users with the Province of British Columbia who draw their water from this watershed.

The following definition of a community watershed has been provided as open citation from the British Columbia government website: (https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-quality/community-watersheds).

"A community watershed is defined under the Forest & Range Practices Act ("FRPA") as all or part of the drainage area that is upslope of the lowest point from which water is diverted for human consumption by a licensed waterworks. Community watersheds must also be designated under the Government Actions Regulation.

To protect the water that is diverted for human consumption, such areas require special management to:

1. *Conserve the quality, quantity and timing of water flow;*
2. *Prevent cumulative hydrological effects having a material adverse effect on water.*

There are currently 466 designated community watersheds in British Columbia with most established in the 1980s and 1990s. Establishing community watersheds is one of the ways the Provincial Government protects drinking water sources."

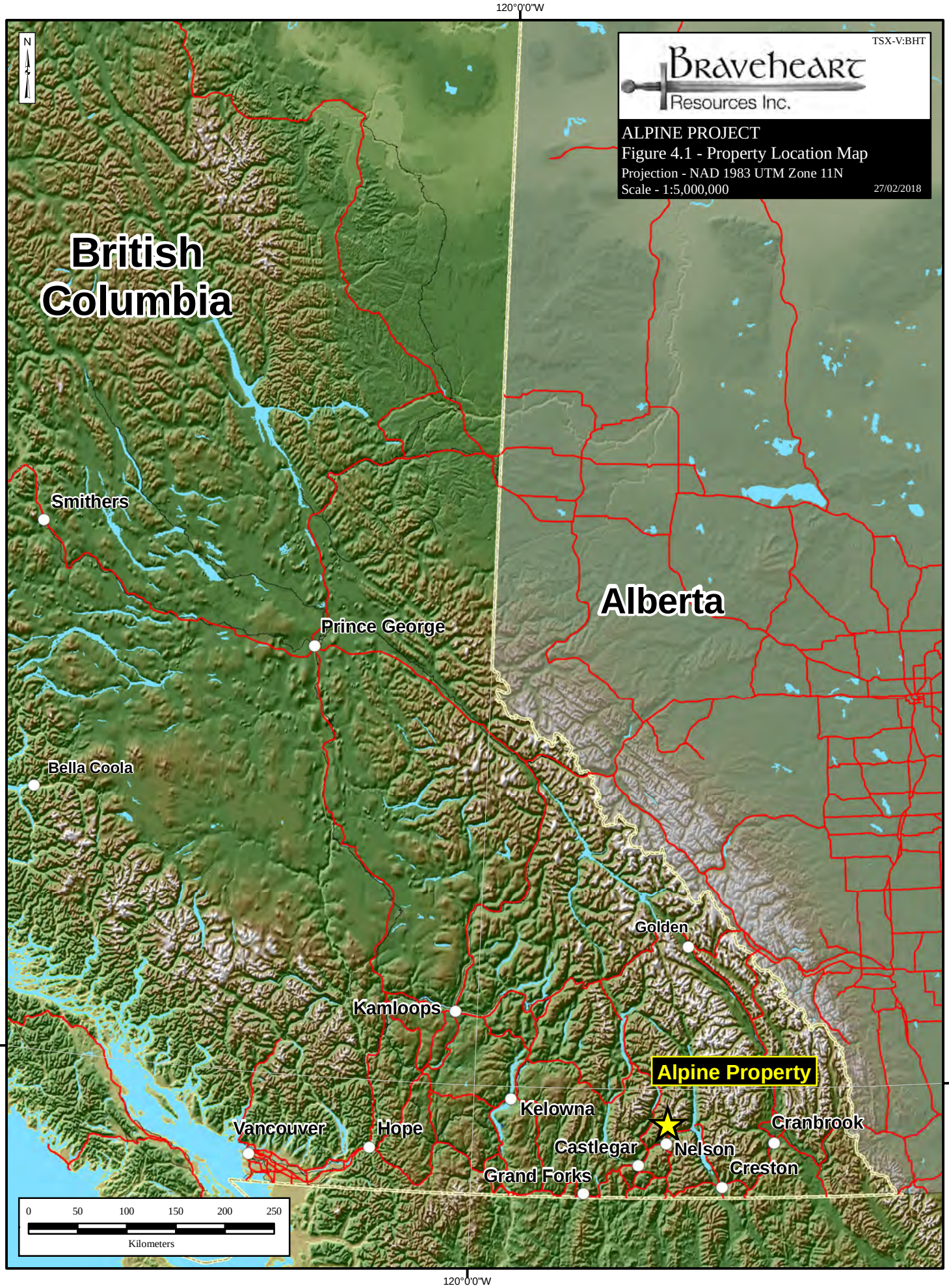
Braveheart has been actively engaging with both the Duhamel and Sitkum creek community watersheds to ensure that water quality is not impacted by exploration activities.

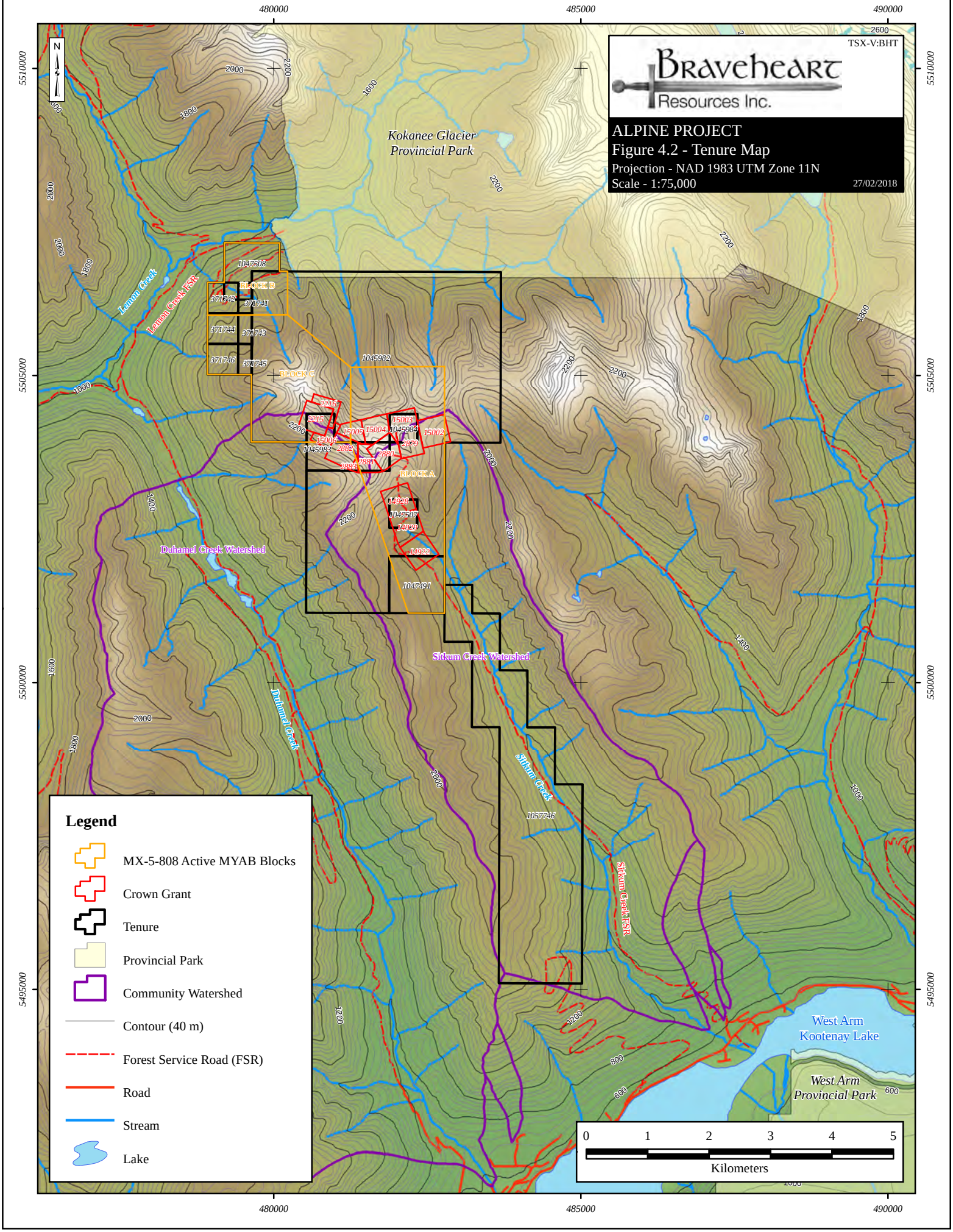
To the extent known by the Author, the permits that must be acquired from the British Columbia government to conduct the surface exploration work proposed in Item 26.0 for the property include:

- Ministry of Energy, Mines and Natural Resources: Mines Act Permit;
- Ministry of Forests, Lands and Natural Resource Operations: Free Use Permit;
- Ministry of Forests, Lands and Natural Resource Operations: Road Use Permit;
- Ministry of Forests, Lands and Natural Resource Operations: Special Use Permit – Road use agreement for Forest Service Roads not on mineral tenure;
- Ministry of Environment and Ministry of Forests, Lands and Natural Resource Operations: Water Licence* - The Water License has been exempt for both 2016 and 2017 calendar years but may be required moving forward for all mechanized exploration activities requiring the use of water.

To the extent known by the Author, other significant factors that may affect access or the ability to perform work on the property are listed as follows:

- Wildfire;
- Snowpack and related avalanche risk;
- Flooding;
- Geotechnical hazards such as ground stability and rock fall;
- Potential disturbance of archaeological sites;
- Outstanding lien on Sitkum Creek FSR with the Ministry of Forests, Lands and Natural Resource Operations.


120°0'0"W
N
TSX-V:BHT
Braveheart Resources Inc.
ALPINE PROJECT
Figure 4.1 - Property Location Map
Projection - NAD 1983 UTM Zone 11N
Scale - 1:5,000,000
27/02/2018
British Columbia
Alberta
Smithers
Prince George
Bella Coola
Golden
Kamloops
Alpine Property
Kelowna
Vancouver
Hope
Castlegar
Nelson
Cranbrook
Creston
Grand Forks
50°0'0"N
0 50 100 150 200 250
Kilometers
120°0'0"W


TSX-V:BHT
Braveheart Resources Inc.
ALPINE PROJECT
Figure 4.2 - Tenure Map
Projection - NAD 1983 UTM Zone 11N
Scale - 1:75,000
27/02/2018
Kokanee Glacier Provincial Park
Lemon Creek
Lemon Creek FSR
Duhamel Creek Watershed
Duhamel Creek
Sitkum Creek Watershed
Sitkum Creek
Sitkum Creek FSR
West Arm Kootenay Lake
West Arm Provincial Park
BLOCK A
BLOCK B
BLOCK C
1047508
371742
371741
371744
371743
371746
371745
1045982
1045983
1045984
1047507
1047491
1057746
Legend
MX-5-808 Active MYAB Blocks
Crown Grant
Tenure
Provincial Park
Community Watershed
Contour (40 m)
Forest Service Road (FSR)
Road
Stream
Lake
0 1 2 3 4 5
Kilometers
480000
485000
490000
5510000
5505000
5500000
5495000

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The central portion of the Property is located at Latitude 49°41'8.01" N, Longitude 117°15'6.59" W (Degrees, Minutes, Seconds) or 5503700 mN / 481835 mE (UTM NAD83 Zone 11N) on NTS Map sheet 82F011 (Figures 4.1 & 4.2) in the southern Selkirk Mountains, part of the larger chain of mountain ranges known as the Columbia Mountains in British Columbia, Canada. The property is in part bound to the north by Kokanee Glacier Provincial Park.

The claims cover the following biogeoclimatic zones: interior cedar-hemlock dominated valleys grading up into open meadows and steep ridges of Engelmann spruce-subalpine fir. Elevations range from approximately 1,000 m to 2,362 metres above sea level ("MASL"), with moderate to very steep topography. Subalpine lakes and glaciers/ice fields are common, as are steep valleys and steep jagged ridges that present challenging terrain for exploration and are a source of geotechnical hazards in the form of debris flows, rock falls and avalanches.

Vegetation at the lower elevations consists of lodgepole pine, balsam fir, with lesser birch, aspen, cottonwood, cedar, and hemlock flanking lower elevations and riparian zones. The mid to upper elevations contain sparse populations of white pine, cottonwood, cedar, and a progressive increase in Engelmann spruce and subalpine fir, the latter dominating at the height of land. A significant amount of dead standing timber is present in the Sitkum Creek drainage due to historic wildfire activity.

Outcrop exposure is good, although in places is not readily accessible above 2,000 MASL on Mt. Cornfield. Surficial cover appears to increase, and conversely outcrop exposure decreases at lower elevations on the Property with exception of incised tributaries of Duhamel, Lemon and Sitkum creeks.

Climate on the Property is variable with seasonal temperatures ranging from -30ºC during winter months to +30ºC during the summer. Snow cover from early November to early June hampers access to the property and ground exploration during this period. A seasonal exploration program could conceivably operate from early June to late October depending on the scope and location of the proposed exploration activities.

Access to the Property is gained via a network of Forest Service Roads (FSR) and un-named trails including the Sitkum Creek FSR and the Lemon Creek Road (Refer to Figure 4.2). Access to the northern portion of the claim group is gained via spur roads which are part of the Lemon Creek Road. These spur roads may require a legal survey prior to use to ensure that the roads are not infringing on Kokanee Creek Provincial Park as outlined in the Permit Enclosed Letter issued with *Mines Act permit* MX-5-808.

Select areas of the Sitkum Creek watershed have been logged, and the southern part of the Property (Mineral Claim Number 1057746) partially overlaps with the following Cut Block License held by Kalesnikoff Lumber Co. Ltd: A30172 (iMapBC, February 26th, 2018).

A major transportation corridor is located 2.0 linear kilometres south of the southernmost boundary of the Property, where Highway 3A provides efficient access to the City of Nelson, and the Teck smelter in Trail, British Columbia which is located approximately 88.0 kilometres by road from the property. Mining and diamond drilling contractors are located in the local area and can be contracted to work on the Property within the scope of permitted disturbances and exploration activities.

To the extent relevant to the Property, the Author believes that Braveheart, through their Letter Of Intent, currently holds sufficient surface rights to conduct their exploration programs as outlined in Item 26.0. The availability of power, water, potential tailings storage facilities, potential waste disposal areas, heap leach pad areas, and potential processing plant sites for the Property are considered outside the current scope of the exploration project and the expertise of the Author, and as a result have not been substantiated in detail. These components of the mineral project must be updated by a Qualified Person once sufficient research and planning, base line studies, field investigations and engineering have been completed to produce a mine plan.

6.0 HISTORY

The mineral potential of the Property was first realized around 1896 according to accounts in the Annual Report of the Minister of Mines.

The following work history summary from 1896 to 1949 for the Alpine Mine is provided as open citation from N. Barlow (2014) (MINFILE 082FNW127 (www.minfile.ca).

"The Alpine group, comprising 4 claims, the Swiss, Highland Chief, Berne, and Kootenay Pass (Lots 2879-2882, respectively) were owned from 1896 or earlier by C. Faas, H. Cleaver & associates. The claims were Crown-granted to Faas & associates in 1899. No further activity was reported in this vicinity until 1918 when the Noonday group, comprising the Noonday, Climax, Margaret, and Pearl Fraction claims, was owned by J. Radcliffe and J.S. Johnson, of Nelson. Workings included open cuts and a 55.0 metre adit on the Noonday claim.

By 1927 the Alpine group was owned by E. Harrop & associates. The workings included 2 adits, possibly including the adit driven on the Noonday claim. The Alpine Syndicate acquired the property in about 1936 and built a road to the property. In 1937 further trenching was done, and the No. 10 drift adit was begun. In October 1938, Alpine Gold, Limited, operated the mine and acquired the adjacent Swiss, Alpine, Washington, and Oregon Fractions and the Idaho claim. The Basin, Meadow, and Sitkum claims (Lots 14922, 14928, 14929), located to the south and at elevations of 1675 to 1980 metres on Sitkum Creek, were acquired by the company for a mill site. In 1938 the new No. 10 level adit was extended to 80 metres. A 50 ton-per-day mill was put into operation in December 1939 and operated intermittently until 1948. Development work to 1948 included two drift adits, No. 7 and 10 levels, located about 235 metres apart at elevations of 2,180 and 2,110 metres, respectively. The lower adit was driven to a length of 345 metres. The workings comprised over 1,646 metres drifts, crosscuts, and raises. Diamond drilling totalling 366 metres was carried out in 1947. Reserves were estimated in 1949 at 90,720 tons at 19.5 grams per tonne gold (Financial Post Survey of Mines 1953, p. 81*)." * - non-compliant 43-101 historical resource.

Production from the Alpine Mine has occurred sporadically from 1915 until 1988, with the majority of the production occurring during the time period 1940 – 1948. The historic production from the Alpine Mine has been summarized in detail in Item 14.0.

The 1987 program consisted of a total of 18 dump samples from the 6 LEVEL and 10 LEVEL waste dumps. Samples were collected for metallurgic work consisting of flotation tests for lead and zinc completed by Nesmont Precious Metals Corp. The average grade of the dump samples was 0.523 oz / ton gold and 1.40 oz / ton silver; flotation tests were positive with 98.86% recovery for lead and 98.39% for zinc.

The 1988 exploration program consisted of a three hole surficial diamond drill program totaling 682.4 metres and nine underground drill holes, totaling 344.7 metres, were completed from the 10 LEVEL drift. In addition to diamond drilling, an extensive sampling program was conducted on all drifts and adits of the underground workings with a total of 331 panel samples collected. A 4t bulk sample was also sent for preliminary metallurgical analysis, and production records from MINFILE suggest that 200t of material was removed from the mine as well. The program confirmed the presence of high-grade gold and silver mineralization within the area of the underground workings. Surface drilling suggested continuity of the mineralization as well up to 200.0 metres down-dip from the 10 LEVEL workings.

In 1989, Cominco Ltd. optioned the property from Cove Energy Corp. and conducted a 1,745.1 metre drill program and minor surface exploration. The objective of the drill program was to establish the extent, thickness, and grade of contained mineralization in the Alpine Vein down-dip from the old Alpine Mine workings (Mosher, 1989). The drill program consisted of twelve holes, with an average length of 145.0 metres approximately 200.0 and 400.0 metres down-dip from the lowest mine workings (10 LEVEL). The Alpine Vein was intersected in four out of twelve holes, the remainder of holes intersected quartz veinlets at the predicted target depth. Gold grades encountered in the target vein were typically 1.0 g/t to 10.0 g/t. The program confirmed the down-dip extent of the vein system for over 400.0 m from the Alpine Mine; however the average thickness of the vein, as exposed within the mine, was not encountered. Drilling also established the uniform geometry of the vein which does not appear to deviate in strike or dip; it also appears to be a single vein system as subordinate subparallel veins/veinlets are completely absent.

In 2000, a small program of rock sampling and self-potential surveying was completed by Tera Ex Mining on the Alpine property, Lewis (2000). This work was focused on the southern part of the claim, between the Alpine Vein, Gold Crown and King Solomon. An effort was also made to locate the source of strongly mineralized float vein rock previously discovered by Mr. Matovich during road building activities in 1987. This was unsuccessful, although two weak, self-potential anomalies were discovered in the general area and it was noted that the intrusive in the area was altered.

In 2011, Matovich Mining Ltd., undertook a program of mapping and rock sampling focused in two areas, the Cold Blow/Black Prince area in the northwest part of the claim group and around the King Solomon/Gold Crown in the south, (Major, 2012). This work was successful in locating some of the old workings, and sampling of these workings indicated that significant gold and silver grades occur. For example, at the Black Prince, selected dump samples assayed as high as 71.0 g/t gold and 34.0 g/t silver. At the King Solomon, sampling of dump material yielded up to 50.0 g/t gold 42.2 g/t silver. At the Gold Crown, sulphide-bearing quartz vein from dumps yielded an impressive 267.0 g/t gold and 47.6 g/t silver. The mineralization and style of veining, including host rocks, in all these occurrences, was considered to be similar to the main Alpine Vein system.

In 2016, Matovich Mining Ltd., undertook a program of prospecting and rock sampling the Alpine Vein and locating historic diamond drill hole collars (Augsten, 2016). The primary focus of the program was to attempt to trace the Alpine vein system to the northwest from known locations. The west exit of the #6 level of the Alpine mine was relocated and from this point the vein was traced northwesterly for approximately 1.8 kilometres using evidence from outcrop and float. Vein material was sampled with assay values returning up to 42.3 g/t gold. One day was spent relocating historic drill collars from historic 1988-1989 drilling. The location of these holes was used to help generate a preliminary geologic model of the down dip extent of the Alpine vein system (Augsten, 2016).

Ongoing work on the Property by Braveheart has focused on exploring the potential of the Property for an economic gold deposit in proximity to the past producing Alpine Mine.

Table 6.1 lists all known Mineral Occurrences on the Property, four of which were discovered and explored in the early part of 20th century. Given the timing of work performed and lack of reliable verification for the sources of information pertaining to Minfile Numbers: 082FNW257,

082FNW290 – 291, the Author does not consider any information related to these showings to be material to the project. Mineral occurrence 082FNW292 was reportedly discovered in 1987, and reported on again during the 2000 work program. The mineral showing cannot be substantiated by the author and is not considered material to the project at the time of writing. Refer to Figures 7.1 & 7.2 for geographic locations of the mineral occurrences.

Table 6.1 – Mineral Occurrence Table

MINFILE	STATUS	COMMODITY	NAME	EASTING	NORTHING
082FNW125	Past Producer	Gold, Silver, Lead, Zinc	Alpine Gold	481790	5503500
082FNW257	Past Producer	Gold, Silver, Lead, Zinc	King Solomon	481325	5501850
082FNW290	Showing	Gold	Cold Blow	479870	5506245
082FNW291	Showing	Gold, Silver, Lead	Black Prince	479650	5505880
082FNW292	Showing	Gold, Silver, Lead, Zinc	Alpine 2000	481950	5502540

*All coordinates reported in UTM NAD83 Zone 11 North

Table 6.2 details exploration activities conducted by industry on the Property from 1987 to date. The author acknowledges that work was completed for which no information can be found and therefore the information which appears below may not be representative of the true extent of exploration work completed on the Property. Best efforts have been made by the Author to source historic information, and include it in the Report.

Table 6.2 – Alpine Property Exploration Work History 1987 – 2017

Assessment Report Number	Work Year	Owner	Operator	Report Name	Author	Scope of Work Program
-	1987	Cove Energy	Cove Energy	Examination and Program Proposal Alpine Mine Property	G. Peatfield	Report referenced in AR 19483: complete scope of work is presently unknown but there is reported underground drilling and sampling of waste dump material. The company is making best efforts to recover the report.
-	1988	Cove Energy	Cove Energy	-	-	Unpublished documents report the following exploration and development work: 200 t of production, 4 t metallurgical test (Property File Report 54017), 8 or 9 (?) underground drill holes totaling 344.7 metres, 3 surface drill holes totaling 682.4 metres, 331 underground panel samples.
19483	1989	Cove Energy	Cominco Ltd.	Alpine Gold Project	G. Mosher, P.Geo.	The 1989 program consisted of the following exploration work: 12 surface drill holes totaling 1745.4 metres, limited mapping and sampling of the surface trace of the Alpine vein.
26482	2000	Matovich Mining	Tera Ex Geological	Geological Exploration of the Alpine 2000 Group	T. Lewis FGAC	The 2000 program consisted of the following exploration work: geological reconnaissance mapping, limited Spontaneous Potential "SP" geophysics survey, prospecting and rock sampling.
33876	2011	Matovich Mining	J. Major P.Geo.	Alpine Claim Group – 2011 Geologic Mapping and Rock Geochemistry	J. Major P.Geo.	The 2011 program consisted of the following exploration work: rock sampling and geologic mapping in proximity to the Cold Blow and Black Prince mineral occurrences.
36336	2016	Matovich Mining	B. Augsten P.Geo.	2016 Geology Report on the Alpine Property	B. Augsten P.Geo.	The 2016 program consisted of the following exploration work: prospecting and rock sampling of the Alpine vein and locating historic diamond drill hole collars.
-	2017	Braveheart	Braveheart	2017 Exploration Report for the Alpine Property	C. Gallagher	The 2017 program consisted of the following exploration work: 12 surface drill holes totaling 1733.0 metres, surface mapping, surveying and geochemical sampling. A 5.0 km^2 LIDAR survey was also completed to establish elevation control in preparation for a resource calculation.

7.0 GEOLOGICAL SETTING AND MINERALIZATION

7.1 – Regional Geology

Overview

The Alpine Property is located at the western margin of the Kootenay Arc within allochtonous rocks of southern Quesnellia. The arc is a 400.0 kilometre long curvilinear belt of highly deformed sedimentary, volcanic and metamorphic rocks extending southeast from near Revelstoke, south along Kootenay Lake and south and west across the International Boundary (Fyles, 1964). The following regional geology synopsis is provided as open citation from the British Columbia Geologic Survey's Geology and Mineral Evaluation of Kokanee Glacier Provincial Park (Paper 1989-5; Brown and Logan, 1989).

The regional geological setting of the Property is illustrated in Figure 7.1. The geology map was produced using the British Columbia Geologic Survey Open File 2017-08 by Cui et al (2017).

The region north of the town of Nelson between Slocan and Kootenay lakes is dominated by the Middle Jurassic Nelson Batholith which is a composite pluton ranging in composition from diorite to granite. The plutonic suite is subalkaline and metaluminous with Cordilleran I-type affinities. The northern end of the batholith intrudes the Upper Triassic Slocan Group which consists of argillite, siltstone and minor amounts of limestone. The eastern edge intrudes a sequence of Lower Cambrian to Upper Triassic metasedimentary and metavolcanic rocks (Brown and Logan, 1988; Fyles, 1967) of the Rossland Group, that dip westward at a moderate angle. The western boundary is the Slocan Lake fault zone and Cretaceous to Tertiary gneissic intrusions of the Vahalla complex (Carr et al., 1987).

The post-tectonic composite batholith can be divided into six phases (Brown and Logan, 1988). The main phase is potassium-feldspar megacrystic granite. Other less important phases are: hornblende potassium-feldspar porphyritic granite, biotite granite-granodiorite, diorite-amphibolite and biotite lamprophyre.

The Nelson Batholith is mid-Jurassic in age (172.5 ± 5.0 Ma to 161.5 ± 1.5 Ma, Ghosh, 1995) Younger potassium-argon dates probably reflect partial re-setting or overprinting by Cretaceous or Tertiary thermal events (Archibald et al., 1983; Duncan et al., 1979).

Stratigraphy

Slocan Group

The Slocan Group underlies the northeastern corner of Kokanee Creek Glacier Park, but also occurs as irregular tabular blocks and screens enclosed in the Nelson batholith. It comprises a thick accumulation of variably deformed and metamorphosed shale, argillite, siltstone, quartzite and minor limestone. Stratigraphic thickness is unknown. Within the batholith, aligned, brown-weathering blocks of Slocan Group sediments stand out sharply against the grey-coloured granite. Blocks and screens vary in size up to 100.0 metres thick, and are mappable along strike for as much as 8.0 kilometres. Rare limy beds have variably developed calc-silicate skarn mineral assemblages. The stratigraphy and structure of the Slocan Group remain enigmatic as it is recessive, lacks marker horizons and is structurally complex.

Rossland Group

Exposures of Rossland Group rocks are confined to pendants within the Nelson batholith. The largest pendant hosts the Willa gold-copper deposit, 8.0 kilometres northwest of the park boundary. Isolated metavolcanic blocks extend southward, along strike, into the Ymir map area, where Hoy and Andrew (1988) have mapped Rossland stratigraphy in detail.

Intrusive Rocks

Three main intrusive suites in the map area:

- Early Jurassic intermediate porphyries, coeval with Rossland Group volcanic rocks;
- Middle Jurassic Nelson plutonic suite;
- Tertiary compositionally bimodal dykes.

Middle Jurassic Nelson Plutonic Suite (MJNgd)

The batholith comprises at least six texturally and compositionally distinct phases (inferred oldest to youngest): (1) diorite-amphibolite, (2) potassium-feldspar granite, (3) hornblende potassium-feldspar granite, (4) fine-grained granite, (5) quartz monzonite and (6) lamprophyre. Intrusive contacts are gradational and irregular. Aplite and pegmatite dikes, believed to be comagmatic, occur throughout the area. The suite is subalkaline, calcalkaline and metaluminous.

DIORITE-AMPHIBOLITE (UNIT 1) (MJNgd)

The oldest phase is dark grey to black-weathering mesocratic diorite/amphibolite which occurs as angular to rounded xenoliths in younger leucocratic phases. Xenoliths vary in size from centimetre to decimetre scale and are comprised of massive to foliated, fine to medium-grained diorite. Hornblende is fresh and makes up more than forty percent of the diorite. Titanite and apatite are associated with hornblende as euhedral crystals up to 2 millimetres long. The xenoliths are ellipsoidal and locally aligned. Surrounding potassium feldspar megacrysts may be foliated subparallel to the xenolith contacts, crosscut, or contained within the xenolith.

POTASSIUM-FELDSPAR PORPHYRITIC GRANITE (UNIT 2 - “MAIN PHASE”) (MJNgd)

Potassium-feldspar megacrystic, medium to coarse-grained hypidomorphic granite is the dominant Nelson phase. Massive in outcrop, it covers a 550-square-kilometre area. This phase contains up to fifty percent white to faintly pink euhedral, equant to prismatic potassium feldspar megacrysts. These megacrysts are up to 10 centimetres long and are locally flow aligned. They are microperthitic to perthitic. Megacrysts contain inclusions of biotite, hornblende, plagioclase and quartz. The inclusions are all smaller than corresponding groundmass minerals, suggesting primary potassium feldspar crystallization, rather than a metasomatic origin. Size and amount of potassium feldspar are extremely variable at outcrop and map scales. Hornblende and biotite phenocrysts are unaltered, black, subhedral and interstitial to potassium feldspar. Plagioclase is unaltered with albite twins. Hornblende and lesser biotite comprise fifteen percent or less of the granite. Visible honey-coloured, euhedral titanite, and apatite, magnetite and opaques are accessories. Myrmekitic blebs occur at some plagioclase potassium feldspar grain boundaries.

HORNBLENDE POTASSIUM-FELDSPAR PORPHYRITIC GRANITE (UNIT 3 - CARIBOU RIDGE PHASE) (MJNgd)

This phase is differentiated from potassium-feldspar granite by prominent coarse, prismatic, black, euhedral hornblende phenocrysts. The rock is medium to coarse grained. There is much

less biotite relative to hornblende and biotite may be absent. Hornblende is euhedral, up to 1.5 centimetres long and interstitial to megacrysts of tartan-twinned microcline. Titanite is ubiquitously associated with hornblende. Very coarse varieties contain seventy-five percent potassium feldspar megacrysts, up to 5 centimetres long, and interstitial plagioclase, quartz and euhedral hornblende. Crystal composition and texture are similar to the potassium feldspar porphyritic phase.

BIOTITE GRANlTE-GRANODIORlTE (UNIT 4 - LEMON CREEK PHASE) (MJNgd)

There are two varieties of biotite granite, mesocratic and leucocratic. The mesocratic biotite granite is a grey, medium to fine-grained rock with few potassium feldspar megacrysts (five percent). The rock is massive with 5 to 10 percent fresh to slightly chlorite-altered biotite. The leucocratic granite is salmon-pink to grey, fine grained and equigranular. Potassium feldspar megacrysts are uncommon but smaller tartan-twinned microcline is common. Plagioclase is fresh and myrmekitic grains are abundant. Rare biotite phenocrysts are altered to chlorite. Secondary muscovite is anhedral and has locally grown across grain boundaries. It is important to note biotite is secondary; this is not a two-mica granite.

QUARTZ MONZONITE (UNIT 5 - ALPINE PHASE) (MJNgd)

The quartz monzonite is pale grey to white, medium grained and massive. Hornblende and biotite are fresh and constitute up to two percent of the rock. Titanite is an accessory. The monzonite is interpreted to be a late phase of the Nelson plutonic suite.

BIOTITE LAMPROPHYRE-DIORlTE (UNIT 6 - COMSTOCK PHASE) (MJNgd)

A brown-weathering, biotite-rich, magnetite-bearing body outcrops near the Comstock mine (MINFILE, 82FNWO77). It is fine to medium grained, heavy and hard. Biotite blades are up to 2 centimetres long. At the Cornstock portals, iron carbonate alteration and limonitic weathering are common.

TERTIARY (?) INTRUSIVE ROCKS (ENld)

Inferred Tertiary intrusive rocks occur as narrow, north and north-northwest striking steeply dipping rhyolite, felsite, andesite and lamprophyre dikes and commonly parallel airphoto linears. Andesite dikes are brown-weathering, fine-grained, magnetite-bearing rocks. Andesite contains resorbed quartz phenocrysts, aligned plagioclase laths and subrounded inclusions of granite, up to 5 centimetres wide.

Structure

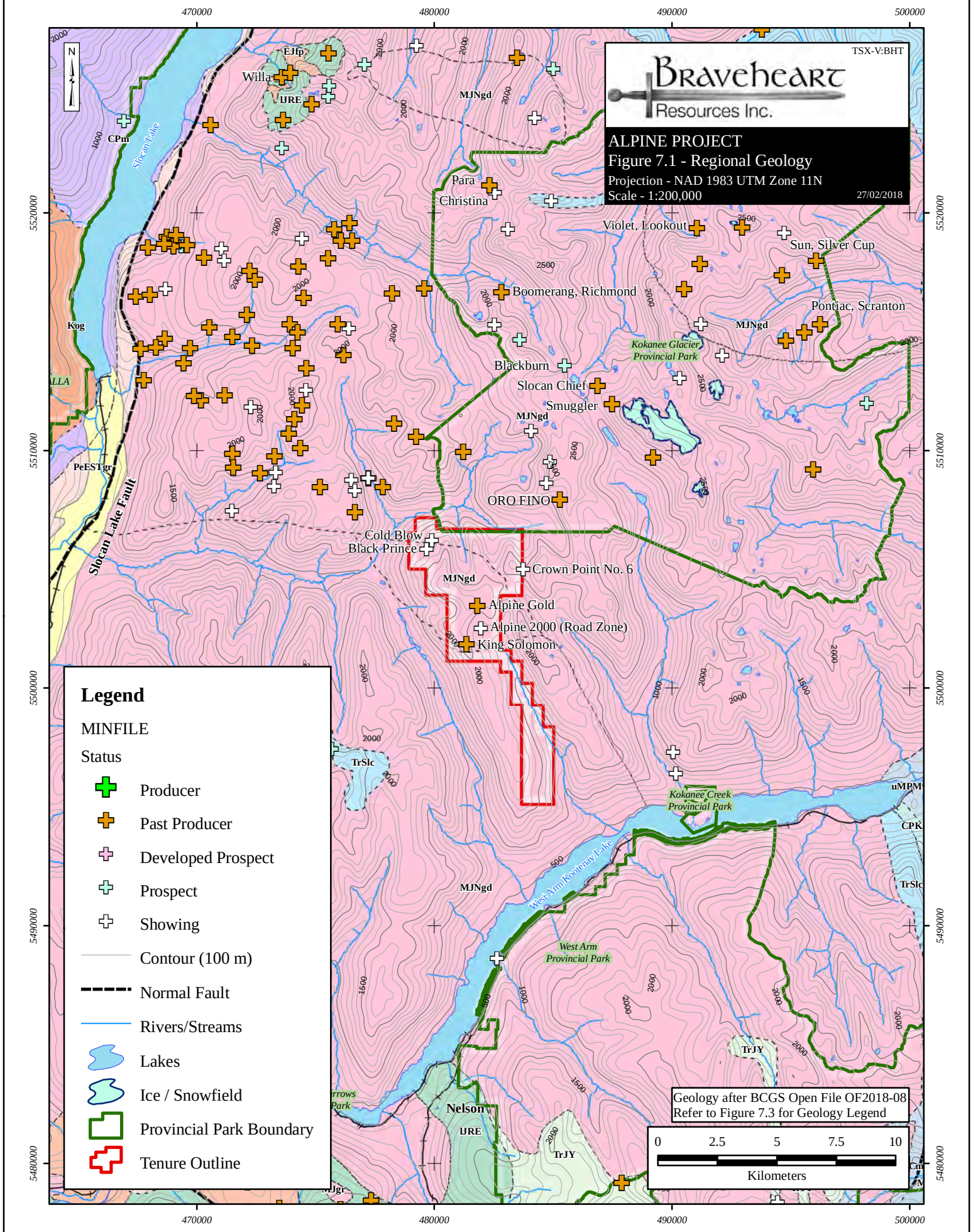
The metasedimentary/metavolcanic rocks that host the Nelson Batholith have undergone a complex structural history consisting of at least two ductile deformation events (D_1 and D_2) in the Jurassic followed by a more brittle local “buckling” which is thought to be associated with the convergence of Quesnellia in the late-Jurassic. Eastward thrusting in the Cretaceous has also been interpreted by Archibald et al., 1984. Finally, development of major shear zones such as the Valkyr shear zone and Slocan Lake fault zone in the Tertiary is proposed by Carr et al., 1987.

The dominant foliation within the batholith itself is flow banding defined by preferentially aligned feldspar and hornblende, although southern portions and eastern margin of the batholith are deformed. They display discrete margins of steeply dipping chlorite grade proto- and ultramylonite with asymmetric fabrics that are consistent with a sinistral sense of motion, at least locally. Emplacement of the Nelson batholith is interpreted to be post-tectonic with respect to D_1

and D_2 folding.

Metamorphism

Regional low-grade metamorphism has affected the Slocan Group. Pelitic rocks preserve primary bedding and display phyllitic and schistose foliations and sedimentary blocks within the batholith are medium-grade garnet-biotite schists. Higher grade, kyanite and kyanite and sillimanite-bearing rocks occur along the west shore of Kootenay Lake (Fyles, 1967). A contact metamorphic aureole, containing biotite and andalusite, extends 300.0 to 800.0 metres from the batholith and is superimposed on the regional metamorphism (Cox, 1979; Childs, 1968; Fyles, 1967).


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Braveheart Resources Inc.
ALPINE PROJECT
Figure 7.1 - Regional Geology
Projection - NAD 1983 UTM Zone 11N
Scale - 1:200,000
27/02/2018
Legend
MINFILE
Status
Producer
Past Producer
Developed Prospect
Prospect
Showing
Contour (100 m)
Normal Fault
Rivers/Streams
Lakes
Ice / Snowfield
Provincial Park Boundary
Tenure Outline
Willa
Para
Christina
Violet, Lookout
Sun, Silver Cup
Boomerang, Richmond
Pontiac, Scranton
Blackburn
Slocan Chief
Smuggler
ORO FINO
Cold Blow
Black Prince
Crown Point No. 6
Alpine Gold
Alpine 2000 (Road Zone)
King Solomon
Slocan Lake Fault
Slocan Lake
West Arm Kootenay Lake
Kokanee Glacier Provincial Park
Kokanee Creek Provincial Park
West Arm Provincial Park
Nelson
EJfp
IJRE
MJNgd
CPm
Kog
PeESTgr
TrSlc
TrJY
uMPM
CPK
Geology after BCGS Open File OF2018-08
Refer to Figure 7.3 for Geology Legend
0 2.5 5 7.5 10
Kilometers
470000
480000
490000
500000
5520000
5510000
5500000
5490000
5480000

7.2 – Property Geology

The Property is underlain by a complex intrusive suite which is part of the middle Jurassic Nelson batholith (Figure 7.2). Locally there appears to be a stratigraphic sequence consisting of an upper diorite, a middle aplite-pegmatite swarm of dykes or sills (ranging from 5.0 metres to 25.0 metres in thickness) and an underlying granodiorite. The Alpine Vein appears to preferentially intrude the aplite horizon between the upper diorite and the granodiorite and is spatially associated with mafic dyke/biotite schist which is interpreted to represent a metamorphosed and deformed early-phase lamprophyre. The host diorite to granodiorite is commonly cross-cut by centimetre- to metre-scale aplite and pegmatitic dykes as well as at least two generations of lamprophyre dykes; aplite dykes appear more common in the granodiorite unit and have been interpreted as a coeval phase of the intrusion.

Deformation of the intrusive suite is limited to localize shearing along the Alpine Vein horizon as well as motion along oblique joint sets and the margins of lamprophyre dykes. The mineralized vein is locally folded, along with foliated mafic dyke inclusions – this is consistent of at least two phases of deformation which bracket emplacement of the vein. Overall, the relative timing, direction and magnitude of motion associated with the deformation events is poorly understood. One minor fault with a maximum displacement of 20.0 metres has been interpreted from limited underground sampling data. Table 2 presents the current geologic evolution/paragenesis of the study area.

Table 7.1 – Alpine Vein Paragenesis (C. Gallagher, 2017)

	Middle Jurassic			***Tertiary (?)***			
Intrusion of mJ Nelson Batholith	X						
Intrusion of Aplite / Granodiorite dyke / dyke complex		X	X				
Intrusion of early flat lying lamprophyre dykes sub parallel to Aplite complex		X	X				
D1 shearing along weakened lamprophyre dyke horizon				X			
Development of Alpine mineralized vein					X		
D2 deformation						X	
Intrusion of late sub-vertical lamprophyre dykes							X

Lithology

Diorite (DI) – analogous to upper Granodiorite of Mosher, 1989 – analogous to UNIT 4 / 5 of Logan and Brown, 1989.

The diorite is light- to dark-grey, fine- to medium-grained homogeneous diorite with variable biotite to quartz ratios. It has an average modal composition of:

- 40 % biotite;
- 40 % plagioclase - centimetre-scale euhedral phenocrysts which are commonly zoned;

- 10 % quartz;
- 7 % tan sphene;
- 3 % amphibole.

It is in sharp contact with the lower granodiorite unit and is commonly intruded by centimetre- to metre-scale aplite, pegmatite and lamprophyre dykes.

Aplite (AP) / Pegmatite (PE)

Very fine grained aplite and coarser grained pegmatite dykes (of similar composition), which commonly exhibit graphic or myrmekite textures, appear to preferentially intrude host rocks at the diorite-granodiorite contact. The intrusive zone is interpreted by Mosher, 1989 as a 5.0 metre to 25.0 metre thick low-angle dyke or series of smaller scale related dykes. One to two percent bright red garnets ranging in size from less than one millimeter to fifty millimetres are a diagnostic feature of these rocks.

Granodiorite (GD) – analogous to Aplite of Mosher, 1989.

The granodiorite is light-grey to pink, fine- to medium-grained with a model composition of:

- 50 % plagioclase – subhedral to euhedral and zoned;
- 25 % quartz;
- 15 % biotite;
- 10 % K-feldspar;
- 1-5 % red garnets – diagnostic characteristic.

There is a noted increase in the presence of aplitic dykes in this unit.

Lamprophyres

At least two phases of lamprophyre dyke present on the property: an older deformed/metamorphosed unit as well as a younger (post-mineral) fresh set of dykes.

Mafic Dyke / Metamorphosed lamprophyre (MD)

This is present as a biotite-chlorite schist, that reacts strongly to HCL, which is consistently sheared and brecciated and occurs as foliated inclusions within the aplite dykes as well as the Alpine Vein. It has a strong spatial relationship to the Alpine Vein as it is consistently noted when the vein was intersected in 2017 drilling. Previous workers have suggested that the older lamprophyre phase is pre- to syn-mineralization which exploited the same fracture-joint set that contains the Alpine Vein.

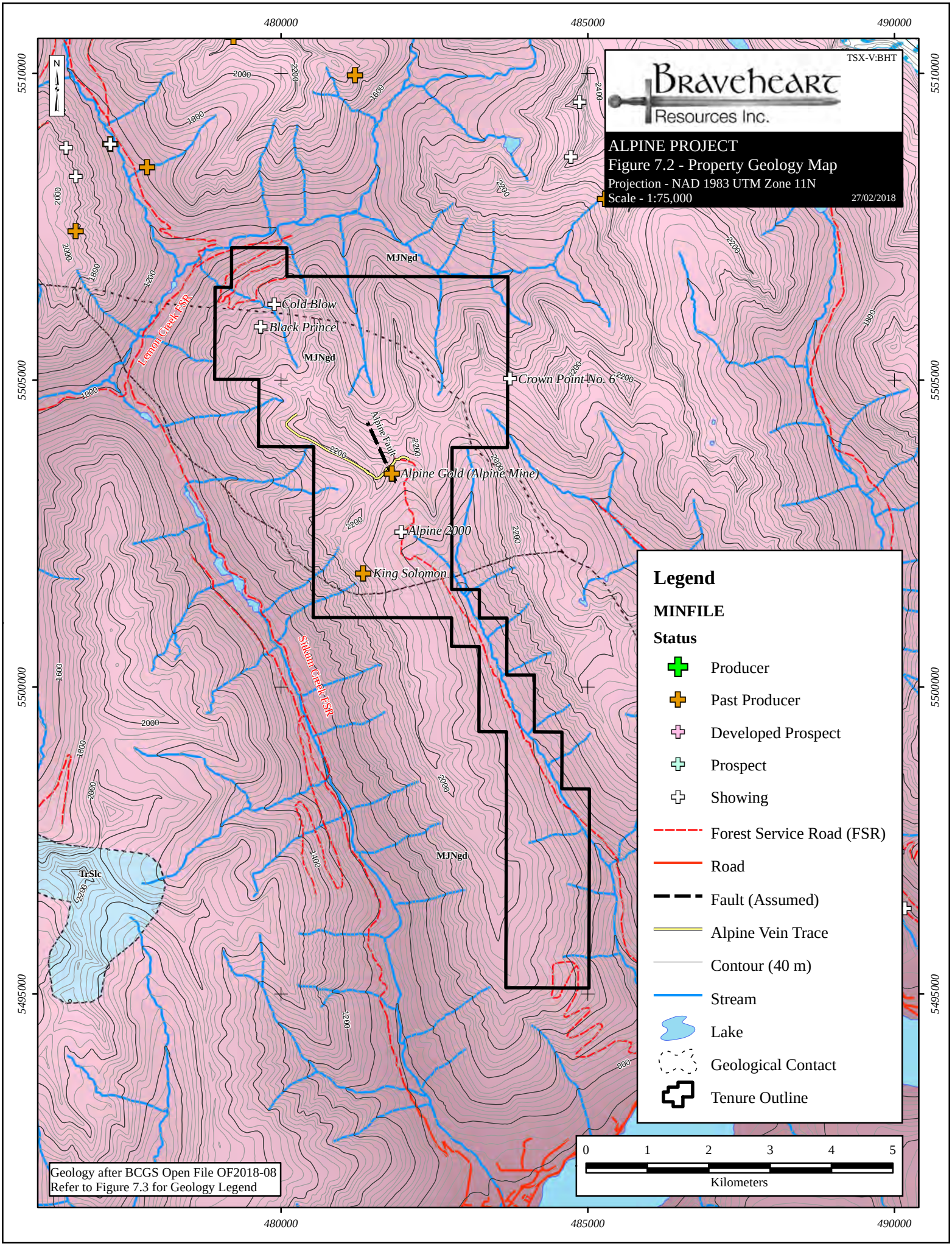
Lamprophyre (LM)

The fine- to medium-grained unit consists of approximately 20 % biotite with up to 5 % quartz-carbonate amygdules and occurs as subvertical dykes, up to 10.0 metres in width, with a strong north-northwest trend (Figure 7.2). Field mapping is consistent with the dykes post-dating/cross-cutting the mineralized Alpine quartz vein. These lamprophyres are interpreted to represent the suite of Tertiary lamprophyres discussed by Brown and Logan (1988).

Alpine Vein (AV)

The Alpine Vein is gently north-dipping at 25-30 degrees, planar, has an overall strike length of 1,600 metres and has been delineated up to 220.0 metres down-dip from the historic Alpine mine by diamond drill programs. It averages approximately 1.00 metres in thickness, but has been documented to range from 0.02 metres up to 2.10 metres in thickness. The Vein commonly bifurcates into hanging wall and footwall veins. Overall the 2017 drill program indicated that the Vein is variable in thickness down-dip of the Alpine mine workings: observed as millimetre- to centimetre-scale veinlets over a 0.50 metre thickness up to multiple centimeter- to decimeter-scale veinlets over 1.70 metres.

The vein is milky white to vitreous grey in color, massive, with up to five percent vugs (especially where mineralized with sulphides) and is commonly banded with a well-defined chlorite parting that is parallel to the contacts. The Vein is variably mineralized along the margins and within vugs. Gold mineralization is associated with electrum, pyrite, galena and sphalerite. Visible gold is commonly observed within the vein. The vein has a close spatial relationship with aplite and mafic dyke material.


480000
485000
490000
5510000
5505000
5500000
5495000
TSX-V:BHT
Braveheart Resources Inc.
ALPINE PROJECT
Figure 7.2 - Property Geology Map
Projection - NAD 1983 UTM Zone 11N
Scale - 1:75,000
27/02/2018
N
MJNgd
TrSlc
Cold Blow
Black Prince
Crown Point No. 6
Alpine Gold (Alpine Mine)
Alpine 2000
King Solomon
Alpine Fault
Lemon Creek FSR
Sitkum Creek FSR
Legend
MINFILE
Status
Producer
Past Producer
Developed Prospect
Prospect
Showing
Forest Service Road (FSR)
Road
Fault (Assumed)
Alpine Vein Trace
Contour (40 m)
Stream
Lake
Geological Contact
Tenure Outline
0 1 2 3 4 5
Kilometers
Geology after BCGS Open File OF2018-08
Refer to Figure 7.3 for Geology Legend

Geologic Legend

(after BCGS Open File OF2017-08)

Eocene

- ECsy — Coryell Plutonic Suite: Monzonite, syenite, shonkinite

Paleocene to Eocene

- PeESTgr — Sheppard, Tuzo Creek, Shingle Creek Intrusions: K-spar granite
- Peqm — K-spar-quartz monzonite; granitic gneiss

Cretaceous

- Kgd — Granite, granodiorite, monzonite
- Kog — Granitic gneiss
- Kqm — Quartz monzonite, granodiorite, quartz diorite

Jurassic

- MJgr — Porphyritic granite, granodiorite, monzonite
- MJNgd — Nelson Batholith: Porphyritic granite, granodiorite, granite gneiss
- EJE — Eagle Creek Plutonic Complex: Metadiorite, monzonite, monzodiorite, gabbro
- EJfp — Feldspar porphyry, quartz latite
- EJSK — Silver King Intrusions: Plagioclase porphyry (leucodiorite)
- lJRE — Rossland Group - Elise Formation: Mafic volcanics

Triassic to Jurassic

- TrJY — Ymir Group: Argillite, siltstone, limestone

Triassic

- TrSlc — Slocan Group: Carbonate, argillite, slate + K-spar granite

Carboniferous to Permian

- CPKa — Kaslo Group: Mafic volcanics
- CPm — Paragneiss, orthogneiss, pegmatite

Upper Mississippian to Permian

- uMPM — Milford Formation: Argillite, limestone, quartzite

Cambrian to Devonian

- CmDLB — Lardeau Group - Broadview Formation: Limestone, phyllite, grit
- CmDLI — Lardeau Group - Index Formation: Index: micaceous schist, impure marble
- CmDLJ — Lardeau Group - Jowett Formation: Green phyllite, greenstone

Cambrian

- lCmB — Badshot Formation: (locally includes Mohican): Marble, dolomite, limestone

Neoproterozoic to Lower Cambrian

- uPrCmH — Hamill Group: (Reno, Quartzite Range): Quartzite

Neoproterozoic

- uPrWT — Windermere Supergroup - Toby Formation: Conglomerate

7.3 – Mineralization and Alteration

Mineralization

Mineralization is comprised of native gold, electrum, pyrite, galena and sphalerite contained within quartz-dominated gangue. Gold and electrum occur as very fine-coarse disseminated particles, wiry crystals contained within drusy vugs in the quartz gangue, and in close spatial association with the following sulphide species: pyrite, galena and sphalerite. Rare clots of molybdenum were identified in altered granite from one of the mine dumps, and elevated geochemical values for molybdenum and tungsten were reported in 2017 from the mine dump downslope of the 5 LEVEL adit.

The mineralization is heterogeneously distributed throughout the Vein system. Future work including structural mapping within the Alpine mine workings and infill diamond drilling is required to determine if there is a structural control on the distribution of mineralization within the vein.

Alteration

Chlorite, epidote, hematite, sericite and silica alteration of the host rock is common, but not always observed enveloping the mineralized vein system. The alteration envelope is persistent in the hanging wall of the Vein and varies in lateral distribution ranging from sub-meter up to ten meters from the contact. The alteration can overprint and in some instances destroy the original texture of the host rock. Pyrite is commonly observed as fine – coarse grained euhedral disseminations within the altered host rock. These alteration mineral species are thought to be directly related to the hydrothermal fluids responsible for forming the Vein system. Future work is required to determine the mineralogy of the alteration assemblages enveloping the Vein, and the relative timing of alteration with respect to gold mineralization.

7.4 – Structure

It has been suggested that the 250/25 (azimuth/dip – right hand rule convention) oriented joint set is the main controlling factor on the Alpine Vein geometry; this was partially corroborated by limited 2017 surficial mapping. Structural data from the 2017 mapping project suggests the north dipping joint set having an average orientation of 272/30 which agrees well with minor vein measurements averaging 245/36. Modeling of the vein from UG sampling and surficial drill data results in a planar vein oriented 258/26. Mosher (1998) references the 015/90 joint set as preferentially hosting the lamprophyre dykes, in contrast, 2017 work confirms that these dykes are actually oriented at 345/90 (Figure 9.1). The other joint orientations were not observed during the 2017 mapping program.

Folded vein material with foliated inclusions of mafic dyke within the limb/hinges of tight folds was observed in historic mine dumps by the Author. This observation is consistent with a shearing event pre-dating or contemporaneous with vein emplacement, and subsequent local deformation of the vein in the form of folding after its emplacement. The absolute orientation of these folds was not determined since the observations were from float material in the waste dump.

Although no significant faults have been mapped in the vicinity of the Alpine Vein, there remains substantial evidence of motion along a number of discrete planes including the vein margins (slickenlines, brecciated/foliated host rock, possible vein offset) as well as slickenlines present on north-northwest trending joint surfaces that host the late lamprophyre dykes. Based on the

geometry of the historic underground workings and the 1988 panel sampling program, an inferred fault has been interpreted on the property (Figure 7.2). Its relative sense of motion is likely 20.0 m west-side down but absolute motion/kinematics are lacking (C. Gallagher, 2017).

8.0 DEPOSIT TYPES

The Alpine Vein has been classified as an "I-type" mineral deposit profile (Vein, Breccia and Stockwork) by the British Columbia Ministry of Energy, Mines and Petroleum Resources. Furthermore the vein is describes as an epigenetic, mesothermal, intrusion related gold±silver-lead-zinc quartz vein (BC MINFILE 082FNW127, 2014).

The geological characteristics of this type of mineral deposit have been provided in capsule description as summarized by Ash and Alldrick (1996) (http://www.empr.gov.bc.ca/Mining/Geoscience/MineralDepositProfiles/ListbyDepositGroup/Pages/IVeinBrecciaStockwork).

"Gold-bearing quartz veins and veinlets with minor sulphides crosscut a wide variety of host rocks and are localized along major regional faults and related splays. The wall rock is typically altered to silica, pyrite and muscovite within a broader carbonate alteration halo.

Veins form within fault and joint systems produced by regional compression or transpression (terrane collision), including major listric reverse faults, second and third-order splays."

These types of veins systems, specifically the Alpine Vein and other documented mineral occurrences on the property of similar character can be explored for on surface using the following methods:

- Prospecting and geologic mapping;
- Geochemical sampling including but not limited to:
  - The collection of talus fines and b-horizon soil samples where possible;
  - The collection of stream sediment samples;
  - The collection of rock samples.
- Mineralogical sampling including but not limited to:
  - The collection of till and or bulk stream sediment samples for heavy mineral separation and gold grain analysis.
- Hand and/or mechanized trenching to expose bedrock in geochemically anomalous regions of the property to aid in locating mineralized quartz veins;
- Diamond drilling.

The preferred exploration model on the property is to work from areas where significant amounts of geologic and geochemical data exist (principally around the Alpine mine) outward towards other documented mineral occurrences. The ultimate goal of Braveheart is to determine if the Alpine Vein and the other mineral occurrences on the property are related to one large-scale, interconnected hydrothermal event. The primary method of surface exploration for advancing the project is diamond drilling. Subsequent work programs could include rehabilitation of the Alpine mine workings to facilitate geologic mapping, geochemical sampling and a bulk sample.

9.0 EXPLORATION

Braveheart's initial work on the Property began in the winter of 2017 with the application for a *Mines Act* permit. Upon issuance of the Mines Act permit, the 2017 exploration program was initiated in August and continued through mid-October, 2017. The program included: surface and underground geochemical sampling, where samples were collected to verify work completed by previous operators; a LiDAR survey to provide detailed topographic data and aerial photos for the Project; and a twelve hole, 1,733.1 metre diamond drill program to support the production of a maiden Inferred Mineral Resource Estimate. In addition, Braveheart completed base line water quality sampling and an archaeological desktop review.

9.1 – Surface Exploration

Surface exploration during the 2017 field program consisted of surface mapping and geochemical sampling. More specifically, the geochemical sampling program consisted of prospecting by the project geologist whilst visiting diamond drill sites, and systematic "channel" sampling using non-mechanized methods of the historic dump piles located downslope from three adits of the Alpine mine. Geochemical assay certificates from the 2017 exploration program have been included in Appendix III.

The dump "channel" samples were collected as a mini trench excavated by hand along a set azimuth for a length ranging between 5.0 to 10.0 metres. Each sample comprises a full, large poly bag of sand and gravel with soup ladle sized 'grabs' taken about every 20 centimetres. Sample locations were recorded utilizing an Arrow 100 differential global positioning system ("DGPS"). In each case rock samples were recorded into a field notebook and then subsequently entered into the digital MS Access database at the end of every day. All samples were transported from the field in plastic bags with locking plastic straps and unique identification numbers to prevent tampering, ensuring a secure chain of custody.

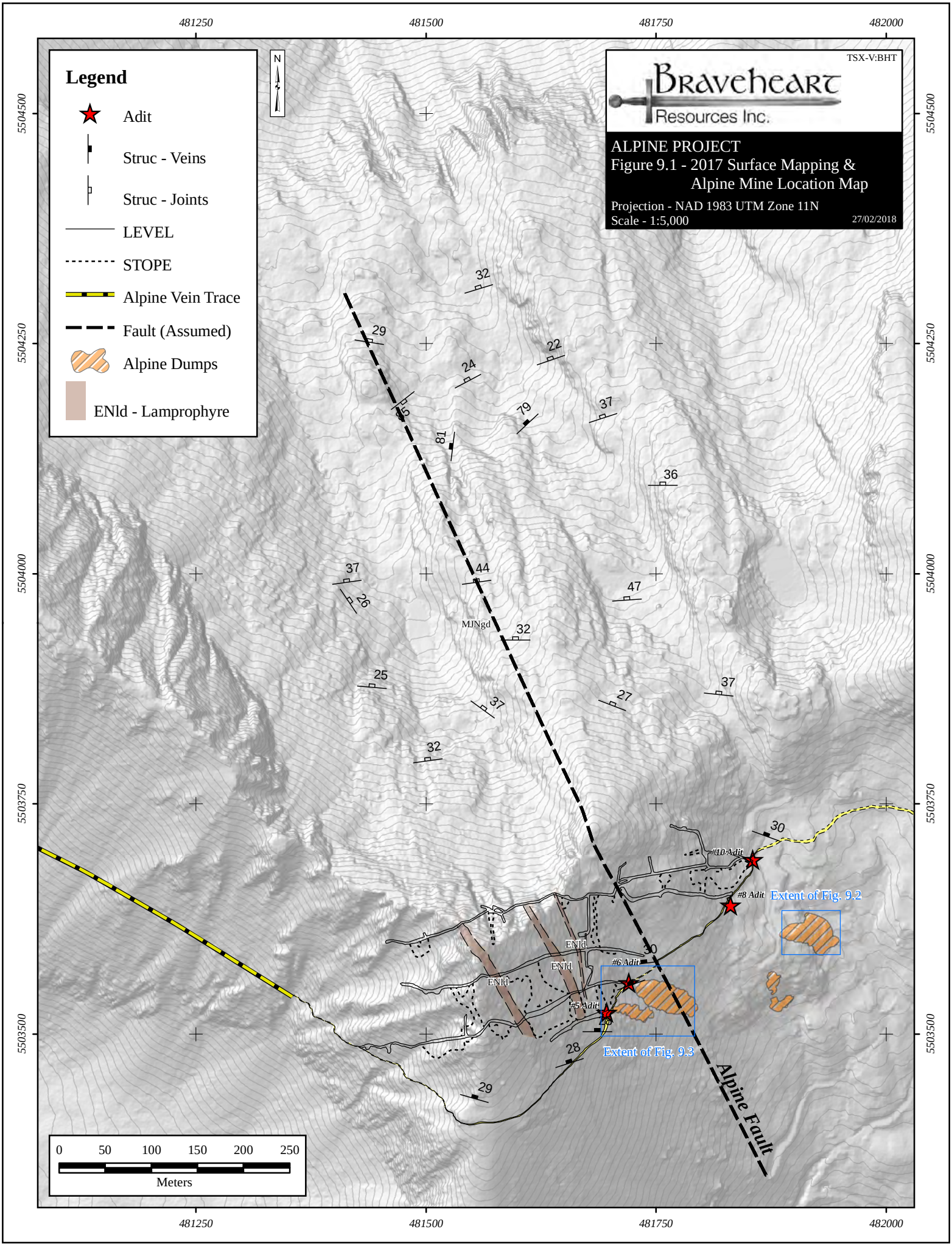
Locations of the 2017 dump sample program are presented in Figures 9.1-9.3. A total of seven composite samples were collected from the 5 LEVEL dump, nine samples from the 6 LEVEL dump and twenty-nine samples from the Tram or 10 LEVEL dump. The average grade of the dump samples was 2.5 g/t gold.

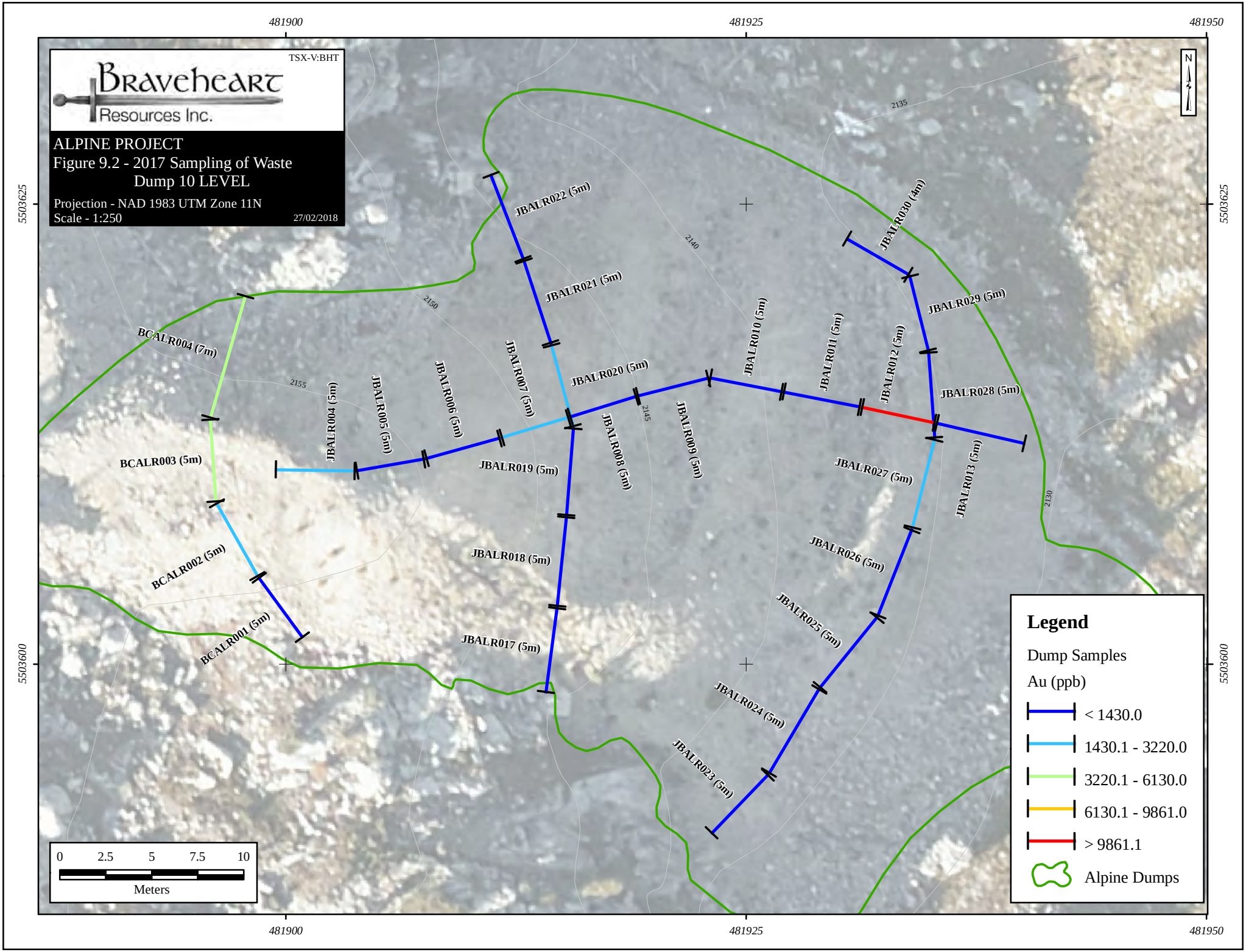
The geochemistry of the individual waste dump piles varies considerably in terms of precious metal content as well as elements associated with rock forming elements; statistics are presented in Table 9.1. Average Au values vary from 5 DUMP (2.4 g/t gold) to 6 DUMP (4.9 g/t gold) to the 10 DUMP (1.8 g/t gold) and spatially gold values increased upslope towards the adit openings. The variation in gold geochemistry is very likely due the heterogeneous mixing of host rock / lamprophyre dyke material with vein material present in the different waste dump piles.

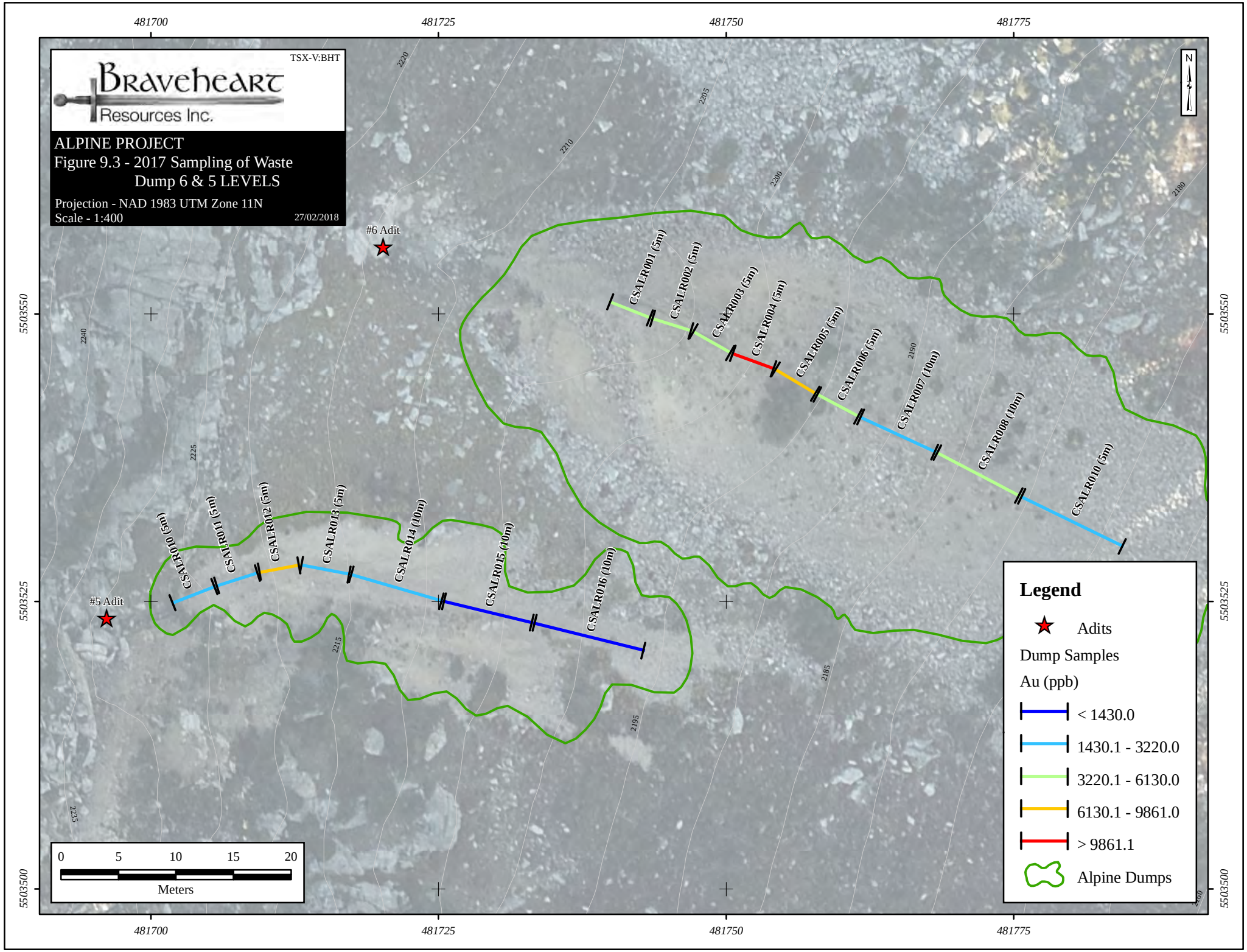
Table 9.1 – 2017 Dump Sample Geochemical Statistics for gold (Au) in parts per billion (ppb)

2017 Statistics		Au ppb
5 DUMP	Minimum	1250
	Maximum	6970
	Mean	2463
	Median	1830
	COV	81
	50 percentile	1830
	75 percentile	2060
	90 percentile	6970
	95 percentile	6970
	99 percentile	6970
	Total Samples	7
6 DUMP	Minimum	2180
	Maximum	11100
	Mean	4957
	Median	4340
	COV	55
	50 percentile	4340
	75 percentile	6145
	90 percentile	11100
	95 percentile	11100
	99 percentile	11100
	Total Samples	9
10 DUMP / TRAM DUMP	Minimum	53
	Maximum	15800
	Mean	1876
	Median	1014
	COV	160
	50 percentile	1014
	75 percentile	1688
	90 percentile	4108
	95 percentile	11138
	99 percentile	15800
	Total Samples	29

*COV = Coefficient of Variation


481250
481500
481750
482000
5504500
5504250
5504000
5503750
5503500
Legend
Adit
Struc - Veins
Struc - Joints
LEVEL
STOPE
Alpine Vein Trace
Fault (Assumed)
Alpine Dumps
ENld - Lamprophyre
N
TSX-V:BHT
Braveheart Resources Inc.
ALPINE PROJECT
Figure 9.1 - 2017 Surface Mapping & Alpine Mine Location Map
Projection - NAD 1983 UTM Zone 11N
Scale - 1:5,000
27/02/2018
MJNgd
ENld
#10 Adit
#8 Adit
#6 Adit
#5 Adit
Extent of Fig. 9.2
Extent of Fig. 9.3
Alpine Fault
0 50 100 150 200 250
Meters


TSX-V:BHT
Braveheart Resources Inc.
ALPINE PROJECT
Figure 9.2 - 2017 Sampling of Waste Dump 10 LEVEL
Projection - NAD 1983 UTM Zone 11N
Scale - 1:250
27/02/2018
481900
481925
481950
5503625
5503600
N
2135
2140
2150
2155
2145
2130
JBALR022 (5m)
JBALR021 (5m)
JBALR030 (4m)
JBALR029 (5m)
JBALR028 (5m)
JBALR020 (5m)
JBALR010 (5m)
JBALR011 (5m)
JBALR012 (5m)
JBALR007 (5m)
JBALR006 (5m)
JBALR005 (5m)
JBALR004 (5m)
BCALR004 (7m)
BCALR003 (5m)
JBALR019 (5m)
JBALR008 (5m)
JBALR009 (5m)
JBALR027 (5m)
JBALR013 (5m)
JBALR018 (5m)
JBALR026 (5m)
BCALR002 (5m)
JBALR025 (5m)
BCALR001 (5m)
JBALR017 (5m)
JBALR024 (5m)
JBALR023 (5m)
0 2.5 5 7.5 10
Meters
Legend
Dump Samples
Au (ppb)
< 1430.0
1430.1 - 3220.0
3220.1 - 6130.0
6130.1 - 9861.0
> 9861.1
Alpine Dumps

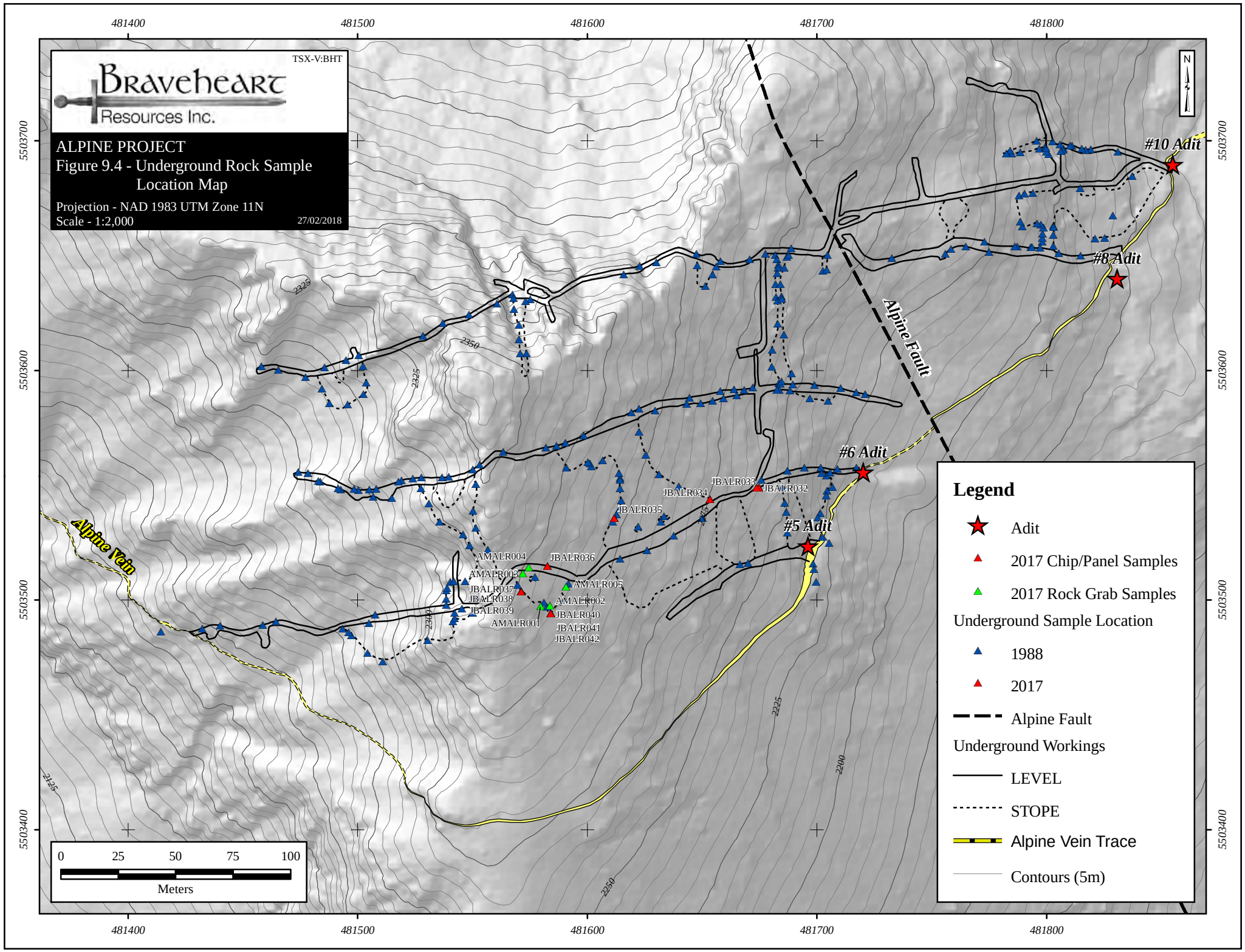

481700
481725
481750
481775
5503550
5503525
5503500
TSX-V:BHT
Braveheart Resources Inc.
ALPINE PROJECT
Figure 9.3 - 2017 Sampling of Waste Dump 6 & 5 LEVELS
Projection - NAD 1983 UTM Zone 11N
Scale - 1:400
27/02/2018
N
#6 Adit
#5 Adit
CSALR001 (5m)
CSALR002 (5m)
CSALR003 (5m)
CSALR004 (5m)
CSALR005 (5m)
CSALR006 (5m)
CSALR007 (10m)
CSALR008 (10m)
CSALR010 (5m)
CSALR010 (5m)
CSALR011 (5m)
CSALR012 (5m)
CSALR013 (5m)
CSALR014 (10m)
CSALR015 (10m)
CSALR016 (10m)
2220
2205
2210
2200
2180
2240
2225
2190
2215
2185
2195
2235
0 5 10 15 20
Meters
Legend
Adits
Dump Samples
Au (ppb)
< 1430.0
1430.1 - 3220.0
3220.1 - 6130.0
6130.1 - 9861.0
> 9861.1
Alpine Dumps

9.2 – Underground Sampling

On October 14th, 2017 a total of four chip samples, five grab samples and seven panel samples were collected from the 6 LEVEL drift and stopes by Jarrod Brown PGeo of TerraLogic and Aaron Matlock of Braveheart Resources. Samples were collected to verify vein thickness and gold grade of the 1988 panel sampling program conducted by Cove Resources. Due to stability/safety concerns only part of the 6 LEVEL was accessible for sampling. Panel/chip samples were collected using electric hand tools and were typically 1.0 m wide with a thickness that varied with the vein width. Table 9.2 displays the results of the underground sample program for gold. The average grade of the 2017 panel samples was 8.8 g/t gold. Comparison of the 2017 samples with the historic samples collected by Cove Resources is discussed in detail within Item 12.0 – Data Verification. Both the 1988 and 2017 underground samples are plotted for geographic reference on Figure 9.4,

Table 9.2 – 2017 Underground Sample Results for gold (Au)

Sample Number	Sample Type	Elevation (m)	Easting	Northing	Length (m)	Major Rock Type	Minor Rock Type	Au (g/t)
JBALR032	panel	2213.9	481674.7	5503549.0	1.00	quartz vein		0.41
JBALR033	panel	2213.9	481673.7	5503549.0	1.00	quartz vein		0.23
JBALR034	chip	2210.9	481653.4	5503543.9	1.25	quartz vein		54.60
JBALR035	panel	2204.3	481611.8	5503535.8	1.45	quartz vein		7.62
JBALR036	panel	2213.9	481582.6	5503515.0	1.60	quartz vein		9.76
JBALR037	chip	2213.9	481571.2	5503503.9	0.35	quartz vein		22.60
JBALR038	chip	2213.9	481571.2	5503503.9	1.05	granite	quartz vein	0.06
JBALR039	chip	2213.9	481571.2	5503503.9	0.45	quartz vein		0.20
JBALR040	panel	2221.8	481584.1	5503494.1	0.48	quartz vein		1.65
JBALR041	panel	2221.8	481584.1	5503494.1	0.86	granite	quartz vein	0.16
JBALR042	panel	2221.8	481584.1	5503494.1	0.40	quartz vein		0.54
AMALR001	grab	2257.7	481579.7	5503497.5		quartz vein		0.62
AMALR002	grab	2258.2	481583.9	5503497.7		quartz vein		1.74
AMALR003	grab	2251.8	481571.9	5503511.5		quartz vein		13.10
AMALR004	grab	2250.8	481574.5	5503514.4		quartz vein		7.74
AMALR005	grab	2216.1	481590.7	5503505.9		quartz vein		5.20


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Figure 9.4 - Underground Rock Sample Location Map
Projection - NAD 1983 UTM Zone 11N
Scale - 1:2,000
27/02/2018
481400
481500
481600
481700
481800
5503700
5503600
5503500
5503400
N
#10 Adit
#8 Adit
#6 Adit
#5 Adit
Alpine Fault
Alpine Vein
JBALR033
JBALR032
JBALR034
JBALR035
JBALR036
AMALR004
AMALR003
AMALR005
JBALR037
JBALR038
JBALR039
AMALR002
AMALR001
JBALR040
JBALR041
JBALR042
2325
2350
2300
2275
2250
2225
2200
2125
0
25
50
75
100
Meters
Legend
Adit
2017 Chip/Panel Samples
2017 Rock Grab Samples
Underground Sample Location
1988
2017
Alpine Fault
Underground Workings
LEVEL
STOPE
Alpine Vein Trace
Contours (5m)

9.3 – LiDAR Survey

Eagle Mapping Ltd., was contracted by Braveheart to collect aerial light detection and ranging survey data ("LiDAR") and photography of a select portion of the Property. The purpose of the survey was to provide high-accuracy base data for the area containing the 2017 drill program and the historic Alpine mine. There have been significant issues in the past with surveying the elevations of the underground workings. A detailed report of the survey and its processing parameters are provided in Appendix IV.

The Area of Interest ("AOI") for the Property covers a total of 5 square kilometres. A significant buffer was collected surrounding the project AOI in order to guarantee accuracy and density within the boundary. LiDAR and photos were acquired simultaneously in a single flight on September 29th, 2017 staged out of Abbotsford, British Columbia. Weather conditions were clear with moderate winds. In total, four flight lines and forty-eight photos were required to cover the AOI.

Due to the statistical accuracy of the processed trajectory and baseline lengths being less than 50 kilometres during acquisition, it is Eagle Mapping's conclusion that the LiDAR data is accurate to within ± 15centimetres vertically and ± 30 centimetres horizontally.

10.0 DRILLING

The first report of diamond drilling on the Property was in 1947, where 366.0 metres was completed from the underground workings. The location of the 1947 drill holes is referenced in Energy Mines and Petroleum Resources Annual Report (EMPR AR) for 1947 as follows: *"a few short holes were drilled from the No. 7 and No. 10 levels…one hole drilled northerly from the ease end of No. 7 level cut a vein at 45 feet."*

The next documented drill program on the Property was 41 years later, in 1988, where Cove Resources completed three surface drill holes and nine underground drill holes totalling 1,024.1 metres. The following year Cominco completed twelve surface drill holes totalling 1,745.4 metres. The 1989 drill program was the last drill program on the property prior to the 2017 exploration program completed by Braveheart.

The 2017 drill program consisted of twelve BTW diamond drill holes totaling 1,733.1 metres. All of the boreholes reached their intended target depth with the exception of borehole AL17010, which was abandoned at 56.4 metres due to mechanical complications with the drill bit. The program was designed to verify the thickness and grade of historic diamond drill hole intercepts reported from 1988 and 1999, as well as test the down-dip extension of the Alpine Vein system north of the historic workings. The 2017 drill holes were designed to cross-cut the vein at an angle which best approximated true thickness. Due to the moderate northerly dip of the Vein, multiple drill holes could be collared from the same pad location at different dip angles and still provide near true thickness vein intersections.

Lucky Drilling Ltd., of Castlegar, British Columbia was contracted to complete the drill program. Helicopter support was provided by High Terrain Helicopters of Nelson, British Columbia for drill moves, drill service and mobilization-demobilization of equipment and field crews. A staging area was established at the Nelson Airport, an approximate 10 minute flight from the property.

The 2017 drill core was flown down to the staging area on a daily basis, and driven to the core processing storage facility in Harrop, British Columbia by TerraLogic employees. It was logged by Brendan Clarke, of TerraLogic Exploration Inc., with an emphasis placed on recording: lithology, alteration, structures and mineralization. Core recovery was generally excellent, averaging 95.7% over the program. Drill core was selected for assay based on the presence of visible mineralization as well as alteration zones in the immediate hanging wall and foot wall of the Vein. Sample intervals were based on mineralized vein contacts and significant changes in alteration and geology. A total of one hundred and fifty-eight samples were collected during the 2017 program with an average length of 0.9 metres, a minimum length of 0.5 metres and a maximum length of 1.6 metres. Samples were cut using a diamond saw blade at a secure location in Harrop, British Columbia under the supervision of the Author and Jarrod Brown PGeo. The core was subsequently transported to a secure facility in Salmo, British Columbia for storage.

Collar locations for the 1988, 1989 and 2017 drill holes were surveyed by TerraLogic employees using an Arrow 100 DGPS and its data was utilized for preliminary collar elevations. The elevations were later refined from LIDAR survey data. Bore hole surveys were completed roughly every 20.0 to 25.0 metres utilizing a REFLEX EZ-Trac Multi-shot survey system.

Tables 10.1 and 10.2 present information for all known surface and underground drilling activities completed since 1988 on the Property. Figure 10.1 is a plan map which displays the

collar location and borehole trace for all known surface and underground drill holes completed on the property to date.

Tables 10.3 and 10.4 present significant diamond drill hole results for gold from the 1989 and 2017 programs. Results from the 1988 program are considered spurious and are not listed within the document for reasons discussed in Item 12.4.

Drilling programs completed in 1989 and 2017 were designed to test the Alpine Vein structure at near normal intersections. The greatest variation from normal was approximately 15^{o}, such that true interval thicknesses will be between 96% and 100% of those listed in Tables 10.3 and 10.4.

The Author recommends that for future exploration drill programs a large core size be selected to provide a larger volume of core for geochemical sampling. A large sample size would assist in lowering the sampling error which is inherent to “nuggety gold” veins systems such as those observed on the Property.

Table 10.1 – Surface Diamond Drill Hole Summary Table

Year	Hole ID	Length (m)	Azimuth	Dip	Easting	Northing	Elevation (m)	Finish Date	Status
1988	88-01	270.05	180.00	-45	481731.7	5503951.0	2145.68	10-Oct-88	complete
1988	88-02	190.80	180.00	-50	481507.2	5503833.2	2175.37	16-Oct-88	complete
1988	88-03	221.59	0.00	-90	481507.2	5503833.2	2175.37	25-Oct-88	complete
1989	AG-89-01	118.30	163.00	-55	481507.2	5503833.2	2175.37	30-Jul-89	complete
1989	AG-89-02	169.50	0.00	-90	481507.2	5503833.2	2175.37	01-Aug-89	complete
1989	AG-89-03	147.80	208.00	-45	481507.8	5503835.6	2175.13	04-Aug-89	complete
1989	AG-89-04	160.90	208.00	-60	481507.8	5503835.6	2175.13	05-Aug-89	complete
1989	AG-89-05	167.00	103.00	-45	481507.8	5503835.6	2175.13	08-Aug-89	complete
1989	AG-89-06	127.70	103.00	-60	481507.8	5503835.6	2175.13	09-Aug-89	complete
1989	AG-89-07	152.10	157.50	-55	481451.1	5504026.3	2092.92	15-Aug-89	complete
1989	AG-89-08	136.60	0.00	-90	481451.1	5504026.3	2092.92	17-Aug-89	complete
1989	AG-89-09	146.00	202.50	-45	481449.3	5504026.5	2092.23	19-Aug-89	complete
1989	AG-89-10	136.90	202.50	-60	481449.3	5504026.5	2092.23	21-Aug-89	complete
1989	AG-89-11	145.70	112.50	-45	481451.8	5504028.0	2092.84	23-Aug-89	complete
1989	AG-89-12	136.90	112.50	-60	481451.8	5504028.0	2092.84	24-Aug-89	complete
2017	AL17001	150.57	180.00	-45	481729.4	5503952.6	2145.19	28-Aug-17	complete
2017	AL17002	163.07	180.00	-70	481729.4	5503952.6	2145.19	30-Aug-17	complete
2017	AL17003	117.96	180.00	-45	481757.2	5503877.1	2187.16	01-Sep-17	complete
2017	AL17004	119.18	180.00	-70	481757.3	5503877.9	2187.01	03-Sep-17	complete
2017	AL17005	158.80	180.00	-45	481650.2	5503849.1	2219.59	06-Sep-17	complete
2017	AL17006	152.86	180.00	-70	481650.2	5503849.1	2219.59	08-Sep-17	complete
2017	AL17007	160.20	180.00	-45	481616.4	5503927.1	2182.42	11-Sep-17	complete
2017	AL17008	147.52	180.00	-70	481616.4	5503927.1	2182.42	13-Sep-17	complete
2017	AL17009	177.09	180.00	-90	481616.4	5503927.1	2182.42	15-Sep-17	complete
2017	AL17010	56.39	180.00	-45	481531.8	5504181.7	2044.72	17-Sep-17	abandoned
2017	AL17011	159.56	180.00	-80	481531.8	5504181.7	2044.72	19-Sep-17	complete
2017	AL17012	169.96	180.00	-50	481531.8	5504181.7	2044.72	21-Sep-17	complete

Table 10.2 – Underground Diamond Drill Hole Summary Table

Year	Hole ID	Length (m)	Azimuth	Dip	Easting	Northing	Elevation (m)	Finish Date	Status
1988	#1 UDDH 88	88.0	10.00	-24.2	481498	5503610	2160.27	Unknown	complete
1988	#2 UDDH 88	51.0	325.00	-21.0	481497	5503609	2160.27	Unknown	complete
1988	#3 UDDH 88	49.7	345.00	-19.0	481498	5503610	2160.27	Unknown	complete
1989	#5 UDDH 88	36.0	0.00	-24.2	481649	5503650	2160.27	Unknown	complete
1989	#6 UDDH 88	41.0	45.00	-19.0	481649	5503650	2160.27	Unknown	complete
1989	#7 UDDH 88	35.0	315.00	-20.0	481648	5503650	2160.27	Unknown	complete
1989	#8 UDDH 88	24.0	160.00	24.0	481656	5503645	2160.27	Unknown	complete
1989	#9 UDDH 88	20.0	165.00	24.0	481655	5503644	2160.27	Unknown	complete

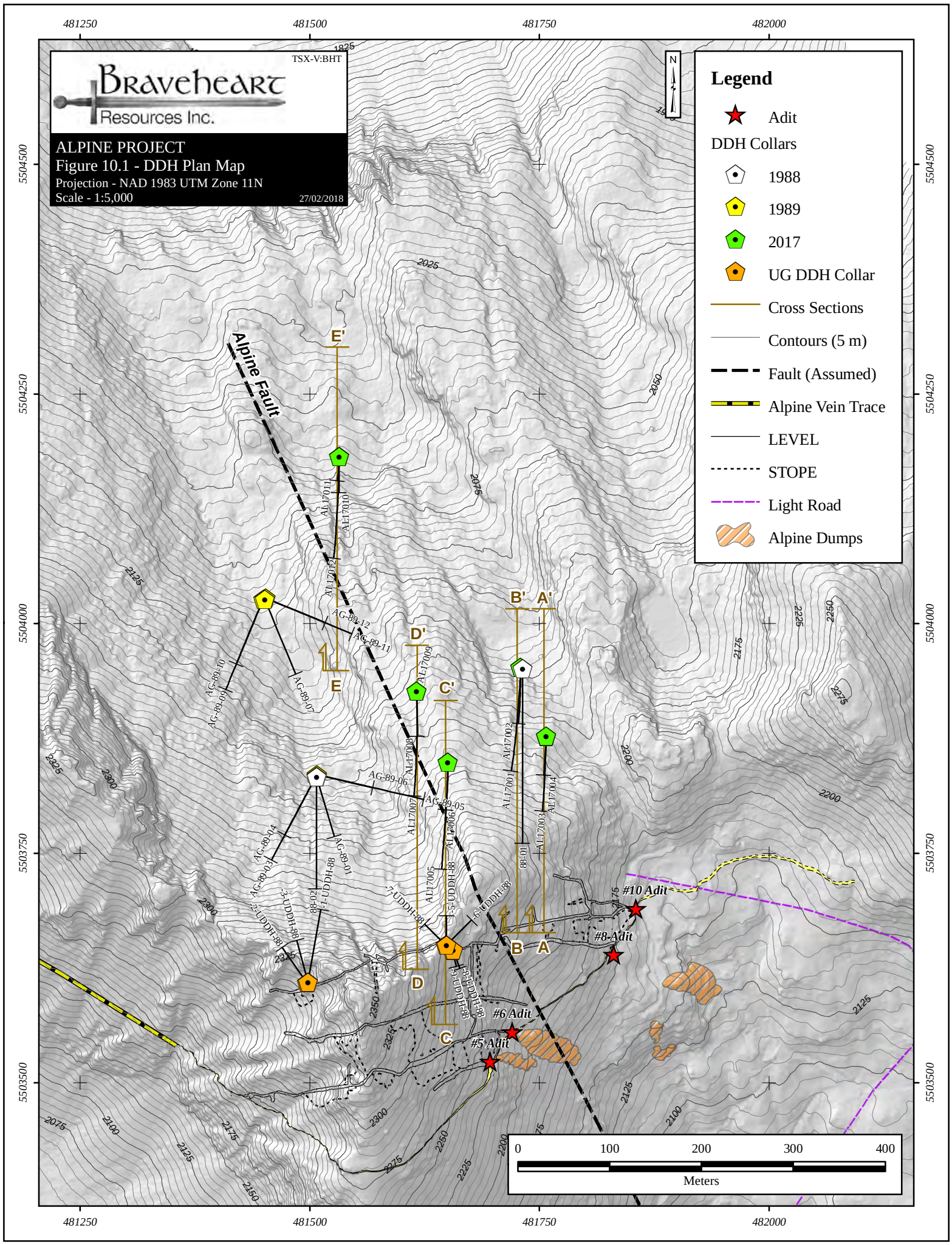

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ALPINE PROJECT
Figure 10.1 - DDH Plan Map
Projection - NAD 1983 UTM Zone 11N
Scale - 1:5,000
27/02/2018
N
Legend
Adit
DDH Collars
1988
1989
2017
UG DDH Collar
Cross Sections
Contours (5 m)
Fault (Assumed)
Alpine Vein Trace
LEVEL
STOPE
Light Road
Alpine Dumps
Alpine Fault
E'
E
D'
D
C'
C
B'
B
A'
A
#10 Adit
#8-Adit
#6 Adit
#5 Adit
AG-89-12
AG-89-11
AG-89-10
AG-89-09
AG-89-07
AG-89-06
AG-89-05
AG-89-04
AG-89-03
AG-89-01
AL17011
AL17010
AL17012
AL17009
AL17008
AL17007
AL17006
AL17005
AL17002
AL17001
AL17003
AL17004
88-01
88-02
1-UDDH-88
2-UDDH-88
3-UDDH-88
5-UDDH-88
7-UDDH-88
481250
481500
481750
482000
5504500
5504250
5504000
5503750
5503500
0
100
200
300
400
Meters

Table 10.3 – 1989 diamond drill hole results for gold (Au) (Mosher, 1989)

Hole ID	Interval (m)	Au (g/t)
AG-89-01	105.5-106.0	4.5
AG-89-02	113.7-114.6	0.8
AG-89-03	115.1-115.9	1.0
	126.8-127.4	4.7
AG-89-05	115.3-116.1	22.1
AG-89-06	112.0-112.9	5.1
	113.9-114.9	4.8
AG-89-08	130.3-131.0	0.6
AG-89-11	134.3-135.3	0.6
AG-89-12	126.4-127.1	122.5

Table 10.4 – 2017 diamond drill hole results for gold (Au)

Hole ID	Interval (m)	Au (g/t)	Weighted Average
AL17001	99.6-100.4	3.9	
AL17002	90.5-91.0	0.4	
AL17003	90.0-90.5	0.1	
AL17004	87.5-88.0	3.3	**11.8 g/t Au over 1.5 metres**
	88.0-88.5	2.6	
	88.5-89.0	29.6	
AL17005	125.5-126.2	0.8	
	126.2-126.7	0.4	
AL17006	125.2-125.7	0.6	
AL17007	140.7-141.4	0.8	**19.1 g/t Au over 1.7 metres**
	141.4-142.0	0.1	
	142.0-142.6	33.5	
	142.6-143.1	0.3	
	143.1-143.6	2.0	
AL17008	126.8-127.4	0.6	**38.0 g/t Au over 1.4 metres**
	127.4-128.2	66.1	
AL17009	150.9-151.5	0.0	
AL17011	134.7-135.3	0.1	
AL17012	145.0-146.0	0.3	

11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

All surface and drill core samples collected during the 2017 exploration program were submitted to Activation Laboratory, 9899 Dallas Drive Kamloops, British Columbia V2C 6T4 for geochemical analysis. Geochemical assays for both surface and drill core samples can be found in Appendix III.

11.1 – Sample Preparation

All sample preparation was conducted by Actlabs, where drill core samples, consisting of ½ split core, were crushed to 80 % passing 10 mesh (1.7 millimetres) with 500 grams being riffle split and then pulverized to 95 % passing 150 mesh (105 micrometres). The preparation procedures including cleaning the pulveriser bowl with silica sand after in between each sample. Rock samples were prepared in a similar manner except the riffle split portion of the sample was increased from 500 grams to 1000 grams. All coarse rejects and master pulps were, and are still currently retained at Actlabs facility.

11.2 – Analyses

Sample analysis was completed at Actlabs Kamloops, British Columbia facility where core and rock samples were analyzed via the following methodology:

Code 1E3 – 0.5 gram Aqua Regia / ICP-OES multi-element (surface rock samples);

If the 1E3 method reported Over Detection Limit for lead (Pb), zinc (Zn), copper (Cu) or silver (Ag) then the sample was subsequently analyzed via Code 8 - 4 acid / AAS;

Code 1UT – 0.5 gram Aqua Regia / ICP-MS multi element (drill core samples);

If the 1UT method reported Over Detection Limit for lead (Pb), zinc (Zn), copper (Cu) or silver (Ag) then the sample was subsequently analyzed via Code 8 - 4 acid / AAS;

Code 1A2 – 30 gram FA / AAS gold (Au) analysis (drill core and surface samples);

If the 1A2 method reported Over Detection Limit (5000 parts per billion (ppb)) then the sample was subsequently analyzed via Code 1A3 – 30 gram FA / Gravimetric gold (Au) analysis;

Selected surface samples were run by Fusion – Sodium (Na) Peroxide methods for tungsten (W) analysis.

Actlabs RX17-W: Specific Gravity Analysis

Specific gravity was also determined from pulverized sample material following the ASTM D854 standard for material passing through a 4.75 millimeter sieve utilizing a water pycnometer. The procedure involves as a brief summary:

- Obtain dry solid from pulp and take exact weight measurement (Mo);
- Fill the flask up to the etch line with distilled water and measure weight (Ma);
- Pour half of the water out of the flask and place the pulp in the flask with a funnel;
- Wash the pulp down the inside neck of the flask.
- Connect the flask to the vacuum source with the hose and stopper and apply vacuum for 30 minutes, occasionally agitating the mixture.

- Fill the flask to the etch line with distilled water and weigh it (Mb)
- Record the water temperature in the flask

Calculate specific gravity (Gs) using the following equation:

$$Gs = Mo /(Mo + (Ma - Mb))$$

A temperature correction was also applied to the calculation to derive the final specific gravity. Precision and bias are determined to judge the acceptability of the test results. Quality control is 12 % for each batch of fifty samples: one blank, one silica flour control, four sample duplicates.

11.3 – Sample Security

All samples were sealed in poly sample bags which each had a unique label identifier marked on the bag, and also on a piece of flagging tape within the bag. The sample bags were sorted, and stored in a secure location at the core logging facility in Harrop, British Columbia prior to shipping. At all times the samples were under the supervision and control of TerraLogic employees, and detailed records were kept of where and when samples were shipped. Actlabs also cataloged all samples that arrived at their laboratory to ensure a complete chain of custody throughout the analytical process.

Samples were shipped to the lab in poly-weave rice bags, each containing between six and eight samples, and weighing anywhere from 13.0-22.0 kilograms. Each drill hole or batch of surface samples was given their own unique shipment identification number (*e.g.,* AL17-001 for diamond drill hole AL17001). The rice bags were clearly labeled with the destination address, sender's address, and contained sample number sequence, and were sealed with heavy duty locking cable ties. Rice bags were labeled "1 of x", "2 of x", etc. to keep track of the number of bags in each shipment. Complete sample lists and laboratory requisition forms for a given shipment were inserted into "Bag 1 of x" and this bag was clearly identified with brightly-coloured flagging tape tied around the top. All pertinent shipping information was recorded into a digital database upon finalization of each sample shipment.

Rice bags were delivered to the Greyhound depot in Nelson, British Columbia. From there, the rice bags were transported to the Actlabs facility in Kamloops, British Columbia. All 2017 samples arrived securely at the Actlabs facility without incident. All remaining drill core materials and pulps processed by Actlabs are in storage at their facility in Kamloops should additional future QAQC analysis be required.

12.0 DATA VERIFICATION

The following section presents results and discussion pertaining to the Quality Assurance Quality Control ("QAQC") program implemented during the 2017 exploration drill program and the use of historic data in the Mineral Resource Estimate calculation found in Item 14.

12.1 – Overview of 2017 Exploration Drill Program

(Authors C. Gallagher, M.Sc. and M. McCuaig, P.Geo.)

Analysis and review of the QAQC data has shown that Activation Labs ("Actlabs"), of Kamloops, British Columbia operated well within industry standard parameters for accuracy and precision. QAQC data was monitored on a weekly basis during the program duration and verified prior to any news release; any issues identified were followed up at the lab and resolved immediately. For brevity and relevance with respect to the Mineral Resource Estimate outline in Item 14 of this report, only the results for gold analysis have been summarized below.

The program included insertion of external control samples including blanks and multiple standard reference materials ("SRM") into the sample chain of custody with a frequency of just less than one in five samples. Approximately 20 % of the samples submitted consisted of a control sample (blank or SRM). Blank material consisted of medium grained aggregate averaging 1.0 centimetres in diameter with an average mass of 2.0 kilograms, or a mass which exceeded the weight of the preceding core sample. Blanks were selectively inserted in areas of mineralization with a frequency of at least one per hole, in proximity to samples containing mineralized vein material. External SRM, supplied by WCM Minerals Ltd. ("WCM"), were selectively inserted into the sample chain of custody with a minimum frequency of one per hole. A total of three different standard reference materials ("SRM") were inserted – all of which are certified for gold and two of which are also certified for silver. Table 12.1 presents the statistical accepted values and ranges derived from round robin analysis (Refer to Appendix III for laboratory certificates from the 2017 diamond drill program).

In addition to the external control samples submitted by TerraLogic Exploration Inc., Actlabs maintained an internal QAQC program consisting of preparation duplicates (re-splits), pulp duplicates (repeats), standards and blanks that were monitored by a certified assayer. Preparation duplicate (re-split) analysis consisted of a second 500 gram split of coarse reject material that is pulverized; preparation duplicates were selected by TerraLogic based on geology, alteration and visible mineralization. Repeat analysis consisted of a second subsample and analysis of the master pulp approximately every 30 samples. Internal duplicate QAQC data was reviewed along with all external data on a regular basis: internal standards and blanks were only referenced if there were issues with the dataset.

Table 12.1 – SRM accepted values for gold (Au)

Standard	Lab	Au Accepted Value (g/t)	Au SD (g/t)	Au Methodology
PM441	WCM	0.53	0.03	30g FA / ICP or AA
PM925	WCM	11.69	0.57	30g FA / ICP or AA
PM929	WCM	5.1	0.24	30g FA / ICP or AA

12.2 – Blank Analysis

Assay results of the blank material were monitored for spikes and elevated values of key economic elements including gold (Au), silver (Ag), lead (Pb) and zinc (Zn) and the values were compared to the method specific lower detection limit ("LDL"). Results of the 2017 blank QAQC analysis are consistent with no economically significant cross-contamination.

Blanks – gold (Au)

A total of twenty-one blanks were submitted for analysis, all of which were processed via 1A2-30 gram fire assay. Twenty of the twenty-one blanks returned values less than four times the LDL, and all returned values below ten times LDL (Figure 12.1). Smear chart analysis shows no correlation between elevated gold values in blanks and the grade of the preceding sample (Figure 12.2). The average value returned for Au was 5.3 parts per billion (ppb) Au; a threshold well below any value of economic interest.

Figure 12.1 – Blank Results – Actlabs – 1A2 – gold (Au)

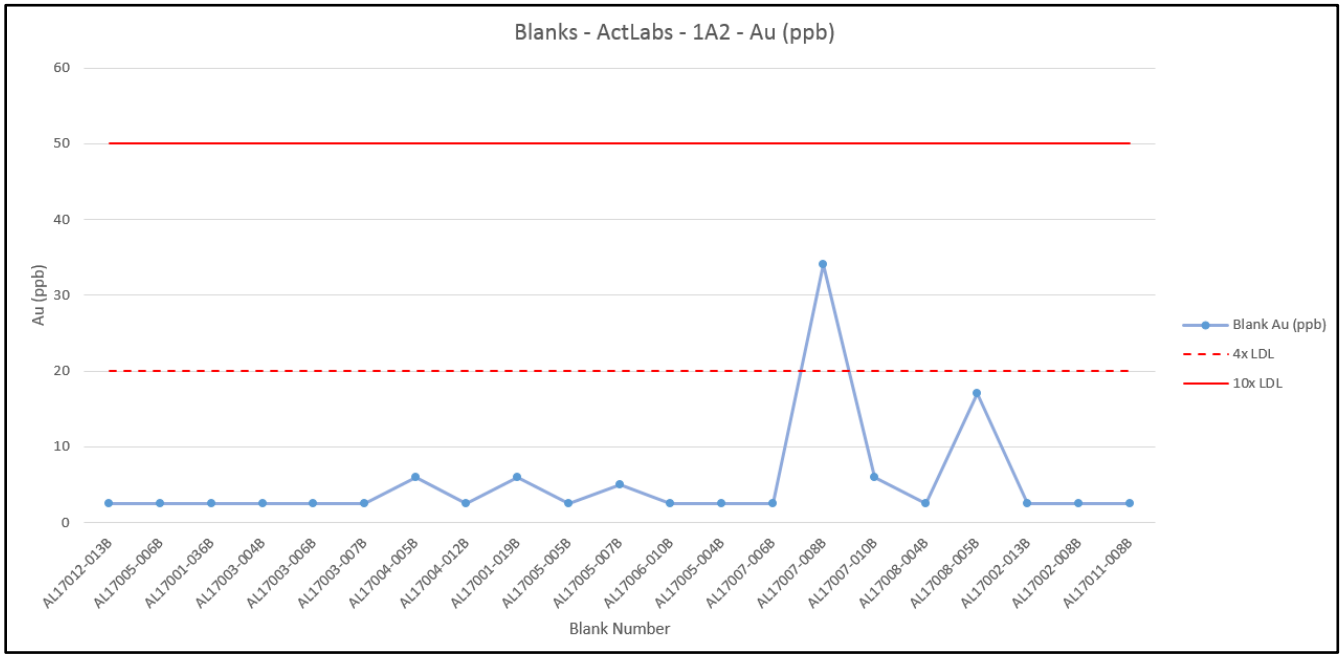
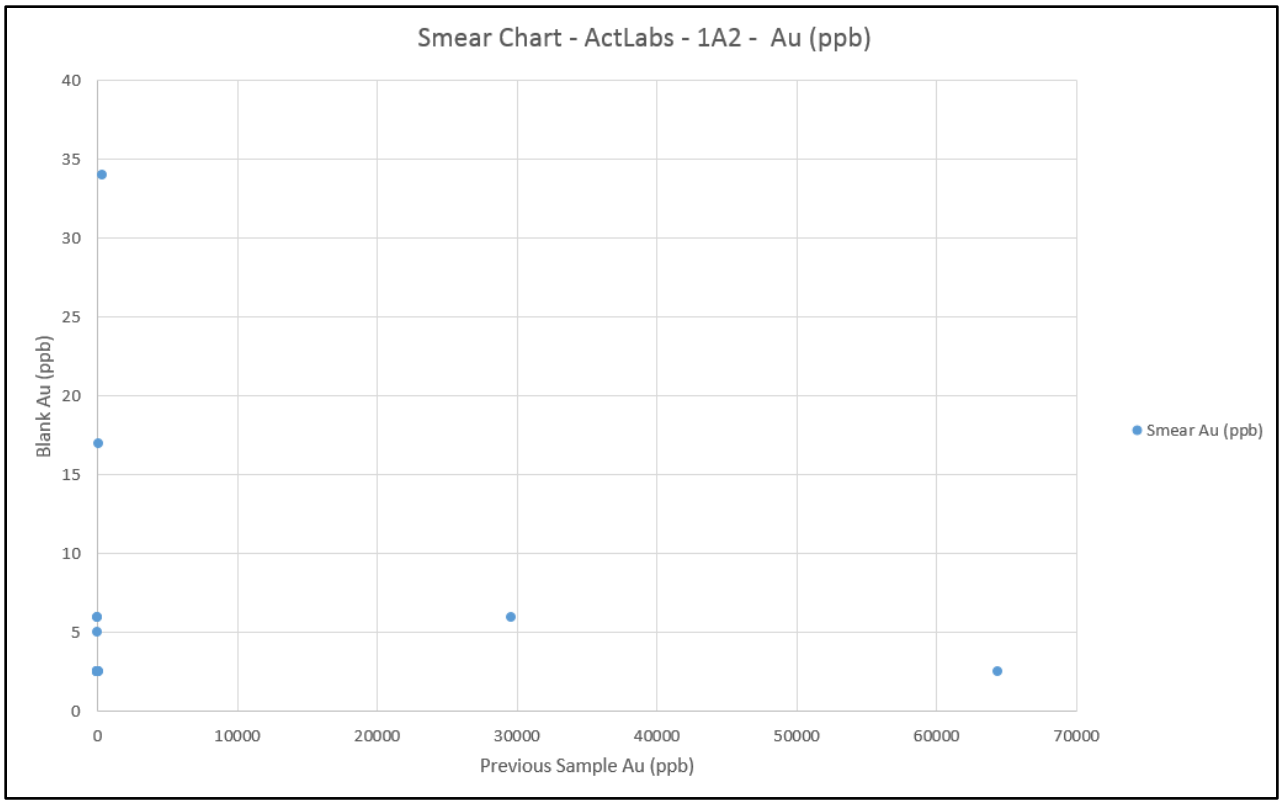


Figure 12.2 – Smear Chart – Actlabs – gold (Au)



12.3 – Sample Duplicates (Re-splits)

Re-split data was compared to the original sample data via XY and Absolute Relative Deviation ("ARD") plots to determine sub-sampling and analytic error. Although, on average, re-split data did not agree well with the original sample data for gold, it is consistent with data from other coarse gold deposits displaying a high degree of grade variability or "nugget effect".

Re-splits – gold (Au)

A total of nineteen re-splits were submitted for Au-1A2 analysis: thirteen of which returned values greater than 10 x LDL. Of these thirteen, six or 46.2 % were within 20.0 % of original value. Regression analysis returns a slope of 1.07, a y-intercept of 415 and an R^2 value of 0.98 (Figure 12.3) and the total population had an average absolute relative difference of 29.7 % (Figure 12.4).

Figure 12.3 – Prep Duplicates (Re-splits) – Actlabs – 1A2 – gold (Au)

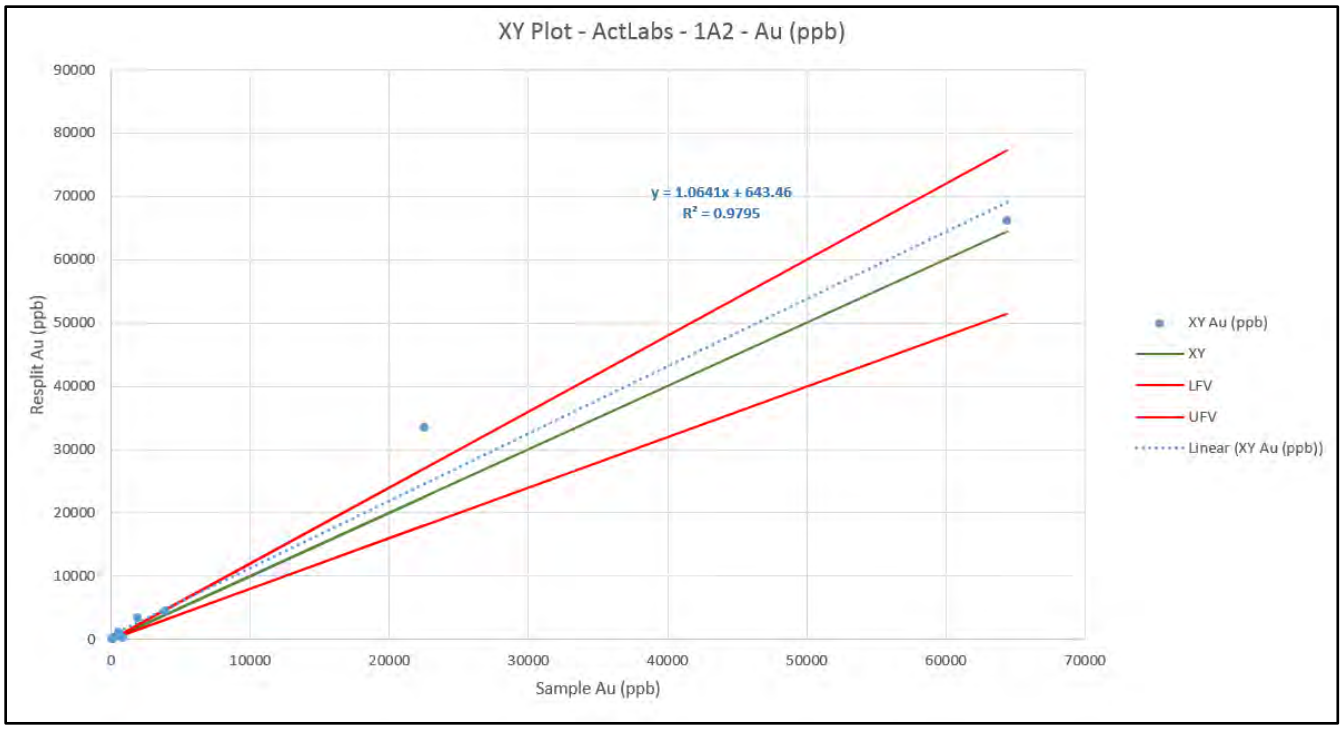
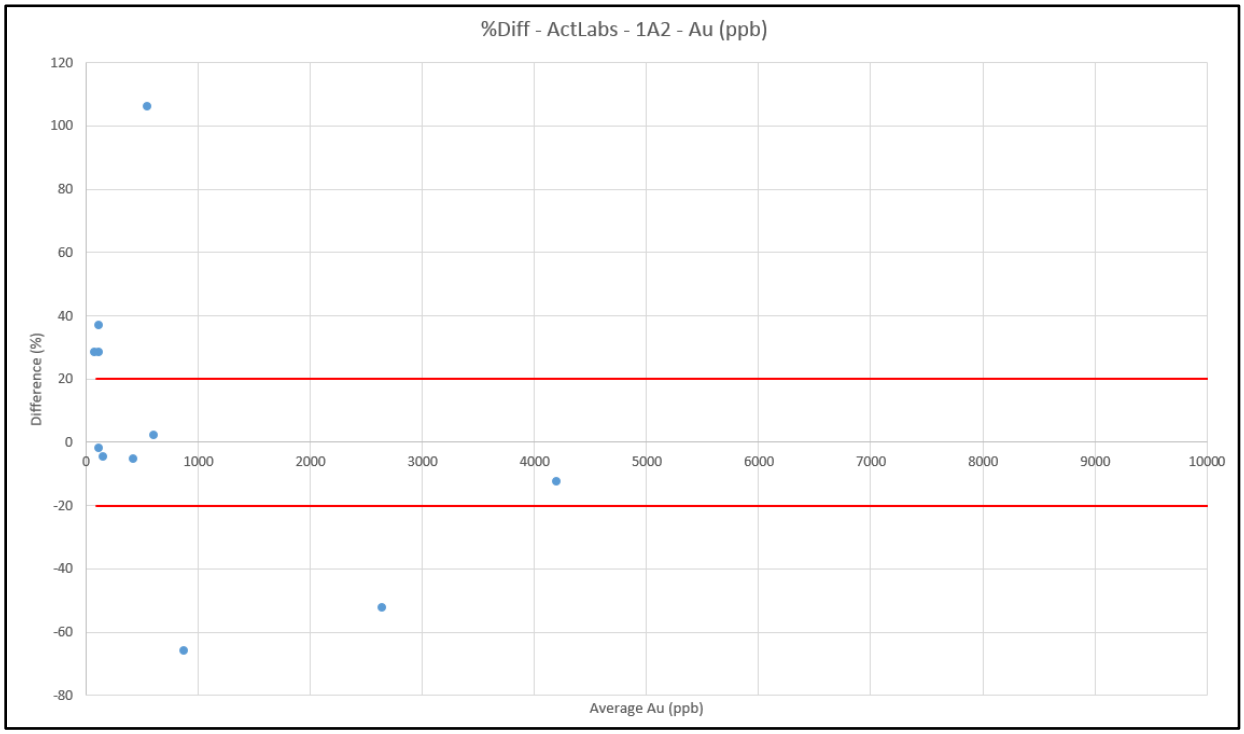


Figure 12.4 – Prep Duplicates (Re-splits) ARD – Actlabs – 1A2 – gold (Au)



12.4 – Pulp Duplicates (Repeats)

Repeat data was compared to the original sample data via XY and ARD plots to determine analytic error. Overall repeats correlated very well with the original sample and there was no evidence of systematic bias.

Repeats – Au

A total of twenty-five repeats were submitted for 1A2 Au analysis. Five of the repeats analyzed returned values greater than 10 x LDL; of these five samples one, or 20.0 % was within 20.0 % of the original value. Regression analysis returns a slope of 1.01, a y-intercept of 3.5 and an R^2 value of 0.99 (Figure 12.5) and the total population has an average ARD of 61.7 % (Figure 12.6).

Figure 12.5 – Pulp Duplicates (Repeats) – Actlabs – 1A2 – gold (Au)

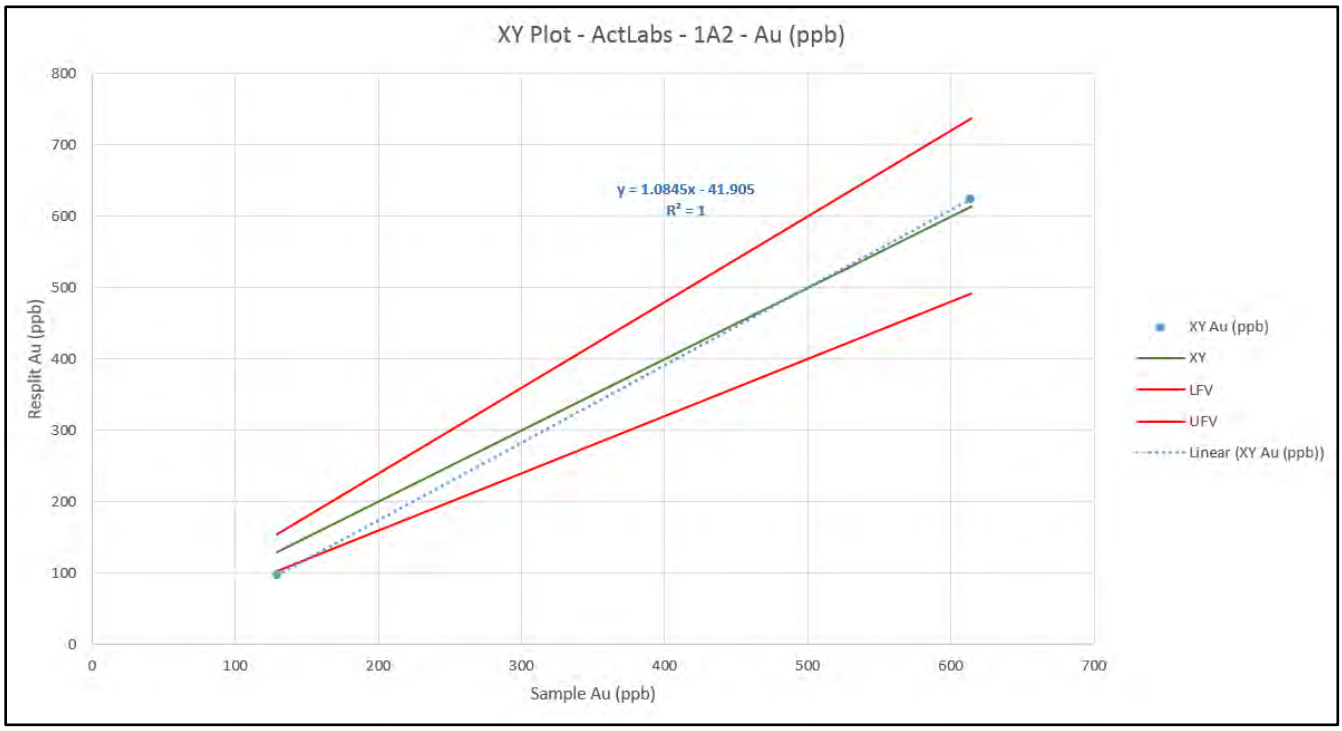
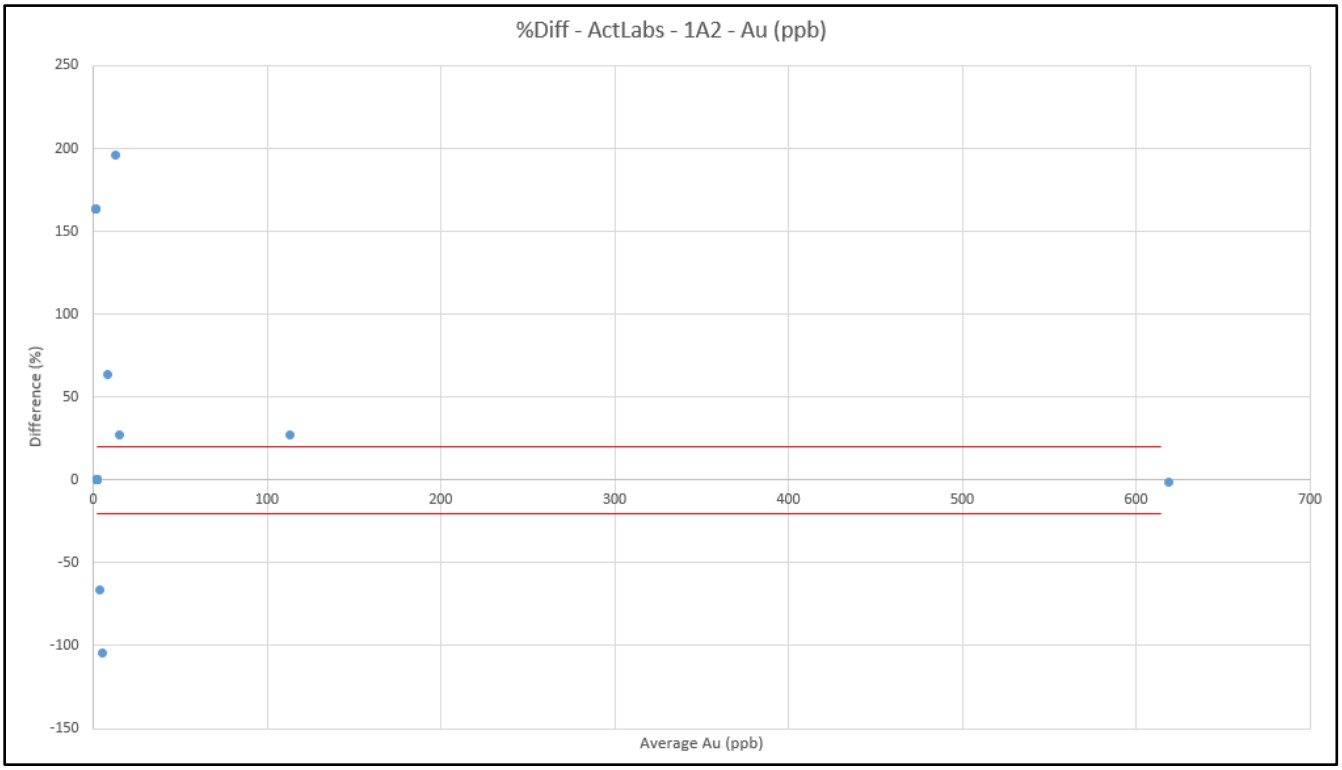


Figure 12.6 – Pulp Duplicates (Repeats) ARD – Actlabs – 1A2 – gold (Au)



12.5 – 2017 Underground Sampling and Historic Underground Geochemical Data

(Author G. Giroux, P.Eng.)

On October 14th, 2017 TerraLogic Exploration Chief Geologist, Jarrod Brown PGeo and Braveheart Resources Chief Operating Officer, Aaron Matlock selectively re-sampled portions of the LEVEL 6 workings of the Alpine mine. The results were compared to original 1988 underground sampling *within the same volume of vein material*. Eleven chip/channel samples were taken in 2017 compared to 26 historic samples from 1988 from the similar volume.

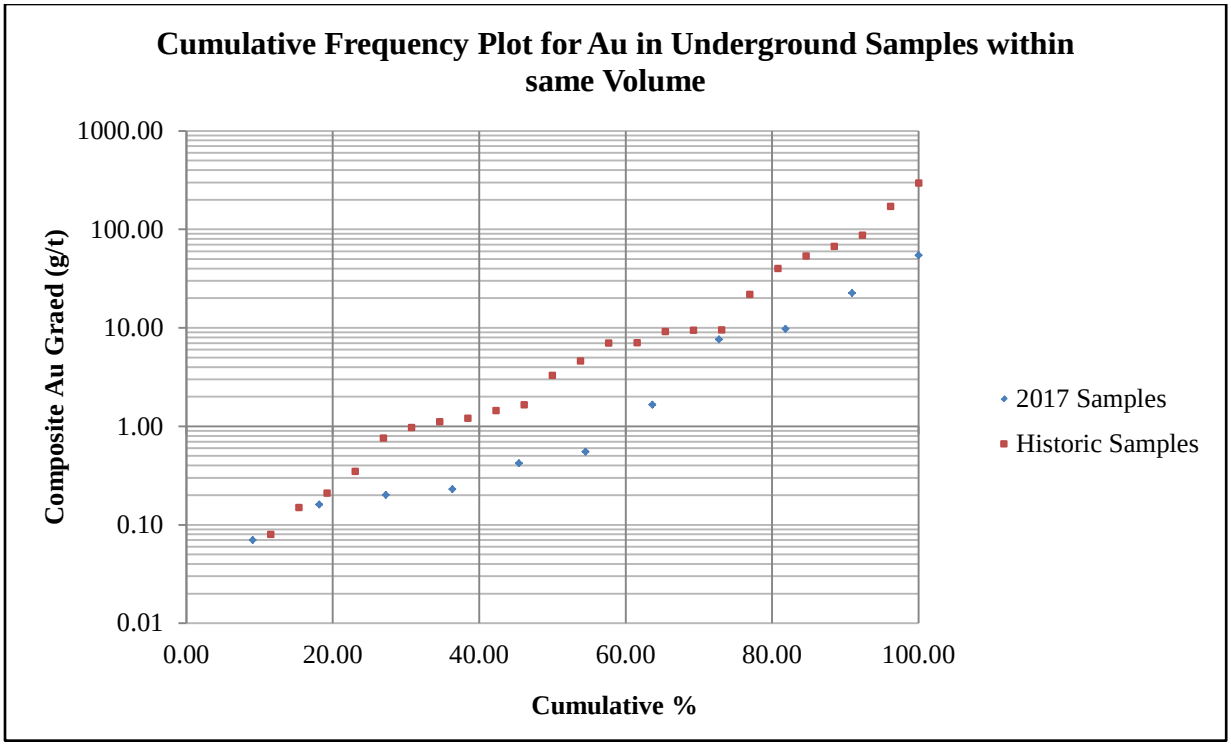
Two outliers in historic samples collected during the 1988 underground program completed by Cove Resources were 170.74 and 296.23 g/t gold.

Table 12.2 – 1988 underground panel sampling results versus 2017 check samples for gold (Au)

Sample	Number	Mean Au (g/t)	Standard Deviation	Minimum Value	Maximum Value	Coefficient of Variation
Historic Samples	26	30.58	65.08	0.069	296.23	2.12
2017 Samples	11	8.89	15.89	0.063	54.60	1.79
Historic Samples (outliers removed)	24	13.68	23.30	0.069	87.43	1.70

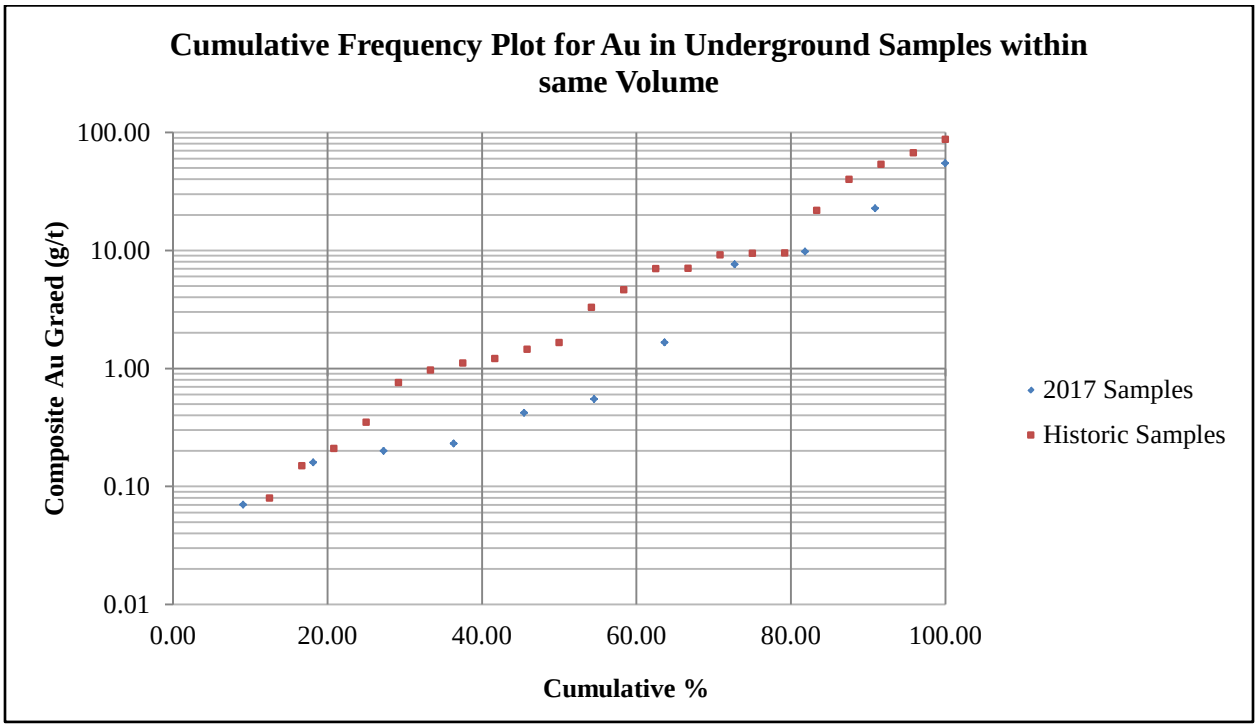
The first cumulative frequency plot for gold shows all samples with the 2017 checks showing a similar curve but with lower average gold grades.

Figure 12.7 – Cumulative Frequency Plot for gold (Au) in Underground



When the two outliers are removed the curves are much more similar and no bias is indicated in the results.

Figure 12.8 – Cumulative Frequency Plot for gold (Au) in Underground (outliers removed)



12.6 – Omission of Historic Diamond Drill Hole Data for the Mineral Resource Estimate

(Author G. Giroux, P.Eng.)

Three 1988 drill holes completed by Cove Resources are much more problematic. The holes numbered 88-01 to 88-03 contain 18 assays reported to be within the Alpine Vein. The assays range from a minimum of 5.28 g/t gold to a maximum of 64.63 g/t gold with a mean value of 19.46 g/t gold. A comparison between the results of the three 1988 drill holes with twinned holes drilled by Cominco in 1989, and Braveheart in 2017 yielded results which are very poor.

88-01 – Vein reported from 94.18 to 102.4 with grades from 5.20 g/t to 13.40 g/t gold.

Hole twinned by AL17001 which reports vein between 99.6 and 100.4 metres with a grade of 3.94 g/t gold.

88-02 – Vein reported from 101.19 to 109.27 metres with grades from 15.30 g/t to 24.30 g/t gold.

Hole twinned by AG89-01 which reports vein between 105.5 and 106.0 metres with a grade of 4.50 g/t gold.

88-03 – Vein reported from 106.49 to 112.77 metres with grades from 7.00 g/t to 51.80 g/t gold.

Hole twinned by AG89-02 which reports vein between 113.70 to 114.60 metres with a grade of 0.82 g/t gold.

As a result of the discrepancies with the 1988 Cove Resources drill hole assay results they were not used in the Mineral Resource Estimate.

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

Research completed by the Author including historic records on British Columbia Minfile, Property File (http://www.empr.gov.bc.ca/Mining/Geoscience/PropertyFile/Pages/default.aspx) discovered Report Number 54017 "Preliminary Metallurgical Evaluation of a Bulk Ore Sample from the Alpine Project" dated March 24th, 1988. The metallurgical report was authored by Kenneth DeGraaf, M.A.Sc., PEng of Bacon, Donaldson & Associates Ltd., 2036 Columbia Street, Vancouver, British Columbia V5Y 3E1 and was prepared for Mr. George Zbitnoff of Granges Exploration Ltd., 2300-885 West Georgia Street, Vancouver, British Columbia V6C 3E8. The Author cannot verify the specific location from where the sample material was obtained beyond the description provided in the aforementioned report, nor any Quality Assurance/Quality Control (QA/QC) measures implemented with respect to sample handling and a secure chain of custody.

The summary and conclusions of the metallurgical testing is provided below; taken directly from the property file report 54017, page 2 and page 8 respectively which has been included in Appendix VI as downloaded from Property File.

Summary

"The metallurgical test work completed on the bulk sample of ore from the Alpine property successfully demonstrated that the ore is highly responsive to gravity concentration of gold. Jigging and tabling alone achieved a gold recovery of 83.8%. The jig concentrate produced contained 17.124 oz/ton gold while tabling of the jig tails produced a table concentrate grading 1.104 oz/ton gold. These results were achieved from a nominal grind of 20% -200 mesh.

Using the same grind, overall recovery of gold was increased to 96.6% by treating jig tails with a flotation procedure as opposed to tabling. The jig concentrate graded 18.033 oz/ton gold with the flotation cleaner concentrate reporting as 1.423 oz/ton gold.

The calculated ore head grades averaged 0.087 oz/ton gold and 0.065 oz/ton silver. The gold assays ranged between 0.106 and 0.069 oz/ton, while the silver assays varied between 0.048 and 0.081 oz/ton.

Conclusions

It appears that the Alpine ore would suitably and economically be treated with a jig table circuit. A recovery of up to 83.8% of the gold has been achieved at a nominal grind of 20% -200 mesh.

The only apparent advantage of the flotation step is an increase of recovery to 96%. The grade of table concentrate does not differ greatly from the flotation concentrate with both being in the range of 1.1 to 1.4 oz/ton gold.

The use of only a jig/tabling circuit following the crushing/grinding stage is a significant economical saving over the use of a flotation circuit."

14.0 MINERAL RESOURCE ESTIMATES

14.1 – Introduction

At the request of Phil Keele, President and CEO of Braveheart Resources Inc., Giroux Consultants were retained to produce a maiden resource estimate for the Alpine Gold Mine Property in the West Kootenays 22.5 kilometres northeast of Nelson, in southern British Columbia. The Alpine Mine produced 11,457 oz of gold and 7,139 oz silver (Minfile 082FNW127) between 1915 and 1988 from 5 LEVELS and a number of stopes. The effective date for this resource is October 3, 2017 the day the data was received.

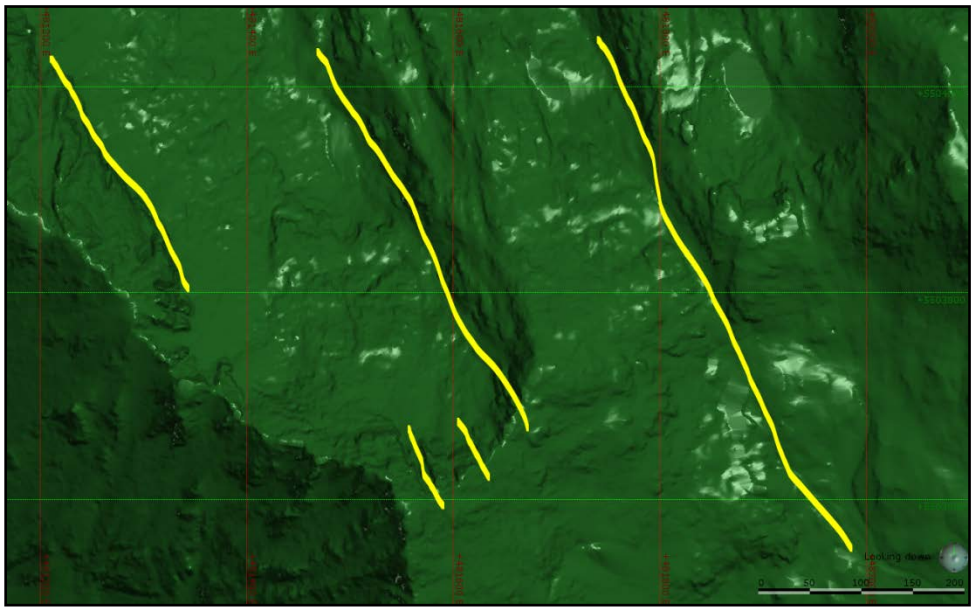
Gary Giroux is the qualified person responsible for the Resource Estimate and verification of data used for the Resource Estimate. Mr. Giroux is a qualified person by virtue of education, experience and membership in a professional association. He is independent of the company applying all of the tests in Section 1.5 of National Instrument 43-101. Mr. Giroux has not visited the Property.

14.2 – Geologic Modeling

Using both historic and 2017 drill hole data, historic underground sampling, underground stope and working plans a three dimensional geologic model of the Alpine Vein ("Vein") was developed by Terra Logic Exploration Staff. The procedure is explained below.

A 3D model of the Alpine vein was constructed in Leapfrog Geo from surficial mapping, diamond drill hole ("DDH") and underground ("UG") data. The Vein is a metre-scale, planar feature with a consistent dip of 25 degrees to the north; it commonly bifurcates into a foot wall portion and a hanging wall component separated by altered and variably mineralized host rock. The Vein is subparallel to a north-dipping joint set mapped by Jarrod Brown, P.Geo. in 2017 and it has been intruded by late sub-vertical lamphrophyre dykes that strike ~330 degrees. Well-developed topographic lineation's at 330 degrees are evident in the LiDAR data (highlighted in yellow below – refer to Figure 14.1).

Figure 14.1 – Well developed 330 degree trend highlighted in yellow



A total of 5 drifts were driven along the vein at different elevations and stopes were developed between them; historically there have been issues reconciling the elevation of the drifts with topography and various surveys therefore a LIDAR survey was completed in 2017 to be used as a common reference.

General Workflow of Modelling Procedure

Modelling of the Alpine Vein is an iterative procedure where it was "roughed-in" utilizing data with known spatial coordinates and then "fine-tuned" once the remaining data is projected to the vein. The procedure is as follows:

1. Register underground (UG) maps in GIS platform;
2. Derive UG LEVEL elevations and Surficial Data (samples, DDH collars, etc.) from LIDAR survey;
3. Digitize and convert subsurface panel / chip samples (1988/ 2017) to drill holes for modeling / resource estimate; drift samples were given an orientation of -90 degrees inclination / 0 degrees azimuth and stope samples were given an inclined orientation of -65 degrees and an azimuth of 150 degrees;
4. Created "roughed in" vein model and center line from UG samples with known elevations (*e.g.*, those on drifts 10, 8, 6 and 5);
5. Estimate elevation of 7 LEVEL drift based on centerline of drift;
6. Project remaining samples of unknown elevation (7 LEVEL drift and stopes) to vein center line;
7. Finalize vein model;
8. Create known drifts (assumed horizontal and 2.0 metres in height) and modify final vein geometry as needed;
9. Complete stopes based on final vein geometry.

1) UG Plan Map rectification

There is limited UG data available two work from the Alpine Mine with the exception of two figures which were provided by Braveheart to TerraLogic from Cove Resources 1988 exploration program which include:

- Figure 4 (Historic Figure Number) – UG Survey of 6 LEVEL;
- Figure 6 (Historic Figure Number) – 1988 UG sampling program: 10, 8, 7, 6 and 5 LEVELS including stopes.

Both maps rectified fairly well by utilizing sub-metre accuracy 2017 differential global positioning system ("DGPS") surveys of adits as well as DDH traces of 1988 drill holes projected from surface. Discrepancies between known mine grid coordinates and real world coordinates are less than 2.0 metres out over a measured distance of 100.0 metres (or ± 2.0 % error). There do remain issues with the 5 LEVEL where the rectified map protrudes out of topography. These maps have been included for reference "as-provided to TerraLogic" in Appendix V.

2) UG Drift Elevation Calculations

It was assumed that the sills of the drifts are horizontal, although limited survey data does suggest a slight change. For example there is a change in floor elevation of + 1.97 metres from

the adit to the Western most survey point of LEVEL 6. Sampling of the 6 LEVEL in 2017 confirmed that the drift is basically horizontal.

The elevations of drifts are derived from the LIDAR data in conjunction with XY coordinates of the adits obtained from 2017 DGPS surveys. Floor elevations are as follows:

- 10 LEVEL – 2,160.27 metres;
- 8 LEVEL – 2,177.48 metres;
- 7 LEVEL – TBD;
- 6 LEVEL – 2,212.88 metres;
- 5 LEVEL – 2,228.86 metres.

3) Digitize and convert panel samples

The 1988 panel samples collected by Cove Resources were a key component for the detailed modeling of the geometry and grade of the Vein in the area of the historic mine workings. It was required to convert the panel samples to mini drill holes; panel samples with no thickness data were assumed to be 0.2 metres.

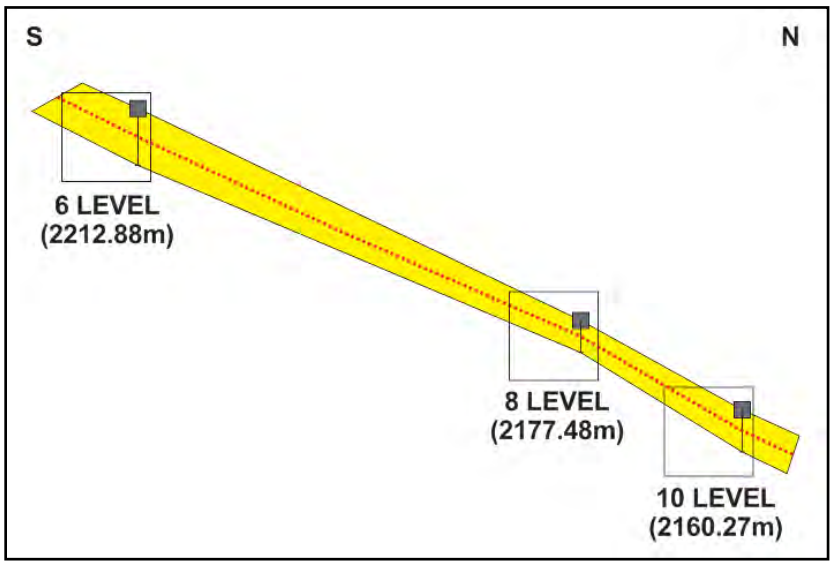
Sample locations were digitized from Historic Figure 6 (refer to Appendix V) and the grade, level, length and lithology was recorded: each panel sample was also coded whether it was collected from a drift or a stope. For scenarios where multiple samples were collected at same area (*e.g.*, where vein bifurcates) they were combined into one single mini drill hole with a sum of all panel / chip sample lengths. This may cause bias where waste rock between the bifurcated vein was not sampled or not reported.

Panel samples located in drifts of known elevation (10, 8, 6 and 5 LEVELS) were given the LIDAR derived elevation of the LEVEL + 1.0 metre. An assumed height of 2.0 metres was assigned to all drifts: this puts the collar location at the midpoint of the drift. Final collar elevations for samples in drift were adjusted by adding ½ the length of the total panel sample; essentially centering the mini drill hole vertically in the drift. Collars in stopes were assigned a temporary elevation of 0.

4) Preliminary Vein Modeling

A preliminary vein model was then constructed from surficial geologic data, DDH data, as well as panel samples anchored to drifts of known elevations. This resulted in a vein reference line (red dotted line) which bisects vein / acts as a center line (Figure 14.2).

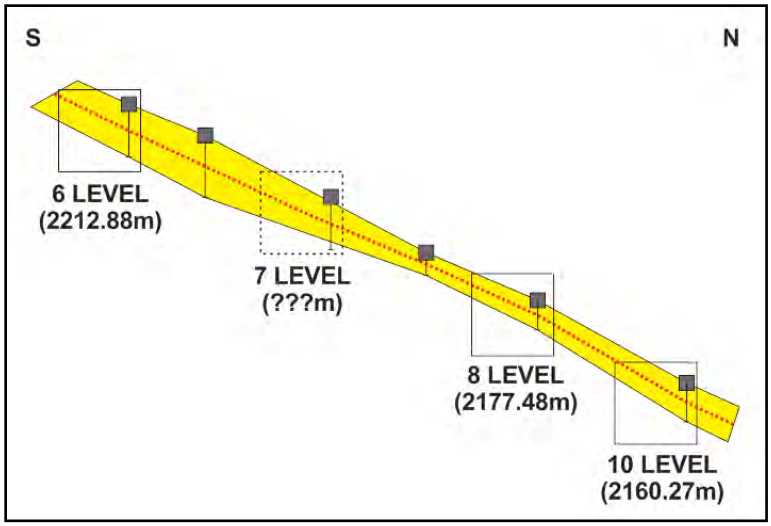
Figure 14.2 – Preliminary vein model developed from drift data of know elevation



5) Estimate horizontal elevation of the 7 LEVEL drift

The elevation of the 7 LEVEL, which does not daylight and therefore has no LIDAR derived elevation, was estimated from the intersection of the vein reference surface and the planimetic outline of the drift (Figure 14.3). An average vein elevation was determined to be 2,193.0 metres and this was assigned to any mini drill holes within the 7 LEVEL. Final collar elevations of the LEVEL 7 drill holes (converted 1988 panel samples) were then calculated based on their length. The vein was then revised based on the thickness and grade of the mini drill holes representing the historic panel samples.

Figure 14.3 – Projection of mini drill holes to vein reference surface (red line)



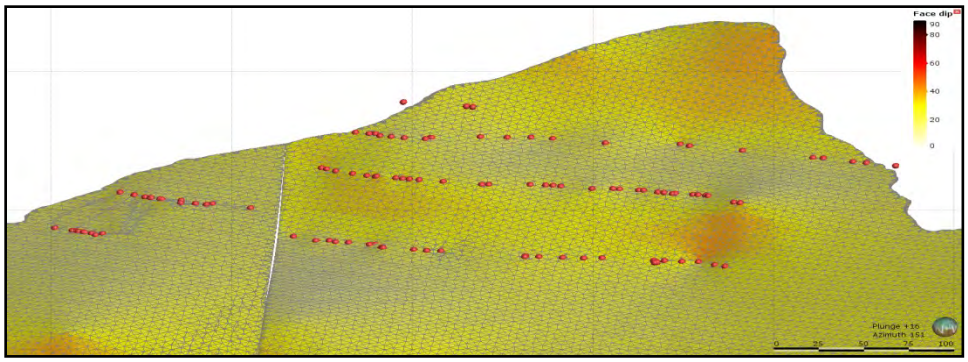
6) Projection of unknown UG samples to vein reference surface

After the Vein was “roughed-in” all stope samples elevations were projected to the vein reference surface and the final stope sample elevations were adjusted by adding ½ the total length to collar elevation.

7) Final vein geometry

After all of the mini drill holes representing the historic panel samples were projected to the final vein reference surface, the final vein model was produced. Figure 14.4 shows the final vein model colour coded by dip.

Figure 14.4 – Final 3D model of the Vein colour coded by dip looking south



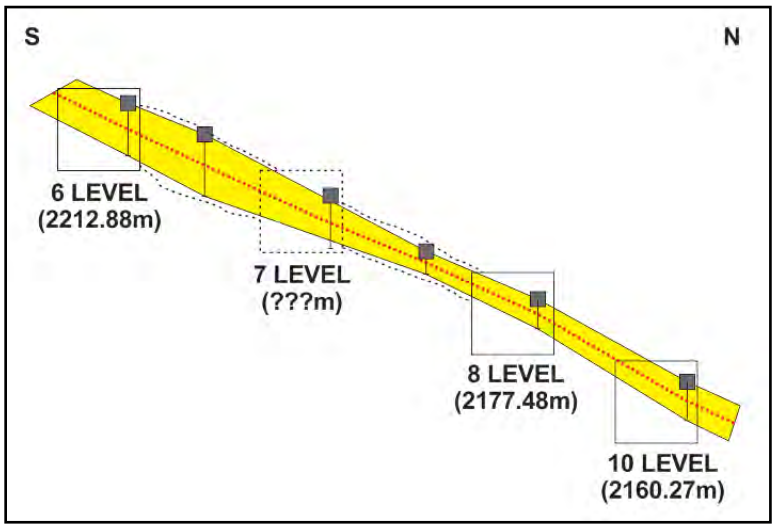
8) Creating known drifts

Drifts are assumed to be horizontal and 2.0 metres in height; the 10, 8, 6 and 5 LEVELS were modelled and then compared to current vein geometry.

9) Complete stopes based on final vein geometry

In the final step of the process stopes were created from digitized plan maps. It was assumed that all stopes removed 100.0 % of the vein material and their elevation joined from LEVEL to LEVEL. Figure 14.5 shows the projected stopes as dashed lines that envelope the modelled vein.

Figure 14.5 – Final vein geometry including drifts and stopes

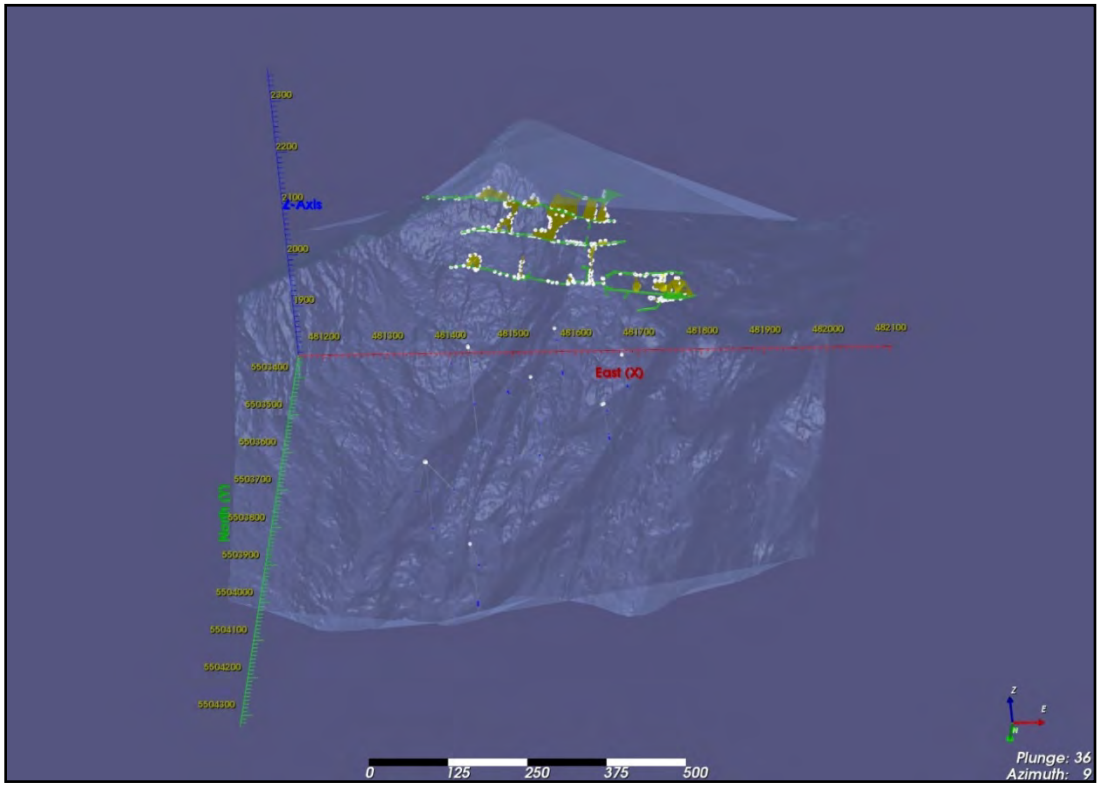


14.3 – Data Analysis

Data for the Alpine vein used in this resource estimate consisted of the following:

- Twelve surface BQ diamond drill holes completed by Cominco in 1989;
- Twelve surface BTW diamond drill holes completed by Braveheart in 2017
- Two-hundred and fifty-six underground drift and stope panel samples completed in 1988;
- Seven underground drift and stope panel samples completed by Braveheart in 2017.

Figure 14.6 – Isometric view looking south showing underground workings, drill holes and topography



Underground drift and stope samples were treated as horizontal or vertical drill holes. Down hole surveys were available for all drill holes and azimuth and dip information was added for all drift and stope samples. A total of 558 gold assays were provided with limited sampling for silver, lead and zinc. Three gaps in the data where drill holes intersected the vein solid but were not assayed were added with nominal grades and represent post mineral dykes and/or internal waste.

Drill holes and underground samples were compared to the geologic vein solid and individual assays were tagged if inside the solid. Sample statistics are shown below for assays within the Alpine Vein and for those outside the vein considered waste.

Table 14.1 – Assay statistics for gold (Au), silver (Ag), lead (Pb) and zinc (Zn)

Domain	Variable	Number of Assays	Mean Grade	Standard Deviation	Minimum Value	Maximum Value	COV
Alpine Vein	Au (g/t)	357	9.24	23.75	0.003	296.23	2.57
	Ag (g/t)	357	2.34	8.78	0.05	89.83	3.75
	Pb (%)	36	0.98	1.61	0.004	5.02	1.63
	Zn (%)	36	0.74	1.83	0.03	9.90	2.48
External Waste	Au (g/t)	187	0.29	2.27	0.003	29.60	7.83
	Ag (g/t)	187	0.61	1.34	0.05	12.30	2.10
	Pb (%)	184	0.05	0.11	0.002	0.91	2.23
	Zn (%)	184	0.09	0.12	0.005	0.73	1.25

There are too few samples with lead and zinc analysis to estimate these variables. The grade distribution for gold and silver within the Alpine Vein was examined using lognormal cumulative frequency plots. The cumulative plots were partitioned to determine how many overlapping populations were present.

For gold within the Alpine Vein there were 6 overlapping lognormal populations present. The upper population consisting of 0.7 % of the total samples with a mean grade of 274 g/t gold can be considered erratic high grade and a cap level of 142 g/t gold can be used to reduce these two assays.

Table 14.2 – Gold (Au) and silver (Ag) populations present within the Alpine Vein

Au (g/t)				Ag (g/t)			
Population	Mean (g/t)	Percent of Total	Number of Samples	Population	Mean (g/t)	Percent of Total	Number of Samples
1	274.00	0.7 %	2	1	80.40	0.80 %	3
2	108.00	1.2 %	4	2	36.90	2.10 %	8
3	39.70	7.0 %	25	3	3.30	19.5 %	69
4	6.23	43.4 %	154	4	0.13	77.6 %	275
5	0.51	36.8 %	131				
6	0.03	11.0 %	39				

For silver less than 3.0 % of the silver grades could be considered of economic interest and as a result silver was not estimated at this time.

The capped gold assay statistics for samples within the Alpine Vein are shown below in Table 14-3.

Table 14.3 – Assay statistics for capped gold (Au) grades

Domain	Variable	Number of Assays	Mean Grade	Standard Deviation	Minimum Value	Maximum Value	Coef. of Variation
Alpine Vein	Au (g/t)	357	8.72	18.93	0.003	142.00	2.17

14.4 – Composites

Individual assays within the Alpine vein range from 0.02 m to 2.41 m in length with a mean length of 0.67 m and a median of 0.60 m. Since this is a narrow vein a composite length of 0.50 m was selected to composite the data. Composite intervals start at the vein hanging wall and continue to the footwall. Composites at the footwall less than 0.25 m would be combined with the adjoining sample to form a uniform support of 0.50 ± 0.25 m.

Two composites were removed with composite lengths of 0.02 and 0.06 m as they are not representative of the overall vein width.

Table 14.4 – Composite statistics from capped gold (Au) grades

Domain	Variable	Number of Composites	Mean Grade	Standard Deviation	Minimum Value	Maximum Value	Coef. of Variation
Alpine Vein	Au (g/t)	493	9.81	20.96	0.003	142.00	2.14
	Length (m)	493	0.49	0.11	0.15	0.74	0.23

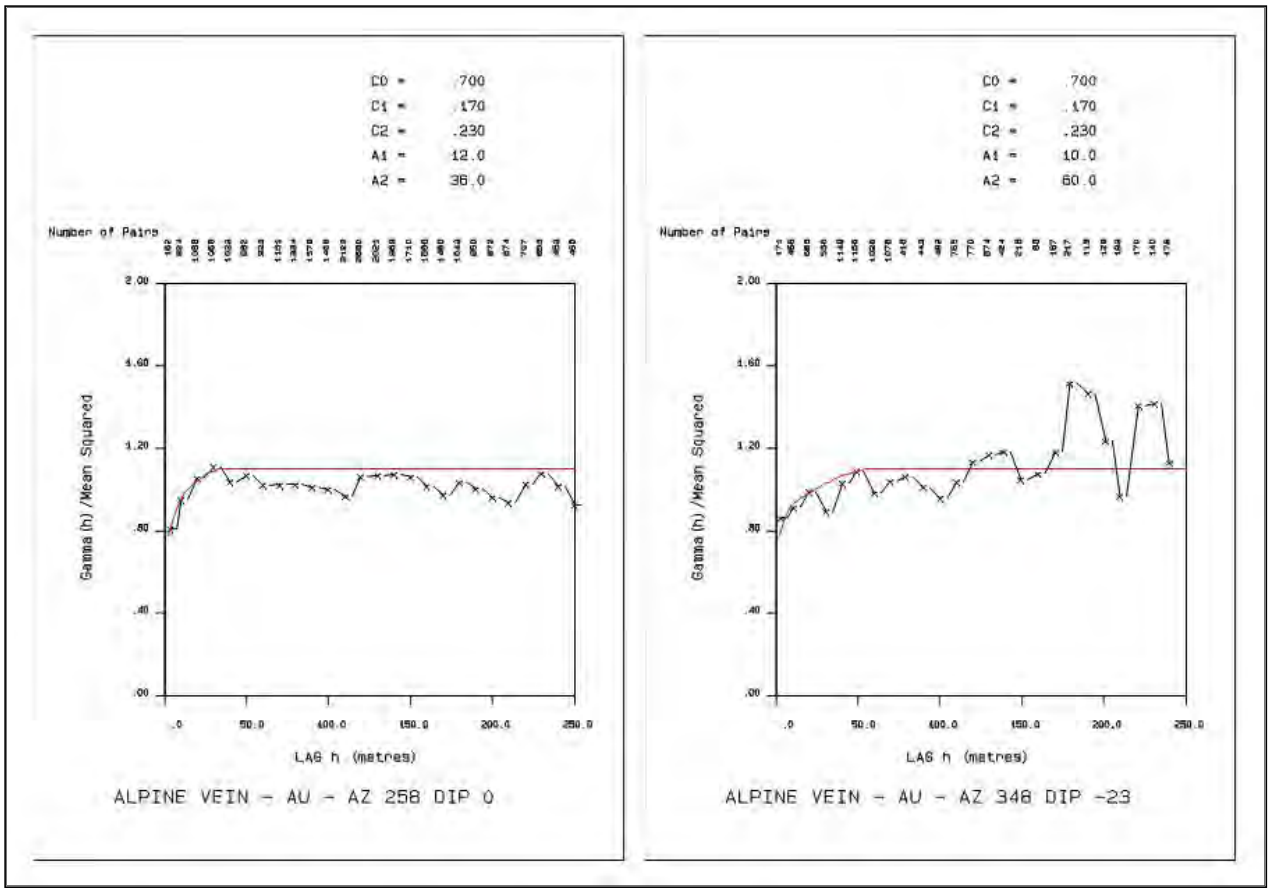
14.5 – Variography

Pairwise relative semivariograms were produced for gold in two directions: along the strike of the vein (Azimuth 258, Dip 0); and down-dip (Azimuth 348, Dip -23). The across-dip direction had too few samples to model so nominal ranges were used. The semivariograms showed a large nugget effect and a high nugget to sill ratio of 64 % indicting a high level of variability between samples. Nested spherical models were fit to both directions (see Figure 14.7) with the parameters shown below in Table 14-5.

Table 14.5 – Semivariogram parameters for gold (Au) in the Alpine Vein

Variable	Az / Dip	C_0	C_1	C_2	Short Range (m)	Long Range (m)
Au	258 / 0	0.70	0.17	0.23	12.0	36.0
	348 / -23				10.0	60.0
	168 / -67				1.0	5.0

Figure 14.7 – Semivariogram Models for gold (Au) in Alpine Vein



14.6 – Bulk Density

In 2017 Braveheart sent twenty samples from 2017 drill core to Actlabs for specific gravity ("SG") analysis (see Table 14-6 and refer to Item 11.0). Unfortunately the lab pulverized the samples and determined SG from pulps. This would assume 0.0 % porosity in the samples which is unlikely. Geologists on site have estimated that within the vein one could expect up to 5.0 % vugs (natural voids within the vein material). As a result, and to account of porosity, the average SG for vein material based on 10 samples of 2.62 was reduced by 3.0 % to 2.54 for converting vein volumes to tonnes. The analytic certificate for the SG samples is provided in Appendix III.

It is recommended that for any future drilling specific gravity measurements should be taken in the field on pieces of whole core from the AV vein using wax or plastic wrap and the Archimedes method of weight in air compared to weight in water.

Specific Gravity = Weight in air/(Weight in air - Weight in water)

Table 14.6 – Specific Gravity (SG) on 20 samples from 2017 Drill Core

HOLE	DEPTH (m)	LITHOLOGY	Est. % Sulphides	Notes	SG
AL17005	127.20	AV	0.1	With chlorite and trace galena	2.55
AL17001	129.50	AV	0.1	20 % of vein is mafic dyke	2.66
AL17003	90.20	AV	5.0	15 % of vein is mafic dyke	2.81
AL17007	141.50	AV	5.0	50 % quartz vein in altered GD	2.59
AL17008	128.00	AV	5.0	With 5 % vugs	2.55
AL17012	143.36	AV	8.0		2.55
AL17008	127.30	AV	10.0	With 30 % vugs in MD	2.73
AL17005	127.80	AV		With trace chlorite	2.47
AL17011	124.80	AV			2.51
AL17011	135.22	AV		Qtz-Carb-Py vein	2.73
		AV Average			**2.62**
AL17011	132.35	AP		Hanging wall aplite	2.55
AL17001	128.00	AP		Immediate hanging wall of AV	2.41
AL17001	88.80	DI			2.47
AL17012	12.00	DI			2.55
AL17004	88.10	GD	5	Altered in hanging wall of AV	2.72
AL17001	134.00	GD			2.45
AL17001	124.00	LM			2.83
AL17009	152.25	MD		Foliated MD	2.76
AL17011	134.10	MD		Foliated hanging wall MD	2.63
AL17001	60.50	PE			2.35
		Waste Average			**2.57**

AV = Alpine Vein; AP = Aplite; DI = Diorite; GD = Granodiorite; LM = Lamprophyre; MD = Mafic Dyke PE = Pegmatite

14.7 – Block Model

A block model with blocks 20.0 x 20.0 x 1.0 m was superimposed over the Alpine Vein and for each block the percentage below surface topography, the percentage within the Alpine Vein, the percentage within post mineral lamprophyre dykes and the percentage inside underground drifts and stopes was recorded. The block model origin and parameters are listed below.

Lower Left Corner of Model		
481180 E	Column size = 20.0 m	44 Columns
5503380 N	Row size = 20.0 m	35 Rows
Top of Model	2370 Elevation	
Level size = 1.0m	570 Levels	
No Rotation		

14.8 – Grade Interpolation

Grades for gold were interpolated into the block model for both the area mined and the area remaining by Ordinary Kriging. The kriging exercise was completed in four passes with the search ellipse for each pass based on the ranges from the semivariogram model. Pass one required a minimum of four composites with a maximum of three from any single drill hole within a search ellipsoid with radius equal to ¼ of the semivariogram range in each of the three principal directions. For blocks not estimated in pass one, a second pass using ½ the semivariogram ranges was completed. A third pass using the full range and a fourth using twice the range completed the interpolation process. In each case the maximum number of composites used was restricted to twelve, and if more than twelve were found within a search the closest twelve were used. Table 14-7 shows the search distances in each direction along with the number of blocks estimated for each pass.

Where blocks contained a percentage of post mineral lamprophyre dyke the block was diluted with the percentage of dyke x 0.001 g/t gold.

Table 14.7 – Kriging parameters for gold (Au)

Variable	Pass	Number Estimated	Az/Dip	Dist. (m)	Az/Dip	Dist. (m)	Az/Dip	Dist. (m)
Au	1	76	258 / 0	9.0	168 / -67	1.25	348 / -23	15.0
	2	439	258 / 0	18.0	168 / -67	2.50	348 / -23	30.0
	3	1,251	258 / 0	36.0	168 / -67	5.00	348 / -23	60.0
	4	3,788	258 / 0	72.0	168 / -67	10.00	348 / -23	120.0

The percentage of each block within the Alpine Vein was converted to a tonnage by the formula:

$$Tonnes_Vein = Vein\%/ 100\ \% * 20.0 * 20.0 * 1.0 * 2.54.$$

The percentage of each block within the underground drifts and stopes was converted to a tonnage by the formulas:

Where %UG > 0 and %Vein = 0

$$Tonnes_UG = \%UG / 100\ \% * 20.0 * 20.0 * 1.0 * 2.57$$

Where %UG > 0 and %UG≤ %Vein

$$Tonnes_UG = \%UG / 100\ \% * 20.0 * 20.0 * 1.0 * 2.54$$

Where %UG > 0 and %UG> %Vein

$$Tonnes_UG = Tonnes_Vein + ((\%UG - \%\ Vein) / 100\ \% * 20.0 * 20.0 * 1.0 * 2.57)$$

To determine the amount of material remaining in the Alpine Vein, after mining, the tonnage of vein material remaining for each block was determined as follows:

For %Vein ≥ % UG Tonnes_Left = Tonnes_Vein – Tonnes_UG

For % Vein < % UG Tonnes_Left = 0.0 (Assume all underground development was in vein)

For % UG = 0.0 Tonnes_Left = Tonnes_Vein

14.9 – Classification

Based on the study herein reported, delineated mineralization of the Alpine Vein is classified as a resource according to the following definitions from National Instrument 43-101 and from CIM (2014):

> *"In this Instrument, the terms "Mineral Resource", "Inferred Mineral Resource", "Indicated Mineral Resource" and "Measured Mineral Resource" have the meanings ascribed to those terms by the Canadian Institute of Mining, Metallurgy and Petroleum, as the CIM Definition Standards (May 2014) on Mineral Resources and Mineral Reserves adopted by CIM Council, as those definitions may be amended."*

The terms Measured, Indicated and Inferred are defined by CIM (2014) as follows:

> *"A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling."*
>
> *"The term Mineral Resource covers mineralisation and natural material of intrinsic economic interest which has been identified and estimated through exploration and sampling and within which Mineral Reserves may subsequently be defined by the consideration and application of Modifying Factors. The phrase 'reasonable prospects for economic extraction' implies a judgement by the Qualified Person in respect of the technical and economic factors likely to influence the prospect of economic extraction. The Qualified Person should consider and clearly state the basis for determining that the material has reasonable prospects for eventual economic extraction. Assumptions should include estimates of cut-off grade and geological continuity at the selected cut-off, metallurgical recovery, smelter payments, commodity price or product value, mining and processing method and mining, processing and general and administrative costs. The Qualified Person should state if the assessment is based on any direct evidence and testing. Interpretation of the word 'eventual' in this context may vary depending on the commodity or mineral involved. For example, for some coal, iron, potash deposits and other bulk minerals or commodities, it may be reasonable to envisage 'eventual economic extraction' as covering time periods in excess of 50 years. However, for many gold deposits, application of the concept would normally be restricted to perhaps 10 to 15 years, and frequently to much shorter periods of time."*
>
> **Inferred Mineral Resource**
>
> *"An 'Inferred Mineral Resource' is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration."*

"An 'Inferred Mineral Resource' is based on limited information and sampling gathered through appropriate sampling techniques from locations such as outcrops, trenches, pits, workings and drill holes. Inferred Mineral Resources must not be included in the economic analysis, production schedules, or estimated mine life in publicly disclosed Pre-Feasibility or Feasibility Studies, or in the Life of Mine plans and cash flow models of developed mines. Inferred Mineral Resources can only be used in economic studies as provided under NI 43-101."

"There may be circumstances, where appropriate sampling, testing, and other measurements are sufficient to demonstrate data integrity, geological and grade/quality continuity of a Measured or Indicated Mineral Resource, however, quality assurance and quality control, or other information may not meet all industry norms for the disclosure of an Indicated or Measured Mineral Resource. Under these circumstances, it may be reasonable for the Qualified Person to report an Inferred Mineral Resource if the Qualified Person has taken steps to verify the information meets the requirements of an Inferred Mineral Resource."

Indicated Mineral Resource

"An 'Indicated Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation. An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve."

"Mineralisation may be classified as an Indicated Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such as to allow confident interpretation of the geological framework and to reasonably assume the continuity of mineralisation. The Qualified Person must recognise the importance of the Indicated Mineral Resource category to the advancement of the feasibility of the project. An Indicated Mineral Resource estimate is of sufficient quality to support a Preliminary Feasibility Study which can serve as the basis for major development decisions."

Measured Mineral Resource

"A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation. A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proven Mineral Reserve or to a Probable Mineral Reserve."

"Mineralisation or other natural material of economic interest may be classified as a Measured Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such that the tonnage and grade or quality of the mineralisation can be estimated to within close limits and that variation from the estimate would not significantly affect potential economic viability of the deposit. This category requires a high level of confidence in, and understanding of, the geology and controls of the mineral deposit."

Modifying Factors

"Modifying Factors are considerations used to convert Mineral Resources to Mineral Reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors."

At this stage of development there are no measured or indicated resources present within the Alpine Vein. The total resource within the remaining Alpine Vein is classified as Inferred.

To establish reasonable expectation of economic extraction and an estimate of an economic cut-off for the Alpine Vein, research was conducted to establish reasonable mine operating cost estimates over a broad range of underground mining operations. It is recognized that this high level estimate is very preliminary in nature and includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves. The estimate of cost is only approximate and may be materially affected by lower metal prices, lower process recoveries, environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.

The methods sourced various reports and economic assessments for a number of underground mining operations globally. Table 14.8 shows these results and by applying the Average from all PEA Analysis we have the following.

Mining Cost -	$105/tonne
Processing Cost -	$30/tonne
G&A Cost-	$25/tonne
Total Cost-	$160/tonne
Contingency 30%	$50/tonne
Total Cost with Contingency	**$210/tonne**

Table 14.8 – Summary of Various Project PE Analyses

Gold Project PEA Analysis													
	Gold Price			g/t	t/d	%	oz	oz	$C/tonne	$C/tonne	$C/tonne	$C/tonne
	US$/oz	FX	LOM Tonnes Milled	Diluted Head Gr	Mill Throughput	Au Recovery	Total Au Recovered	Annual Average Gold Production	Mining Cost	Processing Cost	GandA	Total Cost
Madsen Mine (Pure Gold)	1,275	0.80	3,000,000	10.30	600.0	92.0	911,497	66,109	155.00	28.00	43.00	226.00
Island Gold Mine (Richmont Mines Limited)	1,260	0.75	3,100,000	9.68	1,100.0	96.5	926,000	115,000	129.00	28.00	16.00	173.00
Greenwood Gold Mine (Golden Dawn Minerals)	1,250	0.82	547,000	6.59	400.0	87.0	116,000	22,000	95.00	27.59	15.69	138.28
Red Mountain Mine (IDM Mining)	1,250	0.80	1,400,000	7.25	1,022.0	85.0	277,000	55,400	80.50	33.47	13.20	127.17
Seabee Gold Mine (SSR Mining)	1,300	0.78	2,654,000	8.30	1,042.0	96.5	683,000	100,000	74.36	25.64	66.67	166.67
IDM Mining Red Mountain Gold Mine	1,250	0.76	1,950,000	7.54	1,000	90.0	421,200	78,000	66.54	27.67	10.91	105.12
Benton Resources Cape Ray Gold	1,200	0.80	1,700,000	4.60	851.0	97.0	250,000	45,455	120.00	26.40	0.50	146.90
Averages	1,255	0.79	1,793,875	8.31	859	92	512,100	68,852	102.91	28.11	23.71	154.73

An economic cut-off can then be obtained by the formula:

Cut-off = Total cost / Recovery / Price per unit of metal

Where: Total cost = CAD$210 / tonne

Gold price = USD $1300 / ounce

Exchange rate = 0.78

Gold price = USD $1300 ÷ 0.78 = CAD$1667 / ounce = CAD$53.6 / gram

Assumed Gold Recovery (see Section 13) = 84.0 % or 0.84

Cut-off = $210 /tonne ÷ 0.84 ÷ $53.6/ gram = 4.7 g/t say 5.0 g/t gold

As a result a cut-off of 5.0 g/t gold has been highlighted as a possible economic cut-off for underground extraction at this point in the properties development. Results using this cost demonstrated that there is potential value to be achieved in mining at the Alpine mine. Further investigation and development is required in order to determine the definitive value of the project.

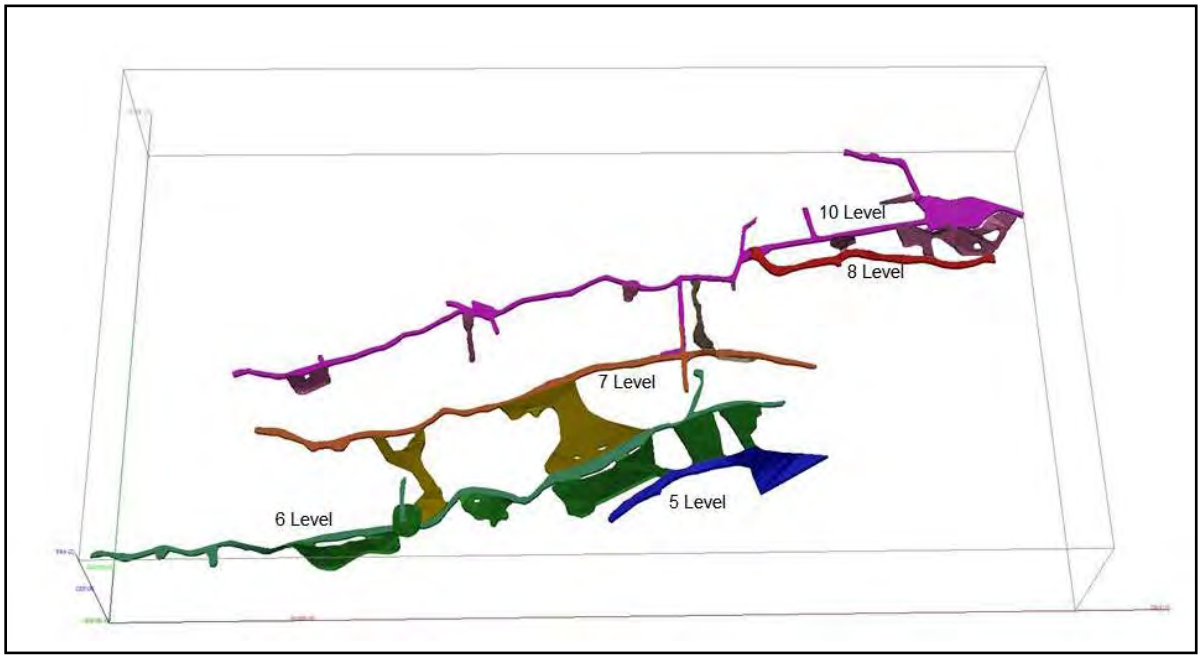
Table 14.9 – Inferred Mineral Resource Estimate within the Alpine Vein for gold (Au)

Au Cut-off (g/t)	Tonnes> Cut-off (tonnes)	Grade > Cut-off Au (g/t)	Contained Au Ozs
2.0	366,000	12.96	153,000
2.5	338,000	13.87	151,000
3.0	324,000	14.36	149,000
3.5	310,000	14.84	148,000
4.0	290,000	15.62	145,000
5.0	**268,000**	**16.52**	**142,000**
6.0	242,000	17.71	138,000
7.0	205,000	19.76	130,000
8.0	182,000	21.29	124,000
9.0	168,000	22.32	121,000
10.0	160,000	22.94	118,000
12.0	144,000	24.28	113,000
15.0	128,000	25.64	106,000
20.0	88,000	29.49	83,000
25.0	54,000	33.82	59,000

14.10 – Production History

The underground stopes and drifts on the Alpine Vein are shown below in Figure 14.8 as taken from historic sampling plans from Cove Resources in 1988.

Figure 14.8 – Isometric view looking north at the Alpine Underground drifts and stopes



Minfile records (Minfile Number 082FNW127) for past production at the Alpine mine report production starting in 1915, then from 1938 to 1942, from 1946 to 1948 and finally in 1988. The records (see Table 14-10) appear incomplete as they report a total of 16,810 tonnes mined and a total of 17,108 tonnes milled. Also the tonnes mined in 1942 seem very low for the amount of gold and silver recovered. The total recovered metal from the Alpine mine is reported as 356,360 grams of gold (11,457 oz) and 222,044 grams silver (7,139 oz).

This can be compared with the tonnage of material within the underground workings as shown in Figure 14.8. From the estimated model a total of 46,400 tonnes of material was removed from the underground development of which 33,400 would have been vein material. From our model this vein material is estimated to have contained a total of 481,580 grams (15,480 oz of gold).

Based on the approximate numbers from the historic reporting, the fact they report more tonnes milled than they report were mined, the probable loss of gold with the recovery methods and the possible gold left on waste dumps, the estimated model is reasonably close to historic production and shows that there is potentially some significant amount of gold ounces left on the waste dumps. This observation was partially verified during the 2017 exploration program. Refer to Item 9.1 pertaining to the collection of surface samples from waste dumps.

Table 14.10 – Production history from Minfile for Alpine mine for gold (Au) and silver (Ag)

YEAR	Tonnes Mined	Tonnes Milled	Au Grams Recovered	Ag Grams Recovered	Est Grade Au (g/t)	Est. Grade Ag (g/t)
1988	200	90	198	591	2.20	6.57
1948	667	667	16,889	11,384	25.32	17.07
1947	180	180	2,768	1,866	15.38	10.37
1946	144	594	11,042	5,785	18.59	9.74
1942	68	68	56,079	34,182	824.69	502.68
1941	11,517	11,517	210,350	130,011	18.26	11.29
1940	3,992	3,992	57,852	35,333	14.49	8.85
1939	3	0	62	62		
1938	35	0	1,120	902		
1915	4	0		1,938		
Totals	16,810	17,108	356,360	222,054	21.20	13.21

14.11 – Model Verification

The block model was verified by viewing cross sections showing the estimated blocks and drill hole assays. Cross section lines can be referenced on Figure 10.1. The estimated grades seem to match the drill results reasonably well with no bias indicated.

Figure 14.9 – Cross section A – A' showing estimated blocks and drill holes

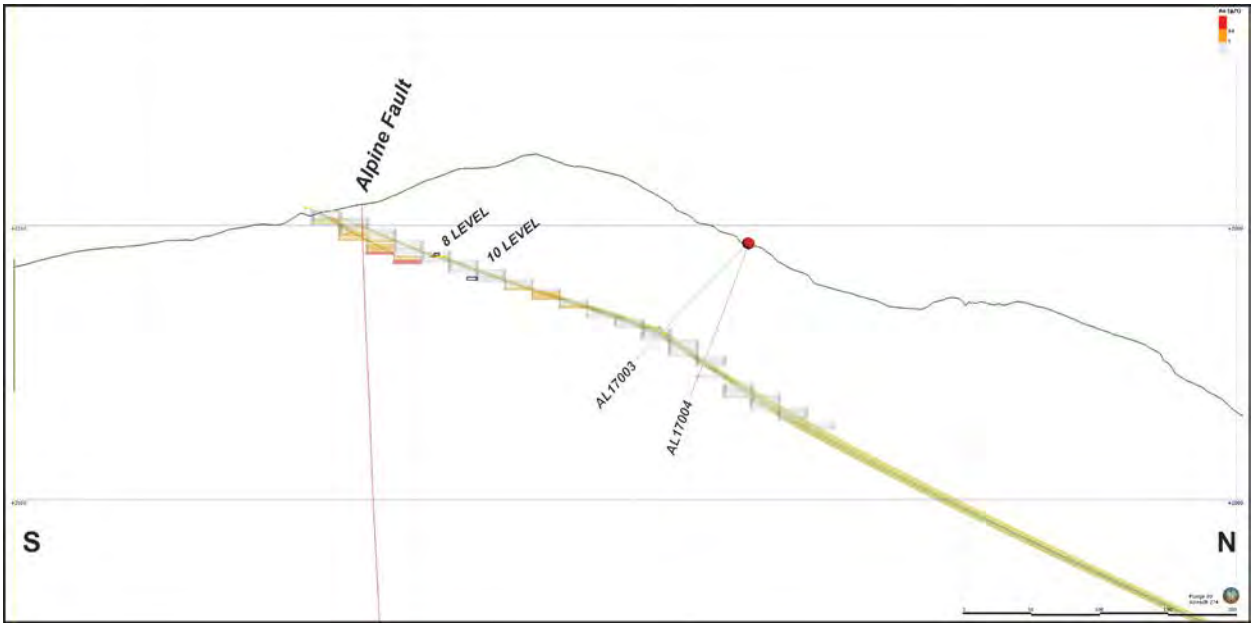


Figure 14.10 – Cross section B – B' showing estimated blocks and drill holes

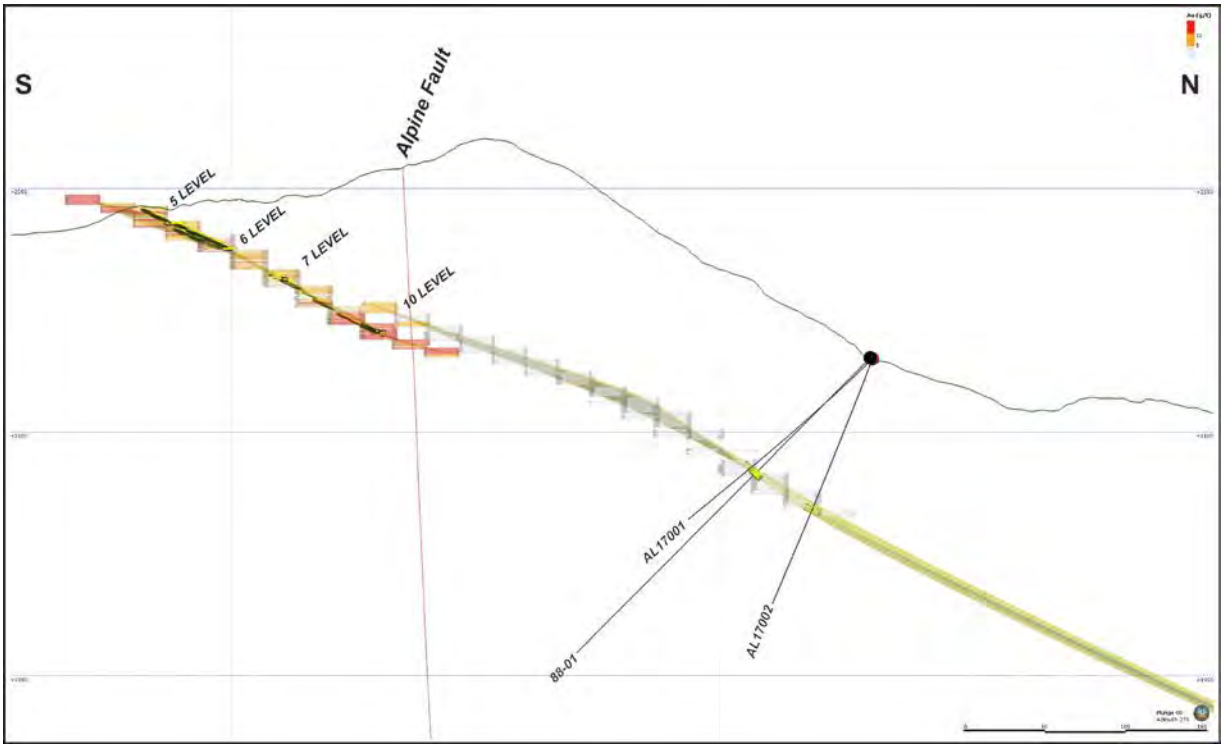


Figure 14.11 – Cross section C – C' showing estimated blocks and drill holes

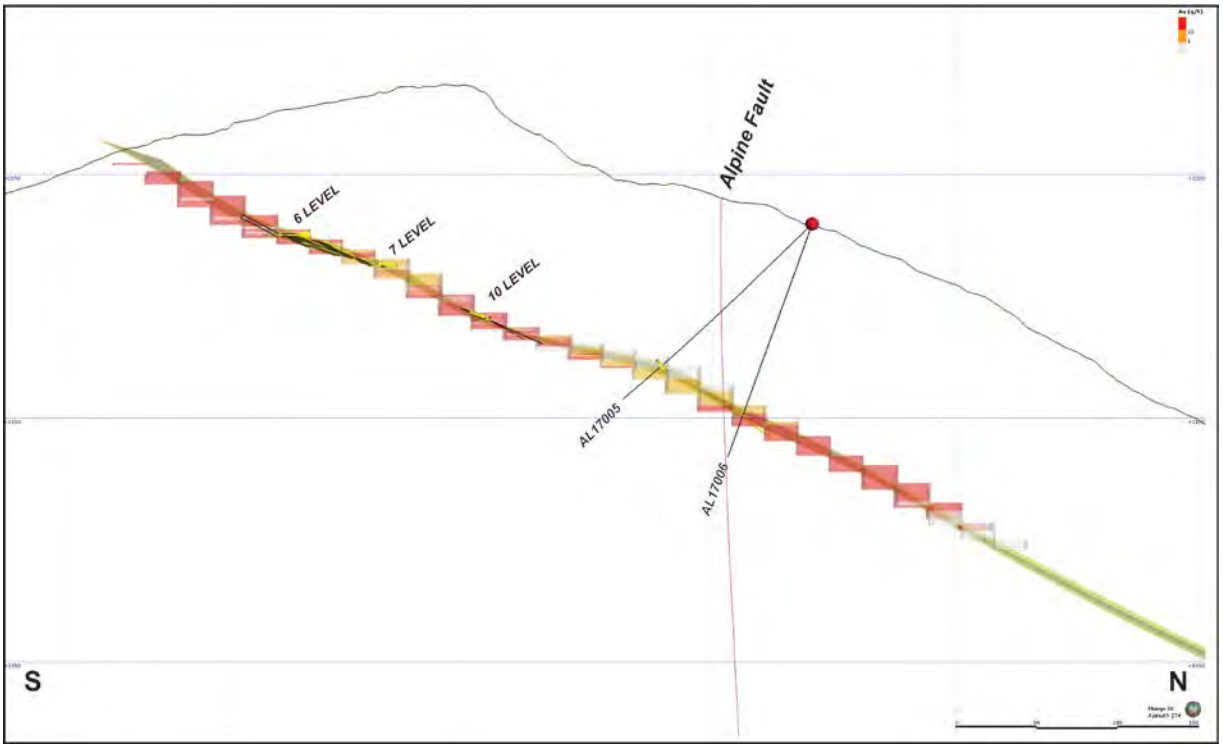


Figure 14.12 – Cross section D – D' showing estimated blocks and drill holes

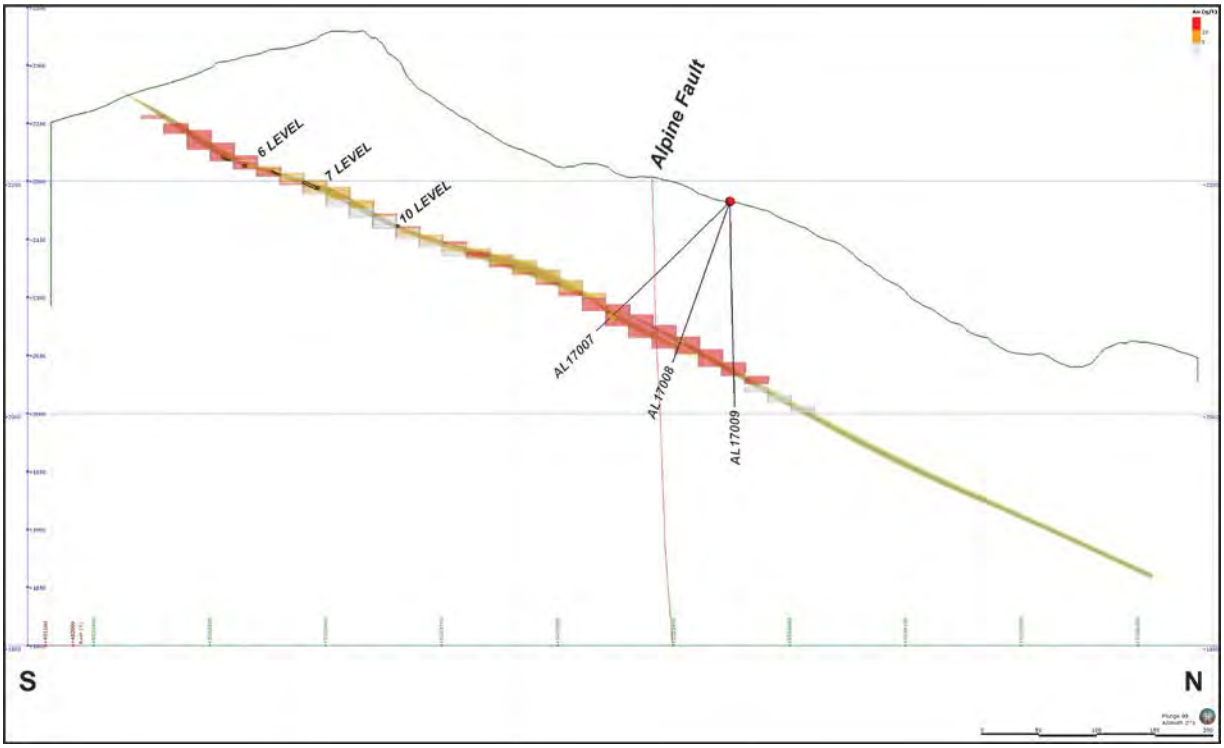
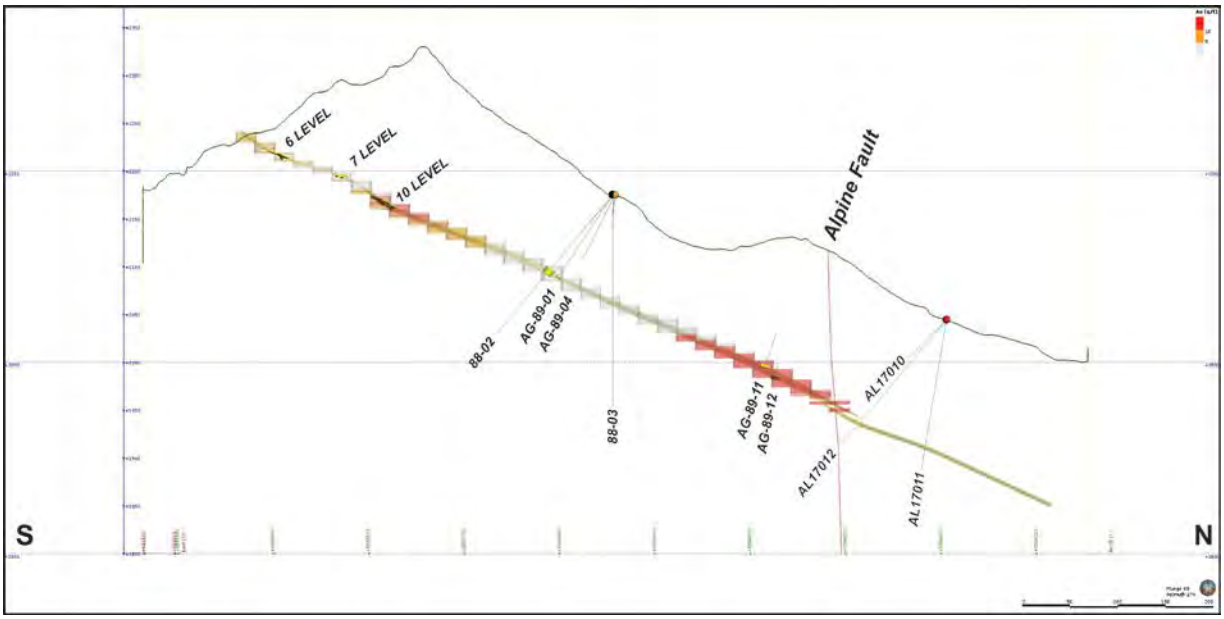


Figure 14.13 – Cross section E – E' showing estimated blocks and drill holes



15.0 MINERAL RESERVE ESTIMATES

To the extent of the Authors' knowledge no Mineral Reserve estimates have been completed for the Property.

16.0 MINING METHODS

To the extent of the Authors' knowledge the historic development of the Alpine mine employed the following mining methods: drifting, cross-cutting, raising and stoping to access the vein hosted ore. These accounts were described in Annual Reports produced by the Minister of Mines of British Columbia for the time period 1938 – 1948. The Author does not have any information relating to the development or mining methods employed by Cove Resources in 1988 to remove the reported 200 t of ore material.

To the extent of the Authors' knowledge the historic development of the past producing King Solomon mineral occurrence employed the use of hand steel as a primary mining method.

17.0 RECOVERY METHODS

To the extent of the Authors' knowledge this category is not relevant to this Report with exception to the historic information referenced in Item 13.0.

18.0 PROJECT INFRASTRUCTURE

To the extent of the Authors' knowledge this category is not relevant to this Report.

19.0 MARKET STUDIES AND CONTRACTS

To the extent of the Authors' knowledge this category is not relevant to this Report.

20.0 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

Environmental Studies

Masse Environmental Consultants ("MEC") of Nelson, British Columbia was retained by Braveheart in 2017 to develop and implement a water sampling program for the Project. A summary of results of the work by I. de Zwart (2018) of MEC are presented below; refer to Appendix VII for the Masse Environmental report.

"*The main objectives of the program were to:*

- *Collect baseline water quality information prior to, and during the 2017 drill program;*
- *Identify any existing water quality concerns that may require further consideration.*

The project is located at the headwaters of three main drainages: Stikum Creek, Duhamel Creek and Lemon Creek. All are fish bearing in their lower to middle reaches but become too steep at higher elevations where the drill program is to take place. Both Duhamel and Sitkum Creeks are within designated community watersheds. A provincial water licenses query identified 18 licenses on Sitkum Creek, 121 on Duhamel Creek and 6 on Lemon Creek.

One sample site was selected for each drainage basin (Refer to Table 20.1 for sample location coordinates); additionally samples were collected from two sites draining from old mine workings in the upper Sitkum Creek watershed (Refer to Figure 1 of Appendix VII).

Table 20.1 – 2017 baseline water quality sample sites

Site	Stream	UTM E NAD83 Zone 11	UTM N NAD 83 Zone 11	Comment
1	Sitkum Creek	483784	5499668	
2	Duhamel Creek	478568	5503319	Upstream of Six Mile FSR crossing
3	Trib to Lemon Creek	478902	5506648	At crossing on Lemon Creek FSR
JBALW001	Trib to Sitkum Creek	481887	5503669	Below adit
JBALW002	Trib to Sitkum Creek	481995	5503589	Below No. 10 dump

The sampling conducted to date represents a snapshot of water quality in these streams under late summer, low flow conditions. Typically, most parameters will be at higher concentrations at this time of year, as they are not diluted by the additional water provided by snowmelt or rainfall. Results from water sampling were screened against BC water quality guidelines for the protection of aquatic life to identify if any parameters exceeded the guidelines.

Water quality in all three watersheds is characterized by low levels of dissolved ions, which is typical for watersheds dominated by granitic geology. A trend of increasing dissolved ions in the order Sitkum Creek < Duhamel Creek < tributary to Lemon Creek presumably reflects the underlying geology of each watershed. Levels of trace metals, which can be a concern in watersheds with mineral occurrences, were very low, with concentrations of metals less than their respective detection limits.

Two samples were also collected to characterize water quality of the drainage from historical mine workings. These sites are located near the height of land in the upper Sitkum Creek watershed. Water quality at these sites was also characterized by low levels of dissolved ions, although several trace metals were detected in these samples. Notably, cadmium was observed at levels that were higher than the BC water quality guidelines for the protection of freshwater aquatic life."

Permitting

A Multi-Year Area Based ("MYAB") permit under MX-5-808 Approval # 17-0500014-0815 issued by the British Columbia Ministry of Energy and Mines is currently active on select areas of the property mineral tenure until May 30th, 2022. Permit MX-5-808 Approval # 17-0500014-0815 covers a total of three permitted exploration blocks (Blocks A-C, refer to Figure 4.2 for geographic reference) where a total of 35 diamond drill sites have been approved.

Past work on the Property by Braveheart has complied with all permitting requirements as directed by the British Columbia Ministry of Energy and Mines.

A *Mines Act* permit amendment application was filed by Braveheart in February of 2018 (Notice Of Work ("NOW") # 100237870) with the British Columbia Ministry of Energy, Mines and Petroleum Resources. The purpose of the permit amendment is to obtain permission for additional disturbance in MYAB permit Block A related to the construction and rehabilitation of an exploration trail which would provide efficient road access to the Alpine mine.

The following is provided as open citation from the Permit Enclosed Letter dated August 15th, 2017 regarding Mines Act Permit MX-5-808; Approval Number 17-0500014-0815 written by N. Bruemmer, P.Geo., Inspector Of Mines.

"The Property has two open Mines Act permits (MX-5-141 and MX-5-190) within the current MYAB permit area (MX-5-808). Any disturbance of old workings will result in the assumption of outstanding reclamation liability under MX-5-141 and MX-5-190. The work and liability should be acknowledged prior to any disturbance of the previously permitted disturbance or historical disturbances. The disturbances include adits (possibly over seven openings), trenches, drill pads (possibly over three sites), roads, access trails, waste rock piles, tailings and likely other undocumented mining disturbances."

Braveheart is currently in negotiations to acquire *Mines Act* permit MX-8-190 from Newcastle Energy Corp (formerly Cove Resources Corp.). The process will require Braveheart to apply for a new NOW application to cover the scope of permitted activities under MX-8-190.

Approval from all relevant government agencies must be granted before any exploration programs outlined in the NOW application may commence.

Archaeological Studies

Tipi Mountain Eco-Cultural Services Ltd. ("TMECS") was retained by Braveheart in May, 2017 to complete an archaeological desk review ("ADR") for the Property, and more specifically for the conceptual mineral exploration disturbances outlined in the exploration permit application.

The following is a summary of the findings of the ADR after work completed by A. Thompson (2017) of TMECS. A copy of the overview ADR has been included in Appendix VIII.

"A search of both the Remote Access to Archaeological Data (RAAD) application (BC Archaeology Branch) and the archaeological sites database at TMECS, produced negative results for recorded archaeological sites within a 10.0 to 12.0 kilometre radius of the mineral claim boundary. Sites in the region have been recorded along the West Arm of Kootenay Lake (approximately 13.0 kilometres south of the mineral claim boundary) and at the confluence of Lemon Creek and Slocan Lake (approximately 17.0 kilometres west of the mineral claim boundary).

Avoidance of the AOA polygon areas, overlapping with and encompassed within the proposed Alpine mineral exploration project, is recommended. Use of existing roads, tracks and landings, within the mineral claim and MYAB blocks, is permitted provided that maintenance of existing infrastructure in the AOA polygon areas is avoided; all ground disturbing activities are prohibited in areas of identified archaeological potential. Any additional, future [proposed] mineral exploration components, or development work requiring ground disturbance, proposed within AOA polygon areas or in proximity to identified archaeological sites or areas of archaeological potential, will require assessment prior to the onset of ground altering activity.

For areas where archaeological overview assessments (AOAs) or archaeological field assessments have not been conducted, it is also possible to conduct a preliminary field reconnaissance (PFR) prior to assessment through a subsurface testing program (AIA). A PFR assessment can also be conducted for the purpose of ground-truthing AOA polygons and areas of potential that have been produced through desk-based studies."

Social and Community Impacts

Community impacts have been mitigated on the Project where Braveheart has issued letters outlining planned exploration activities to local community watershed user groups and commissioned baseline water quality sampling prior to engaging in diamond drilling exploration activities. The Property operators will continue to engage the local community in a proactive and progressive manner and in addition will follow all permit guidelines, exploration best practices and internal corporate policy whilst advancing the project.

The Directors of Braveheart are aware that the British Columbia Ministry of Energy and Mines is responsible for approving all permit related exploration proposals, and that this agency works with other government organizations throughout the permit approval process. To the Authors knowledge the Directors of Braveheart are aware of the legislation outlined in Mines Act and the Health, Safety and Reclamation Code for Mines in British Columbia (revised June, 2017).

Refer to section 26.0 “Recommendations” to review detailed work plans and a budget summary for recommended exploration activities on the Property.

21.0 CAPITAL AND OPERATING COSTS

To the extent of the Authors’ knowledge this category is not relevant to this Report.

22.0 ECONOMIC ANALYSIS

To the extent of the Authors’ knowledge this category is not relevant to this Report.

23.0 ADJACENT PROPERTIES

The Author of the Report has been able to verify some of the information in this section of the Report through on-line research, but has spent no time in the field investigating the mineral occurrences. The Author acknowledges that the presence of mineralization and ore deposits on adjacent properties is not necessarily indicative of similar mineralization existing on the Property. The descriptions that follow are taken from the BC MINFILE data base (www.minfile.ca), as referenced.

A number of mineral occurrences of with similar mineral deposit type classifications are located within and peripheral to the Nelson batholith are described below as open citation from Brown and Logan (1988-89) and MINFILE (Refer to Figure 7.1 for geographic reference). Several of these mineral occurrences are located within Kokanee Glacier Provincial Park and are therefore sterilized for further exploration; however they are presented as they are geologically similar in age and style of mineralization

CROWN POINT NO. 6 (082FNW266) – Source MINFILE

The Crown Point occurrence is located on a north east ridge of Mount Cornfield, near the southern boundary of Kokanee Glacier Provincial Park. This is about 2.0 kilometres east northeast of the Alpine Gold (MINFILE 082FNW127) occurrence.

The area is reportedly underlain by layers of quartzitic siltstone of the Upper Triassic Slocan Group and granites of the Middle Jurassic Nelson Batholith. Locally, veins contain values in zinc, copper and lead. A sample, taken in 1987, assayed 4.80 percent zinc, 0.09 percent copper and 0.01 percent lead (Paper 1989-5). The claims were Crown-granted in 1899. No further exploration history is known.

MOLLY GIBSON MINE (82FNW121) / SMUGGLER (82FNW120) / SLOCAN CHIEF (82FNW119) / BLACKBURN (82FNWll8) – Source Brown and Logan (1988-89)

The Molly Gibson mine was developed on a mineralized fissure hosted by potassium-feldspar porphyritic granite. Mineralization follows a northwest-striking joint set, in contrast to the general northeast strike of most productive veins of the region. The northwest-striking vein system is over 6.0 kilometres long, hosting the Molly Gibson, Smuggler, Slocan Chief and Blackburn deposits.

The Molly Gibson property is located at the head of Kokanee Creek, approximately 20.0 kilometres north from Highway 3A. The Consolidated Mining and Smelting Company of Canada, Limited acquired the claims from La Plata Mines Ltd. in 1910, continued operating until 1950 and held the property in good standing until 1973, when the claims lapsed. Production between 1859 and 1950 totaled 55,860 tonnes of ore and yielded 1,372 grams gold, 31.1 million grams of silver, 2,300 tonnes of lead and 9 tonnes of zinc. Ninety per cent of the production was completed by 1913.

Underground workings explored two veins, the Florence and Aspen, striking 145 degrees and dipping 75 degrees southwest in potassium-feldspar megacrystic granite. The Florence vein averages 1.50 metres wide while the Aspen vein, located about 15.00 metres to the southwest, is less than 0.75 metre wide. The veins were developed on five levels, above 2,105 metres elevation. The distribution of stopes suggests ore shoots plunge to the southeast at about 45 degrees (McKechnie, 1967).

Vein mineralogy comprises galena, sphalerite, arsenopyrite, pyrite and chalcopyrite in a gangue of brecciated buff to pink siderite and quartz. Sulphides occur as irregular open-space fillings parallel to vein walls. Banding and cockade texture are common in these layers and rimming breccia fragments. Coarsely crystalline sphalerite and galena blebs are rimmed by quartz, fine pyrite, and coarser euhedral to subhedral arsenopyrite and in places chalcopyrite.

Vein gangue is chiefly manganese-rich siderite that weathers to a bluish black, and manganese oxide. Chalcedonic to euhedral quartz crystals rim fragments and line fractures, and commonly post-date siderite. Late stage calcite fills open spaces.

SCRANTON, PONTIAC, SUNRISE AND SUNSET (82FNW112 & 111 & 113) – Source Brown and Logan (1988-89)

The Scranton, Pontiac, Sunrise and Sunset deposits are accessible from Highway 31, via Woodbury Creek Road. Initial production is reported from the Pontiac claim in 1898, Sunset-Sunrise in 1899 and Scranton in 1948. Combined production totals at least 25,900 tonnes which yielded 125,676 grams gold, 4.4 million grams silver, 1,313 kilograms copper, 1,400 tonnes lead, 1,200 tonnes zinc and 14 tonnes cadmium. Scranton accounts for more than nintey per cent of the gold, lead, zinc, copper and cadmium, and eighty per cent of the silver production. Fifty per cent of Scranton production occurred between 1969 and 1979.

The Pontiac, Scranton, Sunset, Grandview and Sunrise workings (from northeast to southwest) follow a southwest-striking vein system of at least 2.1 kilometres strike length. The vein system comprises sheared zones 10.0 metres or more in width hosting quartz veins and irregular quartz bodies. Country rock is hornblende potassium-feldspar granite and potassium-feldspar granite. Hornblende diorite outcrops in Sunrise basin. Minor amounts of biotite-grade thinly bedded metasiltstone, meta-argillite and recrystallized limestone outcrop on the Scranton claims and

quartzite was intersected in underground workings.

The Scranton mine is on the east side of Pontiac creek, the Sunset mine on the west side. Both are presumed to be on the same vein. The Scranton zone contains at least two veins striking northeast to east; dips average 25 degrees southeast at the southwest end of the vein, steepening to 60 degrees southeast toward the northeast. Vein widths vary from 15 to 60 centimetres in the granite but veins commonly pinch out in the sediments. Mineralization is predominantly pyrite, up to 35 %, with lesser galena and sphalerite stringers and blebs in a fractured quartz gangue. The inaccessible lower Pontiac workings, at the 1,920-metre elevation, follow a quartz vein striking between 025 and 045 degrees. Vein material from the dump is massive coarse white carbonate mineralized with blebs and stringers of galena and sphalerite (ten percent combined) and flooded by (two-three percent) finely disseminated pyrite.

Workings in the Sunrise basin include the Sunrise and Grandview 215.0 metres to the northeast. The Sunrise was developed on two levels: the lower level (1,975-metre elevation) is wet but apparently accessible; the upper level (2,030-metre elevation) is completely collapsed. The vein is less than 1.5 metres wide, limonite stained, fractured and sulphide-poor. The foot wall granite is fractured and limonitic over 1.0 metre or less; the hanging wall is sharply defined and locally sericitized (20.0 centimetre widths). Galena and sphalerite occurr inter-grown in layers, blebs and patches. Pyrite occurs as coarse aggregates (2.0 by 1.5 centimetres) and finely crystalline concentrations rimming galena. Erratic, high-grade gold values suggest free gold occurs in the veins.

One hundred and fifty metres southwest of the upper Sunrise portal, on the Granite claim, vein mineralization is exposed in a portal at 2,090 metres elevation. The vein is 0.5 metre wide and comprised predominantly of pyrite (to fifteen percent), in patches, inter-grown with galena and sphalerite. Indicated reserves were reported at 17,890 tonnes averaging 9.3 g/t gold, 240.1 g/t silver, 8.2 % lead and 8.0 % zinc (Northern Miner, January 12th, 1978).

REVENUE (82FNW106) – Source Brown and Logan (1988-89)

The Revenue mine is on the north side of Sturgis Creek, a tributary of Keen Creek. It is accessible via an overgrown trail from Keen Creek road. Sporadic production between 1913 and 1941 yielded 244 tonnes of ore containing 217 grams gold, 635,620 grams silver, 68.8 tonnes lead and 20.7 tonnes zinc. Workings consist of four collapsed adits and a few surface trenches.

Cairnes (1935) reported over 200.0 metres of tunneling had been completed by June, 1927. The quartz veins are hosted in unaltered hornblende potassium-feldspar porphyritic granite with hornblende diorite xenoliths. The veins are less than 150.0 centimetres wide and strike about 020 degrees and dip steeply southeast. Mineralization consists of sphalerite-rich layers and pods in quartz veins with patches of galena. Disseminated and massive pyrite is also present in the veins. Limonitic fractures parallel the vein, across a zone less than 3.0 metres wide.

ONTARIO NO.2 (82FNW110) / BALTIMORE (82FNW109) – Brown and Logan (1988-89)

The Ontario No. 2 and Baltimore workings are located north of Woodbury Creek on the west and east sides of Silver Spray Creek respectively. Both workings apparently explored the same east-northeast-trending lode structure. The Ontario workings lie within the park adjacent to Crown Granted Claim (lot number 3182).

The Baltimore claims, 1.0 kilometre to the east are outside the eastern boundary of the park. Production from the Ontario between 1907 and 1921 totaled 156 tonnes of ore and yielded 31

grams gold, 1,792 kilograms silver and 15,600 kilograms lead. Production from the Baltimore from 1902 to 1907 and 1954 totaled 60 tonnes of ore and yielded 31 grams gold, 352,025 grams silver, 5.6 tonnes lead and 131 kilograms zinc.

The lode structure is strongly sheared, strikes 255 degrees, dips 75 degrees north and is hosted by hornblende potassium-feldspar porphyritic granite. Narrow blocks of muscovite-biotite schist and psammite occupy sections of the hanging wall and foot wall in the Baltimore workings. Mineralization occupies quartz breccia veins and comprises galena, pyrite, sphalerite and silver minerals as massive and irregular disseminations.

The Baltimore workings are mainly shallow surface trenching. Cairnes (1935), reports a 33 metre shaft connected to an adit (now caved) which explored the vein for 75 metres of strike length. On surface the vein can be traced for well over 100 metres. The Ontario workings now are inaccessible, including two adits 30 metres apart vertically and comprise about 500 metres of development work. Considerable stoping is reported to have been completed above the lower level.

SUN (82FNW207) – Source Brown and Logan (1988-89)

The Sun is located 1.0 kilometre south of the Revenue mine. It produced 31 tonnes of ore, 84.6 kilograms silver and 12.3 tonnes lead.

PARA (82FNW105) / CHRISTINA (82FNW104) – Source Brown and Logan (1988-89)

The Para and Christina workings are situated on the west and east flanks of Paupo Mountain, in the northwest corner of the park. Production from the Para totaled 15 tonnes of ore, no grade is recorded. Both explore narrow (up to 50 centimetre) north-striking steeply dipping vein cutting coarse grained potassium-feldspar porphyritic granite. Mineralization comprises pyrite, sphalerite and galena in a banded quartz gangue containing finely disseminated sulphides. Tetrahedrite, chalcopyrite and pyrargyrite have been reported (Cannes, 1935). A grab sample of stockpiled massive sphalerite ore at the Para assayed: 1.0 g/t gold, 1750 g/t silver, 2.16 % lead and 36.5 % zinc.

VIOLET (82FNW107) – Source Brown and Logan (1988-89)

The Violet workings occupy the divide between Mount McQuarrie and Sunset Mountain at 2,562 metres elevation and are accessible by the Silver Spray trail from Woodbury Creek. Production in 1921 totalled 4 tonnes which yielded 29,561 grams silver and 471 kilograms lead. Underground workings include two adits connected by a 20-metre raise, crosscuts and stopes which total less than 75 m, all presently inaccessible. The workings follow a shear zone 2 to 5 metres wide striking 040 degrees and dipping 85 degrees southeast in coarse grained hornblende potassium feldspar porphyritic granite.

Mineralization occurs in quartz stringers and veins within the argillic-altered lode and comprises galena, pyrite, lesser sphalerite with freibergite and silver sulphides.

SILVER CUP (82FNW114) – Source Brown and Logan (1988-89)

The Silver Cup is located 1.5 kilometres southwest of the Sun workings. Silver Cup produced 4 tonnes of ore in 1940 that yielded 31 grams gold, 4,417 grams silver, 891 kilograms lead and 118 kilograms zinc.

Mineralized quartz and carbonate veins are hosted in a limonitic fracture zone that is less than 7

metres wide. Veins on surface are less than 5 centimetres wide. Brecciated clay-altered wall rock, hornblende potassium-feldspar porphyritic granite, occurs within veins. Mineralization comprises coarse sphalerite and galena in a gangue of coarse pink and white carbonate.

ORO FINO (82FNW122) – Source Brown and Logan (1988-89)

The Oro Fino workings occupy a 25 hectare claim located at the headwaters of Nilsik Creek, south of Sunset and Outlook Mountains. Production in 1940 totalled 4 tonnes and yielded 62 grams gold, 964 grams silver, 48 kilograms lead and 112 kilograms zinc.

Development work includes two adits at the 2,086-metre and 2,118-metre elevations and surface trenching at 2,196 metres elevation outlining a strike length of approximately 100.0 metres. The quartz vein occupies a tight fracture in potassium feldspar-porphyritic granite which strikes 030 degrees and dips 65 degrees southeast. Vein mineralogy comprises pyrite, sphalerite and galena: stronger mineralization is associated with smoky quartz. Wall rock is oxidized and altered to sericite and argillite assemblages up to 10 centimetres on either side of the vein.

BOOMERANG (82FNW116) – Source Brown and Logan (1988-89)

The Boomerang is situated on Enterprise Creek, 3.0 kilometres west of the park boundary. It produced 3 tonnes of ore in 1956 that yielded 4,479 grams silver, 121 kilograms lead and 123 kilograms zinc. The vein was explored by two adits, about 30.0 metres vertically apart (Cairnes, 1935).

The narrow mineralized quartz vein is hosted by potassium-feldspar porphyritic granite. Zones of argillic alteration, limonitic weathering and locally silicification occur adjacent to the main fault

WILLA (082FNW071) – source MINFILE

The Willa occurrence is located at 1,220 metres elevation on the southwest side of Aylwin Creek, immediately west of its confluence with Wild Creek. Silverton, British Columbia lies 7.5 kilometres to the north.

The Willa deposit has features in common with the alkalic-type porphyry copper-gold deposits, the Rossland gold-copper camp, and copper and iron skarns (Heather, 1985).

Development on the property began as early as 1899 when a 30-tonne shipment of copper-gold ore was reported from the Rockland claim. To 1904, underground work totaled approximately 91.0 metres of drifts in three adits, one on the north side of the creek and two on the south. Work in 1937 included 32 metres of drifting and 3.0 metres of raising.

The Willa claim was first Crown granted in 1898 to Willow Gold Mining Co. The Rockland claim produced 300 tonnes of ore in 1899 and the claim was subsequently Crown granted to W. Spinks in 1900. At this time, the Rockland claim group was owned by Spinks, Graves and Watson. About 91.0 metres of drifts were completed by 1904 with three adits, one on the north side of Aylwin Creek and two on the south side. Claim ownership was transferred to W.J. Nicholls in the 1930s and optioned to Slocan Lake Gold Mining Company Inc. in 1936. An additional 32.0 metres of drifting and 3.6 metres of raise were completed. Northlode Exploration Ltd. held 17 Crown grants and claims including the Rockland group in the 1960s. Under option to Cominco Limited between 1964 and 1965, 297.0 metres of diamond drilling in four holes were carried out on the Willa and Rockland claims. Rockland Mining Ltd. was incorporated in 1967 and purchased the Rockland Group and Little Daisy (082FNW070) Reverted Crown grants. Additional ground covering 36 recorded claims surrounding the Rockland and Little Daisy claim

groups were purchased. A diamond drilling program was carried out near the Rockland and Little Daisy occurrences. The Aylwin joint venture between Riocanex Inc. (fifty percent) and BP Canada Inc. (fifty percent) carried out additional drilling on the claims from 1980 to 1981. From 1980 to 1984, 14,295 metres of diamond drilling from 47 surface holes were completed. By 1984, BP Canada Inc. had acquired a seventy-two percent interest in the property. Northair Mines Ltd., obtained an option in 1985 to earn a fifty percent interest in the property over three years. The final partnership called for a Northair (fifty percent), BP Canada Inc. (thirty percent) and Riocanex Inc. (fourteen percent) interest in the property. Exploration performed by Northair Mines Ltd. between 1986 and 1987 included 290.0 metres of drifting and crosscutting, 2,317.0 metres of underground diamond drilling in 51 holes, and sampling of drift rounds, drift faces and walls and drill core. In 1987, an upper level was opened into the Main zone and a decline driven under the West zone.

Production records for the Willa occurrence indicate 300 tonnes mined with no recorded recovery in 1899. In 1988, 7,883 grams silver, 2,873 grams gold, 4,418 kilograms copper, 63 kilograms lead and 4,154 kilograms zinc were recovered from 495 tonnes of custom ore. Orphan Boy Resources Inc. entered into an option to purchase agreement, in June 2002, to acquire the property. In 2003, Orphan Boy Resources Inc. announced the acquisition of Imperial Metals Corporation wholly owned Bethlehem Resources Corporation. Bethlehem's principal asset is the 1,000 metric ton per day Goldstream mill and related infrastructure. It has been the intention of Orphan Boy to mine the Willa and truck the ore to the Goldstream facility for milling. The 2004 underground drilling program consisted of 5,282.8 metres in 39 holes and was designed to cover six areas adjoining known areas of Au-Cu-Ag mineralization that had either not been drilled or were under drilled. The drilling in the peripheral areas of the Willa deposit was not successful in locating significant new zones of potentially economic mineralization. Drilling along the west edge of the West Zone did better define the boundaries of that zone.

The Willa Deposit contains a measured resource of 487,989 tonnes grading 6.77 grams gold, 0.97 per cent copper and 11.59 grams silver, plus an indicated resource of 292,457 tonnes at 5.31 grams gold, 0.65 percent copper and 11.94 grams silver; total resources, including inferred, are pegged at 996,623 tonnes grading 6.3 grams gold, 0.79 percent copper and 10.77 gram per tonne silver, at a 3.5 gram/gold cutoff (The Northern Miner, April 21, 2005). The Author cannot verify the accuracy of the reported resource estimates and is providing them as a general overview of other gold deposits within the project area.

The resource estimations from the Willa Deposit, and historic production from the aforementioned Minfile occurrences are not necessarily indicative of the mineralization on the Property which is the subject of this report.

24.0 OTHER RELEVANT DATA AND INFORMATION

The Author is not aware of any additional information that is relevant or necessary to accurately understand or clarify this Report.

25.0 INTERPRETATION AND CONCLUSIONS

The 2017 exploration program conducted by Braveheart was successful in advancing the Property, culminating in the issuance of a maiden Inferred Mineral Resource Estimate in January 2018.

The 2017 exploration drilling program confirmed the down-dip extension of the Vein system north of the historic Alpine mine. The Vein intersections in drill core ranged from millimeter scale to 1.7 metres, with grades ranging from trace to 66.1 g/t gold. Highlights from the 2017 exploration drill program include: 19.1 g/t gold over 1.7 metres in drill hole AL17007 and 38.0 g/t gold over 1.4 metres in drill hole AL17008. Underground investigations and sampling on the 6 LEVEL of the historic Alpine mine revealed vein widths ranging from 0.2 metres to 2.2 metres, which is consistent with historic government and company reports. A limited number of samples collected from the underground workings on the 6 LEVEL in 2017 returned grades ranging from 0.06 g/t gold over 1.05 metres up to 54.60 g/t gold over 1.25 metres. Both the 2017 diamond dill data and underground sampling data confirmed reported grades from historical exploration and mining programs in 1988 and 1989, with exception to the 1988 surface drilling results reported by Cove Resources Inc., which are considered spurious by the Authors and were excluded from the Inferred Mineral Resource Estimate.

The Inferred Mineral Resource Estimate utilized extensive underground sampling assay data from the 1988 program completed by Cove Resources after a select sub-set of the data was compared by the Author against samples collected in 2017 (Refer to Item 12.4). The higher-density data points for gold grade and vein thickness provided by the 1988 underground program allowed for detailed modelling of the vein system and inferred Mineral Resource Estimation. The data from the historic underground workings was then utilized to interpolate the deposit down-dip using the 2017 drill hole data. As a result, a large portion of the Inferred Mineral Resource Estimate is based upon widely spaced drill holes down-dip of the historic workings. This may represent a risk as there is uncertainty over the continuity of mineralization, and total contained tonnes on mineralized material between the 2017 drill holes. Future drilling activities in this area may reduce the total contained ounces in future Mineral Resource Estimates. If the Alpine mine underground workings are rehabilitated in advance of underground development by Braveheart it is strongly recommended that detailed sampling be completed throughout the workings to add confidence to the existing geologic and geochemical model supporting the Mineral Resource Estimate.

The mineralized vein defined in the Inferred Mineral Resource Estimate displays an inherent sampling error or “nugget effect” due to the heterogeneous distribution of gold within the system. Future exploration programs should employ methods (*e.g.*, increase core diameter from BTW to NQ or HQ) designed to increase sample size to mitigate the nugget effect.

Specific gravity should be determined from new drill holes on pieces of whole core from the AV vein using wax or plastic wrap and the Archimedes method of weight in air compared to weight in water.

Future exploration and development work on the Property will need to take into consideration the outstanding reclamation requirements from historic mining activities. Initial assessment of the waste dumps downslope of the number 5, 6 and 10 LEVELS via non-mechanized geochemical sampling suggests that there may be a significant amount of gold remaining in the dump piles. The Authors cannot comment on the potential value of the gold remaining in the

dump piles at the time of writing. A reconciliation of historic production records versus extracted volumes from the Alpine mine during the Mineral Resource Estimation process suggests that there are “missing ounces” of gold which may reside in the waste dump piles based upon the limited sampling completed in 2017. If the waste dump piles are disturbed by Braveheart then they will assume the reclamation liability regardless of the value of the materials being disturbed.

26.0 RECOMMENDATIONS

Proposed exploration work designed to advance the property has been suggested as outlined below. A recommended budget to advance the Property specifically addressing surface exploration only is presented in Table 26.1. The Authors cannot provide accurate estimates for the costs associated with rehabilitation of access roads, mine workings, the development of a mine plan, baseline environmental studies and community engagement or the underground development associated with obtaining a bulk sample. The recommended exploration activities could occur as standalone work programs, staged according to the amount of available exploration expenditures for a given year, and the goals of the corporation at any given point in time.

The following recommendations are suggested to advance the Alpine Property.

Alpine Mine Resource Area:

- Rehabilitate access road to the Property;
- Rehabilitate underground workings and complete detailed underground sampling and geologic mapping to support and refine the current Inferred Mineral Resource Estimate;
- Apply for a bulk sample exploration permit (up to 10,000 t) for the Alpine mine which would include producing an engineered mine plan;
- Extraction of bulk sample material and related metallurgical testing;
- Mechanical trenching of waste dump piles on the 5, 6 and 10 LEVELS to provide average gold grade from large bulk samples to determine potential economics of processing the material to recover gold ounces;
- Surface diamond drilling program (approximately 1,750 metres) designed to infill the Mineral Resource Estimate with a goal of doubling the drill density pierce points from the 2017 program;
- Continued baseline environmental studies including, but not limited to: Acid Rock Drainage and Metal Leaching (“ARD/ML”) modeling and the development of an appropriate waste rock management plan, water quality sampling, monitoring of fish and wildlife;
- Community engagement including, but not limited to: public meetings to disclose corporate goals, potential economic benefits and strategies to mitigate negative environmental impacts associated with exploration and development on the Property; engagement with local First Nation Governments to address any question they may have pertaining to development of a mineral resource within their Traditional Territory;
- For all diamond drilling specific gravity determinations should be made on pieces of whole core from the AV vein using wax or plastic wrap and the Archimedes method of weight in air compared to weight in water.
- Upgrade the Inferred Mineral Resource Estimate where applicable.

Alpine Vein Step-out Exploration:

- Surface diamond drilling program (approximately 1,750 metres) designed to explore both the western strike extension and the down-dip potential of the Alpine Vein (west and north of the historic mine workings);

Black Prince and Cold Blow Exploration:

- Rehabilitate access road to the Property;
- Surface mapping and sampling of the historic mineral occurrences;
- Prospecting and surface geochemical sampling where surface conditions permit;
- Exploratory diamond drilling if warranted designed to test the continuity of the mineralized vein systems.

Table 26.1 – Proposed Exploration Budget

Proposed Exploration Budget	**Amount $CAD***
Alpine Property	
Diamond Drilling (1,750 metres) – Infill Drilling	$500,000.00
Diamond Drilling (1,750 metres) – Step-out Exploration	$500,000.00
Surface Exploration (Prospecting, Mapping and Geochemical Sampling)	$50,000.00
Total	$1,050,000.00
10 % Contingency	$105,000.00
Grand Total	**$1,155,000.00**

**Budget totals are rounded to the nearest $100.00 and are estimated all-found rates*

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Appendix I

Letter Of Intent Agreement, Mineral Tenure Schedule
& Crown Grants

BRAVEHEART RESOURCES INC.
Suite 510, 65 Queen St. West
TORONTO, ONTARIO, M5H 2M5
Tel: 416-985-7810

November 2, 2016

Allen Matovich
P.O. Box 110
Montrose, BC V0G 1P0

Theodore Muraro
4438 Stone Court
West Vancouver, BC V7W 2V5

Attention: Mr. Allen Matovich and Mr. Theodore Muraro

Braveheart Resources Inc. ("Braveheart") hereby confirms its interest in acquiring 100% of the properties described in Appendix A ("the Properties") for a combination of cash ($3,385,000) and shares (1,400,000) under the following conditions of an Option Agreement.

Payment Schedule

- **Year 1**
  180,000 Braveheart shares will be issued to Mr. Matovich and 20,000 Braveheart shares will be issued to Mr. Muraro upon the signing of this agreement. $9,000 will be paid in cash and 180,000 Braveheart shares issued to Mr. Matovich and $1,000 will be paid in cash and 20,000 Braveheart shares issued to Mr. Muraro on December 15, 2016.
- **Year 2**
  $67,500 will be paid in cash and 180,000 Braveheart shares issued to Mr. Matovich and $7,500 will be paid in cash and 20,000 Braveheart shares issued to Mr. Muraro on December 15, 2017.
- **Year 3**
  $90,000 will be paid in cash and 360,000 Braveheart shares issued to Mr. Matovich and $10,000 will be paid in cash and 40,000 Braveheart shares issued to Mr. Muraro on December 15, 2018
- **Year 4**
  $1,080,000 will be paid in cash and 360,000 Braveheart shares issued to Mr. Matovich $120,000 will be paid in cash and 40,000 Braveheart shares issued to Mr. Muraro on December 15, 2019.
- **Year 5**
  $900,000 will be paid in cash to Mr. Matovich and $100,000 will be paid in cash to Mr. Muraro on December 15, 2020
- **Year 6**

$900,000 will be paid in cash to Mr. Matovich and $100,000 will be paid in cash to Mr. Muraro on December 15, 2021

Additional Conditions

1. Braveheart will maintain the Properties in good standing by performing adequate assessment work or paying the annual concession fees.
2. Braveheart will commit a minimum of $400,000 in exploration in the year ended December 31, 2017; a minimum of $600,000 in exploration in the year ended December 31, 2018; and a minimum of $600,000 in exploration in the year ended December 31, 2019. Exploration dollars spent being contingent on receiving necessary work permits.
3. Best efforts will be made to obtain necessary work permits in a timely fashion. Should permits be delayed due to circumstances outside of Braveheart's control the time lines identified above as well as annual payments may be extended should any delay in receiving permits result in postponement or cancellation of a significant exploration program.
4. Upon verification of a NI 43-101 compliant ore body of greater than 300,000 metric tons with an average grade greater than 12 grams per ton of gold, Braveheart will advance 900,000 Braveheart shares to Mr. Matovich and 100,000 Braveheart share to Mr. Muraro.
5. Braveheart may earn its 100% interest in the Properties at any time as long as it has fulfilled the total commitments with respect to cash and shares.
6. Any Braveheart news release pertaining to the Alpine Mine group will be viewed by Mr. Matovich and Mr. Muraro prior to release.
7. Labor and consulting provided by Mr. Matovich and Mr. Muraro can be invoiced to Braveheart at a rate consistent with industry standards.
8. Should Braveheart decide not to complete the option, the Properties shall revert to Mr. Matovich with the title to the Properties in good standing for at least an additional 12 months. All technical materials relating to the Properties would also be transferred to Mr. Matovich.
9. This offer is subject to a 90 day due diligence period in which both parties have the right to terminate the agreement.

This offer is subject to all applicable regulatory approvals and Board approval and subject to signing a definitive binding agreement prepared by legal counsel to Braveheart.

If you are in agreement with the terms of this offer, please acknowledge by signing below.

Yours truly,

David Johnston
President and Director

Allen Matovich

Theodore Muraro

Date: November 2, 2016

SCHEDULE A

List of Properties

1. Alpine Claim Group

Alpine Crown Grants

Lot Number	Crown Grant Name	Date of Grant	Mining Division	Hectares
15003	Alpine Fraction	April 17, 1942	Slocan	15 390
2215	Nelson No 5	February 1, 1937	Nelson	20 900
2216	Crown Point No 6	February 1, 1937	Nelson	9 440
2879	Swiss	September 14, 1899	Nelson	17 440
2880	Highland Chief	September 14, 1899	Nelson	20 020
2881	Berne	September 14, 1899	Slocan	12.000
2882	Kootenay Pass	December 27, 1901	Nelson	20 380
2883	Rocky Fraction	December 27, 1901	Nelson	2 040
14922	Basin	May 15, 1940	Nelson	20.560
14928	Meadow	April 1, 1942	Nelson	20 780
14929	Sitkum	April 1, 1942	Nelson	20 420
15002	Swiss Fraction	April 17, 1942	Slocan	20 900
15004	Washington Fraction	April 18, 1942	Slocan	16 460
15005	Oregon Fraction	April 16, 1942	Slocan	11 640
15006	Idaho	April 18, 1942	Slocan	10 020
Hectares				***238.390***

Staked Claims

Tenure Number	Tenure Name	Good To Date		Hectares
145982		September 19, 2017	Slocan	1.515 790
272741	CB 1	September 18, 2017	Slocan	25 000
371742	CB 2	September 18, 2017	Slocan	25 000
373743	CB 3	September 18, 2017	Slocan	25 000
373744	CB 4	September 18, 2017	Slocan	25 000
371745	CB 5	September 19, 2017	Slocan	25 000
373746	CB 6	September 19, 2017	Slocan	25 000
1047508	CB 7	October 29, 2017	Slocan	62 670
1045984	ALP 1	September 19, 2017	Slocan	83 610
1045983	ALP 2	September 19, 2017	Slocan	20 900
1047491	Basin Ext	October 28, 2017	Slocan	83 640
1047506	Basin Ext 2	October 29, 2017	Slocan	21 910
Hectares				***1,938.520***

TOTAL HECTARES	***2,176.910***
TOTAL ACRES	***5,379.261***

Title Number	Claim Name	Owner	Title Type	Title Sub Type	Map Number	Issue Date	Good To Date*	Status	Area (ha)
1045982		117113 (100%)	Mineral	Claim	082F	2016/AUG/15	2027/NOV/01	GOOD	1515.7862
371741	CB 1	117113 (100%)	Mineral	Claim	082F074	1999/SEP/18	2027/NOV/01	GOOD	25.0
371742	CB 2	117113 (100%)	Mineral	Claim	082F074	1999/SEP/18	2027/NOV/01	GOOD	25.0
371743	CB 3	117113 (100%)	Mineral	Claim	082F074	1999/SEP/18	2027/NOV/01	GOOD	25.0
371744	CB 4	117113 (100%)	Mineral	Claim	082F074	1999/SEP/18	2027/NOV/01	GOOD	25.0
371745	CB 5	117113 (100%)	Mineral	Claim	082F074	1999/SEP/18	2027/NOV/01	GOOD	25.0
371746	CB 6	117113 (100%)	Mineral	Claim	082F074	1999/SEP/18	2027/NOV/01	GOOD	25.0
1045983	ALP 2	117113 (100%)	Mineral	Claim	082F	2016/AUG/15	2027/NOV/01	GOOD	83.6084
1045984	ALP 3	117113 (100%)	Mineral	Claim	082F	2016/AUG/15	2027/NOV/01	GOOD	20.9004
1047491	BASIN EXT	117113 (100%)	Mineral	Claim	082F	2016/OCT/28	2027/OCT/28	GOOD	83.6414
1047507	BASIN EXT 2	117113 (100%)	Mineral	Claim	082F	2016/OCT/29	2027/OCT/29	GOOD	20.9058
1047508	CB 7	117113 (100%)	Mineral	Claim	082F	2016/OCT/29	2027/OCT/29	GOOD	62.6723
1057746	ALPINE 1	278750 (100%)	Mineral	Claim	082F	2018/JAN/17	2019/JAN/17	GOOD	690.5111

*117113 = Al Matovich - good to date pending government approval of the Technical Report for Statement Of Work 5670756

**278750 = Braveheart Resources

Tenure Search Completed on 3/5/2018

Traced by JE.

Compared by HPR.

British Columbia

Crown Grant No. 3181
702

KOOTENAY DISTRICT

Alpine Gold Limited.
(Non-Personal Liability)

Scale, 300 Feet = One Inch.



Lieutenant-Governor.

No. 3181

702

MINERAL ACT.

Deputy Minister of Lands.

Compared.

PROVINCE OF BRITISH COLUMBIA.

GEORGE VI., by the Grace of God, of Great Britain, Ireland, and the British Dominions beyond the Seas, KING, Defender of the Faith, Emperor of India.

To all to whom these presents shall come, Greeting:

Know ye that We do by these presents, for Us, Our heirs and successors, in consideration of the fulfilment of the conditions of the laws providing for the acquisition of minerals other than coal, petroleum, and natural gas, give and grant unto ALPINE GOLD LIMITED (NON PERSONAL LIABILITY)

its successors

and assigns, all minerals, precious and base (save coal, petroleum, and natural gas), which may be found in veins, lodes, or rock in place, and whether such minerals are found separately or in combination with each other, under that Parcel or Lot of Land situate in KOOTENAY District, and numbered Lot Fifteen thousand and six (15006) on the Official Plan or Survey of the said KOOTENAY District, and known as the "IDAHO" Mineral Claim, and the right to the use and possession of the surface of such mineral claim, including the use of all the timber thereon, for the purpose of winning and getting from and out of such claim the minerals contained therein, including all operations connected therewith or with the business of mining. To have and to hold the same unto the said ALPINE GOLD LIMITED (NON PERSONAL LIABILITY)

its successors and assigns, for ever:

PROVIDED that the grant hereby made shall be subject to the laws for the time being in force respecting mineral claims.

PROVIDED also that no right to the use or possession of any travelled streets, roads, trails, and other highways existing over or through said lands at the date hereof shall pass by this grant.

PROVIDED also that it shall be lawful for Us, Our heirs and successors, or for any person by Our authority, to open up and use any portion of the said mineral claim (not exceeding one-twentieth part) for making roads, canals, bridges, towing-paths, or other works of public utility or convenience; but no portion of said claim shall be so opened up and used upon which any permanent buildings have been erected.

PROVIDED further that it shall be lawful for any person duly authorized by Us, Our heirs and successors, to take and occupy such water privileges, and to have and enjoy such right of carrying water over, through, or under any parts of the said land, as may be reasonably required for agricultural or other purposes in the vicinity of the said land, upon paying therefor a reasonable compensation to the aforesaid ALPINE GOLD LIMITED (NON PERSONAL LIABILITY)

its successors and assigns.

In testimony whereof, We have caused these Our Letters to be made Patent, and the Great Seal of *OUR PROVINCE OF BRITISH COLUMBIA* to be hereunto affixed: *WITNESS*, His Honour WILLIAM CULHAM WOODWARD Lieutenant-Governor of Our said Province, at Our Government House, in Our City of Victoria, this Eighteenth day of April in the year of our Lord one thousand nine hundred and Forty-two and in the Sixth year of Our Reign.

By Command.

Deputy Provincial Secretary.

Mineral, F. 1, New
1M-541-2498

Traced by Jco.

Compared by MRR.

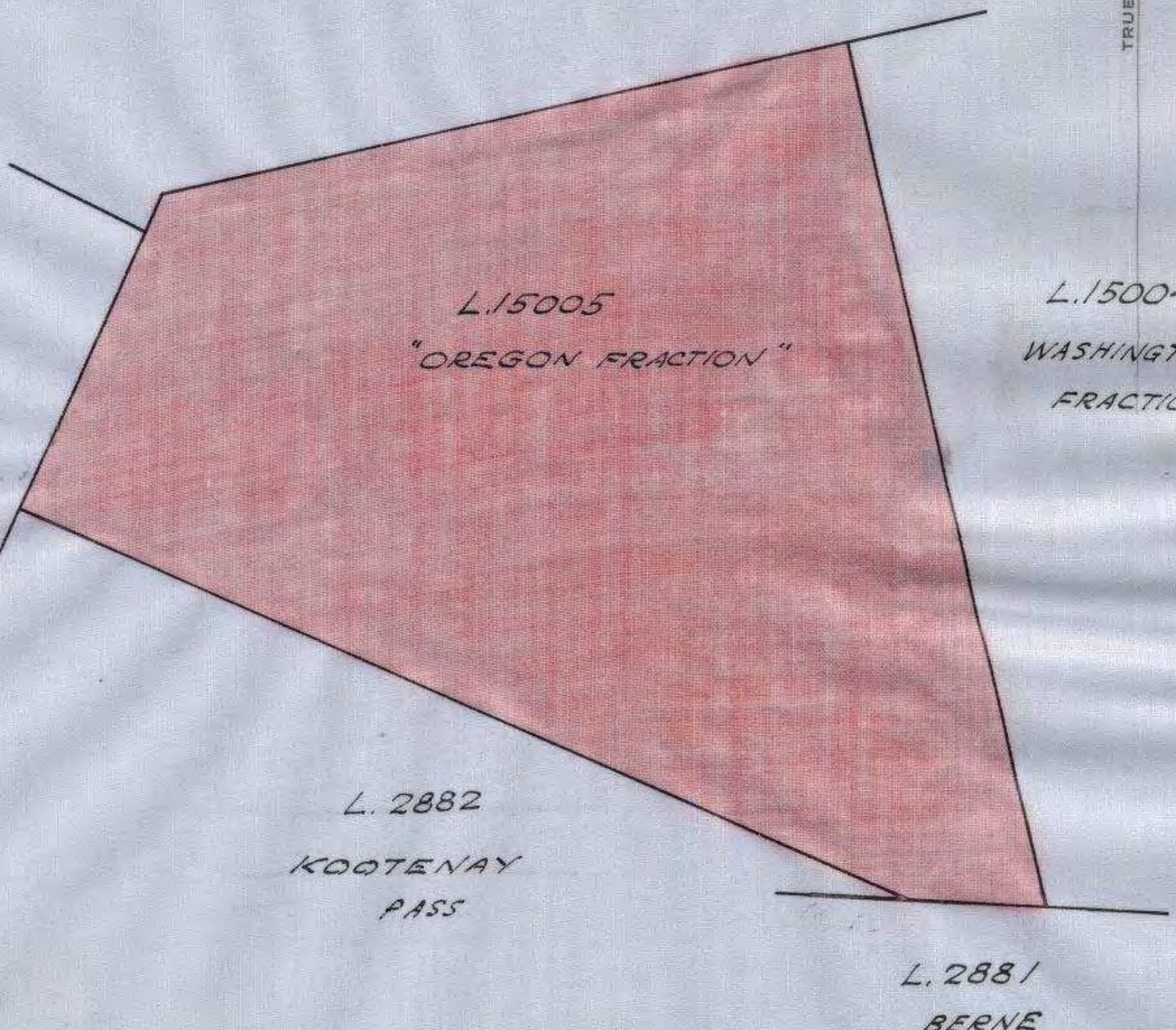
British Columbia

Crown Grant No. 3180
702.

KOOTENAY DISTRICT

Alpine Gold Limited.
(Non-Personal Liability.)

Scale, 300 Feet = One Inch.



Lieutenant-Governor.

No. 3180

702

MINERAL ACT.

A Coutlard

Deputy Minister of Lands.

Compared.

PROVINCE OF BRITISH COLUMBIA.

GEORGE VI., by the Grace of God, of Great Britain, Ireland, and the British Dominions beyond the Seas, KING, Defender of the Faith, Emperor of India.

To all to whom these presents shall come, Greeting:

Know ye that We do by these presents, for Us, Our heirs and successors, in consideration of the fulfilment of the conditions of the laws providing for the acquisition of minerals other than coal, petroleum, and natural gas, give and grant unto ALPINE GOLD LIMITED (NON PERSONAL LIABILITY)

its successors and assigns, all minerals, precious and base (save coal, petroleum, and natural gas), which may be found in veins, lodes, or rock in place, and whether such minerals are found separately or in combination with each other, under that Parcel or Lot of Land situate in KOOTENAY District, and numbered Lot Fifteen thousand and five (15005) on the Official Plan or Survey of the said KOOTENAY District, and known as the "OREGON FRACTION" Mineral Claim, and the right to the use and possession of the surface of such mineral claim, including the use of all the timber thereon, for the purpose of winning and getting from and out of such claim the minerals contained therein, including all operations connected therewith or with the business of mining. To have and to hold the same unto the said ALPINE GOLD LIMITED (NON PERSONAL LIABILITY)

its successors and assigns, for ever:

PROVIDED that the grant hereby made shall be subject to the laws for the time being in force respecting mineral claims.

PROVIDED also that no right to the use or possession of any travelled streets, roads, trails, and other highways existing over or through said lands at the date hereof shall pass by this grant.

PROVIDED also that it shall be lawful for Us, Our heirs and successors, or for any person by Our authority, to open up and use any portion of the said mineral claim (not exceeding one-twentieth part) for making roads, canals, bridges, towing-paths, or other works of public utility or convenience; but no portion of said claim shall be so opened up and used upon which any permanent buildings have been erected.

PROVIDED further that it shall be lawful for any person duly authorized by Us, Our heirs and successors, to take and occupy such water privileges, and to have and enjoy such right of carrying water over, through, or under any parts of the said land, as may be reasonably required for agricultural or other purposes in the vicinity of the said land, upon paying therefor a reasonable compensation to the aforesaid ALPINE GOLD LIMITED (NON PERSONAL LIABILITY)

its successors and assigns.

In testimony whereof, We have caused these Our Letters to be made Patent, and the Great Seal of *OUR PROVINCE OF BRITISH COLUMBIA* to be hereunto affixed: *WITNESS*, His Honour WILLIAM CULHAM WOODWARD Lieutenant-Governor of Our said Province, at Our Government House, in Our City of Victoria, this Eighteenth day of April, in the year of our Lord one thousand nine hundred and Forty-two and in the Sixth year of Our Reign.

By Command.

Deputy Provincial Secretary.

Mineral, F. 1, New
1M-541-2498

Traced by TE.

Compared by HPP.

British Columbia

Crown Grant No. 3179
702.

KOOTENAY DISTRICT

Alpine Gold Limited.
(Non-Personal Liability.)

Scale, 300 Feet = One Inch.



Lieutenant-Governor.

No. 3179

702

MINERAL ACT

Deputy Minister of Lands.

Compared.

PROVINCE OF BRITISH COLUMBIA.

GEORGE VI., by the Grace of God, of Great Britain, Ireland, and the British Dominions beyond the Seas, KING, Defender of the Faith, Emperor of India.

To all to whom these presents shall come, Greeting:

Know ye that We do by these presents, for Us, Our heirs and successors, in consideration of the fulfilment of the conditions of the laws providing for the acquisition of minerals other than coal, petroleum, and natural gas, give and grant unto ALPINE GOLD LIMITED (NON PERSONAL LIABILITY)

its successors and assigns, all minerals, precious and base (save coal, petroleum, and natural gas), which may be found in veins, lodes, or rock in place, and whether such minerals are found separately or in combination with each other, under that Parcel or Lot of Land situate in KOOTENAY District, and numbered Lot Fifteen thousand and four (15004) on the Official Plan or Survey of the said KOOTENAY District, and known as the "WASHINGTON FRACTION" Mineral Claim, and the right to the use and possession of the surface of such mineral claim, including the use of all the timber thereon, for the purpose of winning and getting from and out of such claim the minerals contained therein, including all operations connected therewith or with the business of mining. To have and to hold the same unto the said ALPINE GOLD LIMITED (NON PERSONAL LIABILITY)

its successors and assigns, for ever:

PROVIDED that the grant hereby made shall be subject to the laws for the time being in force respecting mineral claims.

PROVIDED also that no right to the use or possession of any travelled streets, roads, trails, and other highways existing over or through said lands at the date hereof shall pass by this grant.

PROVIDED also that it shall be lawful for Us, Our heirs and successors, or for any person by Our authority, to open up and use any portion of the said mineral claim (not exceeding one-twentieth part) for making roads, canals, bridges, towing-paths, or other works of public utility or convenience; but no portion of said claim shall be so opened up and used upon which any permanent buildings have been erected.

PROVIDED further that it shall be lawful for any person duly authorized by Us, Our heirs and successors, to take and occupy such water privileges, and to have and enjoy such right of carrying water over, through, or under any parts of the said land, as may be reasonably required for agricultural or other purposes in the vicinity of the said land, upon paying therefor a reasonable compensation to the aforesaid ALPINE GOLD LIMITED (NON PERSONAL LIABILITY)

its successors and assigns.

In testimony whereof, We have caused these Our Letters to be made Patent, and the Great Seal of *OUR PROVINCE OF BRITISH COLUMBIA* to be hereunto affixed: *WITNESS*, His Honour WILLIAM CULHAM WOODWARD Lieutenant-Governor of Our said Province, at Our Government House, in Our City of Victoria, this Eighteenth day of April, in the year of our Lord one thousand nine hundred and Forty-two and in the Sixth year of Our Reign.

By Command.

Deputy Provincial Secretary.

Mineral, F. 1, New
1M-541-2498

Traced by J.E.

Compared by J.H.R.

British Columbia

Crown Grant No. 3178
702

KOOTENAY DISTRICT

Alpine Gold Limited
(Non-Personal Liability)

Scale, 300 Feet = One Inch.

Lieutenant-Governor.

No. 3178

702

MINERAL ACT

Deputy Minister of Lands.

Compared.

PROVINCE OF BRITISH COLUMBIA.

GEORGE VI., by the Grace of God, of Great Britain, Ireland, and the British Dominions beyond the Seas, KING, Defender of the Faith, Emperor of India.

To all to whom these presents shall come, Greeting:

Know ye that We do by these presents, for Us, Our heirs and successors, in consideration of the fulfilment of the conditions of the laws providing for the acquisition of minerals other than coal, petroleum, and natural gas, give and grant unto ALPINE GOLD LIMITED (NON PERSONAL LIABILITY)

and assigns, all minerals, precious and base (save coal, petroleum, and natural gas), which may be found in veins, lodes, or rock in place, and whether such minerals are found separately or in combination with each other, under that Parcel or Lot of Land situate in KOOTENAY District, and numbered Lot Fifteen thousand and three (15003) on the Official Plan or Survey of the said KOOTENAY District, and known as the "ALPINE FRACTION" Mineral Claim, and the right to the use and possession of the surface of such mineral claim, including the use of all the timber thereon, for the purpose of winning and getting from and out of such claim the minerals contained therein, including all operations connected therewith or with the business of mining. To have and to hold the same unto the said ALPINE GOLD LIMITED (NON PERSONAL LIABILITY)

, its successors and assigns, for ever:

PROVIDED that the grant hereby made shall be subject to the laws for the time being in force respecting mineral claims.

PROVIDED also that no right to the use or possession of any travelled streets, roads, trails, and other highways existing over or through said lands at the date hereof shall pass by this grant.

PROVIDED also that it shall be lawful for Us, Our heirs and successors, or for any person by Our authority, to open up and use any portion of the said mineral claim (not exceeding one-twentieth part) for making roads, canals, bridges, towing-paths, or other works of public utility or convenience; but no portion of said claim shall be so opened up and used upon which any permanent buildings have been erected.

PROVIDED further that it shall be lawful for any person duly authorized by Us, Our heirs and successors, to take and occupy such water privileges, and to have and enjoy such right of carrying water over, through, or under any parts of the said land, as may be reasonably required for agricultural or other purposes in the vicinity of the said land, upon paying therefor a reasonable compensation to the aforesaid ALPINE GOLD LIMITED (NON PERSONAL LIABILITY)

, its successors and assigns.

In testimony whereof, We have caused these Our Letters to be made Patent, and the Great Seal of *OUR PROVINCE OF BRITISH COLUMBIA* to be hereunto affixed: *WITNESS,* His Honour WILLIAM CULHAM WOODWARD Lieutenant-Governor of Our said Province, at Our Government House, in Our City of Victoria, this Seventeenth day of April, in the year of our Lord one thousand nine hundred and Forty-two and in the Sixth year of Our Reign.

By Command.

Deputy Provincial Secretary.

Mineral, F. 1, New
1M-541-2498

Traced by JE

Compared by HPR.

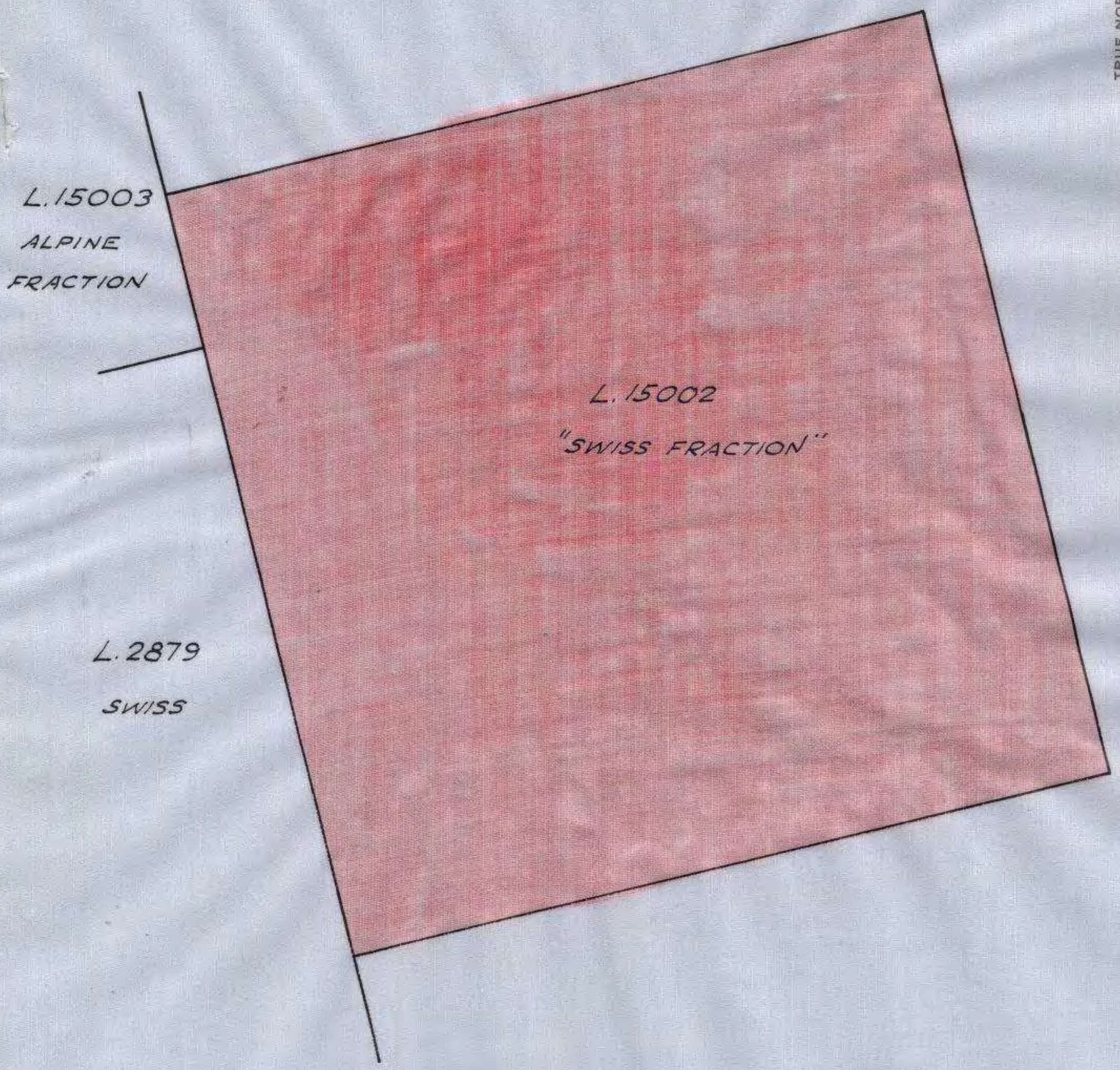
British Columbia

Crown Grant No. 3177
702

KOOTENAY DISTRICT

Alpine Gold Limited.
(Non-Personal Liability.)

Scale, 300 Feet = One Inch.



Lieutenant-Governor.

No. 3177

702

MINERAL ACT.

Deputy Minister of Lands.

Compared.

PROVINCE OF BRITISH COLUMBIA.

GEORGE VI., by the Grace of God, of Great Britain, Ireland, and the British Dominions beyond the Seas, KING, Defender of the Faith, Emperor of India.

To all to whom these presents shall come, Greeting:

Know ye that We do by these presents, for Us, Our heirs and successors, in consideration of the fulfilment of the conditions of the laws providing for the acquisition of minerals other than coal, petroleum, and natural gas, give and grant unto ALPINE GOLD LIMITED (NON PERSONAL LIABILITY)

its successors

and assigns, all minerals, precious and base (save coal, petroleum, and natural gas), which may be found in veins, lodes, or rock in place, and whether such minerals are found separately or in combination with each other, under that Parcel or Lot of Land situate in KOOTENAY District, and numbered Lot Fifteen thousand and two (15002) on the Official Plan or Survey of the said KOOTENAY District, and known as the "SWISS FRACTION" Mineral Claim, and the right to the use and possession of the surface of such mineral claim, including the use of all the timber thereon, for the purpose of winning and getting from and out of such claim the minerals contained therein, including all operations connected therewith or with the business of mining. To have and to hold the same unto the said ALPINE GOLD LIMITED (NON PERSONAL LIABILITY)

its successors and assigns, for ever:

PROVIDED that the grant hereby made shall be subject to the laws for the time being in force respecting mineral claims.

PROVIDED also that no right to the use or possession of any travelled streets, roads, trails, and other highways existing over or through said lands at the date hereof shall pass by this grant.

PROVIDED also that it shall be lawful for Us, Our heirs and successors, or for any person by Our authority, to open up and use any portion of the said mineral claim (not exceeding one-twentieth part) for making roads, canals, bridges, towing-paths, or other works of public utility or convenience; but no portion of said claim shall be so opened up and used upon which any permanent buildings have been erected.

PROVIDED further that it shall be lawful for any person duly authorized by Us, Our heirs and successors, to take and occupy such water privileges, and to have and enjoy such right of carrying water over, through, or under any parts of the said land, as may be reasonably required for agricultural or other purposes in the vicinity of the said land, upon paying therefor a reasonable compensation to the aforesaid ALPINE GOLD LIMITED (NON PERSONAL LIABILITY)

its successors and assigns.

In testimony whereof, We have caused these Our Letters to be made Patent, and the Great Seal of *OUR PROVINCE OF BRITISH COLUMBIA* to be hereunto affixed: *WITNESS*, His Honour WILLIAM CULLAM WOODWARD Lieutenant-Governor of Our said Province, at Our Government House, in Our City of Victoria, this Seventeenth day of April, in the year of our Lord one thousand nine hundred and Forty-two and in the Sixth year of Our Reign.

By Command.

Deputy Provincial Secretary.

Mineral, F. 1, New
1M-541-2498

Traced by [illegible]

Compared by [illegible]

British Columbia

Crown Grant No. 3176
702

KOOTENAY DISTRICT

Alpine Gold Limited.
(Non-Personal Liability.)

Scale, 300 Feet = One Inch.

100-741-3510

Lieutenant-Governor.

No. 3176

702

MINERAL ACT

Deputy Minister of Lands.

Compared.

PROVINCE OF BRITISH COLUMBIA.

GEORGE VI., by the Grace of God, of Great Britain, Ireland, and the British Dominions beyond the Seas, KING, Defender of the Faith, Emperor of India.

To all to whom these presents shall come, Greeting:

Know ye that We do by these presents, for Us, Our heirs and successors, in consideration of the fulfilment of the conditions of the laws providing for the acquisition of minerals other than coal, petroleum, and natural gas, give and grant unto ALPINE GOLD LIMITED (NON PERSONAL LIABILITY)

its successors and assigns, all minerals, precious and base (save coal, petroleum, and natural gas), which may be found in veins, lodes, or rock in place, and whether such minerals are found separately or in combination with each other, under that Parcel or Lot of Land situate in KOOTENAY District, and numbered Lot Fourteen thousand nine hundred and twenty-nine (14929) on the Official Plan or Survey of the said KOOTENAY District, and known as the "SITKUM" Mineral Claim, and the right to the use and possession of the surface of such mineral claim, including the use of all the timber thereon, for the purpose of winning and getting from and out of such claim the minerals contained therein, including all operations connected therewith or with the business of mining. To have and to hold the same unto the said ALPINE GOLD LIMITED (NON PERSONAL LIABILITY)

its successors and assigns, for ever:

PROVIDED that the grant hereby made shall be subject to the laws for the time being in force respecting mineral claims.

PROVIDED also that no right to the use or possession of any travelled streets, roads, trails, and other highways existing over or through said lands at the date hereof shall pass by this grant.

PROVIDED also that it shall be lawful for Us, Our heirs and successors, or for any person by Our authority, to open up and use any portion of the said mineral claim (not exceeding one-twentieth part) for making roads, canals, bridges, towing-paths, or other works of public utility or convenience; but no portion of said claim shall be so opened up and used upon which any permanent buildings have been erected.

PROVIDED further that it shall be lawful for any person duly authorized by Us, Our heirs and successors, to take and occupy such water privileges, and to have and enjoy such right of carrying water over, through, or under any parts of the said land, as may be reasonably required for agricultural or other purposes in the vicinity of the said land, upon paying therefor a reasonable compensation to the aforesaid ALPINE GOLD LIMITED (NON PERSONAL LIABILITY)

its successors and assigns.

In testimony whereof, We have caused these Our Letters to be made Patent, and the Great Seal of *OUR PROVINCE OF BRITISH COLUMBIA* to be hereunto affixed: *WITNESS*, His Honour WILLIAM CULHAM WOODWARD Lieutenant-Governor of Our said Province, at Our Government House, in Our City of Victoria, this Seventeenth day of April, in the year of our Lord one thousand nine hundred and Forty-two and in the Sixth year of Our Reign.

By Command.

Deputy Provincial Secretary.

Mineral, F. 1, New
1M-541-2498

Traced by TC.

Compared by HPP.

British Columbia

Crown Grant No. 3175
702.

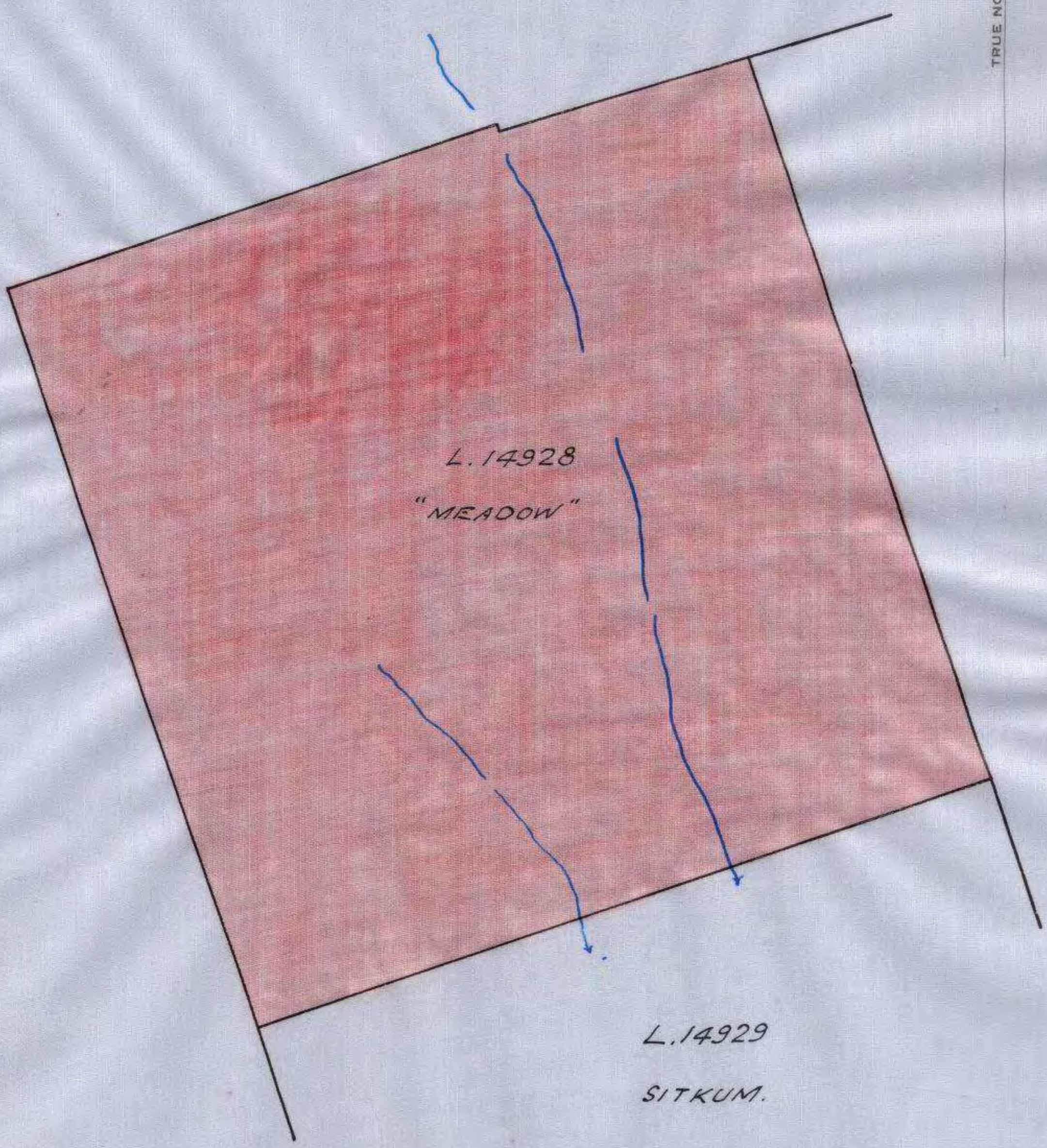
KOOTENAY DISTRICT

Alpine Gold Limited.
(Non-Personal Liability.)

Scale, 300 Feet = One Inch.

N

TRUE NORTH.



Lieutenant-Governor.

No. 3175

702

MINERAL ACT

Deputy Minister of Lands.

Compared.

PROVINCE OF BRITISH COLUMBIA.

GEORGE VI., by the Grace of God, of Great Britain, Ireland, and the British Dominions beyond the Seas, KING, Defender of the Faith, Emperor of India.

To all to whom these presents shall come, Greeting:

Know ye that We do by these presents, for Us, Our heirs and successors, in consideration of the fulfilment of the conditions of the laws providing for the acquisition of minerals other than coal, petroleum, and natural gas, give and grant unto ALPINE GOLD LIMITED (NON PERSONAL LIABILITY) its successors and assigns, all minerals, precious and base (save coal, petroleum, and natural gas), which may be found in veins, lodes, or rock in place, and whether such minerals are found separately or in combination with each other, under that Parcel or Lot of Land situate in KOOTENAY District, and numbered Lot Fourteen thousand nine hundred and twenty-eight (14928) on the Official Plan or Survey of the said KOOTENAY District, and known as the "MEADOW" Mineral Claim, and the right to the use and possession of the surface of such mineral claim, including the use of all the timber thereon, for the purpose of winning and getting from and out of such claim the minerals contained therein, including all operations connected therewith or with the business of mining. To have and to hold the same unto the said ALPINE GOLD LIMITED (NON PERSONAL LIABILITY) its successors and assigns, for ever:

PROVIDED that the grant hereby made shall be subject to the laws for the time being in force respecting mineral claims.

PROVIDED also that no right to the use or possession of any travelled streets, roads, trails, and other highways existing over or through said lands at the date hereof shall pass by this grant.

PROVIDED also that it shall be lawful for Us, Our heirs and successors, or for any person by Our authority, to open up and use any portion of the said mineral claim (not exceeding one-twentieth part) for making roads, canals, bridges, towing-paths, or other works of public utility or convenience; but no portion of said claim shall be so opened up and used upon which any permanent buildings have been erected.

PROVIDED further that it shall be lawful for any person duly authorized by Us, Our heirs and successors, to take and occupy such water privileges, and to have and enjoy such right of carrying water over, through, or under any parts of the said land, as may be reasonably required for agricultural or other purposes in the vicinity of the said land, upon paying therefor a reasonable compensation to the aforesaid ALPINE GOLD LIMITED (NON PERSONAL LIABILITY) its successors and assigns.

In testimony whereof, We have caused these Our Letters to be made Patent, and the Great Seal of *OUR PROVINCE OF BRITISH COLUMBIA* to be hereunto affixed: *WITNESS,* His Honour WILLIAM CULHAM WOODWARD Lieutenant-Governor of Our said Province, at Our Government House, in Our City of Victoria, this Seventeenth day of April, in the year of our Lord one thousand nine hundred and Forty-two and in the Sixth year of Our Reign.

By Command.

Deputy Provincial Secretary.

Mineral, F. 1, New
1M-541-2498

Traced by

Compared by

British Columbia

Crown Grant No. 5711
728

KOOTENAY DISTRICT

Alpine Gold Limited
(Non-Personal Liability)

Scale, 300 Feet = One Inch.

C.G 5711/728

Provided also that it shall be lawful at all times during the currency of Conditional Water Licence 14325 dated 15th of November, 1939, or of any other water licence hereafter issued in substitution thereof for the licensee under such Conditional or other substituted Water Licence to enter upon the lands hereby granted and to maintain, repair and operate thereon and therein the works authorized at the date of this grant under the said Conditional Water Licence.

Lieutenant-Governor.

No. 5711

728

LAND ACT.

Deputy Minister of Lands.

Compared.

PROVINCE OF BRITISH COLUMBIA.

GEORGE VI., by the Grace of God, of Great Britain, Ireland, and the British Dominions beyond the Seas, KING, Defender of the Faith, Emperor of India.

To all to whom these presents shall come, Greeting:

Know ye that We do by these presents, for Us, Our heirs and successors, in consideration of the sum of Two hundred and fifty-four Dollars to Us paid, give and grant unto ALPINE GOLD LIMITED (NON PERSONAL LIABILITY) its successors ~~heirs~~ and assigns All that Parcel or Lot of Land situate in KOOTENAY District, said to contain Fifty and 80/100 acres, more or less, and more particularly described on the Map or Plan hereunto annexed and coloured red, and numbered Lot Fourteen thousand nine hundred and twenty-two (14922) on the Official Plan or Survey of the said KOOTENAY District, in the Province of British Columbia, to have and to hold the said Parcel or Lot of Land, and all and singular the premises hereby granted, with their appurtenances, unto the said ALPINE GOLD LIMITED (NON PERSONAL LIABILITY) its successors ~~heirs~~ and assigns, for ever:

PROVIDED NEVERTHELESS that it shall at all times be lawful for Us, Our heirs and successors, or for any person or persons acting in that behalf by Our or their authority, to resume any part of the said lands which it may be deemed necessary to resume for making roads, canals, bridges, towing-paths, or other works of public utility or convenience; so, nevertheless, that the lands so to be resumed shall not exceed one-twentieth part of the whole of the lands aforesaid, and that no such resumption shall be made of any lands on which any buildings may have been erected, or which may be in use as gardens or otherwise for the more convenient occupation of any such buildings:

PROVIDED also that it shall at all times be lawful for Us, Our heirs and successors, or for any person or persons acting under Our or their authority, to enter into and upon any part of the said lands, and to raise and to get thereout any minerals, precious or base, including coal, petroleum, and natural gas, which may be thereupon or thereunder situate, and to use and enjoy any and every part of the same land, and of the easements and privileges thereto belonging, for the purpose of such raising and getting, and every other purpose connected therewith, paying in respect of such raising, getting, and use reasonable compensation:

PROVIDED also that it shall be lawful for any person duly authorized in that behalf by Us, Our heirs and successors, to take and occupy such water privileges, and to have and enjoy such rights of carrying water over, through, or under any parts of the hereditaments hereby granted, as may be reasonably required for mining or agricultural purposes in the vicinity of the said hereditaments, paying therefor a reasonable compensation to the aforesaid ALPINE GOLD LIMITED (NON PERSONAL LIABILITY) its successors ~~heirs~~ and assigns:

PROVIDED also that it shall be at all times lawful for any person duly authorized in that behalf by Us, Our heirs and successors, to take from or upon any part of the hereditaments hereby granted, without compensation, any gravel, sand, stone, lime, timber, or other material which may be required in the construction, maintenance, or repair of any roads, ferries, bridges, or other public works:

PROVIDED also that in the event of any of the lands hereby granted being divided into lots containing one acre or less, one-fourth of all the blocks of lots, or one-fourth of all the lots where the lots are not divided into blocks, to be selected as provided in the "Land Act," shall be reconveyed to Us and Our successors:

PROVIDED also that all highways, within the meaning of the "Highway Act," existing over or through said lands at the date hereof shall be exempted from this grant.

For further proviso refer to back hereof.

In testimony whereof, We have caused these Our Letters to be made Patent, and the Great Seal of *OUR PROVINCE OF BRITISH COLUMBIA* to be hereunto affixed: *WITNESS*, His Honour WILLIAM CULHAM WOODWARD Lieutenant-Governor of Our said Province, at Our Government House, in Our City of Victoria, this Twelfth day of April, in the year of our Lord one thousand nine hundred and Forty-four and in the Eighth year of Our Reign.

By Command.

Deputy Provincial Secretary.

Land Act, 1913
1M-244-8158

Traced by J.C.

Compared by H.H.R.

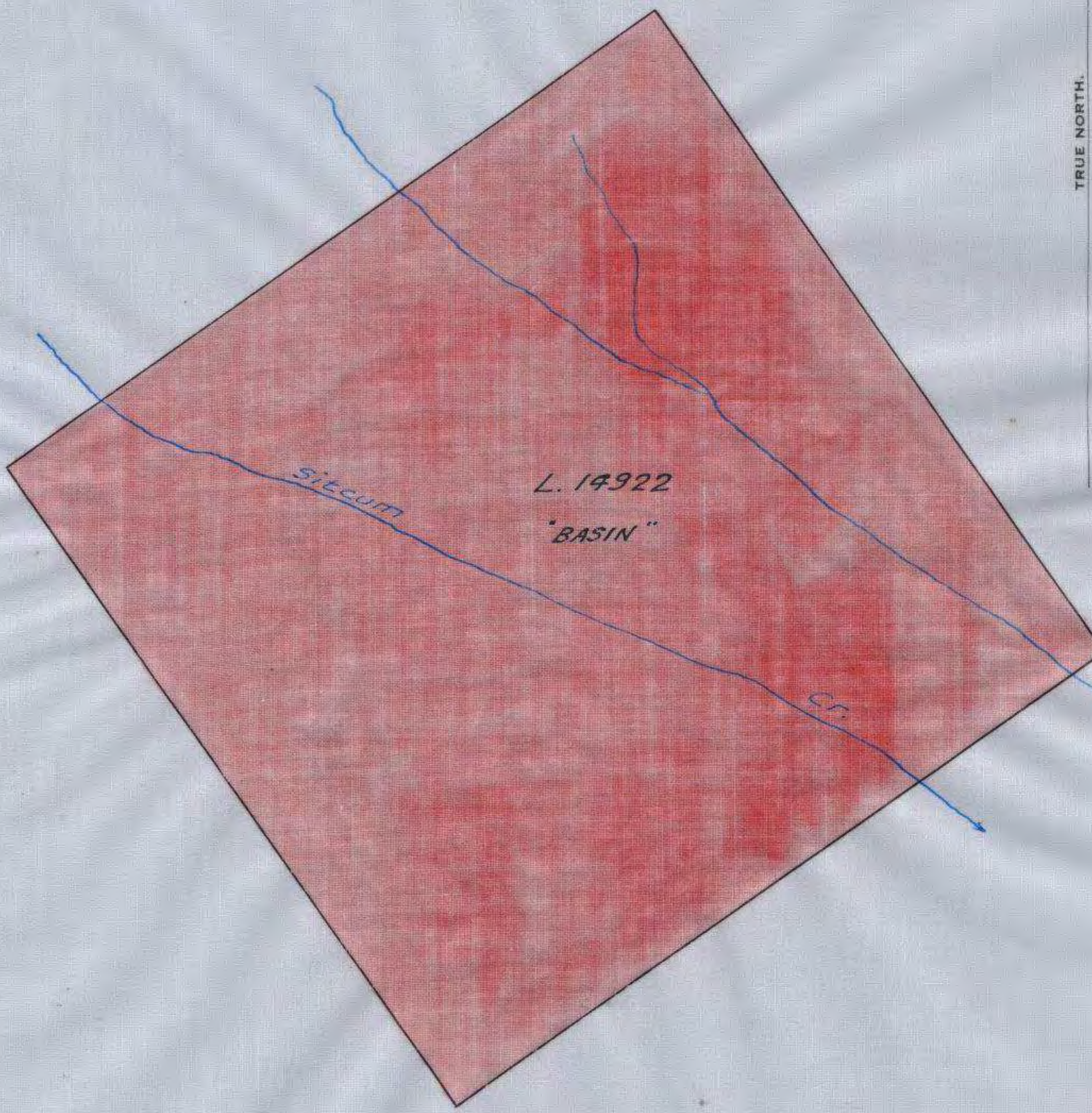
British Columbia

Crown Grant No. 1084
681

KOOTENAY DISTRICT

John Blackwood White

Scale, 300 Feet = One Inch.



100-639-225

Lieutenant-Governor.

No. 1084
681

MINERAL ACT

H. Cathcart
Deputy Minister of Lands.

Compared.

PROVINCE OF BRITISH COLUMBIA.

GEORGE VI., by the Grace of God, of Great Britain, Ireland, and the British Dominions beyond the Seas, KING, Defender of the Faith, Emperor of India.

To all to whom these presents shall come, Greeting:

Know ye that We do by these presents, for Us, Our heirs and successors, in consideration of the fulfilment of the conditions of the laws providing for the acquisition of minerals other than coal, petroleum, and natural gas, give and grant unto JOHN BLACKWOOD WHITE his heirs and assigns, all minerals, precious and base (save coal, petroleum, and natural gas), which may be found in veins, lodes, or rock in place, and whether such minerals are found separately or in combination with each other, under that Parcel or Lot of Land situate in KOOTENAY District, and numbered Lot Fourteen thousand nine hundred and twenty-two (14922) on the Official Plan or Survey of the said KOOTENAY District, and known as the "BASIN" Mineral Claim, and the right to the use and possession of the surface of such mineral claim, including the use of all the timber thereon, for the purpose of winning and getting from and out of such claim the minerals contained therein, including all operations connected therewith or with the business of mining. To have and to hold the same unto the said JOHN BLACKWOOD WHITE, his heirs and assigns, for ever:

PROVIDED that the grant hereby made shall be subject to the laws for the time being in force respecting mineral claims.

PROVIDED also that no right to the use or possession of any travelled streets, roads, trails, and other highways existing over or through said lands at the date hereof shall pass by this grant.

PROVIDED also that it shall be lawful for Us, Our heirs and successors, or for any person by Our authority, to open up and use any portion of the said mineral claim (not exceeding one-twentieth part) for making roads, canals, bridges, towing-paths, or other works of public utility or convenience; but no portion of said claim shall be so opened up and used upon which any permanent buildings have been erected.

PROVIDED further that it shall be lawful for any person duly authorized by Us, Our heirs and successors, to take and occupy such water privileges, and to have and enjoy such right of carrying water over, through, or under any parts of the said land, as may be reasonably required for agricultural or other purposes in the vicinity of the said land, upon paying therefor a reasonable compensation to the aforesaid JOHN BLACKWOOD WHITE, his heirs and assigns.

In testimony whereof, We have caused these Our Letters to be made Patent, and the Great Seal of *OUR PROVINCE OF BRITISH COLUMBIA* to be hereunto affixed: *WITNESS,* His Honour ERIC WERGE HAMBER Lieutenant-Governor of Our said Province, at Our Government House, in Our City of Victoria, this Fifteenth day of May, in the year of our Lord one thousand nine hundred and Forty and in the Fourth year of Our Reign.

By Command.

Deputy Provincial Secretary.

Mineral, F. 1, New
1M-1038-6224

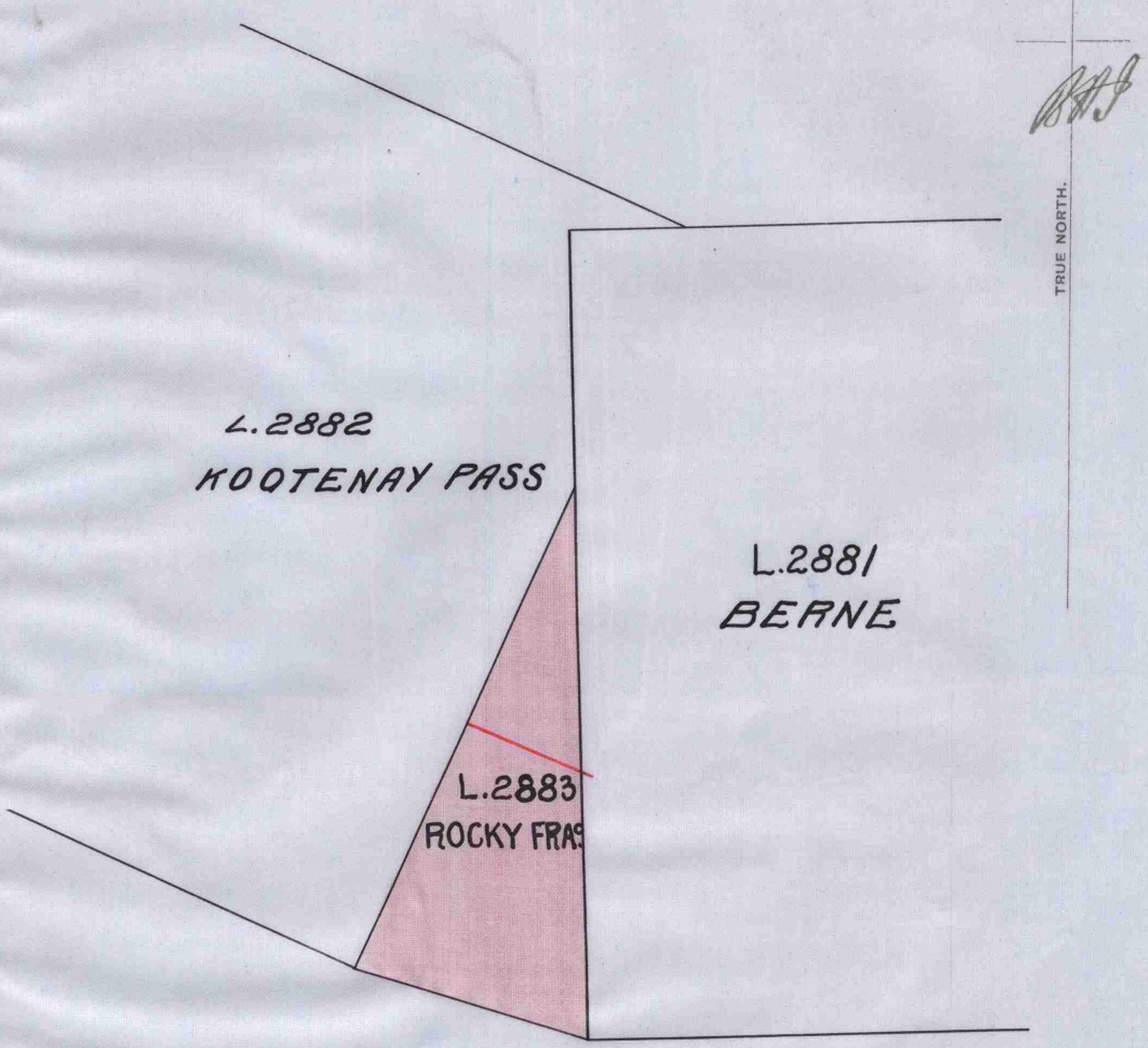
British Columbia.

Crown Grant No. 2193
131

KOOTENAY DISTRICT.

Berneau Creek.

Scale, 300 Feet = One Inch.



Henri G. Joly de Lotbiniere.

Lieutenant-Governor.

Entered in District Register and on Map.

Compared.

V. R.

"MINERAL ACT."

W. F. Gore

Deputy Commissioner of Lands & Works.

Province of
BRITISH COLUMBIA.

No. 2/23 Vol 131

Edward VII
Victoria, by the Grace of God, of the United Kingdom of Great Britain and Ireland, King.
Queen, Defender of the Faith.

To all to whom these presents shall come, Greeting:

Know ye, that We do by these presents, for US, Our heirs and successors, in consideration of the fulfilment of the conditions of the laws providing for the acquisition of minerals other than coal and petroleum, give and grant unto Herman Bleuer, Maximilian Heckmann, Charles Jaas, William H. Crawford and Henry Stege, their heirs

and assigns, all minerals, precious and base (save coal and petroleum) which may be found in veins, lodes or rock in place, and whether such minerals are found separately or in combination with each other, under that Parcel or Lot of Land situated in Kootenay

District, and numbered Lot Twenty-eight hundred and eighty-three (2883) Group One

on the Official Plan or Survey of the said

Kootenay District,

and known as the "Rocky Traditional" Mineral Claim, and the right to the use and possession of the surface of such mineral claim, including the use of all the timber thereon for the purpose of winning and getting from and out of such claim the minerals contained therein, including all operations connected therewith or with the business of mining. To have and to hold the same unto the said Herman Bleuer, as to an undivided 3/8 interest in the same, unto the said Maximilian Heckmann as to an undivided 3/8 interest in the same, unto the said Charles Jaas, as to an undivided 1/8 interest in the same, unto the said William H. Crawford as to an undivided 1/8 interest in the same, and unto the said Henry Stege as to an undivided 2/8 interest in the same, their heirs and assigns forever.

PROVIDED, that the grant hereby made shall be subject to the laws for the time being in force respecting mineral claims.

PROVIDED, also, that no right to the use or possession of any travelled streets, roads, trails and other highways existing over or through said lands at the date hereof shall pass by this grant.

PROVIDED, also, that it shall be lawful for Us, Our heirs and successors, or for any person by Our authority, to open up and use any portion of the said mineral claim (not exceeding one-twentieth part) for making roads, canals, bridges, towing-paths, or other works of public utility or convenience; but no portion of said claim shall be so opened up and used upon which any permanent buildings have been erected.

In testimony whereof We have caused these Our Letters to be made Patent, and the Great Seal of **Our Province of British Columbia** to be hereunto affixed: **Witness,** His Honour The Honourable Sir Henri Gustabe Joly de Lotbiniere, K.C.M.G. Lieutenant-Governor of Our said Province, at Our Government House, in Our City of Victoria, this twenty-seventh day of December, in the year of Our Lord one thousand nine hundred and one, and in the first year of Our Reign.

By Command.

J L Retallack

Acting *Provincial Secretary.*

British Columbia.

Crown Grant No. 2192
131

KOOTENAY DISTRICT.

Berne Creek et al.

Scale, 300 Feet = One Inch.

Entered in District Register and on Map.

Compared.

Lieutenant-Governor.

V. R.

"MINERAL ACT."

Deputy Commissioner of Lands & Works.

Province of BRITISH COLUMBIA.

No. 2492 Vol. 131

Edward VII by the Grace of God, of the United Kingdom of Great Britain and Ireland, King, Queen, Defender of the Faith.

To all to whom these presents shall come, Greeting:

Know ye, that We do by these presents, for US, Our heirs and successors, in consideration of the fulfilment of the conditions of the laws providing for the acquisition of minerals other than coal and petroleum, give and grant unto Herman Glaser, Maximilian Heckmann, Charles Jaas, William H. Crawford and Henry Stege, their heirs and assigns, all minerals, precious and base (save coal and petroleum) which may be found in veins, lodes or rock in place, and whether such minerals are found separately or in combination with each other, under that Parcel or Lot of Land situated in Kootenay District, and numbered Lot Twenty-eight hundred and eighty-two (2882) Group One (1) on the Official Plan or Survey of the said Kootenay District, and known as the "Kootenay Fraas" Mineral Claim, and the right to the use and possession of the surface of such mineral claim, including the use of all the timber thereon for the purpose of winning and getting from and out of such claim the minerals contained therein, including all operations connected therewith or with the business of mining. To have and to hold the same unto the said Herman Glaser, as to an undivided 2/8 interest in the same, unto the said Maximilian Heckmann, as to an undivided 2/8 interest in the same, unto the said Charles Jaas as to an undivided 1/8 interest in the same, unto the said William H. Crawford as to an undivided 1/8 interest in the same, and unto the said Henry Stege as to an undivided 2/8 interest in the same, their heirs and assigns for ever:

PROVIDED, that the grant hereby made shall be subject to the laws for the time being in force respecting mineral claims.

PROVIDED, also, that no right to the use or possession of any travelled streets, roads, trails and other highways existing over or through said lands at the date hereof shall pass by this grant.

PROVIDED, also, that it shall be lawful for Us, Our heirs and successors, or for any person by Our authority, to open up and use any portion of the said mineral claim (not exceeding one-twentieth part) for making roads, canals, bridges, towing-paths, or other works of public utility or convenience; but no portion of said claim shall be so opened up and used upon which any permanent buildings have been erected.

In testimony whereof We have caused these Our Letters to be made Patent, and the Great Seal of **Our Province of British Columbia** to be hereunto affixed: **Witness,** His Honour The Honourable Sir Henri Gustave Joly de Lotbinière, K.C.M.G., Lieutenant-Governor of Our said Province, at Our Government House, in Our City of Victoria, this twenty-seventh day of December, in the year of Our Lord one thousand nine hundred and one, and in the first year of Our Reign.

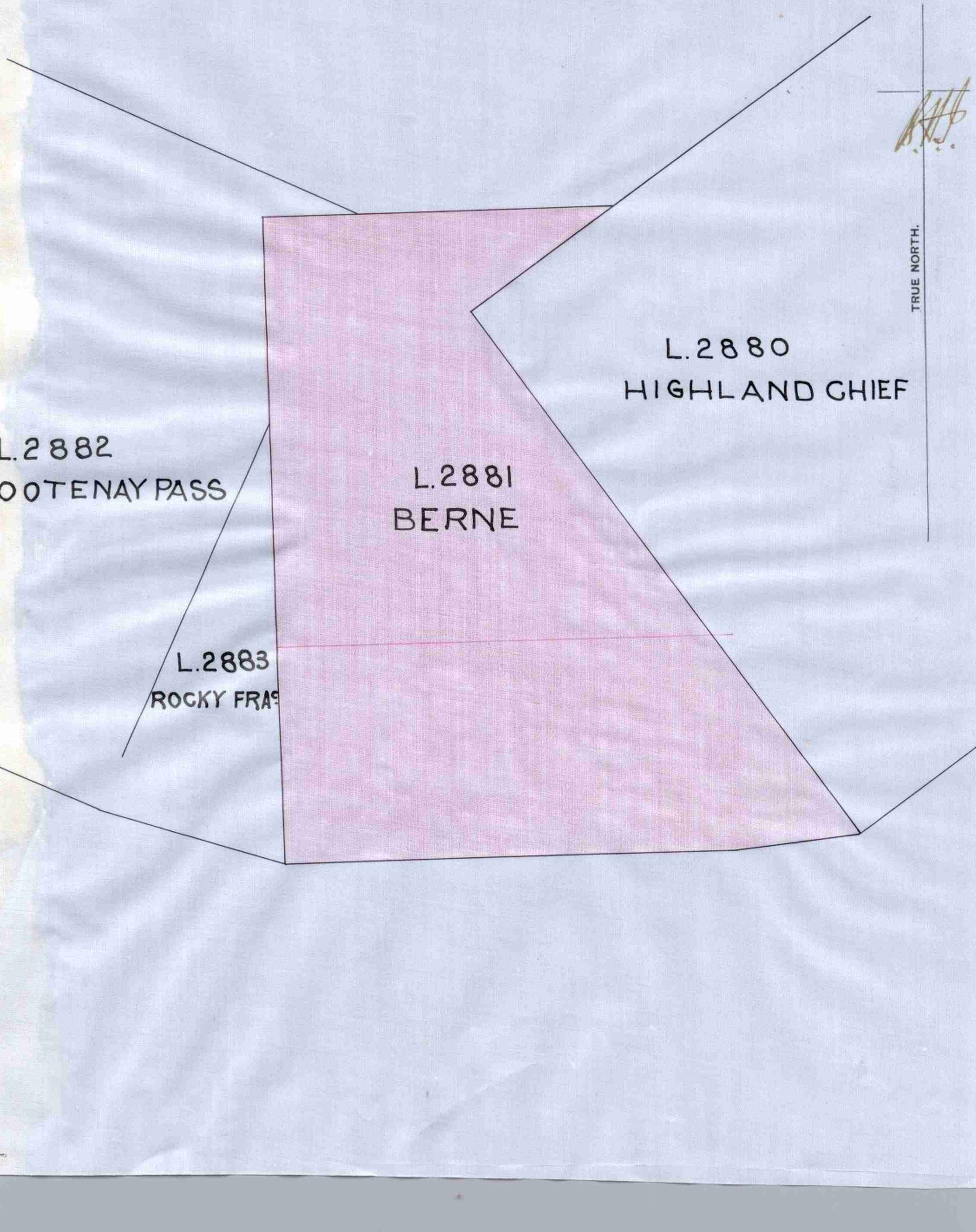
By Command.

Provincial Secretary.

KOOTENAY DISTRICT.

Chas Lansky, Ry Stege, Herman Glover, Wm Crawford, Max Heckmann. C. G. 1077/108.

Scale, 300 Feet = One Inch.



V. R.

Lieutenant-Governor.

"MINERAL ACT."

Province of
BRITISH COLUMBIA.

Deputy Commissioner of Lands & Works.

No. 1074

108

Victoria, by the Grace of God, of the United Kingdom of Great Britain and Ireland, **Queen,** Defender of the Faith.

To all to whom these presents shall come, Greeting:

Know ye, that We do by these presents, for US, Our Heirs and Successors, in consideration of the fulfilment of the conditions of the laws providing for the acquisition of minerals other than coal and petroleum, give and grant unto Charles Faas, Henry Stege, Herman Cleven William H. Crawford and Max Heckman their heirs and assigns, all minerals, precious and base (save coal and petroleum) which may be found in veins, lodes or rock in place, and whether such minerals are found separately or in combination with each other, under that parcel or lot of land situate in Kootenay District, and numbered Lot Two Thousand eight Hundred and eighty one (2881) Group one (1) on the official plan or survey of the said, Kootenay District and known as the Berne Mineral Claim and the right to the use and possession of the surface of such mineral claim, including the use of all the timber thereon for the purpose of winning and getting from and out of such claim the minerals contained therein, including all operations connected therewith or with the business of mining.

PROVIDED, that the grant hereby made shall be subject to the laws for the time being in force respecting mineral claims.

PROVIDED, also, that no right to the use or possession of any travelled streets, roads, trails and other highways existing over or through said lands at the date hereof shall pass by this grant.

PROVIDED, also, that it shall be lawful for Us, Our heirs and successors, or for any person by Our authority to open up and use any portion of the said mineral claim (not exceeding one-twentieth part) for making roads, canals, bridges, towing paths or other works of public utility or convenience; but no portion of said claim shall be so opened up and used upon which any permanent buildings have been erected.

In testimony whereof We have caused these Our Letters to be made Patent, and the Great Seal of **Our Province of British Columbia** to be hereunto affixed: **Witness,** His Honour Thomas Robert McInnes Lieutenant-Governor of Our said Province, at Our Government House, in Our City of Victoria, this Fourteenth day of September, in the year of Our Lord one thousand eight hundred and ninety-nine, and in the Sixty Third year of Our Reign.

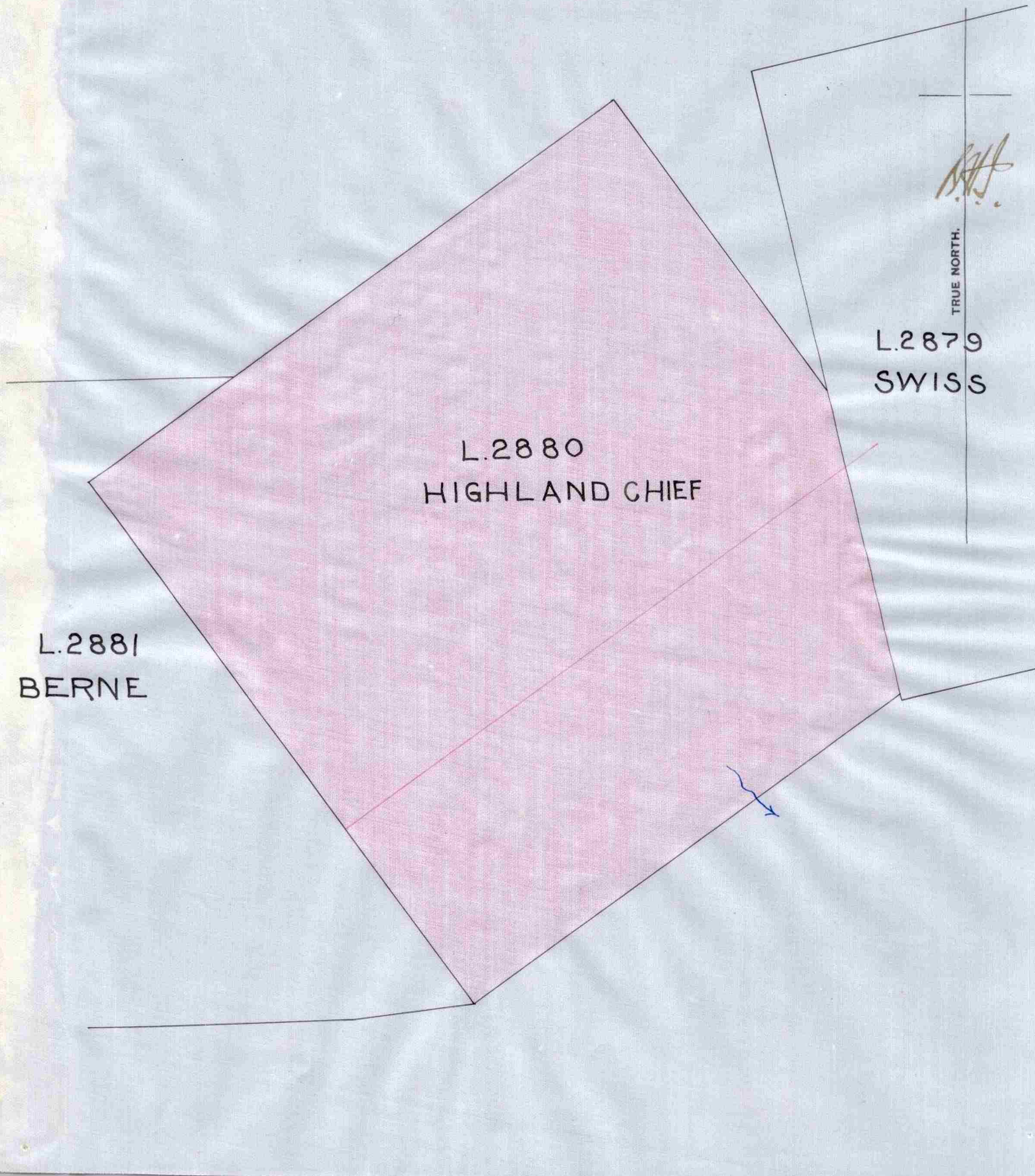
By Command.

Provincial Secretary.

KOOTENAY DISTRICT.

Chas Fraas, Hy Stege, Herman Glover, Wm H. Crawford & Max Heckmann C. G. 1076/108.

Scale, 300 Feet = One Inch.



V. R.

Lieutenant-Governor.

"MINERAL ACT."

W. S. Gore

Deputy Commissioner of Lands & Works.

Province of
BRITISH COLUMBIA.

No. 1076
108

Victoria, by the Grace of God, of the United Kingdom of Great Britain and Ireland, **Queen,** Defender of the Faith.

To all to whom these presents shall come, Greeting:

Know ye, that We do by these presents, for US, Our Heirs and Successors, in consideration of the fulfilment of the conditions of the laws providing for the acquisition of minerals other than coal and petroleum, give and grant unto Charles Faas, Henry Stege, Herman Cleven William H. Crawford and Max Heckman their heirs and assigns, all minerals, precious and base (save coal and petroleum) which may be found in veins, lodes or rock in place, and whether such minerals are found separately or in combination with each other, under that parcel or lot of land situate in Kootenay District, and numbered Lot Two thousand eight hundred and eighty (2880) Group one (1) on the official plan or survey of the said, Kootenay District and known as the Highland Chief Mineral Claim and the right to the use and possession of the surface of such mineral claim, including the use of all the timber thereon for the purpose of winning and getting from and out of such claim the minerals contained therein, including all operations connected therewith or with the business of mining.

PROVIDED, that the grant hereby made shall be subject to the laws for the time being in force respecting mineral claims.

PROVIDED, also, that no right to the use or possession of any travelled streets, roads, trails and other highways existing over or through said lands at the date hereof shall pass by this grant.

PROVIDED, also, that it shall be lawful for Us, Our heirs and successors, or for any person by Our authority to open up and use any portion of the said mineral claim (not exceeding one-twentieth part) for making roads, canals, bridges, towing paths or other works of public utility or convenience; but no portion of said claim shall be so opened up and used upon which any permanent buildings have been erected.

In testimony whereof We have caused these Our Letters to be made Patent, and the Great Seal of **Our Province of British Columbia** to be hereunto affixed: **Witness,** His Honour Thomas Robert Mc. Innes Lieutenant-Governor of Our said Province, at Our Government House, in Our City of Victoria, this Fourteenth day of September in the year of Our Lord one thousand eight hundred and ninety-nine, and in the Sixty Third year of Our Reign.

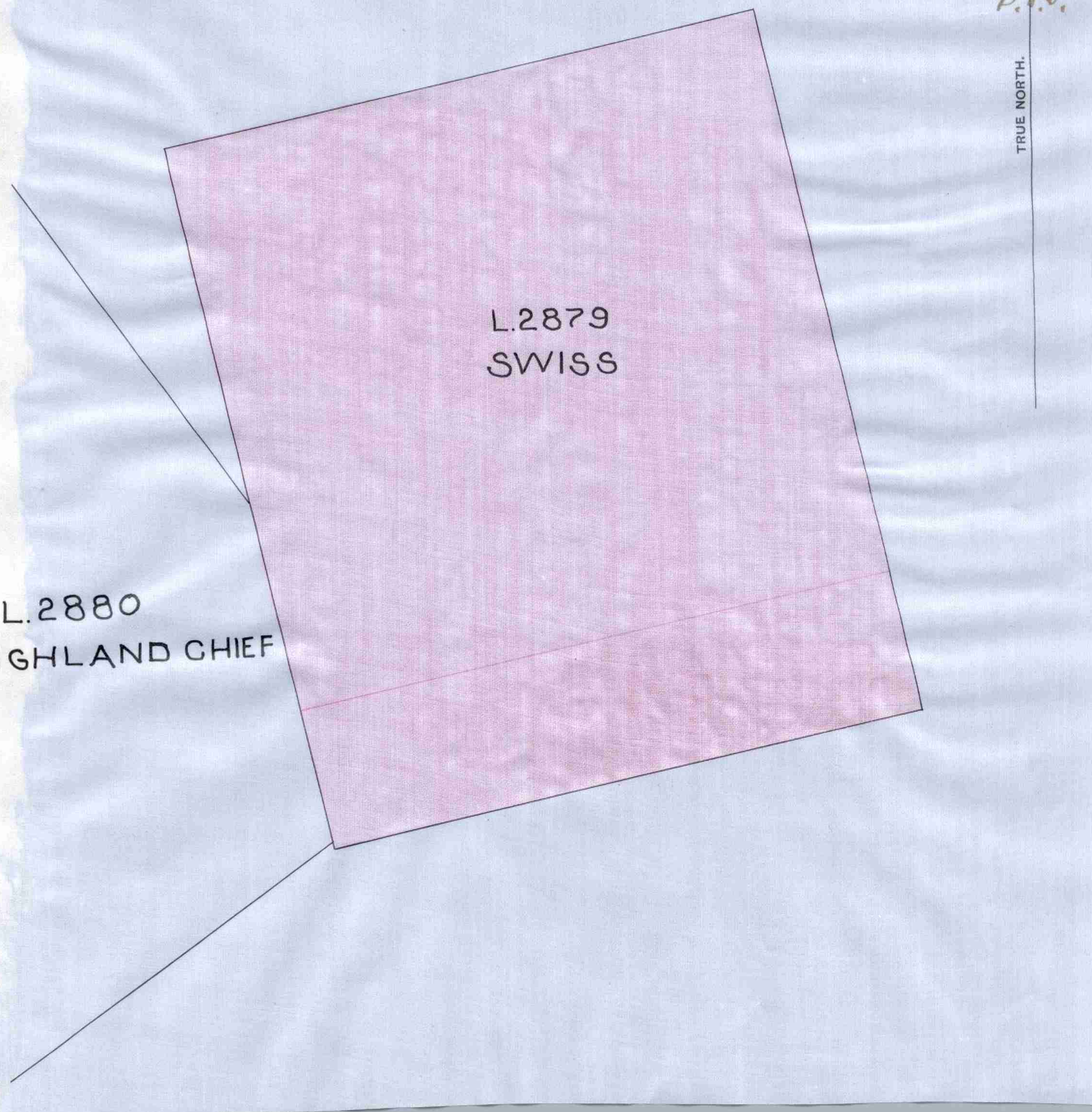
By Command.

Provincial Secretary.

KOOTENAY DISTRICT.

Chas Fraas, Hy Stege, Herman Glever, Wm H. Crawford & Mac Perkins. C. G. 1075/108

Scale, 300 Feet = One Inch.



V. R.

Lieutenant-Governor.

"MINERAL ACT."

Deputy Commissioner of Lands & Works.

Province of
BRITISH COLUMBIA.

No. 1075
108

Victoria, by the Grace of God, of the United Kingdom of Great Britain and Ireland, **Queen,** Defender of the Faith.

To all to whom these presents shall come, Greeting:

Know ye, that We do by these presents, for US, Our Heirs and Successors, in consideration of the fulfilment of the conditions of the laws providing for the acquisition of minerals other than coal and petroleum, give and grant unto Charles Faas, Henry Stege, Herman Clever William H. Crawford and Max Reckmann their heirs and assigns, all minerals, precious and base (save coal and petroleum) which may be found in veins, lodes or rock in place, and whether such minerals are found separately or in combination with each other, under that parcel or lot of land situate in Kootenay District, and numbered Lot Two thousand eight hundred and seventy nine (2879) Group one (1) on the official plan or survey of the said, Kootenay District and known as the Swiss Mineral Claim

and the right to the use and possession of the surface of such mineral claim, including the use of all the timber thereon for the purpose of winning and getting from and out of such claim the minerals contained therein, including all operations connected therewith or with the business of mining.

PROVIDED, that the grant hereby made shall be subject to the laws for the time being in force respecting mineral claims.

PROVIDED, also, that no right to the use or possession of any travelled streets, roads, trails and other highways existing over or through said lands at the date hereof shall pass by this grant.

PROVIDED, also, that it shall be lawful for Us, Our heirs and successors, or for any person by Our authority to open up and use any portion of the said mineral claim (not exceeding one-twentieth part) for making roads, canals, bridges, towing paths or other works of public utility or convenience; but no portion of said claim shall be so opened up and used upon which any permanent buildings have been erected.

In testimony whereof We have caused these Our Letters to be made Patent, and the Great Seal of **Our Province of British Columbia** to be hereunto affixed: **Witness,** His Honour Thomas Robert Mc Innes Lieutenant-Governor of Our said Province, at Our Government House, in Our City of Victoria, this Fourteenth day of September, in the year of Our Lord one thousand eight hundred and ninety-nine, and in the Sixty third year of Our Reign.

By Command.

Provincial Secretary.

Lieutenant-Governor.

No. 7330
644

TAXATION ACT.

Deputy Minister of Lands.

Compared

PROVINCE OF BRITISH COLUMBIA.

GEORGE VI.,
~~EDWARD VIII.~~, by the Grace of God, of Great Britain, Ireland, and the British Dominions beyond the Seas, KING, Defender of the Faith, Emperor of India.

To all to whom these presents shall come, Greeting:

Know ye that We do by these presents, for Us, Our heirs and successors, in consideration of the sum of Thirty-five and 23/100 Dollars to Us paid, give and grant unto BERT NORRIS SHARP his heirs and assigns, all minerals, precious and base (save coal, petroleum, and natural gas), which may be found in veins, lodes, or rock in place, and whether such minerals are found separately or in combination with each other, under all that Parcel or Lot of Land situate in KOOTENAY District, and numbered Lot Two thousand two hundred and sixteen (2216) on the Official Plan or Survey of the said KOOTENAY District, and known as the "CROWN POINT NO.6" Mineral Claim, and the right to the use and possession of the surface of such mineral claim, including the use of all the timber thereon, for the purpose of winning and getting from and out of such claim the minerals contained therein, including all operations connected therewith or with the business of mining. To have and to hold the same unto the said BERT NORRIS SHARP his heirs and assigns for ever.

PROVIDED that the grant hereby made shall be subject to the laws for the time being in force respecting mineral claims.

PROVIDED also that no right to the use or possession of any travelled streets, roads, trails, and other highways existing over or through said lands at the date hereof shall pass by this grant.

PROVIDED also that it shall be lawful for Us, Our heirs and successors, or for any person by Our authority, to open up and use any portion of the said mineral claim (not exceeding one-twentieth part) for making roads, canals, bridges, towing-paths, or other works of public utility or convenience; but no portion of said claim shall be so opened up and used upon which any permanent buildings have been erected.

In testimony whereof, We have caused these Our Letters to be made Patent, and the Great Seal of *OUR PROVINCE OF BRITISH COLUMBIA* to be hereunto affixed: *WITNESS*, His Honour ERIC WERGE HAMBER Lieutenant-Governor of Our said Province, at Our Government House, in Our City of Victoria, this First day of February, in the year of our Lord one thousand nine hundred and Thirty-seven and in the First year of Our Reign.

By Command.

Deputy Provincial Secretary.

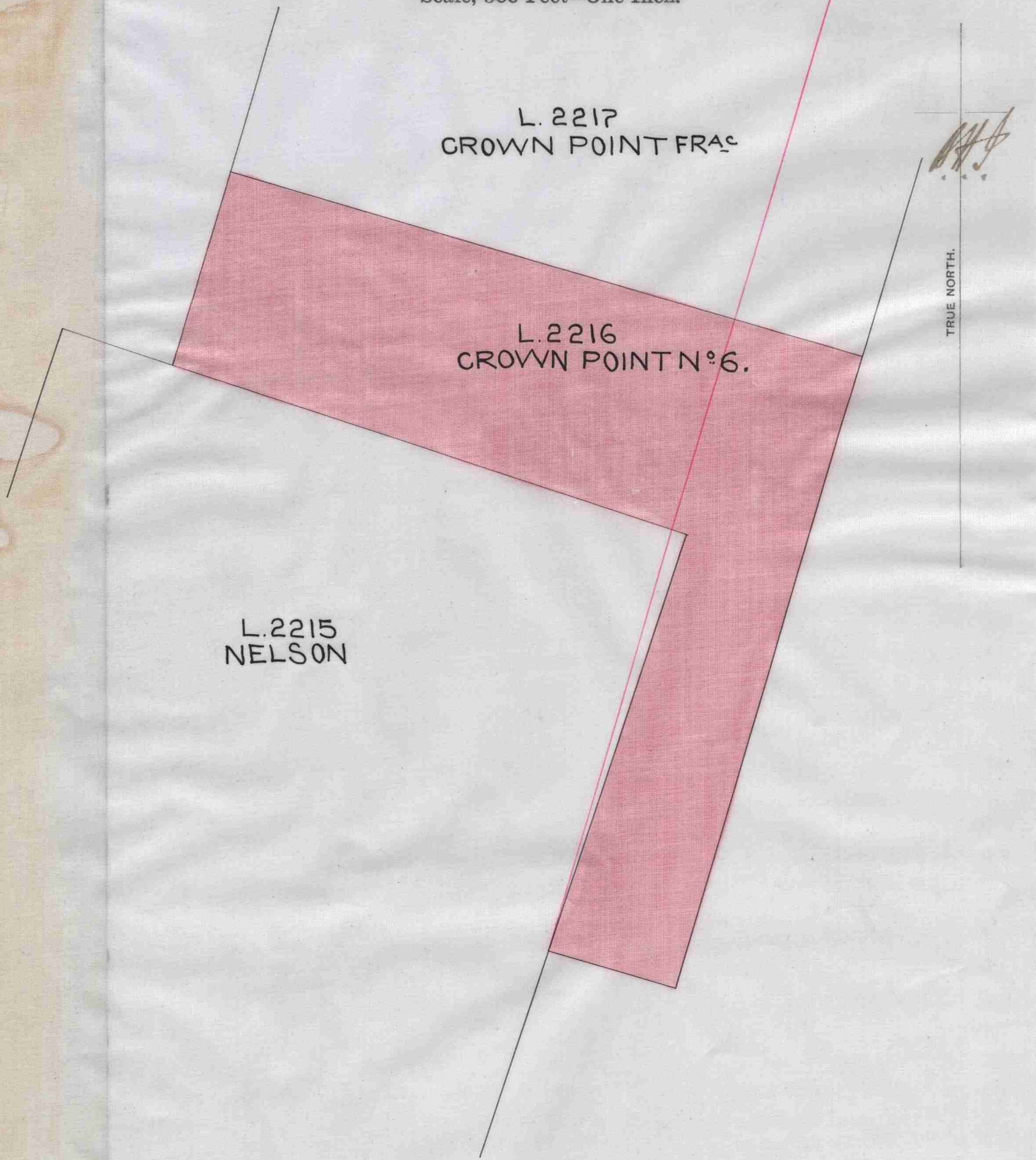
Taxation Min., F. 1.
200-936-2294

KOOTENAY DISTRICT.

Louis Herkimer.

C. G. 794/104.

Scale, 300 Feet—One Inch.



Entered in District Register and on Map.

Compared.

V. R.

Lieutenant-Governor.

"MINERAL ACT."

W. S. Gore

Deputy Commissioner of Lands & Works.

Province of BRITISH COLUMBIA.

No. 794 / 104

Victoria, by the Grace of God, of the United Kingdom of Great Britain and Ireland, **Queen,** Defender of the Faith.

To all to whom these presents shall come, Greeting:

Know ye, that We do by these presents, for US, Our Heirs and Successors, in consideration of the fulfilment of the conditions of the laws providing for the acquisition of minerals other than coal give and grant unto Louis Heckmann

his heirs and assigns, all that Parcel or lot of Land situate in Kootenay District and numbered Lot Two thousand two hundred and sixteen (2216) Group One (1) and known as the "Crown Point No. 6" mineral claim

on the Official Plan or Survey of the said Kootenay District, to have and to hold the said Parcel of Land, and all minerals, precious and base (save coal), which may be found therein in veins, lodes, or rock in place, and whether such minerals are found separately or in combination with each other, unto the said Louis Heckmann

his heirs and assigns forever:

PROVIDED that it shall at all times be lawful for Us, Our heirs and successors, or for any person by Our authority, to resume any portion (not exceeding one-twentieth part) of the said lands for making roads, canals, bridges, towing-paths, or other works of public utility or convenience, but no such resumption shall be made of land on which any permanent buildings may have been erected:

PROVIDED, also, that the grant hereby made of the said lands shall be subject to the laws for the time being in force respecting mineral lands held in fee simple:

PROVIDED, further, that it shall be lawful for any person duly authorised by Us, Our heirs and successors, to take and occupy such water privileges, and to have and enjoy such right of carrying water over, through, or under any parts of the hereditaments hereby granted, as may be reasonably required for agricultural or other purposes in the vicinity of the said land, upon paying therefor a reasonable compensation to the aforesaid Louis Heckmann

his heirs and assigns.

Provided also that all travelled streets, roads, trails and other highways existing over or through said lands at the date hereof shall be excepted from this grant.

In testimony whereof We have caused these Our Letters to be made Patent, and the Great Seal of **Our Province of British Columbia** to be hereunto affixed: **Witness,** His Honour Thomas Robert McInnes Lieutenant-Governor of Our said Province, at Our Government House, in Our City of Victoria, this Seventh day of February, in the year of Our Lord one thousand eight hundred and ninety nine, and in the sixty second year of Our Reign.

By Command.

sgd J. Fred Hume

Provincial Secretary.

Lieutenant-Governor.

No. 7329
644

TAXATION ACT.

Deputy Minister of Lands.

Compared.

PROVINCE OF BRITISH COLUMBIA.

GEORGE VI., ~~EDWARD VIII.~~, by the Grace of God, of Great Britain, Ireland, and the British Dominions beyond the Seas, KING, Defender of the Faith, Emperor of India.

To all to whom these presents shall come, Greeting:

Know ye that We do by these presents, for Us, Our heirs and successors, in consideration of the sum of Seventy-four and 04/100 Dollars to Us paid, give and grant unto WELLINGTON SAMUEL HARRIS his heirs and assigns, all minerals, precious and base (save coal, petroleum, and natural gas), which may be found in veins, lodes, or rock in place, and whether such minerals are found separately or in combination with each other, under all that Parcel or Lot of Land situate in KOOTENAY District, and numbered Lot Two thousand two hundred and fifteen (2215) on the Official Plan or Survey of the said KOOTENAY District, and known as the "NELSON NO. 5" Mineral Claim, and the right to the use and possession of the surface of such mineral claim, including the use of all the timber thereon, for the purpose of winning and getting from and out of such claim the minerals contained therein, including all operations connected therewith or with the business of mining. To have and to hold the same unto the said WELLINGTON SAMUEL HARRIS his heirs and assigns for ever.

PROVIDED that the grant hereby made shall be subject to the laws for the time being in force respecting mineral claims.

PROVIDED also that no right to the use or possession of any travelled streets, roads, trails, and other highways existing over or through said lands at the date hereof shall pass by this grant.

PROVIDED also that it shall be lawful for Us, Our heirs and successors, or for any person by Our authority, to open up and use any portion of the said mineral claim (not exceeding one-twentieth part) for making roads, canals, bridges, towing-paths, or other works of public utility or convenience; but no portion of said claim shall be so opened up and used upon which any permanent buildings have been erected.

In testimony whereof, We have caused these Our Letters to be made Patent, and the Great Seal of *OUR PROVINCE OF BRITISH COLUMBIA* to be hereunto affixed: *WITNESS*, His Honour ERIC WERGE HAMBER Lieutenant-Governor of Our said Province, at Our Government House, in Our City of Victoria, this First day of February, in the year of our Lord one thousand nine hundred and Thirty-seven and in the First year of Our Reign.

By Command.

Deputy Provincial Secretary.

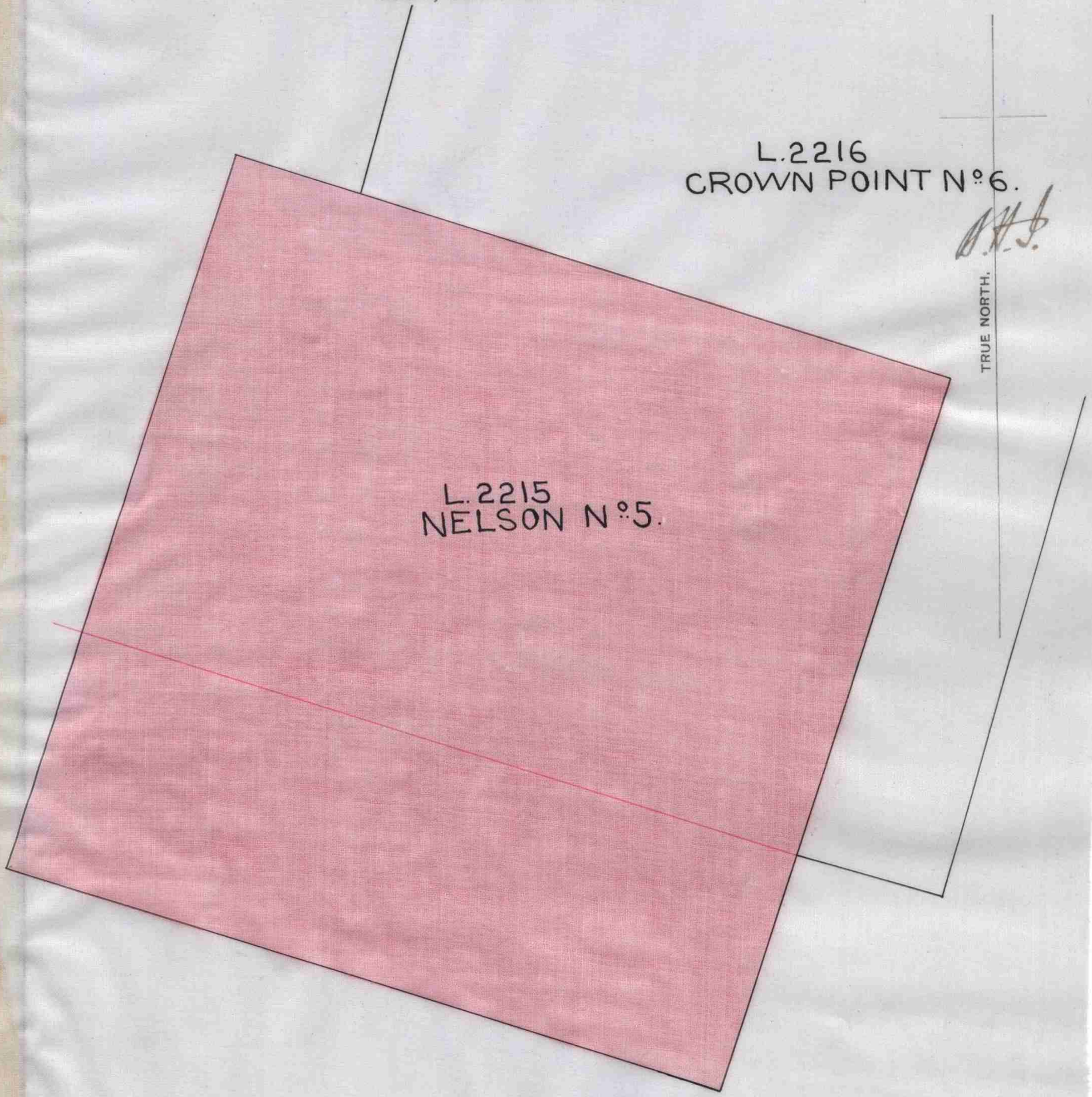
Taxation Min., F. 1.
200-936-2294

KOOTENAY DISTRICT.

John Mackinnon.

C. G. $\frac{795}{104}$.

Scale, 300 Feet—One Inch.



Entered in District Register and on Map.

Compared.

V. R.

Lieutenant-Governor.

"MINERAL ACT."

Deputy Commissioner of Lands & Works.

Province of
BRITISH COLUMBIA.

No. 795
104

Victoria, by the Grace of God, of the United Kingdom of Great Britain and Ireland, **Queen,** Defender of the Faith.

To all to whom these presents shall come, Greeting:

Know ye, that We do by these presents, for US, Our Heirs and Successors, in consideration of the fulfilment of the conditions of the laws providing for the acquisition of minerals other than coal give and grant unto John Mackinnon

his heirs and assigns, all that Parcel or lot of Land situate in Kootenay District and numbered Lot One Thousand two hundred and fifteen (1215) Group One (1) and known as the "Nelson No 5" mineral claim

on the Official Plan or Survey of the said Kootenay District, to have and to hold the said Parcel of Land, and all minerals, precious and base (save coal), which may be found therein in veins, lodes, or rock in place, and whether such minerals are found separately or in combination with each other, unto the said John Mackinnon

his heirs and assigns forever:

PROVIDED that it shall at all times be lawful for Us, Our heirs and successors, or for any person by Our authority, to resume any portion (not exceeding one-twentieth part) of the said lands for making roads, canals, bridges, towing-paths, or other works of public utility or convenience, but no such resumption shall be made of land on which any permanent buildings may have been erected:

PROVIDED, also, that the grant hereby made of the said lands shall be subject to the laws for the time being in force respecting mineral lands held in fee simple:

PROVIDED, further, that it shall be lawful for any person duly authorised by Us, Our heirs and successors, to take and occupy such water privileges, and to have and enjoy such right of carrying water over, through, or under any parts of the hereditaments hereby granted, as may be reasonably required for agricultural or other purposes in the vicinity of the said land, upon paying therefor a reasonable compensation to the aforesaid John Mackinnon

his heirs and assigns.

Provided, also, that all travelled streets, roads, trails and other highways existing over or through said lands at the date hereof shall be excepted from this grant.

In testimony whereof We have caused these Our Letters to be made Patent, and the Great Seal of **Our Province of British Columbia** to be hereunto affixed: **Witness,** His Honour Thomas Robert McInnes Lieutenant-Governor of Our said Province, at Our Government House, in Our City of Victoria, this Eighth day of February, in the year of Our Lord one thousand eight hundred and Ninety-nine and in the Sixty-second year of Our Reign.

By Command.

Edgar J. Fred Deane

Provincial Secretary.

Allen Matovich
P.O. Box 110
Montrose, BC V0G 1P0

Theodore Muraro
4438 Stone Court
West Vancouver, BC V7W 2V5

March 18, 2017

TO WHOM IT MAY CONCERN:

RE: ALPINE MINE PROPERTY – PERMISSION TO OPERATE

The Alpine Property (**"the Property"**), owned by ourselves, Allen Matovich and Theodore Muraro, has been conditionally sold to Braveheart Resources Inc. (**"Braveheart"**) The attached agreement between the parties accurately describes the payment and work conditions that must be met by Braveheart in order to earn a 100% interest in the Property.

Schedule A of the agreement lists all the properties that make up the Property including crown grants and staked claims along with their associated lot and tenure numbers.

By way of this letter, Braveheart is hereby granted permission to carry out all exploration and exploitation activities as they see fit that will be directed towards complete fulfillment of the conditions attached to the sale of the Property to them.

Allen Matovich

Theodore Muraro

Date: March 22/17

Appendix II

Statement of Qualifications

CERTIFICATE OF QUALIFIED PERSON

I, Michael A. McCuaig, do hereby certify that:

1. I am a Geologist, registered with the Engineers and Geoscientists British Columbia (P.Geo. Registration number 39402).
2. I am a full-time contract employee of TerraLogic Exploration Inc., Suite 200, 44-12th Avenue South, Cranbrook, British Columbia and reside at 418 Alpine Crescent, Kimberley, British Columbia.
3. I graduated from St. Francis Xavier University, Antigonish, Nova Scotia with a Bachelor of Science Degree in 2003.
4. I have worked for 12 years as a geologist in North America.
5. I have read the definition of "qualified person" set out in the National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with professional associations (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
6. I have read NI 43-101 and 43-101F1 and the Technical Report has been prepared in compliance with these guidelines.
7. I am familiar with the Alpine Property, having worked on the property during the 2017 exploration program on behalf of Braveheart Resources Ltd.
8. I am independent of the issuer as described in Section 1.5 of NF43-101.
9. I and my co-author, Gary Giroux, are responsible for the preparation of this report, entitled "**NI 43-101 TECHNICAL REPORTFOR THE ALPINE PROPERTY BRITISH COLUMBIA, CANADA** ", and dated March 6th, 2018.
10. At the date of this report, and to the best of my knowledge, information and belief, the Technical Report contains all the scientific and technical information that is required to be disclosed to render the Report not misleading.

Dated this 6th Day of March, 2018.

Michael McCuaig

Digitally signed by Michael McCuaig
DN: cn=Michael McCuaig, o=TerraLogic Exploration inc., ou, email=mam@terralogicexploration.com, c=CA
Date: 2018.03.06 21:36:14 -07'00'

Michael A McCuaig P Geo (Reg. No. 39402)

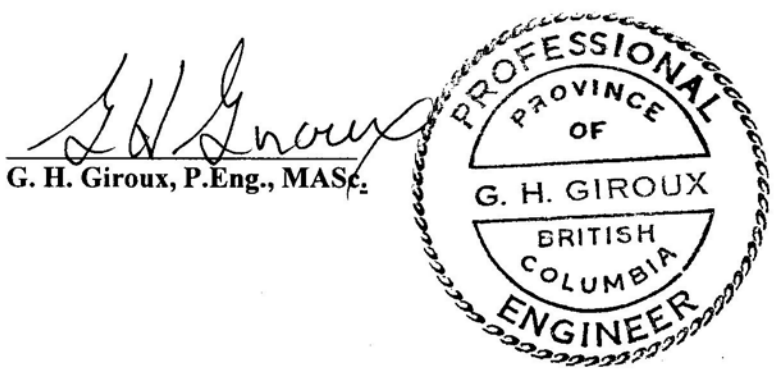


G.H. Giroux, P.Eng. MASc

I, G.H. Giroux, of 982 Broadview Drive, North Vancouver, British Columbia, do hereby certify that:

1. I am a consulting geological engineer with an office at 982 Broadview Drive, North Vancouver, British Columbia.
2. I am a graduate of the University of British Columbia in 1970 with a B.A. Sc. and in 1984 with a M.A. Sc., both in Geological Engineering.
3. I am a member in good standing of the Association of Professional Engineers and Geoscientists of the Province of British Columbia (Reg. # 8814).
4. I have practiced my profession continuously since 1970. I have had over 40 years' experience estimating mineral resources. I have previously completed resource estimations on a wide variety of precious metal deposits both in B.C. and around the world, many similar to the Alpine vein.
5. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, past relevant work experience and affiliation with a professional association (as defined in NI 43-101), I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
6. I am responsible for the preparation of Section 14 and relevant portions of Sections 1, 12, 24 and 25 of the Technical Report titled "NI 43-101 Technical Report for the Alpine Property British Columbia" dated March 6, 2018 (the "Technical Report").
7. I have not visited the Property.
8. I have not previously worked on this property.
9. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the portions of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.
10. I am independent of the issuer applying all of the tests in Section 1.5 of NI 43-101.
11. I have read NI 43-101, and the portions of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101.

Dated the 6th day of March 2018.



G. H. Giroux, P.Eng., MASc.

Appendix III

Geochemical Certificates

Quality Analysis ... **Actlabs** *Innovative Technologies*

Date Submitted: 11-Sep-17
Invoice No.: A17-09872
Invoice Date: 27-Sep-17
Your Reference: Alpine

Braveheart Resources Inc
1724 Falls St
Nelson BC

ATTN: Aaron Matlock

CERTIFICATE OF ANALYSIS

46 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code 1A2-Kamloops Au - Fire Assay AA
Code Sieve Report-Kamloops Internal Sieve Report Internal
Code UT-1-Kamloops Aqua Regia ICP/MS

REPORT **A17-09872**

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

Assays are recommended for values above the upper limit. The Au from AR-MS is only semi-quantitative. For accurate Au data, fire assay is recommended.

If value exceeds upper limit we recommend reassay by fire assay gravimetric-Code 1A3

CERTIFIED BY:



Emmanuel Eseme , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
9989 Dallas Drive, Kamloops, British Columbia, Canada, V2C 6T4
TELEPHONE +250 573-4484 or +1.888.228.5227 FAX +1.905.648.9613

Analyte Symbol	Au	Ti	S	P	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppb	%	%	%	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.001	1	0.001	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	1	1	0.01	0.1	0.1	0.01	0.1	0.02
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17001-001	< 5	0.111	< 1	0.041	88.3	0.3	< 1	0.089	0.30	0.98	0.54	0.04	0.35	1.1	14	13	368	1.60	2.4	2.0	6.14	48.4	4.22
AL17001-002	7	0.008	< 1	0.006	7.0	1.2	< 1	0.050	0.06	0.53	0.14	0.08	1.21	0.6	1	9	715	0.58	0.6	3.3	3.71	79.8	1.69
AL17001-003	< 5	0.002	< 1	< 0.001	13.0	0.2	12	2.69	0.03	3.18	1.04	0.02	0.13	< 0.1	< 1	3	68	0.33	0.1	1.3	1.23	15.1	6.44
AL17001-004	< 5	0.005	< 1	0.005	4.3	0.3	7	0.069	0.03	0.25	0.13	0.09	0.27	0.5	< 1	18	230	0.55	0.4	1.5	2.47	37.8	1.61
AL17001-005	< 5	0.018	< 1	0.005	8.5	0.4	6	0.080	0.05	0.34	0.18	0.08	0.22	0.8	2	16	244	0.69	0.9	2.0	3.59	54.0	2.22
AL17001-006	< 5	0.140	< 1	0.059	97.0	0.4	< 1	0.094	0.36	1.06	0.66	0.05	0.39	2.0	18	13	574	2.01	2.6	1.9	2.39	66.7	5.10
AL17001-007	157	0.128	< 1	0.035	65.0	0.3	5	0.084	0.30	0.79	0.50	0.03	0.28	1.6	15	16	401	1.64	2.3	2.9	2.95	56.3	4.05
AL17001-008	< 5	0.242	< 1	0.110	114	0.6	6	0.148	0.75	1.64	1.00	0.05	0.73	4.8	37	12	950	3.66	5.8	2.7	5.24	125	8.78
AL17001-009	< 5	0.178	< 1	0.125	64.6	1.0	7	0.083	0.69	1.67	0.87	0.15	1.35	3.5	32	14	1010	3.36	6.3	3.5	12.2	124	7.22
AL17001-010	< 5	0.158	< 1	0.115	58.0	0.8	7	0.084	0.66	1.73	0.83	0.05	1.41	3.9	34	10	992	3.28	6.3	2.5	6.27	126	8.07
AL17001-011	6	0.004	< 1	0.020	5.8	1.1	7	0.046	0.09	0.72	0.22	0.11	1.16	0.5	2	16	348	0.91	1.2	3.8	5.13	163	2.36
AL17001-012	< 5	0.005	< 1	0.030	14.0	1.1	6	0.044	0.16	0.86	0.22	0.06	0.90	0.5	5	13	378	1.15	1.7	2.6	2.94	82.3	2.79
AL17001-013	< 5	0.005	< 1	0.035	15.5	1.0	< 1	0.051	0.17	0.99	0.26	0.06	0.96	0.5	5	9	383	1.19	1.8	1.6	2.35	78.1	3.15
AL17001-014	< 5	0.002	< 1	0.025	9.1	1.1	6	0.056	0.10	0.69	0.29	0.23	1.29	0.3	3	12	483	0.97	1.4	2.5	4.52	93.5	2.55
AL17001-015	< 5	0.002	< 1	0.015	8.8	0.8	6	0.046	0.10	0.51	0.20	0.03	0.97	0.2	2	14	408	0.91	1.4	1.6	2.37	95.5	1.97
AL17001-016	< 5	0.048	< 1	0.025	20.0	0.4	6	0.071	0.20	0.63	0.30	0.04	0.52	0.5	7	10	334	1.24	1.8	1.5	2.40	41.9	2.92
AL17001-017	< 5	0.036	< 1	0.015	10.5	0.5	6	0.088	0.11	0.54	0.27	0.06	0.44	0.5	4	12	330	1.01	1.2	1.8	3.93	50.6	2.71
AL17001-018	3940	0.002	< 1	< 0.001	1.8	0.3	7	0.042	0.01	0.25	0.16	0.08	0.05	0.3	< 1	16	106	0.81	0.8	1.5	3.63	464	1.44
AL17001-018D	4460	0.002	< 1	< 0.001	1.7	0.4	7	0.041	0.02	0.25	0.15	0.12	0.06	0.3	< 1	25	110	0.82	1.0	9.2	10.6	406	1.34
AL17001-019B	6	0.142	< 1	0.080	21.3	0.3	6	0.132	0.65	1.04	0.44	0.05	0.65	3.9	33	36	315	1.89	6.8	9.0	14.8	34.5	3.91
AL17001-019	8	0.047	< 1	0.020	15.5	0.4	6	0.067	0.15	0.56	0.26	0.06	0.38	0.9	7	9	348	1.21	1.3	1.3	3.31	48.3	3.11
AL17001-020	< 5	0.014	< 1	0.010	7.5	0.5	5	0.047	0.06	0.36	0.17	0.15	0.45	0.6	2	13	332	0.76	1.1	1.4	4.22	41.7	1.91
AL17001-020S	4460	0.145	< 1	0.059	8.4	0.2	4	0.175	1.53	1.94	0.29	1.56	1.96	4.2	65	62	624	3.91	12.9	55.0	130	60.0	4.68
AL17001-021	< 5	0.001	< 1	< 0.001	1.5	0.4	6	0.045	0.02	0.22	0.15	0.06	1.09	0.2	< 1	15	405	0.46	0.5	2.0	3.49	48.1	0.82
AL17001-022	< 5	0.010	< 1	0.024	15.7	0.7	< 1	0.046	0.14	0.59	0.19	0.05	0.79	1.0	5	14	381	1.11	1.6	1.7	3.28	48.6	2.77
AL17001-023	< 5	0.040	< 1	0.060	31.7	1.1	7	0.054	0.37	1.08	0.32	0.04	1.63	1.9	13	12	975	2.28	3.2	2.3	2.68	127	4.88
AL17001-024	< 5	0.098	< 1	0.043	25.7	0.4	9	0.096	0.30	0.78	0.36	0.05	0.51	2.2	15	14	465	1.74	2.3	2.3	3.41	60.6	4.00
AL17001-025	< 5	0.056	< 1	0.030	22.1	0.5	5	0.058	0.21	0.74	0.32	0.03	0.59	0.5	8	14	385	1.20	1.9	2.8	2.93	45.8	3.15
AL17001-026	< 5	0.004	< 1	0.005	3.2	0.5	5	0.055	0.04	0.38	0.13	0.07	0.11	0.4	< 1	12	150	0.67	0.5	1.7	2.97	30.9	1.76
AL17001-027	< 5	0.003	< 1	< 0.001	2.6	0.4	8	0.060	0.02	0.22	0.11	0.07	0.18	0.4	< 1	11	249	0.54	0.6	1.2	2.83	18.0	1.46
AL17001-028	138	0.001	< 1	< 0.001	1.1	0.3	5	0.055	< 0.01	0.18	0.11	0.07	0.15	0.3	< 1	14	304	0.39	0.3	1.4	3.26	9.4	1.10
AL17001-029	< 5	< 0.001	< 1	< 0.001	1.8	0.5	5	0.062	0.03	0.35	0.14	0.07	0.13	0.7	< 1	10	558	0.53	0.4	1.7	2.98	14.6	1.57
AL17001-030	< 5	0.008	< 1	0.080	11.4	1.1	5	0.077	0.36	0.92	0.15	0.07	0.56	1.9	17	24	433	1.65	4.4	11.0	8.57	38.8	3.37
AL17001-031	< 5	0.004	< 1	0.045	6.9	1.0	5	0.061	0.21	0.64	0.10	0.08	0.46	1.2	9	18	388	1.12	2.4	5.8	5.77	30.8	2.39
AL17001-032	< 5	0.001	< 1	0.005	2.9	0.6	5	0.065	0.03	0.30	0.13	0.10	0.28	0.4	< 1	12	314	0.55	0.5	1.3	4.35	66.0	1.60
AL17001-033	< 5	0.003	< 1	0.005	4.1	0.4	5	0.057	0.03	0.25	0.12	0.15	0.33	0.4	< 1	11	281	0.60	0.4	1.5	3.37	77.8	1.64
AL17001-034	< 5	0.002	< 1	0.010	5.0	0.7	5	0.068	0.05	0.35	0.13	0.33	0.26	0.5	2	15	406	0.87	1.0	1.8	4.96	144	2.41
AL17001-035	9	0.006	< 1	0.210	44.4	2.1	6	0.027	0.58	1.36	0.32	0.28	2.24	1.7	21	20	1620	2.62	6.9	22.5	3.03	170	8.06
AL17001-035D	8	0.008	< 1	0.220	42.8	2.1	6	0.024	0.63	1.42	0.33	0.29	2.49	1.8	21	24	1890	2.94	7.2	24.1	4.25	218	8.72
AL17001-036B	< 5	0.002	< 1	0.005	4.8	0.5	5	0.065	0.06	0.32	0.13	0.11	0.26	0.6	< 1	13	330	0.78	0.7	1.6	4.66	46.2	2.10
AL17001-036	< 5	0.130	< 1	0.075	19.8	0.3	5	0.122	0.61	0.93	0.43	0.05	0.59	3.7	32	32	294	1.78	6.4	7.6	13.7	36.1	4.02
AL17001-037	< 5	0.001	< 1	0.005	5.4	0.5	4	0.060	0.03	0.25	0.10	0.11	0.25	0.5	< 1	17	314	0.61	0.4	3.6	4.82	44.3	1.88

Analyte Symbol	Au	Ti	S	P	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppb	%	%	%	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.001	1	0.001	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	1	1	0.01	0.1	0.1	0.01	0.1	0.02
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17001-037S	487	0.127	< 1	0.055	8.5	0.2	13	0.277	0.67	1.98	0.20	5.72	2.31	3.3	72	23	578	3.65	59.3	19.0	129	54.1	4.88
AL17001-038	< 5	0.006	< 1	0.005	9.0	0.4	4	0.064	0.03	0.28	0.13	0.09	0.21	0.6	< 1	8	229	0.71	0.4	1.4	2.70	30.9	2.04
AL17001-039	< 5	0.005	< 1	0.005	8.1	0.4	4	0.063	0.03	0.29	0.12	0.08	0.16	1.0	< 1	10	548	0.76	0.5	1.6	2.79	35.2	2.17
AL17001-040	< 5	0.004	< 1	0.005	5.9	0.4	5	0.060	0.03	0.26	0.13	0.07	0.26	0.5	< 1	14	211	0.64	0.4	1.3	2.20	32.7	1.68

Analyte Symbol	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.01	0.1	0.02	0.1	0.1	0.1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17001-001	< 0.1	0.6	62.4	52.4	7.58	0.6	2.3	0.59	0.220	< 0.02	1.34	0.07	< 0.02	2.63	62.8	23.4	43.7	0.12	4.8	20.7	3.0	0.2	0.6
AL17001-002	< 0.1	0.8	17.9	47.4	12.5	1.2	7.5	0.79	0.357	< 0.02	1.16	0.06	< 0.02	1.75	21.8	9.6	20.3	1.18	2.1	8.88	2.1	0.4	0.2
AL17001-003	< 0.1	0.7	20.6	11.5	2.77	0.5	0.1	0.02	0.101	< 0.02	0.18	0.06	< 0.02	0.44	6.4	1.9	3.28	0.07	0.4	1.73	0.4	0.2	< 0.1
AL17001-004	< 0.1	0.4	14.4	14.1	9.33	1.6	7.4	1.69	0.228	< 0.02	0.87	0.06	< 0.02	0.83	11.7	12.3	20.9	0.40	2.4	9.69	2.4	0.4	0.1
AL17001-005	< 0.1	0.4	26.6	12.7	11.8	2.2	10.9	0.39	0.363	< 0.02	1.94	0.08	< 0.02	2.16	18.9	12.8	21.3	0.25	2.5	10.1	2.6	0.5	0.2
AL17001-006	< 0.1	0.3	80.4	29.0	13.2	2.4	5.5	1.15	0.288	< 0.02	2.66	0.07	< 0.02	4.48	83.6	25.3	47.2	0.07	5.1	21.7	3.2	0.2	0.5
AL17001-007	< 0.1	0.4	67.4	44.6	6.56	0.6	2.7	0.60	0.181	< 0.02	31.8	0.06	< 0.02	2.37	50.7	24.8	40.3	0.04	4.7	18.4	3.0	0.3	0.5
AL17001-008	0.1	0.2	131	43.4	13.9	1.1	4.1	1.81	0.251	0.05	4.41	0.05	< 0.02	5.44	104	42.2	68.3	0.10	8.1	32.1	5.4	0.5	0.9
AL17001-009	0.1	0.5	101	94.9	14.4	0.8	2.7	23.7	0.387	0.03	2.89	0.05	< 0.02	3.80	108	42.2	68.4	0.47	8.2	33.2	5.6	0.5	1.1
AL17001-010	0.1	0.3	101	93.7	18.2	0.7	2.4	1.56	0.188	0.03	2.96	0.04	< 0.02	3.86	124	48.3	77.9	0.30	9.3	37.3	6.4	0.7	1.1
AL17001-011	< 0.1	0.5	24.9	71.1	14.7	0.4	3.6	0.38	0.473	< 0.02	0.49	0.05	< 0.02	1.84	27.4	15.6	25.2	0.73	3.0	12.3	2.8	0.3	0.5
AL17001-012	< 0.1	0.1	24.2	118	7.82	0.2	0.3	0.96	0.159	< 0.02	0.39	0.05	< 0.02	1.54	36.9	24.1	38.4	0.29	4.5	17.9	2.9	0.3	0.7
AL17001-013	< 0.1	0.3	23.9	112	7.71	0.2	0.2	0.93	0.244	< 0.02	0.50	0.04	< 0.02	1.47	44.9	22.5	41.4	0.31	4.5	18.9	2.6	0.2	0.7
AL17001-014	< 0.1	1.0	28.2	126	7.39	0.3	0.6	1.24	0.404	< 0.02	0.44	0.06	< 0.02	1.12	39.7	24.1	38.5	0.90	4.5	17.4	2.9	0.3	0.6
AL17001-015	< 0.1	0.5	19.6	113	4.04	0.2	0.1	0.53	0.266	< 0.02	0.33	0.07	< 0.02	1.17	30.6	17.2	27.4	0.75	3.3	12.8	2.1	0.2	0.5
AL17001-016	< 0.1	0.2	35.7	57.8	6.00	0.6	1.2	1.08	0.139	< 0.02	0.97	0.05	< 0.02	1.55	41.2	25.1	40.7	0.05	4.7	18.8	3.1	0.2	0.6
AL17001-017	< 0.1	0.3	30.5	39.7	14.5	1.0	6.5	0.48	0.265	< 0.02	1.58	0.07	< 0.02	1.22	33.8	12.8	20.9	0.23	2.6	10.6	2.7	0.5	0.4
AL17001-018	< 0.1	1.3	14.6	6.4	10.6	1.6	8.5	1.87	1.40	< 0.02	0.80	0.12	0.09	0.52	15.6	8.0	13.2	16.0	1.5	5.85	1.6	0.4	0.2
AL17001-018D	< 0.1	1.3	13.1	6.4	11.3	1.8	9.1	1.98	3.42	< 0.02	1.10	0.12	0.12	0.53	15.9	8.0	13.1	13.4	1.5	5.96	1.8	0.5	0.2
AL17001-019B	< 0.1	0.2	40.3	46.4	5.53	1.4	1.6	0.86	0.427	0.02	1.67	0.04	< 0.02	2.15	107	16.4	28.1	0.03	3.3	13.9	2.6	0.3	0.4
AL17001-019	< 0.1	0.5	34.8	34.8	8.09	0.9	2.9	0.98	0.226	< 0.02	1.35	0.05	< 0.02	1.77	28.3	18.0	29.4	0.11	3.5	14.0	2.6	0.2	0.4
AL17001-020	< 0.1	0.7	18.6	37.5	9.81	1.8	5.1	0.43	0.283	< 0.02	0.96	0.08	< 0.02	0.68	23.7	14.8	23.8	0.94	2.8	11.0	2.3	0.4	0.3
AL17001-020S	< 0.1	1130	10.1	146	5.33	7.1	0.3	10.4	67.2	0.02	1.95	16.9	0.37	0.46	199	9.0	17.9	0.26	2.0	9.06	1.4	2.5	0.3
AL17001-021	< 0.1	0.6	11.2	99.6	2.81	0.2	0.5	0.51	0.346	< 0.02	1.26	0.05	< 0.02	0.33	21.6	3.5	6.28	0.27	0.8	3.63	0.9	< 0.1	0.3
AL17001-022	< 0.1	1.0	16.1	123	6.69	0.4	0.8	1.31	0.677	< 0.02	0.73	0.06	< 0.02	0.81	45.9	15.0	28.4	0.18	3.1	13.3	2.1	0.1	0.4
AL17001-023	< 0.1	0.7	35.2	157	12.2	0.4	0.6	0.56	0.410	0.03	1.41	0.07	< 0.02	1.92	46.5	29.5	48.3	0.65	5.9	23.8	4.3	0.3	0.9
AL17001-024	< 0.1	0.4	40.7	45.2	8.70	0.9	1.7	0.50	0.176	< 0.02	2.09	0.09	< 0.02	1.37	41.5	21.5	35.5	0.08	4.3	17.3	3.3	0.3	0.5
AL17001-025	< 0.1	0.4	37.4	71.5	7.26	0.4	1.3	1.32	0.210	< 0.02	0.98	0.05	< 0.02	1.06	36.6	21.7	35.1	0.10	4.2	17.0	3.0	0.2	0.6
AL17001-026	< 0.1	0.4	17.5	27.9	6.36	1.0	4.4	0.36	0.296	< 0.02	1.24	0.06	< 0.02	1.66	11.3	6.4	10.7	0.10	1.3	5.20	1.4	0.3	0.1
AL17001-027	< 0.1	0.4	13.2	10.3	10.7	1.7	9.8	1.14	0.320	< 0.02	1.15	0.06	< 0.02	0.65	8.3	6.2	10.9	0.08	1.4	5.56	1.7	0.5	< 0.1
AL17001-028	< 0.1	0.3	12.3	7.9	10.9	0.8	10.8	0.67	0.348	< 0.02	0.89	0.05	< 0.02	0.40	7.5	5.2	9.40	0.10	1.2	4.92	1.7	0.3	< 0.1
AL17001-029	< 0.1	0.2	14.5	25.0	15.3	0.6	2.8	1.03	0.135	< 0.02	1.27	0.05	< 0.02	0.53	9.7	7.2	13.0	0.09	1.6	6.75	2.0	0.4	< 0.1
AL17001-030	< 0.1	0.7	13.0	88.3	13.3	2.6	2.0	0.99	0.135	0.03	47.8	0.05	< 0.02	0.62	28.9	25.1	39.7	0.10	4.7	18.1	3.3	0.4	0.5
AL17001-031	< 0.1	0.4	9.7	61.4	11.2	1.3	3.0	1.06	0.144	< 0.02	1.11	0.05	< 0.02	0.51	17.3	14.5	24.3	0.14	2.8	10.8	2.2	0.4	0.3
AL17001-032	< 0.1	< 0.1	13.4	26.1	10.7	1.1	3.9	0.36	0.199	< 0.02	1.02	0.08	< 0.02	0.63	13.1	12.4	21.1	0.45	2.6	9.92	2.6	0.3	0.1
AL17001-033	< 0.1	0.3	15.4	26.5	9.22	1.3	5.0	1.18	0.223	< 0.02	1.14	0.06	< 0.02	1.18	17.3	10.1	17.0	0.43	2.0	7.99	2.1	0.4	0.1
AL17001-034	< 0.1	0.4	13.8	20.2	14.3	1.0	3.5	0.43	0.416	< 0.02	1.40	0.05	< 0.02	0.66	17.3	11.6	20.4	0.88	2.4	9.49	2.4	0.5	0.2
AL17001-035	< 0.1	0.4	34.0	188	17.5	1.9	0.9	0.85	0.475	0.04	1.86	0.04	< 0.02	1.23	43.8	20.7	40.1	1.16	5.2	21.2	3.6	0.4	0.7
AL17001-035D	< 0.1	0.4	36.2	216	19.1	2.2	0.8	1.13	0.873	0.04	2.71	0.05	< 0.02	1.42	62.0	23.5	45.1	1.21	5.8	24.0	4.0	0.6	0.8
AL17001-036B	< 0.1	0.5	13.4	23.5	18.3	2.7	6.0	0.42	0.347	< 0.02	1.01	0.07	< 0.02	0.64	16.5	14.4	24.1	0.26	2.8	10.9	2.9	0.6	0.2
AL17001-036	< 0.1	< 0.1	39.4	37.4	4.82	1.1	1.3	1.09	0.143	< 0.02	1.61	0.05	< 0.02	2.10	92.1	13.1	22.8	0.02	2.7	11.3	2.0	0.2	0.3
AL17001-037	< 0.1	0.2	11.8	20.4	10.0	1.7	5.6	1.19	0.230	< 0.02	1.11	0.05	< 0.02	0.64	12.1	11.4	19.3	0.13	2.2	8.59	2.1	0.4	< 0.1

Analyte Symbol	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.01	0.1	0.02	0.1	0.1	0.1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17001-037S	< 0.1	2010	8.2	107	5.75	6.9	0.3	8.18	0.278	0.05	2.23	3.62	1.30	0.56	86.4	9.0	13.8	0.28	1.8	7.61	1.3	3.5	0.3
AL17001-038	< 0.1	1.0	18.1	15.9	6.76	1.7	4.0	0.92	0.247	< 0.02	1.23	0.06	< 0.02	1.47	12.1	8.8	14.7	0.10	1.7	6.62	1.7	0.2	0.1
AL17001-039	< 0.1	0.6	17.3	10.7	12.1	1.7	5.0	0.46	0.256	< 0.02	1.57	0.07	< 0.02	1.31	12.9	12.8	21.9	0.12	2.6	9.94	2.5	0.3	< 0.1
AL17001-040	< 0.1	0.4	17.9	19.5	6.18	1.4	4.3	0.41	0.232	< 0.02	0.98	0.05	< 0.02	1.28	13.4	10.3	16.7	0.14	1.9	7.18	1.7	0.3	0.1

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.1	0.1	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17001-001	2.4	0.3	1.5	0.3	0.7	0.1	0.7	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	0.47	4.89	10.0	4.3	< 10
AL17001-002	2.3	0.4	2.3	0.4	1.2	0.2	1.2	0.2	< 0.1	< 0.05	0.1	< 0.001	< 0.5	0.14	23.3	9.2	15.4	< 10
AL17001-003	0.4	< 0.1	0.5	0.1	0.3	< 0.1	0.5	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	23.2	0.42	1.50	0.5	1.3	20
AL17001-004	2.2	0.4	2.3	0.4	1.1	0.2	1.0	0.1	< 0.1	0.06	0.2	< 0.001	3.1	0.10	18.3	8.3	13.5	10
AL17001-005	2.7	0.5	3.0	0.5	1.5	0.2	1.4	0.2	< 0.1	< 0.05	0.3	< 0.001	4.1	0.19	14.5	11.1	18.4	30
AL17001-006	2.9	0.4	2.3	0.4	1.3	0.2	1.3	0.3	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	0.59	10.00	14.6	7.7	< 10
AL17001-007	2.3	0.3	1.4	0.2	0.7	< 0.1	0.7	< 0.1	< 0.1	< 0.05	0.1	< 0.001	1.6	0.54	4.11	9.9	1.8	10
AL17001-008	4.5	0.5	3.0	0.5	1.4	0.2	1.3	0.2	< 0.1	< 0.05	0.1	< 0.001	0.9	1.10	4.88	12.7	2.8	10
AL17001-009	4.6	0.5	3.2	0.5	1.5	0.2	1.4	0.2	< 0.1	< 0.05	0.3	0.002	2.0	0.90	15.0	11.6	2.3	20
AL17001-010	5.6	0.7	3.8	0.6	1.8	0.2	1.6	0.2	< 0.1	< 0.05	0.1	< 0.001	2.0	0.85	12.5	14.1	2.7	10
AL17001-011	2.9	0.5	3.2	0.6	1.7	0.2	1.8	0.2	< 0.1	< 0.05	3.0	0.001	2.0	0.26	36.8	9.4	8.9	10
AL17001-012	2.2	0.3	1.6	0.3	0.8	0.1	0.8	< 0.1	< 0.1	< 0.05	0.4	< 0.001	1.4	0.21	34.7	8.1	12.6	10
AL17001-013	2.2	0.3	1.4	0.3	0.7	0.1	0.7	< 0.1	< 0.1	< 0.05	0.2	< 0.001	< 0.5	0.22	34.2	8.7	12.3	< 10
AL17001-014	2.2	0.3	1.5	0.3	0.7	0.1	0.7	< 0.1	< 0.1	< 0.05	0.2	< 0.001	4.5	0.32	60.6	10.0	12.1	10
AL17001-015	1.4	0.2	0.8	0.1	0.4	< 0.1	0.4	< 0.1	< 0.1	< 0.05	0.1	< 0.001	0.8	0.24	32.6	7.2	4.5	< 10
AL17001-016	2.2	0.2	1.3	0.2	0.6	< 0.1	0.6	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	0.31	7.36	10.3	2.6	< 10
AL17001-017	2.9	0.5	3.3	0.6	1.8	0.2	1.6	0.2	< 0.1	< 0.05	0.2	< 0.001	2.4	0.24	9.67	10.0	13.9	10
AL17001-018	1.8	0.3	2.2	0.4	1.1	0.2	1.2	0.1	< 0.1	< 0.05	1.0	0.001	2690	0.10	263	9.2	16.3	< 10
AL17001-018D	2.0	0.4	2.4	0.4	1.3	0.2	1.3	0.2	< 0.1	< 0.05	1.2	< 0.001	6600	0.09	234	10.2	19.1	< 10
AL17001-019B	2.1	0.3	1.4	0.2	0.6	< 0.1	0.5	< 0.1	< 0.1	< 0.05	0.2	0.001	8.8	0.28	2.83	5.9	2.3	10
AL17001-019	2.2	0.3	1.7	0.3	0.8	0.1	0.8	0.1	< 0.1	< 0.05	0.1	< 0.001	5.7	0.29	9.48	11.0	12.3	< 10
AL17001-020	2.2	0.3	2.1	0.3	1.0	0.1	1.0	0.1	< 0.1	< 0.05	0.3	< 0.001	3.0	0.15	8.19	11.4	15.2	< 10
AL17001-020S	1.3	0.2	1.0	0.2	0.6	< 0.1	0.6	< 0.1	0.2	< 0.05	0.6	0.002	3880	0.10	11.8	3.1	0.8	290
AL17001-021	0.8	0.1	0.6	< 0.1	0.3	< 0.1	0.3	< 0.1	< 0.1	< 0.05	0.1	< 0.001	5.3	0.11	32.4	6.7	10.3	20
AL17001-022	2.0	0.2	1.3	0.2	0.6	0.1	0.6	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	1.0	0.12	15.7	10.5	8.9	20
AL17001-023	3.7	0.5	2.7	0.4	1.3	0.2	1.2	0.1	< 0.1	< 0.05	0.3	< 0.001	0.9	0.32	55.1	10.2	4.9	< 10
AL17001-024	2.7	0.3	2.0	0.3	0.9	0.1	0.8	0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	0.33	7.72	11.7	8.6	< 10
AL17001-025	2.4	0.3	1.6	0.3	0.7	< 0.1	0.7	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	1.4	0.31	8.62	8.7	3.6	< 10
AL17001-026	1.3	0.2	1.4	0.2	0.7	0.1	0.7	< 0.1	< 0.1	< 0.05	0.2	< 0.001	1.9	0.12	11.9	8.5	19.5	20
AL17001-027	2.0	0.4	2.3	0.4	1.3	0.2	1.3	0.2	< 0.1	< 0.05	0.2	< 0.001	2.5	0.08	10.2	10.5	28.0	10
AL17001-028	1.9	0.3	2.2	0.4	1.2	0.2	1.4	0.2	< 0.1	< 0.05	0.3	< 0.001	15.2	0.07	12.9	8.7	22.5	< 10
AL17001-029	2.0	0.4	2.8	0.5	1.8	0.3	2.3	0.3	< 0.1	< 0.05	0.3	< 0.001	< 0.5	0.08	16.8	10.6	17.2	< 10
AL17001-030	3.0	0.4	2.8	0.5	1.5	0.2	1.7	0.2	< 0.1	< 0.05	0.7	0.001	0.9	0.08	17.5	11.6	19.6	< 10
AL17001-031	2.1	0.3	2.3	0.4	1.3	0.2	1.5	0.2	< 0.1	< 0.05	0.7	< 0.001	0.9	0.05	16.4	10.2	20.0	< 10
AL17001-032	2.4	0.4	2.3	0.4	1.1	0.2	1.2	0.2	< 0.1	< 0.05	0.4	< 0.001	< 0.5	0.08	24.6	12.2	16.6	< 10
AL17001-033	2.0	0.3	2.0	0.3	1.0	0.1	0.9	0.1	< 0.1	< 0.05	0.2	< 0.001	1.9	0.11	18.7	12.3	26.3	< 10
AL17001-034	2.6	0.5	3.0	0.5	1.4	0.2	1.3	0.2	< 0.1	< 0.05	0.1	< 0.001	0.9	0.09	33.6	8.2	11.6	< 10
AL17001-035	3.2	0.5	3.1	0.5	1.6	0.2	1.6	0.2	< 0.1	< 0.05	0.3	< 0.001	8.3	0.22	40.6	8.1	12.3	< 10
AL17001-035D	3.6	0.5	3.3	0.6	1.7	0.2	1.7	0.2	< 0.1	< 0.05	0.4	< 0.001	10.8	0.25	46.2	8.4	13.8	< 10
AL17001-036B	3.1	0.6	4.0	0.7	2.1	0.3	2.1	0.3	< 0.1	< 0.05	0.2	< 0.001	< 0.5	0.10	18.3	15.0	28.1	< 10
AL17001-036	1.7	0.2	1.2	0.2	0.5	< 0.1	0.4	< 0.1	< 0.1	< 0.05	0.2	< 0.001	< 0.5	0.28	2.85	4.8	2.0	< 10
AL17001-037	2.2	0.3	2.1	0.3	1.1	0.2	1.1	0.1	< 0.1	< 0.05	0.2	< 0.001	< 0.5	0.10	11.8	11.5	24.6	< 10

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.1	0.1	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17001-037S	1.2	0.2	1.1	0.2	0.7	< 0.1	0.6	< 0.1	0.1	< 0.05	0.5	0.015	495	0.07	8.28	3.3	1.4	20
AL17001-038	1.6	0.3	1.5	0.2	0.7	0.1	0.7	< 0.1	< 0.1	< 0.05	0.2	< 0.001	5.0	0.12	12.0	9.3	19.5	< 10
AL17001-039	2.5	0.4	2.5	0.4	1.2	0.2	1.3	0.2	< 0.1	< 0.05	0.2	< 0.001	1.9	0.11	9.20	11.3	18.6	< 10
AL17001-040	1.6	0.2	1.5	0.2	0.7	< 0.1	0.7	< 0.1	< 0.1	< 0.05	0.2	< 0.001	6.1	0.13	15.2	9.0	19.3	< 10

Analyte Symbol	Au	Ti	S	P	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppb	%	%	%	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.001	1	0.001	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	1	1	0.01	0.1	0.1	0.01	0.1	0.02
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas		0.007	< 1	0.035	6.6	0.7	16	0.055	0.14	0.50	0.03	1290	0.73	1.0	62	7	764	21.3	7.0	31.4	1010	699	3.82
GXR-1 Cert		0.036	0.257	0.0650	8.20	1.22	15.0	0.0520	0.217	3.52	0.050	1380	0.960	1.58	80.0	12.0	852	23.6	8.20	41.0	1110	760	13.8
GXR-4 Meas		0.128	2	0.100	9.1	1.5	5	0.140	1.53	2.65	1.55	16.5	0.75	6.1	72	50	130	2.83	13.7	33.2	6040	66.3	9.27
GXR-4 Cert		0.29	1.77	0.120	11.1	1.90	4.50	0.564	1.66	7.20	4.01	19.0	1.01	7.70	87.0	64.0	155	3.09	14.6	42.0	6520	73.0	20.0
GXR-6 Meas			< 1	0.030	25.6	0.9	9	0.080	0.37	6.43	0.98	0.15	0.16	19.4	141	67	923	5.06	12.1	19.6	59.6	112	12.6
GXR-6 Cert			0.0160	0.0350	32.0	1.40	9.80	0.104	0.609	17.7	1.87	0.290	0.180	27.6	186	96.0	1010	5.58	13.8	27.0	66.0	118	35.0
OREAS 923 (AQUA REGIA) Meas			< 1	0.060	24.7	0.6			1.41	2.80	0.41	23.5	0.39	3.8	33	42	903	6.32	23.3	32.8	4520	355	7.82
OREAS 923 (AQUA REGIA) Cert			0.684	0.061	23.4	0.61			1.43	2.80	0.322	21.8	0.326	3.09	30.6	39.4	850	5.91	22.2	32.7	4248	335	8.01
SdAR-M2 (U.S.G.S.) Meas					13.0	4.5						1.10		2.1	16	9			13.2	46.1	251	820	3.18
SdAR-M2 (U.S.G.S.) Cert					17.9	6.6						1.05		4.1	25.2	49.6			12.4	48.8	236.0000	760	17.6
OREAS 223 (Fire Assay) Meas	1870																						
OREAS 223 (Fire Assay) Cert	1780																						
OREAS 223 (Fire Assay) Meas	1780																						
OREAS 223 (Fire Assay) Cert	1780																						
OREAS 223 (Fire Assay) Meas	1860																						
OREAS 223 (Fire Assay) Cert	1780																						
OREAS 218 Meas	539																						
OREAS 218 Cert	531																						
OREAS 218 Meas	532																						
OREAS 218 Cert	531																						
OREAS 218 Meas	512																						
OREAS 218 Cert	531																						
OREAS 218 Meas	513																						
OREAS 218 Cert	531																						
AL17001-006 Orig	< 5																						
AL17001-006 Dup	< 5																						
AL17001-013 Orig		0.006	< 1	0.035	15.8	1.1	< 1	0.052	0.17	1.01	0.26	0.07	1.00	0.5	5	9	393	1.22	1.7	1.6	2.36	80.5	3.25
AL17001-013 Dup		0.005	< 1	0.035	15.1	0.9	< 1	0.050	0.17	0.97	0.25	0.06	0.92	0.4	5	10	373	1.15	1.9	1.6	2.34	75.7	3.04
AL17001-017 Orig	< 5																						
AL17001-017 Dup	< 5																						
AL17001-024 Orig		0.093	< 1	0.040	25.1	0.4	6	0.092	0.28	0.75	0.34	0.03	0.48	2.1	14	12	442	1.67	2.2	2.0	2.84	56.4	3.86
AL17001-024 Dup		0.103	< 1	0.045	26.3	0.4	12	0.101	0.32	0.82	0.38	0.06	0.55	2.3	15	16	487	1.81	2.5	2.6	3.98	64.7	4.14
AL17001-026 Orig	< 5																						

Analyte Symbol	Au	Ti	S	P	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppb	%	%	%	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.001	1	0.001	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	1	1	0.01	0.1	0.1	0.01	0.1	0.02
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17001-026 Dup	8																						
AL17001-036B Orig		0.002	< 1	0.005	5.0	0.6	5	0.066	0.06	0.32	0.13	0.11	0.26	0.6	< 1	14	334	0.79	0.7	1.8	4.84	47.8	2.14
AL17001-036B Dup		0.001	< 1	0.005	4.7	0.5	6	0.065	0.06	0.32	0.12	0.11	0.25	0.5	< 1	13	326	0.77	0.7	1.4	4.49	44.6	2.07
AL17001-036 Orig	< 5																						
AL17001-036 Dup	< 5																						
Method Blank	< 5																						
Method Blank	< 5																						
Method Blank	< 5																						
Method Blank	< 5																						
Method Blank	< 5																						
Method Blank		< 0.001	< 1	< 0.001	< 0.1	< 0.1	5	0.011	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.1	< 1	< 1	< 1	< 0.01	< 0.1	< 0.1	0.02	0.3	0.03
Method Blank	< 5																						

Analyte Symbol	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.01	0.1	0.02	0.1	0.1	0.1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas		333	1.9	166	21.3	12.4	< 0.1	16.4	28.1	0.60	24.0	71.7	12.4	2.35	407	5.0	8.60	2.24		5.99	2.0	11.3	0.4
GXR-1 Cert		427	14.0	275	32.0	38.0	0.800	18.0	31.0	0.770	54.0	122	13.0	3.00	750	7.50	17.0	3.30		18.0	2.70	16.6	0.690
GXR-4 Meas		89.2	91.7	58.8	9.41	7.6	0.3	303	2.62	0.17	5.07	2.98	0.76	2.10	33.2	39.9	68.6	< 0.01		32.3	4.9	4.7	1.0
GXR-4 Cert		98.0	160	221	14.0	186	10.0	310	4.00	0.270	5.60	4.80	0.970	2.80	1640	64.5	102	0.860		45.0	6.60	5.60	1.63
GXR-6 Meas		176	54.6	31.3	5.52	7.5	< 0.1	1.38	0.279	0.05	0.82	1.52	0.04	3.11	797	9.9	24.5	0.08		10.3	2.0	0.4	0.5
GXR-6 Cert		330	90.0	35.0	14.0	110	7.50	2.40	1.30	0.260	1.70	3.60	0.0180	4.20	1300	13.9	36.0	1.00		13.0	2.67	0.940	0.760
OREAS 923 (AQUA REGIA) Meas		7.1	25.9	14.4	18.8	36.8		0.82	1.81	0.44	7.32	0.76		2.05	63.6	37.3	62.9	0.43	7.8	32.2	6.0	6.0	
OREAS 923 (AQUA REGIA) Cert		7.07	19.6	13.6	14.3	22.5		0.84	1.62	0.45	5.99	0.58		1.56	54	30.0	60	0.40	6.79	25.4	4.34	5.99	
SdAR-M2 (U.S.G.S.) Meas			18.4	19.5	15.8	5.6	2.7	13.6						0.83	92.5	41.9	80.0	5.06	9.2	36.6	6.2		0.6
SdAR-M2 (U.S.G.S.) Cert			149	144	32.7	259	26.2	13.3						1.82	990	46.6	98.8	5.1	11.0	39.4	7.18		1.44
OREAS 223 (Fire Assay) Meas																							
OREAS 223 (Fire Assay) Cert																							
OREAS 223 (Fire Assay) Meas																							
OREAS 223 (Fire Assay) Cert																							
OREAS 223 (Fire Assay) Meas																							
OREAS 223 (Fire Assay) Cert																							
OREAS 218 Meas																							
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OREAS 218 Cert																							
OREAS 218 Meas																							
OREAS 218 Cert																							
AL17001-006 Orig																							
AL17001-006 Dup																							
AL17001-013 Orig	< 0.1	0.3	25.0	117	8.03	0.3	0.2	0.92	0.309	< 0.02	0.55	0.05	< 0.02	1.51	46.6	23.0	42.4	0.31	4.6	19.4	2.7	0.3	0.7
AL17001-013 Dup	< 0.1	0.3	22.8	108	7.40	0.2	0.2	0.94	0.180	< 0.02	0.46	0.04	< 0.02	1.43	43.2	21.9	40.3	0.31	4.4	18.4	2.6	0.2	0.6
AL17001-017 Orig																							
AL17001-017 Dup																							
AL17001-024 Orig	< 0.1	0.3	39.1	43.2	8.26	0.9	1.5	0.47	0.182	< 0.02	1.97	0.08	< 0.02	1.29	39.2	20.6	34.2	0.07	4.2	16.9	3.2	0.3	0.5
AL17001-024 Dup	< 0.1	0.5	42.3	47.3	9.15	1.0	1.8	0.53	0.170	0.02	2.20	0.11	< 0.02	1.45	43.8	22.4	36.7	0.09	4.4	17.6	3.4	0.3	0.6
AL17001-026 Orig																							

Analyte Symbol	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.01	0.1	0.02	0.1	0.1	0.1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17001-026 Dup																							
AL17001-036B Orig	< 0.1	0.6	13.9	23.9	18.7	2.8	6.6	0.43	0.441	< 0.02	1.05	0.06	< 0.02	0.65	16.9	14.7	24.4	0.26	2.9	11.0	2.9	0.7	0.2
AL17001-036B Dup	< 0.1	0.4	13.0	23.1	17.9	2.5	5.4	0.42	0.253	< 0.02	0.96	0.08	< 0.02	0.64	16.0	14.2	23.8	0.26	2.8	10.7	2.8	0.5	0.2
AL17001-036 Orig																							
AL17001-036 Dup																							
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank	< 0.1	< 0.1	0.1	< 0.5	< 0.01	< 0.1	< 0.1	0.03	0.007	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02	5.4	< 0.5	0.02	0.01	< 0.1	< 0.02	< 0.1	0.2	< 0.1
Method Blank																							

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.1	0.1	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas	3.0	0.5	3.9			0.3	1.8	0.2	0.2	< 0.05	123		3850	0.32	670	1.9	27.3	4560
GXR-1 Cert	4.20	0.830	4.30			0.430	1.90	0.280	0.960	0.175	164		3300	0.390	730	2.44	34.9	3900
GXR-4 Meas	3.6	0.4	2.3			0.1	0.7	< 0.1	0.2	< 0.05	10.1		650	2.46	43.2	13.6	4.0	150
GXR-4 Cert	5.25	0.360	2.60			0.210	1.60	0.170	6.30	0.790	30.8		470	3.20	52.0	22.5	6.20	110
GXR-6 Meas	1.6	0.2	1.4				0.6	< 0.1	0.1	< 0.05	< 0.1		61.1	1.70	93.0	3.4	0.7	60
GXR-6 Cert	2.97	0.415	2.80				2.40	0.330	4.30	0.485	1.90		95.0	2.20	101	5.30	1.54	68.0
OREAS 923 (AQUA REGIA) Meas	5.0	0.7							0.9		2.2			0.17	92.1	14.4	2.3	
OREAS 923 (AQUA REGIA) Cert	4.07	0.54							0.60		1.96			0.12	81	14.3	1.80	
SdAR-M2 (U.S.G.S.) Meas	4.7	0.6	3.8	0.6	1.9	0.3	1.7	0.2	0.1	< 0.05	1.0				839	11.0	1.6	1620
SdAR-M2 (U.S.G.S.) Cert	6.28	0.97	5.88	1.21	3.58	0.54	3.63	0.54	7.29	1.8	2.8				808	14.2	2.53	1440.00
OREAS 223 (Fire Assay) Meas																		
OREAS 223 (Fire Assay) Cert																		
OREAS 223 (Fire Assay) Meas																		
OREAS 223 (Fire Assay) Cert																		
OREAS 223 (Fire Assay) Meas																		
OREAS 223 (Fire Assay) Cert																		
OREAS 218 Meas																		
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OREAS 218 Cert																		
OREAS 218 Meas																		
OREAS 218 Cert																		
AL17001-006 Orig																		
AL17001-006 Dup																		
AL17001-013 Orig	2.3	0.3	1.5	0.3	0.8	0.1	0.7	0.1	< 0.1	< 0.05	0.2	< 0.001	< 0.5	0.23	35.5	9.0	13.0	< 10
AL17001-013 Dup	2.1	0.3	1.4	0.2	0.7	0.1	0.7	< 0.1	< 0.1	< 0.05	0.1	< 0.001	< 0.5	0.21	32.8	8.5	11.6	< 10
AL17001-017 Orig																		
AL17001-017 Dup																		
AL17001-024 Orig	2.6	0.3	1.9	0.3	0.9	0.1	0.8	0.1	< 0.1	< 0.05	< 0.1	< 0.001	3.0	0.31	7.26	11.1	8.3	10
AL17001-024 Dup	2.9	0.4	2.1	0.3	1.0	0.1	0.9	0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	0.35	8.17	12.4	8.8	< 10
AL17001-026 Orig																		

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.1	0.1	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17001-026 Dup																		
AL17001-036B Orig	3.2	0.6	4.1	0.7	2.1	0.3	2.1	0.3	< 0.1	< 0.05	0.2	< 0.001	3.9	0.11	17.9	14.8	27.8	< 10
AL17001-036B Dup	3.1	0.6	3.9	0.7	2.1	0.3	2.1	0.3	< 0.1	< 0.05	0.2	< 0.001	< 0.5	0.10	18.8	15.2	28.5	< 10
AL17001-036 Orig																		
AL17001-036 Dup																		
Method Blank																		
Method Blank																		
Method Blank																		
Method Blank																		
Method Blank																		
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	< 0.02	< 0.01	< 0.1	< 0.1	50
Method Blank																		

Quality Analysis ... **Actlabs** *Innovative Technologies*

Date Submitted: 14-Sep-17
Invoice No.: A17-10033
Invoice Date: 27-Sep-17
Your Reference: Alpine

Braveheart Resources Inc
1724 Falls St
Nelson BC

ATTN: Aaron Matlock

CERTIFICATE OF ANALYSIS

17 Core samples were submitted for analysis.

The following analytical package(s) were requested: Code 1A2-Kamloops Au - Fire Assay AA

Code UT-1-Kamloops Aqua Regia ICP/MS

REPORT **A17-10033**

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

Assays are recommended for values above the upper limit. The Au from AR-MS is only semi-quantitative. For accurate Au data, fire assay is recommended.

If value exceeds upper limit we recommend reassay by fire assay gravimetric-Code 1A3

CERTIFIED BY:



Emmanuel Eseme , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
9989 Dallas Drive, Kamloops, British Columbia, Canada, V2C 6T4
TELEPHONE +250 573-4484 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Kamloops@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Analyte Symbol	Au	Ti	S	P	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppb	%	%	%	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.001	1	0.001	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	1	1	0.01	0.1	0.1	0.01	0.1	0.02
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17004-001	< 5	0.118	< 1	0.100	43.6	1.2	6	0.058	0.57	1.45	0.60	0.07	1.07	4.0	27	15	928	2.87	4.8	2.6	6.06	102	7.33
AL17004-002	8	0.008	< 1	0.040	15.4	1.6	6	0.052	0.26	1.36	0.23	0.14	0.38	2.1	8	8	354	1.45	2.0	3.0	5.72	79.3	4.15
AL17004-003	3280	0.003	4	0.145	5.3	1.9	6	0.020	0.08	1.00	0.45	0.13	0.41	0.6	6	11	74	4.03	7.7	18.0	3.17	76.8	3.92
AL17004-004	2580	0.001	1	0.010	3.8	1.7	5	0.017	0.04	0.57	0.37	0.06	0.06	0.2	2	7	51	2.43	3.1	5.4	2.82	207	3.06
AL17004-005B	6	0.146	< 1	0.080	25.8	0.2	5	0.128	0.71	1.08	0.49	0.05	0.62	4.2	36	31	339	2.05	6.8	8.3	13.1	40.2	4.49
AL17004-005	> 5000	0.003	9	0.020	3.6	1.4	5	0.015	0.04	0.66	0.46	0.15	0.07	0.3	2	2	49	7.85	9.1	13.8	2.14	69.8	3.39
AL17004-006	119	0.002	< 1	0.045	2.6	0.8	5	0.014	0.03	0.55	0.35	< 0.02	0.13	0.5	3	6	53	0.98	2.2	1.9	2.32	29.7	2.56
AL17004-007	11	0.001	< 1	0.005	1.5	0.3	4	0.047	0.02	0.19	0.10	0.04	0.46	0.2	< 1	10	303	0.55	0.4	1.4	2.90	38.6	1.05
AL17004-008	5	0.150	< 1	0.115	54.2	0.8	4	0.086	0.67	1.44	0.70	0.04	1.04	3.9	34	13	978	3.48	6.1	2.6	6.50	111	8.25
AL17004-009	12	0.126	< 1	0.100	40.0	0.7	< 1	0.064	0.49	1.20	0.65	0.05	0.99	3.0	24	11	837	2.46	4.3	2.2	7.27	78.4	6.09
AL17004-010	9	0.002	< 1	0.015	4.1	0.5	5	0.058	0.05	0.33	0.13	0.18	0.37	0.6	3	14	341	0.79	1.0	2.1	3.33	96.6	2.01
AL17004-011	92	0.001	< 1	0.010	1.8	0.6	4	0.045	0.03	0.30	0.12	0.16	0.49	0.3	2	9	313	0.85	0.8	2.1	2.83	43.1	1.52
AL17004-011D	69	0.001	< 1	0.010	1.7	0.6	6	0.045	0.02	0.28	0.11	0.15	0.46	0.3	2	9	295	0.81	0.7	2.3	2.56	40.7	1.42
AL17004-012B	< 5	0.136	< 1	0.085	20.3	0.2	4	0.128	0.66	1.05	0.44	0.05	0.67	4.1	35	32	325	1.94	6.9	9.0	13.9	35.8	4.35
AL17004-012	5	0.011	< 1	0.005	8.3	0.4	4	0.052	0.04	0.30	0.14	0.05	0.34	0.3	2	11	205	0.66	0.6	1.7	3.22	24.6	1.57
AL17004-013	< 5	0.099	< 1	0.025	64.2	0.3	3	0.080	0.24	0.75	0.44	0.03	0.28	1.0	11	21	424	1.57	2.0	3.6	3.20	58.0	4.12
AL17004-013S	488	0.128	< 1	0.055	8.4	0.2	12	0.262	0.62	1.88	0.20	5.92	2.39	3.3	74	23	584	3.76	61.7	19.3	131	54.4	5.04

Analyte Symbol	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.01	0.1	0.02	0.1	0.1	0.1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17004-001	< 0.1	0.4	71.3	142	16.5	0.7	1.4	1.23	0.143	0.04	2.33	0.03	< 0.02	3.12	57.3	31.4	52.6	0.47	6.4	26.4	5.1	0.7	0.9
AL17004-002	< 0.1	0.6	25.4	90.5	19.1	1.1	1.1	0.70	0.188	0.02	1.40	0.06	< 0.02	2.02	19.2	20.3	35.0	0.09	4.3	17.5	4.3	0.7	0.5
AL17004-003	< 0.1	17.9	37.9	54.6	24.0	2.6	2.8	0.33	12.3	< 0.02	1.50	0.09	0.03	1.16	27.3	9.2	18.0	0.82	2.3	10.4	3.3	1.1	0.6
AL17004-004	< 0.1	10.3	29.2	16.4	14.1	0.8	0.8	0.27	1.50	< 0.02	0.78	0.06	0.02	0.86	28.4	5.5	9.23	3.72	1.3	6.43	2.6	0.7	0.5
AL17004-005B	< 0.1	0.2	46.9	43.3	5.30	1.0	1.9	1.55	0.295	0.03	1.78	0.03	< 0.02	2.59	117	14.2	24.7	0.02	3.0	12.8	2.2	0.2	0.4
AL17004-005	< 0.1	34.3	39.2	9.8	15.1	9.7	4.4	0.35	9.66	< 0.02	1.02	0.10	0.12	1.01	8.0	10.7	17.4	0.92	2.1	9.15	3.2	1.0	0.7
AL17004-006	< 0.1	2.4	30.0	10.6	30.7	1.9	1.2	0.35	0.469	< 0.02	0.66	0.04	< 0.02	0.68	27.7	15.7	26.6	0.15	3.2	13.2	3.3	1.0	0.5
AL17004-007	< 0.1	0.2	9.9	30.8	18.1	0.9	5.9	1.24	0.306	< 0.02	0.35	0.05	< 0.02	0.36	11.6	4.9	8.10	0.25	1.0	4.51	1.7	0.7	0.2
AL17004-008	0.1	0.3	89.2	95.8	20.2	0.9	2.2	0.80	0.181	0.04	3.03	0.04	< 0.02	3.13	76.2	44.8	74.3	0.09	8.9	36.2	6.5	0.7	1.1
AL17004-009	< 0.1	0.5	75.5	89.9	14.3	0.9	1.6	1.01	0.297	0.03	2.49	0.03	< 0.02	3.93	75.9	26.6	50.9	0.23	5.6	24.1	4.0	0.5	0.7
AL17004-010	< 0.1	0.8	14.2	26.6	19.7	1.5	3.9	0.43	0.207	< 0.02	0.95	0.06	< 0.02	0.62	13.3	13.9	22.6	0.80	2.6	10.4	2.9	0.7	0.3
AL17004-011	< 0.1	0.6	11.8	25.3	15.0	1.4	3.6	1.05	0.194	< 0.02	0.85	0.09	< 0.02	0.52	13.4	13.2	19.9	0.31	2.1	7.75	2.0	0.6	0.4
AL17004-011D	< 0.1	0.6	10.8	23.6	14.1	1.3	3.6	0.97	0.165	< 0.02	0.78	0.08	< 0.02	0.47	12.2	11.6	17.8	0.26	1.9	6.94	1.9	0.5	0.3
AL17004-012B	< 0.1	0.3	39.8	44.4	5.24	1.2	1.3	0.93	0.156	0.02	1.59	0.03	< 0.02	2.12	98.5	14.8	24.9	0.02	3.0	12.5	2.2	0.3	0.4
AL17004-012	< 0.1	0.2	15.0	105	7.04	1.1	3.2	1.09	0.168	< 0.02	0.54	0.05	< 0.02	0.71	19.4	10.2	15.5	0.08	1.7	6.46	1.4	0.2	0.2
AL17004-013	< 0.1	0.3	61.0	43.7	6.81	0.4	1.7	0.55	0.127	< 0.02	1.70	0.06	< 0.02	2.22	36.6	25.6	41.5	0.03	5.0	19.7	3.2	0.3	0.5
AL17004-013S	< 0.1	2060	8.9	105	5.70	6.6	0.2	8.20	0.194	0.05	2.22	3.74	1.27	0.57	85.6	9.3	14.2	0.29	1.8	7.67	1.3	3.6	0.3

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg	Au
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb	g/tonne
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.1	0.1	10	0.03
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	FA-GRA
AL17004-001	4.6	0.6	3.4	0.6	1.7	0.2	1.5	0.2	< 0.1	< 0.05	< 0.1	< 0.001	1.5	0.59	33.5	12.9	9.1	< 10	
AL17004-002	4.2	0.6	4.2	0.7	2.1	0.3	2.0	0.3	< 0.1	< 0.05	0.5	< 0.001	7.7	0.21	66.9	13.7	9.1	< 10	
AL17004-003	4.2	0.7	5.0	0.8	2.6	0.4	2.4	0.3	< 0.1	< 0.05	1.7	0.001	> 10000	0.28	294	9.3	26.4	< 10	
AL17004-004	3.3	0.6	3.7	0.6	1.7	0.2	1.5	0.2	< 0.1	< 0.05	2.1	< 0.001	2040	0.21	272	7.3	24.3	< 10	
AL17004-005B	1.9	0.2	1.3	0.2	0.6	< 0.1	0.5	< 0.1	< 0.1	< 0.05	0.2	< 0.001	7.8	0.36	3.24	4.5	5.6	< 10	
AL17004-005	3.9	0.7	4.1	0.6	1.8	0.2	1.5	0.2	0.2	< 0.05	2.5	< 0.001	> 10000	0.25	267	13.1	35.1	< 10	29.6
AL17004-006	4.5	0.8	5.4	1.0	3.2	0.4	2.8	0.4	< 0.1	< 0.05	1.0	< 0.001	43.6	0.21	16.8	14.3	86.8	< 10	
AL17004-007	2.6	0.5	3.9	0.7	2.3	0.3	2.2	0.3	< 0.1	< 0.05	0.6	< 0.001	8.0	0.07	44.8	10.0	15.4	< 10	
AL17004-008	5.6	0.7	4.2	0.7	2.0	0.3	1.8	0.2	< 0.1	< 0.05	< 0.1	< 0.001	5.6	0.75	4.84	14.5	3.3	< 10	
AL17004-009	3.7	0.5	2.6	0.5	1.4	0.2	1.2	0.2	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	0.57	8.65	13.0	6.7	< 10	
AL17004-010	3.3	0.6	4.2	0.7	2.3	0.3	2.3	0.3	< 0.1	< 0.05	0.4	0.001	3.7	0.10	33.7	13.4	20.7	< 10	
AL17004-011	2.3	0.4	2.9	0.5	1.6	0.2	1.6	0.2	< 0.1	< 0.05	5.1	0.001	3.1	0.08	32.2	12.6	18.3	20	
AL17004-011D	2.1	0.4	2.7	0.5	1.6	0.2	1.5	0.2	< 0.1	< 0.05	4.4	< 0.001	9.0	0.07	28.9	11.9	17.6	< 10	
AL17004-012B	1.8	0.2	1.3	0.2	0.6	< 0.1	0.5	< 0.1	< 0.1	< 0.05	0.2	< 0.001	< 0.5	0.27	2.68	5.0	2.1	< 10	
AL17004-012	1.4	0.2	1.5	0.3	0.9	0.1	0.8	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	7.4	0.10	14.1	10.5	12.8	< 10	
AL17004-013	2.3	0.3	1.5	0.2	0.7	< 0.1	0.6	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	3.1	0.53	5.41	12.4	7.4	< 10	
AL17004-013S	1.2	0.2	1.1	0.2	0.7	< 0.1	0.6	< 0.1	0.1	< 0.05	0.5	0.010	614	0.09	8.76	3.1	1.4	10	

Analyte Symbol	Au	Ti	S	P	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppb	%	%	%	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.001	1	0.001	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	1	1	0.01	0.1	0.1	0.01	0.1	0.02
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas		0.007	< 1	0.035	6.6	0.7	16	0.055	0.14	0.50	0.03	1290	0.73	1.0	62	7	764	21.3	7.0	31.4	1010	699	3.82
GXR-1 Cert		0.036	0.257	0.0650	8.20	1.22	15.0	0.0520	0.217	3.52	0.050	1380	0.960	1.58	80.0	12.0	852	23.6	8.20	41.0	1110	760	13.8
GXR-4 Meas		0.128	2	0.100	9.1	1.5	5	0.140	1.53	2.65	1.55	16.5	0.75	6.1	72	50	130	2.83	13.7	33.2	6040	66.3	9.27
GXR-4 Cert		0.29	1.77	0.120	11.1	1.90	4.50	0.564	1.66	7.20	4.01	19.0	1.01	7.70	87.0	64.0	155	3.09	14.6	42.0	6520	73.0	20.0
GXR-6 Meas			< 1	0.030	25.6	0.9	9	0.080	0.37	6.43	0.98	0.15	0.16	19.4	141	67	923	5.06	12.1	19.6	59.6	112	12.6
GXR-6 Cert			0.0160	0.0350	32.0	1.40	9.80	0.104	0.609	17.7	1.87	0.290	0.180	27.6	186	96.0	1010	5.58	13.8	27.0	66.0	118	35.0
OREAS 923 (AQUA REGIA) Meas			< 1	0.060	24.7	0.6			1.41	2.80	0.41	23.5	0.39	3.8	33	42	903	6.32	23.3	32.8	4520	355	7.82
OREAS 923 (AQUA REGIA) Cert			0.684	0.061	23.4	0.61			1.43	2.80	0.322	21.8	0.326	3.09	30.6	39.4	850	5.91	22.2	32.7	4248	335	8.01
SdAR-M2 (U.S.G.S.) Meas					13.0	4.5						1.10		2.1	16	9			13.2	46.1	251	820	3.18
SdAR-M2 (U.S.G.S.) Cert					17.9	6.6						1.05		4.1	25.2	49.6			12.4	48.8	236.0000	760	17.6
OxL118 Meas																							
OxL118 Cert																							
OxP116 Meas																							
OxP116 Cert																							
OREAS 223 (Fire Assay) Meas	1870																						
OREAS 223 (Fire Assay) Cert	1780																						
OREAS 223 (Fire Assay) Meas	1780																						
OREAS 223 (Fire Assay) Cert	1780																						
OREAS 223 (Fire Assay) Meas	1860																						
OREAS 223 (Fire Assay) Cert	1780																						
OREAS 218 Meas	539																						
OREAS 218 Cert	531																						
OREAS 218 Meas	532																						
OREAS 218 Cert	531																						
OREAS 218 Meas	512																						
OREAS 218 Cert	531																						
OREAS 218 Meas	513																						
OREAS 218 Cert	531																						
AL17004-005 Orig	> 5000																						
AL17004-005 Dup	> 5000																						
AL17004-007 Orig		0.001	< 1	0.005	1.4	0.3	3	0.047	0.02	0.17	0.09	0.04	0.46	0.2	< 1	10	297	0.53	0.4	1.4	2.91	38.3	1.01
AL17004-007 Dup		0.001	< 1	0.005	1.5	0.4	4	0.047	0.02	0.20	0.10	0.04	0.47	0.2	< 1	10	309	0.56	0.4	1.4	2.89	38.8	1.08
Method Blank	< 5																						

Analyte Symbol	Au	Ti	S	P	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppb	%	%	%	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.001	1	0.001	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	1	1	0.01	0.1	0.1	0.01	0.1	0.02
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
Method Blank	< 5																						
Method Blank	< 5																						
Method Blank	< 5																						
Method Blank	< 5																						
Method Blank		< 0.001	< 1	< 0.001	< 0.1	< 0.1	5	0.011	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.1	< 1	< 1	< 1	< 0.01	< 0.1	< 0.1	0.02	0.3	0.03
Method Blank	< 5																						

Analyte Symbol	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.01	0.1	0.02	0.1	0.1	0.1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas		333	1.9	166	21.3	12.4	< 0.1	16.4	28.1	0.60	24.0	71.7	12.4	2.35	407	5.0	8.60	2.24		5.99	2.0	11.3	0.4
GXR-1 Cert		427	14.0	275	32.0	38.0	0.800	18.0	31.0	0.770	54.0	122	13.0	3.00	750	7.50	17.0	3.30		18.0	2.70	16.6	0.690
GXR-4 Meas		89.2	91.7	58.8	9.41	7.6	0.3	303	2.62	0.17	5.07	2.98	0.76	2.10	33.2	39.9	68.6	< 0.01		32.3	4.9	4.7	1.0
GXR-4 Cert		98.0	160	221	14.0	186	10.0	310	4.00	0.270	5.60	4.80	0.970	2.80	1640	64.5	102	0.860		45.0	6.60	5.60	1.63
GXR-6 Meas		176	54.6	31.3	5.52	7.5	< 0.1	1.38	0.279	0.05	0.82	1.52	0.04	3.11	797	9.9	24.5	0.08		10.3	2.0	0.4	0.5
GXR-6 Cert		330	90.0	35.0	14.0	110	7.50	2.40	1.30	0.260	1.70	3.60	0.0180	4.20	1300	13.9	36.0	1.00		13.0	2.67	0.940	0.760
OREAS 923 (AQUA REGIA) Meas		7.1	25.9	14.4	18.8	36.8		0.82	1.81	0.44	7.32	0.76		2.05	63.6	37.3	62.9	0.43	7.8	32.2	6.0	6.0	
OREAS 923 (AQUA REGIA) Cert		7.07	19.6	13.6	14.3	22.5		0.84	1.62	0.45	5.99	0.58		1.56	54	30.0	60	0.40	6.79	25.4	4.34	5.99	
SdAR-M2 (U.S.G.S.) Meas			18.4	19.5	15.8	5.6	2.7	13.6						0.83	92.5	41.9	80.0	5.06	9.2	36.6	6.2		0.6
SdAR-M2 (U.S.G.S.) Cert			149	144	32.7	259	26.2	13.3						1.82	990	46.6	98.8	5.1	11.0	39.4	7.18		1.44
OxL118 Meas																							
OxL118 Cert																							
OxP116 Meas																							
OxP116 Cert																							
OREAS 223 (Fire Assay) Meas																							
OREAS 223 (Fire Assay) Cert																							
OREAS 223 (Fire Assay) Meas																							
OREAS 223 (Fire Assay) Cert																							
OREAS 223 (Fire Assay) Meas																							
OREAS 223 (Fire Assay) Cert																							
OREAS 218 Meas																							
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OREAS 218 Meas																							
OREAS 218 Cert																							
OREAS 218 Meas																							
OREAS 218 Cert																							
OREAS 218 Meas																							
OREAS 218 Cert																							
AL17004-005 Orig																							
AL17004-005 Dup																							
AL17004-007 Orig	< 0.1	0.3	9.7	30.2	17.7	0.9	6.6	1.16	0.347	< 0.02	0.33	0.05	< 0.02	0.35	11.5	4.8	8.05	0.23	1.0	4.45	1.7	0.7	0.2
AL17004-007 Dup	< 0.1	0.2	10.1	31.4	18.5	1.0	5.3	1.32	0.265	< 0.02	0.38	0.05	< 0.02	0.36	11.7	4.9	8.15	0.27	1.0	4.57	1.8	0.8	0.2
Method Blank																							

Analyte Symbol	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.01	0.1	0.02	0.1	0.1	0.1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank	< 0.1	< 0.1	0.1	< 0.5	< 0.01	< 0.1	< 0.1	0.03	0.007	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02	5.4	< 0.5	0.02	0.01	< 0.1	< 0.02	< 0.1	0.2	< 0.1
Method Blank																							

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg	Au
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb	g/tonne
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.1	0.1	10	0.03
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	FA-GRA
GXR-1 Meas	3.0	0.5	3.9			0.3	1.8	0.2	0.2	< 0.05	123		3850	0.32	670	1.9	27.3	4560	
GXR-1 Cert	4.20	0.830	4.30			0.430	1.90	0.280	0.960	0.175	164		3300	0.390	730	2.44	34.9	3900	
GXR-4 Meas	3.6	0.4	2.3			0.1	0.7	< 0.1	0.2	< 0.05	10.1		650	2.46	43.2	13.6	4.0	150	
GXR-4 Cert	5.25	0.360	2.60			0.210	1.60	0.170	6.30	0.790	30.8		470	3.20	52.0	22.5	6.20	110	
GXR-6 Meas	1.6	0.2	1.4				0.6	< 0.1	0.1	< 0.05	< 0.1		61.1	1.70	93.0	3.4	0.7	60	
GXR-6 Cert	2.97	0.415	2.80				2.40	0.330	4.30	0.485	1.90		95.0	2.20	101	5.30	1.54	68.0	
OREAS 923 (AQUA REGIA) Meas	5.0	0.7							0.9		2.2			0.17	92.1	14.4	2.3		
OREAS 923 (AQUA REGIA) Cert	4.07	0.54							0.60		1.96			0.12	81	14.3	1.80		
SdAR-M2 (U.S.G.S.) Meas	4.7	0.6	3.8	0.6	1.9	0.3	1.7	0.2	0.1	< 0.05	1.0				839	11.0	1.6	1620	
SdAR-M2 (U.S.G.S.) Cert	6.28	0.97	5.88	1.21	3.58	0.54	3.63	0.54	7.29	1.8	2.8				808	14.2	2.53	1440.00	
OxL118 Meas																			5.83
OxL118 Cert																			5.828
OxP116 Meas																			15.0
OxP116 Cert																			14.92
OREAS 223 (Fire Assay) Meas																			
OREAS 223 (Fire Assay) Cert																			
OREAS 223 (Fire Assay) Meas																			
OREAS 223 (Fire Assay) Cert																			
OREAS 223 (Fire Assay) Meas																			
OREAS 223 (Fire Assay) Cert																			
OREAS 218 Meas																			
OREAS 218 Cert																			
OREAS 218 Meas																			
OREAS 218 Cert																			
OREAS 218 Meas																			
OREAS 218 Cert																			
OREAS 218 Meas																			
OREAS 218 Cert																			
AL17004-005 Orig																			
AL17004-005 Dup																			
AL17004-007 Orig	2.5	0.5	3.8	0.7	2.3	0.3	2.2	0.3	< 0.1	< 0.05	0.5	< 0.001	10.4	0.07	44.5	9.9	15.3	< 10	
AL17004-007 Dup	2.7	0.5	4.0	0.7	2.4	0.3	2.3	0.3	< 0.1	< 0.05	0.6	< 0.001	5.7	0.07	45.1	10.1	15.5	< 10	

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg	Au
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb	g/tonne
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.1	0.1	10	0.03
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	FA-GRA
Method Blank																			
Method Blank																			
Method Blank																			
Method Blank																			
Method Blank																			
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	< 0.02	< 0.01	< 0.1	< 0.1	50	
Method Blank																			

Quality Analysis ... **Actlabs** *Innovative Technologies*

Date Submitted: 14-Sep-17
Invoice No.: A17-10039
Invoice Date: 27-Sep-17
Your Reference: Alpine

Braveheart Resources Inc
1724 Falls St
Nelson BC

ATTN: Aaron Matlock

CERTIFICATE OF ANALYSIS

14 Rock samples were submitted for analysis.

The following analytical package(s) were requested: Code 1A2-Kamloops Au - Fire Assay AA

Code UT-1-Kamloops Aqua Regia ICP/MS

REPORT **A17-10039**

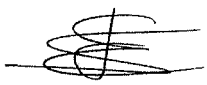
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Notes:

Assays are recommended for values above the upper limit. The Au from AR-MS is only semi-quantitative. For accurate Au data, fire assay is recommended.

If value exceeds upper limit we recommend reassay by fire assay gravimetric-Code 1A3

CERTIFIED BY:



Emmanuel Eseme , Ph.D.
Quality Control

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Analyte Symbol	Au	Ti	S	P	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppb	%	%	%	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.001	1	0.001	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	1	1	0.01	0.1	0.1	0.01	0.1	0.02
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17003-001	< 5	0.005	< 1	< 0.001	7.8	0.4	4	0.058	0.02	0.24	0.07	0.07	0.17	0.5	< 1	16	229	0.80	1.0	1.4	19.1	10.6	1.79
AL17003-002	< 5	0.008	< 1	< 0.001	4.0	0.3	< 1	0.054	0.03	0.27	0.13	0.07	0.33	0.3	1	19	175	0.63	0.4	1.5	2.61	21.0	1.56
AL17003-003	49	0.008	< 1	0.012	4.1	0.4	< 1	0.061	0.02	0.26	0.13	0.09	0.17	0.6	< 1	14	187	0.64	0.4	1.4	3.03	62.9	1.95
AL17003-003D	31	0.007	< 1	0.006	3.4	0.4	< 1	0.053	0.02	0.23	0.12	0.09	0.15	0.5	< 1	17	170	0.59	0.3	2.3	3.17	58.7	1.78
AL17003-004B	< 5	0.168	< 1	0.075	22.7	0.3	< 1	0.129	0.68	1.04	0.46	0.06	0.72	4.5	39	37	404	2.14	6.1	7.9	13.3	47.4	4.71
AL17003-004	32	0.012	< 1	0.012	2.1	0.5	< 1	0.046	0.01	0.25	0.12	0.12	0.33	0.4	1	20	229	0.49	0.3	3.6	4.59	291	1.49
AL17003-005	129	0.458	< 1	0.441	82.3	2.2	2	0.032	1.07	2.19	1.17	0.27	1.64	4.3	39	38	2100	4.09	2.9	26.0	8.42	684	17.6
AL17003-005D	98	0.426	< 1	0.360	76.0	2.0	2	0.032	1.03	1.90	1.11	0.27	1.59	4.1	39	39	2400	4.34	3.2	27.2	11.0	772	17.9
AL17003-006B	< 5	0.145	< 1	0.070	20.6	0.2	4	0.118	0.60	0.93	0.41	0.06	0.67	4.0	33	29	347	1.86	5.4	7.2	12.9	35.0	4.16
AL17003-006	< 5	0.082	< 1	0.195	38.6	1.9	2	0.073	0.60	1.05	0.39	0.36	1.13	2.3	29	18	815	2.29	7.5	17.9	8.96	89.1	6.71
AL17003-007B	< 5	0.166	< 1	0.090	23.7	0.2	2	0.132	0.73	1.09	0.49	0.04	0.76	4.7	39	32	385	2.10	6.1	7.3	13.0	37.2	4.42
AL17003-007	< 5	0.006	< 1	0.005	5.4	0.3	2	0.069	0.04	0.29	0.10	0.06	0.25	0.3	2	13	199	0.78	0.5	1.4	2.39	23.6	1.78
AL17003-008	< 5	0.019	< 1	0.005	9.3	0.2	3	0.067	0.04	0.29	0.15	0.03	0.18	0.4	2	21	229	0.83	0.7	2.0	3.08	30.3	1.96
AL17003-008S	507	0.231	< 1	0.076	10.9	0.3	12	0.334	0.81	2.78	0.25	6.23	3.20	5.3	95	27	768	4.23	19.6	17.8	132	58.9	6.34

Analyte Symbol	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.01	0.1	0.02	0.1	0.1	0.1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17003-001	< 0.1	2.6	6.8	26.6	19.6	1.4	8.5	0.79	0.357	< 0.02	0.67	0.08	0.03	0.30	7.1	3.2	5.88	0.05	0.8	3.95	1.7	0.7	0.1
AL17003-002	< 0.1	0.6	12.3	30.8	12.0	1.5	9.2	1.38	0.374	< 0.02	0.89	0.04	< 0.02	0.82	13.6	4.0	7.71	0.09	0.8	3.79	1.2	0.7	0.1
AL17003-003	< 0.1	0.8	12.8	8.8	13.9	3.0	11.4	0.47	0.423	< 0.02	1.50	0.04	< 0.02	0.93	11.8	11.1	21.0	1.55	2.2	8.62	2.0	0.9	0.1
AL17003-003D	< 0.1	0.6	11.9	8.2	13.2	2.9	9.8	0.47	0.364	< 0.02	1.41	0.04	< 0.02	0.88	10.5	10.8	20.2	1.49	2.1	8.46	1.9	0.7	0.1
AL17003-004B	< 0.1	0.4	49.6	42.9	6.55	1.9	2.6	0.28	0.362	0.03	2.04	0.03	< 0.02	2.38	148	20.7	35.7	0.03	4.3	17.9	3.2	0.6	0.5
AL17003-004	< 0.1	0.5	8.7	14.4	14.0	2.8	10.4	1.33	0.449	0.03	0.93	0.09	< 0.02	0.35	11.6	15.3	26.7	10.8	2.6	10.3	2.2	0.8	0.2
AL17003-005	0.2	0.9	186	59.5	25.3	3.7	33.6	0.72	1.37	0.11	13.9	0.17	< 0.02	19.3	170	17.2	41.5	24.4	5.2	25.2	4.5	0.9	0.9
AL17003-005D	0.2	0.9	234	62.1	26.0	3.4	31.1	0.70	1.54	0.12	14.9	0.17	< 0.02	20.0	196	19.5	40.7	26.0	5.7	26.5	5.5	1.3	1.0
AL17003-006B	< 0.1	0.3	43.7	40.2	5.57	1.4	4.7	0.84	0.295	0.02	1.59	0.03	< 0.02	1.98	115	18.8	31.9	0.07	3.8	15.8	2.8	0.6	0.4
AL17003-006	< 0.1	0.6	64.9	62.2	14.6	3.6	3.9	0.10	0.383	0.03	2.29	0.03	< 0.02	6.01	63.0	16.2	31.8	0.49	4.2	17.3	3.1	0.6	0.6
AL17003-007B	< 0.1	0.2	48.0	42.8	6.02	1.6	5.6	0.72	0.243	0.02	1.58	0.02	< 0.02	2.15	142	19.3	33.6	0.03	4.0	16.8	3.0	0.5	0.4
AL17003-007	< 0.1	0.9	12.1	16.0	5.51	0.6	2.9	0.33	0.213	< 0.02	0.59	0.04	< 0.02	0.55	11.5	4.6	8.37	0.14	1.1	4.43	1.1	0.7	0.1
AL17003-008	< 0.1	1.1	20.4	12.3	3.66	1.0	2.5	0.36	0.222	< 0.02	1.18	0.04	< 0.02	1.38	12.5	2.9	5.49	0.03	0.7	3.11	0.8	0.5	0.1
AL17003-008S	< 0.1	40.9	9.7	137	8.92	6.2	0.6	4.78	1.21	0.06	3.08	1.75	0.72	0.67	145	10.8	19.0	0.34	2.3	10.5	1.7	0.7	0.4

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.1	0.1	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17003-001	2.5	0.5	3.9	0.7	2.4	0.4	2.6	0.4	< 0.1	< 0.05	0.2	0.001	3.5	0.08	9.06	13.2	25.6	< 10
AL17003-002	1.8	0.4	2.4	0.5	1.4	0.2	1.3	0.2	< 0.1	< 0.05	0.2	< 0.001	< 0.5	0.09	11.0	14.2	17.1	10
AL17003-003	2.5	0.4	2.7	0.5	1.5	0.2	1.4	0.2	0.1	< 0.05	0.4	< 0.001	< 0.5	0.08	19.8	13.0	18.3	< 10
AL17003-003D	2.4	0.4	2.6	0.5	1.4	0.2	1.3	0.2	0.1	< 0.05	0.3	< 0.001	< 0.5	0.07	19.3	12.2	17.0	< 10
AL17003-004B	2.5	0.3	1.7	0.3	0.7	< 0.1	0.5	< 0.1	< 0.1	< 0.05	0.3	0.001	< 0.5	0.26	3.07	5.2	1.7	< 10
AL17003-004	2.6	0.5	2.8	0.5	1.5	0.2	1.4	0.2	< 0.1	< 0.05	0.7	< 0.001	< 0.5	0.05	180	12.6	21.8	10
AL17003-005	4.6	0.7	3.9	0.7	1.9	0.3	1.8	0.2	< 0.1	0.09	1.6	< 0.001	< 0.5	1.33	572	7.8	29.0	20
AL17003-005D	4.8	0.7	4.4	0.7	2.3	0.3	1.9	0.3	< 0.1	0.06	1.7	< 0.001	< 0.5	1.43	622	5.9	30.5	< 10
AL17003-006B	2.1	0.3	1.5	0.2	0.6	< 0.1	0.5	< 0.1	< 0.1	< 0.05	0.3	< 0.001	< 0.5	0.27	4.01	5.1	1.6	< 10
AL17003-006	2.7	0.4	3.0	0.5	1.6	0.3	1.5	0.2	0.1	< 0.05	0.5	< 0.001	< 0.5	0.40	11.9	7.2	13.8	< 10
AL17003-007B	2.3	0.3	1.6	0.2	0.6	< 0.1	0.5	< 0.1	< 0.1	< 0.05	0.3	< 0.001	< 0.5	0.27	2.49	5.4	1.6	< 10
AL17003-007	1.0	0.2	1.1	0.2	0.6	< 0.1	0.6	< 0.1	< 0.1	< 0.05	0.1	< 0.001	< 0.5	0.08	10.8	10.5	9.2	< 10
AL17003-008	0.8	0.1	0.8	0.1	0.4	< 0.1	0.3	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	0.12	9.05	9.4	8.4	< 10
AL17003-008S	1.8	0.3	1.6	0.3	1.0	0.1	0.9	0.1	0.2	< 0.05	0.7	0.002	< 0.5	0.12	9.55	3.1	1.5	30

Analyte Symbol	Au	Ti	S	P	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppb	%	%	%	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.001	1	0.001	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	1	1	0.01	0.1	0.1	0.01	0.1	0.02
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas		0.007	< 1	0.035	6.6	0.7	16	0.055	0.14	0.50	0.03	1290	0.73	1.0	62	7	764	21.3	7.0	31.4	1010	699	3.82
GXR-1 Cert		0.036	0.257	0.0650	8.20	1.22	15.0	0.0520	0.217	3.52	0.050	1380	0.960	1.58	80.0	12.0	852	23.6	8.20	41.0	1110	760	13.8
GXR-4 Meas		0.128	2	0.100	9.1	1.5	5	0.140	1.53	2.65	1.55	16.5	0.75	6.1	72	50	130	2.83	13.7	33.2	6040	66.3	9.27
GXR-4 Cert		0.29	1.77	0.120	11.1	1.90	4.50	0.564	1.66	7.20	4.01	19.0	1.01	7.70	87.0	64.0	155	3.09	14.6	42.0	6520	73.0	20.0
GXR-6 Meas			< 1	0.030	25.6	0.9	9	0.080	0.37	6.43	0.98	0.15	0.16	19.4	141	67	923	5.06	12.1	19.6	59.6	112	12.6
GXR-6 Cert			0.0160	0.0350	32.0	1.40	9.80	0.104	0.609	17.7	1.87	0.290	0.180	27.6	186	96.0	1010	5.58	13.8	27.0	66.0	118	35.0
OREAS 923 (AQUA REGIA) Meas			< 1	0.060	24.7	0.6			1.41	2.80	0.41	23.5	0.39	3.8	33	42	903	6.32	23.3	32.8	4520	355	7.82
OREAS 923 (AQUA REGIA) Cert			0.684	0.061	23.4	0.61			1.43	2.80	0.322	21.8	0.326	3.09	30.6	39.4	850	5.91	22.2	32.7	4248	335	8.01
SdAR-M2 (U.S.G.S.) Meas					13.0	4.5						1.10		2.1	16	9			13.2	46.1	251	820	3.18
SdAR-M2 (U.S.G.S.) Cert					17.9	6.6						1.05		4.1	25.2	49.6			12.4	48.8	236.0000	760	17.6
OREAS 223 (Fire Assay) Meas	1780																						
OREAS 223 (Fire Assay) Cert	1780																						
OREAS 223 (Fire Assay) Meas	1860																						
OREAS 223 (Fire Assay) Cert	1780																						
OREAS 218 Meas	532																						
OREAS 218 Cert	531																						
OREAS 218 Meas	512																						
OREAS 218 Cert	531																						
OREAS 218 Meas	513																						
OREAS 218 Cert	531																						
AL17003-001 Orig	< 5																						
AL17003-001 Dup	< 5																						
AL17003-005D Orig	97																						
AL17003-005D Dup	98																						
AL17003-008 Orig	< 5																						
AL17003-008 Dup	< 5																						
AL17003-008S Orig		0.234	< 1	0.076	10.2	0.3	12	0.329	0.80	2.74	0.26	6.23	3.22	5.3	96	27	773	4.25	19.6	17.6	131	55.7	6.45
AL17003-008S Dup		0.229	< 1	0.076	11.6	0.3	11	0.339	0.82	2.82	0.25	6.23	3.17	5.3	94	27	764	4.21	19.5	18.0	133	62.0	6.24
Method Blank	< 5																						
Method Blank	< 5																						
Method Blank	< 5																						

Analyte Symbol	Au	Ti	S	P	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppb	%	%	%	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.001	1	0.001	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	1	1	0.01	0.1	0.1	0.01	0.1	0.02
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
Method Blank	< 5																						
Method Blank	< 5																						
Method Blank		< 0.001	< 1	< 0.001	< 0.1	< 0.1	5	0.011	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.1	< 1	< 1	< 1	< 0.01	< 0.1	< 0.1	0.02	0.3	0.03

Analyte Symbol	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.01	0.1	0.02	0.1	0.1	0.1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas		333	1.9	166	21.3	12.4	< 0.1	16.4	28.1	0.60	24.0	71.7	12.4	2.35	407	5.0	8.60	2.24		5.99	2.0	11.3	0.4
GXR-1 Cert		427	14.0	275	32.0	38.0	0.800	18.0	31.0	0.770	54.0	122	13.0	3.00	750	7.50	17.0	3.30		18.0	2.70	16.6	0.690
GXR-4 Meas		89.2	91.7	58.8	9.41	7.6	0.3	303	2.62	0.17	5.07	2.98	0.76	2.10	33.2	39.9	68.6	< 0.01		32.3	4.9	4.7	1.0
GXR-4 Cert		98.0	160	221	14.0	186	10.0	310	4.00	0.270	5.60	4.80	0.970	2.80	1640	64.5	102	0.860		45.0	6.60	5.60	1.63
GXR-6 Meas		176	54.6	31.3	5.52	7.5	< 0.1	1.38	0.279	0.05	0.82	1.52	0.04	3.11	797	9.9	24.5	0.08		10.3	2.0	0.4	0.5
GXR-6 Cert		330	90.0	35.0	14.0	110	7.50	2.40	1.30	0.260	1.70	3.60	0.0180	4.20	1300	13.9	36.0	1.00		13.0	2.67	0.940	0.760
OREAS 923 (AQUA REGIA) Meas		7.1	25.9	14.4	18.8	36.8		0.82	1.81	0.44	7.32	0.76		2.05	63.6	37.3	62.9	0.43	7.8	32.2	6.0	6.0	
OREAS 923 (AQUA REGIA) Cert		7.07	19.6	13.6	14.3	22.5		0.84	1.62	0.45	5.99	0.58		1.56	54	30.0	60	0.40	6.79	25.4	4.34	5.99	
SdAR-M2 (U.S.G.S.) Meas			18.4	19.5	15.8	5.6	2.7	13.6						0.83	92.5	41.9	80.0	5.06	9.2	36.6	6.2		0.6
SdAR-M2 (U.S.G.S.) Cert			149	144	32.7	259	26.2	13.3						1.82	990	46.6	98.8	5.1	11.0	39.4	7.18		1.44
OREAS 223 (Fire Assay) Meas																							
OREAS 223 (Fire Assay) Cert																							
OREAS 223 (Fire Assay) Meas																							
OREAS 223 (Fire Assay) Cert																							
OREAS 218 Meas																							
OREAS 218 Cert																							
OREAS 218 Meas																							
OREAS 218 Cert																							
OREAS 218 Meas																							
OREAS 218 Cert																							
AL17003-001 Orig																							
AL17003-001 Dup																							
AL17003-005D Orig																							
AL17003-005D Dup																							
AL17003-008 Orig																							
AL17003-008 Dup																							
AL17003-008S Orig	< 0.1	41.1	9.7	134	8.79	6.2	0.6	4.74	0.304	0.05	2.65	1.71	0.72	0.66	117	10.7	18.8	0.32	2.3	10.3	1.6	0.7	0.4
AL17003-008S Dup	< 0.1	40.8	9.7	140	9.06	6.3	0.6	4.82	2.11	0.06	3.50	1.79	0.71	0.68	173	10.9	19.3	0.35	2.3	10.7	1.8	0.6	0.4
Method Blank																							
Method Blank																							
Method Blank																							

Analyte Symbol	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.01	0.1	0.02	0.1	0.1	0.1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
Method Blank																							
Method Blank																							
Method Blank	< 0.1	< 0.1	0.1	< 0.5	< 0.01	< 0.1	< 0.1	0.03	0.007	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02	5.4	< 0.5	0.02	0.01	< 0.1	< 0.02	< 0.1	0.2	< 0.1

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.1	0.1	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas	3.0	0.5	3.9			0.3	1.8	0.2	0.2	< 0.05	123		3850	0.32	670	1.9	27.3	4560
GXR-1 Cert	4.20	0.830	4.30			0.430	1.90	0.280	0.960	0.175	164		3300	0.390	730	2.44	34.9	3900
GXR-4 Meas	3.6	0.4	2.3			0.1	0.7	< 0.1	0.2	< 0.05	10.1		650	2.46	43.2	13.6	4.0	150
GXR-4 Cert	5.25	0.360	2.60			0.210	1.60	0.170	6.30	0.790	30.8		470	3.20	52.0	22.5	6.20	110
GXR-6 Meas	1.6	0.2	1.4				0.6	< 0.1	0.1	< 0.05	< 0.1		61.1	1.70	93.0	3.4	0.7	60
GXR-6 Cert	2.97	0.415	2.80				2.40	0.330	4.30	0.485	1.90		95.0	2.20	101	5.30	1.54	68.0
OREAS 923 (AQUA REGIA) Meas	5.0	0.7							0.9		2.2			0.17	92.1	14.4	2.3	
OREAS 923 (AQUA REGIA) Cert	4.07	0.54							0.60		1.96			0.12	81	14.3	1.80	
SdAR-M2 (U.S.G.S.) Meas	4.7	0.6	3.8	0.6	1.9	0.3	1.7	0.2	0.1	< 0.05	1.0				839	11.0	1.6	1620
SdAR-M2 (U.S.G.S.) Cert	6.28	0.97	5.88	1.21	3.58	0.54	3.63	0.54	7.29	1.8	2.8				808	14.2	2.53	1440.00
OREAS 223 (Fire Assay) Meas																		
OREAS 223 (Fire Assay) Cert																		
OREAS 223 (Fire Assay) Meas																		
OREAS 223 (Fire Assay) Cert																		
OREAS 218 Meas																		
OREAS 218 Cert																		
OREAS 218 Meas																		
OREAS 218 Cert																		
OREAS 218 Meas																		
OREAS 218 Cert																		
AL17003-001 Orig																		
AL17003-001 Dup																		
AL17003-005D Orig																		
AL17003-005D Dup																		
AL17003-008 Orig																		
AL17003-008 Dup																		
AL17003-008S Orig	1.8	0.2	1.6	0.3	1.0	0.1	0.9	0.1	0.2	< 0.05	0.7	0.003	< 0.5	0.12	8.98	3.3	1.5	30
AL17003-008S Dup	1.8	0.3	1.6	0.3	1.0	0.2	0.9	0.1	0.2	< 0.05	0.7	0.002	7.2	0.12	10.1	3.0	1.5	30
Method Blank																		
Method Blank																		
Method Blank																		

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.1	0.1	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
Method Blank																		
Method Blank																		
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	< 0.02	< 0.01	< 0.1	< 0.1	50

Quality Analysis ... **Actlabs** *Innovative Technologies*

Date Submitted: 20-Sep-17
Invoice No.: A17-10286
Invoice Date: 27-Sep-17
Your Reference: Alpine

Braveheart Resources Inc
1724 Falls St
Nelson BC

ATTN: Aaron Matlock

CERTIFICATE OF ANALYSIS

19 Core samples were submitted for analysis.

The following analytical package(s) were requested:

Code 1A2-Kamloops Au - Fire Assay AA
Code Sieve Report-Kamloops Internal Sieve Report Internal
Code UT-1-Kamloops Aqua Regia ICP/MS

REPORT **A17-10286**

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

Assays are recommended for values above the upper limit. The Au from AR-MS is only semi-quantitative. For accurate Au data, fire assay is recommended.

If value exceeds upper limit we recommend reassay by fire assay gravimetric-Code 1A3

CERTIFIED BY:



Emmanuel Eseme , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
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Analyte Symbol	Au	Ti	S	P	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppb	%	%	%	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.001	1	0.001	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	1	1	0.01	0.1	0.1	0.01	0.1	0.02
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17005-001	< 5	0.004	< 1	0.005	2.5	0.6	2	0.070	0.02	0.22	0.11	0.05	0.28	0.6	< 1	13	287	0.55	0.4	1.5	2.59	28.9	1.64
AL17005-002	812	0.003	< 1	0.045	1.8	0.5	5	0.045	0.02	0.34	0.22	0.11	0.43	0.4	< 1	18	228	0.37	0.3	5.6	6.18	78.3	1.79
AL17005-003	415	0.005	< 1	0.025	3.1	0.5	2	0.057	0.03	0.40	0.23	9.03	0.19	0.4	2	22	133	0.52	0.4	3.1	3.48	54.5	2.23
AL17005-003D	438	0.004	< 1	0.025	3.0	0.6	2	0.052	0.03	0.36	0.22	8.06	0.17	0.4	2	19	123	0.49	0.4	2.3	2.80	48.5	2.04
AL17005-004B	< 5	0.164	< 1	0.085	24.4	0.3	5	0.142	0.74	1.11	0.50	0.06	0.72	4.7	38	36	409	2.10	5.8	8.6	13.2	37.7	4.49
AL17005-004	< 5	0.003	< 1	0.005	2.2	0.5	< 1	0.083	0.02	0.24	0.09	0.09	0.22	0.3	< 1	16	222	0.51	0.4	2.6	2.62	41.7	1.61
AL17005-005B	< 5	0.147	< 1	0.075	20.5	0.2	2	0.129	0.66	0.99	0.42	0.05	0.68	4.1	34	33	348	1.84	5.4	6.7	11.3	36.6	4.04
AL17005-005	< 5	0.034	< 1	0.085	12.7	0.6	1	0.018	0.21	0.56	0.07	0.07	0.22	1.5	12	38	547	1.91	1.7	10.7	7.95	65.1	5.84
AL17005-005D	12	0.032	< 1	0.080	11.8	0.6	< 1	0.014	0.18	0.48	0.06	0.06	0.20	1.3	11	38	499	1.73	1.5	9.9	6.63	58.1	5.39
AL17005-006B	< 5	0.172	< 1	0.080	24.0	0.3	2	0.153	0.77	1.12	0.48	0.04	0.77	5.0	38	39	397	2.09	6.1	8.1	14.7	37.4	4.58
AL17005-006	< 5	0.306	< 1	0.171	57.6	0.7	< 1	0.031	0.37	1.01	0.65	0.05	0.36	5.1	20	32	895	2.94	3.2	5.7	3.82	104	12.5
AL17005-006D	< 5	0.305	< 1	0.165	58.4	0.6	< 1	0.034	0.37	1.03	0.64	0.05	0.35	5.0	20	31	892	2.84	3.1	5.9	3.77	100	12.3
AL17005-007B	5	0.164	< 1	0.070	24.1	0.3	< 1	0.152	0.68	1.09	0.48	0.05	0.72	4.9	36	35	416	2.11	5.9	7.8	15.9	36.3	4.49
AL17005-007	25	0.057	< 1	0.020	10.4	0.4	2	0.071	0.07	0.36	0.25	0.03	0.19	1.2	3	13	335	0.85	1.0	1.8	2.78	32.7	3.18
AL17005-008	9	0.028	< 1	0.015	15.2	0.6	1	0.058	0.10	0.51	0.23	0.03	0.72	0.8	4	15	280	0.86	0.9	2.5	3.10	29.5	2.59
AL17005-009	< 5	0.073	< 1	0.110	60.0	1.4	1	0.082	0.59	1.53	0.37	0.06	2.02	3.0	29	13	1300	3.24	4.0	3.4	5.38	121	10.1
AL17005-010	< 5	0.326	< 1	0.130	137	0.6	1	0.166	0.85	1.82	1.22	0.07	0.97	5.9	48	11	1080	4.23	6.8	3.1	6.68	120	9.02
AL17005-011	< 5	0.044	< 1	0.015	16.1	0.3	< 1	0.066	0.10	0.36	0.21	0.04	0.23	1.0	5	17	284	1.02	1.0	4.3	4.62	34.2	2.53
AL17005-011S	4490	0.123	< 1	0.045	7.3	0.2	4	0.183	1.38	1.64	0.26	1.47	1.68	3.6	58	55	633	3.74	13.2	48.6	133	57.4	4.18

Analyte Symbol	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.01	0.1	0.02	0.1	0.1	0.1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17005-001	< 0.1	0.5	11.9	12.1	13.5	2.8	11.5	0.34	0.564	< 0.02	0.92	0.07	< 0.02	0.39	12.4	10.7	18.4	0.21	2.2	8.72	2.4	0.8	0.1
AL17005-002	< 0.1	0.3	19.6	26.5	12.3	2.1	7.5	1.98	0.474	< 0.02	0.71	0.06	0.03	0.52	24.9	14.3	24.9	1.61	3.0	12.3	3.0	0.8	0.2
AL17005-003	< 0.1	0.6	21.0	12.8	10.5	2.5	6.2	2.23	18.1	< 0.02	1.08	5.57	0.83	0.64	30.0	3.2	5.78	4.59	0.8	3.49	1.3	0.7	0.2
AL17005-003D	< 0.1	0.5	19.6	12.0	9.48	2.2	5.7	1.97	16.9	< 0.02	0.94	4.75	0.70	0.61	27.2	2.9	5.19	4.23	0.7	3.09	1.2	0.6	0.2
AL17005-004B	< 0.1	0.3	48.6	40.7	6.42	1.8	4.1	0.83	0.743	0.03	1.73	0.03	< 0.02	2.29	143	20.1	34.4	0.02	4.2	17.6	3.1	0.7	0.4
AL17005-004	< 0.1	0.3	9.7	16.1	10.5	1.2	6.9	0.41	0.429	< 0.02	0.62	0.04	< 0.02	0.30	13.6	5.2	8.93	0.94	1.1	4.39	1.3	0.5	0.2
AL17005-005B	< 0.1	0.3	42.6	43.9	5.49	1.3	4.6	0.16	0.346	0.02	1.53	0.02	< 0.02	2.03	131	17.5	30.1	0.03	3.7	15.4	2.8	0.7	0.4
AL17005-005	< 0.1	0.6	11.3	8.7	9.13	1.3	1.6	2.66	0.281	< 0.02	2.17	0.05	0.03	0.51	13.2	6.2	12.1	0.49	1.6	6.93	1.4	0.7	0.2
AL17005-005D	< 0.1	0.3	10.7	8.1	8.56	1.3	1.4	2.64	0.210	< 0.02	2.04	0.05	< 0.02	0.46	11.6	5.6	11.3	0.43	1.5	6.47	1.4	0.4	0.2
AL17005-006B	< 0.1	0.4	48.6	43.9	6.60	1.8	3.9	0.22	0.199	0.02	1.73	0.03	< 0.02	2.31	137	21.9	37.8	0.02	4.7	19.3	3.5	0.6	0.5
AL17005-006	< 0.1	0.5	137	7.8	16.9	3.3	39.3	2.50	0.879	0.04	8.72	0.09	< 0.02	12.1	64.9	10.3	24.2	0.36	3.0	13.6	2.6	0.9	0.3
AL17005-006D	< 0.1	0.4	135	7.7	16.5	3.3	40.1	2.34	0.859	0.04	8.33	0.05	< 0.02	11.4	61.6	10.0	23.8	0.36	2.9	13.3	2.4	0.8	0.3
AL17005-007B	< 0.1	0.3	49.5	44.8	7.08	1.4	3.0	1.04	0.183	0.03	1.87	0.03	< 0.02	2.37	140	22.0	38.5	0.02	4.7	19.4	3.6	0.7	0.5
AL17005-007	< 0.1	0.6	42.4	8.3	13.1	1.2	18.0	0.32	0.549	< 0.02	2.96	0.03	< 0.02	2.60	26.0	2.3	4.54	0.10	0.6	3.06	1.3	0.8	0.1
AL17005-008	< 0.1	0.6	38.6	64.9	5.24	0.5	2.4	1.20	0.246	< 0.02	1.76	0.04	< 0.02	2.16	37.0	6.6	11.3	0.07	1.4	6.02	1.3	0.5	0.2
AL17005-009	0.1	0.8	51.7	78.3	20.5	0.5	1.8	0.24	0.253	0.03	4.22	< 0.02	< 0.02	1.91	92.1	40.9	69.3	0.15	8.5	35.6	6.7	1.1	1.0
AL17005-010	0.2	0.4	150	41.6	21.2	2.5	13.1	0.96	0.485	0.06	4.61	0.05	< 0.02	5.61	269	54.1	90.6	0.08	11.0	45.1	7.9	1.1	1.5
AL17005-011	< 0.1	0.2	31.2	9.4	13.0	3.0	15.4	0.34	0.403	< 0.02	1.61	0.03	< 0.02	1.70	34.8	13.5	23.3	0.05	2.9	11.8	2.8	0.9	0.2
AL17005-011S	< 0.1	1100	12.0	136	4.85	6.1	0.4	10.7	67.3	< 0.02	1.80	15.8	0.37	0.43	204	9.2	16.2	0.20	2.0	8.34	1.4	2.4	0.3

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.1	0.1	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17005-001	2.5	0.4	3.0	0.5	1.6	0.2	1.4	0.2	0.1	< 0.05	0.3	< 0.001	< 0.5	0.05	15.3	9.0	17.2	< 10
AL17005-002	2.7	0.4	2.8	0.4	1.3	0.2	1.2	0.2	< 0.1	< 0.05	1.0	0.001	< 0.5	0.08	121	9.8	14.9	< 10
AL17005-003	1.7	0.3	2.4	0.4	1.3	0.2	1.2	0.2	< 0.1	< 0.05	0.8	< 0.001	< 0.5	0.13	> 5000	8.0	21.1	< 10
AL17005-003D	1.5	0.3	2.0	0.3	1.1	0.2	1.0	0.1	< 0.1	< 0.05	0.7	< 0.001	< 0.5	0.11	> 5000	6.9	18.4	< 10
AL17005-004B	2.5	0.3	1.7	0.3	0.7	< 0.1	0.5	< 0.1	< 0.1	< 0.05	0.3	< 0.001	< 0.5	0.25	4.15	6.5	1.7	< 10
AL17005-004	1.7	0.3	2.3	0.4	1.3	0.2	1.2	0.2	< 0.1	< 0.05	0.3	< 0.001	< 0.5	0.06	20.3	8.0	12.5	< 10
AL17005-005B	2.2	0.3	1.5	0.2	0.6	< 0.1	0.5	< 0.1	< 0.1	< 0.05	0.2	< 0.001	< 0.5	0.22	4.16	5.4	1.5	< 10
AL17005-005	1.4	0.2	1.4	0.2	0.7	0.1	0.6	< 0.1	< 0.1	< 0.05	0.4	< 0.001	< 0.5	0.06	5.38	1.8	18.9	< 10
AL17005-005D	1.3	0.2	1.3	0.2	0.7	< 0.1	0.6	< 0.1	< 0.1	< 0.05	0.4	< 0.001	< 0.5	0.05	5.05	1.4	16.6	< 10
AL17005-006B	2.7	0.3	1.8	0.3	0.7	< 0.1	0.6	< 0.1	< 0.1	< 0.05	0.3	< 0.001	< 0.5	0.25	3.13	6.1	1.8	< 10
AL17005-006	2.7	0.4	2.5	0.4	1.2	0.2	1.2	0.2	< 0.1	0.06	0.3	< 0.001	< 0.5	0.83	3.47	2.6	16.0	< 10
AL17005-006D	2.6	0.4	2.3	0.4	1.2	0.2	1.2	0.2	< 0.1	0.05	0.3	< 0.001	< 0.5	0.87	3.31	2.5	15.3	< 10
AL17005-007B	2.8	0.3	2.0	0.3	0.8	0.1	0.6	< 0.1	< 0.1	< 0.05	0.3	< 0.001	< 0.5	0.25	2.84	6.5	2.0	< 10
AL17005-007	1.9	0.4	3.0	0.5	1.7	0.2	1.4	0.2	< 0.1	< 0.05	0.2	< 0.001	< 0.5	0.21	7.83	5.4	11.9	< 10
AL17005-008	1.2	0.2	1.1	0.2	0.5	< 0.1	0.4	< 0.1	< 0.1	< 0.05	0.1	< 0.001	< 0.5	0.21	8.96	5.8	5.9	< 10
AL17005-009	5.5	0.7	4.2	0.7	2.1	0.3	1.6	0.2	< 0.1	< 0.05	0.2	< 0.001	< 0.5	0.27	9.32	11.4	7.0	< 10
AL17005-010	6.7	0.8	4.8	0.8	2.4	0.3	1.8	0.3	0.2	< 0.05	0.1	< 0.001	< 0.5	0.89	2.91	14.3	6.4	< 10
AL17005-011	2.9	0.5	3.1	0.5	1.6	0.2	1.3	0.2	0.1	< 0.05	0.2	< 0.001	< 0.5	0.20	9.40	14.6	18.8	< 10
AL17005-011S	1.2	0.2	1.1	0.2	0.6	< 0.1	0.5	< 0.1	0.1	< 0.05	0.8	0.002	6480	0.10	11.1	2.9	0.7	350

Analyte Symbol	Au	Ti	S	P	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppb	%	%	%	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.001	1	0.001	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	1	1	0.01	0.1	0.1	0.01	0.1	0.02
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas		0.007	< 1	0.035	6.6	0.7	16	0.055	0.14	0.50	0.03	1290	0.73	1.0	62	7	764	21.3	7.0	31.4	1010	699	3.82
GXR-1 Cert		0.036	0.257	0.0650	8.20	1.22	15.0	0.0520	0.217	3.52	0.050	1380	0.960	1.58	80.0	12.0	852	23.6	8.20	41.0	1110	760	13.8
GXR-4 Meas		0.128	2	0.100	9.1	1.5	5	0.140	1.53	2.65	1.55	16.5	0.75	6.1	72	50	130	2.83	13.7	33.2	6040	66.3	9.27
GXR-4 Cert		0.29	1.77	0.120	11.1	1.90	4.50	0.564	1.66	7.20	4.01	19.0	1.01	7.70	87.0	64.0	155	3.09	14.6	42.0	6520	73.0	20.0
GXR-6 Meas			< 1	0.030	25.6	0.9	9	0.080	0.37	6.43	0.98	0.15	0.16	19.4	141	67	923	5.06	12.1	19.6	59.6	112	12.6
GXR-6 Cert			0.0160	0.0350	32.0	1.40	9.80	0.104	0.609	17.7	1.87	0.290	0.180	27.6	186	96.0	1010	5.58	13.8	27.0	66.0	118	35.0
OREAS 923 (AQUA REGIA) Meas			< 1	0.060	24.7	0.6			1.41	2.80	0.41	23.5	0.39	3.8	33	42	903	6.32	23.3	32.8	4520	355	7.82
OREAS 923 (AQUA REGIA) Cert			0.684	0.061	23.4	0.61			1.43	2.80	0.322	21.8	0.326	3.09	30.6	39.4	850	5.91	22.2	32.7	4248	335	8.01
SdAR-M2 (U.S.G.S.) Meas					13.0	4.5						1.10		2.1	16	9			13.2	46.1	251	820	3.18
SdAR-M2 (U.S.G.S.) Cert					17.9	6.6						1.05		4.1	25.2	49.6			12.4	48.8	236.0000	760	17.6
OREAS 223 (Fire Assay) Meas	1800																						
OREAS 223 (Fire Assay) Cert	1780																						
OREAS 223 (Fire Assay) Meas	1790																						
OREAS 223 (Fire Assay) Cert	1780																						
OREAS 218 Meas	545																						
OREAS 218 Cert	531																						
OREAS 218 Meas	521																						
OREAS 218 Cert	531																						
AL17005-004 Orig	< 5																						
AL17005-004 Dup	5																						
AL17005-007 Orig		0.057	< 1	0.020	10.7	0.4	1	0.072	0.07	0.36	0.25	0.03	0.20	1.2	3	13	335	0.86	1.0	1.6	2.71	32.9	3.18
AL17005-007 Dup		0.058	< 1	0.020	10.1	0.4	2	0.070	0.07	0.35	0.25	0.03	0.19	1.2	3	14	335	0.84	1.0	2.0	2.86	32.5	3.18
AL17005-010 Orig	< 5																						
AL17005-010 Dup	< 5																						
Method Blank		< 0.001	< 1	< 0.001	< 0.1	< 0.1	5	0.011	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.1	< 1	< 1	< 1	< 0.01	< 0.1	< 0.1	0.02	0.3	0.03
Method Blank	< 5																						
Method Blank	< 5																						
Method Blank	< 5																						

Analyte Symbol	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.01	0.1	0.02	0.1	0.1	0.1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas		333	1.9	166	21.3	12.4	< 0.1	16.4	28.1	0.60	24.0	71.7	12.4	2.35	407	5.0	8.60	2.24		5.99	2.0	11.3	0.4
GXR-1 Cert		427	14.0	275	32.0	38.0	0.800	18.0	31.0	0.770	54.0	122	13.0	3.00	750	7.50	17.0	3.30		18.0	2.70	16.6	0.690
GXR-4 Meas		89.2	91.7	58.8	9.41	7.6	0.3	303	2.62	0.17	5.07	2.98	0.76	2.10	33.2	39.9	68.6	< 0.01		32.3	4.9	4.7	1.0
GXR-4 Cert		98.0	160	221	14.0	186	10.0	310	4.00	0.270	5.60	4.80	0.970	2.80	1640	64.5	102	0.860		45.0	6.60	5.60	1.63
GXR-6 Meas		176	54.6	31.3	5.52	7.5	< 0.1	1.38	0.279	0.05	0.82	1.52	0.04	3.11	797	9.9	24.5	0.08		10.3	2.0	0.4	0.5
GXR-6 Cert		330	90.0	35.0	14.0	110	7.50	2.40	1.30	0.260	1.70	3.60	0.0180	4.20	1300	13.9	36.0	1.00		13.0	2.67	0.940	0.760
OREAS 923 (AQUA REGIA) Meas		7.1	25.9	14.4	18.8	36.8		0.82	1.81	0.44	7.32	0.76		2.05	63.6	37.3	62.9	0.43	7.8	32.2	6.0	6.0	
OREAS 923 (AQUA REGIA) Cert		7.07	19.6	13.6	14.3	22.5		0.84	1.62	0.45	5.99	0.58		1.56	54	30.0	60	0.40	6.79	25.4	4.34	5.99	
SdAR-M2 (U.S.G.S.) Meas			18.4	19.5	15.8	5.6	2.7	13.6						0.83	92.5	41.9	80.0	5.06	9.2	36.6	6.2		0.6
SdAR-M2 (U.S.G.S.) Cert			149	144	32.7	259	26.2	13.3						1.82	990	46.6	98.8	5.1	11.0	39.4	7.18		1.44
OREAS 223 (Fire Assay) Meas																							
OREAS 223 (Fire Assay) Cert																							
OREAS 223 (Fire Assay) Meas																							
OREAS 223 (Fire Assay) Cert																							
OREAS 218 Meas																							
OREAS 218 Cert																							
OREAS 218 Meas																							
OREAS 218 Cert																							
AL17005-004 Orig																							
AL17005-004 Dup																							
AL17005-007 Orig	< 0.1	0.5	42.4	8.3	12.9	1.2	16.2	0.34	0.593	< 0.02	3.02	0.03	< 0.02	2.60	27.5	2.2	4.26	0.11	0.6	2.91	1.2	0.8	0.1
AL17005-007 Dup	< 0.1	0.7	42.5	8.3	13.3	1.2	19.8	0.31	0.505	< 0.02	2.90	0.04	< 0.02	2.60	24.4	2.5	4.82	0.10	0.7	3.21	1.3	0.8	0.1
AL17005-010 Orig																							
AL17005-010 Dup																							
Method Blank	< 0.1	< 0.1	0.1	< 0.5	< 0.01	< 0.1	< 0.1	0.03	0.007	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02	5.4	< 0.5	0.02	0.01	< 0.1	< 0.02	< 0.1	0.2	< 0.1
Method Blank																							
Method Blank																							
Method Blank																							

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.1	0.1	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas	3.0	0.5	3.9			0.3	1.8	0.2	0.2	< 0.05	123		3850	0.32	670	1.9	27.3	4560
GXR-1 Cert	4.20	0.830	4.30			0.430	1.90	0.280	0.960	0.175	164		3300	0.390	730	2.44	34.9	3900
GXR-4 Meas	3.6	0.4	2.3			0.1	0.7	< 0.1	0.2	< 0.05	10.1		650	2.46	43.2	13.6	4.0	150
GXR-4 Cert	5.25	0.360	2.60			0.210	1.60	0.170	6.30	0.790	30.8		470	3.20	52.0	22.5	6.20	110
GXR-6 Meas	1.6	0.2	1.4				0.6	< 0.1	0.1	< 0.05	< 0.1		61.1	1.70	93.0	3.4	0.7	60
GXR-6 Cert	2.97	0.415	2.80				2.40	0.330	4.30	0.485	1.90		95.0	2.20	101	5.30	1.54	68.0
OREAS 923 (AQUA REGIA) Meas	5.0	0.7							0.9		2.2			0.17	92.1	14.4	2.3	
OREAS 923 (AQUA REGIA) Cert	4.07	0.54							0.60		1.96			0.12	81	14.3	1.80	
SdAR-M2 (U.S.G.S.) Meas	4.7	0.6	3.8	0.6	1.9	0.3	1.7	0.2	0.1	< 0.05	1.0				839	11.0	1.6	1620
SdAR-M2 (U.S.G.S.) Cert	6.28	0.97	5.88	1.21	3.58	0.54	3.63	0.54	7.29	1.8	2.8				808	14.2	2.53	1440.00
OREAS 223 (Fire Assay) Meas																		
OREAS 223 (Fire Assay) Cert																		
OREAS 223 (Fire Assay) Meas																		
OREAS 223 (Fire Assay) Cert																		
OREAS 218 Meas																		
OREAS 218 Cert																		
OREAS 218 Meas																		
OREAS 218 Cert																		
AL17005-004 Orig																		
AL17005-004 Dup																		
AL17005-007 Orig	1.9	0.4	2.9	0.5	1.6	0.2	1.4	0.2	< 0.1	< 0.05	0.2	0.001	< 0.5	0.21	7.74	5.4	12.0	< 10
AL17005-007 Dup	1.9	0.4	3.1	0.6	1.8	0.3	1.5	0.2	< 0.1	< 0.05	0.2	< 0.001	< 0.5	0.22	7.92	5.5	11.8	< 10
AL17005-010 Orig																		
AL17005-010 Dup																		
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	< 0.02	< 0.01	< 0.1	< 0.1	50
Method Blank																		
Method Blank																		
Method Blank																		

Quality Analysis ... **Actlabs** *Innovative Technologies*

Date Submitted: 20-Sep-17
Invoice No.: A17-10288
Invoice Date: 27-Sep-17
Your Reference: Alpine

Braveheart Resources Inc
1724 Falls St
Nelson BC

ATTN: Aaron Matlock

CERTIFICATE OF ANALYSIS

19 Core samples were submitted for analysis.

The following analytical package(s) were requested:

Code 1A2-Kamloops Au - Fire Assay AA
Code Sieve Report-Kamloops Internal Sieve Report Internal
Code UT-1-Kamloops Aqua Regia ICP/MS

REPORT **A17-10288**

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

Assays are recommended for values above the upper limit. The Au from AR-MS is only semi-quantitative. For accurate Au data, fire assay is recommended.

If value exceeds upper limit we recommend reassay by fire assay gravimetric-Code 1A3

CERTIFIED BY:



Emmanuel Eseme , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
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Analyte Symbol	Au	Ti	S	P	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppb	%	%	%	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.001	1	0.001	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	1	1	0.01	0.1	0.1	0.01	0.1	0.02
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17006-001	9	0.096	< 1	0.105	79.6	1.4	3	0.064	0.56	1.28	0.27	0.07	3.11	3.6	23	9	1010	3.27	5.6	2.9	5.63	88.1	7.70
AL17006-002	< 5	0.109	< 1	0.110	76.9	1.0	3	0.080	0.62	1.29	0.42	0.05	1.52	3.9	27	8	842	3.18	5.4	2.9	6.48	98.2	7.23
AL17006-003	< 5	0.090	< 1	0.125	98.0	1.7	3	0.074	0.77	1.57	0.37	0.07	2.40	5.2	33	10	1160	4.14	6.7	2.9	5.44	144	8.88
AL17006-004	6	0.042	< 1	0.025	26.1	0.4	2	0.071	0.17	0.56	0.17	0.03	0.32	1.0	8	11	338	1.32	1.6	2.2	3.24	43.3	3.19
AL17006-005	19	0.062	< 1	0.045	19.1	0.7	1	0.088	0.27	0.77	0.32	0.06	0.60	1.5	12	18	533	1.62	2.6	3.1	5.51	63.2	4.31
AL17006-006	43	0.012	< 1	0.010	4.5	0.5	1	0.069	0.05	0.29	0.16	0.10	0.22	0.8	2	13	326	0.77	1.0	3.2	3.92	50.6	2.43
AL17006-007	7	0.072	< 1	0.176	29.9	1.1	< 1	0.071	0.58	1.20	0.12	0.11	0.62	3.5	22	28	1630	3.04	6.9	18.1	1.67	165	14.4
AL17006-008	17	0.109	< 1	0.192	443	4.5	< 1	0.112	2.99	3.35	3.45	0.90	2.74	8.8	130	84	2580	7.40	37.7	92.0	1.42	664	29.0
AL17006-009	614	0.101	< 1	0.310	23.1	2.3	4	0.054	0.44	0.98	0.46	0.62	2.44	2.0	12	23	1680	2.66	7.5	19.8	7.28	322	5.26
AL17006-009D	613	0.099	< 1	0.290	20.8	2.0	2	0.048	0.43	0.94	0.43	0.61	2.31	2.0	12	18	1650	2.60	7.1	15.4	4.50	304	5.37
AL17006-010B	< 5	0.163	< 1	0.100	25.6	0.2	< 1	0.160	0.76	1.32	0.53	0.05	0.79	4.9	39	41	360	2.07	6.7	9.4	13.1	36.2	5.02
AL17006-010	42	0.190	< 1	0.435	78.0	2.3	4	0.066	1.42	2.25	1.22	0.45	3.62	3.6	33	35	3100	5.40	8.5	50.1	21.7	248	13.6
AL17006-011	< 5	0.134	< 1	0.371	32.7	1.3	< 1	0.080	0.94	1.61	0.28	0.35	2.24	2.2	13	21	2380	3.71	7.6	33.8	8.24	143	9.13
AL17006-011S	4870	0.143	< 1	0.059	7.9	0.2	4	0.176	1.49	1.91	0.29	1.54	1.89	4.2	64	60	617	3.84	12.4	52.1	126	59.9	4.77
AL17006-012	12	0.014	< 1	0.015	2.4	0.7	< 1	0.066	0.03	0.27	0.16	0.05	0.49	0.1	< 1	6	297	0.28	0.3	4.3	2.75	44.1	1.56
AL17006-013	< 5	0.004	< 1	0.005	2.9	0.7	1	0.073	0.04	0.30	0.17	0.02	0.56	0.2	< 1	3	359	0.34	0.2	1.5	1.41	6.1	1.66
AL17006-014	7	0.009	< 1	0.055	12.4	1.2	2	0.045	0.50	0.66	0.32	< 0.02	6.00	1.5	4	1	5090	2.32	1.4	4.2	0.81	70.6	3.49
AL17006-015	< 5	0.005	< 1	0.065	11.1	1.2	2	0.063	0.39	0.69	0.31	0.18	4.62	1.2	3	3	4110	1.77	0.8	3.4	1.42	29.1	3.06
AL17006-016	< 5	0.003	< 1	< 0.001	2.0	0.4	2	0.054	0.04	0.18	0.11	1.39	1.22	0.3	< 1	10	896	0.48	0.9	2.2	6.31	145	1.13

Analyte Symbol	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.01	0.1	0.02	0.1	0.1	0.1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17006-001	0.1	2.6	40.4	223	16.5	0.8	0.7	1.88	1.10	0.04	1.38	0.09	< 0.02	1.84	35.6	50.2	83.0	0.24	10.0	41.0	7.1	0.6	1.6
AL17006-002	0.1	2.3	54.9	128	12.7	0.8	0.6	1.40	0.691	0.03	1.54	0.06	< 0.02	2.39	53.6	41.1	68.0	0.20	8.2	33.7	5.6	0.4	1.1
AL17006-003	0.1	2.3	49.4	181	17.2	0.7	0.5	1.34	0.884	0.05	1.58	0.07	< 0.02	2.30	65.6	50.8	85.8	0.43	10.4	43.4	7.5	0.6	1.5
AL17006-004	< 0.1	0.4	21.8	36.0	9.28	0.7	2.2	1.14	0.395	< 0.02	1.12	0.05	< 0.02	0.79	28.4	13.0	21.7	0.10	2.6	10.5	2.0	0.3	0.3
AL17006-005	< 0.1	0.7	39.5	34.2	16.3	3.0	5.8	0.68	0.462	< 0.02	1.82	0.06	< 0.02	1.74	44.9	23.4	39.5	0.36	4.8	19.8	4.0	0.5	0.6
AL17006-006	< 0.1	0.7	18.0	13.7	13.3	1.9	6.8	2.00	0.394	< 0.02	1.51	0.05	< 0.02	0.69	14.7	9.2	16.3	0.57	2.0	7.94	2.2	0.4	0.2
AL17006-007	< 0.1	0.7	13.4	26.2	29.2	3.1	2.9	0.38	0.210	0.06	4.83	0.05	< 0.02	0.65	16.4	16.8	37.9	1.21	4.4	19.7	3.6	0.7	0.5
AL17006-008	0.3	< 0.1	> 500	293	12.2	0.9	0.8	1.12	0.373	0.29	54.8	0.05	< 0.02	57.2	981	40.5	80.4	0.76	10.6	44.4	6.1	0.4	1.6
AL17006-009	< 0.1	3.7	58.1	209	27.6	3.7	9.4	0.62	1.11	0.04	3.90	0.07	0.04	3.27	73.6	12.3	25.1	8.25	3.5	16.3	4.4	0.9	0.9
AL17006-009D	< 0.1	3.5	54.9	200	26.4	3.5	9.1	0.47	1.24	0.04	3.59	0.07	0.04	3.17	68.6	11.8	24.1	8.15	3.4	15.9	4.2	0.9	0.8
AL17006-010B	< 0.1	0.3	42.9	58.2	6.12	1.5	1.5	1.60	0.136	0.02	1.70	0.03	< 0.02	2.39	144	16.4	32.4	0.02	3.6	15.7	2.5	0.4	0.4
AL17006-010	0.1	6.8	226	214	31.3	3.3	12.4	0.31	0.866	0.04	7.52	0.06	< 0.02	19.4	235	21.2	42.5	3.44	5.8	26.2	5.6	1.0	1.2
AL17006-011	< 0.1	10.8	21.5	141	21.3	2.0	5.1	5.35	0.345	0.03	1.56	0.03	< 0.02	0.59	33.6	10.5	24.1	1.78	3.0	14.4	3.0	0.5	0.7
AL17006-011S	< 0.1	1100	9.9	146	5.32	6.9	0.3	10.6	67.4	0.02	1.80	16.2	0.40	0.44	192	8.7	17.4	0.22	1.9	8.76	1.3	2.7	0.3
AL17006-012	< 0.1	0.7	15.7	33.6	33.9	0.9	13.0	0.25	0.641	< 0.02	0.54	0.03	< 0.02	0.33	25.4	4.0	7.50	0.43	1.0	4.71	1.9	1.2	0.3
AL17006-013	< 0.1	0.4	14.9	34.4	34.3	0.9	15.2	0.28	0.563	< 0.02	0.74	0.02	< 0.02	0.34	27.9	8.5	15.6	0.07	2.0	8.23	2.5	1.0	0.3
AL17006-014	< 0.1	0.2	30.1	303	10.8	0.2	1.0	0.04	0.318	0.03	1.40	< 0.02	< 0.02	0.64	51.4	7.6	14.4	0.96	1.9	8.24	1.9	0.4	0.5
AL17006-015	< 0.1	0.3	27.8	214	10.6	0.5	0.9	0.32	0.669	0.03	1.35	0.03	< 0.02	0.51	48.5	39.5	69.0	0.41	8.4	33.0	5.1	0.3	0.9
AL17006-016	< 0.1	0.9	9.6	59.2	14.2	0.7	8.1	0.45	1.03	0.02	0.65	0.09	0.04	0.18	16.1	4.2	7.29	3.22	0.9	3.92	1.3	0.3	0.5

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.1	0.1	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17006-001	5.6	0.7	3.8	0.6	1.8	0.2	1.5	0.2	< 0.1	< 0.05	0.1	< 0.001	4.5	0.25	11.2	13.5	4.6	< 10
AL17006-002	4.3	0.5	2.7	0.4	1.3	0.2	1.0	0.2	< 0.1	< 0.05	< 0.1	< 0.001	4.1	0.32	10.8	11.7	3.8	< 10
AL17006-003	6.0	0.7	3.9	0.6	1.8	0.3	1.4	0.2	< 0.1	< 0.05	0.1	< 0.001	< 0.5	0.31	26.5	13.8	6.3	< 10
AL17006-004	1.9	0.3	1.9	0.3	1.0	0.1	0.9	0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	0.13	10.4	8.9	13.5	< 10
AL17006-005	3.8	0.5	3.5	0.6	1.8	0.3	1.7	0.2	0.1	< 0.05	0.3	< 0.001	1.4	0.22	12.0	12.8	23.9	< 10
AL17006-006	2.3	0.4	2.8	0.5	1.6	0.2	1.4	0.2	< 0.1	< 0.05	0.4	< 0.001	26.0	0.09	20.6	10.5	25.0	< 10
AL17006-007	4.0	0.7	4.3	0.8	2.4	0.4	2.5	0.4	< 0.1	< 0.05	0.5	< 0.001	< 0.5	0.13	12.6	10.4	33.5	< 10
AL17006-008	4.2	0.5	2.6	0.4	1.2	0.2	0.8	< 0.1	< 0.1	< 0.05	0.4	< 0.001	17.7	4.03	7.11	4.4	10.0	< 10
AL17006-009	4.9	0.8	5.6	0.9	2.9	0.4	2.6	0.4	< 0.1	< 0.05	1.2	0.001	592	0.32	101	10.0	26.2	< 10
AL17006-009D	4.8	0.8	5.2	0.9	2.7	0.4	2.4	0.4	0.1	< 0.05	1.1	< 0.001	1510	0.32	103	9.9	25.5	< 10
AL17006-010B	2.1	0.3	1.4	0.2	0.6	< 0.1	0.5	< 0.1	< 0.1	< 0.05	< 0.1	0.001	< 0.5	0.29	2.83	5.5	2.0	< 10
AL17006-010	5.9	0.9	5.9	1.0	3.1	0.4	2.7	0.4	< 0.1	< 0.05	2.2	< 0.001	21.0	1.56	52.4	9.0	27.5	< 10
AL17006-011	3.6	0.6	3.5	0.7	1.9	0.3	1.9	0.3	< 0.1	< 0.05	0.7	< 0.001	< 0.5	0.14	21.4	7.8	16.3	< 10
AL17006-011S	1.3	0.2	0.9	0.2	0.6	< 0.1	0.5	< 0.1	0.1	< 0.05	0.5	0.001	4980	0.09	11.3	2.5	0.8	290
AL17006-012	3.2	0.8	6.4	1.3	4.5	0.7	4.6	0.7	< 0.1	< 0.05	0.5	< 0.001	< 0.5	0.08	16.9	9.0	43.8	< 10
AL17006-013	3.7	0.8	6.6	1.3	4.4	0.7	4.5	0.6	< 0.1	< 0.05	0.7	< 0.001	1.5	0.07	7.78	14.2	43.3	< 10
AL17006-014	1.8	0.3	1.7	0.3	1.1	0.2	1.5	0.3	< 0.1	< 0.05	17.1	0.001	1.4	0.14	16.3	17.8	9.0	20
AL17006-015	3.2	0.3	1.9	0.3	1.1	0.2	1.3	0.3	< 0.1	< 0.05	5.5	< 0.001	< 0.5	0.15	48.4	23.6	14.2	10
AL17006-016	1.8	0.4	2.7	0.5	1.6	0.2	1.5	0.2	< 0.1	< 0.05	0.6	< 0.001	< 0.5	0.05	26.5	7.4	19.0	< 10

Analyte Symbol	Au	Ti	S	P	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppb	%	%	%	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.001	1	0.001	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	1	1	0.01	0.1	0.1	0.01	0.1	0.02
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas		0.007	< 1	0.035	6.6	0.7	16	0.055	0.14	0.50	0.03	1290	0.73	1.0	62	7	764	21.3	7.0	31.4	1010	699	3.82
GXR-1 Cert		0.036	0.257	0.0650	8.20	1.22	15.0	0.0520	0.217	3.52	0.050	1380	0.960	1.58	80.0	12.0	852	23.6	8.20	41.0	1110	760	13.8
GXR-4 Meas		0.128	2	0.100	9.1	1.5	5	0.140	1.53	2.65	1.55	16.5	0.75	6.1	72	50	130	2.83	13.7	33.2	6040	66.3	9.27
GXR-4 Cert		0.29	1.77	0.120	11.1	1.90	4.50	0.564	1.66	7.20	4.01	19.0	1.01	7.70	87.0	64.0	155	3.09	14.6	42.0	6520	73.0	20.0
GXR-6 Meas			< 1	0.030	25.6	0.9	9	0.080	0.37	6.43	0.98	0.15	0.16	19.4	141	67	923	5.06	12.1	19.6	59.6	112	12.6
GXR-6 Cert			0.0160	0.0350	32.0	1.40	9.80	0.104	0.609	17.7	1.87	0.290	0.180	27.6	186	96.0	1010	5.58	13.8	27.0	66.0	118	35.0
OREAS 923 (AQUA REGIA) Meas			< 1	0.060	24.7	0.6			1.41	2.80	0.41	23.5	0.39	3.8	33	42	903	6.32	23.3	32.8	4520	355	7.82
OREAS 923 (AQUA REGIA) Cert			0.684	0.061	23.4	0.61			1.43	2.80	0.322	21.8	0.326	3.09	30.6	39.4	850	5.91	22.2	32.7	4248	335	8.01
SdAR-M2 (U.S.G.S.) Meas					13.0	4.5						1.10		2.1	16	9			13.2	46.1	251	820	3.18
SdAR-M2 (U.S.G.S.) Cert					17.9	6.6						1.05		4.1	25.2	49.6			12.4	48.8	236.00 00	760	17.6
OREAS 223 (Fire Assay) Meas	1800																						
OREAS 223 (Fire Assay) Cert	1780																						
OREAS 223 (Fire Assay) Meas	1790																						
OREAS 223 (Fire Assay) Cert	1780																						
OREAS 218 Meas	545																						
OREAS 218 Cert	531																						
OREAS 218 Meas	521																						
OREAS 218 Cert	531																						
AL17006-008 Orig		0.128	< 1	0.205	462	4.9	< 1	0.114	3.07	3.45	3.58	0.94	2.92	9.3	136	87	2710	7.69	39.2	96.1	1.30	686	29.7
AL17006-008 Dup		0.089	< 1	0.180	423	4.1	< 1	0.111	2.91	3.25	3.32	0.86	2.56	8.2	124	80	2440	7.12	36.2	87.9	1.54	643	28.3
AL17006-009D Orig	601																						
AL17006-009D Dup	624																						
AL17006-016 Orig	< 5																						
AL17006-016 Dup	< 5																						
Method Blank		< 0.001	< 1	< 0.001	< 0.1	< 0.1	5	0.011	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.1	< 1	< 1	< 1	< 0.01	< 0.1	< 0.1	0.02	0.3	0.03
Method Blank	< 5																						
Method Blank	< 5																						
Method Blank	< 5																						

Analyte Symbol	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.01	0.1	0.02	0.1	0.1	0.1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas		333	1.9	166	21.3	12.4	< 0.1	16.4	28.1	0.60	24.0	71.7	12.4	2.35	407	5.0	8.60	2.24		5.99	2.0	11.3	0.4
GXR-1 Cert		427	14.0	275	32.0	38.0	0.800	18.0	31.0	0.770	54.0	122	13.0	3.00	750	7.50	17.0	3.30		18.0	2.70	16.6	0.690
GXR-4 Meas		89.2	91.7	58.8	9.41	7.6	0.3	303	2.62	0.17	5.07	2.98	0.76	2.10	33.2	39.9	68.6	< 0.01		32.3	4.9	4.7	1.0
GXR-4 Cert		98.0	160	221	14.0	186	10.0	310	4.00	0.270	5.60	4.80	0.970	2.80	1640	64.5	102	0.860		45.0	6.60	5.60	1.63
GXR-6 Meas		176	54.6	31.3	5.52	7.5	< 0.1	1.38	0.279	0.05	0.82	1.52	0.04	3.11	797	9.9	24.5	0.08		10.3	2.0	0.4	0.5
GXR-6 Cert		330	90.0	35.0	14.0	110	7.50	2.40	1.30	0.260	1.70	3.60	0.0180	4.20	1300	13.9	36.0	1.00		13.0	2.67	0.940	0.760
OREAS 923 (AQUA REGIA) Meas		7.1	25.9	14.4	18.8	36.8		0.82	1.81	0.44	7.32	0.76		2.05	63.6	37.3	62.9	0.43	7.8	32.2	6.0	6.0	
OREAS 923 (AQUA REGIA) Cert		7.07	19.6	13.6	14.3	22.5		0.84	1.62	0.45	5.99	0.58		1.56	54	30.0	60	0.40	6.79	25.4	4.34	5.99	
SdAR-M2 (U.S.G.S.) Meas			18.4	19.5	15.8	5.6	2.7	13.6						0.83	92.5	41.9	80.0	5.06	9.2	36.6	6.2		0.6
SdAR-M2 (U.S.G.S.) Cert			149	144	32.7	259	26.2	13.3						1.82	990	46.6	98.8	5.1	11.0	39.4	7.18		1.44
OREAS 223 (Fire Assay) Meas																							
OREAS 223 (Fire Assay) Cert																							
OREAS 223 (Fire Assay) Meas																							
OREAS 223 (Fire Assay) Cert																							
OREAS 218 Meas																							
OREAS 218 Cert																							
OREAS 218 Meas																							
OREAS 218 Cert																							
AL17006-008 Orig	0.3	0.1	> 500	304	12.6	1.2	1.0	1.24	0.380	0.30	56.9	0.05	< 0.02	58.9	1010	41.7	82.5	0.77	11.0	45.9	6.4	0.4	1.6
AL17006-008 Dup	0.2	< 0.1	> 500	283	11.7	0.7	0.7	0.99	0.366	0.28	52.6	0.04	< 0.02	55.4	952	39.3	78.2	0.76	10.2	42.8	5.8	0.4	1.5
AL17006-009D Orig																							
AL17006-009D Dup																							
AL17006-016 Orig																							
AL17006-016 Dup																							
Method Blank	< 0.1	< 0.1	0.1	< 0.5	< 0.01	< 0.1	< 0.1	0.03	0.007	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02	5.4	< 0.5	0.02	0.01	< 0.1	< 0.02	< 0.1	0.2	< 0.1
Method Blank																							
Method Blank																							
Method Blank																							

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.1	0.1	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas	3.0	0.5	3.9			0.3	1.8	0.2	0.2	< 0.05	123		3850	0.32	670	1.9	27.3	4560
GXR-1 Cert	4.20	0.830	4.30			0.430	1.90	0.280	0.960	0.175	164		3300	0.390	730	2.44	34.9	3900
GXR-4 Meas	3.6	0.4	2.3			0.1	0.7	< 0.1	0.2	< 0.05	10.1		650	2.46	43.2	13.6	4.0	150
GXR-4 Cert	5.25	0.360	2.60			0.210	1.60	0.170	6.30	0.790	30.8		470	3.20	52.0	22.5	6.20	110
GXR-6 Meas	1.6	0.2	1.4				0.6	< 0.1	0.1	< 0.05	< 0.1		61.1	1.70	93.0	3.4	0.7	60
GXR-6 Cert	2.97	0.415	2.80				2.40	0.330	4.30	0.485	1.90		95.0	2.20	101	5.30	1.54	68.0
OREAS 923 (AQUA REGIA) Meas	5.0	0.7							0.9		2.2			0.17	92.1	14.4	2.3	
OREAS 923 (AQUA REGIA) Cert	4.07	0.54							0.60		1.96			0.12	81	14.3	1.80	
SdAR-M2 (U.S.G.S.) Meas	4.7	0.6	3.8	0.6	1.9	0.3	1.7	0.2	0.1	< 0.05	1.0				839	11.0	1.6	1620
SdAR-M2 (U.S.G.S.) Cert	6.28	0.97	5.88	1.21	3.58	0.54	3.63	0.54	7.29	1.8	2.8				808	14.2	2.53	1440.00
OREAS 223 (Fire Assay) Meas																		
OREAS 223 (Fire Assay) Cert																		
OREAS 223 (Fire Assay) Meas																		
OREAS 223 (Fire Assay) Cert																		
OREAS 218 Meas																		
OREAS 218 Cert																		
OREAS 218 Meas																		
OREAS 218 Cert																		
AL17006-008 Orig	4.3	0.5	2.7	0.4	1.2	0.2	0.9	< 0.1	< 0.1	< 0.05	0.4	< 0.001	22.6	4.24	7.41	5.0	10.6	< 10
AL17006-008 Dup	4.0	0.4	2.5	0.4	1.1	0.2	0.8	< 0.1	< 0.1	< 0.05	0.3	< 0.001	12.9	3.81	6.80	3.7	9.4	10
AL17006-009D Orig																		
AL17006-009D Dup																		
AL17006-016 Orig																		
AL17006-016 Dup																		
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	< 0.02	< 0.01	< 0.1	< 0.1	50
Method Blank																		
Method Blank																		
Method Blank																		

Quality Analysis ... **Actlabs** *Innovative Technologies*

Date Submitted: 03-Oct-17
Invoice No.: A17-10861 (i)
Invoice Date: 06-Nov-17
Your Reference: Alpine

Braveheart Resources Inc
1724 Falls St
Nelson BC

ATTN: Aaron Matlock

CERTIFICATE OF ANALYSIS

6 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code 1A2-Kamloops Au - Fire Assay AA
Code Sieve Report-Kamloops Internal Sieve Report Internal
Code UT-1-Kamloops Aqua Regia ICP/MS

REPORT **A17-10861 (i)**

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

Assays are recommended for values above the upper limit. The Au from AR-MS is only semi-quantitative. For accurate Au data, fire assay is recommended.

If value exceeds upper limit we recommend reassay by fire assay gravimetric-Code 1A3

CERTIFIED BY:



Emmanuel Eseme , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
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Analyte Symbol	Au	Ti	S	P	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppb	%	%	%	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.001	1	0.001	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	1	1	0.01	0.1	0.1	0.01	0.1	0.02
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
JBALR001	< 5	< 0.001	< 1	< 0.001	1.2	0.2	< 1	0.040	0.01	0.15	0.08	0.06	0.04	< 0.1	4	49	90	0.69	0.7	2.0	4.19	4.4	1.14
JBALR002	< 5	0.014	< 1	0.028	15.6	0.3	1	0.030	0.08	0.45	0.28	0.13	0.06	0.7	8	51	163	1.45	1.2	2.9	10.2	20.3	2.83
JBALR003	< 5	0.002	< 1	< 0.001	1.0	0.2	< 1	0.052	0.01	0.18	0.11	0.05	0.02	0.2	< 1	28	52	0.53	0.8	1.6	5.95	8.5	1.04
JBALR014	< 5	0.001	< 1	< 0.001	1.9	0.2	< 1	0.018	0.02	0.19	0.09	0.14	0.02	< 0.1	4	47	171	0.59	0.9	3.0	4.22	10.6	0.81
JBALR015	< 5	< 0.001	< 1	< 0.001	2.1	0.3	3	0.017	0.04	0.52	0.18	0.03	0.04	0.1	2	40	85	0.53	0.8	2.1	24.0	31.8	1.81
JBALR016	< 5	0.001	< 1	0.018	3.7	0.4	2	0.035	0.04	0.44	0.20	0.09	0.03	0.2	3	26	177	0.82	1.6	2.2	3.25	20.3	1.77

Analyte Symbol	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.01	0.1	0.02	0.1	0.1	0.1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
JBALR001	< 0.1	0.9	6.1	3.3	2.22	0.3	0.4	0.75	0.179	< 0.02	0.28	0.05	< 0.02	0.16	16.2	0.6	1.30	0.03	0.2	0.71	0.3	0.1	< 0.1
JBALR002	< 0.1	0.7	33.4	3.4	2.74	0.1	0.7	1.58	0.398	< 0.02	1.21	0.12	0.04	1.40	70.5	5.0	15.8	0.05	1.2	4.40	0.9	< 0.1	0.2
JBALR003	< 0.1	9.7	8.2	3.9	17.9	0.8	4.1	1.27	0.317	< 0.02	0.36	0.09	< 0.02	0.29	26.2	0.9	2.45	0.02	0.3	1.37	0.9	0.6	0.1
JBALR014	< 0.1	0.7	7.8	3.4	0.50	0.1	0.3	1.03	0.246	< 0.02	0.34	0.08	< 0.02	0.44	22.0	3.4	6.24	0.21	0.7	2.37	0.4	< 0.1	< 0.1
JBALR015	< 0.1	0.7	17.0	12.5	0.93	0.3	0.1	0.74	0.156	< 0.02	0.25	0.05	< 0.02	1.10	26.2	8.3	15.0	0.11	1.7	5.75	0.9	0.1	0.1
JBALR016	< 0.1	0.7	16.4	4.7	1.94	< 0.1	0.2	0.70	0.184	< 0.02	0.40	0.08	< 0.02	0.62	42.5	9.6	18.3	0.08	2.1	7.20	1.1	0.1	0.3

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.1	0.1	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
JBALR001	0.3	< 0.1	0.4	< 0.1	0.2	< 0.1	0.2	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	0.03	8.10	8.0	36.3	< 10
JBALR002	0.8	< 0.1	0.5	< 0.1	0.2	< 0.1	0.3	< 0.1	< 0.1	< 0.05	132	0.001	< 0.5	0.19	7.59	3.2	1.5	30
JBALR003	1.8	0.4	3.1	0.6	2.1	0.3	2.5	0.3	< 0.1	< 0.05	1.1	< 0.001	< 0.5	0.06	14.4	7.9	15.7	< 10
JBALR014	0.3	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	0.6	< 0.001	< 0.5	0.07	15.5	2.7	0.9	< 10
JBALR015	0.5	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	0.3	< 0.001	< 0.5	0.12	16.1	8.4	1.1	< 10
JBALR016	0.8	< 0.1	0.4	< 0.1	0.2	< 0.1	0.2	< 0.1	< 0.1	< 0.05	0.2	< 0.001	< 0.5	0.14	15.8	6.9	2.2	< 10

Analyte Symbol	Au	Ti	S	P	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppb	%	%	%	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.001	1	0.001	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	1	1	0.01	0.1	0.1	0.01	0.1	0.02
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas		0.007	< 1	0.037	7.3	0.7	14	0.064	0.16	0.61	0.04	1230	0.75	1.1	72	6	817	22.7	7.5	33.3	1020	716	5.18
GXR-1 Cert		0.036	0.257	0.0650	8.20	1.22	15.0	0.0520	0.217	3.52	0.050	1380	0.960	1.58	80.0	12.0	852	23.6	8.20	41.0	1110	760	13.8
GXR-4 Meas		0.125	2	0.119	8.8	1.4	4	0.135	1.58	2.69	1.64	18.0	0.77	6.4	84	52	133	2.97	15.0	36.5	6590	72.8	9.90
GXR-4 Cert		0.29	1.77	0.120	11.1	1.90	4.50	0.564	1.66	7.20	4.01	19.0	1.01	7.70	87.0	64.0	155	3.09	14.6	42.0	6520	73.0	20.0
GXR-6 Meas			< 1	0.028	26.2	0.8	6	0.081	0.39	7.10	1.12	0.17	0.16	21.0	174	72	991	5.46	13.6	21.3	63.7	120	13.6
GXR-6 Cert			0.0160	0.0350	32.0	1.40	9.80	0.104	0.609	17.7	1.87	0.290	0.180	27.6	186	96.0	1010	5.58	13.8	27.0	66.0	118	35.0
OREAS 922 (AQUA REGIA) Meas			< 1	0.064	21.9	0.8		0.026	1.34	2.80	0.46	10.6	0.36	3.6	36	44	760	5.38	20.5	34.9	2170	275	7.42
OREAS 922 (AQUA REGIA) Cert			0.386	0.063	22.8	0.65		0.021	1.33	2.72	0.376	10.3	0.324	3.15	29.4	40.7	730	5.05	19.4	34.3	2176	256	7.62
OREAS 923 (AQUA REGIA) Meas			< 1	0.067	24.5	0.8			1.47	2.78	0.42	25.3	0.42	4.1	33	41	866	6.39	23.5	33.8	4540	367	7.51
OREAS 923 (AQUA REGIA) Cert			0.684	0.061	23.4	0.61			1.43	2.80	0.322	21.8	0.326	3.09	30.6	39.4	850	5.91	22.2	32.7	4248	335	8.01
OREAS 218 Meas	498																						
OREAS 218 Cert	531																						
JBALR016 Orig	< 5																						
JBALR016 Dup	< 5																						
Method Blank		< 0.001	< 1	< 0.001	< 0.1	< 0.1	< 1	< 0.001	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.1	< 1	< 1	< 1	< 0.01	< 0.1	< 0.1	< 0.01	< 0.1	0.02
Method Blank		< 0.001	< 1	< 0.001	< 0.1	< 0.1	< 1	< 0.001	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.1	< 1	< 1	< 1	< 0.01	< 0.1	< 0.1	< 0.01	< 0.1	< 0.02
Method Blank		< 0.001	< 1	< 0.001	< 0.1	< 0.1	< 1	0.014	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.1	< 1	< 1	< 1	< 0.01	< 0.1	0.2	0.13	0.3	0.06
Method Blank	< 5																						

Analyte Symbol	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.01	0.1	0.02	0.1	0.1	0.1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas		352	2.2	170	24.1	12.4	< 0.1	16.6	29.7	0.67	22.9	74.3	12.1	2.27	227	4.6	8.69	2.22		5.37	1.8	11.8	0.4
GXR-1 Cert		427	14.0	275	32.0	38.0	0.800	18.0	31.0	0.770	54.0	122	13.0	3.00	750	7.50	17.0	3.30		18.0	2.70	16.6	0.690
GXR-4 Meas		97.4	90.1	67.0	11.5	8.3	0.2	325	3.69	0.20	5.41	3.15	0.98	2.28	16.9	47.1	86.5	< 0.01		35.4	5.5	5.2	1.1
GXR-4 Cert		98.0	160	221	14.0	186	10.0	310	4.00	0.270	5.60	4.80	0.970	2.80	1640	64.5	102	0.860		45.0	6.60	5.60	1.63
GXR-6 Meas		199	61.8	34.2	6.47	9.2	< 0.1	1.36	0.361	0.06	0.96	1.56	0.08	3.39	1050	10.3	28.4	0.14		10.6	2.2	0.4	0.5
GXR-6 Cert		330	90.0	35.0	14.0	110	7.50	2.40	1.30	0.260	1.70	3.60	0.0180	4.20	1300	13.9	36.0	1.00		13.0	2.67	0.940	0.760
OREAS 922 (AQUA REGIA) Meas	0.1	6.3	27.5	14.6	20.9	1.7	0.2	0.71	0.661	0.25	4.20	0.60		1.86	81.6	35.8	67.9	0.29	8.6	30.9	5.8	2.9	
OREAS 922 (AQUA REGIA) Cert	0.10	6.12	22.7	15.0	16.0	22.3	0.35	0.69	0.851	0.24	3.83	0.57		1.76	70	32.5	63	0.28	7.33	27.5	4.98	3.44	
OREAS 923 (AQUA REGIA) Meas		7.6	23.7	13.9	18.3	2.6		0.80	1.44	0.45	6.35	0.38		1.57	60.2	33.9	62.0	0.43	7.8	28.5	5.1	5.0	
OREAS 923 (AQUA REGIA) Cert		7.07	19.6	13.6	14.3	22.5		0.84	1.62	0.45	5.99	0.58		1.56	54	30.0	60	0.40	6.79	25.4	4.34	5.99	
OREAS 218 Meas																							
OREAS 218 Cert																							
JBALR016 Orig																							
JBALR016 Dup																							
Method Blank	< 0.1	< 0.1	< 0.1	< 0.5	< 0.01	< 0.1	< 0.1	< 0.01	< 0.002	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02	< 0.5	< 0.5	< 0.01	< 0.01	< 0.1	< 0.02	< 0.1	< 0.1	< 0.1
Method Blank	< 0.1	< 0.1	< 0.1	< 0.5	< 0.01	< 0.1	< 0.1	0.01	< 0.002	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02	0.5	< 0.5	0.01	< 0.01	< 0.1	< 0.02	< 0.1	< 0.1	< 0.1
Method Blank	< 0.1	< 0.1	< 0.1	< 0.5	< 0.01	< 0.1	< 0.1	< 0.01	< 0.002	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02	8.4	< 0.5	< 0.01	< 0.01	< 0.1	< 0.02	< 0.1	< 0.1	< 0.1
Method Blank																							

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.1	0.1	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas	3.0	0.5	3.4			0.3	1.9	0.2	0.3	< 0.05	136		2940	0.32	621	1.6	23.5	3390
GXR-1 Cert	4.20	0.830	4.30			0.430	1.90	0.280	0.960	0.175	164		3300	0.390	730	2.44	34.9	3900
GXR-4 Meas	4.1	0.4	2.3			0.1	0.9	0.1	0.3	< 0.05	13.7		51.0	2.86	45.2	17.3	4.3	110
GXR-4 Cert	5.25	0.360	2.60			0.210	1.60	0.170	6.30	0.790	30.8		470	3.20	52.0	22.5	6.20	110
GXR-6 Meas	1.9	0.2	1.4				0.8	< 0.1	0.2	< 0.05	< 0.1		17.6	1.83	99.6	3.7	0.7	70
GXR-6 Cert	2.97	0.415	2.80				2.40	0.330	4.30	0.485	1.90		95.0	2.20	101	5.30	1.54	68.0
OREAS 922 (AQUA REGIA) Meas	5.0	0.6							< 0.1		1.2			0.17	63.4	14.8	2.2	
OREAS 922 (AQUA REGIA) Cert	4.44	0.62							0.61		1.12			0.14	60	14.5	1.98	
OREAS 923 (AQUA REGIA) Meas	5.0	0.6							< 0.1		2.0			0.15	87.3	15.7	2.1	
OREAS 923 (AQUA REGIA) Cert	4.07	0.54							0.60		1.96			0.12	81	14.3	1.80	
OREAS 218 Meas																		
OREAS 218 Cert																		
JBALR016 Orig																		
JBALR016 Dup																		
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	< 0.02	< 0.01	< 0.1	< 0.1	< 10
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	< 0.02	< 0.01	< 0.1	< 0.1	< 10
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	< 0.02	< 0.01	< 0.1	< 0.1	< 10
Method Blank																		

Quality Analysis ... **Actlabs** *Innovative Technologies*

Date Submitted: 03-Oct-17
Invoice No.: A17-10865
Invoice Date: 03-Nov-17
Your Reference: Alpine

Braveheart Resources Inc
1724 Falls St
Nelson BC

ATTN: Aaron Matlock

CERTIFICATE OF ANALYSIS

20 Core samples were submitted for analysis.

The following analytical package(s) were requested:

Code 1A2-Kamloops Au - Fire Assay AA

Code Sieve Report-Kamloops Internal Sieve Report Internal

Code UT-1-Kamloops Aqua Regia ICP/MS

REPORT **A17-10865**

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

Assays are recommended for values above the upper limit. The Au from AR-MS is only semi-quantitative. For accurate Au data, fire assay is recommended.

If value exceeds upper limit we recommend reassay by fire assay gravimetric-Code 1A3

CERTIFIED BY:

Emmanuel Eseme , Ph.D.
Quality Control

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Analyte Symbol	Au	Ti	S	P	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppb	%	%	%	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.001	1	0.001	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	1	1	0.01	0.1	0.1	0.01	0.1	0.02
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17012-001	< 5	0.077	< 1	0.036	36.7	0.4	4	0.069	0.26	0.71	0.47	0.03	0.34	1.1	12	20	473	1.40	2.1	2.3	2.69	67.7	4.60
AL17012-002	< 5	0.016	< 1	0.018	7.0	0.7	< 1	0.054	0.11	0.42	0.25	0.03	0.38	0.8	4	22	339	0.98	1.5	1.9	3.00	75.3	2.27
AL17012-003	17	0.001	< 1	< 0.001	1.0	0.4	2	0.057	0.03	0.17	0.11	0.14	0.20	0.4	< 1	26	134	0.50	0.6	1.4	2.82	42.1	0.99
AL17012-004	< 5	0.027	< 1	0.018	9.0	0.5	2	0.063	0.12	0.43	0.25	0.06	0.32	0.8	5	20	313	0.97	1.2	1.8	3.19	21.9	2.64
AL17012-005	16	0.012	< 1	0.027	6.3	0.6	< 1	0.035	0.10	0.44	0.30	0.07	0.85	0.7	4	22	489	0.99	1.6	1.9	2.91	83.1	2.26
AL17012-006	31	0.004	< 1	0.018	4.0	0.6	5	0.036	0.07	0.42	0.27	0.04	0.88	0.6	3	21	434	0.82	1.4	2.9	5.70	109	1.79
AL17012-007	42	0.004	< 1	0.027	4.3	0.7	2	0.037	0.09	0.45	0.26	0.03	0.76	0.8	3	25	440	0.87	1.3	3.1	3.00	33.6	1.85
AL17012-008	< 5	0.095	< 1	0.045	20.8	0.4	< 1	0.067	0.33	0.85	0.53	< 0.02	0.49	1.0	15	21	444	1.60	2.6	2.5	3.12	43.5	4.80
AL17012-009	< 5	0.002	< 1	0.009	1.8	0.8	2	0.049	0.04	0.21	0.14	0.13	0.33	0.6	2	17	298	0.78	1.3	1.8	3.05	79.3	1.41
AL17012-010	< 5	0.001	< 1	0.009	1.4	0.5	< 1	0.060	0.03	0.19	0.13	0.07	0.07	0.5	1	18	115	0.49	1.4	2.4	3.02	28.8	1.15
AL17012-011	115	0.008	1	0.155	8.4	1.3	< 1	0.021	0.20	0.44	0.20	0.72	0.95	0.9	8	37	931	2.28	3.1	15.0	5.21	254	3.39
AL17012-011D	117	0.009	1	0.155	8.6	1.4	< 1	0.021	0.20	0.45	0.21	0.76	0.98	1.0	8	44	971	2.36	3.3	15.4	5.51	267	3.54
AL17012-012	150	0.052	< 1	0.214	22.6	1.1	< 1	0.018	0.49	0.62	0.41	0.36	1.53	1.1	19	45	1140	2.40	7.5	24.4	6.35	71.4	3.91
AL17012-012D	157	0.052	< 1	0.218	22.2	1.2	< 1	0.017	0.49	0.61	0.40	0.33	1.54	1.1	18	44	1140	2.41	7.5	23.9	6.26	72.7	3.76
AL17012-013B	< 5	0.137	< 1	0.091	22.9	0.3	< 1	0.127	0.64	1.07	0.53	0.05	0.69	2.6	34	36	347	1.81	6.5	8.7	12.5	23.9	4.91
AL17012-013	< 5	0.008	< 1	0.036	6.4	0.9	< 1	0.054	0.15	0.54	0.19	0.10	0.48	1.0	5	26	451	0.92	2.1	9.0	3.56	51.4	2.49
AL17012-014S	607	0.140	< 1	0.064	9.2	0.2	14	0.300	0.69	2.31	0.25	5.73	2.63	2.6	82	27	676	3.92	66.9	24.1	130	44.8	6.17
AL17012-014	292	0.003	< 1	0.009	1.4	0.5	< 1	0.054	0.03	0.22	0.13	0.07	0.14	0.7	1	20	213	0.56	0.4	1.8	2.92	22.8	1.46
AL17012-015	8	0.001	< 1	< 0.001	0.9	0.3	< 1	0.048	0.03	0.19	0.12	0.04	0.04	0.4	< 1	18	147	0.40	0.4	1.2	2.26	14.7	1.04
AL17012-016	70	0.004	< 1	< 0.001	1.7	0.5	< 1	0.056	0.03	0.18	0.12	0.05	0.10	0.5	< 1	23	207	0.54	0.4	1.7	3.16	10.5	1.25

Analyte Symbol	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.01	0.1	0.02	0.1	0.1	0.1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17012-001	< 0.1	< 0.1	61.3	38.7	11.1	0.3	1.2	0.76	0.416	< 0.02	1.59	0.04	< 0.02	3.19	44.9	23.2	37.9	0.04	4.7	17.8	3.0	0.1	0.4
AL17012-002	< 0.1	0.6	26.8	37.6	17.8	0.3	2.2	0.63	0.351	< 0.02	0.78	0.03	< 0.02	1.42	32.1	11.6	19.1	1.07	2.5	9.89	2.2	0.2	0.3
AL17012-003	< 0.1	0.1	7.5	15.7	20.3	0.6	3.7	0.51	5.34	< 0.02	0.34	0.06	< 0.02	0.37	16.1	3.0	5.20	1.02	0.7	3.00	1.4	0.3	0.2
AL17012-004	< 0.1	0.2	29.0	32.6	19.3	0.3	2.7	1.18	0.518	< 0.02	0.80	0.04	< 0.02	1.72	24.8	10.3	16.8	0.09	2.1	8.62	2.1	0.3	0.3
AL17012-005	< 0.1	0.5	26.7	64.7	6.81	0.4	0.4	0.45	0.165	< 0.02	0.39	0.02	< 0.02	1.02	30.4	13.6	22.4	1.51	2.8	10.9	2.0	< 0.1	0.3
AL17012-006	< 0.1	0.5	21.9	62.3	5.31	0.7	0.2	0.60	0.724	< 0.02	0.64	0.04	< 0.02	0.71	32.1	11.6	19.2	2.29	2.4	9.31	1.6	0.2	0.3
AL17012-007	< 0.1	1.4	19.8	57.4	5.79	0.2	0.1	0.56	0.497	< 0.02	0.36	0.03	< 0.02	0.72	33.9	13.1	21.0	0.73	2.6	9.84	1.7	0.2	0.3
AL17012-008	< 0.1	< 0.1	59.9	62.5	8.21	0.5	0.8	0.59	0.216	< 0.02	1.03	0.04	< 0.02	2.19	75.5	30.1	49.1	0.01	6.0	22.6	3.4	< 0.1	0.6
AL17012-009	< 0.1	0.7	10.9	27.2	18.3	1.5	2.6	0.51	0.213	< 0.02	0.71	0.05	0.03	0.51	20.4	9.3	15.9	1.32	2.0	7.57	2.0	0.4	0.2
AL17012-010	< 0.1	0.9	9.0	13.5	8.62	1.3	2.8	0.52	0.215	< 0.02	0.45	0.03	< 0.02	0.34	21.3	6.9	10.9	0.74	1.3	4.58	1.0	0.1	0.2
AL17012-011	< 0.1	4.1	19.3	83.8	7.62	1.2	0.6	1.03	0.545	< 0.02	0.88	0.10	< 0.02	0.72	23.2	7.1	14.3	8.02	1.9	7.84	1.3	< 0.1	0.3
AL17012-011D	< 0.1	4.3	20.1	87.1	8.05	1.2	0.6	1.10	0.569	< 0.02	0.88	0.10	< 0.02	0.75	24.0	7.3	14.5	8.48	1.9	8.02	1.4	0.1	0.3
AL17012-012	< 0.1	4.7	51.1	141	7.03	3.6	0.8	0.87	0.431	< 0.02	1.35	0.11	< 0.02	5.22	54.2	11.6	22.1	1.67	2.9	11.7	1.9	< 0.1	0.5
AL17012-012D	< 0.1	4.5	50.4	142	7.08	3.7	0.9	0.88	0.305	< 0.02	1.29	0.13	< 0.02	5.12	52.2	11.1	20.9	1.66	2.8	11.1	1.9	0.3	0.4
AL17012-013B	< 0.1	< 0.1	45.5	51.3	7.77	1.1	0.9	0.89	0.372	0.02	1.72	0.03	< 0.02	2.35	126	16.2	27.8	< 0.01	3.5	13.9	2.6	< 0.1	0.3
AL17012-013	< 0.1	0.6	23.0	43.1	9.42	1.2	1.3	0.52	0.213	< 0.02	1.27	0.05	< 0.02	1.64	23.4	8.3	15.1	1.10	1.9	7.46	1.6	0.1	0.2
AL17012-014S	0.1	2470	9.0	122	7.30	5.6	0.2	8.45	0.267	0.05	2.45	3.76	1.60	0.60	108	10.2	15.7	0.33	2.1	8.52	1.4	3.7	0.3
AL17012-014	< 0.1	1.4	11.9	14.7	15.0	2.5	2.4	0.48	0.221	< 0.02	0.76	0.03	0.03	0.64	18.0	12.7	20.8	0.31	2.4	8.78	2.1	0.3	0.2
AL17012-015	< 0.1	0.7	9.1	14.7	7.96	0.8	2.5	0.39	0.269	< 0.02	0.55	0.04	< 0.02	0.32	24.5	4.4	7.74	0.25	1.0	3.77	1.1	< 0.1	< 0.1
AL17012-016	< 0.1	0.8	13.9	9.9	7.72	1.0	3.2	0.48	0.174	< 0.02	1.09	0.09	< 0.02	0.91	11.6	5.1	8.73	0.12	1.1	4.25	1.1	< 0.1	< 0.1

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.1	0.1	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
AL17012-001	2.4	0.3	1.8	0.3	0.9	0.1	0.9	0.1	< 0.1	< 0.05	0.1	< 0.001	< 0.5	0.49	7.65	13.0	11.1	< 10
AL17012-002	2.6	0.4	3.2	0.6	1.9	0.3	1.6	0.2	< 0.1	< 0.05	< 0.1	< 0.001	1.2	0.22	11.3	10.3	21.0	< 10
AL17012-003	2.5	0.6	4.5	0.9	2.8	0.4	2.2	0.3	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	0.06	27.4	9.6	19.6	< 10
AL17012-004	2.8	0.6	4.3	0.8	2.6	0.3	2.0	0.3	< 0.1	< 0.05	< 0.1	< 0.001	0.6	0.23	8.28	12.1	17.1	< 10
AL17012-005	1.7	0.2	1.2	0.2	0.6	< 0.1	0.5	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	0.19	42.8	12.5	11.4	< 10
AL17012-006	1.2	0.1	0.9	0.1	0.4	< 0.1	0.4	< 0.1	< 0.1	< 0.05	0.8	< 0.001	17.4	0.16	40.3	10.2	7.3	< 10
AL17012-007	1.3	0.2	1.0	0.2	0.5	< 0.1	0.4	< 0.1	< 0.1	< 0.05	70.9	< 0.001	1.3	0.14	22.5	9.7	5.7	20
AL17012-008	2.3	0.3	1.4	0.2	0.7	< 0.1	0.6	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	0.47	3.07	12.2	2.2	< 10
AL17012-009	2.2	0.4	3.1	0.6	1.7	0.3	1.7	0.2	< 0.1	< 0.05	0.3	< 0.001	< 0.5	0.09	24.1	13.2	31.3	< 10
AL17012-010	1.2	0.2	1.6	0.3	0.9	0.1	0.8	0.1	< 0.1	< 0.05	0.3	< 0.001	< 0.5	0.06	9.05	10.3	13.8	< 10
AL17012-011	1.2	0.2	1.1	0.2	0.6	< 0.1	0.5	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	4.1	0.11	204	2.5	4.4	< 10
AL17012-011D	1.3	0.2	1.1	0.2	0.6	< 0.1	0.5	< 0.1	< 0.1	< 0.05	0.1	< 0.001	3.5	0.13	219	2.1	4.5	< 10
AL17012-012	1.5	0.2	1.3	0.2	0.6	< 0.1	0.5	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	7.2	0.40	13.7	4.0	4.9	< 10
AL17012-012D	1.4	0.2	1.3	0.2	0.6	< 0.1	0.5	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	4.2	0.41	12.4	4.1	5.1	< 10
AL17012-013B	2.1	0.3	1.7	0.2	0.7	< 0.1	0.5	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	0.31	4.13	5.5	2.0	< 10
AL17012-013	1.5	0.3	1.6	0.3	0.8	0.1	0.8	0.1	< 0.1	< 0.05	< 0.1	0.001	< 0.5	0.15	18.8	4.1	8.7	< 10
AL17012-014S	1.3	0.2	1.2	0.2	0.7	< 0.1	0.6	< 0.1	< 0.1	< 0.05	0.4	0.016	64.5	0.08	8.08	3.0	1.5	20
AL17012-014	2.1	0.4	2.6	0.4	1.4	0.2	1.3	0.2	< 0.1	< 0.05	0.5	< 0.001	4.8	0.06	30.4	11.7	21.7	< 10
AL17012-015	1.1	0.2	1.4	0.2	0.7	0.1	0.8	0.1	< 0.1	< 0.05	< 0.1	< 0.001	1.2	0.05	12.4	9.2	19.7	< 10
AL17012-016	1.2	0.2	1.3	0.2	0.7	0.1	0.8	0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	0.09	14.2	9.8	28.4	< 10

Analyte Symbol	Au	Ti	S	P	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppb	%	%	%	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.001	1	0.001	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	1	1	0.01	0.1	0.1	0.01	0.1	0.02
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas		0.007	< 1	0.045	7.6	0.8	16	0.070	0.15	0.63	0.04	1410	0.83	1.4	68	5	892	24.0	7.4	35.3	1070	796	5.06
GXR-1 Cert		0.036	0.257	0.0650	8.20	1.22	15.0	0.0520	0.217	3.52	0.050	1380	0.960	1.58	80.0	12.0	852	23.6	8.20	41.0	1110	760	13.8
GXR-4 Meas		0.129	2	0.118	8.8	1.4	4	0.130	1.55	2.55	1.74	18.2	0.77	4.5	79	54	140	2.96	14.5	39.4	6630	74.5	10.5
GXR-4 Cert		0.29	1.77	0.120	11.1	1.90	4.50	0.564	1.66	7.20	4.01	19.0	1.01	7.70	87.0	64.0	155	3.09	14.6	42.0	6520	73.0	20.0
GXR-6 Meas			< 1	0.027	25.1	0.9	6	0.080	0.37	6.89	1.15	0.18	0.16	13.7	151	71	1040	5.46	12.6	22.2	62.7	109	12.2
GXR-6 Cert			0.0160	0.0350	32.0	1.40	9.80	0.104	0.609	17.7	1.87	0.290	0.180	27.6	186	96.0	1010	5.58	13.8	27.0	66.0	118	35.0
OREAS 922 (AQUA REGIA) Meas			< 1	0.064	23.2	0.7		0.029	1.39	2.82	0.50	12.0	0.38	3.2	32	44	813	5.31	20.3	37.5	2180	258	7.83
OREAS 922 (AQUA REGIA) Cert			0.386	0.063	22.8	0.65		0.021	1.33	2.72	0.376	10.3	0.324	3.15	29.4	40.7	730	5.05	19.4	34.3	2176	256	7.62
OREAS 923 (AQUA REGIA) Meas			< 1	0.055	22.2	0.6			1.39	2.73	0.38	20.1	0.35	3.5	30	39	872	5.93	21.1	33.0	4260	320	7.47
OREAS 923 (AQUA REGIA) Cert			0.684	0.061	23.4	0.61			1.43	2.80	0.322	21.8	0.326	3.09	30.6	39.4	850	5.91	22.2	32.7	4248	335	8.01
OxK119 Meas	3700																						
OxK119 Cert	3604.000																						
OREAS 218 Meas	525																						
OREAS 218 Cert	531																						
OREAS 218 Meas	498																						
OREAS 218 Cert	531																						
AL17012-012 Orig		0.052	< 1	0.218	23.0	1.1	5	0.018	0.50	0.63	0.41	0.38	1.56	1.1	19	46	1160	2.45	7.6	24.8	6.33	72.8	4.00
AL17012-012 Dup		0.051	< 1	0.209	22.3	1.1	< 1	0.018	0.48	0.60	0.41	0.35	1.50	1.1	18	43	1120	2.34	7.4	24.0	6.37	70.0	3.81
AL17012-013B Orig	< 5																						
AL17012-013B Dup	< 5																						
Method Blank		< 0.001	< 1	< 0.001	< 0.1	< 0.1	< 1	0.010	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.1	< 1	< 1	< 1	< 0.01	< 0.1	< 0.1	< 0.01	0.2	0.04
Method Blank		< 0.001	< 1	< 0.001	< 0.1	< 0.1	< 1	0.014	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.1	< 1	< 1	< 1	< 0.01	< 0.1	< 0.1	< 0.01	< 0.1	0.07
Method Blank	< 5																						
Method Blank	< 5																						

Analyte Symbol	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.01	0.1	0.02	0.1	0.1	0.1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas		390	2.3	191	26.0	13.1	< 0.1	17.3	30.0	0.67	25.9	87.1	13.4	2.53	290	5.2	8.91	2.45		6.36	2.1	12.5	0.4
GXR-1 Cert		427	14.0	275	32.0	38.0	0.800	18.0	31.0	0.770	54.0	122	13.0	3.00	750	7.50	17.0	3.30		18.0	2.70	16.6	0.690
GXR-4 Meas		103	90.9	65.9	11.8	8.0	0.2	305	3.35	0.19	5.52	3.07	0.93	2.35	12.9	44.0	76.2	< 0.01		35.2	5.2	5.5	1.1
GXR-4 Cert		98.0	160	221	14.0	186	10.0	310	4.00	0.270	5.60	4.80	0.970	2.80	1640	64.5	102	0.860		45.0	6.60	5.60	1.63
GXR-6 Meas		189	60.0	34.4	6.44	5.8	< 0.1	1.21	0.258	0.05	0.90	1.51	0.05	3.38	1010	10.9	27.1	0.07		11.3	2.3	< 0.1	0.5
GXR-6 Cert		330	90.0	35.0	14.0	110	7.50	2.40	1.30	0.260	1.70	3.60	0.0180	4.20	1300	13.9	36.0	1.00		13.0	2.67	0.940	0.760
OREAS 922 (AQUA REGIA) Meas	0.1	6.4	28.0	15.2	21.3	17.2	0.4	0.71	0.537	0.24	4.37	0.67		1.85	79.0	38.1	66.3	0.28	8.5	33.3	5.7	3.4	
OREAS 922 (AQUA REGIA) Cert	0.10	6.12	22.7	15.0	16.0	22.3	0.35	0.69	0.851	0.24	3.83	0.57		1.76	70	32.5	63	0.28	7.33	27.5	4.98	3.44	
OREAS 923 (AQUA REGIA) Meas		6.2	22.5	13.4	18.2	9.0		0.82	1.52	0.41	6.49	0.49		1.48	51.9	32.8	57.6	0.42	7.4	28.5	5.1	5.2	
OREAS 923 (AQUA REGIA) Cert		7.07	19.6	13.6	14.3	22.5		0.84	1.62	0.45	5.99	0.58		1.56	54	30.0	60	0.40	6.79	25.4	4.34	5.99	
OxK119 Meas																							
OxK119 Cert																							
OREAS 218 Meas																							
OREAS 218 Cert																							
OREAS 218 Meas																							
OREAS 218 Cert																							
AL17012-012 Orig	< 0.1	4.8	52.2	145	7.19	3.7	0.8	0.89	0.429	< 0.02	1.37	0.11	< 0.02	5.33	55.2	11.6	21.9	1.66	2.9	11.6	1.9	< 0.1	0.5
AL17012-012 Dup	< 0.1	4.5	50.0	137	6.86	3.6	0.8	0.85	0.432	< 0.02	1.33	0.11	0.02	5.11	53.3	11.7	22.2	1.69	2.9	11.8	1.9	0.2	0.5
AL17012-013B Orig																							
AL17012-013B Dup																							
Method Blank	< 0.1	< 0.1	< 0.1	< 0.5	< 0.01	< 0.1	< 0.1	< 0.01	< 0.002	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02	4.8	< 0.5	< 0.01	< 0.01	< 0.1	< 0.02	< 0.1	< 0.1	< 0.1
Method Blank	< 0.1	< 0.1	< 0.1	< 0.5	< 0.01	< 0.1	< 0.1	< 0.01	< 0.002	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02	7.1	< 0.5	< 0.01	< 0.01	< 0.1	< 0.02	< 0.1	< 0.1	< 0.1
Method Blank																							
Method Blank																							

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.1	0.1	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas	3.2	0.5	3.8			0.3	1.8	0.2	0.3	< 0.05	141		3210	0.37	676	1.7	27.4	4150
GXR-1 Cert	4.20	0.830	4.30			0.430	1.90	0.280	0.960	0.175	164		3300	0.390	730	2.44	34.9	3900
GXR-4 Meas	3.7	0.4	2.4			0.1	0.8	0.1	0.2	< 0.05	12.7		86.5	2.90	47.9	17.7	4.7	140
GXR-4 Cert	5.25	0.360	2.60			0.210	1.60	0.170	6.30	0.790	30.8		470	3.20	52.0	22.5	6.20	110
GXR-6 Meas	1.9	0.2	1.5				0.8	< 0.1	0.1	< 0.05	< 0.1		20.9	1.92	102	4.0	0.8	100
GXR-6 Cert	2.97	0.415	2.80				2.40	0.330	4.30	0.485	1.90		95.0	2.20	101	5.30	1.54	68.0
OREAS 922 (AQUA REGIA) Meas	4.9	0.6							0.4		1.1			0.18	65.8	15.4	2.3	
OREAS 922 (AQUA REGIA) Cert	4.44	0.62							0.61		1.12			0.14	60	14.5	1.98	
OREAS 923 (AQUA REGIA) Meas	4.1	0.6							0.2		1.9			0.15	83.3	14.5	2.1	
OREAS 923 (AQUA REGIA) Cert	4.07	0.54							0.60		1.96			0.12	81	14.3	1.80	
OxK119 Meas																		
OxK119 Cert																		
OREAS 218 Meas																		
OREAS 218 Cert																		
OREAS 218 Meas																		
OREAS 218 Cert																		
AL17012-012 Orig	1.5	0.2	1.3	0.2	0.6	< 0.1	0.5	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	5.1	0.40	14.5	4.0	5.0	< 10
AL17012-012 Dup	1.5	0.2	1.2	0.2	0.6	< 0.1	0.5	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	9.4	0.39	12.9	4.0	4.8	< 10
AL17012-013B Orig																		
AL17012-013B Dup																		
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	< 0.02	< 0.01	< 0.1	< 0.1	< 10
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	< 0.02	< 0.01	< 0.1	< 0.1	< 10
Method Blank																		
Method Blank																		

Quality Analysis ... **Actlabs** *Innovative Technologies*

Date Submitted: 03-Oct-17
Invoice No.: A17-10887 (i)
Invoice Date: 15-Nov-17
Your Reference:

Braveheart Resources Inc
1724 Falls St
Nelson BC

ATTN: Aaron Matlock

CERTIFICATE OF ANALYSIS

54 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code 1A2-Kamloops Au - Fire Assay AA
Code 1A3-Kamloops Au - Fire Assay Gravimetric (QOP AA-Au)
Code 1E3-Kamloops Aqua Regia ICP(AQUAGEO)

REPORT **A17-10887 (i)**

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

If value exceeds upper limit we recommend reassay by fire assay gravimetric-Code 1A3

Values which exceed the upper limit should be assayed for accurate numbers.

Note:Insufficient sample material for 1A3 on JBALR006S

CERTIFIED BY:

Emmanuel Eseme , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
9989 Dallas Drive, Kamloops, British Columbia, Canada, V2C 6T4
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Analyte Symbol	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	Al	As	B	Ba	Be	Bi	Ca	Co	Cr	Fe	Ga	Hg	K	La	Mg
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm	%
Lower Limit	0.2	0.5	1	5	1	1	2	2	0.01	2	10	10	0.5	2	0.01	1	1	0.01	10	1	0.01	10	0.01
Method Code	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
JBALR004	1.1	3.9	9	482	4	4	182	179	0.67	13	< 10	43	1.0	< 2	0.32	2	18	1.22	< 10	< 1	0.25	14	0.17
JBALR005	0.9	6.8	8	505	7	8	379	255	0.85	5	< 10	64	1.1	< 2	0.48	3	25	1.57	< 10	< 1	0.26	18	0.27
JBALR005D	0.6	5.7	9	502	4	7	343	235	0.87	< 2	< 10	63	1.1	< 2	0.46	3	23	1.55	< 10	< 1	0.27	17	0.27
JBALR006	0.5	2.2	6	331	5	11	243	168	0.84	3	< 10	53	0.9	< 2	0.21	3	35	1.55	< 10	< 1	0.27	15	0.34
JBALR006S																							
JBALR007	0.8	4.0	7	470	7	14	458	255	0.84	4	< 10	71	1.0	< 2	0.26	4	43	1.81	< 10	< 1	0.29	17	0.37
JBALR008	0.4	2.9	5	396	5	9	226	176	0.61	3	< 10	49	0.8	< 2	0.22	2	28	1.25	< 10	< 1	0.27	13	0.20
JBALR009	0.4	2.4	6	324	5	9	238	149	0.47	3	< 10	45	0.7	< 2	0.18	2	46	1.04	< 10	< 1	0.25	< 10	0.15
JBALR010	0.7	2.4	6	369	6	8	291	157	0.44	3	< 10	38	0.7	< 2	0.15	2	26	1.12	< 10	< 1	0.24	< 10	0.10
JBALR010D																							
JBALR011	0.4	2.7	5	346	3	6	164	181	0.41	< 2	< 10	47	0.6	< 2	0.20	1	40	1.01	< 10	< 1	0.24	< 10	0.09
JBALR012	1.4	2.7	6	423	5	8	205	168	0.57	< 2	< 10	84	0.8	< 2	0.27	2	33	1.34	< 10	< 1	0.29	11	0.20
JBALR013	0.2	2.7	5	441	3	8	140	163	0.49	< 2	< 10	84	0.7	< 2	0.36	2	45	1.11	< 10	< 1	0.29	12	0.16
JBALR017	0.3	2.4	4	412	4	5	246	135	0.58	< 2	< 10	52	0.8	< 2	0.28	2	28	1.20	< 10	< 1	0.28	14	0.15
JBALR017D																							
JBALR018	0.5	1.9	6	356	4	9	210	155	0.66	2	< 10	51	0.8	< 2	0.24	3	36	1.37	< 10	< 1	0.25	13	0.24
JBALR019	0.4	1.8	7	338	5	9	182	146	0.67	4	< 10	54	0.8	< 2	0.33	3	33	1.43	< 10	< 1	0.26	15	0.29
JBALR020	3.6	3.7	6	434	6	11	480	220	0.73	4	< 10	60	0.9	< 2	0.26	3	35	1.56	< 10	< 1	0.28	14	0.27
JBALR021	1.0	2.1	6	358	7	7	281	162	0.57	2	< 10	67	0.7	< 2	0.17	2	29	1.49	< 10	< 1	0.26	12	0.18
JBALR022	< 0.2	1.4	5	315	2	5	167	99	0.43	< 2	< 10	42	0.6	< 2	0.25	1	51	1.00	< 10	< 1	0.24	< 10	0.09
JBALR023	0.5	44.8	3	270	3	2	579	1230	0.40	< 2	< 10	30	0.6	< 2	0.19	< 1	26	0.82	< 10	< 1	0.25	< 10	0.06
JBALR024	< 0.2	9.3	3	360	1	4	103	338	0.43	< 2	< 10	35	0.6	< 2	0.16	1	45	0.97	< 10	< 1	0.26	12	0.06
JBALR025	0.8	3.0	6	415	5	9	263	174	0.49	< 2	< 10	101	0.7	< 2	0.27	2	29	1.22	< 10	< 1	0.26	10	0.17
JBALR025D																							
JBALR026	1.5	3.9	6	433	4	8	306	188	0.48	3	< 10	75	0.7	< 2	0.24	2	36	1.29	< 10	< 1	0.27	11	0.14
JBALR027	1.0	4.5	6	479	7	11	421	279	0.50	4	< 10	84	0.7	< 2	0.25	2	35	1.53	< 10	< 1	0.26	11	0.20
JBALR028	0.9	2.7	7	397	5	13	279	167	0.46	2	< 10	86	0.7	< 2	0.24	4	43	1.43	< 10	< 1	0.26	< 10	0.18
JBALR029	0.6	3.9	5	367	5	4	217	188	0.37	3	< 10	38	0.6	< 2	0.19	1	32	0.99	< 10	< 1	0.22	< 10	0.08
JBALR030	0.3	5.2	4	855	2	11	119	331	0.71	< 2	< 10	40	0.9	< 2	0.53	2	41	1.56	< 10	< 1	0.36	< 10	0.22
BCALR001	1.1	11.3	16	802	4	32	756	372	1.10	< 2	< 10	253	1.0	2	2.19	8	100	2.50	< 10	< 1	0.40	29	1.14
BCALR002	2.1	12.5	12	654	8	25	687	378	0.86	4	< 10	207	0.9	< 2	1.03	6	74	2.49	< 10	< 1	0.40	23	0.78
BCALR002D																							
BCALR003	3.3	12.4	13	598	11	22	971	486	0.79	5	< 10	180	0.9	< 2	0.64	6	61	2.51	< 10	< 1	0.41	20	0.63
BCALR004	9.7	50.5	13	526	8	20	2530	1660	0.68	14	< 10	39	0.8	< 2	0.48	5	62	2.46	< 10	< 1	0.29	16	0.50
CSALR001	7.2	10.9	20	643	11	86	760	365	1.22	4	< 10	488	1.5	5	1.26	11	108	3.25	< 10	< 1	0.78	42	1.54
CSALR002	4.3	12.8	8	428	22	14	1500	431	0.64	7	< 10	115	0.8	3	0.27	4	37	2.39	< 10	< 1	0.27	21	0.30
CSALR003	3.5	12.7	8	393	15	11	1630	456	0.63	7	< 10	115	0.8	2	0.22	3	39	2.29	< 10	< 1	0.28	21	0.25
CSALR004	6.9	6.2	7	413	18	11	1240	274	0.63	9	< 10	92	0.8	< 2	0.16	3	36	2.25	< 10	< 1	0.28	21	0.19
CSALR005	2.5	3.9	6	402	16	10	989	206	0.67	6	< 10	65	0.8	< 2	0.11	2	34	2.34	< 10	< 1	0.30	24	0.12
CSALR005D																							
CSALR006	9.2	4.0	7	547	7	12	591	190	0.57	6	< 10	87	0.7	< 2	0.19	3	32	2.12	< 10	< 1	0.31	21	0.19
CSALR007	1.7	3.9	6	524	5	9	624	186	0.55	5	< 10	76	0.7	< 2	0.17	3	35	1.95	< 10	< 1	0.31	19	0.16

Analyte Symbol	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	Al	As	B	Ba	Be	Bi	Ca	Co	Cr	Fe	Ga	Hg	K	La	Mg
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm	%
Lower Limit	0.2	0.5	1	5	1	1	2	2	0.01	2	10	10	0.5	2	0.01	1	1	0.01	10	1	0.01	10	0.01
Method Code	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
CSALR008	1.1	4.5	6	537	8	12	759	266	0.55	4	< 10	126	0.6	< 2	0.20	3	35	1.88	< 10	< 1	0.30	21	0.22
CSALR009	1.2	5.4	5	465	8	10	570	247	0.54	2	< 10	115	0.6	< 2	0.20	2	49	1.53	< 10	< 1	0.31	23	0.20
CSALR010	1.6	< 0.5	4	110	11	3	562	41	0.20	6	< 10	27	< 0.5	< 2	0.02	< 1	31	1.29	< 10	< 1	0.16	< 10	0.02
CSALR010D																							
CSALR011	12.8	< 0.5	5	128	28	4	810	58	0.24	6	< 10	33	< 0.5	< 2	0.02	< 1	46	1.55	< 10	< 1	0.19	< 10	0.03
CSALR012	6.3	< 0.5	5	120	66	4	1160	63	0.23	8	< 10	34	< 0.5	5	0.02	< 1	28	1.59	< 10	< 1	0.19	< 10	0.02
CSALR013	2.1	< 0.5	5	124	21	5	600	45	0.21	5	< 10	28	< 0.5	< 2	0.02	< 1	44	1.47	< 10	< 1	0.17	< 10	0.02
CSALR014	3.2	< 0.5	5	116	35	4	742	50	0.22	6	< 10	34	< 0.5	< 2	0.02	< 1	37	1.42	< 10	< 1	0.18	< 10	0.03
CSALR015	1.9	< 0.5	5	124	22	4	476	57	0.22	3	< 10	29	< 0.5	< 2	0.02	< 1	52	1.27	< 10	< 1	0.17	< 10	0.03
CSALR016	2.3	1.0	5	145	35	5	562	70	0.28	5	< 10	45	< 0.5	< 2	0.05	< 1	47	1.29	< 10	< 1	0.21	< 10	0.06
JBALR031	4.1	5.2	51	852	6	19	256	187	0.49	5	< 10	25	< 0.5	< 2	0.65	7	61	3.75	< 10	< 1	0.31	< 10	0.38
JBALR031D	4.3	5.3	51	896	7	19	267	197	0.53	8	< 10	36	< 0.5	3	0.70	8	59	3.89	< 10	< 1	0.34	< 10	0.41

Analyte Symbol	Na	P	S	Sb	Sc	Sr	Ti	Th	Te	Tl	U	V	W	Y	Zr	Au	Au
Unit Symbol	%	%	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	g/tonne
Lower Limit	0.001	0.001	0.01	2	1	1	0.01	20	1	2	10	1	10	1	1	5	0.03
Method Code	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	FA-AA	FA-GRA
JBALR004	0.050	0.041	0.10	< 2	1	50	0.02	< 20	< 1	< 2	22	7	41	15	3	1530	
JBALR005	0.050	0.083	0.12	< 2	1	75	0.03	< 20	< 1	< 2	18	12	87	16	4	830	
JBALR005D	0.053	0.079	0.12	< 2	1	74	0.03	< 20	2	< 2	19	11	91	16	4	882	
JBALR006	0.035	0.058	0.15	2	< 1	41	< 0.01	< 20	< 1	< 2	15	11	74	12	2	611	
JBALR006S																> 5000	
JBALR007	0.035	0.072	0.21	< 2	1	44	0.02	< 20	< 1	< 2	12	12	62	13	3	2680	
JBALR008	0.037	0.052	0.11	< 2	< 1	28	0.02	< 20	< 1	< 2	18	7	46	13	2	1080	
JBALR009	0.035	0.035	0.10	< 2	< 1	20	0.01	< 20	< 1	< 2	14	5	32	10	2	1270	
JBALR010	0.032	0.029	0.12	< 2	< 1	15	< 0.01	< 20	< 1	< 2	14	4	77	9	2	873	
JBALR010D																993	
JBALR011	0.044	0.025	0.12	< 2	< 1	17	0.02	< 20	< 1	< 2	12	4	43	10	2	948	
JBALR012	0.038	0.059	0.15	< 2	< 1	30	0.03	< 20	6	< 2	16	8	48	13	3	> 5000	15.8
JBALR013	0.044	0.043	0.12	< 2	< 1	33	0.03	< 20	1	< 2	13	6	35	10	4	505	
JBALR017	0.039	0.038	0.09	< 2	< 1	29	0.02	< 20	< 1	< 2	12	7	21	10	2	1140	
JBALR017D																1270	
JBALR018	0.038	0.053	0.12	< 2	< 1	37	0.02	< 20	< 1	< 2	15	9	31	11	3	1200	
JBALR019	0.040	0.065	0.13	< 2	1	46	0.03	< 20	< 1	< 2	12	12	23	11	4	428	
JBALR020	0.035	0.061	0.17	< 2	< 1	40	0.01	< 20	3	< 2	16	9	81	13	2	1740	
JBALR021	0.039	0.048	0.15	< 2	< 1	27	0.02	< 20	< 1	< 2	13	8	77	11	1	1320	
JBALR022	0.041	0.028	0.12	< 2	< 1	21	0.01	< 20	< 1	< 2	< 10	4	93	9	1	707	
JBALR023	0.042	0.014	0.17	< 2	< 1	14	< 0.01	< 20	3	< 2	21	3	17	12	2	305	
JBALR024	0.045	0.019	0.21	< 2	< 1	11	0.01	< 20	< 1	2	15	3	< 10	12	2	53	
JBALR025	0.049	0.048	0.14	< 2	< 1	32	0.03	< 20	< 1	< 2	16	7	75	12	3	892	
JBALR025D																990	
JBALR026	0.040	0.049	0.21	< 2	< 1	29	0.03	< 20	< 1	< 2	13	6	71	10	3	773	
JBALR027	0.036	0.058	0.19	< 2	< 1	31	0.03	< 20	3	< 2	13	7	96	10	3	2950	
JBALR028	0.035	0.049	0.31	< 2	< 1	33	0.03	< 20	< 1	< 2	12	7	78	10	4	1370	
JBALR029	0.031	0.029	0.11	< 2	< 1	17	0.01	< 20	< 1	< 2	< 10	4	37	7	2	429	
JBALR030	0.040	0.081	0.24	< 2	1	29	0.04	< 20	< 1	< 2	13	8	< 10	14	3	126	
BCALR001	0.050	0.188	0.21	< 2	4	197	0.06	< 20	< 1	< 2	< 10	41	26	9	2	401	
BCALR002	0.058	0.151	0.27	< 2	3	113	0.09	< 20	< 1	< 2	13	29	52	11	3	3150	
BCALR002D																3370	
BCALR003	0.057	0.126	0.33	< 2	2	92	0.08	< 20	< 1	< 2	17	22	55	11	4	3960	
BCALR004	0.056	0.106	0.53	3	2	79	0.06	< 20	2	< 2	15	19	56	10	5	> 5000	5.44
CSALR001	0.083	0.185	0.14	3	3	352	0.07	< 20	< 1	< 2	17	31	50	12	1	4340	
CSALR002	0.039	0.085	0.23	< 2	1	64	0.04	< 20	1	< 2	28	12	148	11	5	> 5000	6.07
CSALR003	0.043	0.078	0.20	< 2	1	59	0.04	< 20	2	< 2	26	11	136	10	4	> 5000	5.31
CSALR004	0.039	0.077	0.15	< 2	1	54	0.03	< 20	3	< 2	27	10	201	9	4	> 5000	11.1
CSALR005	0.044	0.069	0.17	4	1	46	0.02	< 20	3	< 2	27	9	254	9	3	> 5000	6.22
CSALR005D																> 5000	5.17
CSALR006	0.041	0.091	0.14	2	1	49	0.05	< 20	< 1	< 2	20	11	147	10	4	3290	

Analyte Symbol	Na	P	S	Sb	Sc	Sr	Ti	Th	Te	Tl	U	V	W	Y	Zr	Au	Au
Unit Symbol	%	%	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	g/tonne
Lower Limit	0.001	0.001	0.01	2	1	1	0.01	20	1	2	10	1	10	1	1	5	0.03
Method Code	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	FA-AA	FA-GRA
CSALR007	0.048	0.072	0.17	< 2	1	31	0.05	< 20	4	< 2	20	11	136	12	5	2700	
CSALR008	0.046	0.075	0.09	< 2	1	48	0.06	< 20	3	< 2	15	11	171	10	5	3400	
CSALR009	0.049	0.061	0.06	< 2	< 1	39	0.06	< 20	1	< 2	13	9	104	10	6	2180	
CSALR010	0.025	0.019	0.09	< 2	< 1	10	< 0.01	< 20	1	< 2	< 10	5	195	3	1	1830	
CSALR010D																2100	
CSALR011	0.029	0.027	0.11	4	< 1	12	< 0.01	< 20	< 1	< 2	< 10	6	284	4	1	1910	
CSALR012	0.033	0.034	0.14	< 2	< 1	12	< 0.01	< 20	< 1	< 2	< 10	6	380	5	2	> 5000	6.97
CSALR013	0.028	0.022	0.10	< 2	< 1	10	< 0.01	< 20	< 1	< 2	< 10	5	261	3	1	1790	
CSALR014	0.028	0.028	0.10	< 2	< 1	11	< 0.01	< 20	< 1	< 2	< 10	5	282	4	2	2060	
CSALR015	0.027	0.024	0.09	< 2	< 1	9	< 0.01	< 20	< 1	< 2	< 10	4	267	4	2	1430	
CSALR016	0.031	0.033	0.09	< 2	< 1	14	< 0.01	< 20	< 1	< 2	< 10	5	245	5	2	1250	
JBALR031	0.014	0.150	1.55	2	2	31	0.08	< 20	< 1	< 2	< 10	10	11	10	2	2180	
JBALR031D	0.016	0.159	1.57	< 2	2	40	0.09	< 20	1	< 2	< 10	11	< 10	10	2	2580	

Analyte Symbol	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	Al	As	B	Ba	Be	Bi	Ca	Co	Cr	Fe	Ga	Hg	K	La	Mg
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm	%
Lower Limit	0.2	0.5	1	5	1	1	2	2	0.01	2	10	10	0.5	2	0.01	1	1	0.01	10	1	0.01	10	0.01
Method Code	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
GXR-1 Meas	26.2	2.0	999	783	12	17	597	616	0.59	333	10	254	0.8	1280	0.74	6	6	20.6	< 10	3	0.04	< 10	0.15
GXR-1 Cert	31.0	3.30	1110	852	18.0	41.0	730	760	3.52	427	15.0	750	1.22	1380	0.960	8.20	12.0	23.6	13.8	3.90	0.050	7.50	0.217
GXR-1 Meas	26.1	3.0	1020	747	12	34	608	608	0.55	319	11	212	0.8	1290	0.69	5	5	20.3	< 10	< 1	0.04	< 10	0.14
GXR-1 Cert	31.0	3.30	1110	852	18.0	41.0	730	760	3.52	427	15.0	750	1.22	1380	0.960	8.20	12.0	23.6	13.8	3.90	0.050	7.50	0.217
GXR-4 Meas	3.6	< 0.5	6860	153	316	38	46	73	2.86	104	< 10	33	1.5	9	0.90	14	55	3.26	10	< 1	1.78	51	1.71
GXR-4 Cert	4.0	0.860	6520	155	310	42.0	52.0	73.0	7.20	98.0	4.50	1640	1.90	19.0	1.01	14.6	64.0	3.09	20.0	0.110	4.01	64.5	1.66
GXR-4 Meas	3.7	0.6	6750	152	292	39	49	121	2.63	103	< 10	33	1.5	32	0.83	12	54	3.35	10	< 1	1.64	39	1.58
GXR-4 Cert	4.0	0.860	6520	155	310	42.0	52.0	73.0	7.20	98.0	4.50	1640	1.90	19.0	1.01	14.6	64.0	3.09	20.0	0.110	4.01	64.5	1.66
GXR-6 Meas	0.3	< 0.5	67	1060	2	21	97	118	7.08	202	< 10	1110	1.0	< 2	0.17	13	77	5.65	20	< 1	1.13	10	0.41
GXR-6 Cert	1.30	1.00	66.0	1010	2.40	27.0	101	118	17.7	330	9.80	1300	1.40	0.290	0.180	13.8	96.0	5.58	35.0	0.0680	1.87	13.9	0.609
GXR-6 Meas	0.4	< 0.5	74	1060	2	24	99	128	6.95	194	< 10	938	1.0	< 2	0.17	12	80	5.71	20	3	1.10	< 10	0.40
GXR-6 Cert	1.30	1.00	66.0	1010	2.40	27.0	101	118	17.7	330	9.80	1300	1.40	0.290	0.180	13.8	96.0	5.58	35.0	0.0680	1.87	13.9	0.609
OREAS 923 (AQUA REGIA) Meas	1.8	< 0.5	4730	939	< 1	33	93	351	2.90	6		61	0.7	15	0.40	20	44	6.25	< 10		0.39	32	1.47
OREAS 923 (AQUA REGIA) Cert	1.62	0.40	4248	850	0.84	32.7	81	335	2.80	7.07		54	0.61	21.8	0.326	22.2	39.4	5.91	8.01		0.322	30.0	1.43
OxL118 Meas																							
OxL118 Cert																							
OxL118 Meas																							
OxL118 Cert																							
OxK119 Meas																							
OxK119 Cert																							
OxP116 Meas																							
OxP116 Cert																							
OxP116 Meas																							
OxP116 Cert																							
OREAS 218 Meas																							
OREAS 218 Cert																							
OREAS 218 Meas																							
OREAS 218 Cert																							
OREAS 218 Meas																							
OREAS 218 Cert																							
JBALR018 Orig	0.5	1.9	7	362	4	9	214	157	0.67	2	< 10	52	0.8	< 2	0.25	3	36	1.39	< 10	< 1	0.25	13	0.25
JBALR018 Dup	0.5	2.0	5	350	4	9	207	153	0.66	2	< 10	51	0.8	< 2	0.24	2	35	1.35	< 10	< 1	0.25	13	0.24
JBALR030 Orig																							
JBALR030 Dup																							
BCALR002 Orig	2.1	12.5	12	655	8	26	689	380	0.87	5	< 10	209	0.9	< 2	1.04	6	75	2.51	< 10	< 1	0.40	22	0.79
BCALR002 Dup	2.0	12.5	12	652	9	25	685	377	0.85	2	< 10	204	0.9	< 2	1.02	7	73	2.48	< 10	< 1	0.40	23	0.78
CSALR011 Orig	23.0	< 0.5	6	129	29	4	812	58	0.24	5	< 10	33	< 0.5	< 2	0.03	< 1	44	1.56	< 10	< 1	0.19	< 10	0.03
CSALR011 Dup	2.5	< 0.5	5	127	26	5	809	57	0.24	7	< 10	33	< 0.5	< 2	0.02	< 1	47	1.54	< 10	< 1	0.19	< 10	0.03
CSALR014 Split	3.2	< 0.5	5	116	35	4	742	50	0.22	6	< 10	34	< 0.5	< 2	0.02	< 1	37	1.42	< 10	< 1	0.18	< 10	0.03

Analyte Symbol	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	Al	As	B	Ba	Be	Bi	Ca	Co	Cr	Fe	Ga	Hg	K	La	Mg
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm	%
Lower Limit	0.2	0.5	1	5	1	1	2	2	0.01	2	10	10	0.5	2	0.01	1	1	0.01	10	1	0.01	10	0.01
Method Code	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
Orig PREP DUP																							
CSALR014 Split PREP DUP	3.1	< 0.5	4	113	34	4	728	49	0.21	3	< 10	33	< 0.5	2	0.02	< 1	34	1.38	< 10	< 1	0.17	< 10	0.03
JBALR031D Orig	4.2	5.2	51	907	7	18	272	198	0.53	8	< 10	37	< 0.5	3	0.71	8	60	3.94	< 10	< 1	0.35	< 10	0.41
JBALR031D Dup	4.4	5.4	51	886	7	20	262	195	0.53	9	< 10	36	< 0.5	4	0.70	8	58	3.83	< 10	< 1	0.34	< 10	0.40
Method Blank	< 0.2	< 0.5	< 1	< 5	< 1	< 1	< 2	< 2	< 0.01	< 2	< 10	< 10	< 0.5	< 2	< 0.01	< 1	< 1	< 0.01	< 10	< 1	< 0.01	< 10	< 0.01
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank	< 0.2	< 0.5	< 1	< 5	< 1	< 1	< 2	< 2	< 0.01	< 2	< 10	< 10	< 0.5	< 2	< 0.01	< 1	< 1	< 0.01	< 10	< 1	< 0.01	< 10	< 0.01
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							

Analyte Symbol	Na	P	S	Sb	Sc	Sr	Ti	Th	Te	Tl	U	V	W	Y	Zr	Au	Au
Unit Symbol	%	%	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	g/tonne
Lower Limit	0.001	0.001	0.01	2	1	1	0.01	20	1	2	10	1	10	1	1	5	0.03
Method Code	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	FA-AA	FA-GRA
GXR-1 Meas	0.066	0.037	0.17	76	1	162	< 0.01	< 20	11	< 2	26	71	116	22	13		
GXR-1 Cert	0.0520	0.0650	0.257	122	1.58	275	0.036	2.44	13.0	0.390	34.9	80.0	164	32.0	38.0		
GXR-1 Meas	0.064	0.036	0.17	74	1	138	< 0.01	< 20	6	< 2	28	66	116	22	15		
GXR-1 Cert	0.0520	0.0650	0.257	122	1.58	275	0.036	2.44	13.0	0.390	34.9	80.0	164	32.0	38.0		
GXR-4 Meas	0.143	0.126	1.79	5	7	78	0.14	< 20	3	4	< 10	80	13	12	8		
GXR-4 Cert	0.564	0.120	1.77	4.80	7.70	221	0.29	22.5	0.970	3.20	6.20	87.0	30.8	14.0	186		
GXR-4 Meas	0.132	0.120	1.73	5	7	60	0.14	< 20	4	3	< 10	77	17	12	8		
GXR-4 Cert	0.564	0.120	1.77	4.80	7.70	221	0.29	22.5	0.970	3.20	6.20	87.0	30.8	14.0	186		
GXR-6 Meas	0.096	0.032	0.01	5	20	40		< 20	< 1	< 2	< 10	160	< 10	5	7		
GXR-6 Cert	0.104	0.0350	0.0160	3.60	27.6	35.0		5.30	0.0180	2.20	1.54	186	1.90	14.0	110		
GXR-6 Meas	0.093	0.032	0.02	5	22	32		< 20	< 1	< 2	< 10	160	< 10	6	7		
GXR-6 Cert	0.104	0.0350	0.0160	3.60	27.6	35.0		5.30	0.0180	2.20	1.54	186	1.90	14.0	110		
OREAS 923 (AQUA REGIA) Meas		0.059	0.68	8	4	13		< 20		< 2	< 10	35	< 10	20	28		
OREAS 923 (AQUA REGIA) Cert		0.061	0.684	0.58	3.09	13.6		14.3		0.12	1.80	30.6	1.96	14.3	22.5		
OxL118 Meas																	5.54
OxL118 Cert																	5.828
OxL118 Meas																	5.60
OxL118 Cert																	5.828
OxK119 Meas																3470	
OxK119 Cert																3604.000	
OxP116 Meas																	14.5
OxP116 Cert																	14.92
OxP116 Meas																	14.4
OxP116 Cert																	14.92
OREAS 218 Meas																512	
OREAS 218 Cert																531	
OREAS 218 Meas																514	
OREAS 218 Cert																531	
OREAS 218 Meas																516	
OREAS 218 Cert																531	
JBALR018 Orig	0.039	0.054	0.13	< 2	< 1	38	0.02	< 20	2	< 2	15	9	32	11	3		
JBALR018 Dup	0.037	0.052	0.12	< 2	< 1	37	0.02	< 20	< 1	< 2	15	9	29	11	3		
JBALR030 Orig																144	
JBALR030 Dup																108	
BCALR002 Orig	0.058	0.153	0.27	2	3	114	0.09	< 20	1	< 2	13	29	52	12	3		
BCALR002 Dup	0.058	0.150	0.27	< 2	3	112	0.09	< 20	< 1	< 2	14	29	51	11	3		
CSALR011 Orig	0.028	0.028	0.12	2	< 1	13	< 0.01	< 20	< 1	< 2	< 10	6	287	4	1		
CSALR011 Dup	0.030	0.027	0.11	5	< 1	12	< 0.01	< 20	< 1	< 2	< 10	6	280	4	1		

Analyte Symbol	Na	P	S	Sb	Sc	Sr	Ti	Th	Te	Tl	U	V	W	Y	Zr	Au	Au
Unit Symbol	%	%	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	g/tonne
Lower Limit	0.001	0.001	0.01	2	1	1	0.01	20	1	2	10	1	10	1	1	5	0.03
Method Code	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	FA-AA	FA-GRA
CSALR014 Split Orig PREP DUP	0.028	0.028	0.10	< 2	< 1	11	< 0.01	< 20	< 1	< 2	< 10	5	282	4	2	2060	
CSALR014 Split PREP DUP	0.027	0.027	0.10	3	< 1	11	< 0.01	< 20	< 1	< 2	< 10	5	281	4	2	2020	
JBALR031D Orig	0.016	0.160	1.58	< 2	2	41	0.08	< 20	1	< 2	< 10	11	< 10	10	2		
JBALR031D Dup	0.015	0.157	1.57	3	2	39	0.09	< 20	1	< 2	< 10	11	< 10	10	2		
Method Blank	0.013	< 0.001	< 0.01	< 2	< 1	< 1	< 0.01	< 20	< 1	< 2	< 10	< 1	< 10	< 1	< 1		
Method Blank																< 5	
Method Blank																< 5	
Method Blank																< 5	
Method Blank	0.015	< 0.001	< 0.01	< 2	< 1	< 1	< 0.01	< 20	< 1	< 2	< 10	< 1	< 10	< 1	< 1		
Method Blank																	< 0.03
Method Blank																	< 0.03
Method Blank																5	
Method Blank																5	

Quality Analysis ... *Innovative Technologies*

Date Submitted: 03-Oct-17
Invoice No.: A17-10887-W
Invoice Date: 07-Nov-17
Your Reference:

Braveheart Resources Inc
1724 Falls St
Nelson BC

ATTN: Aaron Matlock

CERTIFICATE OF ANALYSIS

54 Rock samples were submitted for analysis.

The following analytical package(s) were requested: Code 1E3-Kamloops Aqua Regia ICP(AQUAGEO)

REPORT **A17-10887-W**

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

Values which exceed the upper limit should be assayed for accurate numbers.

CERTIFIED BY:

Emmanuel Eseme , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
9989 Dallas Drive, Kamloops, British Columbia, Canada, V2C 6T4
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E-MAIL Kamloops@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Analyte Symbol	W
Unit Symbol	%
Lower Limit	0.005
Method Code	FUS-Na2O2
CSALR011	0.054
CSALR012	0.052
CSALR013	0.052
CSALR014	0.034
CSALR015	0.029
CSALR016	0.023

Analyte Symbol	W
Unit Symbol	%
Lower Limit	0.005
Method Code	FUS-Na2O2
GBW 07239 (NCS DC 70007) Meas	0.101
GBW 07239 (NCS DC 70007) Cert	0.10
GBW 07238 (NCS DC 70006) Meas	0.357
GBW 07238 (NCS DC 70006) Cert	0.360
MP-1b Meas	0.111
MP-1b Cert	0.110
CSALR014 Split Orig PREP DUP	0.034
CSALR014 Split PREP DUP	0.036
Method Blank	0.006

Quality Analysis ... **Actlabs** *Innovative Technologies*

Date Submitted: 25-Oct-17
Invoice No.: A17-11943
Invoice Date: 28-Nov-17
Your Reference: Alpine

Braveheart Resources Inc
1724 Falls St
Nelson BC

ATTN: Aaron Matlock

CERTIFICATE OF ANALYSIS

23 Rock samples were submitted for analysis.

The following analytical package(s) were requested:

Code 1A2-Kamloops Au - Fire Assay AA
Code 1A3-Kamloops Au - Fire Assay Gravimetric (QOP AA-Au)
Code UT-1-Kamloops Aqua Regia ICP/MS

REPORT **A17-11943**

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Notes:

Assays are recommended for values above the upper limit. The Au from AR-MS is only semi-quantitative. For accurate Au data, fire assay is recommended.

If value exceeds upper limit we recommend reassay by fire assay gravimetric-Code 1A3

CERTIFIED BY:



Emmanuel Eseme , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
9989 Dallas Drive, Kamloops, British Columbia, Canada, V2C 6T4
TELEPHONE +250 573-4484 or +1.888.228.5227 FAX +1.905.648.9613

Analyte Symbol	Au	Ti	S	P	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppb	%	%	%	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.001	1	0.001	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	1	1	0.01	0.1	0.1	0.01	0.1	0.02
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
JBALR032	409	0.010	< 1	0.270	12.5	0.5	10	0.020	0.05	0.40	0.29	4.57	0.11	0.7	6	24	252	1.46	2.3	6.3	7.71	85.7	3.20
JBALR032D	474	0.015	< 1	0.348	14.6	0.7	10	0.019	0.07	0.43	0.29	5.39	0.14	0.9	8	39	284	1.81	3.6	8.9	7.45	132	3.73
JBALR032B	< 5	0.133	< 1	0.304	20.5	0.2	9	0.143	0.61	1.16	0.52	0.08	0.67	3.6	33	27	308	1.58	5.9	7.8	12.8	30.7	4.40
JBALR033	231	0.042	< 1	0.435	19.7	0.7	9	0.020	0.14	0.59	0.33	1.83	0.21	1.4	9	30	318	2.06	3.8	12.8	11.0	62.2	5.96
JBALR034	> 5000	0.001	< 1	0.026	0.8	< 0.1	9	0.016	< 0.01	0.04	0.05	0.25	0.01	< 0.1	< 1	29	73	0.98	0.9	3.3	5.99	1200	0.41
JBALR035	> 5000	0.034	< 1	0.357	7.3	0.4	11	0.018	0.19	0.45	0.31	0.25	0.49	0.9	7	20	553	1.45	1.7	8.3	5.37	304	3.20
JBALR036	> 5000	0.001	< 1	0.035	0.6	< 0.1	10	0.016	0.02	0.03	0.04	3.52	0.15	< 0.1	< 1	28	154	1.37	2.4	4.3	7.62	724	0.51
JBALR037	> 5000	0.001	< 1	< 0.001	0.6	0.1	8	0.018	< 0.01	0.10	0.09	36.2	0.03	< 0.1	1	37	63	0.73	0.7	2.8	5.43	45.0	0.52
JBALR038	63	0.004	< 1	0.017	2.6	0.4	8	0.060	0.03	0.30	0.13	0.14	0.07	0.3	2	11	272	0.56	1.3	2.3	5.36	729	1.62
JBALR039	198	0.002	< 1	0.043	0.4	< 0.1	9	0.020	< 0.01	0.05	0.04	0.70	0.02	0.1	2	28	106	1.73	0.9	3.4	11.3	220	1.20
JBALR040B	< 5	0.141	< 1	0.270	21.4	0.3	8	0.135	0.64	1.18	0.54	0.06	0.69	3.8	36	34	312	1.65	6.3	8.1	12.1	35.1	4.72
JBALR040	1650	0.001	3	0.017	0.7	< 0.1	6	0.018	< 0.01	0.07	0.09	1.93	0.01	< 0.1	< 1	30	87	3.51	3.4	5.4	5.22	27.0	0.56
JBALR040S	286	0.005	5	0.096	16.6	0.2	13	0.025	2.03	1.63	0.09	11.3	1.80	2.7	45	32	444	7.01	16.3	29.1	2060	> 5000	6.98
JBALR041	161	0.003	< 1	0.035	1.5	0.2	6	0.039	0.01	0.22	0.23	0.66	0.01	0.3	< 1	14	92	0.67	0.5	2.2	3.94	38.8	1.53
JBALR042	544	0.005	< 1	0.287	2.8	0.3	6	0.029	0.02	0.22	0.15	1.23	0.21	0.4	2	21	132	0.82	1.5	3.3	6.25	116	1.74
JBALR043	170	0.018	< 1	0.104	3.6	0.2	7	0.024	0.07	0.21	0.16	0.25	0.09	0.3	3	9	236	0.69	0.9	3.8	4.54	172	1.38
JBALR044	316	0.017	< 1	0.130	4.8	0.3	6	0.025	0.07	0.27	0.18	0.61	0.10	0.5	4	8	347	0.90	0.8	4.1	7.38	468	2.17
JBALR044S	> 5000	0.085	8	0.104	3.4	0.1	8	0.121	0.37	1.00	0.14	1.94	0.65	2.2	80	29	1230	6.84	53.0	16.0	> 10000	> 5000	9.44
AMALR001	619	0.002	< 1	0.070	1.7	0.3	7	0.016	0.01	0.15	0.12	4.26	0.05	0.4	< 1	18	249	1.69	4.2	4.5	25.2	689	1.04
AMALR002	1740	0.002	< 1	0.061	1.1	0.2	6	0.027	< 0.01	0.16	0.14	5.05	0.03	0.2	5	16	60	0.90	0.5	2.2	7.92	123	1.01
AMALR003	> 5000	0.007	< 1	0.139	2.3	0.2	5	0.028	0.03	0.21	0.32	0.90	0.05	0.2	2	16	91	2.27	1.2	3.5	9.11	181	1.43
AMALR004	> 5000	0.009	< 1	0.148	2.4	0.3	5	0.024	0.03	0.22	0.26	0.85	0.05	0.4	19	16	104	2.39	1.1	3.9	5.79	123	2.44
AMALR005	> 5000	0.035	< 1	0.174	8.6	0.3	5	0.019	0.14	0.33	0.27	2.17	0.19	0.6	9	20	302	1.78	3.0	9.1	7.24	281	2.97

Analyte Symbol	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.01	0.1	0.02	0.1	0.1	0.1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
JBALR032	< 0.1	7.6	26.3	26.1	5.32	1.5	1.1	39.5	2.58	0.03	1.15	0.08	0.20	1.47	27.7	6.1	11.4	2.77	1.6	6.26	1.2	0.4	0.1
JBALR032D	< 0.1	9.8	28.6	34.1	5.62	1.8	1.1	62.3	3.49	0.04	1.26	0.14	0.29	2.13	29.4	5.8	11.2	4.16	1.5	6.35	1.3	0.2	0.2
JBALR032B	< 0.1	0.4	43.4	49.6	5.56	1.1	0.7	2.01	0.381	0.02	1.55	< 0.02	0.03	2.26	126	13.5	24.1	0.04	3.1	12.5	2.3	0.2	0.3
JBALR033	< 0.1	10.1	35.8	38.7	8.92	1.9	1.8	38.7	1.30	< 0.02	1.89	0.11	0.08	2.64	31.8	6.8	13.4	2.16	1.9	7.85	1.7	0.7	0.2
JBALR034	< 0.1	4.5	3.9	2.1	0.54	0.3	0.3	8.69	12.0	0.04	0.33	1.43	0.33	0.16	10.0	0.9	1.58	40.7	0.2	0.78	0.2	0.2	< 0.1
JBALR035	< 0.1	2.7	31.4	26.6	6.73	1.0	1.6	9.02	1.57	< 0.02	1.13	0.27	0.05	1.94	31.5	5.4	10.6	9.77	1.5	6.41	1.4	0.2	0.2
JBALR036	< 0.1	5.9	3.4	19.8	3.71	0.2	< 0.1	26.0	9.23	0.06	0.38	2.48	0.41	0.15	12.8	0.7	2.06	26.3	0.4	2.68	1.4	0.5	0.4
JBALR037	< 0.1	2.0	5.4	1.5	1.17	0.3	0.6	13.6	44.6	0.13	0.37	0.17	0.63	0.20	12.1	1.2	2.12	0.83	0.2	0.92	0.2	0.2	< 0.1
JBALR038	< 0.1	0.5	10.9	6.6	11.7	1.2	2.3	2.40	0.778	< 0.02	0.76	< 0.02	< 0.02	0.43	16.8	9.2	15.2	34.8	1.8	7.12	1.8	0.4	0.2
JBALR039	< 0.1	4.0	2.4	4.7	1.00	0.2	0.3	5.72	0.687	0.04	0.50	0.07	0.08	0.11	13.2	1.7	2.60	6.31	0.3	1.16	0.2	< 0.1	< 0.1
JBALR040B	< 0.1	0.3	44.0	50.7	5.56	1.2	0.8	2.19	0.297	0.02	1.56	< 0.02	0.02	2.30	141	14.0	24.3	0.07	3.1	12.6	2.3	< 0.1	0.3
JBALR040	< 0.1	30.1	5.9	2.1	0.51	0.5	0.5	16.3	2.73	0.02	0.47	0.17	0.19	0.22	10.1	0.8	1.52	0.61	0.2	0.73	0.2	0.3	< 0.1
JBALR040S	0.1	238	3.4	39.3	4.37	3.9	< 0.1	13.1	17.5	1.67	13.1	30.8	0.38	0.38	6.0	3.5	5.93	42.1	1.0	4.57	1.0	27.1	0.3
JBALR041	< 0.1	3.7	16.1	7.3	6.41	1.7	3.3	3.77	0.956	0.02	0.99	0.03	0.06	0.47	30.5	13.0	21.5	0.35	2.7	9.86	2.0	0.2	0.2
JBALR042	< 0.1	5.0	12.9	11.0	6.27	1.3	2.1	4.18	1.65	0.05	1.01	0.07	0.08	0.43	24.3	5.3	10.2	3.02	1.4	5.85	1.3	0.2	0.3
JBALR043	< 0.1	1.5	14.1	11.9	3.68	2.0	1.7	2.24	0.523	< 0.02	0.73	0.12	0.10	0.68	43.1	6.5	11.4	4.92	1.5	5.78	1.0	< 0.1	0.2
JBALR044	< 0.1	1.8	16.4	7.5	5.94	1.1	1.7	6.33	0.714	< 0.02	1.31	0.15	0.10	0.75	29.5	5.3	9.74	12.6	1.3	5.28	1.1	< 0.1	0.2
JBALR044S	0.4	139	6.6	30.7	4.35	2.4	0.3	144	> 100	2.79	16.4	145	0.49	0.77	< 0.5	3.8	7.61	766	1.1	4.80	1.0	9.5	0.4
AMALR001	< 0.1	8.6	9.6	5.1	3.47	0.6	0.7	8.41	4.99	0.22	0.61	0.06	0.25	0.42	18.2	3.2	5.83	21.0	0.8	3.04	0.7	0.2	0.1
AMALR002	< 0.1	3.1	8.4	6.6	1.82	0.7	0.6	10.7	5.53	0.13	0.52	1.43	0.35	0.22	17.1	2.2	4.07	2.68	0.6	2.19	0.5	0.2	< 0.1
AMALR003	< 0.1	14.6	25.0	32.4	2.94	1.0	1.2	19.4	6.12	< 0.02	0.88	0.63	0.25	0.59	31.4	5.3	9.60	4.78	1.3	4.92	0.9	0.2	0.1
AMALR004	< 0.1	10.4	18.5	33.4	2.66	2.2	1.0	26.4	3.72	0.03	1.79	0.44	0.14	0.51	61.0	8.0	14.2	2.33	1.8	6.68	1.0	0.2	0.1
AMALR005	< 0.1	6.9	33.1	16.4	5.24	1.5	2.3	12.7	4.42	0.04	1.75	0.31	0.11	2.92	39.2	4.7	9.07	9.21	1.2	5.31	1.1	0.1	0.2

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg	Au
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb	g/tonne
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.1	0.1	10	0.03
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	FA-GRA
JBALR032	1.1	0.2	1.0	0.2	0.5	< 0.1	0.5	< 0.1	< 0.1	< 0.05	0.9	< 0.001	616	0.19	194	2.9	26.9	< 10	
JBALR032D	1.2	0.2	1.0	0.2	0.5	< 0.1	0.5	< 0.1	< 0.1	< 0.05	1.1	0.001	1080	0.24	268	2.9	35.6	< 10	
JBALR032B	1.9	0.2	1.3	0.2	0.6	< 0.1	0.5	< 0.1	< 0.1	< 0.05	0.3	< 0.001	7.7	0.31	1.37	4.4	2.4	< 10	
JBALR033	1.7	0.2	1.5	0.2	0.7	< 0.1	0.7	< 0.1	< 0.1	< 0.05	1.0	< 0.001	490	0.37	59.8	3.3	39.8	< 10	
JBALR034	0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	20.7	< 0.001	> 10000	0.05	2500	0.6	2.1	< 10	54.0
JBALR035	1.3	0.2	1.1	0.2	0.6	< 0.1	0.5	< 0.1	< 0.1	< 0.05	22.3	< 0.001	3480	0.24	331	2.9	8.1	20	7.62
JBALR036	1.5	0.2	1.1	0.1	0.4	< 0.1	0.2	< 0.1	< 0.1	< 0.05	65.1	< 0.001	> 10000	0.05	> 5000	0.3	4.4	20	9.76
JBALR037	0.2	< 0.1	0.2	< 0.1	0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.05	11.7	< 0.001	> 10000	0.03	693	1.5	6.0	< 10	22.6
JBALR038	2.2	0.4	2.6	0.4	1.4	0.2	1.6	0.2	< 0.1	< 0.05	5.3	< 0.001	127	0.05	38.9	10.0	25.0	< 10	
JBALR039	0.2	< 0.1	0.2	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.05	3.2	< 0.001	145	< 0.02	179	1.2	3.4	< 10	
JBALR040B	1.9	0.2	1.4	0.2	0.6	< 0.1	0.5	< 0.1	< 0.1	< 0.05	1.7	< 0.001	16.1	0.31	3.31	4.6	4.1	< 10	
JBALR040	0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	35.3	< 0.001	3770	0.04	791	0.7	0.7	20	
JBALR040S	1.2	0.2	1.0	0.2	0.5	< 0.1	0.4	< 0.1	0.1	< 0.05	1.4	0.014	31.9	5.65	1060	1.0	1.2	2430	
JBALR041	1.6	0.3	1.5	0.3	0.8	0.1	0.8	0.1	< 0.1	< 0.05	5.5	< 0.001	168	0.13	178	11.7	11.0	70	
JBALR042	1.2	0.2	1.2	0.2	0.6	< 0.1	0.6	< 0.1	< 0.1	< 0.05	10.2	< 0.001	1360	0.08	164	3.3	4.6	40	
JBALR043	0.9	0.1	0.8	0.1	0.4	< 0.1	0.4	< 0.1	< 0.1	< 0.05	44.9	< 0.001	218	0.09	106	2.9	5.6	30	
JBALR044	1.1	0.2	1.0	0.2	0.6	< 0.1	0.6	< 0.1	< 0.1	< 0.05	60.9	< 0.001	992	0.10	188	3.0	5.4	30	
JBALR044S	1.0	0.1	0.9	0.2	0.5	< 0.1	0.5	< 0.1	0.1	< 0.05	7.8	0.064	> 10000	8.40	> 5000	1.5	2.0	> 10000	12.9
AMALR001	0.7	0.1	0.7	0.1	0.4	< 0.1	0.4	< 0.1	< 0.1	< 0.05	6.3	< 0.001	370	0.07	389	2.0	9.4	460	
AMALR002	0.4	< 0.1	0.4	< 0.1	0.2	< 0.1	0.2	< 0.1	< 0.1	< 0.05	17.5	< 0.001	645	0.06	3710	3.2	8.7	240	
AMALR003	0.8	0.1	0.6	< 0.1	0.3	< 0.1	0.3	< 0.1	< 0.1	< 0.05	> 200	0.003	9490	0.17	1800	2.5	6.0	300	13.1
AMALR004	0.7	< 0.1	0.5	< 0.1	0.2	< 0.1	0.2	< 0.1	< 0.1	< 0.05	> 200	0.001	6740	0.12	1470	3.4	17.1	170	7.74
AMALR005	1.0	0.2	1.0	0.2	0.5	< 0.1	0.5	< 0.1	< 0.1	< 0.05	143	0.001	6550	0.29	582	2.9	14.0	130	5.20

Analyte Symbol	Au	Ti	S	P	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppb	%	%	%	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.001	1	0.001	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	1	1	0.01	0.1	0.1	0.01	0.1	0.02
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas		0.007	< 1	0.036	6.8	0.7	15	0.068	0.15	0.55	0.04	1420	0.81	1.0	71	6	825	23.1	7.4	35.5	1030	694	5.01
GXR-1 Cert		0.036	0.257	0.0650	8.20	1.22	15.0	0.0520	0.217	3.52	0.050	1380	0.960	1.58	80.0	12.0	852	23.6	8.20	41.0	1110	760	13.8
GXR-4 Meas		0.137	2	0.102	8.3	1.4	5	0.138	1.51	2.60	1.70	20.1	0.84	6.2	83	54	140	3.12	14.3	39.8	6490	68.0	10.9
GXR-4 Cert		0.29	1.77	0.120	11.1	1.90	4.50	0.564	1.66	7.20	4.01	19.0	1.01	7.70	87.0	64.0	155	3.09	14.6	42.0	6520	73.0	20.0
GXR-6 Meas			< 1	0.020	23.6	0.7	5	0.082	0.35	6.52	1.08	0.17	0.17	20.4	155	69	979	5.39	13.3	22.4	65.1	113	13.4
GXR-6 Cert			0.0160	0.0350	32.0	1.40	9.80	0.104	0.609	17.7	1.87	0.290	0.180	27.6	186	96.0	1010	5.58	13.8	27.0	66.0	118	35.0
OREAS 922 (AQUA REGIA) Meas			< 1	0.070	22.2	0.7		0.029	1.29	2.75	0.46	12.4	0.38	3.4	32	41	750	5.18	19.6	36.2	2190	248	7.75
OREAS 922 (AQUA REGIA) Cert			0.386	0.063	22.8	0.65		0.021	1.33	2.72	0.376	10.3	0.324	3.15	29.4	40.7	730	5.05	19.4	34.3	2176	256	7.62
OREAS 923 (AQUA REGIA) Meas			< 1	0.072	22.3	0.7			1.36	2.75	0.40	27.7	0.39	3.1	32	39	856	5.91	22.9	33.9	4230	380	7.78
OREAS 923 (AQUA REGIA) Cert			0.684	0.061	23.4	0.61			1.43	2.80	0.322	21.8	0.326	3.09	30.6	39.4	850	5.91	22.2	32.7	4248	335	8.01
SdAR-M2 (U.S.G.S.) Meas					11.9	4.1						1.09		1.9	17	6			13.1	48.5	242	766	3.24
SdAR-M2 (U.S.G.S.) Cert					17.9	6.6						1.05		4.1	25.2	49.6			12.4	48.8	236.00 00	760	17.6
OxL118 Meas																							
OxL118 Cert																							
OxK119 Meas	3550																						
OxK119 Cert	3604.0 00																						
OxK119 Meas	3550																						
OxK119 Cert	3604.0 00																						
OxK119 Meas	3480																						
OxK119 Cert	3604.0 00																						
OxK119 Meas	3500																						
OxK119 Cert	3604.0 00																						
OxK119 Meas	3680																						
OxK119 Cert	3604.0 00																						
OxK119 Meas	3610																						
OxK119 Cert	3604.0 00																						
OxP116 Meas																							
OxP116 Cert																							
OREAS 218 Meas	519																						
OREAS 218 Cert	531																						

Analyte Symbol	Au	Ti	S	P	Li	Be	B	Na	Mg	Al	K	Bi	Ca	Sc	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppb	%	%	%	ppm	ppm	ppm	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.001	1	0.001	0.1	0.1	1	0.001	0.01	0.01	0.01	0.02	0.01	0.1	1	1	1	0.01	0.1	0.1	0.01	0.1	0.02
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
OREAS 218 Meas	521																						
OREAS 218 Cert	531																						
OREAS 218 Meas	509																						
OREAS 218 Cert	531																						
OREAS 218 Meas	549																						
OREAS 218 Cert	531																						
OREAS 218 Meas	545																						
OREAS 218 Cert	531																						
OREAS 218 Meas	520																						
OREAS 218 Cert	531																						
JBALR034 Orig																							
JBALR034 Dup																							
JBALR040S Orig		0.005	6	0.096	16.9	0.2	15	0.024	2.05	1.65	0.09	11.3	1.82	2.7	45	31	443	6.99	16.2	28.9	2040	> 5000	6.96
JBALR040S Dup		0.005	5	0.096	16.4	0.2	11	0.025	2.01	1.61	0.09	11.3	1.79	2.6	45	32	445	7.02	16.3	29.3	2070	> 5000	7.01
JBALR044 Orig	275																						
JBALR044 Dup	357																						
Method Blank	5																						
Method Blank		< 0.001	< 1	< 0.001	< 0.1	< 0.1	< 1	< 0.001	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.1	< 1	2	< 1	< 0.01	< 0.1	< 0.1	< 0.01	< 0.1	0.02
Method Blank		< 0.001	< 1	< 0.001	< 0.1	< 0.1	< 1	< 0.001	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.1	< 1	1	< 1	< 0.01	< 0.1	< 0.1	< 0.01	0.3	< 0.02
Method Blank																							
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Analyte Symbol	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.01	0.1	0.02	0.1	0.1	0.1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas		352	2.2	162	23.5	12.4	< 0.1	16.6	29.0	0.67	22.3	63.1	11.5	2.32	158	4.7	8.58	2.33		5.89	1.9	11.2	0.4
GXR-1 Cert		427	14.0	275	32.0	38.0	0.800	18.0	31.0	0.770	54.0	122	13.0	3.00	750	7.50	17.0	3.30		18.0	2.70	16.6	0.690
GXR-4 Meas		99.5	94.1	67.5	11.4	7.9	0.1	325	2.88	0.21	5.46	2.79	0.86	2.41	14.1	43.8	78.7	< 0.01		36.1	5.0	5.5	1.2
GXR-4 Cert		98.0	160	221	14.0	186	10.0	310	4.00	0.270	5.60	4.80	0.970	2.80	1640	64.5	102	0.860		45.0	6.60	5.60	1.63
GXR-6 Meas		186	63.1	34.9	6.44	5.3	< 0.1	0.96	0.297	0.06	0.87	0.92	0.05	3.16	1070	10.3	27.0	0.08		11.3	2.1	0.2	0.5
GXR-6 Cert		330	90.0	35.0	14.0	110	7.50	2.40	1.30	0.260	1.70	3.60	0.0180	4.20	1300	13.9	36.0	1.00		13.0	2.67	0.940	0.760
OREAS 922 (AQUA REGIA) Meas	0.1	6.3	26.6	14.3	19.3	9.3	0.3	0.71	0.528	0.25	3.75	0.29		1.69	78.3	34.5	64.2	0.31	8.5	32.2	5.3	2.8	
OREAS 922 (AQUA REGIA) Cert	0.10	6.12	22.7	15.0	16.0	22.3	0.35	0.69	0.851	0.24	3.83	0.57		1.76	70	32.5	63	0.28	7.33	27.5	4.98	3.44	
OREAS 923 (AQUA REGIA) Meas		7.8	25.1	13.3	18.7	2.9		0.84	1.73	0.44	6.56	0.31		1.54	68.4	32.7	59.7	0.37	7.9	30.3	5.1	6.0	
OREAS 923 (AQUA REGIA) Cert		7.07	19.6	13.6	14.3	22.5		0.84	1.62	0.45	5.99	0.58		1.56	54	30.0	60	0.40	6.79	25.4	4.34	5.99	
SdAR-M2 (U.S.G.S.) Meas			18.1	19.2	16.4	5.5	1.9	13.1						0.74	114	38.5	78.4	4.95	9.6	35.8	5.5		0.6
SdAR-M2 (U.S.G.S.) Cert			149	144	32.7	259	26.2	13.3						1.82	990	46.6	98.8	5.1	11.0	39.4	7.18		1.44
OxL118 Meas																							
OxL118 Cert																							
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Analyte Symbol	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Te	Cs	Ba	La	Ce	Cd	Pr	Nd	Sm	Se	Eu
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.01	0.002	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.01	0.1	0.02	0.1	0.1	0.1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
OREAS 218 Meas																							
OREAS 218 Cert																							
OREAS 218 Meas																							
OREAS 218 Cert																							
OREAS 218 Meas																							
OREAS 218 Cert																							
JBALR034 Orig																							
JBALR034 Dup																							
JBALR040S Orig	0.1	240	3.3	39.3	4.37	4.0	< 0.1	13.2	17.6	1.69	13.1	31.1	0.37	0.38	5.6	3.5	5.91	43.1	1.0	4.56	1.1	27.7	0.3
JBALR040S Dup	0.1	237	3.4	39.4	4.38	3.9	< 0.1	13.0	17.5	1.64	13.2	30.6	0.40	0.39	6.5	3.5	5.95	41.1	1.0	4.58	1.0	26.4	0.3
JBALR044 Orig																							
JBALR044 Dup																							
Method Blank																							
Method Blank	< 0.1	< 0.1	0.1	< 0.5	< 0.01	< 0.1	< 0.1	< 0.01	< 0.002	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02	< 0.5	< 0.5	< 0.01	< 0.01	< 0.1	< 0.02	< 0.1	0.1	< 0.1
Method Blank	< 0.1	< 0.1	< 0.1	< 0.5	< 0.01	< 0.1	< 0.1	< 0.01	0.006	< 0.02	< 0.05	< 0.02	0.03	< 0.02	< 0.5	< 0.5	< 0.01	< 0.01	< 0.1	< 0.02	< 0.1	< 0.1	< 0.1
Method Blank																							
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Method Blank																							

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg	Au
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb	g/tonne
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.1	0.1	10	0.03
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	FA-GRA
GXR-1 Meas	3.1	0.6	3.9			0.3	1.9	0.2	0.3	< 0.05	122		1360	0.32	670	1.9	28.0	3900	
GXR-1 Cert	4.20	0.830	4.30			0.430	1.90	0.280	0.960	0.175	164		3300	0.390	730	2.44	34.9	3900	
GXR-4 Meas	4.1	0.5	2.4			0.1	0.8	0.1	0.2	< 0.05	11.4		553	2.81	43.2	17.4	4.4	150	
GXR-4 Cert	5.25	0.360	2.60			0.210	1.60	0.170	6.30	0.790	30.8		470	3.20	52.0	22.5	6.20	110	
GXR-6 Meas	1.8	0.2	1.6				0.7	< 0.1	< 0.1	< 0.05	< 0.1		80.5	1.74	96.0	3.8	0.7	70	
GXR-6 Cert	2.97	0.415	2.80				2.40	0.330	4.30	0.485	1.90		95.0	2.20	101	5.30	1.54	68.0	
OREAS 922 (AQUA REGIA) Meas	5.1	0.7							0.2		0.6			0.14	64.7	15.3	2.2		
OREAS 922 (AQUA REGIA) Cert	4.44	0.62							0.61		1.12			0.14	60	14.5	1.98		
OREAS 923 (AQUA REGIA) Meas	4.7	0.7							< 0.1		2.0			0.13	84.7	15.5	2.3		
OREAS 923 (AQUA REGIA) Cert	4.07	0.54							0.60		1.96			0.12	81	14.3	1.80		
SdAR-M2 (U.S.G.S.) Meas	4.5	0.6	3.6	0.6	1.9	0.3	1.6	0.2	0.1	< 0.05	0.8				802	11.6	1.5	1490	
SdAR-M2 (U.S.G.S.) Cert	6.28	0.97	5.88	1.21	3.58	0.54	3.63	0.54	7.29	1.8	2.8				808	14.2	2.53	1440.00	
OxL118 Meas																			5.69
OxL118 Cert																			5.828
OxK119 Meas																			
OxK119 Cert																			
OxK119 Meas																			
OxK119 Cert																			
OxK119 Meas																			
OxK119 Cert																			
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OxK119 Cert																			
OxK119 Meas																			
OxK119 Cert																			
OxK119 Meas																			
OxK119 Cert																			
OxP116 Meas																			14.8
OxP116 Cert																			14.92
OREAS 218 Meas																			
OREAS 218 Cert																			
OREAS 218 Meas																			
OREAS 218 Cert																			
OREAS 218 Meas																			
OREAS 218 Cert																			

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Th	U	Hg	Au
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppb	g/tonne
Lower Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.1	0.1	10	0.03
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	FA-GRA
OREAS 218 Meas																			
OREAS 218 Cert																			
OREAS 218 Meas																			
OREAS 218 Cert																			
OREAS 218 Meas																			
OREAS 218 Cert																			
JBALR034 Orig																			54.6
JBALR034 Dup																			53.4
JBALR040S Orig	1.2	0.2	1.0	0.2	0.5	< 0.1	0.4	< 0.1	0.1	< 0.05	1.5	0.014	31.4	5.59	1050	1.0	1.2	2570	
JBALR040S Dup	1.2	0.2	1.1	0.2	0.5	< 0.1	0.4	< 0.1	0.1	< 0.05	1.3	0.014	32.5	5.71	1060	1.0	1.2	2290	
JBALR044 Orig																			
JBALR044 Dup																			
Method Blank																			
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	< 0.02	0.05	< 0.1	< 0.1	< 10	
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	< 0.02	0.06	< 0.1	< 0.1	< 10	
Method Blank																			< 0.03
Method Blank																			< 0.03
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Quality Analysis ... *Innovative Technologies*

Date Submitted: 07-Dec-17
Invoice No.: A17-13891
Invoice Date: 12-Dec-17
Your Reference:

Braveheart Resources Inc
1724 Falls St
Nelson BC

ATTN: Aaron Matlock

CERTIFICATE OF ANALYSIS

20 Pulp samples were submitted for analysis.

The following analytical package(s) were requested: Code Specific Gravity - Kamloops Pulp

REPORT **A17-13891**

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

CERTIFIED BY:

Emmanuel Eseme , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
9989 Dallas Drive, Kamloops, British Columbia, Canada, V2C 6T4
TELEPHONE +250 573-4484 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Kamloops@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Analyte Symbol	Spec Grav
Unit Symbol	-
Lower Limit	0.01
Method Code	GRAV
AL17001-041	2.35
AL17001-042	2.47
AL17001-043	2.83
AL17001-044	2.45
AL17001-045	2.41
AL17001-046	2.66
AL17003-009	2.81
AL17004-014	2.72
AL17005-012	2.55
AL17005-013	2.47
AL17007-013	2.59
AL17008-007	2.73
AL17008-008	2.55
AL17009-006	2.76
AL17011-015	2.55
AL17011-016	2.63
AL17011-017	2.51
AL17011-018	2.73
AL17012-017	2.55
120	2.55

Analyte Symbol	Spec Grav
Unit Symbol	-
Lower Limit	0.01
Method Code	GRAV
Cleaning Sand Meas	2.59
Cleaning Sand Cert	2.61
Method Blank	< 0.01

Appendix IV

LiDAR Survey Report

LiDAR Data Report

BIG STRIKE PROJECT

Data collected and prepared for:

Braveheart Resources Inc.

Suite 520 - 65 Queen Street West

Toronto, Ontario M5H 2M5



Eagle Mapping Ltd.

#201 2071 Kingsway Ave

Port Coquitlam, BC V3C6N2

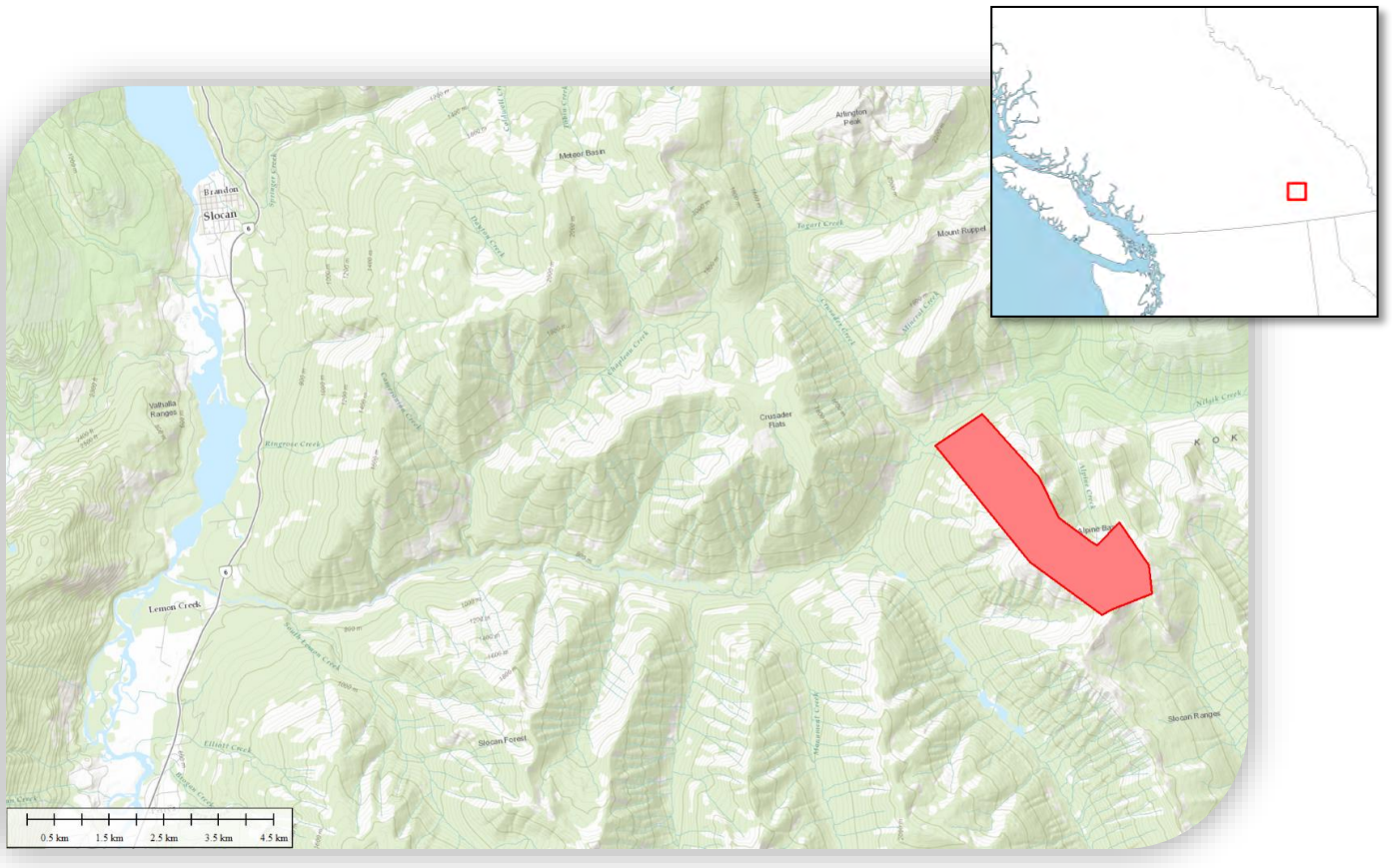
1.877.942.5551

EML Project 17-103

1. Project Overview

1.1 Area of Interest

Eagle Mapping Ltd. collected aerial LiDAR and photography of the Big Strike project area located near Nelson, BC. The Area of Interest (AOI) for this project covers a total of 5 sq. km. A significant buffer was collected surrounding the project AOI in order to guarantee accuracy and density within the boundary.



1.2 Acquisition

LiDAR and photo was acquired simultaneously in a single flight on September 29, 2017 out of Abbotsford, BC. Weather conditions were clear with moderate winds. In total, 4 flight lines and 48 photos were required to cover the AOI.

1.3 File Formats, Units, and Projection

Project deliverables include the following:

LAS Point Data

- Calibrated, classified LiDAR file in LAS format (v 1.2)
- Point Classification scheme listed below
- Delivered as on file per project tile

Digital Elevation Contours – 1m Interval

- ESRI Shapefile format (.shp)
- Delivered as one file

'Bare Earth' DEM & 'Highest Hit' DSM – 1m Grid

- ArcASCII grid format (.asc)
- Delivered as one file

Digital Imagery – 10cm Resolution

- GeoTiff image format with world files (.tif & .tfw)
- Delivered as one file per project tile

Project Files

- ESRI Shapefile format
- 1000m project tile layout
- Project boundary

LiDAR Data Report

- Overview of acquisition, processing and accuracies achieved
- PDF format

Map Projection Information	
Projection	UTM zone 11N
Horizontal Datum	NAD83 (CSRS)
Vertical Datum	CGVD2013
Geoid	CGG2013
Units	Meters
EPSG Code	2955

LAS Point Classifications	
Class 1	Unclassified
Class 2	Ground

2.2 Aircraft GNSS Trajectory Processing

Trajectory processing is done with Applanix PosPAC v8.1 software. Here the aircraft GNSS / IMU data is referenced to the base station data to provide adjusted positions for the aircraft in latitude, longitude, and height, roll, pitch, and yaw / heading. The final trajectory is then smoothed, and exported in .pos format for use in RiProcess for LiDAR processing. The resulting flight path is commonly referred to as a Smoothed Best Estimate of Trajectory (SBET).

The base station used for differential trajectory processing was located in Castlegar, BC and is a continuously operation reference station which is part of the BC Active Control System (BCACS).

Trajectory Processing Results	
Min. # of Satellites	12
Max. # of Satellites	16
Minimum PDOP	1.1
Maximum PDOP	1.9
RMSE	2.1 cm

2.3 LiDAR Calibration

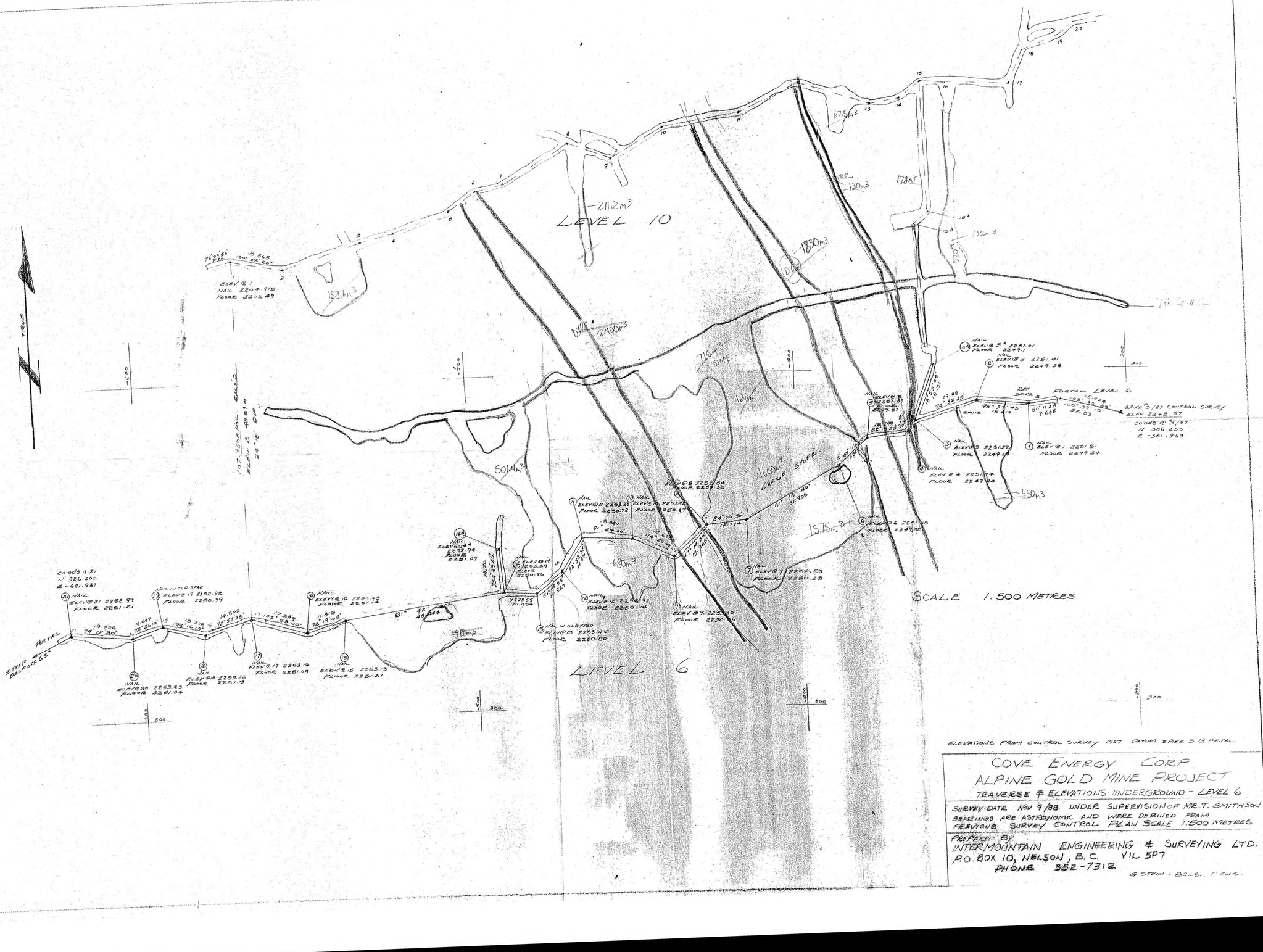
LiDAR data was calibrated using Riegl RiProcess v1.8.4 software. A quality check was performed using matching tie planes which are calculated automatically and analyzed via a least-squares adjustment. Manual cross section checks were also performed to verify the automatic results. Internal accuracy of the LiDAR data was calculated at ±3cm. Once deemed properly calibrated, the LAS data is exported along with individual 'trajectories' for each scan line. All data is projected into UTM and adjusted to the proper geoid (CGG2013) at this time.

2.3 Accuracy

Due to the statistical accuracy of the processed trajectory and baseline lengths being less than 50km during acquisition, it is Eagle Mapping's conclusion that the LiDAR data is accurate to within ± 15cm vertically and ± 30cm horizontally.

Appendix V

Historic Maps used in Resource Estimate



COVE ENERGY CORP

ALPINE GOLD MINE PROJECT

TRAVERSE & ELEVATIONS UNDERGROUND - LEVEL 6

SURVEY DATE NOV 9/88 UNDER SUPERVISION OF MR. T. SMITHSON

BEARINGS ARE ASTRONOMIC AND WERE DERIVED FROM PREVIOUS SURVEY CONTROL. PLAN SCALE 1:500 METRES

PREPARED BY

INTERMOUNTAIN ENGINEERING & SURVEYING LTD.

P.O. BOX 10, NELSON, B.C. V1L 5P7

PHONE 352-7312

G STEIN - B.C.L.S., P.ENG.

Surface DDH #2/88, 192m
Elevn 2214.37
Azi 180°
Dip -58°
(20' of .495 oz./T Au)

Surface DDH #3/88, 200m
Dip -90°
(21' of .507 oz./T Au)

123m Hor.

End Hole
Elevn ± 2067m

± 100m Hor. to Level 10 Adit

#1 UDDH 88
Azi 10°
Dip -24.2°

#2 UDDH 88
Azi 325°
Dip -21°

#3 UDDH 88
Azi 345°
Dip -19°

#5 UDDH 88
Dip -24.2°

#7 UDDH 88
Dip -20°

#6 UDDH 88
Dip -19°

#9

#8 UDDH 88
Dip +24°

Surface DDH #1/88, 265m
Elevn 2184.71m
Azi 180°
Dip -49°
(27' of .188 oz./T Au)

194m Hor.

End Hole
Elevn ± 2004m

± 86m Hor. to Level 10 Adit

10 LEVEL

8 LEVEL

7 LEVEL

6 LEVEL

5 LEVEL

Location Suspect

Dotted Line Outlines
F Stope, 2m
Above G Stope
(Vein Splits)

Level	Avg. Au (oz./T)	Avg. Width
10	.483	.69m
8	.108	.92m
7	.226	.72
6	.585	.83
Foot Wall	.094	.50m

Adjusted Av.
10 — .225
8 — .153
7 — .255
6 — .384

OFFICE COPY ONLY

INCOMPLETE

SCALE 1:500

10 0 10 20 30

METERS

Alpine Project

For: Cove Resources Corp.

By: Tera Ex Geological

PLOTTED BY: RPM MAPPING AND COMPUTER SERVICES LTD
(Phone: (604) 687-3412)

Assay Plan
and Grade Averages
Alpine Gold Mine

Nelson M.D., B.C.

N.T.S.: 82F/11	DATE: March 1989
PLOTTED BY: R.P.M.	FIGURE NO.

Appendix VI

Historic Metallurgical Test

BACON,
DONALDSON
& ASSOCIATES LTD.

2036 COLUMBIA STREET
VANCOUVER, B.C., CANADA V5Y 3E1
TELEPHONE (604) 879-8461
TELEX 04-53437

822765

PRELIMINARY METALLURGICAL EVALUATION OF A BULK ORE SAMPLE FROM THE ALPINE PROJECT

prepared for:

GRANGES EXPLORATION LTD.
2300 - 885 W. Georgia Street
Vancouver, B.C.
V6C 3E8

Attention: Mr. George Zbitnoff

File No.: 8006

1988 March 24

Kenneth B. DeGraaf, M.A.Sc., P.Eng.

1.0 SUMMARY

The metallurgical testwork completed on the bulk sample of ore from the Alpine property successfully demonstrated that the ore is highly responsive to gravity concentration of gold. Jigging and tabling alone achieved a gold recovery of 83.8%. The jig concentrate produced contained 17.124 oz/ton gold while tabling of the jig tails produced a table concentrate grading 1.104 oz/ton gold. These results were achieved from a nominal grind of 20% -200 mesh.

Using the same grind, overall recovery of gold was increased to 96.6% by treating jig tails with a flotation procedure as opposed to tabling. The jig concentrate graded 18.033 oz/ton gold with the flotation cleaner concentrate reporting as 1.423 oz/ton gold.

The calculated ore head grades averaged 0.087 oz/ton gold and 0.065 oz/ton silver. The gold assays ranged between 0.106 and 0.069 oz/ton, while the silver assays varied between 0.048 and 0.081 oz/ton.

2.0 INTRODUCTION

A 4-ton bulk ore sample was received from the Alpine property near Nelson, B.C. for metallurgical testwork.

The material was crushed and ground to a nominal grind of 30% passing 150 mesh. The material was then split to provide samples for bench scale tests and assaying.

The following is a report of results obtained from the subsequent metallurgical testwork.

3.0 RESULTS

Grind/Jig/Flotation Tests

After the 4-ton bulk sample was crushed and ground samples were split out for a series of 2 kg grind/jig/flotation tests.

The purpose of these tests was to examine the effect of grind on gold recovery. The results are summarized in the following table. The detailed gold balances and flotation test conditions are appended.

The results indicate that overall recovery is not significantly affected by grind. However, a coarser grind improved recovery and grade in the jig giving 68.9% gold recovery for a 4.364 oz/ton jig concentrate using a grind of 21.9% -200 mesh. The coarse grind resulted in a higher grade flotation concentrate at 1.141 oz/ton gold.

Based on these favourable results all subsequent tests were performed using a nominal grind of 20% -200 mesh.

2 kg - Grind/Jig/Flotation

Test	Grind % -200 mesh	Calc Head Au (oz/ton)	Tail Assay Au(oz/ton)	% Jig Rec	% Overall Rec (Jig/Float)	Jig Conc (Au oz/ton)	Flot Conc (Au oz/ton)
F1	21.9	0.104	0.004	68.9	96.3	4.364	1.141
F3	27.5	0.092	0.004	68.4	95.9	2.024	0.672
F2	46.9	0.069	0.003	53.0	96.0	0.900	0.699

12 kg - Jig/Flotation Test

Based on the 2-kg tests it was found that the rougher flotation concentrate only graded 1.141 oz/ton gold and represented 2.5% by weight percent of the feed. To improve the grade of the flotation concentrate it was proposed that the rougher concentrate be further treated in a cleaning flotation step.

For the cleaner flotation test a 12 kg sample of ore was ground (20% -200 mesh), jigged and floated to produce a rougher flotation concentrate as it was done in the 2 kg. tests. The rougher flotation concentrate was then floated in three successive cleaning stages. The results are summarized below with the detailed balances appended.

The results indicate that additional cleaning of the rougher concentrate does not improve the grade significantly.

12-kg. Jig/Tabling Test

Using the same nominal 20% -200 mesh grind a gravity concentration test was performed on the jig tailings as opposed to treating them by flotation.

The jig/table results are summarized below with the detailed balances appended.

Jig/Table Result

Product	% Rec Au	Grade (oz/ton Au)
Jig Conc	44.6	17.124
Table Conc	39.2	1.104
Tails		0.016

The ore responded well to jigging followed by tabling of the jig tails. The overall gold recovery is 83.8%.

12 kg - Cleaner Flotation Results

Calc Head (oz/ton Au)	% Jig Rec	Addition Flotation Recovery					
		1st Cl Stg		2nd Cl Stg		3rd Cl Stg	
		% Rec	Au (oz/ton)	% Rec	Au (oz/ton)	% Rec	Au (oz/ton)
0.081	68.6	28.7	1.267	28.4	1.423	27.9	1.448

4.0 CONCLUSIONS

It appears that the Alpine ore would suitably and economically be treated with a jig table circuit. A recovery of up to 83.8% of the gold has been achieved at a nominal grind of 20% -200 mesh.

The only apparent advantage of the flotation step is an increase of recovery to 96%. The grade of table concentrate does not differ greatly from the flotation concentrate with both being in the range of 1.1 to 1.4 oz/ton gold.

The use of only a jig/tabling circuit following the crushing/grinding stage is a significant economical saving over the use of a flotation circuit.

APPENDIX

Detailed Metallurgical Test Balances

TEST NUMBER: 9006-F1 5 MIN GRIND

PRODUCT	WEIGHT GMS	WEIGHT %	ASSAYS Au oz/ton	ASSAYS Ag oz/ton	% DIST Au	% DIST Ag
JIG CONC	32.0	1.64	4.364	2.338	68.86	47.50
ROUGHER CONC	44.9	2.30	1.208	1.478	26.78	42.17
SCAVENGER CONC	3.8	0.19	0.350	0.831	0.66	2.01
TOTAL FLOAT CONC	48.7	2.50	1.141	1.428	27.43	44.18
TAIL	1869.3	95.86	0.004	0.007	3.69	8.32
CALC HEAD	1950.0	100.0	0.104	0.081	100.00	100.00

TEST NUMBER: 8006-F 3 10 MIN GRIND

PRODUCT	WEIGHT GMS	WEIGHT %	ASSAYS Au oz/ton	ASSAYS Ag oz/ton	% DIST Au	% DIST Ag
JIG CONC	60.4	3.10	2.024	1.140	68.38	45.71
ROUGHER CONC	38.3	1.96	1.266	1.694	27.12	43.07
SCAVENGER CONC	35.0	1.79	0.022	0.068	0.43	1.58
TOTAL FLOAT CONC	73.3	3.76	0.672	0.918	27.55	44.65
TAIL	1816.3	93.14	0.004	0.008	4.06	9.65
CALC HEAD	1950.0	100.0	0.092	0.077	100.00	100.00

TEST NUMBER: 8006-F2 20 MIN GRIND

PRODUCT	WEIGHT GMS	WEIGHT %	ASSAYS Au oz/ton	ASSAYS Ag oz/ton	% DIST Au	% DIST Ag
JIG CONC	79.5	4.08	0.300	0.472	53.05	30.15
ROUGHER CONC	60.2	3.09	0.932	1.144	41.60	55.34
SCAVENGER CONC	22.7	1.16	0.082	0.244	1.38	4.45
TOTAL FLOAT CONC	82.9	4.25	0.699	0.898	42.98	59.79
TAIL	1787.6	91.67	0.003	0.007	3.98	10.06
CALC HEAD	1950.0	100.0	0.069	0.064	100.00	100.00

TEST NUMBER: 8006-F4

PRODUCT	WEIGHT GMS	WEIGHT %	ASSAYS Au oz/ton	ASSAYS Ag oz/ton	% DIST	
Jig Pan Conc	36.2	0.31	18.033	8.397	68.27	43.89
Jig Pan Tail	64.6	0.55	0.042	0.046	0.28	0.43
TOTAL JIG CONC	100.8	0.86	6.505	3.046	68.55	44.32
3rd Cleaner Conc	184.0	1.57	1.448	1.622	27.85	43.07
3rd Cleaner Tail	6.7	0.06	0.729	1.277	0.51	1.23
2nd CLEANER CONC	190.7	1.62	1.423	1.610	28.36	44.30
2nd cleaner tail	25.8	0.22	0.114	0.512	0.31	1.91
1ST CLEANER CONC	216.5	1.84	1.267	1.479	28.67	46.21
1st Cleaner Tail	124.0	1.05	0.032	0.073	0.41	1.31
ROUGHER CONC	340.5	2.90	0.917	0.967	29.08	47.52
Tail	11313.1	96.25	0.002	0.005	2.36	5.16
CALC HEAD	11754.4	100.0	0.081	0.059	100.00	100.00

TEST NUMBER: 8006-J2

PRODUCT	WEIGHT GMS	WEIGHT %	Au oz/ton	Ag oz/ton	ASSAYS	% DIST	
Jig Pan Conc	35.8	0.28	17.124	6.949		44.61	33.09
Table Conc	488.2	3.77	1.104	0.714		39.23	46.38
[illegible]le Middlings	162.9	1.26	0.159	0.120		1.89	2.60
[illegible]e Tails	12248.0	94.69	0.016	0.011		14.27	17.93
Jig Pan Tails were blended with Jig Tails to produce table feed.							
CALC HEAD	12934.9	100.0	0.106	0.058		100.00	100.00

SIZE DISTRIBUTION

TEST NO. 8006 F1

Ground 5 min at 65% solids

Size Fraction (mesh)	Individual Percentage Retained %	Cumulative Percentage Passing %
+ 65	19.3	80.7
- 65 + 100	17.8	63.0
- 100 + 150	14.6	48.4
- 150 + 200	12.0	36.4
- 200 + 325	14.5	21.9
- 325 + 400	3.4	18.5
- 400	18.5	

SIZE DISTRIBUTION

TEST NO. 8006 F2

Ground 20 min at 65% solids

Size Fraction (mesh)	Individual Percentage Retained %	Cumulative Percentage Passing %
+ 65	0.4	99.6
- 65 + 100	1.7	92.9
- 100 + 150	8.7	89.2
- 150 + 200	18.2	71.1
- 200 + 325	24.2	46.9
- 325 + 400	6.1	40.7
- 400	40.7	

SIZE DISTRIBUTION

TEST NO. 8006 F3

Ground 10 min at 65% solids

Size Fraction (mesh)	Individual Percentage Retained %	Cumulative Percentage Passing %
+ 65	2.6	97.4
- 65 + 100	13.6	83.8
- 100 + 150	20.2	63.6
- 150 + 200	17.6	46.0
- 200 + 325	18.5	27.5
- 325 + 400	14.8	12.7
- 400	12.7	

SIZE DISTRIBUTION

TEST NO. 8006 F4

Ground 5 min at 65% solids

Size Fraction (mesh)	Individual Percentage Retained %	Cumulative Percentage Passing %
+ 65	22.8	77.2
- 65 + 100	17.2	60.0
- 100 + 150	14.3	45.7
- 150 + 200	11.8	33.9
- 200 + 325	13.4	20.5
- 325 + 400	3.0	17.5
- 400	17.5	

TESTWORK PROCEDURE

Test No. 8006 - F1

STAGE	TIME (min)	ADDITIONS	
		lb/ton	REAGENT
Grind Jig	5		65% solids
Condition	2	0.10 0.05	Aero 350 AF 208 pH = 6.9
Rougher	6	0.75	DF 250
Scavenger	2	0.05 0.025 0.010	Aero 350 AF 208 DF 250

TESTWORK PROCEDURE

Test No. 8006 - F2

STAGE	TIME (min)	ADDITIONS	
		lb/ton	REAGENT
Grind Jig	20		65% solids
Condition	2	0.10 0.05	Aero 350 AF 208 pH = 6.8
Rougher	6	0.020	DF 250
Scavenger	3	0.05 0.025 0.010	Aero 350 AF 208 DF 250

TESTWORK PROCEDURE

Test No. 8006 - F3

STAGE	TIME (min)	ADDITIONS	
		lb/ton	REAGENT
Grind Jig	10		65% solids
Condition	2	0.10 0.05	Aero 350 AF 208 pH = 7.9
Rougher	6	0.020	DF 250
Scavenger	3	0.05 0.025 0.010	Aero 350 AF 208 DF 250

TESTWORK PROCEDURE

Test No. 8006 - F4

STAGE	TIME (min)	ADDITIONS	
		lb/ton	REAGENT
Grind Jig	5		65% solids
Condition	3	0.10 0.05	Aero 350 AF 208 pH = 8.2
Rougher	6	0.020	DF 250
Scavenger	3	0.05 0.025 0.010	Aero 350 AF 208 DF 250
1st Cleaner	8		No reagents
2nd Cleaner	6		No reagents
3rd Cleaner	4		No reagents

Appendix VII

Water Quality Sampling Memorandum

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Mike McCuaig

Terralogic Exploration

#200 - 44 12th Ave Sth

Cranbrook, BC V1C 2R7

January 9, 2018

Re: Baseline water monitoring program – Alpine Project.

Introduction

Braveheart Resources Inc. is conducting exploration work (the Alpine Project) in the Sitkum – Duhamel – Lemon Creek watersheds north of Nelson, BC. In the summer of 2017, Masse Environmental Consultants (MEC) was asked to assist with the development and implementation of a water sampling program. The main objectives of the water sampling program were to:

1. Collect baseline water quality information prior to, and during, the current drill program,
2. Identify any existing water quality concerns (i.e from historical mining activity) that may require further consideration.

The Alpine Project is located at the headwaters of three main drainages: Sitkum Creek, Duhamel Creek, and Lemon Creek. Sitkum Creek and Duhamel Creek drain towards the south into the West Arm of Kootenay Lake. Lemon Creek drains to the west into the Slocan River. These streams are fish-bearing in their lower – middle reaches, but steep gradients limit fish distribution at higher elevations where the drilling program occurs. All three streams provide drinking and irrigation water, with a large number of water licenses in their lower reaches. A search of the provincial water licences query identified 18 licenses on Sitkum Creek, 121 licenses on Duhamel Creek, and 6 licences on Lemon Creek. Both Duhamel Creek and Sitkum creek are designated community watersheds. One sample site was established in each of these drainages. In addition, samples were collected from two sites draining from old mine workings in the upper Sitkum Creek watershed (Figure 1).

Table 1. Sample sites.

Site	Stream	UTM	Comment
1	Sitkum Creek	11.483784.5499668	
2	Duhamel Creek	11.478568.5503319	Upstream of Six Mile FSR crossing
3	Trib to Lemon Creek	11.478902.5506648	At crossing on Lemon Creek FSR
JBALWOO1	Trib to Sitkum Creek	11.481887.5503669	Below adit
JBALWOO2	Trib to Sitkum Creek	11.481995.5503589	Below No. 10 dump



Photo 1. Site 1 – Sitkum Creek



Photo 2. Site 2 – Duhamel Creek



Photo 3. Site 3 – Trib to Lemon Creek



Photo 4. Site JBALWW001 drains from log cribbing.

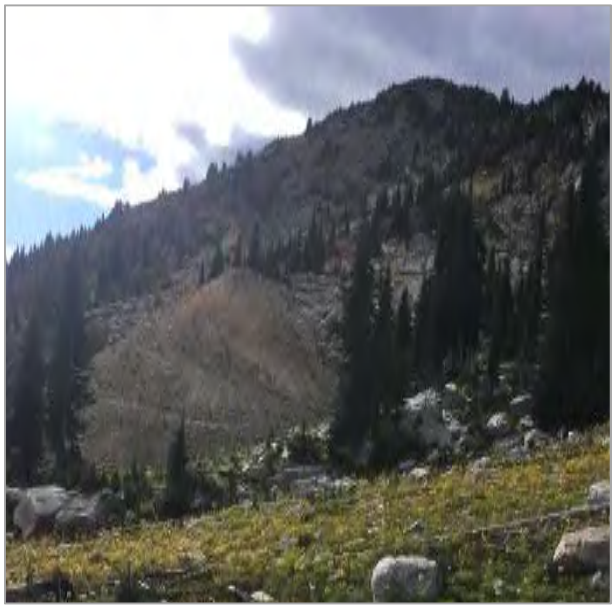


Photo 5. Site JBALWW002 drains along base of old tailings pile.

Sampling Completed to Date

Date	Comments
August 23, 2017	Sites 1, 2, 3. Prior to any active exploration
August 31, 2017	Sites 1, 2, 3. During active exploration
September 20, 2017	Sites JBALW001/2 – drainage from historical workings

Review of Water Quality

The sampling conducted to date represents a snapshot of water quality in these streams under late summer, low flow conditions. Typically, most parameters will be at higher concentrations at this time of year, as they are not diluted by the additional water provided by snowmelt or rainfall. Results from water sampling were screened against BC water quality guidelines for the protection of aquatic life to identify if any parameters exceeded the guidelines.

Comparison to BCWQ Guidelines

Results were compared to BC water quality guidelines for the protection of freshwater aquatic life. Where the guidelines are dependent on a parameter (i.e hardness, chloride), the guideline was calculated using the lowest value for the parameter (i.e most conservative assumption).

Sitkum Creek

Water quality in Sitkum Creek is characterised as soft with little buffering capacity. The pH was near neutral (7.4) and conductivity was low (< 30 μS/cm). Nutrient levels are also low, with orthophosphate near the detection limit (0.001 mg/L) and nitrate concentrations of 0.02 mg/L. These values are typical for a watershed dominated by granitic bedrock.

Level of all metals analysed were well below BC water quality guidelines for the protection of freshwater aquatic life, with the majority of trace metals being less than their detection limit.

Drainage from Mine Workings

Water qualities of the two samples collected from the mine drainage were similar. Both samples were slightly alkaline, had moderate conductivity, and low nutrients. Most trace metals were also very low and at or near detection limits. However, cadmium at both sites, and uranium at JBALWW001, was higher than the respective BCWQG for the protection of freshwater aquatic life. Zinc and lead were also detected at JBALWW001, although levels for these two parameters were low.

Duhamel Creek

Water quality in Duhamel Creek is characterised as soft with little buffering capacity. The pH was near neutral (7.4-7.5) and conductivity was low (43 μS/cm). Nutrient levels are also low, with orthophosphate near the detection

limit (0.001 mg/L) and nitrate concentrations of 0.06 mg/L. These values are typical for a watershed dominated by granitic bedrock.

Level of all metals analysed were well below BC water quality guidelines for the protection of freshwater aquatic life, with the majority of trace metals being less than their detection limit.

Trib to Lemon Creek

Water quality in the tributary to Lemon Creek is characterised as soft with little buffering capacity. The pH was slightly alkaline (7.8) and conductivity was 78 μS/cm. Nutrient levels are also low, with both orthophosphate and nitrate concentrations at or below detection limits.

Level of all metals analysed were well below BC water quality guidelines for the protection of freshwater aquatic life, with the majority of trace metals being less than their detection limit.

Summary

Limited water sampling was conducted in the late summer of 2017 in the three watersheds within the Alpine Project. The objective of the sampling was to characterise water quality at base flows, and identify if there are any parameters that may be of concern. Water quality in all three watersheds is characterised by low levels of dissolved ions, which is typical for watersheds dominated by granitic geology. A trend of increasing dissolved ions in the order Sitkum Creek < Duhamel Creek < Trib to Lemon Creek presumably reflects the underlying geology of each watershed. Levels of trace metals, which can be a concern in watersheds with mineral occurrences, were very low, with concentrations of metals less than their respective detection limits.

Two samples were also collected to characterise water quality of the drainage from historical mine workings. These sites are located near the height of land in the upper Sitkum Creek watershed. Water quality at these sites was also characterised by low levels of dissolved ions, although several trace metals were detected in these samples. Notably, cadmium was observed at levels that were higher than the BC water quality guidelines for the protection of freshwater aquatic life.

If you have any questions or comments, please contact me.



Yours sincerely,

Ico de Zwart, Ph.D, R.P.Bio.

Masse Environmental Consultants

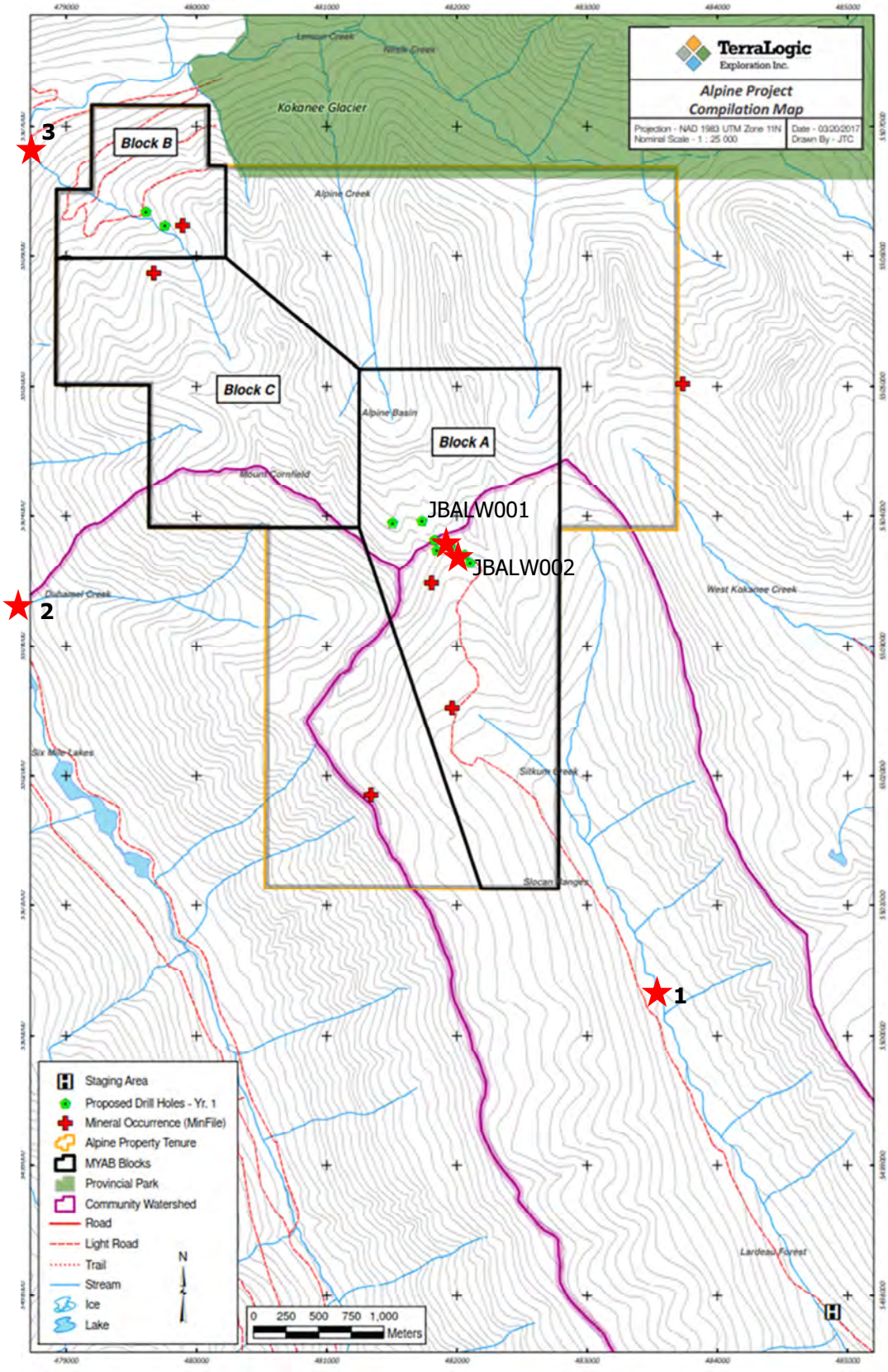


Figure 1. Map of Alpine Project Area and approximate sample site locations.

Appendix 1.

Water Quality Data Summary

Maxxam ID				RU6456	RW5446	RU6457	RW5447	RU6458	RW5448	SA8325	SA8326	RW5449
Sampling Date				2017/08/23 14:00	2017/08/31 15:33	2017/08/23 11:00	2017/08/31 13:45	2017/08/23 11:00	2017/08/31 13:00	2017/09/21 14:30	2017/09/21 14:45	2017/08/31 14:00
COC Number		BC MoE	BC MoE	532616-01-01	532616-02-01	532616-01-01	532616-02-01	532616-01-01	532616-02-01	529012-08-01	529012-08-01	532616-02-01
	UNITS	FWAL (Chronic)	FWAL (Acute)	**SITE 1:SITKUM**	**SITE 1:SITKUM**	**SITE 2:DUHAMEL**	**SITE 2:DUHAMEL**	**SITE 3:LEMON TRIB**	**SITE 3:LEMON TRIB**	**JBALW001**	**JBALW002**	**FIELD BLANK**
Physical Properties												
Conductivity	uS/cm			28.1	29.4	42.2	43.4	77.2	78.8	73.2	60.3	< 2.0
pH	pH	6.5 - 9.0	6.5 - 9.0	7.4	7.4	7.54	7.37	7.81	7.8	7.81	7.62	5.54
Solids	mg/L			< 1.0	< 1.0	< 1.0	1.2	< 1.0	1.8	< 1.3	<1.6	1
Total Dissolved Solids	mg/L			14	16	26	18	38	40	40	28	< 10
Turbidity	NTU			0.16	0.14	0.7	0.2	0.21	0.17	< 0.10	< 0.10	< 0.10
Misc. Inorganics												
Acidity (pH 4.5)	mg/L			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Acidity (pH 8.3)	mg/L			< 1.0	< 1.0	1	< 1.0	1.2	< 1.0	< 1.0	< 1.0	< 1.0
Alkalinity (Total as CaCO3)	mg/L			12.7	12.9	21.9	22.1	41.3	42.3	32.3	23.2	< 1.0
Alkalinity (PP as CaCO3)	mg/L			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate (HCO3)	mg/L			15.5	15.7	26.7	27	50.4	51.6	39.5	28.2	< 1.0
Carbonate (CO3)	mg/L			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hydroxide (OH)	mg/L			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hardness (CaCO3) Total	mg/L			11.3	11	17.7	17.5	34.3	34.5	32.1	27.4	< 0.50
Hardness (CaCO3) Dissolved	mg/L			10.9	11.2	17.5	18.8	35.2	36.4	31.2	26.7	< 0.50
Anions												
Orthophosphate (P)	mg/L			0.0011	< 0.0010	0.0013	0.002	< 0.0010	0.0017	0.0029	0.0027	0.0011
Sulphate (SO4)	mg/L	128		< 1.0	< 1.0	1.3	1.1	1.2	< 1.0	7.3	6.9	< 1.0
Chloride (Cl)	mg/L	600		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Fluoride (F)	mg/L	0.44		0.07	0.067	0.17	0.17	0.091	0.092	0.095	0.076	< 0.020
Bromide (Br)	mg/L			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Nutrients												
Ammonia (N)	mg/L	pH/temp dep	pH/temp dep	0.066	0.02	< 0.020	< 0.020	< 0.020	< 0.020	0.056	< 0.020	< 0.020
Nitrate plus Nitrite (N)	mg/L			0.0207	0.0225	0.0629	0.0678	< 0.0020	< 0.0020	0.067	0.103	< 0.0020
Nitrate (N)	mg/L	3	32.8	0.0207	0.0225	0.0629	0.0678	< 0.0020	< 0.0020	0.067	0.103	< 0.0020
Nitrite (N)	mg/L	0.02	0.06	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Phosphorus (P)	mg/L			0.0035	0.0042	0.0036	0.0044	0.0026	0.0047	0.0039	0.0065	0.0031
Dissolved Metals by ICPMS												
Aluminum (Al)	ug/L	50	1000	16.1	15.9	9.2	8.9	5.5	5.6	6.8	8.7	< 3.0
Antimony (Sb)	ug/L	9		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Arsenic (As)	ug/L		5	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.17	< 0.10	< 0.10
Barium (Ba)	ug/L	1000		7.4	8.1	9.7	10.7	4.5	4.9	3.3	8.7	< 1.0
Beryllium (Be)	ug/L	0.13		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Bismuth (Bi)	ug/L			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Boron (B)	ug/L	1200		< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Cadmium (Cd)	ug/L	0.041	0.06	0.033	0.029	0.01	< 0.010	< 0.010	< 0.010	**0.894**	**0.433**	< 0.010
Chromium (Cr)	ug/L			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cobalt (Co)	ug/L			< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Copper (Cu)	ug/L			< 0.20	< 0.20	**7.58** (1)	< 0.20	< 0.20	< 0.20	< 0.20	0.35	< 0.20
Iron (Fe)	ug/L		350	< 5.0	7.5	< 5.0	< 5.0	< 5.0	< 5.0	6.8	< 5.0	< 5.0
Lead (Pb)	ug/L			< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	0.79	< 0.20	< 0.20
Lithium (Li)	ug/L			< 2.0	< 2.0	< 2.0	< 2.0	2.2	2.2	< 2.0	< 2.0	< 2.0
Manganese (Mn)	ug/L			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Mercury (Hg)	ug/L	0.02		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	ND	< 0.010
Molybdenum (Mo)	ug/L	1000	2000	< 1.0	< 1.0	1.7	1.9	3.1	3.2	10.8	7	< 1.0
Nickel (Ni)	ug/L			< 1.0	< 1.0	2.8	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Se)	ug/L	2		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.15	< 0.10	< 0.10
Silicon (Si)	ug/L			3,220	3,490	3,590	3,760	3,950	4,170	2280	2090	< 100
Silver (Ag)	ug/L			< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Strontium (Sr)	ug/L			39.4	39.8	80.1	83.7	100	99.2	108	88.1	< 1.0
Thallium (Tl)	ug/L			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Tin (Sn)	ug/L			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Maxxam ID				RU6456	RW5446	RU6457	RW5447	RU6458	RW5448	SA8325	SA8326	RW5449
Sampling Date				2017/08/23 14:00	2017/08/31 15:33	2017/08/23 11:00	2017/08/31 13:45	2017/08/23 11:00	2017/08/31 13:00	2017/09/21 14:30	2017/09/21 14:45	2017/08/31 14:00
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	UNITS	FWAL (Chronic)	FWAL (Acute)	**SITE 1:SITKUM**	**SITE 1:SITKUM**	**SITE 2:DUHAMEL**	**SITE 2:DUHAMEL**	**SITE 3:LEMON TRIB**	**SITE 3:LEMON TRIB**	**JBALW001**	**JBALW002**	**FIELD BLANK**
Titanium (Ti)	ug/L			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Uranium (U)	ug/L	8.5		0.5	0.51	2.09	2.16	3.39	3.53	**20.3**	6.24	< 0.10
Vanadium (V)	ug/L			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Zinc (Zn)	ug/L			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	22.8	6.7	< 5.0
Zirconium (Zr)	ug/L			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Calcium (Ca)	mg/L			3.82	3.87	5.51	5.96	11.9	12.4	11.6	9.88	0.091
Magnesium (Mg)	mg/L			0.342	0.358	0.903	0.938	1.31	1.35	0.542	0.479	< 0.050
Potassium (K)	mg/L			0.361	0.331	0.509	0.549	0.923	1.07	0.727	0.682	< 0.050
Sodium (Na)	mg/L			1.02	1.06	1.1	1.12	1.26	1.34	0.83	0.756	< 0.050
Sulphur (S)	mg/L			< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Total Metals by ICPMS												
Aluminum (Al)	ug/L			19	18.2	12.1	12.1	7.5	10.2	4.7	5.1	< 3.0
Antimony (Sb)	ug/L	9		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Arsenic (As)	ug/L		5	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.14	< 0.10	< 0.10
Barium (Ba)	ug/L	1000		7.6	8	10.1	10.4	4.7	4.6	3.2	8.6	< 1.0
Beryllium (Be)	ug/L	0.13		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Bismuth (Bi)	ug/L			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Boron (B)	ug/L	1200		< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Cadmium (Cd)	ug/L			0.036	0.032	0.012	0.01	< 0.010	< 0.010	0.885	0.445	< 0.010
Chromium (Cr)	ug/L	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cobalt (Co)	ug/L	4	110	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Copper (Cu)	ug/L	2	3.02	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Iron (Fe)	ug/L	1000		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Lead (Pb)	ug/L	3.5	4.89	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	0.99	0.24	< 0.20
Lithium (Li)	ug/L			< 2.0	< 2.0	< 2.0	< 2.0	2.2	2	< 2.0	< 2.0	< 2.0
Manganese (Mn)	ug/L	1.66	3.17	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Mercury (Hg)	ug/L	0.02		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Molybdenum (Mo)	ug/L	1000	2000	< 1.0	< 1.0	1.7	1.9	3.1	3.2	10.4	6.9	< 1.0
Nickel (Ni)	ug/L	0.03		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Se)	ug/L	2		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.14	0.11	< 0.10
Silicon (Si)	ug/L			3,330	3,070	3,550	3,460	3,830	3,740	2320	2060	< 100
Silver (Ag)	ug/L	1	5	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Strontium (Sr)	ug/L			39.6	40.5	82.6	84.1	98.7	102	108	86.6	< 1.0
Thallium (Tl)	ug/L			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Tin (Sn)	ug/L			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Titanium (Ti)	ug/L			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Uranium (U)	ug/L	8.5		0.56	0.51	2.48	2.48	3.54	3.56	**20.4**	6	< 0.10
Vanadium (V)	ug/L			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Zinc (Zn)	ug/L	33	75	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	21.6	5.9	< 5.0
Zirconium (Zr)	ug/L			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Calcium (Ca)	mg/L			3.93	3.83	5.62	5.55	11.5	11.6	11.9	10.2	0.069
Magnesium (Mg)	mg/L			0.358	0.343	0.895	0.891	1.35	1.32	0.585	0.48	< 0.050
Potassium (K)	mg/L			0.354	0.326	0.515	0.497	0.961	0.913	0.762	0.639	< 0.050
Sodium (Na)	mg/L			0.997	1.04	1.08	1.07	1.24	1.25	0.873	0.711	< 0.050
Sulphur (S)	mg/L			< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0

(1) Dissolved result is greater than in total

Appendix 2.

Certificates of Analysis

Your C.O.C. #: 532616-01-01

Attention:Jarrod Brown

TerraLogic Exploration Inc.
Suite 200 44-12th Ave South
Cranbrook, BC
Canada V1C 2R7

Report Date: 2017/09/13
Report #: R2443627
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B772103
Received: 2017/08/24, 11:00

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Acidity pH 4.5 & pH 8.3 (as CaCO3)	3	N/A	2017/08/25	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	3	2017/08/25	2017/08/26	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry (1)	3	N/A	2017/08/29	AB SOP-00020	SM 22-4500-Cl-E m
Conductance - water	3	2017/08/25	2017/08/26	BBY6SOP-00026	SM 22 2510 B m
Fluoride	3	N/A	2017/08/28	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	3	N/A	2017/08/25	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	3	N/A	2017/08/29	BBY WI-00033	Auto Calc
Mercury (Dissolved) by CVAF	2	N/A	2017/08/28	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Dissolved) by CVAF	1	N/A	2017/08/29	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total) by CVAF	3	2017/08/28	2017/08/28	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Bromide as Bromine (Br) by ICPMS	3	N/A	2017/08/28	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	3	N/A	2017/08/29	BBY7SOP-00002	EPA 6020B R2 m
Elements by CRC ICPMS (dissolved)	3	N/A	2017/08/28	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	3	2017/08/24	2017/08/25	BBY7SOP-00002	EPA 6020B R2 m
Elements by CRC ICPMS (total)	3	2017/08/25	2017/08/25	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Ammonia-N (Preserved)	3	N/A	2017/08/31	BBY6SOP-00009	EPA 350.1 m
Nitrate+Nitrite (N) (low level)	3	N/A	2017/08/25	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	3	N/A	2017/08/25	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N) Low Level Calc	3	N/A	2017/08/29	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	3	N/A	2017/08/29	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	3	2017/08/25	2017/08/26	BBY6SOP-00026	SM 22 4500-H+ B m
Orthophosphate by Konelab (low level)	2	N/A	2017/08/24	BBY6SOP-00013	SM 22 4500-P E m
Orthophosphate by Konelab (low level)	1	N/A	2017/08/31	BBY6SOP-00013	SM 22 4500-P E m
Sulphate by Automated Colourimetry (1)	3	N/A	2017/08/29	AB SOP-00018	SM 22 4500-SO4 E m
Total Dissolved Solids (Filt. Residue)	1	2017/08/25	2017/08/27	BBY6SOP-00033	SM 22 2540 C m
Total Dissolved Solids (Filt. Residue)	2	2017/08/29	2017/08/30	BBY6SOP-00033	SM 22 2540 C m
Total Phosphorus - Low Level	3	N/A	2017/08/25	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	1	2017/08/25	2017/08/27	BBY6SOP-00034	SM 22 2540 D
Total Suspended Solids-Low Level	2	2017/08/25	2017/08/29	BBY6SOP-00034	SM 22 2540 D
Turbidity	3	N/A	2017/08/24	BBY6SOP-00027	SM 22 2130 B m

Your C.O.C. #: 532616-01-01

Attention:Jarrod Brown

TerraLogic Exploration Inc.
Suite 200 44-12th Ave South
Cranbrook, BC
Canada V1C 2R7

Report Date: 2017/09/13
Report #: R2443627
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B772103
Received: 2017/08/24, 11:00

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Calgary Environmental
(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
BC Env Customer Service, BC Environmental Customer Service
Email: Enviro.CS.BC@maxxam.ca
Phone# (604) 734 7276

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B772103
Report Date: 2017/09/13

TerraLogic Exploration Inc.

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		RU6456	RU6457	RU6458	
Sampling Date		2017/08/23 14:00	2017/08/23 11:00	2017/08/23 11:00	
COC Number		532616-01-01	532616-01-01	532616-01-01	
	UNITS	SITE 1:SITKUM	SITE 2:DUHAMEL	SITE 3:LEMON	RDL
Calculated Parameters					
Filter and HNO3 Preservation	N/A	FIELD	FIELD	FIELD	N/A
Nitrate (N)	mg/L	0.0207	0.0629	< 0.0020	0.0020
Misc. Inorganics					
Fluoride (F)	mg/L	0.070	0.170	0.091	0.020
Acidity (pH 4.5)	mg/L	< 1.0	< 1.0	< 1.0	1.0
Alkalinity (Total as CaCO3)	mg/L	12.7	21.9	41.3	1.0
Acidity (pH 8.3)	mg/L	< 1.0	1.0	1.2	1.0
Alkalinity (PP as CaCO3)	mg/L	< 1.0	< 1.0	< 1.0	1.0
Bicarbonate (HCO3)	mg/L	15.5	26.7	50.4	1.0
Carbonate (CO3)	mg/L	< 1.0	< 1.0	< 1.0	1.0
Hydroxide (OH)	mg/L	< 1.0	< 1.0	< 1.0	1.0
Anions					
Orthophosphate (P)	mg/L	0.0011	0.0013	< 0.0010 (1)	0.0010
Sulphate (SO4)	mg/L	< 1.0	1.3	1.2	1.0
Chloride (Cl)	mg/L	< 1.0	< 1.0	< 1.0	1.0
Nutrients					
Ammonia (N)	mg/L	0.066	< 0.020	< 0.020	0.020
Nitrate plus Nitrite (N)	mg/L	0.0207	0.0629	< 0.0020	0.0020
Nitrite (N)	mg/L	< 0.0020	< 0.0020	< 0.0020	0.0020
Phosphorus (P)	mg/L	0.0035	0.0036	0.0026	0.0020
Physical Properties					
Conductivity	uS/cm	28.1	42.2	77.2	2.0
pH	pH	7.40	7.54	7.81	N/A
Physical Properties					
Solids	mg/L	< 1.0	< 1.0	< 1.0	1.0
Total Dissolved Solids	mg/L	14	26	38	10
Turbidity	NTU	0.16	0.70	0.21	0.10

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Sample was originally analysed within hold time. Data quality required investigation. Re-analysis was completed past recommended hold time.

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Maxxam Job #: B772103
Report Date: 2017/09/13

TerraLogic Exploration Inc.

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		RU6456	RU6457	RU6458	
Sampling Date		2017/08/23 14:00	2017/08/23 11:00	2017/08/23 11:00	
COC Number		532616-01-01	532616-01-01	532616-01-01	
	UNITS	**SITE 1:SITKUM**	**SITE 2:DUHAMEL**	**SITE 3:LEMON**	**RDL**
ANIONS					
Bromide (Br)	mg/L	< 0.010	< 0.010	< 0.010	0.010
RDL = Reportable Detection Limit					

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Maxxam Job #: B772103
Report Date: 2017/09/13

TerraLogic Exploration Inc.

CSR/CCME DISS. METALS IN WATER W/ CV HG (WATER)

Maxxam ID		RU6456	RU6457	RU6458	
Sampling Date		2017/08/23 14:00	2017/08/23 11:00	2017/08/23 11:00	
COC Number		532616-01-01	532616-01-01	532616-01-01	
	UNITS	SITE 1:SITKUM	SITE 2:DUHAMEL	SITE 3:LEMON	RDL
Misc. Inorganics					
Hardness (CaCO3)	mg/L	10.9	17.5	35.2	0.50
Elements					
Mercury (Hg)	ug/L	< 0.010	< 0.010	< 0.010	0.010
Dissolved Metals by ICPMS					
Aluminum (Al)	ug/L	16.1	9.2	5.5	3.0
Antimony (Sb)	ug/L	< 0.50	< 0.50	< 0.50	0.50
Arsenic (As)	ug/L	< 0.10	< 0.10	< 0.10	0.10
Barium (Ba)	ug/L	7.4	9.7	4.5	1.0
Beryllium (Be)	ug/L	< 0.10	< 0.10	< 0.10	0.10
Bismuth (Bi)	ug/L	< 1.0	< 1.0	< 1.0	1.0
Boron (B)	ug/L	< 50	< 50	< 50	50
Cadmium (Cd)	ug/L	0.033	0.010	< 0.010	0.010
Chromium (Cr)	ug/L	< 1.0	< 1.0	< 1.0	1.0
Cobalt (Co)	ug/L	< 0.20	< 0.20	< 0.20	0.20
Copper (Cu)	ug/L	< 0.20	7.58 (1)	< 0.20	0.20
Iron (Fe)	ug/L	< 5.0	< 5.0	< 5.0	5.0
Lead (Pb)	ug/L	< 0.20	< 0.20	< 0.20	0.20
Lithium (Li)	ug/L	< 2.0	< 2.0	2.2	2.0
Manganese (Mn)	ug/L	< 1.0	< 1.0	< 1.0	1.0
Molybdenum (Mo)	ug/L	< 1.0	1.7	3.1	1.0
Nickel (Ni)	ug/L	< 1.0	2.8	< 1.0	1.0
Selenium (Se)	ug/L	< 0.10	< 0.10	< 0.10	0.10
Silicon (Si)	ug/L	3,220	3,590	3,950	100
Silver (Ag)	ug/L	< 0.020	< 0.020	< 0.020	0.020
Strontium (Sr)	ug/L	39.4	80.1	100	1.0
Thallium (Tl)	ug/L	< 0.010	< 0.010	< 0.010	0.010
Tin (Sn)	ug/L	< 5.0	< 5.0	< 5.0	5.0
Titanium (Ti)	ug/L	< 5.0	< 5.0	< 5.0	5.0
Uranium (U)	ug/L	0.50	2.09	3.39	0.10
Vanadium (V)	ug/L	< 5.0	< 5.0	< 5.0	5.0
Zinc (Zn)	ug/L	< 5.0	< 5.0	< 5.0	5.0
Zirconium (Zr)	ug/L	< 0.10	< 0.10	< 0.10	0.10
Calcium (Ca)	mg/L	3.82	5.51	11.9	0.050

RDL = Reportable Detection Limit
(1) Dissolved greater than total. Reanalysis yields similar results.

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Maxxam Job #: B772103
Report Date: 2017/09/13

TerraLogic Exploration Inc.

CSR/CCME DISS. METALS IN WATER W/ CV HG (WATER)

Maxxam ID		RU6456	RU6457	RU6458	
Sampling Date		2017/08/23 14:00	2017/08/23 11:00	2017/08/23 11:00	
COC Number		532616-01-01	532616-01-01	532616-01-01	
	UNITS	**SITE 1:SITKUM**	**SITE 2:DUHAMEL**	**SITE 3:LEMON**	**RDL**
Magnesium (Mg)	mg/L	0.342	0.903	1.31	0.050
Potassium (K)	mg/L	0.361	0.509	0.923	0.050
Sodium (Na)	mg/L	1.02	1.10	1.26	0.050
Sulphur (S)	mg/L	< 3.0	< 3.0	< 3.0	3.0
RDL = Reportable Detection Limit					

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Maxxam Job #: B772103
Report Date: 2017/09/13

TerraLogic Exploration Inc.

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Maxxam ID		RU6456	RU6457	RU6458	
Sampling Date		2017/08/23 14:00	2017/08/23 11:00	2017/08/23 11:00	
COC Number		532616-01-01	532616-01-01	532616-01-01	
	UNITS	SITE 1:SITKUM	SITE 2:DUHAMEL	SITE 3:LEMON	RDL
Calculated Parameters					
Hardness (CaCO3)	mg/L	11.3	17.7	34.3	0.50
Elements					
Mercury (Hg)	ug/L	< 0.010	< 0.010	< 0.010	0.010
Total Metals by ICPMS					
Aluminum (Al)	ug/L	19.0	12.1	7.5	3.0
Antimony (Sb)	ug/L	< 0.50	< 0.50	< 0.50	0.50
Arsenic (As)	ug/L	< 0.10	< 0.10	< 0.10	0.10
Barium (Ba)	ug/L	7.6	10.1	4.7	1.0
Beryllium (Be)	ug/L	< 0.10	< 0.10	< 0.10	0.10
Bismuth (Bi)	ug/L	< 1.0	< 1.0	< 1.0	1.0
Boron (B)	ug/L	< 50	< 50	< 50	50
Cadmium (Cd)	ug/L	0.036	0.012	< 0.010	0.010
Chromium (Cr)	ug/L	< 1.0	< 1.0	< 1.0	1.0
Cobalt (Co)	ug/L	< 0.20	< 0.20	< 0.20	0.20
Copper (Cu)	ug/L	< 0.50	< 0.50	< 0.50	0.50
Iron (Fe)	ug/L	< 10	< 10	< 10	10
Lead (Pb)	ug/L	< 0.20	< 0.20	< 0.20	0.20
Lithium (Li)	ug/L	< 2.0	< 2.0	2.2	2.0
Manganese (Mn)	ug/L	< 1.0	< 1.0	< 1.0	1.0
Molybdenum (Mo)	ug/L	< 1.0	1.7	3.1	1.0
Nickel (Ni)	ug/L	< 1.0	< 1.0	< 1.0	1.0
Selenium (Se)	ug/L	< 0.10	< 0.10	< 0.10	0.10
Silicon (Si)	ug/L	3,330	3,550	3,830	100
Silver (Ag)	ug/L	< 0.020	< 0.020	< 0.020	0.020
Strontium (Sr)	ug/L	39.6	82.6	98.7	1.0
Thallium (Tl)	ug/L	< 0.010	< 0.010	< 0.010	0.010
Tin (Sn)	ug/L	< 5.0	< 5.0	< 5.0	5.0
Titanium (Ti)	ug/L	< 5.0	< 5.0	< 5.0	5.0
Uranium (U)	ug/L	0.56	2.48	3.54	0.10
Vanadium (V)	ug/L	< 5.0	< 5.0	< 5.0	5.0
Zinc (Zn)	ug/L	< 5.0	< 5.0	< 5.0	5.0
Zirconium (Zr)	ug/L	< 0.10	< 0.10	< 0.10	0.10
Calcium (Ca)	mg/L	3.93	5.62	11.5	0.050
Magnesium (Mg)	mg/L	0.358	0.895	1.35	0.050
RDL = Reportable Detection Limit					

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Maxxam Job #: B772103
Report Date: 2017/09/13

TerraLogic Exploration Inc.

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Maxxam ID		RU6456	RU6457	RU6458	
Sampling Date		2017/08/23 14:00	2017/08/23 11:00	2017/08/23 11:00	
COC Number		532616-01-01	532616-01-01	532616-01-01	
	UNITS	**SITE 1:SITKUM**	**SITE 2:DUHAMEL**	**SITE 3:LEMON**	**RDL**
Potassium (K)	mg/L	0.354	0.515	0.961	0.050
Sodium (Na)	mg/L	0.997	1.08	1.24	0.050
Sulphur (S)	mg/L	< 3.0	< 3.0	< 3.0	3.0
RDL = Reportable Detection Limit					

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Maxxam Job #: B772103
Report Date: 2017/09/13

TerraLogic Exploration Inc.

GENERAL COMMENTS

Sample RU6458 [SITE 3:LEMON] : Sample was analyzed past method specified hold time for Orthophosphate by Konelab (low level). {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.}
Sample RU6457, Elements by CRC ICPMS (dissolved): Test repeated.

Results relate only to the items tested.

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Your C.O.C. #: 532616-02-01

Attention:Jarrod Brown

TerraLogic Exploration Inc.
Suite 200 44-12th Ave South
Cranbrook, BC
Canada V1C 2R7

Report Date: 2017/09/13
Report #: R2443630
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B775212
Received: 2017/09/01, 11:00

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Acidity pH 4.5 & pH 8.3 (as CaCO3)	4	N/A	2017/09/05	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	1	2017/09/02	2017/09/02	BBY6SOP-00026	SM 22 2320 B m
Alkalinity - Water	2	2017/09/02	2017/09/03	BBY6SOP-00026	SM 22 2320 B m
Alkalinity - Water	1	2017/09/06	2017/09/07	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	4	N/A	2017/09/06	BBY6SOP-00011	SM 22 4500-Cl- E m
Conductance - water	1	2017/09/02	2017/09/02	BBY6SOP-00026	SM 22 2510 B m
Conductance - water	2	2017/09/02	2017/09/03	BBY6SOP-00026	SM 22 2510 B m
Conductance - water	1	2017/09/06	2017/09/07	BBY6SOP-00026	SM 22 2510 B m
Fluoride	4	N/A	2017/09/05	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	4	N/A	2017/09/06	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	3	N/A	2017/09/07	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	1	N/A	2017/09/12	BBY WI-00033	Auto Calc
Mercury (Dissolved) by CVAF	4	N/A	2017/09/06	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total) by CVAF	4	2017/09/06	2017/09/06	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Bromide as Bromine (Br) by ICPMS	4	N/A	2017/09/05	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	3	N/A	2017/09/07	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	1	N/A	2017/09/12	BBY7SOP-00002	EPA 6020B R2 m
Elements by CRC ICPMS (dissolved)	4	N/A	2017/09/07	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	4	2017/09/02	2017/09/06	BBY7SOP-00002	EPA 6020B R2 m
Elements by CRC ICPMS (total)	4	2017/09/02	2017/09/06	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Ammonia-N (Preserved)	3	N/A	2017/09/08	BBY6SOP-00009	EPA 350.1 m
Ammonia-N (Preserved)	1	N/A	2017/09/12	BBY6SOP-00009	EPA 350.1 m
Nitrate+Nitrite (N) (low level)	4	N/A	2017/09/02	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	4	N/A	2017/09/02	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N) Low Level Calc	4	N/A	2017/09/06	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	4	N/A	2017/09/06	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (1)	1	2017/09/02	2017/09/02	BBY6SOP-00026	SM 22 4500-H+ B m
pH Water (1)	2	2017/09/02	2017/09/03	BBY6SOP-00026	SM 22 4500-H+ B m
pH Water (1)	1	2017/09/06	2017/09/07	BBY6SOP-00026	SM 22 4500-H+ B m
Orthophosphate by Konelab (low level)	4	N/A	2017/09/02	BBY6SOP-00013	SM 22 4500-P E m

Your C.O.C. #: 532616-02-01

Attention:Jarrod Brown

TerraLogic Exploration Inc.
Suite 200 44-12th Ave South
Cranbrook, BC
Canada V1C 2R7

Report Date: 2017/09/13
Report #: R2443630
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B775212
Received: 2017/09/01, 11:00

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Sulphate by Automated Colourimetry	4	N/A	2017/09/06	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids (Filt. Residue)	4	2017/09/07	2017/09/08	BBY6SOP-00033	SM 22 2540 C m
Total Phosphorus - Low Level	4	N/A	2017/09/06	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	4	2017/09/07	2017/09/08	BBY6SOP-00034	SM 22 2540 D
Turbidity	4	N/A	2017/09/06	BBY6SOP-00027	SM 22 2130 B m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Your C.O.C. #: 532616-02-01

Attention:Jarrod Brown

TerraLogic Exploration Inc.
Suite 200 44-12th Ave South
Cranbrook, BC
Canada V1C 2R7

Report Date: 2017/09/13
Report #: R2443630
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B775212
Received: 2017/09/01, 11:00

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
BC Env Customer Service, BC Environmental Customer Service
Email: Enviro.CS.BC@maxxam.ca
Phone# (604) 734 7276

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B775212
Report Date: 2017/09/13

TerraLogic Exploration Inc.
Sampler Initials: IAZ

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		RW5446	RW5447	RW5448	RW5449	
Sampling Date		2017/08/31 15:33	2017/08/31 13:45	2017/08/31 13:00	2017/08/31 14:00	
COC Number		532616-02-01	532616-02-01	532616-02-01	532616-02-01	
	UNITS	SITE 1:SITKOM	SITE 2:DUHAMEL	SITE 3:LEMON	FIELD BLANK	RDL
Calculated Parameters						
Filter and HNO3 Preservation	N/A	FIELD	FIELD	FIELD	FIELD	N/A
Nitrate (N)	mg/L	0.0225	0.0678	< 0.0020	< 0.0020	0.0020
Misc. Inorganics						
Fluoride (F)	mg/L	0.067	0.170	0.092	< 0.020	0.020
Acidity (pH 4.5)	mg/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Alkalinity (Total as CaCO3)	mg/L	12.9	22.1	42.3	< 1.0	1.0
Acidity (pH 8.3)	mg/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Alkalinity (PP as CaCO3)	mg/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Bicarbonate (HCO3)	mg/L	15.7	27.0	51.6	< 1.0	1.0
Carbonate (CO3)	mg/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Hydroxide (OH)	mg/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Anions						
Orthophosphate (P)	mg/L	< 0.0010	0.0020	0.0017	0.0011	0.0010
Sulphate (SO4)	mg/L	< 1.0	1.1	< 1.0	< 1.0	1.0
Chloride (Cl)	mg/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Nutrients						
Ammonia (N)	mg/L	0.020	< 0.020	< 0.020	< 0.020	0.020
Nitrate plus Nitrite (N)	mg/L	0.0225	0.0678	< 0.0020	< 0.0020	0.0020
Nitrite (N)	mg/L	< 0.0020	< 0.0020	< 0.0020	< 0.0020	0.0020
Phosphorus (P)	mg/L	0.0042	0.0044	0.0047	0.0031	0.0020
Physical Properties						
Conductivity	uS/cm	29.4	43.4	78.8	< 2.0	2.0
pH	pH	7.40	7.37	7.80	5.54	N/A
Physical Properties						
Solids	mg/L	< 1.0	1.2	1.8	1.0	1.0
Total Dissolved Solids	mg/L	16	18	40	< 10	10
Turbidity	NTU	0.14	0.20	0.17	< 0.10	0.10

RDL = Reportable Detection Limit
N/A = Not Applicable

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Maxxam Job #: B775212
Report Date: 2017/09/13

TerraLogic Exploration Inc.
Sampler Initials: IAZ

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		RW5446	RW5447	RW5448	RW5449	
Sampling Date		2017/08/31 15:33	2017/08/31 13:45	2017/08/31 13:00	2017/08/31 14:00	
COC Number		532616-02-01	532616-02-01	532616-02-01	532616-02-01	
	UNITS	SITE 1:SITKOM	SITE 2:DUHAMEL	SITE 3:LEMON	FIELD BLANK	RDL
ANIONS						
Bromide (Br)	mg/L	< 0.010	< 0.010	< 0.010	< 0.010	0.010
RDL = Reportable Detection Limit						

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Maxxam Job #: B775212
Report Date: 2017/09/13

TerraLogic Exploration Inc.
Sampler Initials: IAZ

CSR/CCME DISS. METALS IN WATER W/ CV HG (WATER)

Maxxam ID		RW5446	RW5447	RW5448	RW5449	
Sampling Date		2017/08/31 15:33	2017/08/31 13:45	2017/08/31 13:00	2017/08/31 14:00	
COC Number		532616-02-01	532616-02-01	532616-02-01	532616-02-01	
	UNITS	SITE 1:SITKOM	SITE 2:DUHAMEL	SITE 3:LEMON	FIELD BLANK	RDL
Misc. Inorganics						
Hardness (CaCO3)	mg/L	11.2	18.8	36.4	< 0.50	0.50
Elements						
Mercury (Hg)	ug/L	< 0.010	< 0.010	< 0.010	< 0.010	0.010
Dissolved Metals by ICPMS						
Aluminum (Al)	ug/L	15.9	8.9	5.6	< 3.0	3.0
Antimony (Sb)	ug/L	< 0.50	< 0.50	< 0.50	< 0.50	0.50
Arsenic (As)	ug/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Barium (Ba)	ug/L	8.1	10.7	4.9	< 1.0	1.0
Beryllium (Be)	ug/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Bismuth (Bi)	ug/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Boron (B)	ug/L	< 50	< 50	< 50	< 50	50
Cadmium (Cd)	ug/L	0.029	< 0.010	< 0.010	< 0.010	0.010
Chromium (Cr)	ug/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Cobalt (Co)	ug/L	< 0.20	< 0.20	< 0.20	< 0.20	0.20
Copper (Cu)	ug/L	< 0.20	< 0.20	< 0.20	< 0.20	0.20
Iron (Fe)	ug/L	7.5	< 5.0	< 5.0	< 5.0	5.0
Lead (Pb)	ug/L	< 0.20	< 0.20	< 0.20	< 0.20	0.20
Lithium (Li)	ug/L	< 2.0	< 2.0	2.2	< 2.0	2.0
Manganese (Mn)	ug/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Molybdenum (Mo)	ug/L	< 1.0	1.9	3.2	< 1.0	1.0
Nickel (Ni)	ug/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Selenium (Se)	ug/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Silicon (Si)	ug/L	3,490	3,760	4,170	< 100	100
Silver (Ag)	ug/L	< 0.020	< 0.020	< 0.020	< 0.020	0.020
Strontium (Sr)	ug/L	39.8	83.7	99.2	< 1.0	1.0
Thallium (Tl)	ug/L	< 0.010	< 0.010	< 0.010	< 0.010	0.010
Tin (Sn)	ug/L	< 5.0	< 5.0	< 5.0	< 5.0	5.0
Titanium (Ti)	ug/L	< 5.0	< 5.0	< 5.0	< 5.0	5.0
Uranium (U)	ug/L	0.51	2.16	3.53	< 0.10	0.10
Vanadium (V)	ug/L	< 5.0	< 5.0	< 5.0	< 5.0	5.0
Zinc (Zn)	ug/L	< 5.0	< 5.0	< 5.0	< 5.0	5.0
Zirconium (Zr)	ug/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Calcium (Ca)	mg/L	3.87	5.96	12.4	0.091	0.050
RDL = Reportable Detection Limit						

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Maxxam Job #: B775212
Report Date: 2017/09/13

TerraLogic Exploration Inc.
Sampler Initials: IAZ

CSR/CCME DISS. METALS IN WATER W/ CV HG (WATER)

Maxxam ID		RW5446	RW5447	RW5448	RW5449	
Sampling Date		2017/08/31 15:33	2017/08/31 13:45	2017/08/31 13:00	2017/08/31 14:00	
COC Number		532616-02-01	532616-02-01	532616-02-01	532616-02-01	
	UNITS	SITE 1:SITKOM	SITE 2:DUHAMEL	SITE 3:LEMON	FIELD BLANK	RDL
Magnesium (Mg)	mg/L	0.358	0.938	1.35	< 0.050	0.050
Potassium (K)	mg/L	0.331	0.549	1.07	< 0.050	0.050
Sodium (Na)	mg/L	1.06	1.12	1.34	< 0.050	0.050
Sulphur (S)	mg/L	< 3.0	< 3.0	< 3.0	< 3.0	3.0
RDL = Reportable Detection Limit						

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Maxxam Job #: B775212
Report Date: 2017/09/13

TerraLogic Exploration Inc.
Sampler Initials: IAZ

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Maxxam ID		RW5446	RW5447	RW5448	RW5449	
Sampling Date		2017/08/31 15:33	2017/08/31 13:45	2017/08/31 13:00	2017/08/31 14:00	
COC Number		532616-02-01	532616-02-01	532616-02-01	532616-02-01	
	UNITS	SITE 1:SITKOM	SITE 2:DUHAMEL	SITE 3:LEMON	FIELD BLANK	RDL
Calculated Parameters						
Hardness (CaCO3)	mg/L	11.0	17.5	34.5	< 0.50	0.50
Elements						
Mercury (Hg)	ug/L	< 0.010	< 0.010	< 0.010	< 0.010	0.010
Total Metals by ICPMS						
Aluminum (Al)	ug/L	18.2	12.1	10.2	< 3.0	3.0
Antimony (Sb)	ug/L	< 0.50	< 0.50	< 0.50	< 0.50	0.50
Arsenic (As)	ug/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Barium (Ba)	ug/L	8.0	10.4	4.6	< 1.0	1.0
Beryllium (Be)	ug/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Bismuth (Bi)	ug/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Boron (B)	ug/L	< 50	< 50	< 50	< 50	50
Cadmium (Cd)	ug/L	0.032	0.010	< 0.010	< 0.010	0.010
Chromium (Cr)	ug/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Cobalt (Co)	ug/L	< 0.20	< 0.20	< 0.20	< 0.20	0.20
Copper (Cu)	ug/L	< 0.50	< 0.50	< 0.50	< 0.50	0.50
Iron (Fe)	ug/L	< 10	< 10	< 10	< 10	10
Lead (Pb)	ug/L	< 0.20	< 0.20	< 0.20	< 0.20	0.20
Lithium (Li)	ug/L	< 2.0	< 2.0	2.0	< 2.0	2.0
Manganese (Mn)	ug/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Molybdenum (Mo)	ug/L	< 1.0	1.9	3.2	< 1.0	1.0
Nickel (Ni)	ug/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Selenium (Se)	ug/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Silicon (Si)	ug/L	3,070	3,460	3,740	< 100	100
Silver (Ag)	ug/L	< 0.020	< 0.020	< 0.020	< 0.020	0.020
Strontium (Sr)	ug/L	40.5	84.1	102	< 1.0	1.0
Thallium (Tl)	ug/L	< 0.010	< 0.010	< 0.010	< 0.010	0.010
Tin (Sn)	ug/L	< 5.0	< 5.0	< 5.0	< 5.0	5.0
Titanium (Ti)	ug/L	< 5.0	< 5.0	< 5.0	< 5.0	5.0
Uranium (U)	ug/L	0.51	2.48	3.56	< 0.10	0.10
Vanadium (V)	ug/L	< 5.0	< 5.0	< 5.0	< 5.0	5.0
Zinc (Zn)	ug/L	< 5.0	< 5.0	< 5.0	< 5.0	5.0
Zirconium (Zr)	ug/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Calcium (Ca)	mg/L	3.83	5.55	11.6	0.069	0.050
RDL = Reportable Detection Limit						

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Maxxam Job #: B775212
Report Date: 2017/09/13

TerraLogic Exploration Inc.
Sampler Initials: IAZ

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Maxxam ID		RW5446	RW5447	RW5448	RW5449	
Sampling Date		2017/08/31 15:33	2017/08/31 13:45	2017/08/31 13:00	2017/08/31 14:00	
COC Number		532616-02-01	532616-02-01	532616-02-01	532616-02-01	
	UNITS	SITE 1:SITKOM	SITE 2:DUHAMEL	SITE 3:LEMON	FIELD BLANK	RDL
Magnesium (Mg)	mg/L	0.343	0.891	1.32	< 0.050	0.050
Potassium (K)	mg/L	0.326	0.497	0.913	< 0.050	0.050
Sodium (Na)	mg/L	1.04	1.07	1.25	< 0.050	0.050
Sulphur (S)	mg/L	< 3.0	< 3.0	< 3.0	< 3.0	3.0
RDL = Reportable Detection Limit						

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B775212
Report Date: 2017/09/13

TerraLogic Exploration Inc.
Sampler Initials: IAZ

GENERAL COMMENTS

Sample RW5446 [SITE 1:SITKOM] : Sample was analyzed past method specified hold time for Turbidity. {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.}

Sample RW5447 [SITE 2:DUHAMEL] : Sample was analyzed past method specified hold time for Turbidity. {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.}

Sample RW5448 [SITE 3:LEMON] : Sample was analyzed past method specified hold time for Turbidity. {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.}

Sample RW5449 [FIELD BLANK] : Sample was analyzed past method specified hold time for Turbidity. {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.}

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Your Project #: ALPINE
Site Location: ALPINE
Your C.O.C. #: 529012-08-01

Attention:Jarrod Brown

TerraLogic Exploration
44 12th Ave S #200
Cranbrook, BC
CANADA V1C 2R7

Report Date: 2017/10/02
Report #: R2453395
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B782853
Received: 2017/09/25, 10:00

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Acidity pH 4.5 & pH 8.3 (as CaCO3)	2	2017/09/27	2017/09/27	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	2	2017/09/26	2017/09/26	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	2	N/A	2017/09/26	BBY6SOP-00011	SM 22 4500-Cl- E m
Conductance - water	2	2017/09/26	2017/09/26	BBY6SOP-00026	SM 22 2510 B m
Fluoride	2	N/A	2017/09/26	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	2	N/A	2017/09/27	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	2	N/A	2017/09/27	BBY WI-00033	Auto Calc
Mercury (Dissolved) by CVAF	2	N/A	2017/09/28	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total) by CVAF	2	2017/09/28	2017/09/28	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Bromide as Bromine (Br) by ICPMS	2	N/A	2017/09/26	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	2	N/A	2017/09/27	BBY7SOP-00002	EPA 6020B R2 m
Elements by CRC ICPMS (dissolved)	2	N/A	2017/09/27	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	2	2017/09/25	2017/09/27	BBY7SOP-00002	EPA 6020B R2 m
Elements by CRC ICPMS (total)	2	2017/09/26	2017/09/27	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Ammonia-N (Preserved)	2	N/A	2017/09/30	BBY6SOP-00009	EPA 350.1 m
Nitrate+Nitrite (N) (low level)	2	N/A	2017/09/26	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	2	N/A	2017/09/26	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N) Low Level Calc	2	N/A	2017/09/28	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	2	N/A	2017/09/26	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (1)	2	2017/09/26	2017/09/26	BBY6SOP-00026	SM 22 4500-H+ B m
Orthophosphate by Konelab (low level)	2	N/A	2017/09/26	BBY6SOP-00013	SM 22 4500-P E m
Sulphate by Automated Colourimetry	1	N/A	2017/09/26	BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate by Automated Colourimetry	1	N/A	2017/09/27	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids (Filt. Residue)	2	2017/09/26	2017/09/27	BBY6SOP-00033	SM 22 2540 C m
Total Phosphorus - Low Level	2	N/A	2017/09/28	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	2	2017/09/26	2017/09/26	BBY6SOP-00034	SM 22 2540 D
Turbidity	2	N/A	2017/09/26	BBY6SOP-00027	SM 22 2130 B m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

Your Project #: ALPINE
Site Location: ALPINE
Your C.O.C. #: 529012-08-01

Attention:Jarrod Brown

TerraLogic Exploration
44 12th Ave S #200
Cranbrook, BC
CANADA V1C 2R7

Report Date: 2017/10/02
Report #: R2453395
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B782853
Received: 2017/09/25, 10:00

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
BC Env Customer Service, BC Environmental Customer Service
Email: Enviro.CS.BC@maxxam.ca
Phone# (604) 734 7276

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B782853
Report Date: 2017/10/02

TerraLogic Exploration
Client Project #: ALPINE
Site Location: ALPINE
Sampler Initials: JB

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		SA8325			SA8326		
Sampling Date		2017/09/21 14:30			2017/09/21 14:45		
COC Number		529012-08-01			529012-08-01		
	UNITS	JBALW001	RDL	QC Batch	JBALW002	RDL	QC Batch
Calculated Parameters							
Nitrate (N)	mg/L	0.0670	0.0020	8769883	0.103	0.0020	8769883
Misc. Inorganics							
Fluoride (F)	mg/L	0.095	0.020	8771816	0.076	0.020	8771816
Acidity (pH 4.5)	mg/L	ND	1.0	8772981	ND	1.0	8772981
Alkalinity (Total as CaCO3)	mg/L	32.3	1.0	8771813	23.2	1.0	8771843
Acidity (pH 8.3)	mg/L	ND	1.0	8772981	ND	1.0	8772981
Alkalinity (PP as CaCO3)	mg/L	ND	1.0	8771813	ND	1.0	8771843
Bicarbonate (HCO3)	mg/L	39.5	1.0	8771813	28.2	1.0	8771843
Carbonate (CO3)	mg/L	ND	1.0	8771813	ND	1.0	8771843
Hydroxide (OH)	mg/L	ND	1.0	8771813	ND	1.0	8771843
Anions							
Orthophosphate (P)	mg/L	0.0029	0.0010	8771573	0.0027	0.0010	8771573
Dissolved Sulphate (SO4)	mg/L	7.3	1.0	8773856	6.9	1.0	8771912
Dissolved Chloride (Cl)	mg/L	ND	1.0	8771911	ND	1.0	8771911
Nutrients							
Total Ammonia (N)	mg/L	0.056	0.020	8777457	ND	0.020	8777457
Nitrate plus Nitrite (N)	mg/L	0.0670	0.0020	8773233	0.103	0.0020	8773233
Nitrite (N)	mg/L	ND	0.0020	8773235	ND	0.0020	8773235
Total Phosphorus (P)	mg/L	0.0039	0.0020	8774961	0.0065	0.0020	8774961
Physical Properties							
Conductivity	uS/cm	73.2	2.0	8771818	60.3	2.0	8771849
pH	pH	7.81		8771817	7.62		8771847
Physical Properties							
Total Suspended Solids	mg/L	ND (1)	1.3	8771099	ND (1)	1.6	8771099
Total Dissolved Solids	mg/L	40	10	8771712	28	10	8771712
Turbidity	NTU	ND	0.10	8771262	ND	0.10	8771262

RDL = Reportable Detection Limit
ND = Not detected
(1) RDL raised due to limited initial sample amount.

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Maxxam Job #: B782853
Report Date: 2017/10/02

TerraLogic Exploration
Client Project #: ALPINE
Site Location: ALPINE
Sampler Initials: JB

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		SA8325	SA8326		
Sampling Date		2017/09/21 14:30	2017/09/21 14:45		
COC Number		529012-08-01	529012-08-01		
	UNITS	JBALW001	JBALW002	RDL	QC Batch
ANIONS					
Bromide (Br)	mg/L	ND	ND	0.010	8771789

RDL = Reportable Detection Limit
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Report Date: 2017/10/02

TerraLogic Exploration
Client Project #: ALPINE
Site Location: ALPINE
Sampler Initials: JB

CSR/CCME DISS. METALS IN WATER W/ CV HG (WATER)

Maxxam ID		SA8325	SA8326		
Sampling Date		2017/09/21 14:30	2017/09/21 14:45		
COC Number		529012-08-01	529012-08-01		
	UNITS	JBALW001	JBALW002	RDL	QC Batch
Calculated Parameters					
Filter and HNO3 Preservation	N/A	FIELD	FIELD		ONSITE
Misc. Inorganics					
Dissolved Hardness (CaCO3)	mg/L	31.2	26.7	0.50	8769868
Elements					
Dissolved Mercury (Hg)	ug/L	ND	ND	0.010	8773977
Dissolved Metals by ICPMS					
Dissolved Aluminum (Al)	ug/L	6.8	8.7	3.0	8771158
Dissolved Antimony (Sb)	ug/L	ND	ND	0.50	8771158
Dissolved Arsenic (As)	ug/L	0.17	ND	0.10	8771158
Dissolved Barium (Ba)	ug/L	3.3	8.7	1.0	8771158
Dissolved Beryllium (Be)	ug/L	ND	ND	0.10	8771158
Dissolved Bismuth (Bi)	ug/L	ND	ND	1.0	8771158
Dissolved Boron (B)	ug/L	ND	ND	50	8771158
Dissolved Cadmium (Cd)	ug/L	0.894	0.433	0.010	8771158
Dissolved Chromium (Cr)	ug/L	ND	ND	1.0	8771158
Dissolved Cobalt (Co)	ug/L	ND	ND	0.20	8771158
Dissolved Copper (Cu)	ug/L	ND	0.35	0.20	8771158
Dissolved Iron (Fe)	ug/L	6.8	ND	5.0	8771158
Dissolved Lead (Pb)	ug/L	0.79	ND	0.20	8771158
Dissolved Lithium (Li)	ug/L	ND	ND	2.0	8771158
Dissolved Manganese (Mn)	ug/L	ND	ND	1.0	8771158
Dissolved Molybdenum (Mo)	ug/L	10.8	7.0	1.0	8771158
Dissolved Nickel (Ni)	ug/L	ND	ND	1.0	8771158
Dissolved Selenium (Se)	ug/L	0.15	ND	0.10	8771158
Dissolved Silicon (Si)	ug/L	2280	2090	100	8771158
Dissolved Silver (Ag)	ug/L	ND	ND	0.020	8771158
Dissolved Strontium (Sr)	ug/L	108	88.1	1.0	8771158
Dissolved Thallium (Tl)	ug/L	ND	ND	0.010	8771158
Dissolved Tin (Sn)	ug/L	ND	ND	5.0	8771158
Dissolved Titanium (Ti)	ug/L	ND	ND	5.0	8771158

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TerraLogic Exploration
Client Project #: ALPINE
Site Location: ALPINE
Sampler Initials: JB

CSR/CCME DISS. METALS IN WATER W/ CV HG (WATER)

Maxxam ID		SA8325	SA8326		
Sampling Date		2017/09/21 14:30	2017/09/21 14:45		
COC Number		529012-08-01	529012-08-01		
	UNITS	JBALW001	JBALW002	RDL	QC Batch
Dissolved Uranium (U)	ug/L	20.3	6.24	0.10	8771158
Dissolved Vanadium (V)	ug/L	ND	ND	5.0	8771158
Dissolved Zinc (Zn)	ug/L	22.8	6.7	5.0	8771158
Dissolved Zirconium (Zr)	ug/L	ND	ND	0.10	8771158
Dissolved Calcium (Ca)	mg/L	11.6	9.88	0.050	8769879
Dissolved Magnesium (Mg)	mg/L	0.542	0.479	0.050	8769879
Dissolved Potassium (K)	mg/L	0.727	0.682	0.050	8769879
Dissolved Sodium (Na)	mg/L	0.830	0.756	0.050	8769879
Dissolved Sulphur (S)	mg/L	ND	ND	3.0	8769879

RDL = Reportable Detection Limit
ND = Not detected

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TerraLogic Exploration
Client Project #: ALPINE
Site Location: ALPINE
Sampler Initials: JB

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Maxxam ID		SA8325	SA8326		
Sampling Date		2017/09/21 14:30	2017/09/21 14:45		
COC Number		529012-08-01	529012-08-01		
	UNITS	JBALW001	JBALW002	RDL	QC Batch
Calculated Parameters					
Total Hardness (CaCO3)	mg/L	32.1	27.4	0.50	8769867
Elements					
Total Mercury (Hg)	ug/L	ND	ND	0.010	8774072
Total Metals by ICPMS					
Total Aluminum (Al)	ug/L	4.7	5.1	3.0	8771687
Total Antimony (Sb)	ug/L	ND	ND	0.50	8771687
Total Arsenic (As)	ug/L	0.14	ND	0.10	8771687
Total Barium (Ba)	ug/L	3.2	8.6	1.0	8771687
Total Beryllium (Be)	ug/L	ND	ND	0.10	8771687
Total Bismuth (Bi)	ug/L	ND	ND	1.0	8771687
Total Boron (B)	ug/L	ND	ND	50	8771687
Total Cadmium (Cd)	ug/L	0.885	0.445	0.010	8771687
Total Chromium (Cr)	ug/L	ND	ND	1.0	8771687
Total Cobalt (Co)	ug/L	ND	ND	0.20	8771687
Total Copper (Cu)	ug/L	ND	ND	0.50	8771687
Total Iron (Fe)	ug/L	ND	ND	10	8771687
Total Lead (Pb)	ug/L	0.99	0.24	0.20	8771687
Total Lithium (Li)	ug/L	ND	ND	2.0	8771687
Total Manganese (Mn)	ug/L	ND	ND	1.0	8771687
Total Molybdenum (Mo)	ug/L	10.4	6.9	1.0	8771687
Total Nickel (Ni)	ug/L	ND	ND	1.0	8771687
Total Selenium (Se)	ug/L	0.14	0.11	0.10	8771687
Total Silicon (Si)	ug/L	2320	2060	100	8771687
Total Silver (Ag)	ug/L	ND	ND	0.020	8771687
Total Strontium (Sr)	ug/L	108	86.6	1.0	8771687
Total Thallium (Tl)	ug/L	ND	ND	0.010	8771687
Total Tin (Sn)	ug/L	ND	ND	5.0	8771687
Total Titanium (Ti)	ug/L	ND	ND	5.0	8771687
Total Uranium (U)	ug/L	20.4	6.00	0.10	8771687
Total Vanadium (V)	ug/L	ND	ND	5.0	8771687

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TerraLogic Exploration
Client Project #: ALPINE
Site Location: ALPINE
Sampler Initials: JB

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Maxxam ID		SA8325	SA8326		
Sampling Date		2017/09/21 14:30	2017/09/21 14:45		
COC Number		529012-08-01	529012-08-01		
	UNITS	JBALW001	JBALW002	RDL	QC Batch
Total Zinc (Zn)	ug/L	21.6	5.9	5.0	8771687
Total Zirconium (Zr)	ug/L	ND	ND	0.10	8771687
Total Calcium (Ca)	mg/L	11.9	10.2	0.050	8769881
Total Magnesium (Mg)	mg/L	0.585	0.480	0.050	8769881
Total Potassium (K)	mg/L	0.762	0.639	0.050	8769881
Total Sodium (Na)	mg/L	0.873	0.711	0.050	8769881
Total Sulphur (S)	mg/L	ND	ND	3.0	8769881

RDL = Reportable Detection Limit
ND = Not detected

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TerraLogic Exploration
Client Project #: ALPINE
Site Location: ALPINE
Sampler Initials: JB

GENERAL COMMENTS

Sample SA8325 [JBALW001] : Sample was analyzed past method specified hold time for Orthophosphate by Konelab (low level). {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.} Sample received past method specified hold time for Orthophosphate by Konelab (low level). Sample was analyzed past method specified hold time for Turbidity. Sample received past method specified hold time for Turbidity. Sample received past method specified hold time for Nitrate+Nitrite (N) (low level). Sample received past method specified hold time for Nitrite (N) (low level). Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). Sample was analyzed past method specified hold time for Nitrite (N) (low level).

Sample SA8326 [JBALW002] : Sample was analyzed past method specified hold time for Orthophosphate by Konelab (low level). {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.} Sample received past method specified hold time for Orthophosphate by Konelab (low level). Sample was analyzed past method specified hold time for Turbidity. Sample received past method specified hold time for Turbidity. Sample received past method specified hold time for Nitrate+Nitrite (N) (low level). Sample received past method specified hold time for Nitrite (N) (low level). Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). Sample was analyzed past method specified hold time for Nitrite (N) (low level).

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER) Comments

Matrix Spike Bromide as Bromine (Br) by ICPMS: RDL raised due to sample matrix interference.

Results relate only to the items tested.

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Maxxam Job #: B782853
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TerraLogic Exploration
Client Project #: ALPINE
Site Location: ALPINE
Sampler Initials: JB

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8771099	BBA	Spiked Blank	Total Suspended Solids	2017/09/26		103	%	80 - 120
8771099	BBA	Method Blank	Total Suspended Solids	2017/09/26	ND, RDL=1.0		mg/L	
8771158	JC8	Matrix Spike [SA8326-05]	Dissolved Aluminum (Al)	2017/09/27		105	%	80 - 120
			Dissolved Antimony (Sb)	2017/09/27		99	%	80 - 120
			Dissolved Arsenic (As)	2017/09/27		106	%	80 - 120
			Dissolved Barium (Ba)	2017/09/27		95	%	80 - 120
			Dissolved Beryllium (Be)	2017/09/27		104	%	80 - 120
			Dissolved Bismuth (Bi)	2017/09/27		105	%	80 - 120
			Dissolved Boron (B)	2017/09/27		96	%	80 - 120
			Dissolved Cadmium (Cd)	2017/09/27		98	%	80 - 120
			Dissolved Chromium (Cr)	2017/09/27		98	%	80 - 120
			Dissolved Cobalt (Co)	2017/09/27		99	%	80 - 120
			Dissolved Copper (Cu)	2017/09/27		99	%	80 - 120
			Dissolved Iron (Fe)	2017/09/27		104	%	80 - 120
			Dissolved Lead (Pb)	2017/09/27		103	%	80 - 120
			Dissolved Lithium (Li)	2017/09/27		101	%	80 - 120
			Dissolved Manganese (Mn)	2017/09/27		99	%	80 - 120
			Dissolved Molybdenum (Mo)	2017/09/27		NC	%	80 - 120
			Dissolved Nickel (Ni)	2017/09/27		97	%	80 - 120
			Dissolved Selenium (Se)	2017/09/27		104	%	80 - 120
			Dissolved Silver (Ag)	2017/09/27		104	%	80 - 120
			Dissolved Strontium (Sr)	2017/09/27		NC	%	80 - 120
			Dissolved Thallium (Tl)	2017/09/27		102	%	80 - 120
			Dissolved Tin (Sn)	2017/09/27		94	%	80 - 120
			Dissolved Titanium (Ti)	2017/09/27		97	%	80 - 120
			Dissolved Uranium (U)	2017/09/27		99	%	80 - 120
			Dissolved Vanadium (V)	2017/09/27		95	%	80 - 120
			Dissolved Zinc (Zn)	2017/09/27		98	%	80 - 120
			Dissolved Zirconium (Zr)	2017/09/27		101	%	80 - 120
8771158	JC8	Spiked Blank	Dissolved Aluminum (Al)	2017/09/27		109	%	80 - 120
			Dissolved Antimony (Sb)	2017/09/27		102	%	80 - 120
			Dissolved Arsenic (As)	2017/09/27		116	%	80 - 120
			Dissolved Barium (Ba)	2017/09/27		102	%	80 - 120
			Dissolved Beryllium (Be)	2017/09/27		101	%	80 - 120
			Dissolved Bismuth (Bi)	2017/09/27		103	%	80 - 120
			Dissolved Boron (B)	2017/09/27		102	%	80 - 120
			Dissolved Cadmium (Cd)	2017/09/27		101	%	80 - 120
			Dissolved Chromium (Cr)	2017/09/27		111	%	80 - 120
			Dissolved Cobalt (Co)	2017/09/27		110	%	80 - 120
			Dissolved Copper (Cu)	2017/09/27		111	%	80 - 120
			Dissolved Iron (Fe)	2017/09/27		107	%	80 - 120
			Dissolved Lead (Pb)	2017/09/27		107	%	80 - 120
			Dissolved Lithium (Li)	2017/09/27		98	%	80 - 120
			Dissolved Manganese (Mn)	2017/09/27		107	%	80 - 120
			Dissolved Molybdenum (Mo)	2017/09/27		107	%	80 - 120
			Dissolved Nickel (Ni)	2017/09/27		114	%	80 - 120
			Dissolved Selenium (Se)	2017/09/27		103	%	80 - 120
			Dissolved Silver (Ag)	2017/09/27		108	%	80 - 120
			Dissolved Strontium (Sr)	2017/09/27		103	%	80 - 120
			Dissolved Thallium (Tl)	2017/09/27		105	%	80 - 120
			Dissolved Tin (Sn)	2017/09/27		98	%	80 - 120

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TerraLogic Exploration
Client Project #: ALPINE
Site Location: ALPINE
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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Titanium (Ti)	2017/09/27		104	%	80 - 120
			Dissolved Uranium (U)	2017/09/27		104	%	80 - 120
			Dissolved Vanadium (V)	2017/09/27		110	%	80 - 120
			Dissolved Zinc (Zn)	2017/09/27		113	%	80 - 120
			Dissolved Zirconium (Zr)	2017/09/27		97	%	80 - 120
8771158	JC8	Method Blank	Dissolved Aluminum (Al)	2017/09/27	ND, RDL=3.0		ug/L	
			Dissolved Antimony (Sb)	2017/09/27	ND, RDL=0.50		ug/L	
			Dissolved Arsenic (As)	2017/09/27	ND, RDL=0.10		ug/L	
			Dissolved Barium (Ba)	2017/09/27	ND, RDL=1.0		ug/L	
			Dissolved Beryllium (Be)	2017/09/27	ND, RDL=0.10		ug/L	
			Dissolved Bismuth (Bi)	2017/09/27	ND, RDL=1.0		ug/L	
			Dissolved Boron (B)	2017/09/27	ND, RDL=50		ug/L	
			Dissolved Cadmium (Cd)	2017/09/27	ND, RDL=0.010		ug/L	
			Dissolved Chromium (Cr)	2017/09/27	ND, RDL=1.0		ug/L	
			Dissolved Cobalt (Co)	2017/09/27	ND, RDL=0.20		ug/L	
			Dissolved Copper (Cu)	2017/09/27	ND, RDL=0.20		ug/L	
			Dissolved Iron (Fe)	2017/09/27	ND, RDL=5.0		ug/L	
			Dissolved Lead (Pb)	2017/09/27	ND, RDL=0.20		ug/L	
			Dissolved Lithium (Li)	2017/09/27	ND, RDL=2.0		ug/L	
			Dissolved Manganese (Mn)	2017/09/27	ND, RDL=1.0		ug/L	
			Dissolved Molybdenum (Mo)	2017/09/27	ND, RDL=1.0		ug/L	
			Dissolved Nickel (Ni)	2017/09/27	ND, RDL=1.0		ug/L	
			Dissolved Selenium (Se)	2017/09/27	ND, RDL=0.10		ug/L	
			Dissolved Silicon (Si)	2017/09/27	ND, RDL=100		ug/L	
			Dissolved Silver (Ag)	2017/09/27	ND, RDL=0.020		ug/L	
			Dissolved Strontium (Sr)	2017/09/27	ND, RDL=1.0		ug/L	
			Dissolved Thallium (Tl)	2017/09/27	ND, RDL=0.010		ug/L	
			Dissolved Tin (Sn)	2017/09/27	ND, RDL=5.0		ug/L	

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TerraLogic Exploration
Client Project #: ALPINE
Site Location: ALPINE
Sampler Initials: JB

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Titanium (Ti)	2017/09/27	ND, RDL=5.0		ug/L	
			Dissolved Uranium (U)	2017/09/27	ND, RDL=0.10		ug/L	
			Dissolved Vanadium (V)	2017/09/27	ND, RDL=5.0		ug/L	
			Dissolved Zinc (Zn)	2017/09/27	ND, RDL=5.0		ug/L	
			Dissolved Zirconium (Zr)	2017/09/27	ND, RDL=0.10		ug/L	
8771158	JC8	RPD [SA8326-05]	Dissolved Aluminum (Al)	2017/09/27	12		%	20
			Dissolved Antimony (Sb)	2017/09/27	NC		%	20
			Dissolved Arsenic (As)	2017/09/27	NC		%	20
			Dissolved Barium (Ba)	2017/09/27	2.4		%	20
			Dissolved Beryllium (Be)	2017/09/27	NC		%	20
			Dissolved Bismuth (Bi)	2017/09/27	NC		%	20
			Dissolved Boron (B)	2017/09/27	NC		%	20
			Dissolved Cadmium (Cd)	2017/09/27	2.1		%	20
			Dissolved Chromium (Cr)	2017/09/27	NC		%	20
			Dissolved Cobalt (Co)	2017/09/27	NC		%	20
			Dissolved Copper (Cu)	2017/09/27	2.0		%	20
			Dissolved Iron (Fe)	2017/09/27	NC		%	20
			Dissolved Lead (Pb)	2017/09/27	NC		%	20
			Dissolved Lithium (Li)	2017/09/27	NC		%	20
			Dissolved Manganese (Mn)	2017/09/27	NC		%	20
			Dissolved Molybdenum (Mo)	2017/09/27	0.40		%	20
			Dissolved Nickel (Ni)	2017/09/27	NC		%	20
			Dissolved Selenium (Se)	2017/09/27	NC		%	20
			Dissolved Silicon (Si)	2017/09/27	1.3		%	20
			Dissolved Silver (Ag)	2017/09/27	NC		%	20
			Dissolved Strontium (Sr)	2017/09/27	0.77		%	20
			Dissolved Thallium (Tl)	2017/09/27	NC		%	20
			Dissolved Tin (Sn)	2017/09/27	NC		%	20
			Dissolved Titanium (Ti)	2017/09/27	NC		%	20
			Dissolved Uranium (U)	2017/09/27	2.2		%	20
			Dissolved Vanadium (V)	2017/09/27	NC		%	20
			Dissolved Zinc (Zn)	2017/09/27	2.0		%	20
			Dissolved Zirconium (Zr)	2017/09/27	NC		%	20
8771262	MCN	Spiked Blank	Turbidity	2017/09/26		99	%	80 - 120
8771262	MCN	Method Blank	Turbidity	2017/09/26	ND, RDL=0.10		NTU	
8771262	MCN	RPD	Turbidity	2017/09/26	1.7		%	20
8771573	BO3	Matrix Spike [SA8326-01]	Orthophosphate (P)	2017/09/26		89	%	80 - 120
8771573	BO3	Spiked Blank	Orthophosphate (P)	2017/09/26		95	%	80 - 120
8771573	BO3	Method Blank	Orthophosphate (P)	2017/09/26	ND, RDL=0.0010		mg/L	
8771573	BO3	RPD [SA8326-01]	Orthophosphate (P)	2017/09/26	10		%	20
8771687	JC8	Matrix Spike	Total Aluminum (Al)	2017/09/26		109	%	80 - 120
			Total Antimony (Sb)	2017/09/26		100	%	80 - 120
			Total Arsenic (As)	2017/09/26		106	%	80 - 120
			Total Barium (Ba)	2017/09/26		99	%	80 - 120
			Total Beryllium (Be)	2017/09/26		104	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Bismuth (Bi)	2017/09/26		102	%	80 - 120
			Total Boron (B)	2017/09/26		106	%	80 - 120
			Total Cadmium (Cd)	2017/09/26		100	%	80 - 120
			Total Chromium (Cr)	2017/09/26		98	%	80 - 120
			Total Cobalt (Co)	2017/09/26		99	%	80 - 120
			Total Copper (Cu)	2017/09/26		100	%	80 - 120
			Total Iron (Fe)	2017/09/26		108	%	80 - 120
			Total Lead (Pb)	2017/09/26		104	%	80 - 120
			Total Lithium (Li)	2017/09/26		99	%	80 - 120
			Total Manganese (Mn)	2017/09/26		98	%	80 - 120
			Total Molybdenum (Mo)	2017/09/26		93	%	80 - 120
			Total Nickel (Ni)	2017/09/26		99	%	80 - 120
			Total Selenium (Se)	2017/09/26		108	%	80 - 120
			Total Silver (Ag)	2017/09/26		107	%	80 - 120
			Total Strontium (Sr)	2017/09/26		NC	%	80 - 120
			Total Thallium (Tl)	2017/09/26		102	%	80 - 120
			Total Tin (Sn)	2017/09/26		99	%	80 - 120
			Total Titanium (Ti)	2017/09/26		89	%	80 - 120
			Total Uranium (U)	2017/09/26		102	%	80 - 120
			Total Vanadium (V)	2017/09/26		98	%	80 - 120
			Total Zinc (Zn)	2017/09/26		105	%	80 - 120
			Total Zirconium (Zr)	2017/09/26		107	%	80 - 120
8771687	JC8	Spiked Blank	Total Aluminum (Al)	2017/09/26		109	%	80 - 120
			Total Antimony (Sb)	2017/09/26		101	%	80 - 120
			Total Arsenic (As)	2017/09/26		101	%	80 - 120
			Total Barium (Ba)	2017/09/26		101	%	80 - 120
			Total Beryllium (Be)	2017/09/26		102	%	80 - 120
			Total Bismuth (Bi)	2017/09/26		102	%	80 - 120
			Total Boron (B)	2017/09/26		104	%	80 - 120
			Total Cadmium (Cd)	2017/09/26		100	%	80 - 120
			Total Chromium (Cr)	2017/09/26		101	%	80 - 120
			Total Cobalt (Co)	2017/09/26		99	%	80 - 120
			Total Copper (Cu)	2017/09/26		99	%	80 - 120
			Total Iron (Fe)	2017/09/26		109	%	80 - 120
			Total Lead (Pb)	2017/09/26		104	%	80 - 120
			Total Lithium (Li)	2017/09/26		96	%	80 - 120
			Total Manganese (Mn)	2017/09/26		100	%	80 - 120
			Total Molybdenum (Mo)	2017/09/26		100	%	80 - 120
			Total Nickel (Ni)	2017/09/26		98	%	80 - 120
			Total Selenium (Se)	2017/09/26		104	%	80 - 120
			Total Silver (Ag)	2017/09/26		107	%	80 - 120
			Total Strontium (Sr)	2017/09/26		103	%	80 - 120
			Total Thallium (Tl)	2017/09/26		103	%	80 - 120
			Total Tin (Sn)	2017/09/26		99	%	80 - 120
			Total Titanium (Ti)	2017/09/26		107	%	80 - 120
			Total Uranium (U)	2017/09/26		102	%	80 - 120
			Total Vanadium (V)	2017/09/26		99	%	80 - 120
			Total Zinc (Zn)	2017/09/26		101	%	80 - 120
			Total Zirconium (Zr)	2017/09/26		101	%	80 - 120
8771687	JC8	Method Blank	Total Aluminum (Al)	2017/09/27	ND, RDL=3.0		ug/L	

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Client Project #: ALPINE
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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Antimony (Sb)	2017/09/27	ND, RDL=0.50		ug/L	
			Total Arsenic (As)	2017/09/27	ND, RDL=0.10		ug/L	
			Total Barium (Ba)	2017/09/27	ND, RDL=1.0		ug/L	
			Total Beryllium (Be)	2017/09/27	ND, RDL=0.10		ug/L	
			Total Bismuth (Bi)	2017/09/27	ND, RDL=1.0		ug/L	
			Total Boron (B)	2017/09/27	ND, RDL=50		ug/L	
			Total Cadmium (Cd)	2017/09/27	ND, RDL=0.010		ug/L	
			Total Chromium (Cr)	2017/09/27	ND, RDL=1.0		ug/L	
			Total Cobalt (Co)	2017/09/27	ND, RDL=0.20		ug/L	
			Total Copper (Cu)	2017/09/27	ND, RDL=0.50		ug/L	
			Total Iron (Fe)	2017/09/27	ND, RDL=10		ug/L	
			Total Lead (Pb)	2017/09/27	ND, RDL=0.20		ug/L	
			Total Lithium (Li)	2017/09/27	ND, RDL=2.0		ug/L	
			Total Manganese (Mn)	2017/09/27	ND, RDL=1.0		ug/L	
			Total Molybdenum (Mo)	2017/09/27	ND, RDL=1.0		ug/L	
			Total Nickel (Ni)	2017/09/27	ND, RDL=1.0		ug/L	
			Total Selenium (Se)	2017/09/27	ND, RDL=0.10		ug/L	
			Total Silicon (Si)	2017/09/27	ND, RDL=100		ug/L	
			Total Silver (Ag)	2017/09/27	ND, RDL=0.020		ug/L	
			Total Strontium (Sr)	2017/09/27	ND, RDL=1.0		ug/L	
			Total Thallium (Tl)	2017/09/27	ND, RDL=0.010		ug/L	
			Total Tin (Sn)	2017/09/27	ND, RDL=5.0		ug/L	
			Total Titanium (Ti)	2017/09/27	ND, RDL=5.0		ug/L	
			Total Uranium (U)	2017/09/27	ND, RDL=0.10		ug/L	
			Total Vanadium (V)	2017/09/27	ND, RDL=5.0		ug/L	
			Total Zinc (Zn)	2017/09/27	ND, RDL=5.0		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Zirconium (Zr)	2017/09/27	ND, RDL=0.10		ug/L	
8771687	JC8	RPD	Total Aluminum (Al)	2017/09/27	0.86		%	20
			Total Antimony (Sb)	2017/09/27	NC		%	20
			Total Arsenic (As)	2017/09/27	2.0		%	20
			Total Barium (Ba)	2017/09/27	1.0		%	20
			Total Beryllium (Be)	2017/09/27	NC		%	20
			Total Bismuth (Bi)	2017/09/27	NC		%	20
			Total Boron (B)	2017/09/27	NC		%	20
			Total Cadmium (Cd)	2017/09/27	NC		%	20
			Total Chromium (Cr)	2017/09/27	NC		%	20
			Total Cobalt (Co)	2017/09/27	NC		%	20
			Total Copper (Cu)	2017/09/27	4.7		%	20
			Total Iron (Fe)	2017/09/27	NC		%	20
			Total Lead (Pb)	2017/09/27	3.7		%	20
			Total Lithium (Li)	2017/09/27	NC		%	20
			Total Manganese (Mn)	2017/09/27	NC		%	20
			Total Molybdenum (Mo)	2017/09/27	NC		%	20
			Total Nickel (Ni)	2017/09/27	NC		%	20
			Total Selenium (Se)	2017/09/27	NC		%	20
			Total Silicon (Si)	2017/09/27	1.8		%	20
			Total Silver (Ag)	2017/09/27	NC		%	20
			Total Strontium (Sr)	2017/09/27	0.82		%	20
			Total Thallium (Tl)	2017/09/27	NC		%	20
			Total Tin (Sn)	2017/09/27	NC		%	20
			Total Titanium (Ti)	2017/09/27	NC		%	20
			Total Uranium (U)	2017/09/27	NC		%	20
			Total Vanadium (V)	2017/09/27	NC		%	20
			Total Zinc (Zn)	2017/09/27	NC		%	20
			Total Zirconium (Zr)	2017/09/27	NC		%	20
8771712	CLR	Matrix Spike	Total Dissolved Solids	2017/09/27		91	%	80 - 120
8771712	CLR	Spiked Blank	Total Dissolved Solids	2017/09/27		95	%	80 - 120
8771712	CLR	Method Blank	Total Dissolved Solids	2017/09/27	ND, RDL=10		mg/L	
8771712	CLR	RPD	Total Dissolved Solids	2017/09/27	0		%	20
8771789	JT3	Matrix Spike	Bromide (Br)	2017/09/26		NC	%	78 - 120
8771789	JT3	Spiked Blank	Bromide (Br)	2017/09/26		99	%	80 - 120
8771789	JT3	Method Blank	Bromide (Br)	2017/09/26	ND, RDL=0.010		mg/L	
8771789	JT3	RPD	Bromide (Br)	2017/09/26	0.46		%	20
8771813	WAY	Spiked Blank	Alkalinity (Total as CaCO3)	2017/09/26		100	%	80 - 120
8771813	WAY	Method Blank	Alkalinity (Total as CaCO3)	2017/09/26	ND, RDL=1.0		mg/L	
			Alkalinity (PP as CaCO3)	2017/09/26	ND, RDL=1.0		mg/L	
			Bicarbonate (HCO3)	2017/09/26	ND, RDL=1.0		mg/L	
			Carbonate (CO3)	2017/09/26	ND, RDL=1.0		mg/L	
			Hydroxide (OH)	2017/09/26	ND, RDL=1.0		mg/L	
8771813	WAY	RPD	Alkalinity (Total as CaCO3)	2017/09/26	1.4		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Alkalinity (PP as CaCO3)	2017/09/26	NC		%	20
			Bicarbonate (HCO3)	2017/09/26	1.4		%	20
			Carbonate (CO3)	2017/09/26	NC		%	20
			Hydroxide (OH)	2017/09/26	NC		%	20
8771816	TSO	Matrix Spike	Fluoride (F)	2017/09/26		105	%	80 - 120
8771816	TSO	Spiked Blank	Fluoride (F)	2017/09/26		102	%	80 - 120
8771816	TSO	Method Blank	Fluoride (F)	2017/09/26	ND, RDL=0.020		mg/L	
8771816	TSO	RPD	Fluoride (F)	2017/09/26	0		%	20
8771817	WAY	Spiked Blank	pH	2017/09/26		102	%	97 - 103
8771817	WAY	RPD	pH	2017/09/26	0.13		%	20
8771818	WAY	Spiked Blank	Conductivity	2017/09/26		99	%	80 - 120
8771818	WAY	Method Blank	Conductivity	2017/09/26	ND, RDL=2.0		uS/cm	
8771818	WAY	RPD	Conductivity	2017/09/26	0.40		%	20
8771843	WAY	Matrix Spike	Alkalinity (Total as CaCO3)	2017/09/26		NC	%	80 - 120
8771843	WAY	Spiked Blank	Alkalinity (Total as CaCO3)	2017/09/26		97	%	80 - 120
8771843	WAY	Method Blank	Alkalinity (Total as CaCO3)	2017/09/26	ND, RDL=1.0		mg/L	
			Alkalinity (PP as CaCO3)	2017/09/26	ND, RDL=1.0		mg/L	
			Bicarbonate (HCO3)	2017/09/26	ND, RDL=1.0		mg/L	
			Carbonate (CO3)	2017/09/26	ND, RDL=1.0		mg/L	
			Hydroxide (OH)	2017/09/26	ND, RDL=1.0		mg/L	
8771847	WAY	Spiked Blank	pH	2017/09/26		102	%	97 - 103
8771849	WAY	Spiked Blank	Conductivity	2017/09/26		100	%	80 - 120
8771849	WAY	Method Blank	Conductivity	2017/09/26	ND, RDL=2.0		uS/cm	
8771911	BB3	Matrix Spike	Dissolved Chloride (Cl)	2017/09/26		109	%	80 - 120
8771911	BB3	Spiked Blank	Dissolved Chloride (Cl)	2017/09/26		101	%	80 - 120
8771911	BB3	Method Blank	Dissolved Chloride (Cl)	2017/09/26	ND, RDL=1.0		mg/L	
8771911	BB3	RPD	Dissolved Chloride (Cl)	2017/09/26	0.98		%	20
8771912	BB3	Matrix Spike	Dissolved Sulphate (SO4)	2017/09/26		119	%	80 - 120
8771912	BB3	Spiked Blank	Dissolved Sulphate (SO4)	2017/09/26		103	%	80 - 120
8771912	BB3	Method Blank	Dissolved Sulphate (SO4)	2017/09/26	ND, RDL=1.0		mg/L	
8771912	BB3	RPD	Dissolved Sulphate (SO4)	2017/09/26	2.0		%	20
8772981	WAY	Spiked Blank	Acidity (pH 8.3)	2017/09/27		96	%	80 - 120
8772981	WAY	Method Blank	Acidity (pH 4.5)	2017/09/27	ND, RDL=1.0		mg/L	
			Acidity (pH 8.3)	2017/09/27	ND, RDL=1.0		mg/L	
8772981	WAY	RPD [SA8326-01]	Acidity (pH 4.5)	2017/09/27	NC		%	20
			Acidity (pH 8.3)	2017/09/27	NC		%	20
8773233	IW1	Matrix Spike	Nitrate plus Nitrite (N)	2017/09/26		105	%	80 - 120
8773233	IW1	Spiked Blank	Nitrate plus Nitrite (N)	2017/09/26		104	%	80 - 120
8773233	IW1	Method Blank	Nitrate plus Nitrite (N)	2017/09/26	ND, RDL=0.0020		mg/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8773233	IW1	RPD	Nitrate plus Nitrite (N)	2017/09/26	NC		%	25
8773235	IW1	Matrix Spike	Nitrite (N)	2017/09/26		98	%	80 - 120
8773235	IW1	Spiked Blank	Nitrite (N)	2017/09/26		97	%	80 - 120
8773235	IW1	Method Blank	Nitrite (N)	2017/09/26	ND, RDL=0.0020		mg/L	
8773235	IW1	RPD	Nitrite (N)	2017/09/26	NC		%	25
8773856	BB3	Matrix Spike	Dissolved Sulphate (SO4)	2017/09/27		113	%	80 - 120
8773856	BB3	Spiked Blank	Dissolved Sulphate (SO4)	2017/09/27		98	%	80 - 120
8773856	BB3	Method Blank	Dissolved Sulphate (SO4)	2017/09/27	ND, RDL=1.0		mg/L	
8773977	EL2	Matrix Spike	Dissolved Mercury (Hg)	2017/09/28		100	%	80 - 120
8773977	EL2	Spiked Blank	Dissolved Mercury (Hg)	2017/09/28		104	%	80 - 120
8773977	EL2	Method Blank	Dissolved Mercury (Hg)	2017/09/28	ND, RDL=0.010		ug/L	
8773977	EL2	RPD	Dissolved Mercury (Hg)	2017/09/28	NC		%	20
8774072	EL2	Matrix Spike	Total Mercury (Hg)	2017/09/28		99	%	80 - 120
8774072	EL2	Spiked Blank	Total Mercury (Hg)	2017/09/28		97	%	80 - 120
8774072	EL2	Method Blank	Total Mercury (Hg)	2017/09/28	ND, RDL=0.010		ug/L	
8774072	EL2	RPD	Total Mercury (Hg)	2017/09/28	NC		%	20
8774961	BO3	Spiked Blank	Total Phosphorus (P)	2017/09/28		104	%	80 - 120
8774961	BO3	Method Blank	Total Phosphorus (P)	2017/09/28	ND, RDL=0.0020		mg/L	
8777457	DC6	Matrix Spike	Total Ammonia (N)	2017/09/30		NC	%	80 - 120
8777457	DC6	Spiked Blank	Total Ammonia (N)	2017/09/30		105	%	80 - 120
8777457	DC6	Method Blank	Total Ammonia (N)	2017/09/30	ND, RDL=0.020		mg/L	
8777457	DC6	RPD	Total Ammonia (N)	2017/09/30	0.92		%	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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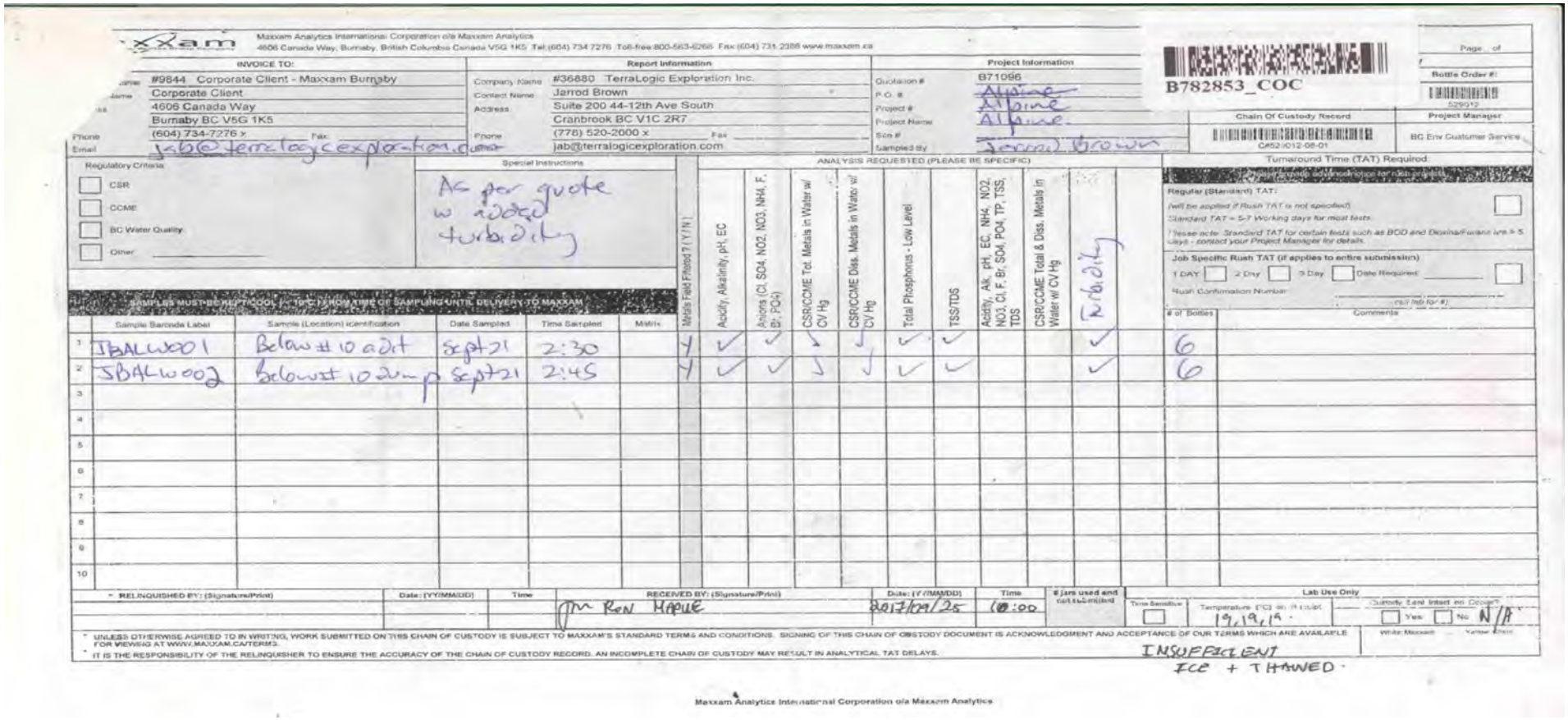
VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Andy Lu, Ph.D., P.Chem., Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Bottle Order #: 529912

Chain Of Custody Record: C852/012-08-01

Project Manager: BC Env Customer Service

INVOICE TO:
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Project Information
Quotation #: B71096
P.O. #: Alpine
Project #: Alpine
Project Name: Alpine
Site #:
Sampled By: Jarrod Brown

Regulatory Criteria: CSR; CCME; BC Water Quality; Other:

Special Instructions: As per quote w added turbidity

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects
Regular (Standard) TAT: (will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.
Job Specific Rush TAT (if applies to entire submission): 1 DAY 2 Day 3 Day Date Required:
Rush Confirmation Number: (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered? (Y / N)	Acidity, Alkalinity, pH, EC	Anions (Cl, SO4, NO2, NO3, NH4, F, Br, PO4)	CSR/CCME Tot. Metals in Water w/ CV Hg	CSR/CCME Diss. Metals in Water w/ CV Hg	Total Phosphorus - Low Level	TSS/TDS	Acidity, Alk, pH, EC, NH4, NO2, NO3, Cl, F, Br, SO4, PO4, TP, TSS, TDS	CSR/CCME Total & Diss. Metals in Water w/ CV Hg	Turbidity	# of Bottles	Comments
1	JBALW001	Below #10 adit	Sept 21	2:30		Y	✓	✓	✓	✓	✓	✓			✓	6	
2	JBALW002	Below #10 Dump	Sept 21	2:45		Y	✓	✓	✓	✓	✓	✓			✓	6	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# Jars used and not submitted	Lab Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
			RON MAHLE	2017/09/25	10:00			19, 19, 19	Yes No N/A

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

INSUFFICIENT ICE + THAWED.

Maxxam Analytics International Corporation o/a Maxxam Analytics

Appendix VIII

Archaeological Desktop Review

Tipi Mountain Eco-Cultural Services Ltd.
PO Box 957
Cranbrook BC V1C 4J6
Phone 250.420.2724

Archaeological Desk Review

Letter Report

Date: July 7th, 2017

To: Braveheart Resources Inc. (C/O Charles Downie)

Prepared by: Andrea Thompson, Tipi Mountain Eco-Cultural Services Ltd. (TMECS)

Re: **Alpine Property - Mineral Claim 20170316: MYAB Blocks A, B and C**

Braveheart Resources Inc. has proposed mineral exploration within the Alpine Property under mineral claim# 20170316, located approximately 10 km north of the West Arm of Kootenay Lake in the Selkirk Mountain Range and within the Alpine drainage basin (south of Lemon Creek), in southeastern British Columbia (Figure 1). The project boundary consists of three Multi-Year Area Based (MYAB) polygons (*i.e.* A, B and C) situated in mid to high elevation terrain to the east of the Duhamel drainage and northwest of Sitkum Creek. The three Alpine MYAB blocks encompass approximately 742.5 hectares of terrain within the larger mineral claim boundary that covers approximately 1912.14 hectares (Figure 2). The proposed project area can be located on the following map sheets:

- BC TRIM: 082F.054 & .064
- NTS: 082F/11

In May of 2017, Bravelheart Resources Inc. provided TMECS with conceptual mineral exploration plans including the mineral claim boundary and three MYAB blocks (Table 1 and Figures 1 and 2). Currently, MYAB Block A encompasses archaeological overview assessment (AOA) polygon K10-64, and the Mineral Claim boundary overlaps with AOA polygon K10-65 in the centre-east and is situated in proximity to AOA polygon K10-63 in the south-east (see Figure 2). MYAB Blocks B and C do not encompass or overlap with any AOA polygons.

Table 1: Summary information for the Alpine mineral claim (20170316) and three MYAB blocks.

Project Component Name	Centroid: Easting (Y)*	Centroid: Northing (X)*	AOA Polygon Inclusion or Overlap (Y/N) and Polygon Number
Mineral Claim Boundary	5504458.714	481469.603	Yes –K10-65 and proximity with K10-63
MYAB Block A	5503999.079	482048.496	Yes – K10-64
MYAB Block B	5506534.714	479590.680	No
MYAB Block C	5505006.608	480172.421	No

**Zone: 11N, Datum: NAD 83*

A summary of the AOA polygon locations, including centroid UTM coordinates and geographical location, is provided in Table 2, below. The three AOA polygons referenced here have been provided to the proponent for use and reference during in-field exploration.

Table 2: Summary information regarding the AOA Polygons within, overlapping with, and in proximity to the Vulcan mineral claim area.

AOA Polygon Number	AOA Polygon Location Description	Easting (X) (NAD83 Zone 11N)	Northing (Y) (NAD83 Zone 11N)
K10-63	Outside the south-east corner of the mineral claim boundary, on the Sitkum Creek drainage, in mid-elevation terrain.	483010.658	5501541.736
K10-64	Inside both the mineral claim and MYAB Block A (centre-south), on high elevation terrain on a tributary drainage of Sitkum Creek.	482132.353	5503400.511
K10-65	Overlapping with the mineral claim boundary in the centre-east, at the head of Sitkum Creek, in mid to high elevation terrain.	482989.068	5503857.844

A search of both the Remote Access to Archaeological Data (RAAD) application (BC Archaeology Branch) and the archaeological sites database at TMECS, produced negative results for recorded archaeological sites within a 10 to 12 km radius of the mineral claim boundary. Sites in the region have been recorded along the West Arm of Kootenay Lake (approximately 13 km south of the mineral claim boundary) and at the confluence of Lemon Creek and Slocan Lake (approximately 17 km west of the mineral claim boundary).

Background Research

Background research for the Alpine mineral claim# 20170316 project included a review of archived reporting and archaeological overview assessments (AOAs) having been completed for Crown Lands encompassed within Landscape Unit (LU) K10, within the Selkirk Forest District (Choquette 2006). The potential for archaeological resources to be identified within the LUs was determined through aerial photograph analysis and the application of precontact land and resource use models developed for the southern Rocky Mountain Trench. This process resulted in the delineation of landform-based polygons (ranked as medium and high), one of which is situated within or MYAB Block A, one is overlapping the mineral claim boundary in the centre-south, and one is in proximity to the mineral claim boundary in the south-east.

Previous archaeological assessments in the vicinity of the mineral claim boundary include forestry-related impact studies along the West Arm of Kootenay Lake, conducted primarily in the tributary drainages up slope to the north of the lakeshore (I.R. Wilson 1989). No previous archaeological work was identified [that has been undertaken] in proximity to the Alpine mineral claim and MYAB blocks.

Recommendations

Avoidance of the AOA polygon areas, overlapping with and encompassed within the proposed Alpine mineral exploration project, is recommended. Use of existing roads, tracks and landings, within the mineral claim and MYAB blocks, is permitted provided that maintenance of existing infrastructure in the AOA polygon areas is avoided; all ground disturbing activities are prohibited in areas of identified archaeological potential.

Any additional, future [proposed] mineral exploration components, or development work requiring ground disturbance, proposed within AOA polygon areas or in proximity to identified archaeological sites or areas of archaeological potential, will require assessment prior to the onset of ground altering activity.

For areas where archaeological overview assessments (AOAs) or archaeological field assessments have not been conducted, it is also possible to conduct a preliminary field reconnaissance (PFR) prior to assessment through a subsurface testing program (AIA). A PFR assessment can also be conducted for the purpose of ground-truthing AOA polygons and areas of potential that have been produced through desk-based studies.

It is also recommended that the proponent inform all staff and contractors that archaeological remains predating AD 1846 located on both public and private lands, and sites containing rock art or human burials, are automatically protected within the Province of British Columbia from both intentional and inadvertent disturbance by the *Heritage Conservation Act* (RSBC 1996, Chapter 187). An archaeological information sheet explaining regionally-applicable archaeological sites types and artifact assemblages accompanies this report. In the event that any precontact cultural material is encountered or suspected to have been exposed during the implementation of this development please be aware of the following:

- All ground disturbance in the immediate vicinity of the suspected find(s) must be suspended at once, and;
- The Ministry of Forest, Lands and Natural Resource Operations, Archaeology Branch (250-953-3334) must be informed as soon as possible of the location of the archaeological remains and the nature of the disturbance.

Should you have any questions or require additional information please contact me at your convenience.



Andrea Thompson, MSc
Archaeologist
Tipi Mountain Eco-Cultural Services Ltd.
Office: 250-420-2724
Email: andrea@tipimountain.com

References Cited

BC Law
1996 *Heritage Conservation Act*, Revised Statutes of British Columbia, Chapter 187

Choquette, Wayne T.
2006 *Archaeological Overview Assessment of parts of Landscape Units K10 and K12, Kootenay Lake Forest District*. Prepared for BC Timber Sales and the Ktunaxa/Kinbasket Treaty Council.

Figure: 1

Desk Review

Title:

Overview

Project:

Alpine Project Mineral Claim #20170316

Client:

Braveheart Resources Inc.

Survey Date: n/a

Mapping Date: 30/06/2017

UTM 11-NAD 83- NTS 82F11

1:100,000

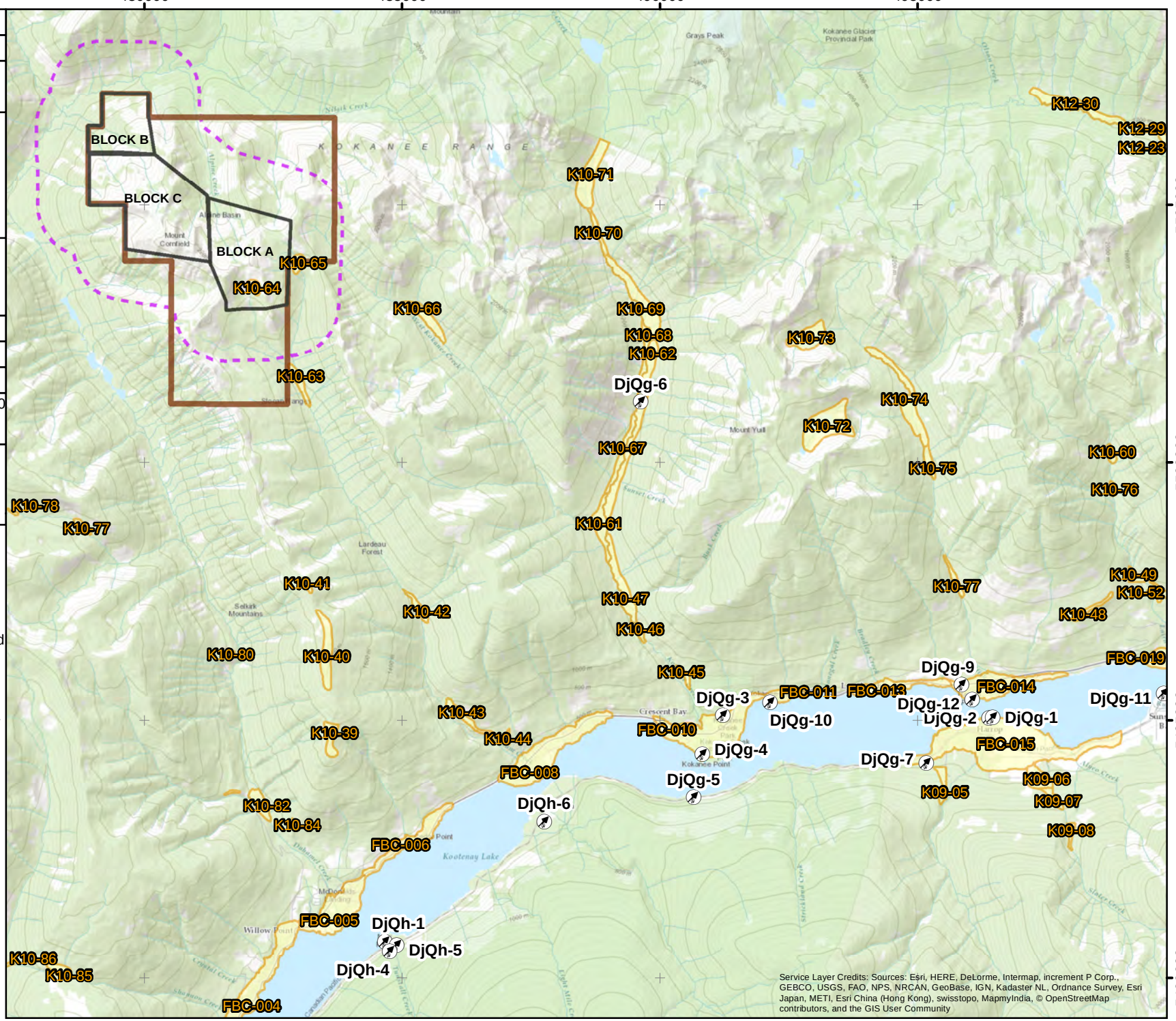
0 0.5 1 2 Kilometers

Mapping by:

Tipi Mountain Eco-Cultural Services Ltd

Legend:

- Registered Arch Site Location
- Vulcan Property MYAB blocks (742.5 ha)
- Buffer Zone of 1km around MYAB
- Mineral Claim Bdry (1912.14 ha)
- Arch Potential Area (AOA-Choquette)



Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS

Figure: 2

Desk Review

Title:

Project Area

Project:

Alpine Project Mineral Claim #20170316

Client:

Braveheart Resources Inc.

Survey Date: n/a

Mapping Date: 30/06/2017

UTM 11-NAD 83- NTS 82F11

1:40,000

0 250 500 1,000

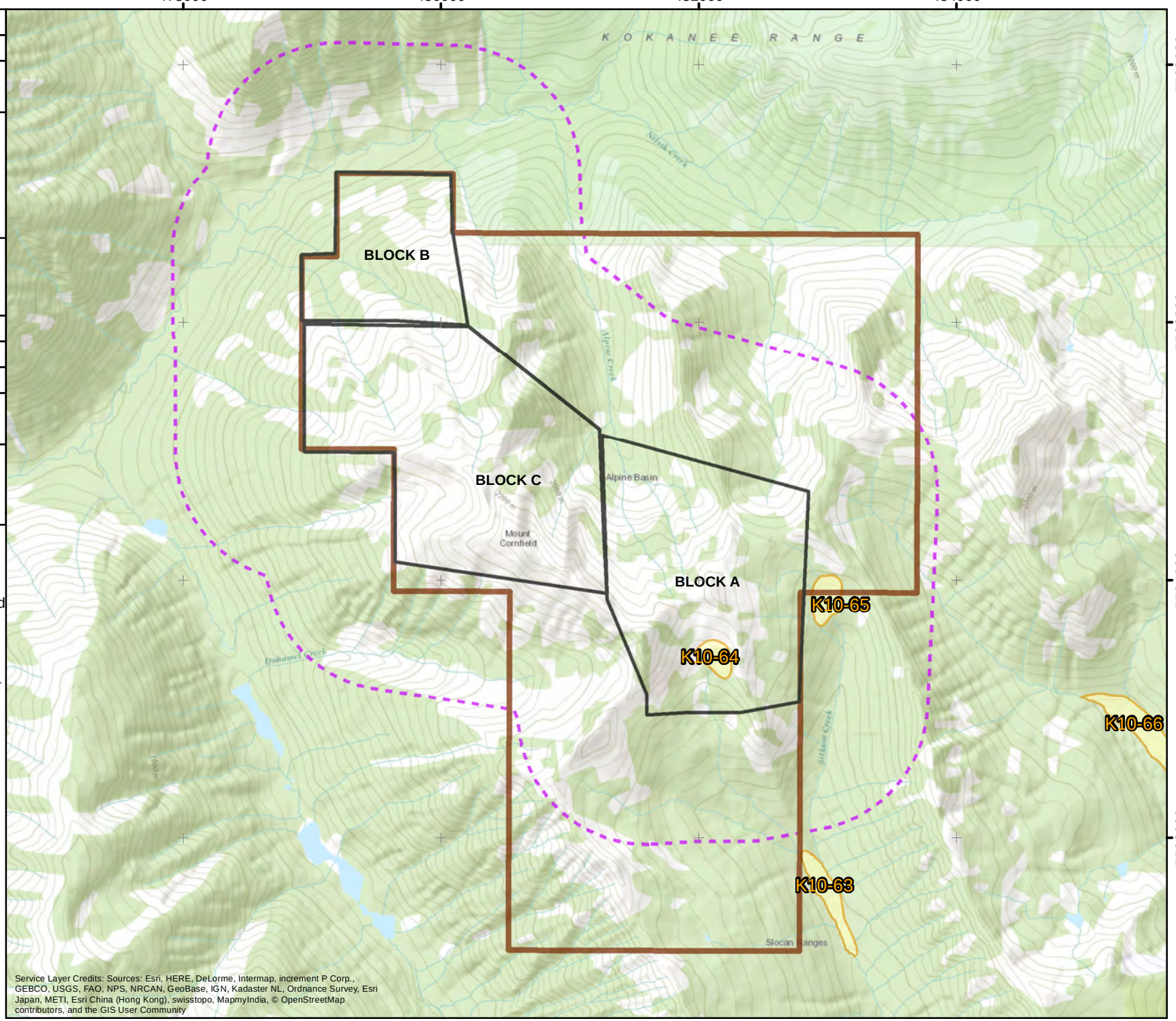
Meters

Mapping by:

Tipi Mountain Eco-Cultural Services Ltd

Legend:

- Alpine Property MYAB blocks (742.5 ha)
- Buffer Zone of 1km around MYAB
- Mineral Claim Bdry (1912.14 ha)
- Arch Potential Area (AOA-Choquette)



Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS