

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



TYPE OF REPORT [type of survey(s)]: Prospecting and Geochemical Sampling

TOTAL COST: \$7,047

AUTHOR(S): Jack Morton and Andrew Mitchell	SIGNATURE(S):	4 A	late 1
NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): N/A			YEAR OF WORK: 2017
STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S):	5679200		
PROPERTY NAME: Lead King			
CLAIM NAME(S) (on which the work was done): 1,051,255			
COMMODITIES SOUGHT: Au, Ag, Pb, Zn  MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 103I 177			
MINING DIVISION: Skeena and Omineca	NTS/BCGS: 1031/08		
LATITUDE:         54         o         27         15         " LONGITUDE:         128           OWNER(S):           1) Jack Morton	2) Andrew Mitchell	(at centre of wor	k)
MAILING ADDRESS: 305-450 North Naniamo Street, Vancouver B.C. V5L 38G	1090 Lacombe Road	l, Kelowna B.C.	V1X 4W6
OPERATOR(S) [who paid for the work]:  1) Jack Morton	2) Andrew Mitchell		
MAILING ADDRESS: 305-450 North Naniamo Street, Vancouver B.C. V5L 38G	1090 Lacombe Road	, Kelowna B.C.	V1X 4W6
PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure Lead King is located in Stikine terrane and the property is mostly			n of the Kleanza Plutonic
Suite. The southeastern corner of the property covers a sliver of	of Mt. Attree Volcanics. A	northwest tren	ding fault sits in the
northwestern part of the property. Mineralization consists of a 3	30 to 60 cm wide north-tre	nding, westerly	dipping (45 degrees)
quartz vein hosting galena, pyrite and chalcopyrite. A 30 m wide	e mineralized breccia zon	e was noted, bu	ut never sampled.
REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT R	EPORT NUMBERS: 13104,	14560, 33170	

TYPE OF WORK IN THIS REPORT  EXTENT OF WORK (IN METRIC UNITS)		ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping			
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
		_	
Electromagnetic		_	
Induced Polarization			
Radiometric		_	
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for)			
Soil		_	
Silt		_	
Rock 3		1,051,255	\$191
Other		_	
DRILLING (total metres; number of holes, size)			
Core		_	
Non-core		_	
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area) 1:1000		_	\$6,856
PREPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/	trail		
Trench (metres)			
Underground dev. (metres)			
Other			
		TOTAL COST:	\$7,047

#### ASSESSMENT REPORT

describing

#### PROSPECTING AND GEOCHEMICAL SAMPLING

at the

#### LEAD KING PROPERTY

NTS 103I/08 Latitude 54°27'N; Longitude 128°24'W

Field work performed on on October 11 and October 13 to 14, 2017

in the

Skeena and Omineca Mining Divisions, British Columbia

prepared by

A. Mitchell, B.Sc., P.Geo.

and

J. Morton, B.Sc., P.Geo.

March 2018

### **CONTENTS**

INTE	RODUCTION	1
LOC	ATION, PHYSIOGRAPHY, VEGETATION, ACCESS AND CLIMATE	1
CLA	IMS	2
HIST	CORY AND PREVIOUS WORK	2
REG	IONAL GEOLOGY	3
PRO	PERTY GEOLOGY	4
MIN	ERALIZATION	4
DEP	OSIT MODEL	5
DISC	CUSSION AND CONCLUSIONS	5
REFI	ERENCES	7
	<u>APPENDICES</u>	
I	STATEMENT OF QUALIFICATIONS	
II	STATEMENT OF EXPENDITURES	
III	ANALYTICAL PROCEDURES	
IV	ROCK SAMPLE DESCRIPTIONS	
V	CERTIFICATES OF ANALYSIS	

### **FIGURES**

No.	<u>Description</u>	Follows Page
1	Property Location	1
2	Claim Locations	2
3	Tectonic Setting	3
4	Regional Geology	3
5	2017 Rock Sample Locations	4
6	Gold-In-Rock Geochemistry	4
7	Silver-In-Rock Geochemistry	4
8	Copper-In-Rock Geochemistry	4
9	Deposit Model	5
	<u>TABLES</u>	
<u>No.</u>	<u>Description</u>	Page
I	Regional Lithological Units	3
II	2017 Rock Sample Results	4

#### **INTRODUCTION**

The Lead King property is located in northwestern British Columbia, about 12 km southeast of Terrace. The property was staked to cover the historical Lead King (103I 177) occurrence and is highly prospective for gold and silver. It is jointly owned by the two authors of this report, A. Mitchell and J. Morton.

This report describes prospecting and geochemical sampling performed on October 11, and on October 13 to 14, 2017. The work was supervised by J. Morton and interpreted by the two authors. The authors' Statements of Qualifications are provided in Appendix I, and a Statement of Expenditures is located in Appendix II.

The 2017 program was carried out by a 2-person work crew. On October 11, the crew traveled from Vancouver to Francois Lake, and on October 13, proceeded to the property, via Terrace. Work continued the following day before the crew headed back toward Smithers.

Work was impeded by inclement weather and a precursory search for an access route. A consumer model, unmanned drone was used to look for historical workings on the property, but the search was aborted due to heavy snowfall. Geochemical sampling results are described in the mineralization section below.

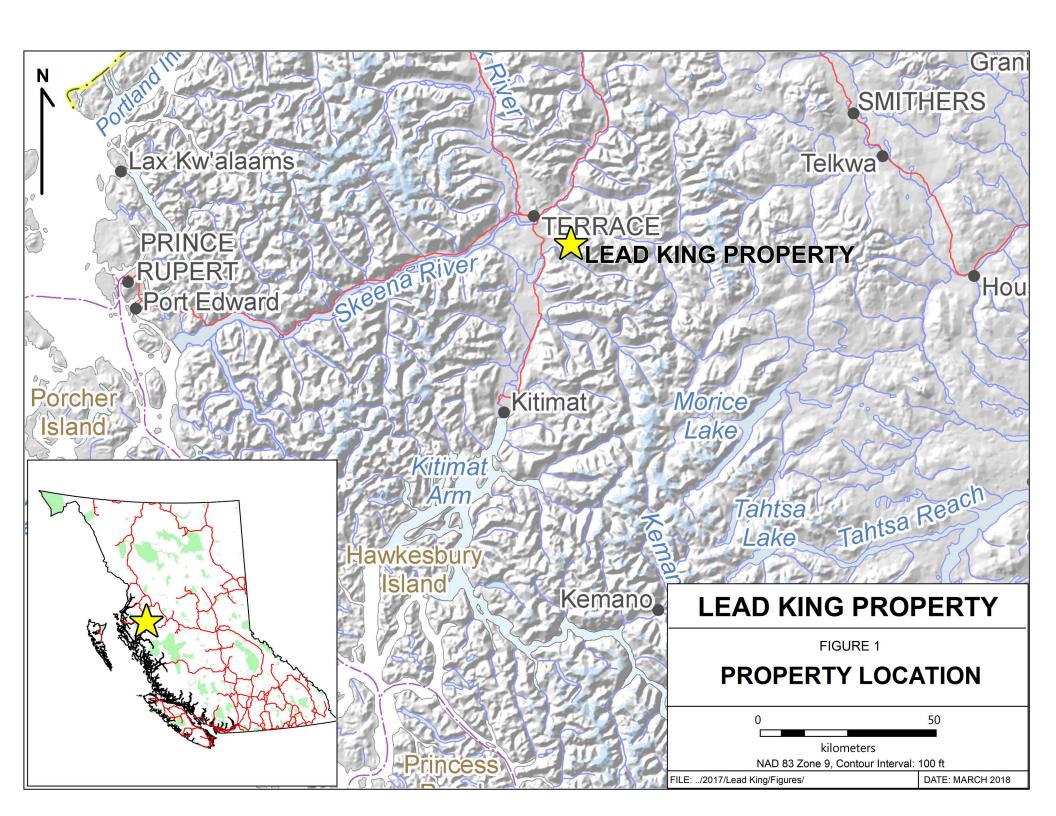
#### LOCATION, PHYSIOGRAPHY, VEGETATION, ACCESS AND CLIMATE

The Lead King property is located within the Terrace area of northwestern British Columbia on NTS map sheet 103I/08 (Figure 1). The property is centered at latitude 54°27′ north and longitude 128°24′ west and the UTM grid coordinates are 538,584 mE and 6,034,055 mN (NAD 83, Zone 9). The property lies approximately 12 km southeast of Terrace and about 700 km northwest of Vancouver. The closest port city is Kitimat, which is located 61 km southeast of Terrace.

The claim block sits along the eastern edge of the Kitimat Ranges, immediately south of Mount Thornhill. It covers a steep, east-facing cirque, referred to as the Lead King Basin. The basin is part of the headwaters of Eight Mile Creek, which connects to the Pacific Ocean via the Zymoetz and Skeena rivers.

The tenures cover rugged alpine to sub-alpine terrain with valley floors characterized by moderate topographic relief. Treeline is located at approximately 1350 m asl and about 60% of the property lies above that elevation. Grass, moss, and talus covered slopes and cliffs characterize alpine terrain, while sub-alpine areas are thickly vegetated with old growth conifers, slide alder and devil's club.

In 2017, access to the property was via the recently developed Eight Mile Creek Forest Service Road (FSR), which connects to the Copper River FSR approximately seven kilometres southeast of the paved Yellowhead Highway. The Eight Mile Creek FSR is located approximately 800 m east of the property.



The climate in the vicinity of the Lead King property is typical of coastal British Columbia, with long winter and shoulder seasons characterized by high precipitation, moderate snowfall occurring mostly from December to March, and mild summers.

#### **CLAIMS**

The Lead King property comprises three mineral tenures that measure about 2 km (E-W) by 2 km (N-S). The property covers an area of approximately 3.38 km<sup>2</sup> (338.41 ha). The mineral tenures are located in the Skeena and Omineca Mining Districts and registered in the names of A. Mitchell (50%) and J. Morton (50%). Details concerning the mineral tenures are tabulated below, and the locations of individual tenures are shown on Figure 2.

Claim Name	Tenure Number	Expiry Date
LK 1	1051255	May 4, 2021*
LK 2	1051258	May 4, 2021*
LK 3	1051259	May 4, 2021*

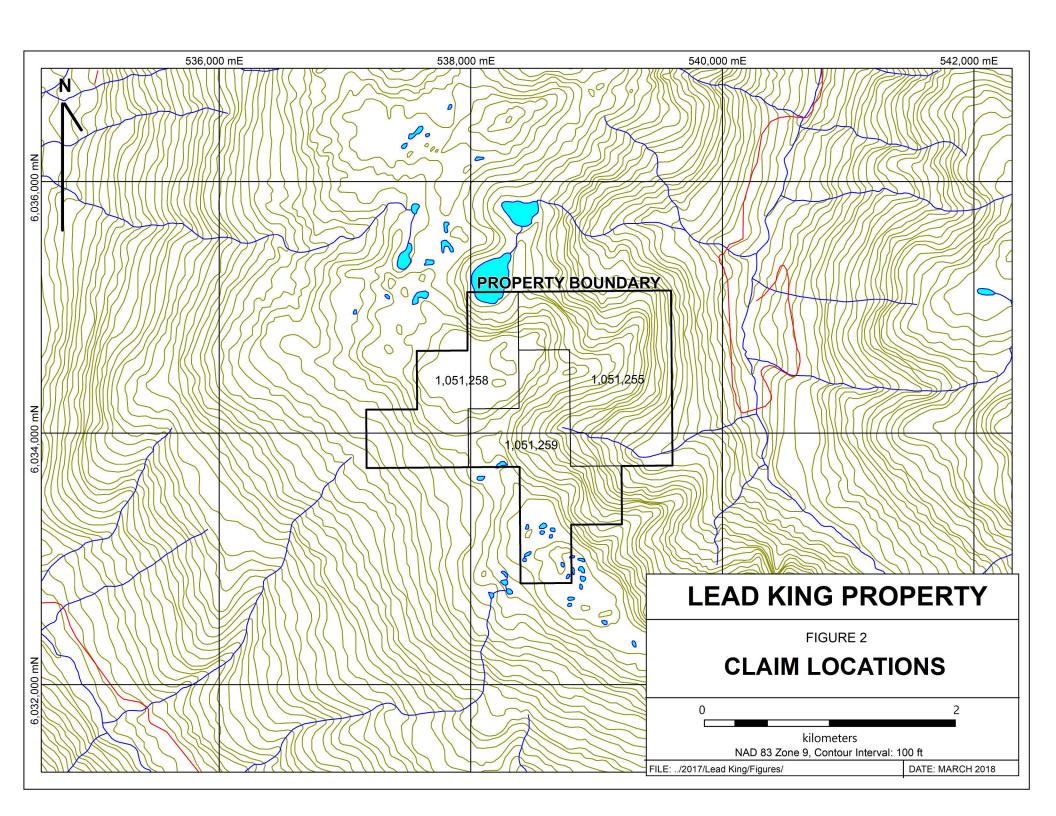
<sup>\*</sup> Expiry dates include 2017 work which has been filed for assessment credit but has not yet been accepted.

#### **HISTORY AND PREVIOUS WORK**

Gold-silver occurrences in the Mount Thornhill area have been known since at least 1914, while the earliest record of work in the immediate Lead King area is from the 1920s. At this time, V. Roy and W. Dahl identified a gold-silver-lead-zinc mineral occurrence referred to as the Lead King showing. Shortly after staking the occurrence, the owners built a small cabin on the floor of the Lead King Basin and developed an access trail along Eight Mile Creek. The showing is described as a moderately west-dipping, 60 cm wide quartz vein, exposed over several open cuts, along the eastern wall of the basin. Samples collected from the vein, containing galena, pyrite and 'zinc-blende', returned an average grade of 5.48 g/t gold, 737 g/t silver, 34% lead and 0.5% zinc. Two additional quartz veins with similar mineralization were also discovered along the walls of the basin (Lay, 1927).

In 1984, Seastar Resource Corporation conducted a field program on their Mount Thornhill gold prospect, which covered an area north of, and partly overlapped with, the current Lead King property. The Mount Thornhill claims covered gold-silver occurrences that had historically been developed by a number of open cuts and short adits. During the 1984 program, reconnaissance prospecting was carried out in the southeastern part of the claim block and the Lead King showing was relocated. Seastar Resources described the showing as a 30 to 45 cm wide quartz vein, hosting galena, pyrite and chalcopyrite, which could be traced along a strike length of 20 m. In addition, the company described a nearby zone of breccia, up to 30 m wide, hosting a number of small quartz veins. The company did not collect samples from either the Lead King showing or the breccia zone (Allen, 1984).

Between 1985 and 2005, a number of operators performed work in the area north of the current Lead King property, but there is no reported activity in the immediate vicinity of the Lead King showing.



In 2006, a syndicate of prospectors staked a large claim block around Mount Thornhill, covering the Lead King area. The syndicate subsequently allowed some claims in the southern part of the group to lapse, which had covered the Lead King showing, and in 2007 these claims were restaked by R. Billingsley (Ostler, 2008).

In late 2007 and early 2008, claims held by R. Billingsley and the syndicate were sold to Thorne Exploration Inc. In 2008, Thorne Exploration identified the Lead King showing during low-level helicopter reconnaissance but did not examine the showing in detail (Ostler, 2008). Following this work, the claims were allowed to lapse.

#### **REGIONAL GEOLOGY**

The Lead King property is located within the Stikine terrane of the Canadian Cordillera (Figure 3). The Stikine terrane is interpreted to be an assemblage of Carboniferous to middle-Jurassic, island arc related, volcano-sedimentary rocks and associated plutonic suites, accreted onto the western margin of the North American continent (Cutts et al., 2015).

In 1964, the Terrace region was mapped at 1:250,000 scale by the Geological Survey of Canada (Souther et al, 1964), and in 2008, the British Columbia Geological Survey (BCGS) mapped the Chist Creek area (NTS 103I/08) at a 1:50,000 scale (Nelson et al, 2008). Figure 4 illustrates the BCGS regional geology in the vicinity of the property. The main lithologies are briefly described in the following table.

Table I: Lithological Units (Nelson et al., 2008)

Map Suite	Unit	Age	Description
	Unnamed	Eocene	Equigranular to porphyritic granite and
Unnamed – Williams			granodiorite.
Creek pluton	Pgr	Paleocene	Foliated granite and granodiorite; contains
			magmatic garnet in part.
Kleanza Pluton	EJgr	Early	Hornblende-biotite granite.
Kicanza Fiuton	EJi	Jurassic	Granodiorite, diorite, minor gabbro, granite.
			Plagioclase-phyric andesite lapilli tuff:
			coarse to fine-grained, monolithic to
	LJTax		texturally polymictic; less commonly,
			compositionally polymictic. Minor
			hornblende and rare clinopyroxene
			phenocrysts. Also plagioclase-phyric
Telkwa Formation		Lower	andesite flows and flow breccia; minor
Teikwa Poliliation		Jurassic	dacite, rhyolite, and volcanic sedimentary
			rocks. Green, maroon and bright burgundy.
			Polymictic conglomerate, volcanic-derived
			sandstone, siltstone and lapilli tuff. Contains
	LJTcg		both intraformational (plagioclase-phyric
			andesite and dacite) and extraformational
			(limestone, chert, felsite, clinopyroxene-



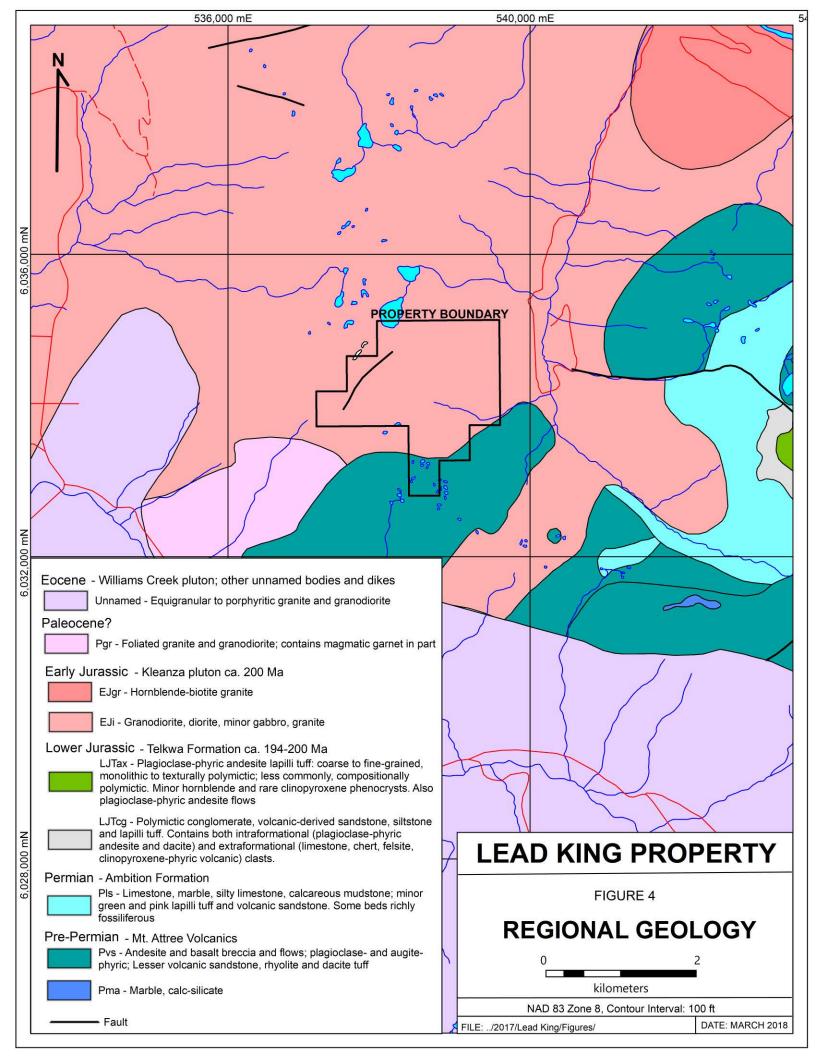
### **LEAD KING PROPERTY**

FIGURE 3

**TECTONIC SETTING** 

FILE: ../2017/Lead King/Figures/

DATE: MARCH 2018



		phyric volcanic) clasts. Locally rhyolite- dominant. Grades into andesite breccia.		
Ambition Formation	Pls	Permian	Limestone, marble, silty limestone, calcareous mudstone; minor green and pink lapilli tuff and volcanic sandstone. Some beds richly fossiliferous.	
Mt. Attree Volcanics	Pvs	Pre-Permian	Andesite and basalt breccia and flows; plagioclase- and augite-phyric; lesser volcanic sandstone, rhyolite and dacite tuff.	
	Pma		Marble, calc-silicate.	

The Lead King property is predominantly underlain by Early Jurassic instrusive rocks of the Kleanza Plutonic Suite (EJi). The southeastern corner of the property covers part of a keel or roof pendant of Mt. Attree Volcanics (Pvs). A northwest trending fault with an unknown displacement forms a prominent topographic linear in the northwestern part of the property.

#### **PROPERTY GEOLOGY**

The Lead King claim block has not been mapped in detail; however, historical mapping within the plutonic rocks immediately north of the property identified several phases of granodiorite and diorite which are cut by a variety of dykes, including aplite, quartz diorite, andesite, quartz-feldspar porphyry and lamprophyre (Allen, 1985). Mineralized quartz veins in the Mount Thornhill area are sometimes associated with aplite dykes (Ostler, 2008).

#### **MINERALIZATION**

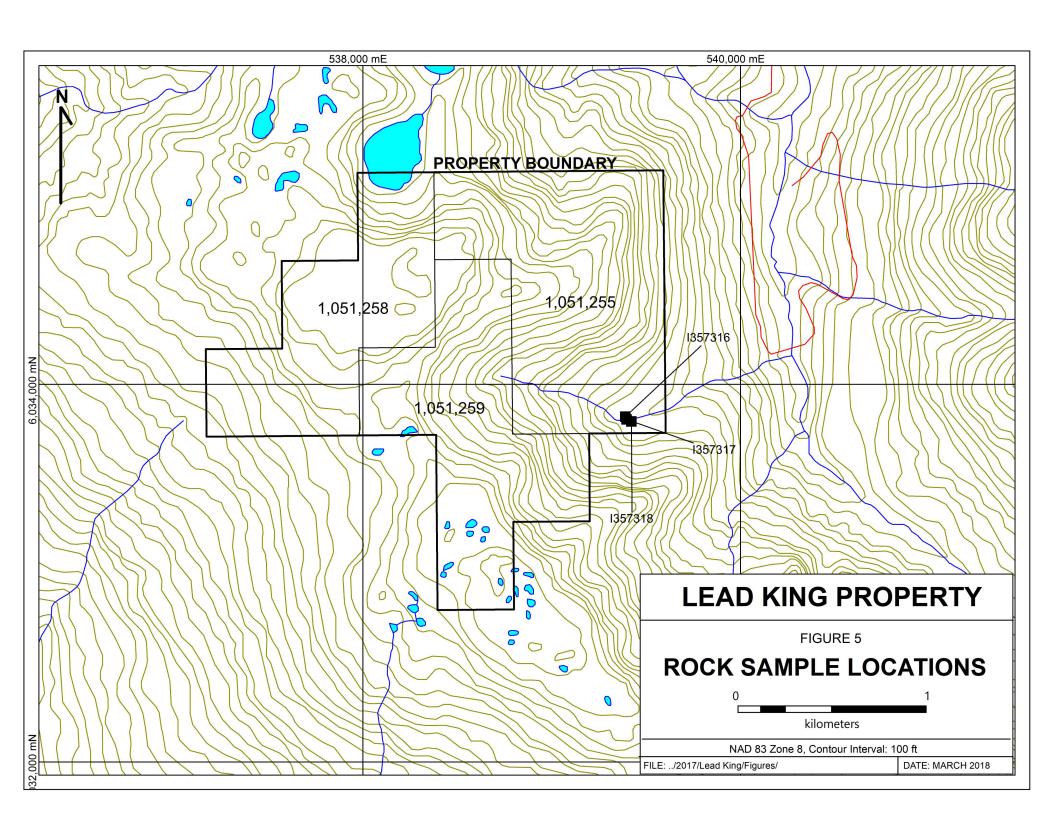
In the early 1920s, prospectors discovered a gold-, silver-, lead-, and zinc-bearing quartz vein on the property, referred to as the Lead King Showing. Several samples from this vein reportedly yielded an average grade of 5.48 g/t gold, 737 g/t silver, 34% lead and 0.5% zinc. The vein was described to be 60 cm wide, with a 45° dip to the west (Lay, 1927).

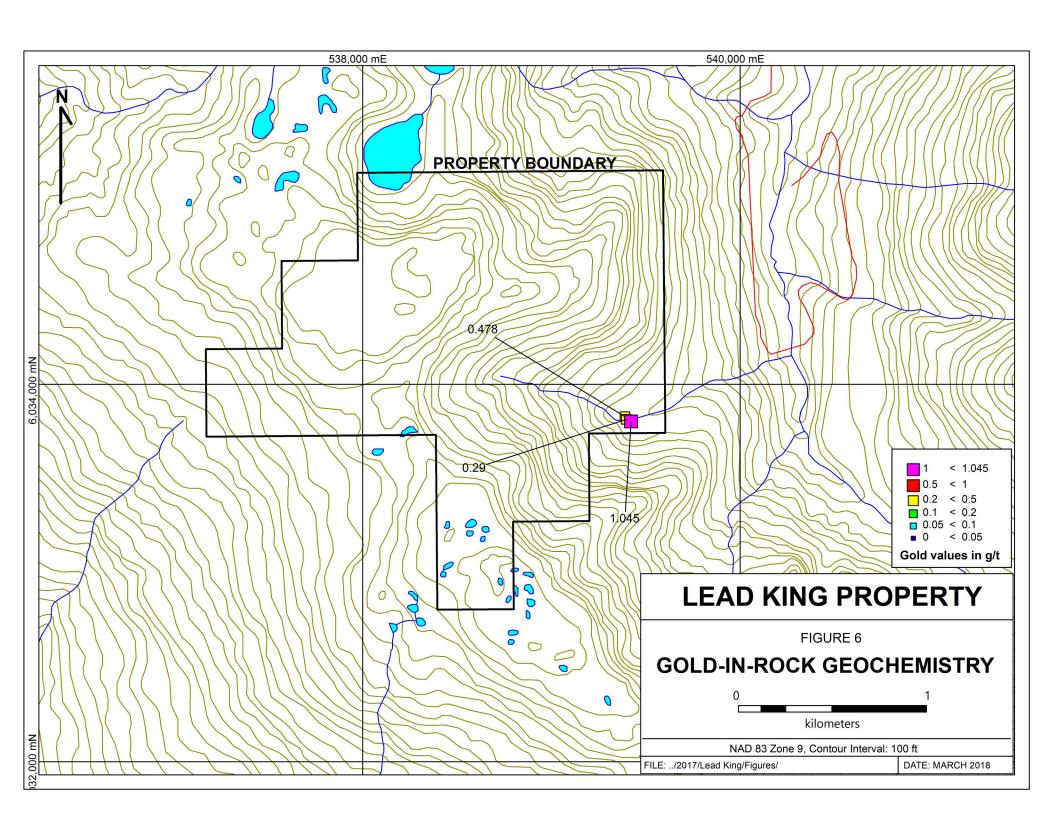
The occurrence was relocated in 1984 by Seastar Resources, which described the showing as a 30 to 45 cm wide quartz vein, hosting galena, pyrite and chalcopyrite. No samples were collected during this program.

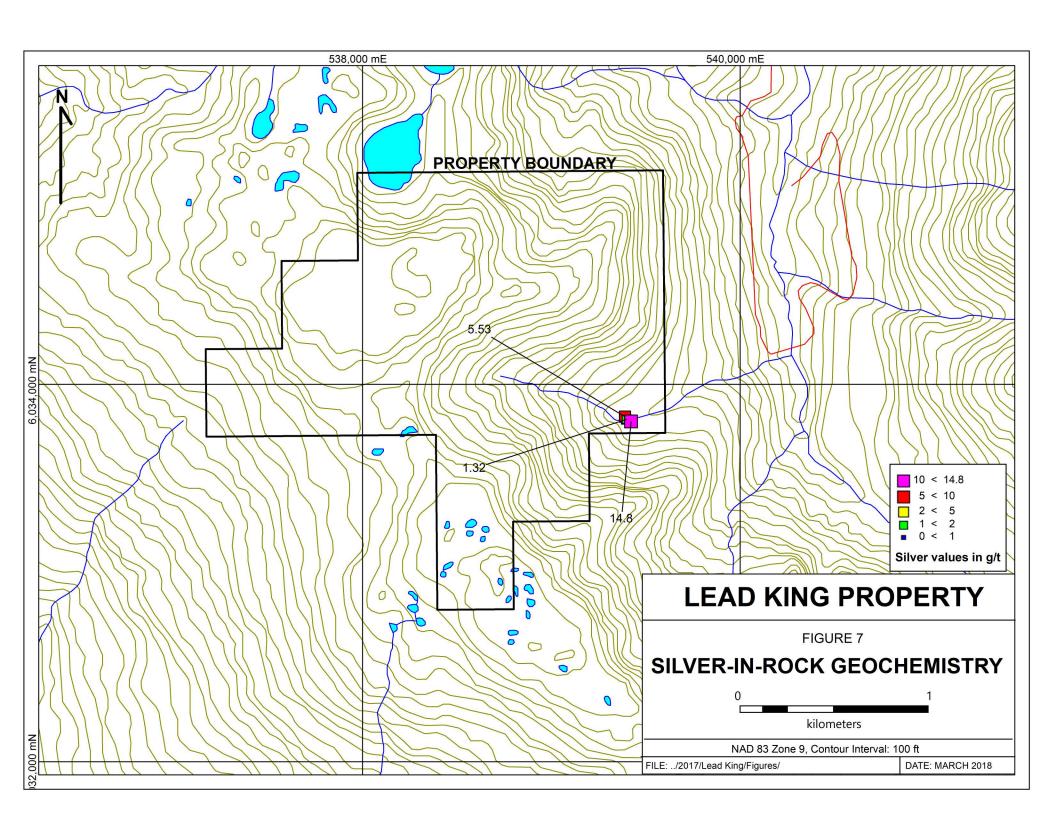
In 2017, a total of three rock samples were collected from the property. Locations for the samples are shown on Figure 5, while results for gold, silver and copper are illustrated on Figures 6 to 8, respectively. Sampling and Analytical Procedures are described in Appendix III, Rock Sample Descriptions are provided in Appendix IV and Certificates of Analysis are given in Appendix V. Gold-, silver- and copper-in-rock values are listed in Table II below.

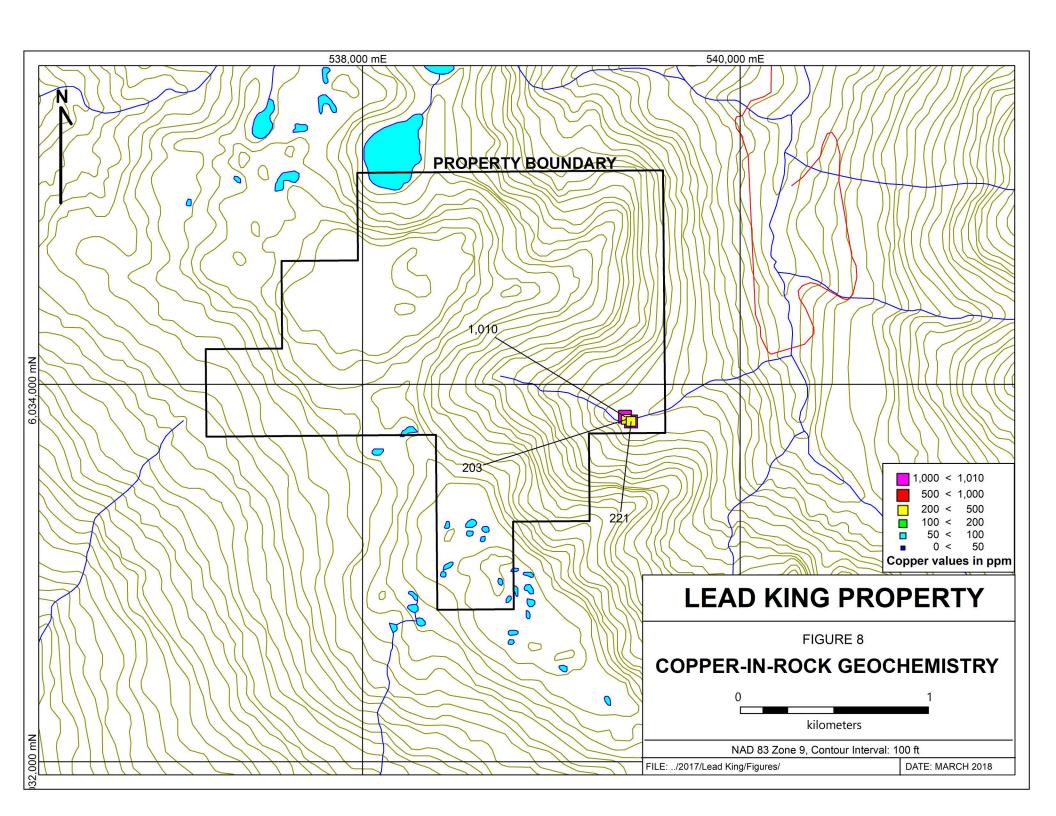
**Table II – 2017 Rock Sample Results** 

Sample ID	Gold (g/t)	Silver (g/t)	Copper (ppm)
I357316	0.48	5.5	1010
I357317	0.29	1.3	203
I357318	1.05	14.8	221









All three samples were collected from large boulders on the floor of the Lead King basin, comprising iron-stained, variably brecciated and clay-altered, dark green to black volcanics, with a matrix of semi-massive coarse grained pyrite and lesser pyrrhotite. One of the samples hosted masses of radiating, dark green actinolite.

Due to poor weather, the crew was unable to locate the Lead King showing.

#### **DEPOSIT MODEL**

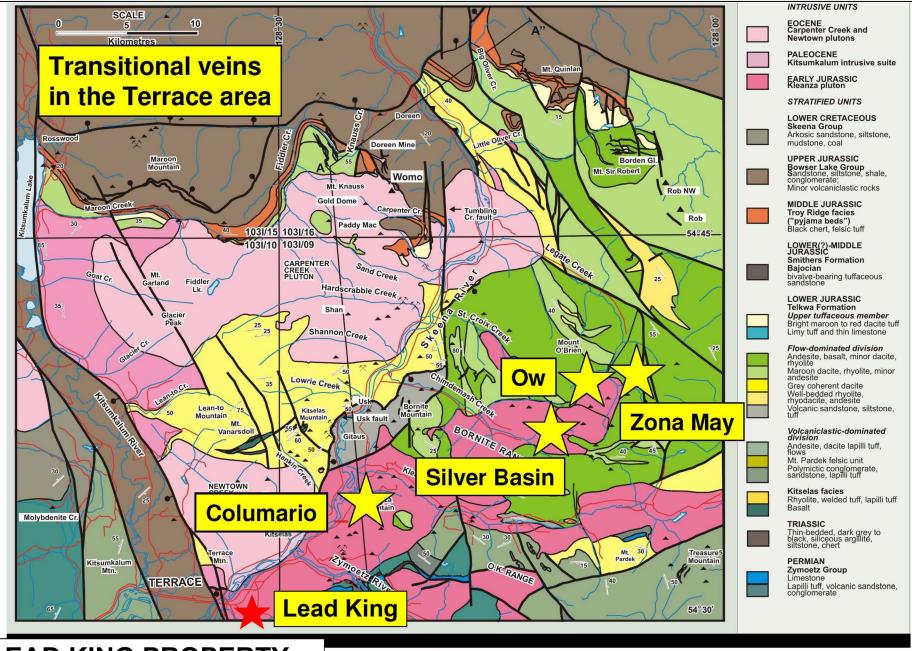
Examples of replacement and transitional gold-silver-base metal mineralization are found throughout the Terrace area (Figure 9), and the geological setting and mineralogy described at the Lead King showing most closely resembles a transitional-type gold occurrence (Nelson, 2007). These types of occurrences are characterized by veins and breccias that are almost always associated with a peripheral porphyry intrusion, so that the mineralization occupies a 'transitional' position between an epithermal and porphyry system. The causative intrusion may or may not be significantly enriched in metal, while veins are typified by quartz-carbonate-sulphide mineralization with a significant base metal component.

A nearby example is the historical Columario deposit, which is located approximately 10 km northeast of Lead King. At Columario, gold-silver-copper-quartz veins cut andesitic rocks of the Jurassic Hazelton Group and intrusive rocks belonging to the Kleanza Plutonic Suite. Mine workings exploited seven parallel quartz veins, each with an average width of one metre, and mineralized with pyrite, arsenopyrite, minor chalcopyrite and galena. Production of gold and silver between 1934 and 1935 totaled 746 ounces and 2050 ounces, respectively (Dandy, 2012).

Another notable example of this type of occurrence is the past-producing Snip deposit, located approximately 300 km northwest of the Lead King property. Between 1991 and 1999 the deposit produced 1,132,047 ounces of gold, 429,743 ounces of silver and 549,560 lbs of copper from about 1.2 million tonnes of ore (Archer and Meredith-Jones, 2015). At Snip, underground mine workings targeted a mineralized, moderately dipping shear vein system hosted within Hazelton Group volcanic, volcaniclastic and clastic sedimentary rocks. Veins at Snip were hosted in 0.5 to 15 m wide structures and contained pyrite, pyrrhotite, chalcopyrite, sphalerite, galena, molybdenite and arsenopyrite as disseminations and bands within a quartz-carbonate gangue. The mineralized zone is genetically associated with the tabular, sub-economic Red Bluff gold-copper porphyry deposit, which is located approximately 800 metres northeast of Snip (Rhys, 1993).

#### **DISCUSSION AND CONCLUSIONS**

The Lead King property covers precious and base metal enriched vein and breccia zones, within an area noted to have high potential for transitional gold-silver-base metal deposits. It lies within the prospective Stikine terrane, which hosts a number of important porphyry and gold-silver veins, including the past-producing Snip deposit.



### **LEAD KING PROPERTY**

FIGURE 9

#### **DEPOSIT MODEL**

NAD 83 Zone 8, Contour Interval: 100 ft

FILE: ../2017/Lead King/Figures/

DATE: MARCH 2018

After Nelson, 2007

Due to poor weather conditions, the Lead King showing was not relocated in 2017; however, three rock samples collected from boulders in the Lead King Basin returned up to 1.05 g/t gold, 14.8 g/t silver and 1010 ppm copper.

The Lead King property warrants further work, due to the significant precious metal grades reported in historical assays and the encouraging results obtained from 2017 samples. Future work should focus on relocating the Lead King showing. Once located, continuous chip samples should be collected at regular intervals along the vein, across its width, to better define the vein's size and tenor. Reconnaissance-scale contour soil sampling and prospecting should be carried out within the entire basin, to locate other mineralized zones.

Respectfully submitted,

J. Morton, B.Sc., P.Geo.

A. Mitchell, B.Sc., P.Geo

#### **REFERENCES**

#### Allen, D., G.

- 1984 Geochemical Assessment Report on the Mount Thornhill Gold Prospect (Thorn 1-7 Claims) for Seastar Resources Corporation (Assessment Report Number 13104).
- 1985 Geological, Geochemical and Geophysical Assessment Report on the Mount Thornhill Gold Prospect (Thorn 1-6 Claims) for Seastar Resources Corporation (Assessment Report Number 14560).

#### Archer, G.S., and Meredith-Jones S.

2015 Minfile No 104B 250 – Minfile summary of the Snip Past Producer; retrieved March 25, 2018 from <a href="http://minfile.gov.bc.ca/Summary.aspx?minfilno=104B++250">http://minfile.gov.bc.ca/Summary.aspx?minfilno=104B++250</a>

#### Dandy, L.

2012 Geological, Geochemical and Diamond Drilling Assessment Report on the Terrace Property for Argonaut Exploration Inc. (Assessment Report Number 33170).

Hutchison, W.W., and Okulich, A.V. (compilers).

1973 Skeena River Sheet 103; Geological Survey of Canada Map 1385A, 1:1,000,000

#### Nelson, J.L.

2007 Metallic mineral resources near Terrace, BC: Facts, hints and possibilities
– BC Geological Survey – BC Ministry of Energy, Mines and Petroleum
Resources.

Nelson, J.L., Kyba, J., McKeown, M., and Angen, J.

2008 Geology of Chist Creek Map Area (NTS 103I/08) British Columbia; British Columbia Geological Society, Open File 2008-3.

#### Lay, D.

1927 North-Eastern Mineral Survey District (No. 2) *in* Annual Report of the Minister of Mines for the Year Ended 31<sup>st</sup> December 1927 Being an Account of Mining Operations for Gold, Coal, etc. in the Province of British Columbia.

#### Ostler, J.

Assessment Report Describing Prospecting, Geological, Soil Geochemical, 3-D Induced Polarization and Ground Magnetic Surveys on the Central Thorne Property, British Columbia; prepared by Cassiar East Yukon Expediting Ltd. and S.J. Geophysics Ltd. for Thorne Exploration Inc. (Assessment Report Number 30316).

### Rhys, D.A.

1989 Geology of the Snip mine, and its relationship to the magmatic and deformational history of the Johnny Mountain area, northwestern British Columbia; M.Sc. thesis, University of British Columbia.

#### Souther, J.G., and Duffell, S.

1964 Terrace; Geological Survey of Canada Map 1136A (Memoir 329), 1:250,000.

# APPENDIX I STATEMENTS OF QUALIFICATIONS

#### STATEMENT OF QUALIFICATIONS

- I, Jack Morton, of Vancouver, British Columbia, hereby certify that:
  - 1. I graduated from Simon Fraser University in 2013 with a B.Sc. in Earth Science.
  - 2. From 2007 to present, I have been actively engaged in mineral exploration in Yukon Territory, British Columbia, and Northwest Territories.
  - 3. I am a Professional Geologist (P.Geo.) with the Association of Professional Engineers and Geoscientists of British Columbia (License Number 45807).
  - 4. I supervised the field program and have interpreted the data resulting from this work.
  - 5. I am a co-author of the report entitled: Prospecting and Geochemical Sampling, Lead King Property, dated March 2018

J. Morton, B.Sc., P.Geo.

I, Andrew Mitchell of 1090 Lacombe Road, Kelowna, British Columbia, Canada, hereby certify that:

- 1. I graduated from the University of British Columbia in 2010 with a B.Sc. in Earth and Environmental Sciences.
- 2. From 2010 to present, I have been actively engaged in mineral exploration in Yukon Territory and British Columbia.
- 3. I am a member in good standing of the Association of Professional Engineers and Geoscientists of British Columbia (license #46211)
- 4. I have interpreted all data resulting from this work.
- 5. I am a co-author of the report entitled: Prospecting and Geochemical Sampling, Lead King Property, dated March 2018

Andrew J. Mitchell, B.Sc., P.Geo.

# APPENDIX II STATEMENT OF EXPENDITURES

Labour	Geology Fieldwork						
	Employee Name Jack Morton Robyn Christian	Position Managing Geologist Geologist	Amt.	<b>Units</b> 30 hr 30 hr	Rate	<b>Total</b> 60 60	\$1,800.00 \$1,800.00
	Data Interpretation & Reporting						
	Employee Name Jack Morton Andrew Mitchell	Position Managing Geologist Geologist	Amt.	<b>Units</b> 10 Hr 10 Hr	Rate	Total 60 60	\$600.00 \$600.00
					Total		\$4,800.00
Photo Interpreation	Drone Imagery (DJI Mavic Drone)						
, new morphoduce.					Total		\$30.00
Book Complimer Analytical	AL C		Amet				
Rock Sampling - Analytical	ALS ICP-MS Multi-Element Assay Gold - Assay	ME-MS41 Au-ICP21	Amt.	3			
					Total		\$191.00
Food and Consumables			Amt.	<b>Units</b> 6 Man Days	Rate	32	
				o Mail Days	Total	32	\$192.00
Room and Board			Amt.	<b>Units</b> 2 Nights	Rate	14.5	\$229.00

Trucks/Trailers	Amt.	Units	Rate	
Toyota Tacoma		3 Day	110	\$330.00
Milage		1610 Km	0.6	\$966.00
Gasoline				\$309.00
			Total	\$1,605.00
Project Total				\$7,047.00

# APPENDIX III ANALYTICAL PROCEDURES

#### **Rock Samples**

All rock sample locations were recorded using hand-held GPS units. Sample sites are marked by at least one piece of flagging labelled with a sample number in permanent ink. The flagging was wrapped around a rock and left at the sample location.

Geochemical analysis for rock samples were carried out at ALS Global North Vancouver, where each sample was dried, fine crushed to better than 70% passing -2mm split off 250 g and pulverized split to better than 85% passing 75 microns. Splits of the pulverized fraction were analyzed for 51 elements by aqua regia digestion and inductively coupled plasma-atomic emission spectrometry. The fine fraction was then analyzed for gold using fire assay followed by inductively coupled plasma-atomic emission spectroscopy (ME-MS41 and Au-ICP21).

## APPENDIX IV ROCK SAMPLE DESCRIPTIONS

Sample	Zone	Easting	Northing	Altitude	Description
1257216		F20200	20.000.000.000.000.000.000.000.000		Float sample, removed from a 150 cm diameter boulder, of rusty weathering, strongly
133/310	539390 6033829 2960 ft		296011	clay-altered, dark green-black volcanic rock, with abundant clots of coarse grained pyrite	
1357317		F20207	20207 6022014	2050 ft	Float sample, collected from a 50x20x20 cm boulder in the creek, of brecciated, dark
133/31/	57317 9 539397 6033814 2950 ft		295011	green-black volcanic rock, with a matrix of semi-massive coarse grained pyrite, rare	
1257210		F20422	6022802	2922 ft	Float sample, removed from a 150x100x100 cm boulder, of rusty, dark volcanic rock
133/318	357318 9 539422 6033803		292210	hosting semi-massive pyrite with lesser pyrrhotite and radiating, dark green actinolite.	

# APPENDIX V CERTIFICATES OF ANALYSIS



2103 Dollarton Hwy North Vancouver BC V7H 0A7 Phone: +1 (604) 984 0221 Fax: +1 (604) 984 0218 www.alsglobal.com/geochemistry To: MORTON, JACK 305-450 NORTH NANAIMO ST. VANCOUVER BC V5L 3G8

Page: 1 Total # Pages: 2 (A - D) Plus Appendix Pages Finalized Date: 8-DEC-2017

Account: MORJAK

#### **CERTIFICATE VA17261320**

This report is for 3 Rock samples submitted to our lab in Vancouver, BC, Canada on 22-NOV-2017.

The following have access to data associated with this certificate:

JACK MORTON I

ALS Canada Ltd.

	SAMPLE PREPARATION
ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-21	Sample logging - ClientBarCode
CRU-QC	Crushing QC Test
CRU-31	Fine crushing - 70% < 2mm
SPL-21	Split sample - riffle splitter
PUL-31	Pulverize split to 85% < 75 um

ANALYTICAL PROCEDURES									
ALS CODE	DESCRIPTION								
ME-MS41 Au-ICP21	Ultra Trace Aqua Regia ICP-MS Au 30g FA ICP-AES Finish	ICP-AES							

TO: MORTON, JACK
305-450 NORTH NANAIMO ST.
VANCOUVER BC V5L 3G8

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

\*\*\*\*\* See Appendix Page for comments regarding this certificate \*\*\*\*\*

Signature:

Colin Ramshaw, Vancouver Laboratory Manager



ALS Canada Ltd. 2103 Dollarton Hwy North Vancouver BC V7H 0A7

Phone: +1 (604) 984 0221 Fax: +1 (604) 984 0218 www.alsglobal.com/geochemistry

To: MORTON, JACK 305-450 NORTH NANAIMO ST. **VANCOUVER BC V5L 3G8** 

Page: 2 - A Total # Pages: 2 (A - D) Plus Appendix Pages Finalized Date: 8-DEC-2017

	CI	ERTIFIC	ATE O	F ANAL	YSIS	VA172	61320	
ME-MS41								
В	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr
ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
10	10	0.05	0.01	0.01	0.01	0.02	0.1	1

Sample Description	Method Analyte Units LOR	WEI-21 Recvd Wt. kg 0.02	Au-ICP21 Au ppm 0.001	ME-MS41 Ag ppm 0.01	ME-MS41 AI % 0.01	ME-MS41 As ppm 0.1	ME-MS41 Au ppm 0.02	ME-MS41 B ppm 10	ME-MS41 Ba ppm 10	ME-MS41 Be ppm 0.05	ME-MS41 Bi ppm 0.01	ME-MS41 Ca % 0.01	ME-MS41 Cd ppm 0.01	ME-MS41 Ce ppm 0.02	ME-MS41 Co ppm 0.1	ME-MS41 Cr ppm 1
Sample Description  1357316 1357317 1357318	Units	kg	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm



ALS Canada Ltd. 2103 Dollarton Hwy North Vancouver BC V7H 0A7 Phone: +1 (604) 984 0221 Fax: +1 (604) 984 0218 www.alsglobal.com/geochemistry To: MORTON, JACK 305-450 NORTH NANAIMO ST. **VANCOUVER BC V5L 3G8** 

Page: 2 - B Total # Pages: 2 (A - D) Plus Appendix Pages Finalized Date: 8-DEC-2017

CERTIFICATE OF ANALYSIS	VA17261320
-------------------------	------------

									С	ERTIFIC	CATE O	f anal	_YSIS	VA172	261320	
Sample Description	Method Analyte Units LOR	ME-MS41 Cs ppm 0.05	ME-MS41 Cu ppm 0.2	ME-MS41 Fe % 0.01	ME-MS41 Ga ppm 0.05	ME-MS41 Ge ppm 0.05	ME-MS41 Hf ppm 0.02	ME-MS41 Hg ppm 0.01	ME-MS41 In ppm 0.005	ME-MS41 K % 0.01	ME-MS41 La ppm 0.2	ME-MS41 Li ppm 0.1	ME-MS41 Mg % 0.01	ME-MS41 Mn ppm 5	ME-MS41 Mo ppm 0.05	ME-MS41 Na % 0.01
1357316 1357317 1357318		4.05 2.05 0.05	1010 203 221	15.65 17.35 24.0	17.35 10.35 1.21	0.20 0.13 0.24	<0.02 0.02 <0.02	0.01 0.01 0.01	0.230 0.046 0.037	2.77 1.64 0.04	0.2 0.5 <0.2	15.1 11.8 0.4	3.59 2.12 0.30	2620 1620 553	2.96 4.31 4.46	0.22 0.11 0.02



ALS Canada Ltd. 2103 Dollarton Hwy North Vancouver BC V7H 0A7 Phone: +1 (604) 984 0221 Fax: +1 (604) 984 0218 www.alsglobal.com/geochemistry To: MORTON, JACK 305-450 NORTH NANAIMO ST. **VANCOUVER BC V5L 3G8** 

Page: 2 - C Total # Pages: 2 (A - D) Plus Appendix Pages Finalized Date: 8-DEC-2017

CERTIFICATE	OF ANALYSIS	VA17261320
	• • • • • • • • • • • • • • • • • • • •	

(, , ,									C	ERTIFIC	CATE O	F ANAI	_YSIS	VA172	61320	
Sample Description	Method Analyte Units LOR	ME-MS41 Nb ppm 0.05	ME-MS41 Ni ppm 0.2	ME-MS41 P ppm 10	ME-MS41 Pb ppm 0.2	ME-MS41 Rb ppm 0.1	ME-MS41 Re ppm 0.001	ME-MS41 S % 0.01	ME-MS41 Sb ppm 0.05	ME-MS41 Sc ppm 0.1	ME-MS41 Se ppm 0.2	ME-MS41 Sn ppm 0.2	ME-MS41 Sr ppm 0.2	ME-MS41 Ta ppm 0.01	ME-MS41 Te ppm 0.01	ME-MS41 Th ppm 0.2
1357316 1357317 1357318	LOR	<0.05 <0.05 <0.05 <0.05	29.7 31.7 111.0	780 230 <10	0.2 12.2 19.4 2.3	0.1 155.5 87.7 1.3	0.001 0.002 0.001 0.001	0.01 >10.0 >10.0 >10.0	0.05 0.27 0.44 0.31	0.1 21.2 13.7 1.3	3.2 2.1 13.6	2.1 1.4 0.2	0.2 34.3 40.1 2.2	<.0.01 <0.01 <0.01 <0.01	0.01 1.17 0.82 2.89	<0.2 <0.2 <0.2 <0.2



ALS Canada Ltd.

2103 Dollarton Hwy
North Vancouver BC V7H 0A7
Phone: +1 (604) 984 0221 Fax: +1 (604) 984 0218
www.alsglobal.com/geochemistry

To: MORTON, JACK 305-450 NORTH NANAIMO ST. VANCOUVER BC V5L 3G8 Page: 2 - D Total # Pages: 2 (A - D) Plus Appendix Pages Finalized Date: 8-DEC-2017

Account: MORJAK

CERTIFICATE OF ANALYSIS VA17261320

									C	ERTIFICATE OF ANALYSIS	VA1/261320
Sample Description	Method Analyte Units LOR	ME-MS41 Ti % 0.005	ME-MS41 TI ppm 0.02	ME-MS41 U ppm 0.05	ME-MS41 V ppm 1	ME-MS41 W ppm 0.05	ME-MS41 Y ppm 0.05	ME-MS41 Zn ppm 2	ME-MS41 Zr ppm 0.5		
1357316 1357317 1357318		0.267 0.198 0.006	0.80 0.53 0.06	0.11 0.16 <0.05	252 145 27	26.9 1.06 61.2	3.08 2.76 0.21	144 83 11	<0.5 <0.5 <0.5		



ALS Canada Ltd.

2103 Dollarton Hwy
North Vancouver BC V7H 0A7
Phone: +1 (604) 984 0221 Fax: +1 (604) 984 0218
www.alsglobal.com/geochemistry

To: MORTON, JACK 305-450 NORTH NANAIMO ST. VANCOUVER BC V5L 3G8 Page: Appendix 1 Total # Appendix Pages: 1 Finalized Date: 8-DEC-2017

CERTIFICATE	OF ANALVSIS	VA17261320
CLKTIFICATE	OF ANALISIS	VAI/201320

			EKTITIONTE OF AIVALTSIS	VA17201320							
		CERTIFICATE COMMENTS	;								
	ANALYTICAL COMMENTS										
Applies to Method:	Gold determinations by this method are semi-quantitative due to the small sample weight used (0.5g). ME-MS41										
		LABORATORY A	DDDESSES								
	Processed at ALS Vancouver located a										
Applies to Method:	Au-ICP21 ME-MS41	CRU-31 PUL-31	CRU-QC SPL-21	LOG-21 WEI-21							