BRITISH COLUMBIA
The Best Place on Earth

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

BC Geological Survey
Assessment Report
39428

Assessment Report
Title Page and Summary

TYPE OF REPORT [type of survey(s)]: Diamond Drilling, Geology, Geochemistry and Geophysic

TOTAL COST: 837,838.19

AUTHOR(S): David Blann P.Eng, Sassan Liaghat, Ph.D

SIGNATURE(S): d.blann, s.liaghat,

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): West Valley: MX-4-559, Approval # 20-1620810,-0507, May 7, 2020; Rateria: MX-4-402, Approval # 20-1620473-0507, May 7, 2020)

YEAR OF WORK: 2020

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S): 5836104 2020/ May 20

PROPERTY NAME: Rateria, West Valley

CLAIM NAME(S) (on which the work was done): 511809,513870,522356,528775,528778,529011,529013,54490,544902, 544903,563796,566312,568146,568149,571030,571031582066,589580, 589581,589723,589897,58990,590952664864,929369, 930037,930050,945669,945670, 945672,950869,950872,95480,954819,1020414, 1021006, 1043294, 1051897 ,1051898,105189,1051900,1051901,1051902,1051903,1051904,1051905,1051906, 1054152 1054153,1054154, 1054155,1054156,1054158,1054159,10541601058059,1058855,1058856, 1058857,1058859,1060391,1069823,1069824

,

COMMODITIES SOUGHT: Copper, Molybdenum, Gold, Rhenium

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 092iSE062

MINING DIVISION: Kamloops

NTS/BCGS: 092I.036

LATITUDE: 50 o 21 ' 17 " **LONGITUDE:** 120 o 59 ' 23 " **(at centre of work)**

OWNER(S):

1) Happy Creek Minerals Ltd. (FMC 203169)

2)

MAILING ADDRESS:

#460 – 789 West Pender St.; Vancouver, B.C.; V6C 1H2

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

1) Happy Creek Minerals Ltd. (FMC 203169)

2)

MAILING ADDRESS:

#460 – 789 West Pender St.; Vancouver, B.C.; V6C 1H2

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

the Rateria-West Valley property is underlain by granodiorite, quartz diorite, quartz monzonite, and crowded quartz feldspar porphyry dykes. These lithologies are tentatively assigned to the Bethsaida, Skeena and Chataway phases of the Upper Triassic - Lower Jurassic Guichon Creek batholith which hosts the Valley Copper, Lornex, Highmont, JA deposits to the northwest. The copper sulphide minerals are comprised predominantly of bornite, chalcocite and minor chalcopyrite, molybdenite with associated copper, molybdenum, gold, silver and rhenium values. It occurs within fracture controlled quartz-sericite and locally k-feldspar alteration. An overprint of argillic alteration also occurs. Pyrite is generally rare in all alteration assemblages, except in outer, more mafic border phases of the batholith.

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:

34641, 33648, 31424, 33522, 32025, 31425, 1829, 1881, 3709, 9211, 10139, 26409, 27785, 28094, 28878, 30067, 30822, 37364

Next Page

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	Personnel	Rateria: 528778,522356, 528775, 513870511809, 1054153, 1054158,	210,485.31
Photo interpretation	Office Studies	563796,563796	21,900.00
GEOPHYSICAL (line-kilometres)		West Valley: 1051905,664864,1069823	
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne	1660km	All Rateria Claims	77,014.13
GEOCHEMICAL (number of samples analysed for...)			
Soil	226	664864, 1069823,101905	
Silt	4		
Rock	14	664864, 1069823,1051905, 522356	
Other			
DRILLING (total metres; number of holes, size)			
Core	4 holes, NQ-HQ 2058.5m	1051905, 513870, 522356	474,366.94
Non-core			
RELATED TECHNICAL			
Sampling/assaying	329core, soil and silt	528778,522356, 528775, 513870, 511809, 563796 1054153, 1054158, 563796, 1051905,664864,1069823	25,095.85
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other	Supplies, Freight, communications, Accommodation, Transportation, Reclamation		23, 350.96
		TOTAL COST:	837,838.19

GEOLOGICAL, PROSPECTING, GEOCHEMICAL, GEOPHYSICAL SURVEYS AND DIAMOND DRILLING

on the

RATERIA - WEST VALLEY PROPERTY

Permit Number: MX-4-402, MX-4-559
Event Number: 5836104
Work Start: 2020/May 20 - Work Stop: 2021/March 30

Kamloops Mining Division
British Columbia
BCGS: 092I.036,

Map Sheet: 092I/036, 046
UTM East: 643000
UTM North: 5580000
UTM Zone 10N

Prepared for:

HAPPY CREEK MINERALS LTD.
#460-789 W Pender St
Vancouver, BC, V6C 1H2

By:

David Blann, P.Eng.
Sassan Liaghat, Ph.D

June 30th 2021

Summary

The Highland Valley (Rateria and West Valley) Property is located approximately 30 kilometres northwest of Merritt, British Columbia, and 12 kilometres south of the Teck Resources Ltd's Highland Valley Copper Mine (HVC) concentrator.

The Rateria and West Valley area are underlain mainly by the Upper Triassic - Lower Jurassic Guichon Creek Batholith. Nicola Group volcanic and sediment occurs on the southwest edge of the West Valley property and a scab of Tertiary volcanic rock on the eastern edge, respectively. Dikes of probable Eocene age cut the batholith. The Guichon batholith is zoned inward from older Border phases of mainly diorite to gabbro composition to progressively younger Highland Valley, Bethlehem, Skeena and Bethsaida phases that are more felsic and quartz diorite, granodiorite and quartz monzogranite in composition. Major regional scale structures trend north-south, northwest and are cut by a variety of structures east-west to northeast in orientation. The largest known deposits are associated with the younger phases of the batholith and proximity to large scale structures. These include the Bethlehem, Valley, Lornex, Highmont and JA deposits.

Exploration on the Rateria and West Valley properties began in the late 1800's while more intensive work began in earnest during the development and operation of the Craigmont and Bethlehem copper mines between the late 1950's to 1973. Multiple owners of smaller-sized and irregular-shaped properties, thick glacial till and extensive forest cover limited historical exploration effectiveness but was successful in locating the major known copper deposits in the northern portion of the batholith. Regional exploration was conducted between that time until today by various companies and individuals. Between 2004 and 2017, Happy Creek Minerals Ltd assembled for the first time, an approximately 240 square kilometres of mineral claims called the Rateria & West Valley properties that cover portions of the younger intrusive phases to the southeast and southwest of the Highmont and Lornex mines, respectively. The Company completed, modern 3D induced polarization and magnetic geophysical surveys, stream sediment, soil geochemical, geological surveys and diamond drilling. Between 2006 and 2008, drilling by the Company located two new copper zones on the Rateria property (Zone 1 and 2) beneath 3-20 metres of glacial till. These deposits have been defined by drilling for approximately 1.2 km in length, 50-200 metres in width and 350 metres in depth and contain drill results including 95.0 metres of 0.67% copper and 152.5 metres of 0.35% copper, respectively and are open.

Between May 20 and July 30, 2020, the company conducted prospecting, silt, soil and rock geochemistry with geological/ mineralogical investigations on the West Valley and Rateria property. HEG and Associates Geological Services Ltd. performed geology and hyperspectral investigations of the Pim, 3 Creeks, Sho and several other surface prospects around Zone 1 & 2, as well as on 19 previously completed drill holes from the Zone 1 and 2 deposits. Prospecting and a soil geochemical survey on the Pim prospect on the West Valley property was also performed. Between November 1 and December 15, 2020 Paycore Diamond Drilling Ltd completed 2058.5 metres of HQ and NQ core in four holes; two at the Pim prospect on West Valley and one each at Zone 1 and 2 on the Rateria property. CJ Greig and Associates Ltd transported the boxes of logged and sampled core to their workshop in Penticton B.C. and conducted k-feldspar staining, detailed magnetic susceptibility, XRF, geochemical studies and hyperspectral analyses. In February 2021, P Walcott and Associates conducted a detailed airborne magnetic survey over the Rateria property.

In 2020, on the West Valley property, a soil geochemical survey at the Pim prospect returned a 1.8 km long 50- 200-metre-wide copper anomaly coincident with a regional magnetic low and north-northwest fault zones within Bethsaida and Skeena phases of the Guichon Batholith. Spectral and detailed geochemical analyses suggest the rocks contain white mica and geochemical signatures of high-level or distal to a potential porphyry copper centre. Rock sampling and drilling of two holes in 2020 indicate fracturing and associated sericite, epidote, chlorite and locally quartz-k-feldspar are associated with multiple 1-3-metre-wide structures and some contain malachite, trace bornite-chalcocite and locally chalcopyrite, pyrite, and molybdenite. Drill results indicate the best alteration and presence of copper and molybdenite occur in drill hole WV20-2 with 1.5 metres of 0.126% copper, and another interval of 7.5 metres with 222 ppm molybdenum and 0.10 ppm rhenium. The large target area defined by the geochemical results, geology and 2019 induced polarization survey is only partially tested and warrants additional geology, trenching and drilling.

In addition, in the far western portion of the West Valley property, north of Skuhun Creek, a new copper showing was located and sampled. The Rick prospect is underlain by biotite quartz diorite of the Guichon Batholith in proximity with Nicola Group and Spences Bridge Group volcanic rocks. Intrusive rocks are moderately well fractured, and fractures and rock matrix contain chlorite, epidote, sericite and 1-2% pyrite and up to 2% chalcopyrite. The best sample returned 6450 ppm copper, 13.9 ppm molybdenum, 0.003 ppm rhenium, 3.18 ppm silver, 0.005 ppm gold and 93 ppm zinc, and the mineralized area may be in part covered by the younger Spences Bridge group.

In 2020, on the Rateria property, geology, spectral and geochemical studies of 19 historical drill holes suggest Zone 1 is part of a northerly trending fault and fracture zone within Bethsaida and Skeena phases of the Guichon Batholith and dikes of aplite to feldspar phyric composition occur. Alteration consists of low and higher temperature white mica, both associated with bornite-chalcocite copper mineralization over a large area. Portions of Zone 1 at depth and to the north contain white mica that is of a more potassic nature and similar to the environment near the Valley deposit. Zone 2 contains less convincing white mica- copper affiliation, and instead is more similar to the Bethlehem type deposit. Preliminary spectral study of the 3 Creek and Sho surface prospects suggest the white mica reflect hot acidic, and cooler but acidic formation conditions respectively, and could be distal to a porphyry copper centre.

At Zone 1, one angled drill hole was collared 75 metres west of previously drilled holes near the middle of the 1.2 km long deposit and was designed to undercut a wide zone of copper mineralization. Drill hole R20-01 intersected strongly bleached, clay altered and intensely fractured, gougy zones for approximately 400 metres, and more abundant and thicker units of aplite dike than in previous drill holes. At 570 metres, an interval of 18 metres grading 0.24% copper was intersected with spotty copper values to the end of the hole at 696 metres. A key spectral observation is the consistent abundance of K-illite in this hole. This drill hole is thought to have been drilled in the footwall of the main Zone 1 mineralized structure, or the mineralization is faulted-off in this location. At Zone 2, one angled drill hole was collared approximately 75 metres west of previously drilled hole and was designed to undercut a significant copper-gold intercept in a previously drilled hole. R20-2 also cut highly fractured and faulted gougy zones with trace copper occurring for approximately 400 metres. At 311 metres down hole, an 8.8 metre interval contained 0.41% copper, 0.13 g/t gold. As with other drill holes, R20-2 contains anomalous copper, molybdenum, gold, silver and rhenium values. K-feldspar staining of drill core suggests potassic, K-feldspar envelopes occur around bornite-chalcocite veins and appears similar to the Bethlehem style of alteration.

Spectral analyses in both Zone 1 and 2 is challenging due to possible post-mineral hydrothermal overprinting. The largest hyperspectral contrast is the increase of zeolite group minerals and a drop in white micas between Zone 1 (R20-1) and Zone 2(R20-2), respectively.

In February 2021, an airborne magnetic survey was performed covering the Rateria property. A preliminary interpretation of the magnetic survey suggests a major northerly trending structure occurs in proximity to the contact between the younger and older phases of the batholith around Zone 1 and 3 Creeks. This contact turns westward at the southern contact area, in proximity to Skuhun Creek. Northwest trending structures cut through the property extending great distances from the southeast- Broome Creek – Sho area to the south Yubet area. Northeast trending structures appear to be conjugate splays and includes the known alteration and mineralization corridor between Zone 1, 3 Creeks and northward to Zone 2, and the Sho prospect area.

Recommendations for work include further geological mapping and hyperspectral and geochemical studies of drill core and surface outcrops. Soil geochemical surveys are recommended where not previously done to the west and east of Zone 1 and 2, including the 3 Creeks prospect and around the Sho prospect to the south. Similar work is warranted around the Pim prospect and southward on the West Valley property. Areas of interest developed from analyses of the recently collected airborne magnetic data can be prospected and mapped in the field. Trenching in areas where outcrop is not too deeply covered by glacial till include the 3 Creeks, Sho and Pim prospects. Expanding the properties induced polarization survey coverage to the south of the Pim on West Valley, and south of the Sho on Rateria is probably the best tool where thick glacial till occurs. Drilling of 20 holes for 6,000 metres for targets outlined by the above work would be anticipated.

Table of Contents

APPENDIX:

1. Location and Access, Physiography

The Highland Valley (Rateria and West Valley) Property is located approximately 30 kilometres northwest of Merritt, British Columbia (Figure 1), and 10 kilometres south of the Teck Resources Ltd's Highland Valley Copper Mine (HVC) concentrator. The Rateria and West Valley properties adjoin the east and west sides, respectively, claims owned by HVC. They are centred on 50° 21” 17’ North latitude, 120° 59” 23’ West longitude on BCGS map sheet 092I036. Access to the Rateria property from Merritt, B.C., is west via Highway 8 to Lower Nicola, then north along the Aberdeen Road to Pimainus Lake Forest Service Road (FSR). From this all-weather logging road main, secondary logging road and clear-cut skid trails branch outward throughout the property. Near FSR kilometre 24 is the Rateria Zone 1 prospect. Continuing along this road to KM 34 crosses the Lornex Fault and reaches the north end of the West Valley property. Access to the southern side of the West Valley property and Abbott Lake area is via a westward turnoff at kilometer 16 of the Pimainus FSR onto the Tyner Forest Service Road. With proximity to the town of Merritt, HVC, and good access through the property, the infrastructure in the area is excellent.

The Rateria and West Valley Properties are situated within an upland plateau area of approximately 1,400 to 1,600 metres in elevation. The area is covered by glacial till of the Late Wisconsian period (Ploufee, Ferbey, 2018). It consists of till blanket, till veneer, hummocky till and locally kame terrace, esker formations. and gravel, lacustrine-like clay and boulders of variable thickness from less than 1.0 metre to over 130 metres. Small lakes, swamps and seasonal creeks occur throughout the property. Forested areas are dominantly lodge pole pine, spruce and locally fir, birch and poplar. Characterized by a dry interior climate, the area has burnt and re-grown several times. Temperatures vary from maximums of around –30 to +40 degrees Celsius during mid-winter and mid-summer, respectively, and 50-100 cm annual precipitation occurs primarily as rain and snow between the fall and spring. Water in suitable quantities for all stages of exploration, is generally available year-round from nearby creeks and lakes. Well trained professional and field personnel as well as heavy equipment and services are available in Kamloops and Merritt.

2. Claim Status

The Highland Valley Property comprises 62 contiguous mineral claims totaling 25,306.5 hectares (Table 1, Figure 2). The claims are in the Kamloops Mining Division. All claims are registered with BC Mineral Titles as 100% owned by Happy Creek Minerals Ltd.

3. History

By the early 1900's, two adits were driven on a copper vein just northwest of Chataway Lake and similar work with very small-scale production occurred at the Vimy and Aberdeen Mine area, located to the southeast of the Rateria property. Several adits, pits and trenches are noted on the West Valley property, however no historical reference to the work is currently known.

Rateria Property
1958-1993
Between 1958 and 1974, the Highland Valley District was becoming known to host copper deposits with the Bethlehem, Lornex, Highland and Valley deposit discoveries to the north and the Craigmont copper mine to the south. The whole area was covered with mineral claims. The area which presently covers the Rateria property was partitioned into numerous, irregular-shaped mineral claims with different owners. Chataway Exploration Co. Ltd. who began staking claims fairly early in the rush had 462 claims by 1968 and which form a part of the current Rateria property.

The properties were subject to regional, property and prospect-scale stream sediment and soil geochemical surveys, geological mapping, induced polarization surveys, bulldozer trenching and road building. Chataway Exploration and Bralorne Pioneer Mines developed a small high-grade copper resource called Zone 4 to the southeast of the Rateria property. Widespread and shallow depth percussion holes were performed over a large area in 1970 however many did not reach bedrock, and some which contained interesting copper or rock alteration were not followed up. Minor diamond drilling was performed at and around several known showings however generally poor core recovery and limited sampling of core limited interpretation. Induced polarization geophysical surveys were generally affected by low-power and resolution systems, depth of the glacial till and paucity of pyrite making interpretation more difficult.
Between 1980 and 1993, the area of the Rateria property was subject to several campaigns of widely-spaced geophysical surveys and some geological mapping and stream sediment sampling.
In 1993, Aucumo Resources tested portions of several larger induced polarization anomalies with diamond drilling and several of the holes contained multiple intervals of moderately fractured rocks with quartz-sericite alteration and anomalous copper values, however the claims were allowed to lapse.

By the year 2000-2001, copper prices reached $0.60/ lb and much of the Highland Valley district was quiet for exploration, and mineral tenures were allowed to lapse. Brian Malahoff staked the first Rateria claim to the south of Teck-Cominco's Roscoe claim (Yubet prospect). Teck-Comino optioned the property and conducted a reconnaissance style IP survey with widely-spaced lines, however the survey did not cover several prospective portions of the property.

In 2004, Happy Creek Minerals Ltd. (a private company) conducted stream sediment and rock sampling, data compilation and optioned the property in 2005. Between 2005 and 2018, Happy Creek increased its' mineral tenure holdings, conducted 3D induced polarization, magnetic geophysical surveys, soil and stream sediment sampling over portions of the expanded Rateria property and in 2006-2008 drilling returned potentially economic copper grade and width in Zone 1 and Zone 2 on the Rateria property. By 2012, Zone 1 and 2 had enough drilling completed to define continuous positive grade copper-silver (Zone 1) and copper-molybdenum-gold-silver-rhenium (Zone 2) with dimensions of one km in length, 50-150 metres in width and over 350 metres in depth. These new deposits remain open. Other drill holes tested different portions of the property which locally contained encouraging alteration and/ or copper values that have not been followed up. Between 2005 and 2012, the neighbouring Chataway property to the east of the Rateria property, was subject to an MMI soil survey and several drill holes that contained several intervals of encouraging fracturing, alteration and positive copper values, however the property lapsed and was acquired by Happy Creek in 2017. In 2018, geological work was performed over the Rateria property that confirmed or removed historical mapping outcrops, included alteration notes and prepared a preliminary alteration map of the property. More detailed sampling in the south Sho area identified several areas containing positive to locally high-grade copper values in structurally controlled quartz veins over 250 metres and a new showing (Broom Creek) was located several hundred metres further southeast.

West Valley property

On the West Valley property, historical work was largely intermittent and cursory with the main focus on conducting IP surveys along the southern extension of the Lornex Fault in the 1980's. Several copper prospects found in the 1950's- 1970's have seen soil sampling and trenching performed with many apparently not reaching bedrock. Diamond drilling of several shallow holes is noted by collars at the Fir and Jay 2 prospects diamond however no information is available on results of the Fir drill holes.

Between 2009 and 2010 Happy Creek acquired a large mineral claim group covering the area from Pimainus Lakes south to the Abbot Lakes area, approximately 140 square km. Over the next few years the Company conducted stream sediment sampling, prospecting, geology and an airborne magnetic and radiometric survey. New copper showings were located in the Abbott area including some within Nicola Group basaltic volcanic breccia. In 2010 and IP survey covered an area of copper showings southwest of Pimainus lake called the NTP (new), Nord and Tam. Drilling of three widely spaced holes tested the NTP and Nord prospects and returned long intervals of diorite locally cut by felsic dikes, and continuous trace chalcopyrite in propylitic and weak sericite altered rocks.

In 2018, geological mapping focussed mainly on the Abbott Lake area and located several new copper showings with felsic dikes cutting Guichon or Highland Valley phase intrusive.

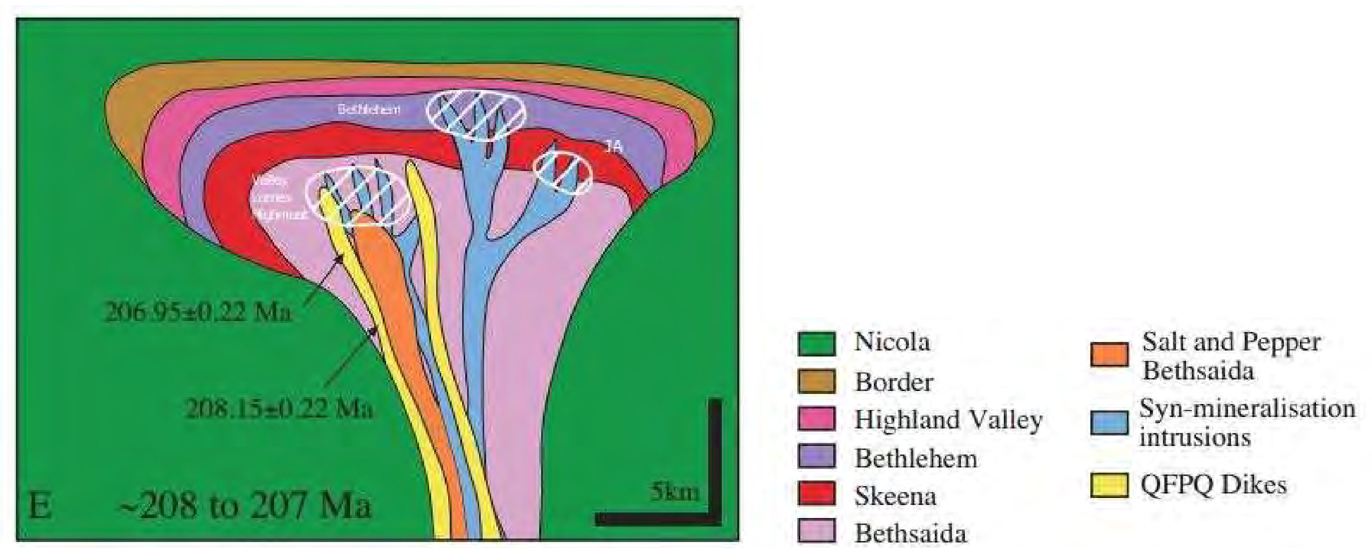
4. Regional Geology

The Rateria and West Valley area (Figure 3) is underlain by the Upper Triassic - Lower Jurassic Guichon Creek Batholith. This multi-phase calc-alkaline intrusion is approximately 1,000 square kilometres in area and is elongated in an arc-parallel, north-northwesterly direction. Nearly concentric intrusive phases have contacts ranging from gradational to locally sharp or partially brecciated and are progressively younger and more felsic toward the central core of the batholith. The central core of the Guichon Creek Batholith is within a regional magnetic and gravity low. Textural and compositional criteria have been used to characterize the various intrusive phases after Northcote (1969), McMillan (1976) and Byrne (2017) and are described with some modification, below. Age dates and descriptions are after Byrne, 2017.

The oldest, outer phase of the Guichon Creek Batholith is the Border or Hybrid Phase which can contain zenoliths of wall rock volcanic basalt. Rock types within the Border facies include olivine leucogabbro, olivine leucomonzogabbro, diorite, quartz diorite, and quartz monzodiorite and all samples are equigranular with 30 to 45 modal % mafic minerals. Border phase is 211.02±0.17 Ma. The Highland Valley Phase consists of Guichon and Chataway Varieties. From Byrne, 2017: “The Highland Valley facies comprises two subfacies: (1) Guichon subfacies and (2) Chataway subfacies. Both subfacies are lithologically and geochemically similar, but with a number of key mineralogical and textural differences. Guichon subfacies is most prominent in the northeast and the Chataway subfacies in the southeast of the batholith and contacts between the two are gradational. Both subfacies are composed predominantly of equigranular granodiorite with minor quartz monzodiorite also in the Chataway subfacies. Mafic mineral contents vary from 20 to 25 and 13 to 15 modal % in the Guichon and Chataway subfacies, respectively”. The Highland Valley phase is dated at approximately 211 to 210.4 Ma.

The inner, younger phase of the batholith consists of several, progressively more felsic phases emplaced between ~210 to 208.5 Ma. The Bethlehem Phase, a fine to medium grained granodiorite with approximately 6-9% mafic minerals, is characterized by fine grained granular quartz crystals and phenocrysts of several percent poikilitic amphibole crystals and zoned plagioclase. The Skeena phase is thought to have mineralogy, textures and age dates that suggest it is either a separate phase occurring between Bethsaida and Bethlehem phases or a result of mixing of several magmas and consists of seriate granodiorite with subordinate monzogranite, with amoeboid shaped quartz (Byrne, 2017). The youngest main intrusive phase of the Guichon Creek Batholith is the Bethsaida, a weakly porphyritic granodiorite and monzogranite with 2 to 5 modal % mafic minerals. It contains coarse-grained subhedral biotite books and quartz phenocrysts that are amoeboid in shape but are coarser grained and more abundant than in the Skeena phase.

Porphyry dykes and stocks were emplaced during the Bethlehem phase through to post Bethsaida phase. Syn-mineral porphyry, “salt and pepper Bethsaida”, and quartz-feldspar-phyric dikes are spatially associated with porphyry copper mineralization. The salt and pepper Bethsaida and quartz feldspar phyric dikes are the youngest phases at ~208 to 207 Ma.



Guichon Batholith petrological model (After Byrne et al, SEG 2017, Economic Geology,v 112, pg 1883)

Alkaline and felsic volcanic dykes, flow and tuff, Eocene to Miocene in age, cut the Guichon Creek Batholith rocks. Some areas of the Batholith are reported to have Tertiary sedimentary fill. During the last glacial period, portions of the Tertiary and older rocks and surficial sediments were eroded, and between one and greater than 150 metres of till, glaciofluvial and lacustrine cover was deposited towards a 165° azimuth.

Mineralization occurred late in the magmatic history of the Guichon Creek batholith in the Valley, Lornex and Highmont deposits, although an earlier mineralizing event is likely at the Bethlehem and J.A. deposits (Byrne. 2017).

Dominant ore controlling fracture sets at the Valley and Lornex deposits trend north-northwest to northeast and locally east-southeast. The regionally extensive, north trending Lornex Fault cuts the length of the Guichon Creek Batholith with a steep to locally moderate west dip and has a dextral sense slip of approximately 3.5 km which split the Lornex and Valley deposits. Sulphide mineralization is strongly associated with veins, fractures, faults and/or breccias.

In the Highland Valley deposits, potassic alteration is variably developed with hydrothermal biotite or k-feldspar as fracture-controlled flooding and veins. Phyllic alteration is typified by quartz and fine to coarse grained flakey pale green sericite to silver-grey muscovite occurring as fracture-filling or vein envelopes. Phyllic alteration cuts potassic alteration. In intermediate argillic zones, which often occur within and beyond the mineralized zones, feldspars and locally mafic minerals are altered to sericite and kaolinite +/- montmorillonite. Zones of sodic-calcic alteration occurs peripherally from some mineralized centres and is defined by chiefly epidote, albite, white mica veins (Byrne2016). Sericite, carbonate and clay alteration of feldspars, as well as chlorite-carbonate alteration of mafic minerals is characteristic of propylitic alteration. Calcite and zeolite occur primarily as late stage veins and fracture coatings.

The main hypogene copper sulphides include chalcopyrite, bornite and minor digenite. Sulphides are generally zoned from an inner bornite dominant to bornite-chalcopyrite and outer, usually very minor pyrite. Near surface oxide-supergene enriched zones may contain limonite, native copper, malachite, chalcocite and occasionally tenorite, copper “wad” or neoticite are described. Chalcocite variably replaces bornite locally to depths over 400 metres in the larger fault zones such as Zone 1. Pyrite occurs mainly in peripheral propylitic alteration in concentrations less than one percent. Mafic phases of the batholith such as the Border phases have a much greater frequency and concentration of pyrite. Distribution and concentration of molybdenite is highly variable throughout the Highland Valley deposits, with economically significant occurrences having similar distribution or a little outboard of the copper. Deeper-formed copper systems are reported to have less molybdenite. The relative abundance of molybdenum in the ore deposits increases from the Valley, Lornex to Highmont. Happy Creek’s Zone 2 contains notable rhenium-enriched molybdenite and gold values.

5. Property Geology

5.1 Lithology, Alteration

The property is largely covered by 3 to 150 metres or more of glacial till that affected historical exploration. Rock outcrops comprise less than 5% of the Rateria Property and occur in limited exposures such as glacial meltwater channels, creek beds in part controlled by post-glacial structural uplift. Geological observations are largely derived from recent and historical drilling and from scattered outcrops.

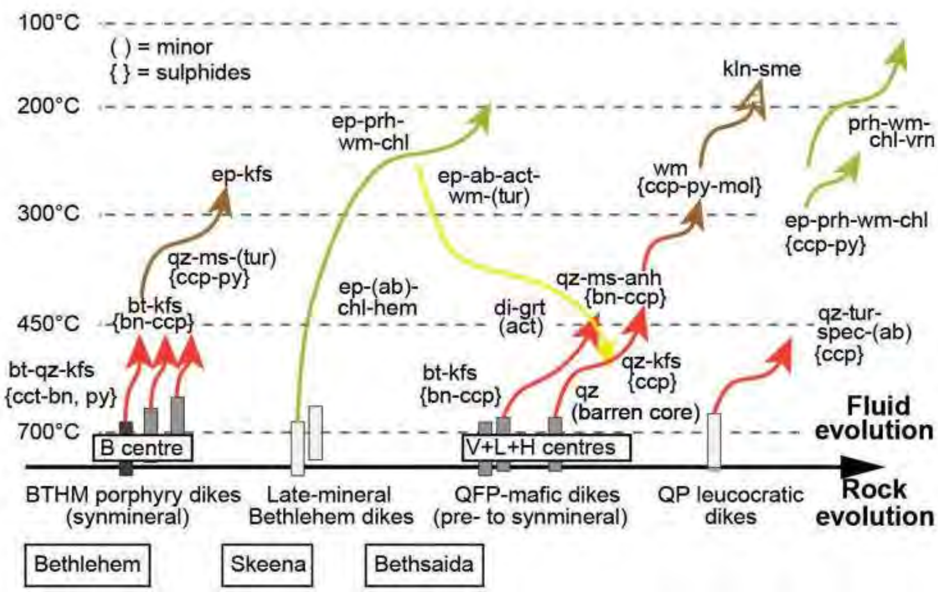
The Rateria and West Valley areas are underlain by similar geology to the Highland Valley deposits currently in production to the north (Figure 4). The younger Bethsaida, Skeena, Bethlehem phases, respectively occur mainly on the western and eastern side of the Rateria and West Valley property, respectively. The Chataway, Guichon and Border phases occur to the east and west on the Rateria and West Valley properties, respectively. Syn to post-Bethlehem or Bethsaida related dykes consist of several types including fine to medium grained grey to pale green colored quartz feldspar phyric and orange-tan colored fine-grained k-feldspar rich aplite dykes from 5 cm to over 4 metres in thickness. Locally, dykes with a micro-feldspar porphyritic texture occur in proximity to or are cut by bornite-chalcocite veins.

A 2014 geological study (Liaghat and Blann 2014) on the Rateria property provides a preliminary basis for an alteration pattern of this area. Mineralized zones on the property display structurally controlled alteration and mineralization. Propylitic (chlorite, epidote, carbonate) and potassic (k-feldspar, muscovite) and phyllic to intermediate argillic alteration (sericite, kaolinite/montmorillonite) occurs with variably intensity of quartz flooding, veinlets and veins. Sericite varies from soft, very fine-grained pale green (illite?) to hard medium grained grey-silver (muscovite), and locally very soft, medium grained silver-grey “talcose” (phengite?). At depths of over 350 metres in Zone 1, sericite decreases and potassic + propylitic (k-spar-chlorite-sericite/ muscovite) alteration increases and abundance of chalcocite decreases while bornite-chalcopyrite is more common.

Primary magnetite can be variably altered and martite, hematite, jarosite, goethite and specularite occurs. Due to the low-sulphur mineral system, and frequent association with chlorite, it is speculated that hematite could be a proxy for pyrite in exploration as it occurs in greater concentrations and frequency peripherally to the known copper zones.

On the West Valley Property, the younger phases of the Batholith outcrop along the east side in proximity to the Lornex fault, and appear as dikes that cut the Chataway, Guichon and Border Phase rocks further west. It is thought that the younger phases of the batholith occur beneath the older ones on the West Valley property. Based on the widespread presence of the younger felsic phase dykes, areas of propylitic to locally phyllic and argillic alteration with associated copper prospects, there is thought to be potential for porphyry systems to occur within older phases of the Batholith. To the west and southwest of the property, the Guichon batholith is locally in contact with and in part overlain by Nicola Group volcanic rocks and the younger Spences Bridge Formation.

Proximity with geological contacts of the younger intrusive phases and dykes are spatially associated with hydrothermal alteration and copper mineralization. Regional to district scale fault zones cut the batholith in north, northwest and northeast to east-west orientations that also, in part, control emplacement of the various intrusive rocks associated with hydrothermal alteration and copper sulphides. Pre-mineral, syn-mineral and post-mineral faults occur. Displacement of mineralized zones by faults may be significant in the district and at the south end of Zone 1 an interpreted east-west oriented, south-dipping fault is thought to have displaced the zone. Faults may be strike-slip, normal or reverse in sense.



Paragenetic alteration in HV deposits- from Byrne, Summary of Activities 2016, Geoscience BC, Report 2017-1, p. 220

5.2 Significant Mineralization on the Rateria Property

Zone 1 and Zone 2 were discovered by Happy Creek Minerals Ltd. and are thought to hold resource potential and remain open.

Zone 1 was discovered in 2006 and is located approximately 6.5 kilometres south-southeast of Teck's

Highmont mine. The zone extends to over 450 metres in depth, 1.2 kilometres in length and 50 to 200 metres in width. Zone 1 is located near the contact between the Bethsaida and Skeena Phase and dykes of aplite to feldspar porphyry composition occur. Bethlehem Phase rocks may occur but are not confirmed. Fractures are filled by quartz and sericite/muscovite forming veins, veinlets, stringers, and locally stockwork and breccia textures occur. Dominantly bornite, chalcocite and associated copper and silver values occur. Chalcocite in part replaces bornite that in part replaces chalcopyrite to over 350 metres depth in Zone 1. At depth and adjacent the bornite-chalcocite zone, relatively more chalcopyrite and molybdenite occurs.

In Zone 1, drilling results include 367.3 metres of 0.10% copper, 250.0 metres of 0.25% copper and 95 metres of 0.67% copper. West of Zone 1, and south of the Yubet prospect, drilling in 2011 returned 7.5 metres of 1.70% copper, 30.7 g/t silver and 7.5 metres of 1.35% copper, 12.4 g/t silver. Many of the recent and historical holes around Zone 1 were generally relatively shallow in depth. They ended in rock with hydrothermal alteration suggesting the underlying mineral system is widespread and larger than previously thought. One Km to the east of Zone 1 is the Three Creeks prospect and occurs near a contact between Chataway and Bethlehem/Skeena rocks. Iron oxide marks a strong fault and fracture zone containing sericite-muscovite, and quartz-carbonate veins with malachite and thin bornite veinlets

Zone 2 was discovered in 2008, about two kilometres northeast of Zone 1. Glacial till in Zone 2 is between 3 and 20 metres in thickness. Zone 2 occurs near the contact of Skeena, Bethlehem and Chataway Phases of the Batholith, and dikes of quartz feldspar porphyry and aplite occur. Major structures trend north, northeast and northwest and these faults and conjugate fractures are filled by quartz-sericite/muscovite to form stockwork and breccia textures locally. K-feldspar occurs as wall rock matrix replacement and veins along with quartz-muscovite. Epidote, hematite occurs peripherally. Epidote and k-feldspar are locally replaced/overprinted by sericite-muscovite and kaolinite. The copper oxides malachite, azurite and native copper occur in minor amounts and generally very near the surface. However, very fine-grained native copper averaging 0.02 to 0.09% copper occurs with weak sericite alteration to depths of at least 250 to 300 metres in several widely spaced drill holes to the east of Zone 2. Within Zone 2, bornite, minor chalcocite, chalcopyrite and locally molybdenite, with associated copper, molybdenum, gold, silver and rhenium values occur with potassic and phyllic style alteration. Significant rhenium enrichment in molybdenite is apparent. Zone 2. Copper values occur in drill core in an area approximately 1.5 kilometres by 1.0 kilometre in dimension. A better-defined zone is approximately 450 metres in length and between 75 and 125 metres in width and extends to at least 350 metres in depth. Drill results from Zone 2 include R08-05 with 126.0 metres of 0.46% copper, 0.008% molybdenum and 0.10 g/t gold. R11-36 returned 152.5 metres grading 0.26%

copper, 0.008% molybdenum, 0.07 g/t gold and 0.67 g/t rhenium. This includes 42.5 metres of 0.37% copper, 0.17 g/t gold, 0.025% molybdenum, 1.82 g/t rhenium. R12-01 returned 92.8 metres of 0.30% copper, 0.15 g/t gold from bedrock surface and R12-02 contains 152.5 metres of 0.35% copper and 0.57 g/t rhenium. R17-02 returned 5.0metres of 4.41% copper, 20.0 g/t silver, 0.21 g/t gold, 0.031% molybdenum 6.86 g/t rhenium on the eastern side of the deposit and remains open. R17-05 includes 105.5 metres of 0.37% copper, 0.14 g/t gold and 0.63 g/t rhenium. Zone 2 remains undefined and open in extent.

6. 2020-2021 Exploration Activities

Between May 20 and July 30, 2020, the company conducted prospecting, silt, soil and rock geochemistry with geological/ mineralogical investigations on the West Valley and Rateria property. Personnel collected observations/descriptions for 48 field geological stations and 14 rock samples were submitted for geochemical analyses (Table 2, Photos Appendix 1). A table of stream sediment and soil sample locations and assays are provided in Tables 3 and 4, respectively. HEG and Associates Geological Services Ltd. (2020) also performed geology and hyperspectral investigations of the Pim, 3 Creeks, Sho and several other surface prospects around Zone 1 & 2, as well as drill core from the Zone 1 and 2 deposits (Appendix 2). In addition, Hendex Exploration Services performed prospecting on the West Valley property and a soil geochemical survey on the Pim prospect and assisted in removing and returning drill core from sea can storage for HEG personnel. Between November 1 and December 15, 2020 Paycore Diamond Drilling Ltd completed 2058.5 metres of HQ and NQ core in four holes, with two at the Pim prospect on West Valley and one each at Zone 1 and 2 on the Rateria property. Drill hole collar and down-hole survey information is provided in Table 5. Drilling utilized a large capacity hydraulic drill (Multi-Power Titan) with cat, sloop and water truck. Ikan Supply of Logan Lake provided an excavator for preparing drill sites, sumps and reclamation. Archeology assessments were done for the planned drill sites, and environmental monitors were engaged during the drilling. CJ Greig and Associates Ltd was retained in November 2020 to provide geological services in the field and conduct detailed studies of drill core from this program. This work involved transporting the boxes of logged and sampled drill core to their workshop in Penticton B.C. There, k-feldspar staining, detailed magnetic susceptibility, XRF, geochemical studies and hyperspectral analyses was performed (Appendix 3). In February 2021, P Walcott and Associates conducted a detailed airborne magnetic survey over the Rateria property (Appendix 4).

7. Sampling and Analytical Procedures

Rock samples submitted for analyses were cleaned to avoid weathered surfaces or organic material and approximately 1-3 3 kilograms of rock were placed into heavy gauge poly plastic bags. A sample tag was filled out and one copy placed into the sample bag which was then tied closed. Sample bags were also labeled using a marker pen on the outside with the corresponding sample ID numbers from the sample booklets, and the sample number written on a piece of flagging and tied to a piece of rock at the sample site and when possible a flag was also tied to a nearby tree branch. A brief description of each rock sample was recorded in the sample booklets, and more detailed information written in a field notebook which was later typed into an Excel spreadsheet.

Drill core boxes were delivered by truck from the drill site to safe facilities for logging and sampling on private residences near Logan Lake and later in the season in heated facilities in Merritt. Drill core was marked for sampling and split using a large wheel and blade type splitter. One half of the core was placed into large poly bags and the other half returned to the core box. A sample tag is placed inside the poly bag, a duplicate tag is stapled into the core box, and a third tag remains in the sample book. When an interval is completed, the poly bag is tied closed, the sample number written on the outside of the bag, and between 5-8 samples placed into a large poly rice bag that is zap strapped closed. Rock and drill core samples were shipped by truck and analyzed by ALS Global Labs of North Vancouver, B.C. At the Lab, the samples were received and processed. Rock samples were prepared by method CRU-31 (70% < 2mm) and PUL-31 (85%< 75um) and analyzed by method 4 acid ME-MS-61 48 element geochemical trace-level analyses and a 30 gm fire assay for gold, and AA finish (Au-AA-23). Over-limit copper values were re-analysed by method Cu-OG46, a base metal assay. Drill core was prepared the same way as rock, and analyses consists of 4-acid digest 48 element ME-MS-61 and overlimit ore grade by 4-acid ICP-AES ME-OG 62. A portion of drill core from R20-02, Zone 2, also had 30 gm Fire Assay with ICP finish method Au-ICP21.

Soil samples are collected in the field from the Bf horizon, where present. Sample locations, numbers and locations are referenced by Garmin GPS, and soil material placed into kraft paper bag, air dried and placed into large rice bag for shipping to ALS Global Labs. Preparation and analyses of soil and silt are by methods SCR-41, dry, seive to passing 180um and 4-acid 48 element ME-MS-61 respectively. Silt samples are generally comprised of 1 kg of glacial till mixed locally with talus fines within drainages containing evidence of running water, however this is not always possible, and quality of results can be inconsistent and erratic.

Certificates of Analyses are provided in Appendix 7. ALS Global meets International Standards ISO/IEC 17025:2017 and ISO 9001:2015. All ALS geochemical hub laboratories are accredited to ISO/IEC 17025:2017.

8. 2020 Exploration Results

Results of prospecting, geology, geochemistry and drilling are provided below, while geological and spectral work completed by contractors HEG and Associates Ltd. and CJ Greig and Associates Ltd are provided in Appendix 2 and 3, respectively and summarized below. A report on an airborne magnetic survey covering the Rateria property is provided in Appendix 4 and summarized below.

8.1 West Valley Field Work

Prospecting, rock, stream sediment and soil sampling was performed on the West Valley property.

Rick Prospect (New)

An obscure 1970 report suggested the presence of malachite and positive copper in reconnaissance soils from a steep-walled gully north of Skuhun Creek near the western edge of the West Valley property. No other information on its location or work is known. Hendex Exploration Services Ltd was directed to locate, sample, photograph and get an accurate GPS location (Figure 4). Four stream sediment samples returned from 25 ppm copper to 109.5 ppm copper from a dry creek bed within thick glacial till. Approximately 250 metres uphill, outcrop and sub-crop was located that contains pyrite-chalcopyrite and malachite and eight rock samples were collected returning between 0.01% copper to 0.65% copper in an area approximately 100 X 50 metres in dimension. This area is regionally mapped as being near the contact of the Guichon batholith, Nicola Group and Spences Bridge Group rocks. Biotite quartz diorite is locally strongly fractured, and the matrix contains shreddy biotite with chlorite, epidote-sericite and mild kaolinite altered plagioclase. Fractures are filled by chlorite-sericite, 1-3% pyrite and chalcopyrite with malachite coatings, and some sulphides replace mafic and altered feldspar minerals in the matrix. The best sample returned 6450 ppm copper, 13.9 ppm molybdenum, 0.003 ppm rhenium, 3.18 ppm silver, 0.005 ppm gold and 93 ppm zinc. One sample of pervasively epidote-pyroxene altered rock (calc-silicate/skarn) returned 4830 ppm copper. A sample of pervasively bleached, quartz-sericite-kaolinite-pyrite altered rock returned 334 ppm copper, 24 ppm molybdenum, 10 ppm tungsten, 0.004 ppm rhenium, 0.18 ppm silver, 0.007 ppm gold and 10 ppm zinc. A limonite-rich, bleached quartz-sericite pyrite altered volcanic rock located topographically above the intrusive rock returned low values. It was observed that the altered and mineralized rocks may underlie the younger Spences Bridge Group. Refer to Photos.

Pim

The Pim prospect was first explored by the Company in 2019 within recent logging roads and clear cuts. Follow up work in 2020 located several new copper showings containing trace malachite in intensely quartz-sericite altered Skeena-Bethsaida phase intrusive of the Guichon Batholith (Figure 4, photos). Dikes of aplite and feldspar porphyry occur locally. Further detail on the geology and spectral analyses of the Pim can be found in HEG, 2020 Appendix 2, page 22. Reconnaissance to the south of Pim, near the Frank Minfile prospect identified a northerly trending structure (creek drainage/ravine) where outcrop consists of weak to moderately fractured, sericite-chlorite altered granodiorite (Highland Valley phase), with manganese and iron oxide filled fractures.

Soil sampling along the 2019 induced polarization grid lines was performed. Soil samples targeted the Bf horizon (15-20 cm depth) where present and were collected at approximately 50 metre spacing along the E-W lines that are 200 metres apart. A total of 226 soils were collected and returned positive copper values (Figure 5). With a threshold of 90 ppm copper, a 1.8 km northerly trending anomaly, 50 to approximately 250 metres in width occurs through the grid near the Pim copper showings with a maximum value of 984 ppm copper, 6.96 ppm molybdenum. A second linear anomaly occurs on the west side of the grid for approximately 800 metres. Soil sample quality varies due to thickness of till ranging from near zero (moss & organics over bedrock) to around 15 metres and the Bf horizon was not always present.

Quartz veins hosting sulphide mineralization and associated sericite veining show elevated ISM values and shorter ALOH absorption features indicative of a relatively hot, acidic environment (HEG, 2020). The coarse quartz crystals and vuggy nature of the veins is not typical of porphyry style veining and may suggest the showing to be of a higher-level environment. The presence of weakly developed sodic-calcic veining can be linked to the movement of hotter fluids within the GCB and is spatially related to the Bethlehem and Valley-Lornex-Highmont porphyry systems. Pim may represent either a distal expression of mineralization or the potential high-level expression of a yet to be identified porphyry (HEG 2020).

8.2 Rateria Field Work

Geology reference points and rock sample locations with copper assays and prospect names are shown in Figure 6. East of Zone 2, on the road to Billy Lake, a road cut contains biotite-magnetite granodiorite with cloudy plagioclase and fractures filled with chlorite, pale green sericite and minor quartz. Uphill to the west, historical trenches and casing of one drill hole collar was observed. A cat trench muck pile contains rock that is sheared and well altered by sericite, quartz-carbonate-hematite with malachite and bornite and grab sample 4879 contained 6090 ppm copper, 2 ppm molybdenum, 3.52 ppm silver and 0.033 ppm gold. Sample 4880 consists of a 0.10-metre-wide shear zone at the road cut with sericite, quartz- k-feldspar (or albite) veinlets and returned 4090 ppm copper, 2.32 ppm molybdenum, 2.17 ppm silver and 0.023 ppm gold.

Northwest and west of Zone 2 (Bo showing) is underlain by the contact between Bethlehem and Skeena phases. This area contains widespread and moderate to strong fracturing with sericite, chlorite, limonite, specular hematite, ankerite alteration. Rock sample 4884 consists of intensely fractured, bleached, hematite altered and veined rock and returned 33 ppm copper, 7.66 ppm molybdenum. In general, this large area contains weak to strong phyllic type alteration. Bornite and malachite veinlets are reported to occur in a few places, but were not located, and further investigation is warranted. Geology site #44 is located between Zone 1 and 2 and consists of weakly fractured, sericite altered Skeena phase with small k-feldspar-quartz veinlets and trace malachite and bornite.

Southwest of Zone 1, geology site #13 consists of an old cat trench in outcrop with weakly fractured pale green sericite veinlets and trace red colored iron oxide and possible malachite. Site #14 is an outcrop of Bethsaida phase cut by an east-west trending dike of aplite. South of the Yubet prospect, several outcrops of weakly fractured, sericite-chlorite veined Bethsaida phase occur south of the Pimainus road (site #15). Further south within glacial till, angular boulders occur locally containing moderate sericite alteration and iron oxides (#16).

3- Creeks

East of Zone 1, four sites are described at the 3 Creeks prospect. This area is near the contact between the Skeena-Bethlehem and Guichon/Chataway phases of the Batholith. Here, moderate to strong fracturing with sericite, muscovite, k-feldspar, hematite and ankerite occur. Alteration in the 3 Creeks area (HEG) is focused around the north trending gullies. Spectrally, the 3 Creeks and Zone 2 West areas display relatively low ISM and moderate to long AlOH absorption features. This suggests the area is relatively distal however, the considerable oxidation of most outcrops may result in a poor spectral response. The area is likely a distal expression of alteration perhaps related to either Zone 1 or 2. Further mapping through the area is warranted in order to examine if the different generations of veining develop patterns to aid in targeting beneath cover (HEG, 2020). Malachite, bornite chalcocite is noted in generally widely spaced fractures and quartz veins in an area approximately 150 metres by 300 metres in dimension and warrants trenching.

Sho

At the Sho prospect, eight geology points were located and described (#36-43). This area is underlain by Bethlehem-Guichon/Chataway varieties of the Batholith. Strong north and northwest trending structures occur, along with east west to northeast trending fractures. Sericite, chlorite, epidote, k-feldspar alteration locally contains iron oxides, malachite, azurite and bornite-chalcocite. The Sho and Sho South are thought to be part of a large-scale zone, approximately one km in length and trenching or drilling is warranted.

Five vein styles are present (HEG,2020): rare K-feldspar veins, sericite veins, epidote-quartz±sulphide veins (propylitic-2 veins), propylitic veins and zeolite veins. Mineralization is generally restricted to the sericite veins which contain chlorite and specularite at South Sho and are associated with visually identified muscovite at Sho. Veining is dominantly northwest trending except for the propylitic veins which are dominantly north trending. The dominant northwest orientation of veining in the Sho area suggests a strong structural control on the orientation of the fluid movement in this area. This is significant as it is close to the orientation of the Valley-Lornex-Highmont trend. Spectral results suggest the white mica associated with the sericite veins in this area is relatively phengitic. The visually identified “muscovite” at Sho is associated with high ISM values however this is also compositionally phengitic. This indicates a distal, Alwin-like environment for Sho using the Valley-Bethsaida-Alwin analog. Although cover may be masking additional veining in the area, a north west or south east vector should be further explored. Potential offsets along the inferred north trending structures should also be examined as this displacement plays an important role in other areas of the batholith (eg. The offset between the Valley and Lornex pits).

Airborne Magnetic Survey

In February 2021, an approximately 1660 km of helicopter supported airborne magnetic geophysical survey was completed over the Rateria property. A logistical report and maps of the total field and vertical derivative are provided in Appendix 4 (Walcott, 2021). The magnetic survey provides information pertaining to lithology, structural and in part, hydrothermal alteration zones that can be associated with copper mineralization. Large scale, through-going north and northwest trending structures are evident, with conjugate northeast trending structures. A pronounced, wide, lower-magnetic response that arcs from east-west in the south and northward through the Rateria property is interpreted to represent the contact between the outer and older and inner and younger (Bethlehem, Skeena, Bethsaida) phases of the batholith.

8.3 Drilling

Upon completion of archeology studies on a handful of proposed drill sites at the Pim, Zone 1 and 2, drilling began in early November 2020. Core logs are provided in appendix 5 and drill hole collar and down-hole survey information are provided in Table 5. Core samples and assay are listed in Table 6. Drill core logs, RQD and Certificates of Analyses are provided in Appendix 5, 6 and 7 respectively.

8.3.1 West Valley Drilling

Two drill holes were completed on the Pim prospect for a total of 805.5 metres. Drill hole WV20-01 utilized HQ size drill core, and WV20-02 utilized NQ size core. A plan of drill hole locations is provided in Figure 7, and Cross Sections for WV20-1 and 2 are provided in Figures 8 and 9, respectively.

Drill hole WV20-01 was located at the south end of a logging road near the trend of positive copper in soil and an 8-10 millisecond IP anomaly at depth and directed at 270/ -75 degrees for 336 metres. This hole cut generally weakly altered Bethsaida phase granodiorite and aplite, feldspar porphyry dikes with multiple intervals of between 1 and 20 metres containing moderate fracturing with sericite, chlorite-epidote-carbonate, clay and locally quartz fillings. Fault gouge contains hematite. Hematite staining of rock matrix or k-feldspar occurs. Between 246 and 265 metres, pyrite occurs in quartz- carbonate veinlets. From approximately 295 metres to the end of the hole, mafics in the rock matrix decrease while the core remains solid and weakly fractured. No significant mineralized zone was returned, and the strong IP chargeability remains unexplained.

Drillhole WV20-02 is located approximately 400 metres north-northwest of WV20-01, and oriented at 315/-60 degrees for a total of 469.5 metres. The drill hole was directed towards positive copper in soil and a lower magnitude IP anomaly than hole WV20-1. The core contains mainly Bethsaida phase with mildy altered mafics and slightly cloudy plagioclase throughout. Multiple intervals of more intense fracturing contain epidote, sericite, carbonate and hematite and specular hematite. From the collar of the hole between 6m and 39 metres, trace chalcopyrite-pyrite specs occur locally. Several other similar intervals occur in the core. From 153 to 154.5 metres a 1.5m interval returned 0.126% copper. Between 245 and 252.5 metres, trace molybdenite occurs as thin fracture fillings subparallel to the core. Analytical results returned 222 ppm molybdenum, 0.10 ppm rhenium over 7.5 metres. Wall rock around the fractures are pinkish with hematite or k-feldspar stain. Zones of pale green sericite and orange-pinkish stain occur to the end of the hole.

8.3.2 Rateria Drilling

Plan maps and cross sections for drill holes R20-01 and R20-02 is provided in Figures 10-13, respectively.

Drill hole R20-01 is located near the middle of the strike length of Zone 1, and west of any previous holes targeting the zone. The hole collar was oriented at 085 degrees and –55 degrees dip. The hole cut mainly Bethsaida phase granodiorite with several intervals of Skeena-Bethsaida varieties having porphyritic texture, as well as fine grained, felsic aplite and feldspar phyric dikes. Much of the top 350 metres of the core is highly broken, fractured, and clay altered with multiple, slickenside gouge zones. It appears highly faulted sub-parallel to the core axis. Traces of chalcocite, bornite occur throughout the hole with zones of 32.5 metres containing 0.096% copper, and 18.0 metres of 0.24% copper, 8 ppm molybdenum and 2.1 ppm silver. The faulting noted and abundance of dikes may represent the footwall of the major structure hosting Zone 1 or has displaced the down-dip projection of the expected zone. Sporadic copper values persist to the end of the hole at 689 metres.

Drill hole R20-02 is located approximately 75 metres west of DDH R17-05 (105.5 metres of 0.37% Cu, 0.14 g/t Au, 1.9 g/t Ag, and 0.63 g/t Re), and drilled toward 090 degrees at -57 degrees dip. This hole cut mainly Chataway granodiorite, weak to moderately fractured and contains mainly chlorite-epidote alteration. Locally more intense fracturing and faulting contains sericite and k-feldspar -quartz veinlets with bornite and chalcocite. Erratic, trace copper values begin around 60 metres down hole and continues to around 400 metres. Zones of higher copper occur and include 5.0 metres of 0.289% copper (33 ppm moly and 0.12 ppm rhenium), and 8.8 metres of 0.41% copper, 9 ppm moly, 0.13 ppm gold and 0.06 ppm rhenium. Elevated rhenium and moly appear to occur on the edges of the main mineralized zone, and gold values are slightly anomalous. Copper values decrease significantly after about 420 metres.

Summary of analytical results of 2020 Drilling

hole	From	To	Interval	Cu	Mo	Ag	Au	Re
	m	m	m	%	ppm	ppm	ppm	ppm
WV20-02	153.0	154.5	1.5	0.126	1	0.7		
WV20-02	245.0	252.5	7.5		222	0.1		0.10
R20-01	296.0	328.5	32.5	0.096	4	0.6		
R20-01	570.5	588.5	18.0	0.241	8	2.1		
R20-02	125.0	130.0	5.0	0.289	33	1.7	0.05	0.12
R20-02	182.5	187.5	5.0	0.134	3	0.7	0.03	0.01
R20-02	212.3	216.6	4.3	0.181	2	0.9	0.02	0.05
R20-02	244.0	251.5	7.5	0.101	2	0.4	0.03	0.01
R20-02	276.5	355.5	79.0	0.088	14	0.5	0.03	0.08
includes	311.5	320.3	8.8	0.414	9	2.1	0.13	0.06
R20-02	387.5	398.5	11.0	0.211	24	1.2	0.08	0.24

8.4 Zone 1 and 2 Terraspec Halo Hyperspectral Summary

The following is a summary of interpretation from the review and analyses of core from 19 drill holes located in and around Zone 1 and 2 that were retrieved from storage and reviewed in detail by HEG and Associates Geological Services Ltd. (Appendix 2):

Within Zone 1/Yubet area, the plot of ISM vs the AlOH absorption feature suggests two populations as with the surface data. An ISM value of <0.5 is likely too low for white mica and is interpreted to reflect likely contamination of the spectral response by other minerals containing AlOH bonds. Examining only the AlOH values with an ISM >0.5, similarities can be drawn between Zone 1 and the Valley-Bethsaida-Alwin analog. The longer wavelengths may reflect an Alwin-like alteration environment while the shorter wavelengths are more typical of a Bethsaida-like or the edge of Valley-like alteration. A boundary of 2204 nm is proposed to separate “Sericitic” white mica related to longer wavelengths (potentially K-feldspar destructive) from shorter wavelength “Potassic” white mica (potentially K-Feldspar stable. Much of the system displays relatively long AlOH absorption features however, a zone of consistently shorter absorption features is present at depth in R11-24 which may indicate a the development of an area with K-feldspar-stable white mica.

Zone 2 displays a different alteration pattern than that of Zone 1. Chlorite is more prominent within the mineralized zone while epidote occurs within and around the mineralization. Spatially, ISM values and changes in the position of the AlOH absorption feature show poor relationships to copper. Significantly, there are very few spectra which plots as “Potassic” white mica. Nearly all white mica in Zone 2 appears to be part of the “Sericitic” type. In zone 2, most of the copper mineralization is associated with

MgOH features between 2339-2342.5 nm and longer FeOH features, > 2250.5 nm. This spectral response would be consistent with relatively Fe-rich chlorite and may suggest a Bethlehem-like “Phyllic” environment. Changes in the position of the FeOH and MgOH absorption features appear to be the best vectoring tool within Zone 2.

CJ Greig and Associates Ltd. conducted hyperspectral, XRF and k-feldspar staining on R20-01 and R20-02 (Zone 1 and 2, respectively, Appendix 3), and results are summarized below:
Kaolinites, chlorites and epidotes account for a sizeable amount of identified mineralogy. The largest contrast between Zone 1 and 2 came from the increase of zeolite group minerals, from <1% of the proportion of minerals detected in R20-01 to 10% in R20-02, respectively and a drop in white micas from 40% to 19% between the two holes. Elevated and consistent abundance of K-illite occurs in hole R20-01. The relationship between grade and clay mineral species or vectors, such as the AlOH ratio is ambiguous across in the two holes analyzed. This could be a result of overprinting post-mineral alteration that has obscured the signature of the mineralizing fluids, or that the alteration fluids associated with grade were too structurally controlled and did not pervasively alter the host rock significantly. Results from the K-feldspar staining confirm that potassic alteration is in fact the observed selvage of some bornite or chalcocite-bearing veins in Zone 2 drill core. The largest hyperspectral contrast between Zone 1 (R20-1) and Zone 2(R20-2) is the increase of zeolite group minerals and a drop in white micas, respectively.

8.5 Airborne Magnetic Survey

In February, 2021, a helicopter supported magnetic geophysical survey was conducted covering the Rateria property. A logistics report and maps are provided in Appendix 4. On the Rateria property, a major magnetic low structure occurs in proximity to the contact between the younger and older phases of the batholith and wraps around the southern end of the contact in an east-west orientation near Skuhun Creek, and northward through the Moss 4 and Zone 1 prospects. Northwest trending structures cut through the property extending from the southeast- Broome Creek – Sho area to the south Yubet area. Northeast trending structures appear to be secondary or conjugate splays off the north-northwesterly trending structures, and one forms the alteration and mineralization corridor between Zone 1, 3 Creeks northeast to Zone 2. A similar one occurs around the Sho prospect towards Chataway Lake. Detailed analyses and inversion of the data along with compilation of surface and drill data is ongoing.

8 Conclusions

The Rateria and West Valley properties are situated in the south portion of the Guichon Creek Batholith and underlain by granodiorite, quartz diorite, quartz monzonite intrusive phases with dykes and small plugs of crowded quartz feldspar porphyry, tan to pinkish colored quartz feldspar phyric and aplite occur. Lithology encountered in recent years by drilling and mapping is consistent with descriptions of the phases of the Guichon batholith. Younger aged rocks include Bethsaida, Skeena, Bethlehem phases and associated dikes, and the older Highland Valley, Chataway, Guichon and Border Phases. The younger phases are closely associated with mineralization at the Bethlehem, Valley, Lornex, JA and Highmont copper deposits. The geology, alteration and mineralization on the Rateria and West Valley property are interpreted to be consistent with Highland Valley type copper systems.

During 2020, Happy Creek Minerals Ltd. conducted geological, prospecting and geochemical investigations on the Rateria and West Valley property and drilled 2058.5 metres in four holes.

West Valley property

On the Pim target, south of Pimainus Lakes, hyperspectral, geological and soil geochemical studies suggest this area is underlain by Bethsaida and Skeena phase granodiorite cut by dikes of aplite and feldspar phyric composition. These rocks are cut by strong northwest trending fault and fracture zones with subordinate structures trending northeast to east-west. Fractures up to 1 metre in width are filled by quartz-sericite and chlorite-epidote-k-feldspar, with variable concentrations of chalcopyrite, bornite, chalcocite, malachite and iron oxides such as specular hematite. Hyperspectral work suggests the prospect is at a high level or distal to a porphyry copper centre. Although soil geochemistry interpretation is difficult due to variable depths of glacial till, positive anomalies of copper occur, with the largest being 1.8 km in length and between 50-250 metres in width that trends north-northwest, parallel a low-magnetic grain and major structural features such as faults in proximity to the contact between younger and older phases of the batholith. No pyrite is noted in surface samples, although red-orange iron oxides and black manganese material or tenorite are common locally. Drilling targeted portions of a 1.6km diameter ring-shaped induced polarization (IP) chargeability anomaly with the eastern side within a magnetic low and the most abundant surface copper in rock and soil anomalies. Drill hole WV20-01 tested the southern chargeability high (to 10 ms) and returned locally faulted and altered rock with trace pyrite noted. Drill hole WV 20-02 is about 400 metres to the north and tested the inside edge of the ring-shaped IP anomaly and cut several small fault and fracture zones with chlorite-sericite-epidote alteration containing malachite and chalcocite and 1.5 metres of 0.126% copper. Locally, molybdenite occurs. Most of the 1.6km diameter IP and soil geochemical anomaly remains un-tested by drilling.

Prospecting in the western part of the West Valley property located a previously undocumented copper showing. The Rick prospect consists of outcrop and subcrop of biotite and quartz-chlorite-epidote-altered granodiorite (Border or Guichon phase) and locally abundant pyrite and chalcopyrite occurs in fractures and disseminated within the altered rock matrix. Samples containing up to 0.64% copper, 13.9 ppm molybdenum, and 3.18 ppm silver occur in an area approximately 50 X100 metres. Intense clay altered volcanic rock (Nicola Group?) and the Spences Bridge Formation occur adjacent the intrusive rocks, and further investigation is warranted.

Rateria Property

Hyperspectral analyses of historical drill core indicate the alteration assemblages present in the northern part of the Rateria property (Zone 1 and 2 area) are consistent with Highland Valley porphyry copper systems. Sericite and muscovite white mica are most prevalent within the younger phases of the batholith such as Bethsaida-Skeena phases around Zone 1, whereas the older rocks such as Chataway or Guichon varieties in and around Zone 2 contain dominantly chlorite-epidote and quartz-k-feldspar in mineralized portions. The Zone 1 area has similarities with Valley-Lornex type alteration whereas the Zone 2 area appears more similar to the Bethlehem type system. The hyperspectral method has some limitations but forms an excellent basis to understand the variety and temperature of formation of white mica that occurs in these systems and together with detailed rock geochemistry, k-feldspar staining and geology are useful tools to vector towards a porphyry copper centre. Studies of Zone 1 suggest copper mineralization occurs with lower and higher temperature white mica, and even if lower in grade, the hotter, potassic white mica occurring at depth toward the northern side of Zone 1 is reflective of a “near-valley” type alteration and warrants further investigation. Preliminary spectral studies of the Sho and 3-Creeks prospects indicate they are possibly higher level or more distal to a porphyry copper centre and further work should be planned accordingly.

At Zone 1, drill hole R20-01 is located some 75 metres west of previous holes near the centre of the 1.2km north-south zone and drilled eastward, beneath previous holes. Rock consists of Bethsaida, Skeena granodiorite with more abundant dikes of aplite and feldpar phyric rock than seen in other holes. Rock is strongly faulted and gouged, with chlorite and strong sericite-clay alteration. Copper values are generally low with the best interval returning 18.0 metres of 0.24% copper, 2.1 ppm silver. Trace copper occurs in altered rock to the end of the hole at 696 metres. K-Illite is consistently abundant. The hole appears to have cut a dike-rich footwall portion of the large, mineralized structure that hosts Zone 1.

At Zone 2, drill hole R20-02 is located approximately 75 metres west of previous holes and drilled eastward, beneath other holes. The hole cut generally weak to moderate fracturing filled by chlorite-epidote and sericite in Chataway granodiorite with a few dikes of aplite to feldspar phyric composition. Bornite-chalcocite occur in fractures. Locally, more intense fracture zones contain appreciable copper values. Overall, trace copper values occur starting from around 60 metres and ending at around 400 metres. Several sections contain elevated values with the best being 8.8 metres of 0.41% copper, 2.1 ppm silver and 0.12 ppm gold. K-feldspar staining confirms this potassic alteration is a feature of the mineralized veins, while hematite-sericite alteration can produce a pinkish-orange colouration that is not k-feldspar and occurs within or distal to the mineralized zones.

The largest hyperspectral contrast between Zone 1 (R20-1) and Zone 2(R20-2) is the increase of zeolite group minerals and a drop in white micas, respectively.

An airborne magnetic survey covering the Rateria property was completed in February 2021. The survey included areas not previously covered by the Company's ground magnetic surveys. Interpretation of the magnetic survey suggests a major northerly trending structure occurs in proximity to the contact between the younger and older phases of the batholith and turns westward at the southern contact area, in proximity to Skuhun Creek. Northwest trending structures cut through the property extending great distances from the southeast- Broome Creek – Sho area to the south Yubet area. Northeast trending structures appear to be conjugate splays and one forms the alteration and mineralization corridor between Zone 1, 3 Creeks up to Zone 2.

9 Recommendations

The following recommendations pertain specifically to the areas where the majority of 2020 work was performed.

1) Pim target: Trenching 5 X 50 m in areas of shallow glacial till through the soil anomaly, geology mapping with hyperspectral, XRF studies of the entire Pim target area, followed by drilling of 5 holes in untested areas around the large IP target.
2) Zone 1 and 2 areas: Soil geochemical surveys covering the un-surveyed areas west and east of Zone 1 to Zone 2. 4 X 100 metre trenches at 3-creeks. Trenching of 3 X 75m at Bo
3) Sho area: Soil geochemical surveys and trenching where subcrop or outcrop may be close to surface. Drilling a total of 6-10 holes at Sho south, Sho and to the east and west of these zones.

4) Hyperspectral, XRF studies of historical drill core from Zone 1 and 2.
5) Geological mapping, prospecting in areas of interest as defined by magnetic surveys.
6) IP survey south of Sho 30km and south of Pim 30 km
7) Conduct further geology mapping and sampling at the Rick prospect on West Valley

Proposed Budget

Geology, Terraspec and geochem	$100,000
Trenching 500m	$100,000
Drilling 20 holes X 300m	$1,500,000
IP Surveys 60 KM	$240,000
Total	$1,940,000

Respectfully Submitted,

David Blann, P.Eng

Sassan Liaghat, PhD.

10 References

Brian May (2009) Reconnaissance Rock, Soil, silt Geochemical Survey on the Craigmont West Property Merritt, British Columbia assessment report.

Bayley, E.P. (1970). Summary Report of Percussion Drilling Program, Chataway Exploration Co. Ltd., Highland Valley Claim Group, for Asarco.

Byrne (Kevin), Michael D'Angelo, Miguel Alfaro, Pete Hollings, Stephen Piercey, and Robert A. Creaser, Petrogenesis and Magmatic Evolution of the Guichon Creek Batholith: Highland Valley Porphyry Cu ± (Mo) District, South-Central British Columbia, 2017 Society of Economic Geologists, Inc. Economic Geology, v. 112, pp. 1857–1888.

Byrne,Kevin, Large-Scale Sodic-Calcic Alteration Around Porphyry Copper Systems: Examples from the Highland Valley Copper District, Guichon Batholith,South-Central British Columbia, in Geoscience BC Summary of Activities 2016, Geoscience BC, Report 2017-1, p. 213–222.

Blann, D.E., P.Eng. (2006). Geological, Geophysical and Diamond Drilling report on the Rateria Property, Kamloops Mining Division, for Happy Creek Minerals Ltd., AR28094.

Blann, D.E., P.Eng. (2007). Diamond Drilling report on the Rateria Property, Kamloops Mining Division, for Happy Creek Minerals Ltd., AR28878.

Bond, Lorne, P.Geo. (2000). Geophysical Report on the Rateria Mineral Claims, Kamloops Mining Division, for Cominco Ltd., AR26409.

Delorme, C.N and Delorme G (2013) Geochemical Survey and Prospecting, Assessment Report 2012.

Grewal, I., (August 2014) Acid Bottle Roll Leach Test, for Happy Creek Minerals Ltd. Project MS 1553.

Liaghat, S and Blann, D.E (2011), Assessment Report of Diamond Drilling Report on the Rateria Property, Kamloops Mining Division, for Happy Creek Minerals Ltd, 2010 AR

Liaghat, S and Blann, D.E (2012), Assessment Report of Diamond Drilling on the Rateria Property, Kamloops Mining Division, for Happy Creek Minerals Ltd, 2011 AR

Liaghat, S and Blann, D.E (2013), Assessment Report of Diamond Drilling on the Rateria Property, Kamloops Mining Division, for Happy Creek Minerals Ltd, 2012 AR

Liaghat, S and Blann, D.E (2013), Geological and Geophysical Report on the West Valley Property Kamloops Mining Division, for Happy Creek Minerals Ltd, 2012 AR

Liaghat, S and Blann, D.E (2014), Assessment Report of Diamond Drilling and Geochemistry on the Rateria West Valley Properties, Kamloops Mining Division, for Happy Creek Minerals Ltd, 2013 AR.

Liaghat, S and Blann, D.E (2015), Assessment Report of Geology and Geochemical Report on the Rateria West Valley Properties, Kamloops Mining Division, for Happy Creek Minerals Ltd, 2014 AR.

Liaghat, S and Blann, D.E (2017), Assessment Report of Geology and Geochemical Report on the Rateria West Valley Properties, Kamloops Mining Division, for Happy Creek Minerals Ltd, 2016 AR.

Liaghat, S and Blann, D.E (2018), Assessment Report of Diamond Drilling and Geochemical Report on the Rateria West Valley Properties, Kamloops Mining Division, for Happy Creek Minerals Ltd, 2017 AR.

Liaghat, S and Blann, D.E (2019), Assessment Report of Geology and Rock Sampling on the Rateria West Valley Properties, Kamloops Mining Division, for Happy Creek Minerals Ltd, 2018 AR.

McMillan, W.J. (1976). Geology and Genesis of the Highland Valley Ore Deposits and the Guichon Creek Batholith. *Porphyry Deposits of the Canadian Cordillera, CIM Special Volume, 15,* 85-104.

Northcote, K. (1969). Geology and geochronology of the Guichon Creek Batholith. Dep. Mines and Pet. Res., B.C., *Bull. 56*, 73 p.

Ploufee, A., Ferbey,T, 2018, Surficial Geology of the highland Valley copper Mine Area, British Columbia, BCEMPR,BC Geological Survey, Geoscience Map 2018-01.

Sanford, G.R., 1983, Diamond Drilling Report on the Roscoe 1 Mineral Claim, Highmont Mines, prepared for National Trust Company Limited, Ass# 11,369. (Note: Property is north of Rateria Claims)

Sutherland Brown, Editor, 1976, Porphyry Deposits of the Canadian Cordillera, CIM Special Volume 15.

Tsang, L.C.H., 1985, Percussion Drilling Report on the Roscoe 1 Mineral Claim, Kamloops Mining Division, Highmont Mining Corporation, prepared for National Trust Company Limited. Asst # 13824 (Note: property is north of Rateria Claims)

William R. Bergey, P.Eng (2012), 2011 Assessment Report on Diamond Drilling in Chataway Lake Area of Highland Valley Property, Prepared for Highbank Resources Ltd

Willars, Jack G., P.Eng. (1972). Report on the Geological Survey and Diamond Drilling on the Property of Chataway Explorations Co. Ltd., for International Mogul Mines Limited, AR04050.

Statement of Costs

Personnel / Position	Field Days	Person-Days	Rate	Amount	Subtotals
Sassan Liaghat, PhD., project/ mine manager	October 20- December 18 2020	60	$650.00	$ 39,000.00	
David Blann, P.Eng. Field Work/ supervision	August 1- Dec 5 2020	10	$750.00	$ 7,500.00	
Mike Cathro, Pgeo	August 1- Dec 5 2020	3	$850.00	$ 2,550.00	
Bert Verspleet	Oct 18-31 Drill core tech and cutting	38	$284.47	$ 10,809.86	
Ken Stern- IKAN	October 5- December 18 2020	17	$320.00	$ 5,440.00	
Ryan Giesbrecht- Merritt private residence: core splitting/geotech, and heated warehouse for winter core logging	November 1-Dec 18 2020	48	$350.00	$ 16,800.00	
Hendex Exploration Services: crew of 3 incl truck/room/board	Pim grid soils, far west prospecting. Total man-days	25		$ 16,678.88	
HEG consultants: John Ryan, Tye Magee, Ali Wasilliew	Terraspec. geology on drill core and surface prospects May 20-August 31 2020 + report included in appendix	30		$ 48,019.13	
Lower Nicola Indian Band (LNIB)	consulting regarding drill site locations and archaeology work			$ 1,003.80	
LNIB- Montana Mountain Chief	drill core box moving, field assistant	10.5	$285.00	$ 2,992.50	
Esh-kn-am investments joint venture	Environmental monitoring Nov 9-20, 2020	10		$ 4,501.12	
SCWEXMX Tribal council	Archaeology- Field- Sept 18th 2020	1		$ 1,357.36	
SCWEXMX Tribal council	Environmental monitoring Nov 9-Dec 18 2020	38.0		$ 20,792.10	
WSP Canada Inc.	Archeology Overview Assessment			$ 992.25	
C-3 Consulting- Sarah Weber, P.Geo includes support	Archaeology and Environmental monitoring management	22.5	$250.00	$ 5,625.00	
CJ Greig and Associates Ltd.	Nov 7 2020- April 5th 2021 Drill site supervision, shipping core,re-logging in detail with Terraspec/ staining/ detail mag sus. XRF. Report in Appendix	40		$ 32,048.31	
		353			
					$216,110.31
Office Studies					
Database, data entry, map plotting Arc-GIS, Target	S Liaghat, PhD Geology	16.0	$650.00	$ 10,400.00	
Geology sections, interpetation, supervision	D. Blann, P.Eng.	4.0	$750.00	$ 3,000.00	
Report preparation				$ 8,500.00	
					$21,900.00
Assaying/Geochemical	**Number of Samples**	**No.**	**Rate**		
ALS Global Labs jan 19 2021	Drill core ME-MS-61 ICP + overlimits	85.0	$45.98	$ 3,908.33	
ALS Global Labs March 2 2021	Drill core ME-MS-61 ICP + overlimits + Au Fire-ICP	153.0	$57.68	$ 8,824.42	
ALS Global Labs March 4 2021	Drill core ME-MS-61 ICP + overlimits	91.0	$44.28	$ 4,029.35	
ALS Global Labs June 30 2020	Pim soil ME-MS-61 ICP	230.0	$33.46	$ 7,696.75	
ALS Global Labs June 30 2020	WV and Rateria Rock ME-MS-61 ICP + Au fire	14.0	$45.50	$ 637.00	
					$25,095.85
Drilling	**No. of Holes, Size of Core and Metres**	**product**	**Rate**		
Paycore Enterprises-Titan deep hole drill- includes mob-demob, room.board, road maintenance/snowplough, water truck	4 HQ - NQ core,mob/demob, 5 drillers,survey tools (m)	2058.5	$222.97	$ 458,978.54	
D Goertz fabrication	4m HQ drill core boxes	280.0	$15.52	$ 4,344.20	
IKAN, Komatsu Excavator	Komatsu P2200 excavator (Hrs)	69.9	$158.00	$ 11,044.20	
Reclamation	**Work done**				
drill sites on existing logging road or skidder trail	sumps backfilled, contoured, wood and debris (if any) pulled back over trails				
					$474,366.94
Geophysical Surveys					
P Walcott and Associates Geophysical contractor	Feb 2021 magnetic survey on Rateria- 1600 km report in Appendix			$ 77,014.13	
					$ 77,014.13
Transportation		**No.**	**Rate**		
IKAN	Excavator Low bed trucking- mob to Pim, to Zone 1 to Zone 2 and demob, freight, scale			$ 2,852.04	
					$2,852.04
Travel, Accommodation & Food					
M. Cathro , P.Geo	Vehicle use fieldwork 1 day.			$ 232.37	
Standard Metals	Truck- travel, motel and food			$ 3,843.71	
Siaghat and Bert V.	Motel, food, fuel			$ 6,516.41	
Happy Creek Minerals	Tacoma 4X4 truck for Geologist fuel included	60.0	$ 100.00	$ 6,000.00	
					$16,592.49
Communications					
Info sat & Global star satelite phones, mobile phones		60.0	$ 25.00	$ 1,500.00	
					$1,500.00
Freight- rock and core					
CJ Greig and Associates	Forklift to load/unload core			$ 142.88	
IKAN Truck and trailer	8 hrs ferry drill core to CJ Greig and Associates Merritt-Pentiction			$ 300.00	
Bandstra	core and rock samples to lab			$ 598.33	
					$1,041.21
Supplies					
geology, drilling, sampling and field supplies				$ 1,365.22	
					$1,365.22
TOTAL Expenditures					**$837,838.19**

12 Statement of Qualifications

I, **David E. Blann**, P.Eng., of Squamish, British Columbia, do hereby certify:

- That I am a Professional Engineer registered in the Province of British Columbia since 1990.
- That I am a B.Sc. graduate in Geological Engineering from the Montana College of Mineral Science and Technology, Butte, Montana, 1987.
- That I am a graduate with a Diploma in Mining Engineering Technology from the B.C. Institute of Technology, 1984.
- That I have been actively engaged in the mining and mineral exploration industry since 1984.
- That I have worked directly on the Rateria and West Valley properties on an on-going basis since 2004 and performed and reviewed the exploration activities described in this report.
-

Dated in Vancouver, B.C., May 30, 2021

"*David Blann*" (Signed)

David E Blann, P.Eng.

Sassan Liaghat, M Sc, PhD Coquitlam, British Columbia, do hereby certify that:

- I am a senior geologist, and project manager of the project.
- I graduated from the Universities of McGill and Ecole Polytechnique of Montreal in Master and Ph.D degrees in 1990 and 1994 respectively.
- That I have been actively engaged in the mineral exploration research and industry since 1990.
- I am the author or co-author of several scientific papers and reports, published in international and local journals.
- Since 2006, I have been involved in mineral exploration for base and precious metals in BC.

-I conducted the work on the Rateria and West Valley property during 2018 as described in this report.

Dated at Vancouver, BC May 30, 2021

"*Sassan liaghat*" (Signed)

Sassan Liaghat Ph.D

Tables

Tabe 1 Rateria and West Valley Mineral Tenures

Title Number	Claim Name	Owner	Title Type	Title Sub Type	Map Number	Issue Date	Good To Date	Status	Area (ha)
511809	NEW RATERIA	203169 (100%)	Mineral	Claim	092I	2005/APR/28	2026/DEC/31	GOOD	144.265
513870		203169 (100%)	Mineral	Claim	092I	2005/JUN/03	2026/DEC/31	GOOD	1154.206
522356	RATERIA NE	203169 (100%)	Mineral	Claim	092I	2005/NOV/17	2026/DEC/31	GOOD	494.414
528775	MAL	203169 (100%)	Mineral	Claim	092I	2006/FEB/23	2025/DEC/31	GOOD	494.415
528778	MAL 2	203169 (100%)	Mineral	Claim	092I	2006/FEB/23	2025/DEC/31	GOOD	514.863
529011	RATERIA NORTH	203169 (100%)	Mineral	Claim	092I	2006/FEB/27	2025/DEC/31	GOOD	514.802
529013	RATERIA NORTH-	203169 (100%)	Mineral	Claim	092I	2006/FEB/27	2025/DEC/31	GOOD	515.102
544901	COPPER B	203169 (100%)	Mineral	Claim	092I	2006/NOV/05	2022/DEC/31	PROTECTED	20.5935
544902	COPPER C	203169 (100%)	Mineral	Claim	092I	2006/NOV/05	2022/DEC/31	PROTECTED	20.5937
544903	COPPER D	203169 (100%)	Mineral	Claim	092I	2006/NOV/05	2022/DEC/31	PROTECTED	20.5939
563796	SHO	203169 (100%)	Mineral	Claim	092I	2007/JUL/29	2026/DEC/31	GOOD	989.927
566312	COPPER 8	203169 (100%)	Mineral	Claim	092I	2007/SEP/20	2023/DEC/31	PROTECTED	535.9551
568146	NEW COPPER 1	203169 (100%)	Mineral	Claim	092I	2007/OCT/17	2023/DEC/31	PROTECTED	473.7434
568149	NEW COPPER 4	203169 (100%)	Mineral	Claim	092I	2007/OCT/17	2023/DEC/31	PROTECTED	1030.4537
571030		203169 (100%)	Mineral	Claim	092I	2007/NOV/30	2025/DEC/31	GOOD	20.5893
571031		203169 (100%)	Mineral	Claim	092I	2007/NOV/30	2025/DEC/31	GOOD	82.3569
582066	HIGHLAND VALLE	203169 (100%)	Mineral	Claim	092I	2008/APR/20	2023/DEC/31	PROTECTED	433.2434
589580	COPPER IB	203169 (100%)	Mineral	Claim	092I	2008/AUG/06	2023/DEC/31	PROTECTED	412.7557
589581	COPPER IA	203169 (100%)	Mineral	Claim	092I	2008/AUG/06	2022/DEC/31	PROTECTED	392.042
589723	COPPER GA	203169 (100%)	Mineral	Claim	092I	2008/AUG/09	2022/DEC/31	PROTECTED	495.1829
589897	COPPER H B	203169 (100%)	Mineral	Claim	092I	2008/AUG/14	2022/DEC/31	PROTECTED	330.2502
589900	COPPER H C	203169 (100%)	Mineral	Claim	092I	2008/AUG/14	2023/DEC/31	PROTECTED	144.4705
590952	COPPER 7B	203169 (100%)	Mineral	Claim	092I	2008/SEP/07	2023/DEC/31	PROTECTED	515.6008
664864	WV-SW	203169 (100%)	Mineral	Claim	092I	2009/NOV/04	2022/DEC/31	PROTECTED	515.5698
929369	NW TRENCHES	203169 (100%)	Mineral	Claim	092I	2011/NOV/16	2023/DEC/31	PROTECTED	41.2901
930037	COPPER TOP	203169 (100%)	Mineral	Claim	092I	2011/NOV/21	2023/DEC/31	PROTECTED	227.0854
930050	COPPER TOP 1	203169 (100%)	Mineral	Claim	092I	2011/NOV/21	2023/DEC/31	PROTECTED	433.6851
945669	ABBOTT	203169 (100%)	Mineral	Claim	092I	2012/FEB/02	2023/DEC/31	PROTECTED	516.3493
945670	ABBOTT 1	203169 (100%)	Mineral	Claim	092I	2012/FEB/02	2023/DEC/31	PROTECTED	495.5674
945672	ABBOTT 2	203169 (100%)	Mineral	Claim	092I	2012/FEB/02	2022/DEC/31	PROTECTED	392.2786
950869	VIKING	203169 (100%)	Mineral	Claim	092I	2012/FEB/20	2022/DEC/31	PROTECTED	247.7437
950872	FIN	203169 (100%)	Mineral	Claim	092I	2012/FEB/20	2023/DEC/31	PROTECTED	557.3399
954808		203169 (100%)	Mineral	Claim	092I	2012/MAR/02	2023/DEC/31	GOOD	144.4165
954819	SHO SOUTH	203169 (100%)	Mineral	Claim	092I	2012/MAR/02	2023/DEC/31	GOOD	165.0437
1020414	WV SOUTH TRIM	203169 (100%)	Mineral	Claim	092I	2013/JUN/19	2020/DEC/31	PROTECTED	206.6539
1021006	RATERIA NE 3	203169 (100%)	Mineral	Claim	092I	2013/JUL/15	2025/DEC/31	GOOD	61.799
1043294	ABBY	203169 (100%)	Mineral	Claim	092I	2016/APR/06	2022/DEC/31	PROTECTED	454.1474
1051897	NICK	203169 (100%)	Mineral	Claim	092I	2017/MAY/10	2022/DEC/31	PROTECTED	206.5705

Tabe 1 Rateria and West Valley Mineral Tenures

Title Number	Claim Name	Owner	Title Type	Title Sub Type	Map Number	Issue Date	Good To Date	Status	Area (ha)
1051898	WV 1	203169 (100%)	Mineral	Claim	092I	2017/MAY/10	2023/DEC/31	PROTECTED	474.1882
1051899	WV 2	203169 (100%)	Mineral	Claim	092I	2017/MAY/10	2023/DEC/31	PROTECTED	721.8365
1051900	WV 3	203169 (100%)	Mineral	Claim	092I	2017/MAY/10	2022/DEC/31	PROTECTED	804.6095
1051901	WV 4	203169 (100%)	Mineral	Claim	092I	2017/MAY/10	2020/DEC/31	PROTECTED	41.282
1051902	TY 1	203169 (100%)	Mineral	Claim	092I	2017/MAY/10	2025/DEC/31	PROTECTED	1817.1063
1051903		203169 (100%)	Mineral	Claim	092I	2017/MAY/10	2023/DEC/31	PROTECTED	557.1906
1051904	TY 3	203169 (100%)	Mineral	Claim	092I	2017/MAY/10	2023/DEC/31	PROTECTED	660.2564
1051905	WV 5	203169 (100%)	Mineral	Claim	092I	2017/MAY/10	2024/DEC/31	GOOD	1297.9358
1051906	TY 4	203169 (100%)	Mineral	Claim	092I	2017/MAY/10	2024/DEC/31	GOOD	350.7159
1054152	SHO SE	203169 (100%)	Mineral	Claim	092I	2017/AUG/20	2025/DEC/31	GOOD	247.4837
1054153		203169 (100%)	Mineral	Claim	092I	2017/AUG/20	2025/DEC/31	GOOD	226.7135
1054154	HI-RES SOUTH	203169 (100%)	Mineral	Claim	092I	2017/AUG/20	2025/DEC/31	GOOD	82.4201
1054155	HI RES SOUTH 2	203169 (100%)	Mineral	Claim	092I	2017/AUG/20	2025/DEC/31	GOOD	41.2102
1054156		203169 (100%)	Mineral	Claim	092I	2017/AUG/20	2025/DEC/31	GOOD	82.4308
1054158		203169 (100%)	Mineral	Claim	092I	2017/AUG/20	2025/DEC/31	GOOD	41.2223
1054159	HI RES SOUTH 3	203169 (100%)	Mineral	Claim	092I	2017/AUG/20	2025/DEC/31	GOOD	123.6411
1054160	CHATAWAY 1	203169 (100%)	Mineral	Claim	092I	2017/AUG/20	2025/DEC/31	GOOD	700.8845
1058059	GYPSUM	203169 (100%)	Mineral	Claim	092I	2018/JAN/30	2023/DEC/31	PROTECTED	762.7442
1058855		203169 (100%)	Mineral	Claim	092I	2018/FEB/26	2023/DEC/31	PROTECTED	185.697
1058856		203169 (100%)	Mineral	Claim	092I	2018/FEB/26	2023/DEC/31	PROTECTED	144.4287
1058857	MOAG TECH N	203169 (100%)	Mineral	Claim	092I	2018/FEB/26	2023/DEC/31	PROTECTED	165.027
1058859		203169 (100%)	Mineral	Claim	092I	2018/FEB/26	2023/DEC/31	PROTECTED	20.6293
1060391	DAISY	203169 (100%)	Mineral	Claim	092I	2018/MAY/02	2022/DEC/31	PROTECTED	433.4545
1069823	FIR WEST	203169 (100%)	Mineral	Claim	092I	2019/JUL/23	2022/DEC/31	PROTECTED	371.3179
1069824	FIR WEST 2	203169 (100%)	Mineral	Claim	092I	2019/JUL/23	2022/DEC/31	PROTECTED	536.1184

Table 2 Rateria-West Valley Rock Samples and Geology, 2020

Property	Zone	Sampler	Date	Sample ID	Point #	UTM E	UTM N	RX code	Ag ppm	Cu ppm	Mo ppm	Zn ppm	Description
Rateria	Antler L	db	May 26		1	650859	5584123	BGd					Traverse from road under powerline all till up to this point. 200m N-S X 100m wide outcrop both sides of creek. Grey medium grained biotite granodiorite with well zoned plagioclase, shreddy fg biotite with weak magnetite. weak fracturing with K, zeol, ser-chl. Dominant fault at 320 degrees.
Rateria	billy lake- so	db	May 26		2	649418	5584503	BGd					outcrop 200m north-south, 100m wide, strong northerly trending gullys (faults). Grey medium grained biotite granodiorite (as #1) weak ser-k veinlets 1-2mm , trace bornite/malachite. Strong structure 350 degrees cut by a series of 090 fracture zones
Rateria	billy lake- so	db	May 26		3	649501	5584135						Old trench 25 m 090 degrees . BGd boulders with weak ser, FeOx fractures. Not outcrop
Rateria	billy lake- so	db	May 26	4879	4	648495	5584857	BGd	3.52	6090	1.73	60	billy Lake south old trench muck pile. Grab of mineralized boulders, cobbles. Moderately cloudy zoned plagioclase with sericite-muscovite. Mal-az-bornite filled fractures with chlorite-sericite-muscovite. Aplite dykes nearby.
Rateria	billy lake- so	db	May 26		5	648464	5584677	Old HQ DDH					billy Lake south trenches .Old HQ DDH casing and NQ rod stock inside. Az 270/-45 degrees
Rateria	billy lake- so	db	May 26	4880	6	648635	5584809	BGd	2.17	4090	2.32	51	Road cut on bank. BGd Chip of 0.10m wide K-Qtz-ser 1-2mm veins with bornite/mal, 2/m in 25 cm shear zone. Aplite dike nearby. Fractures 090/65 south and 360/90.
Rateria	Zone 2 NW	db	May 26	Terra Spec	7	646507	5584658	Skeena					Northwest corner of Zone 2. at road where creek crosses- reclaimed not passable. Orange Limonite, purple hematite/ spec hem, kaolinite.

Table 2 Rateria-West Valley Rock Samples and Geology, 2020

Property	Zone	Sampler	Date	Sample ID	Point #	UTM E	UTM N	RX code	Ag ppm	Cu ppm	Mo ppm	Zn ppm	Description
Rateria	Zone 2 NW	db	May 26	Terra Spec	8	646293	5584497	Skeena					old trench 40m cut. Muscovite-kaolinite, moderate strong orange-red limonite-hematite veinlets.
Rateria	Zone 2 NW	db	May 26	Terra Spec	9	646328	5584453	bethl					south of trench on sidehill. 30-50m outcrop in a bench. Mg BGd. Shreddy biotite-mag, ser-musc, cloudy plag.
Rateria	Zone 2 NW	db	May 26	Terra Spec	10	646508	5584561	Skeena					in road ditch. 50m exposure of orange-red , strong lim-hem musc-ser fracture filling
Rateria	Bo	db	May 26	Terra Spec	11	646517	5583864	Skeena					Bo showing trench. Moderate-strong Hem ser-musc-clay filled fractures. Most of 50m trench slumped. 5 m outcrop.
Rateria	Bo	db	May 26	Terra Spec	12	646500	5583830	Skeena					bo showing. Old trench. BGd. Strong kaol-hem veins.
Rateria	zone 1	db	June 5		13	645464	5582102	Skeena					outcrop , moderately fractured, pale green sericite and FeOx filling with trace malachite
Rateria	zone 1	db	June 5		14	645447	5581935	Skeena					Outcrop of Skeena phase cut by 0.5m pink aplite at 264/80S. Qtz rich margins, weak-moderate pale green sericite envelopes.
Rateria	south yubet	db	June 5		15	644588	5583060	Beths					outcrop of skeena/bethsaida weak fractured 350/90 , 4-5/m moderate pale green sericite+ chlorite filled
Rateria	south yubet	db	June 5		16	644435	5582800	Till					till boulders some have FeOx, Fractured with pale green sericite, qtz-ser, biotite-mag-spec hem
WV	PIM	db	June 5		17	636846	5583782	Beths					outcrop common, patchy areas of pale green ser, ep-chl, FeOx, Qtz mixing in matrix
WV	PIM	db	June 5	4881	18	636737	5583645	Skeena	0.34	462	1.9	38	outcrop under moss near ravine. Moderate pervasive brown-pale green sericite-chlorite, trace malachite

Table 2 Rateria-West Valley Rock Samples and Geology, 2020

Property	Zone	Sampler	Date	Sample ID	Point #	UTM E	UTM N	RX code	Ag ppm	Cu ppm	Mo ppm	Zn ppm	Description
WV	PIM	db	June 5	4882	19	636509	5584266	Beths	1.65	1590	2.47	36	subcrop dug out beside outcrop near road just south of previous showing. Pervasive brown -pale green sericite, chlorite, malachite.
WV	PIM	db	June 5	4883	20	636265	5584523	Beths	0.48	500	2.78	28	in road bank outcrop. 40 cm wide moderate to strong qtz-ser- mal vein and shear at 020/90.
WV	Frank	db	June 5		21	636791	5581820	BGd					at road cut. Rock is well fractured with pale green sericite, k-feldspar, ep,chl, locally aplite dike. Creek nearby contains strong k-feld, chl-ep
WV	Frank	db	June 5		22	636860	5582165	BGd					outcrop adjacent ravine. Zones of moderate pale green to brown sericite
Rateria	zone 2	db	June 5	4884	23	646573	5584672	Bethl	0.04	33.4	7.66	39	outcrop on north side of creek. Intensely fractured with sericite, kaolinite (?) orange limonite-hematite filling to 1cm thick. Chip over 5m
WV	Rick Sho	RH	May 29	R05	24	633379	5577413	BD	3.18	6450	13.9	93	Rock type 1. Dark colored, fine grained-medium grained biotite diorite. Cloudy plagioclase-sericite, fine grained shreddy biotite patches, moderately fractured filled with epidote, k-feld/albite?. 1% fine grained chalcopyrite + 1% pyrite replacing mafics and along fractures
WV	Rick Sho	RH	May 29	R06	25	633391	5577430	BD	0.49	3920	5.76	86	Rock type 1. Moderate sericite-epidote, bleached, pale cream color matrix, mafics highly corroded - replaced by 1-2% cp > py and in fractures.
WV	Rick Sho	RH	May 29	R07	26	633390	5577426	BD	0.36	328	6.53	73	Rock type 1. 5-10% pale green epidote. 2% very fg cp -py replacing mafics and in fractures.

Table 2 Rateria-West Valley Rock Samples and Geology, 2020

Property	Zone	Sampler	Date	Sample ID	Point #	UTM E	UTM N	RX code	Ag ppm	Cu ppm	Mo ppm	Zn ppm	Description
WV	Rick Sho	RH	May 29	R08	27	633388	5577421	BD	0.18	334	24	10	Rock type 1. white color rock. Pervasively bleached, sericite-kaolinite-clay. 3-5% limonite-goethite after pyrite disseminated and in fractures.
WV	Rick Sho	RH	May 29	R09	28	633384	5577417	BD	0.09	446	2.74	65	Rock type 1. dark colored, rusty fractured, pervasively qtz-bi ser alt'd, qtz veining with epidote. 5% py tr cp
WV	Rick Sho	RH	May 29	R10	29	633395	5577423	BD	0.19	4830	9.64	73	Calc sil, massive pale to dark green epidote, very fg red-brown garnet, qtz and calcite. Malachite-cp 0.5%.
WV	Rick Sho	RH	May 29	R11	30	633342	5577464	BD	0.14	89.9	1.4	68	Rocky type 1. 5% pyrite
WV	Rick Sho	RH	May 29	R12	31	633222	5577184	V	0.16	24.5	7.49	16	float. Massive, fine grained, pervasively bleached qtz-ser-py alt'd rock (volcanic/intrusive?), 2-4% fine grained pyrite disseminated and in fractures replaced by limonite.
Rateria	3 Creek	SL	May26		32	646819	5582466	Gu-Ch					Oc exposed in trench, Guichon-Chataway, Pervasive ser-qtz K-spar altd, med-cors grns mus, widespread mal in rock, more concentrated in fracs and qtz veins.
Rateria	3 Creek	SL	May26		33	646823	5582461	Gu-Ch					Oc exposed in trench wall, Guichon-Chataway, strg gougy (ser-clay), stained with mal and hem,tr bo, prob cc in fracts.
Rateria	3 Creek	SL	May26		34	646834	5582461	Gu-Ch					Oc, weally altd Chataway-Guichon, m.c. gr , bio-hb partly altd to chl, dark chl w/t carb in fracs. Qtz veins locally, minor fracs w/t mal stain.
Rateria	3 Creek	SL	May26		35	646796	5582497	Gu-Ch					Oc, Chataway-Guichon, gougy light green, mus -rich, stg ser altd, mal-minor bo, cab-qtz veins widespread.

Table 2 Rateria-West Valley Rock Samples and Geology, 2020													
Property	**Zone**	**Sampler**	**Date**	**Sample ID**	**Point #**	**UTM E**	**UTM N**	**RX code**	**Ag ppm**	**Cu ppm**	**Mo ppm**	**Zn ppm**	**Description**
Rateria	Sho-S	SL	May26		36	648792	5577396	Beth					Oc, Bethlehem m.c gr. Wk mod altd: ser chl, weakly epi. Strg k-spar-iron-oxide rusty, ser-chl± epi alteration in fracs. Mal-tr azo-bo fracture control mineralization, selvage coated with K-spar alteration.
Rateria	Sho-S	SL	May26		37	648896	5577311	Beth					Oc Samples, Bethlehem (± Guichon), collected from fault, broken, gougy ser-clay rich zone 290°/-75° , Along up to 1 cm wide fractures, mal copper dissemination present w/t crystals of bo and tr cpy. Iron oxide with epi in selvage of fracs
Rateria	Sho-S	SL	May26		38	648895	5577317	Gu					Sample from blocky, broken Oc. Probably Guichon. Strg K-spar-iron-oxide rusty, ser-chl± epi alteration in fractures and veinlets, rare qtz vein +tourmaline. Preserve diss mal with minor az and tr cpy in groundmass
Rateria	Sho-S	SL	May26		39	648902	5577293	Gu-Beth					Sample from Oc in existing trench 3m long 2m wide, 2 m deep, 290° strike, Guichon (± Bethlehem), strongly ser-clay gouchy area. Light green, with tarnished of iron oxide. Mal diss and fractures filling. Mus and tourmaline and rare qtz veins observed.
Rateria	Sho-N	SL	May26		40	648498	5578397	Beth					Sample from Sho main mineralized, Bethlehem w/ mal, cc and bo in ser shear zone area host within wk-mod K and clay altered rock. Mal-bn, cpy fractures include K-ep-chl and tourmaline and rare qtz veinlets.

Table 2 Rateria-West Valley Rock Samples and Geology, 2020

Property	Zone	Sampler	Date	Sample ID	Point #	UTM E	UTM N	RX code	Ag ppm	Cu ppm	Mo ppm	Zn ppm	Description
Rateria	Sho-N	SL	May26		41	648472	5578362	Ch					Oc sample Granodiorite ("Chataway Variety"), Bethlehem?, strongly with mal staining & trace tarnished bo; Rare qtz veinlets; very weak chorite altered mafics , epi in fractures. Tr py may present.
Rateria	Sho-N	SL	May26		42	648510	5578326	Gu					Oc sample, same as previous samples probably Guichon. Mal is dominated copper minerals, diss and fracture filling with minor bo and cpy. Hem and lim stains in broken parts and fractures. Epi+ser veins and fractures are common, in overall oc trend to S115/90.
Rateria	Sho-N	SL	May26		43	648491	5578359	Gu					Light green, fine grained strongly ser altd gd, f.gr bio, partly altered to chl and epi. Dark veinlets of chl and epi with iron oxide in selvage and probably silicified helos. Mal diss in fractures and widespread stains in groundmass. Some specks of bo and minor cpy in rock, mostly in dark green chl-epi domains. Cu estimated up to 5% of rock.
Rateria	SAS	SL	May 30		44	646617	5583131	Beth					Oc Beth, beside the road, 50 m W side of drill site, Skeena, weakly altd, k-spar veins 160/80, bio>hb, some tiny qtz veins, irreg trends. Mal and few bo specks in qtz vein.
Rateria	Chataway	SL	May 30		45	648125	5581429	Gu					Flot, Guich, mod altd, fracturs filled with dark chl-epi. Cab veins common, rare k-spar veins, rusty contacts. Few thin aplite dk.

Table 2 Rateria-West Valley Rock Samples and Geology, 2020

Property	Zone	Sampler	Date	Sample ID	Point #	UTM E	UTM N	RX code	Ag ppm	Cu ppm	Mo ppm	Zn ppm	Description
Rateria	Pamainus R	SL	May 28-29		46	645204	5582648	Cu boulders					About 1km long, from km 24.8km to km 25.8 of Pamainus road; in both sides of the road, hundreds of broken, scattered pieces of strongly copper mineralized boulder and floats were observed. The rocks are mainly strongly silicified c.g. fesic Gd and qtz mass (vein). Associated locally w/t crs gr aplite dike, epi frc, precesive ser altn and tourmaline-k-spar on frac. Strong copper mineralization contains f.g. to c.g. mal, bn, cp, py in both Gd and qtz mass farctures . In general rock texture, alteration and mineralization fabrics are similar to Yubet, Yubet South and Mass4 rocks. Prospecting traverses were done in that area (mostly toward Yubet Showing) to figure-out transport trend and probably source of rocks.
WV	PIM	SL	May 27		47	637236	5584880	Beth					Oc, Beth mod altrd, w/t K-spar,ser, chl and carb veins, epi veins and hem stains locally.
WV	PIM	SL	May 27		48	636849	5584601	Beth					Oc, Beth mod altrd, w/t K-spar,ser, chl and epi and carb veins, tr mal may present

Table 3 West Valley Stream Sediment Samples, 2020

sample	Elevation	UTM-E	UTM-N	Date	Ag (ppm)	Cu (ppm)	Mo (ppm)	Zn (ppm)
R20SL01	1074	633195	5577126	2020-05-22	0.06	109.5	1.28	76
R20SL02	1091	633162	5577163	2020-05-22	0.04	91.9	1.37	74
R20SL03	1134	633343	5577287	2020-05-22	0.02	25.3	0.99	5
R20SL04	1137	633392	5577330	2020-05-22	0.08	91.5	1.53	86

Table 4 West Valley, PIM area Soil Samples 2020							
sample	Elevation	UTM easting	UTM Northing	Ag (ppm)	Cu (ppm)	Mo (ppm)	Zn (ppm)
BM001	1668	637407	5582904	0.15	58.8	0.92	81
BM002	1667	637350	5582898	0.17	25.8	1.4	77
BM003	1676	637295	5582900	0.25	19.8	1.61	174
BM004	1680	637251	5582899	0.13	20	1.51	108
BM005	1685	637205	5582899	0.22	33.3	1.67	139
BM0051	1694	637153	5582901	0.25	184	0.99	64
BM007	1710	637102	5582898	0.09	188	1.47	60
BM008	1729	637048	5582897	0.2	29	1.38	130
BM009	1731	636996	5582904	0.25	69.1	1.47	82
BM010	1723	636952	5582899	0.61	360	1.69	83
BM011	1717	636902	5582898	0.12	49.4	1.03	52
BM012	1707	636850	5582904	0.19	85.1	1.34	61
BM013	1728	636800	5582899	0.06	52.4	1.16	64
BM014	1745	636749	5582902	0.14	71.5	1.33	65
BM015	1759	636696	5582897	0.05	36.8	1.33	63
BM016	1762	636656	5582900	0.06	18.8	2.46	70
BM017	1737	636600	5582900	0.17	49.3	1.31	89
BM018	1764	636549	5582899	0.06	46.6	1.38	55
BM019	1770	636503	5582897	0.09	61.8	1.62	76
BM020	1781	636451	5582902	0.11	49.5	2.19	88
BM021	1781	636401	5582899	0.06	67.7	1.51	69
BM022	1776	636350	5582900	0.08	60.9	2.12	76
BM023	1770	636303	5582902	0.08	205	2	70
BM024	1756	636259	5582899	0.12	164	1.6	95
BM025	1770	636202	5582900	0.07	38.6	1.38	67
BM026	1757	636153	5582901	0.06	145.5	1.34	75
BM027	1741	636100	5582901	0.13	52.8	0.96	70
BM028	1722	636055	5582902	0.15	35.7	0.87	85
BM029	1704	635991	5582899	0.14	45.6	1.52	74
BM030	1706	636000	5583099	0.1	47.5	1.3	58
BM031	1711	636047	5583100	0.07	43.7	1.87	57
BM032	1718	636102	5583098	0.17	54.7	1.31	62
BM033	1725	636159	5583101	0.08	72.3	1.11	63
BM034	1737	636200	5583100	0.09	66.5	1.07	50
BM035	1754	636250	5583098	0.06	47.5	1.17	49
BM036	1772	636298	5583097	0.07	159	1.44	60
BM037	1793	636347	5583101	0.12	57.8	1.34	82
BM038	1801	636400	5583100	0.09	58.9	1.42	64
BM039	1704	637003	5583897	0.25	64.4	3.31	97
BM040	1695	636952	5583893	0.09	27.2	1.9	64
BM041	1700	636892	5583873	0.05	45.7	0.98	53
BM042	1700	636853	5583895	0.14	41.7	1.54	65

Table 4 West Valley, PIM area Soil Samples 2020							
sample	Elevation	UTM easting	UTM Northing	Ag (ppm)	Cu (ppm)	Mo (ppm)	Zn (ppm)
BM043	1710	636791	5583895	0.11	59.7	2.09	92
BM044	1718	636750	5583893	0.16	78	1.66	96
BM045	1724	636694	5583889	0.14	104	1.45	68
BM046	1736	636653	5583893	0.07	44.2	1.69	60
BM047	1740	636598	5583896	0.14	43	1.31	69
BM048	1750	636550	5583899	0.4	984	1.12	63
BM049	1765	636505	5583900	0.46	372	1.47	69
BM050	1778	636448	5583900	0.04	55.6	1.34	61
BM051	1787	636401	5583894	0.09	38.8	1.32	70
BM052	1786	636355	5583896	0.07	55.7	1.51	64
BM053	1786	636304	5583892	0.04	51.7	1.99	55
BM054	1764	636253	5583895	0.08	44.7	1.17	61
BM055.	1682	636211	5583902	0.06	36.6	1.16	80
BM056	1741	636151	5583903	0.17	38.1	1.15	60
BM057	1728	636103	5583895	0.17	49.9	1.02	54
BM058	1722	636035	5583891	0.21	77.4	1.7	99
BM059	1724	636002	5583888	0.08	83.8	1.79	71
BM060	1722	636003	5584088	0.51	67.2	1.67	137
BM061	1733	636053	5584094	0.06	56	1.39	54
BM062	1745	636103	5584097	0.13	80.6	1.69	78
BM063	1762	636152	5584096	0.05	42.4	1.45	59
BM064	1766	636201	5584098	0.05	49.2	1.39	61
BM065	1758	636254	5584096	0.1	66.3	1.44	75
BM066	1683	636299	5584101	0.1	38.5	1.58	70
BM067	1739	636349	5584098	0.22	48.7	1.6	66
BM068	1733	636401	5584089	0.3	113	1.38	85
BM069	1729	636449	5584090	0.22	105	1.83	72
BM070	1719	636500	5584084	0.3	83.5	1.29	70
BM071	1707	636550	5584081	0.2	110	1.36	59
BM072	1699	636599	5584086	0.11	136	3.31	59
BM073	1686	636648	5584094	0.13	54.1	1.69	59
BM074	1682	636690	5584092	0.22	48.5	1.96	67
BM075	1675	636756	5584098	0.2	129	1.37	66
BM076	1675	636796	5584095	0.09	76.7	1.51	58
BM077	1673	636854	5584096	0.15	41.6	1.62	71
BM078	1678	636901	5584102	0.06	102	2.09	74
BM079	1671	636948	5584097	0.43	36.9	2.59	98
BM080	1666	636998	5584101	0.35	53.4	2.1	74
BM081	1667	637401	5583098	0.17	36.5	1.53	75
BM082	1675	637352	5583100	0.07	44.6	1.42	62
BM083	1690	637289	5583100	0.11	45.9	1.87	85
BM084	1688	637251	5583103	0.08	35	1.43	75

Table 4 West Valley, PIM area Soil Samples 2020							
sample	Elevation	UTM easting	UTM Northing	Ag (ppm)	Cu (ppm)	Mo (ppm)	Zn (ppm)
BM085	1683	637201	5583098	0.2	27.9	1.51	67
BM086.	1661	637154	5583098	0.23	32	1.62	166
BM087	1726	637104	5583097	0.07	52.8	1.66	93
BM088	1721	637052	5583101	0.1	37.9	1.81	82
BM089	1725	637002	5583099	0.16	129	1.28	69
BM090	1731	636953	5583099	0.28	68.4	1.42	95
BM091	1723	636902	5583105	0.23	72.4	1.57	57
BM092	1729	636851	5583103	0.31	47.8	2.19	87
BM093	1755	636789	5583102	0.12	36.5	1.87	95
BM094	1765	636750	5583103	0.16	94.9	1.46	64
BM095	1780	636698	5583099	0.07	38.6	1.29	75
BM096	1790	636653	5583097	0.06	57.9	1.44	73
BM097	1806	636601	5583099	0.1	56.2	1.34	73
BM098	1801	636551	5583097	0.05	66.6	1.92	64
BM099	1801	636504	5583103	0.1	54.9	3.17	73
BM100	1806	636451	5583098	0.11	75.5	1.26	69
BM101	1808	636403	5583301	0.05	64.1	2.07	76
BM102	1794	636353	5583301	0.14	116.5	1.67	81
BM103	1783	636305	5583301	0.04	154	2.02	68
BM104	1773	636250	5583304	0.3	52.1	1.78	122
BM105	1766	636201	5583302	0.06	67.8	1	59
BM106	1742	636153	5583300	0.05	70.2	1.23	56
BM107	1736	636102	5583303	0.28	56.3	1.43	99
BM108	1724	636049	5583301	0.08	123	1.62	84
BM109	1713	636002	5583298	0.03	125	0.94	56
BM110	1808	636460	5583305	0.07	74.8	1.56	70
BM111	1817	636500	5583297	0.09	55.4	1.49	72
BM112	1823	636553	5583302	0.07	71.6	2.01	70
BM113	1824	636599	5583301	0.03	51	1.39	50
BM114	1820	636647	5583300	0.05	57.5	1.82	55
BM115	1802	636713	5583298	0.12	54.9	1.62	85
BM116	1779	636746	5583302	0.12	56.4	2.18	86
BM117	1773	636797	5583298	0.06	31.4	1.28	62
BM118	1752	636856	5583305	0.19	233	1.47	102
BM119	1739	636899	5583301	0.44	389	2.28	56
BM120	1750	636949	5583303	0.06	51.2	1.43	59
BM121	1748	637001	5583301	0.07	33.9	1.89	88
RH001	1579	637001	5584699	0.22	162	2.2	74
RH002	1586	636949	5584700	0.16	70.5	1.33	113
RH003	1585	636898	5584701	0.08	59.8	1.45	49
RH004	1594	636848	5584701	0.07	44.6	1.58	36
RH005	1597	636800	5584695	0.25	33.7	2.13	75

Table 4 West Valley, PIM area Soil Samples 2020

sample	Elevation	UTM easting	UTM Northing	Ag (ppm)	Cu (ppm)	Mo (ppm)	Zn (ppm)
RH006	1596	636754	5584695	0.15	41.1	1.99	80
RH007	1584	636702	5584695	0.25	70.8	2.75	195
RH008	1581	636649	5584690	0.11	19.8	2.32	157
RH009	1580	636609	5584691	0.14	30.2	1.88	55
RH010	1585	636552	5584689	0.43	38.1	5.5	111
RH011	1586	636504	5584674	0.27	66.7	1.3	66
RH012	1591	636448	5584677	0.58	40.8	2.94	117
RH013	1595	636400	5584649	0.41	32	2.78	129
RH014	1591	636345	5584676	0.4	61.9	4.1	140
RH015	1591	636307	5584679	0.08	40.3	0.8	41
RH016	1589	636247	5584692	0.18	110	0.99	61
RH017	1594	636206	5584681	0.2	64.5	1.02	116
RH018	1600	636149	5584676	0.55	71.3	3.41	111
RH019	1602	636107	5584677	0.45	168	2.3	86
RH020	1603	636049	5584684	0.3	38.6	6.05	109
RH021	1601	636002	5584689	0.39	37	6.96	103
RH022	1631	636001	5584500	0.08	33.3	1.04	40
RH023	1634	636055	5584502	0.29	74.2	1.28	75
RH024	1641	636097	5584501	0.28	78.8	1.36	80
RH025	1640	636145	5584502	0.14	54.6	0.84	50
RH026	1640	636205	5584501	0.23	106.5	1.26	55
RH027	1638	636248	5584498	0.17	86.4	1.09	49
RH028	1635	636289	5584495	0.28	111.5	0.81	52
RH029	1631	636351	5584487	0.17	313	1.02	49
RH030	1630	636404	5584484	0.21	177	1	54
RH031	1625	636448	5584491	0.39	55	1.62	75
RH032	1624	636495	5584492	0.21	73	1.58	71
RH033	1624	636548	5584494	0.21	403	0.94	48
RH034	1623	636601	5584494	0.28	127.5	1.95	87
RH035	1624	636648	5584462	0.06	38.9	0.77	37
RH036	1621	636708	5584493	0.22	30.7	2.18	177
RH037	1621	636748	5584493	0.38	52.5	3.3	104
RH038	1620	636799	5584492	0.05	35.6	1.09	35
RH039	1619	636854	5584497	0.23	159	2.03	107
RH040	1620	636901	5584496	0.26	28.6	5.42	94
RH041	1617	636955	5584497	0.09	34.6	1.4	40
RH042	1619	637003	5584497	0.14	28.1	2.46	59
RH043	1634	636997	5584290	0.2	33.1	2	63
RH044	1640	636951	5584292	0.18	51.1	2.36	117
RH045	1644	636901	5584291	0.06	28.4	1.64	54
RH046	1649	636845	5584292	0.18	36.9	5.91	117
RH047	1651	636807	5584294	0.14	82.3	1.66	57

Table 4 West Valley, PIM area Soil Samples 2020							
sample	**Elevation**	**UTM easting**	**UTM Northing**	**Ag (ppm)**	**Cu (ppm)**	**Mo (ppm)**	**Zn (ppm)**
RH048	1654	636747	5584288	0.31	213	1.88	105
RH049	1657	636700	5584293	0.18	23.4	2.21	75
RH050	1660	636647	5584303	0.21	100	1.02	73
RH051	1661	636600	5584293	0.19	95.1	0.97	65
RH052	1665	636548	5584294	0.04	65.3	0.92	42
RH053	1674	636484	5584298	0.28	35.3	1.23	67
RH054	1678	636448	5584304	0.2	69.2	1.42	67
RH055	1684	636397	5584309	0.27	490	0.88	66
RH056	1689	636347	5584305	0.22	448	1.13	74
RH057	1696	636303	5584308	0.14	59.2	0.87	62
RH058	1698	636249	5584306	0.22	48	1.19	64
RH059	1700	636197	5584303	0.12	57.7	0.92	58
RH060	1701	636148	5584294	0.1	47.2	1.02	56
RH061	1698	636104	5584294	0.04	40.4	1.05	46
RH062	1688	636050	5584292	0.19	90	1.75	94
RH063	1681	636010	5584294	0.08	43.6	0.89	54
RH064	1712	636998	5583691	0.1	45.3	1.78	73
RH065	1714	636948	5583696	0.11	27.9	1.36	80
RH066	1727	636907	5583702	0.11	12.4	1.43	88
RH067	1739	636845	5583687	0.09	66.1	1.63	96
RH068	1749	636805	5583684	0.06	63.9	1.5	55
RH069	1753	636752	5583690	0.1	47.1	1.71	54
RH070	1766	636696	5583694	0.13	71.9	1.14	56
RH071	1701	636998	5583495	0.04	22.2	1.05	75
RH072	1712	636946	5583498	0.16	37.2	1.96	101
RH073	1726	636897	5583496	0.21	41.7	1.47	103
RH074	1746	636857	5583502	0.05	38.2	1.28	65
RH075	1751	636799	5583501	0.08	157.5	1.11	63
RH076	1764	636752	5583502	0.06	116.5	1.35	83
RH077	1780	636704	5583496	0.07	145.5	1.24	71
RH078	1796	636654	5583495	0.07	19	1.75	59
RH079	1801	636608	5583494	0.11	25.1	1.29	73
RH080	1837	636546	5583494	0.09	60.1	1.47	75
RH081	1834	636504	5583498	0.04	74.4	1.42	68
RH082	1824	636459	5583493	0.06	87.4	1.83	62
RH083	1800	636414	5583497	0.09	79	1.49	61
RH084	1792	636353	5583501	0.06	53.4	1.62	57
RH085	1781	636305	5583501	0.03	84.9	1.32	60
RH086	1762	636254	5583501	0.08	77.2	2.01	61
RH087	1751	636206	5583507	0.05	63.1	1.29	56
RH088	1726	636154	5583509	0.11	66.2	1.67	58
RH089	1717	636102	5583496	0.18	79.5	1.58	59

Table 4 West Valley, PIM area Soil Samples 2020							
sample	Elevation	UTM easting	UTM Northing	Ag (ppm)	Cu (ppm)	Mo (ppm)	Zn (ppm)
RH090	1707	636055	5583492	0.25	57.3	1.65	74
RH091	1701	636002	5583479	0.12	48.1	1.52	64
RH092	1697	636026	5583688	0.05	46.1	1.35	59
RH093	1707	636051	5583695	0.1	25	2.11	66
RH094	1711	636101	5583696	0.15	56.1	1.34	75
RH095	1715	636150	5583703	0.16	50.7	1.13	61
RH096	1723	636204	5583713	0.08	127	1.86	68
RH097	1758	636250	5583696	0.02	88.4	1.39	53
RH098	1776	636295	5583675	0.11	114	1.58	66
RH099	1808	636339	5583714	0.05	54	1.89	68
RH100	1830	636400	5583699	0.06	54.3	1.73	72
RH101	1842	636455	5583698	0.12	30.5	2.24	74
RH102	1822	636492	5583701	0.08	61.2	2.01	99
RH103	1793	636541	5583698	0.1	47.9	1.7	76
RH104	1768	636597	5583701	0.69	194	1.49	73
RH105	1770	636654	5583691	0.09	181	1.5	69

Table 5

2020 DDH Survey Data

Hole	E	N	AZ	DIP	ELE	DEPTH m	START	END
WV20-01	636760	5583775	270	-75	1710	336	Nov-01	Nov-10
WV20-02	636510	5584275	315	-60	1675	469.5	Nov-11	Nov-20
						805.5		
R20-01	645675	5582250	85	-55	1551	696	Nov-22	Dec-04
R20-02	647270	5583910	90	-57	1517	557	Nov-05	Dec-13
						1253		
					Total m	**2058.5**		

Down hole Surveys

Hole	Az	Az *(corrected)	dip	depth	mag	temp
WV20-01	270	270	-75	0		
WV20-01	261.5	277.05	-74.5	200	53639	2
WV20-01	265.9	281.45	-74.6	336	53734	5
WV20-02	315	315	-60	0		
WV20-02	303.1	318.65	-60.8	22	53043	3
WV20-02	305	320.55	-60	100	52754	1
WV20-02	313.6	329.15	-60	301.5	52854	6
WV20-02	320.8	336.35	-58.5	469.5	53295	7
R20-01	85	85	-55	0		
R20-01	71.6	87.15	-55.1	14	54793	-3
R20-01	77.4	92.95	-55.1	200	53972	8.9
R20-01	82.7	98.25	-54.2	300	54026	
R20-01	88.4	103.95	-51.8	599	54207	12
R20-01	88.3	103.85	-51.6	689	55207	11
R20-02	90	90	-57	0		
R20-02	82.4	97.95	-58.2	200	54449	5
R20-02	88.9	104.45	-57.9	401	54076	6
R20-02	93.9	109.45	-57.7	557	54769	5

* +15.55

Table 6 Rateria and West Valley Propoerties Diamond Drill Holes Assay, 2020										
DDH	Sample-ID	From	To	Cu%	Mo%	Ag ppm	Au ppm	Re ppm	Cu ppm	Mo ppm
R20-01	52001	4.5	8	0.01	0.00	0.1		<0.002	124.5	1.23
R20-01	52002	8	10.5	0.00	0.00	0.02		0.002	24.6	0.9
R20-01	52003	10.5	14	0.02	0.00	0.15		<0.002	184.5	0.69
R20-01	52004	14	16.5	0.02	0.00	0.18		<0.002	185	4.61
R20-01	52005	16.5	18.5	0.01	0.00	0.05		<0.002	53.2	1.67
R20-01	52006	18.5	21	0.01	0.00	0.08		<0.002	53.5	12.65
R20-01	52007	21	23.5	0.00	0.00	0.05		0.004	38.1	9.4
R20-01	52008	23.5	26	0.00	0.00	0.03		<0.002	22.6	1.28
R20-01	52009	26	28.5	0.01	0.00	0.1		0.005	98.8	32.2
R20-01	52010	28.5	31	0.00	0.00	0.02		0.002	12.5	2.31
R20-01	52011	31	33.5	0.01	0.00	0.05		0.002	57.4	0.76
R20-01	52012	33.5	36	0.01	0.00	0.06		0.002	56.4	1.38
R20-01	52013	36	38.5	0.01	0.00	0.07		0.004	70	1.28
R20-01	52014	38.5	41	0.00	0.00	0.02		<0.002	15.1	0.85
R20-01	52015	41	43.5	0.00	0.00	0.02		<0.002	10.2	0.89
R20-01	52016	43.5	46	0.03	0.00	0.31		0.003	309	1.66
R20-01	52017	46	48.5	0.00	0.00	0.04		<0.002	29.5	3.98
R20-01	52018	48.5	51	0.00	0.00	0.01		0.003	9.9	0.94
R20-01	52019	STD	WCM Cu122	0.75	0.08	72.3		0.072	7500	753
R20-01	52020	51	53.5	0.00	0.00	0.1		<0.002	35.4	2.05
R20-01	52021	53.5	56	0.00	0.00	0.04		0.003	30.6	0.97
R20-01	52022	56	58.5	0.00	0.00	0.02		<0.002	6.9	1.24
R20-01	52023	58.5	61	0.00	0.00	0.01		<0.002	4.4	0.96
R20-01	52024	61	63.5	0.00	0.00	0.02		<0.002	24.8	1.15
R20-01	52025	63.5	66	0.03	0.00	0.25		<0.002	292	1.12
R20-01	52026	66	68.5	0.01	0.00	0.06		<0.002	51.8	1.23
R20-01	52027	68.5	71	0.00	0.00	0.01		<0.002	3.4	1.16
R20-01	52028	71	73.5	0.01	0.00	0.05		<0.002	55.2	1
R20-01	52029	73.5	76	0.00	0.00	0.01		0.002	6.2	1.07
R20-01	52030	Dup		0.00	0.00	<0.01		<0.002	4.4	1.03
R20-01	52031	76	78.5	0.00	0.00	0.02		<0.002	4.7	1.29
R20-01	52032	78.5	81	0.00	0.00	0.04		0.004	37.1	15.05
R20-01	52033	81	83.5	0.00	0.00	0.03		0.003	29.1	1.55
R20-01	52034	83.5	86	0.00	0.00	0.02		<0.002	16.5	1.01
R20-01	52035	86	88.5	0.00	0.00	0.01		<0.002	9.2	0.87
R20-01	52036	88.5	91	0.00	0.00	0.01		0.002	5.9	0.85
R20-01	52037	91	93.5	0.00	0.00	0.01		0.004	14.2	1.18
R20-01	52038	93.5	96	0.00	0.00	0.02		<0.002	20.3	1.63
R20-01	52039	96	98.5	0.00	0.00	0.02		0.002	14.4	1.38
R20-01	52040	Blank		0.00	0.00	<0.01		<0.002	0.8	0.13
R20-01	52041	98.5	101	0.12	0.00	1.09		<0.002	1170	1.15
R20-01	52042	101	103.5	0.06	0.00	0.54		0.003	562	0.9
R20-01	52043	103.5	106	0.00	0.00	0.02		<0.002	7.7	1.35
R20-01	52044	106	108.5	0.00	0.00	0.02		<0.002	7	0.87
R20-01	52045	108.5	111	0.00	0.00	0.02		<0.002	6	1.03

Table 6 Rateria and West Valley Propoerties Diamond Drill Holes Assay, 2020										
DDH	Sample-ID	From	To	Cu%	Mo%	Ag ppm	Au ppm	Re ppm	Cu ppm	Mo ppm
R20-01	52046	111	113.5	0.00	0.00	0.01		<0.002	11.3	2.28
R20-01	52047	113.5	116	0.00	0.00	0.02		<0.002	16.1	0.84
R20-01	52048	116	118.5	0.00	0.00	0.01		<0.002	12.8	0.91
R20-01	52049	118.5	121	0.00	0.00	0.02		<0.002	4.5	1.21
R20-01	52050	STD	WCM Cu122	0.75	0.07	71.3		0.067	7500	738
R20-01	52051	121	123.5	0.01	0.00	0.11		<0.002	72.8	1.54
R20-01	52052	123.5	126	0.01	0.00	0.14		<0.002	132	1.12
R20-01	52053	126	128.5	0.01	0.00	0.06		0.002	53	1.13
R20-01	52054	128.5	131	0.00	0.00	0.02		<0.002	8.3	0.98
R20-01	52055	131	133.5	0.00	0.00	0.04		<0.002	11.1	1
R20-01	52056	133.5	136	0.00	0.00	0.02		<0.002	12.5	0.95
R20-01	52057	136	138.5	0.00	0.00	0.03		<0.002	19.9	0.75
R20-01	52058	138.5	141	0.01	0.00	0.09		<0.002	105	1.14
R20-01	52059	141	143.5	0.02	0.00	0.22		0.002	248	1.13
R20-01	52060	Dup		0.02	0.00	0.11		<0.002	160	1.11
R20-01	52061	143.5	146	0.03	0.00	0.24		<0.002	300	0.99
R20-01	52062	146	148.5	0.00	0.00	0.03		<0.002	46.7	0.82
R20-01	52063	148.5	151	0.00	0.00	0.02		<0.002	8.9	0.8
R20-01	52064	151	153.5	0.02	0.00	0.19		<0.002	220	0.77
R20-01	52065	153.5	156	0.01	0.00	0.08		<0.002	78.6	0.76
R20-01	52066	156	158.5	0.03	0.00	0.31		<0.002	346	0.88
R20-01	52067	158.5	161	0.00	0.00	0.02		<0.002	16.9	0.72
R20-01	52068	161	163.5	0.00	0.00	0.02		<0.002	13.7	0.78
R20-01	52069	163.5	166	0.00	0.00	0.02		<0.002	22.6	0.9
R20-01	52070	Blank		0.00	0.00	0.01		<0.002	1.6	0.13
R20-01	52071	166	168.5	0.02	0.00	0.18		<0.002	220	1.03
R20-01	52072	168.5	171	0.02	0.00	0.14		<0.002	155.5	0.84
R20-01	52073	171	173.5	0.01	0.00	0.06		<0.002	72.1	0.94
R20-01	52074	173.5	176	0.00	0.00	0.02		<0.002	16.8	0.88
R20-01	52075	176	178.5	0.00	0.00	0.02		<0.002	16.7	0.9
R20-01	52076	178.5	181	0.00	0.00	0.03		<0.002	31.3	0.97
R20-01	52077	181	183.5	0.00	0.00	0.02		<0.002	15.8	0.66
R20-01	52078	183.5	186	0.00	0.00	0.02		<0.002	5.2	0.86
R20-01	52079	186	188.5	0.00	0.00	0.02		<0.002	3.5	0.81
R20-01	52080	STD	WCM Cu122	0.78	0.07	75.1		0.072	7790	740
R20-01	52081	188.5	191	0.00	0.00	0.04		<0.002	4.2	1.29
R20-01	52082	191	193.5	0.00	0.00	0.04		<0.002	19.3	0.95
R20-01	52083	193.5	196	0.01	0.00	0.05		<0.002	50.8	0.85
R20-01	52084	196	198.5	0.01	0.00	0.12		<0.002	116	0.9
R20-01	52085	198.5	201	0.04	0.00	0.29		<0.002	376	0.7
R20-01	52086	201	203.5	0.00	0.00	0.01		<0.002	6	0.78
R20-01	52087	203.5	206	0.00	0.00	0.02		<0.002	6	0.84
R20-01	52088	206	208.5	0.00	0.00	0.03		<0.002	19.1	0.87
R20-01	52089	208.5	211	0.00	0.00	0.04		<0.002	28.8	1
R20-01	52090	Dup		0.00	0.00	0.05		<0.002	31.1	1.02

Table 6 Rateria and West Valley Propoerties Diamond Drill Holes Assay, 2020										
DDH	**Sample-ID**	**From**	**To**	**Cu%**	**Mo%**	**Ag ppm**	**Au ppm**	**Re ppm**	**Cu ppm**	**Mo ppm**
R20-01	52091	211	213.5	0.03	0.00	0.26		<0.002	307	0.86
R20-01	52092	213.5	216	0.02	0.00	0.14		<0.002	160.5	0.65
R20-01	52093	216	218.5	0.00	0.00	0.03		<0.002	28	0.73
R20-01	52094	218.5	221	0.00	0.00	0.02		<0.002	7.8	1
R20-01	52095	221	223.5	0.00	0.00	0.02		<0.002	11.8	0.72
R20-01	52096	223.5	226	0.01	0.00	0.04		<0.002	57.4	0.71
R20-01	52097	226	228.5	0.00	0.00	0.01		<0.002	6.9	0.72
R20-01	52098	228.5	231	0.00	0.00	0.03		<0.002	18.9	0.9
R20-01	52099	231	233.5	0.00	0.00	0.04		<0.002	45.9	0.67
R20-01	52100	Blank		0.00	0.00	0.01		<0.002	1.5	0.07
R20-01	52101	233.5	236	0.00	0.00	0.02		<0.002	8	0.8
R20-01	52102	236	238.5	0.00	0.00	0.02		<0.002	11.3	0.66
R20-01	52103	238.5	241	0.00	0.00	0.02		<0.002	16.1	0.65
R20-01	52104	241	243.5	0.00	0.00	0.02		<0.002	8.2	0.79
R20-01	52105	243.5	246	0.00	0.00	0.04		<0.002	31.2	0.55
R20-01	52106	246	248.5	0.00	0.00	0.02		<0.002	12.7	0.8
R20-01	52107	248.5	251	0.00	0.00	0.04		<0.002	33.4	0.76
R20-01	52108	251	253.5	0.05	0.00	0.3		0.028	475	13.35
R20-01	52109	253.5	256	0.02	0.00	0.16		<0.002	231	0.8
R20-01	52110	Blank		0.00	0.00	0.02		<0.002	1.5	0.05
R20-01	52111	256	258.5	0.00	0.00	0.04		<0.002	31.2	0.93
R20-01	52112	258.5	261	0.00	0.00	0.04		<0.002	40.3	0.8
R20-01	52113	261	263.5	0.05	0.00	0.37		<0.002	471	1.22
R20-01	52114	263.5	266	0.03	0.00	0.21		<0.002	333	1.38
R20-01	52115	266	268.5	0.01	0.00	0.04		<0.002	50	1.06
R20-01	52116	268.5	271	0.02	0.00	0.13		<0.002	199.5	4.47
R20-01	52117	271	273.5	0.03	0.00	0.26		<0.002	331	1.09
R20-01	52118	273.5	276	0.00	0.00	0.03		<0.002	24.4	1.64
R20-01	52119	276	278.5	0.00	0.00	0.02		<0.002	19.1	0.63
R20-01	52120	STD	WCM Cu122	0.747	0.08	78.3		0.075	7850	790
R20-01	52121	278.5	281	0.01	0.00	0.09		<0.002	52.5	1.2
R20-01	52122	281	283.5	0.01	0.00	0.05		<0.002	56.2	0.92
R20-01	52123	283.5	286	0.02	0.00	0.14		<0.002	231	0.9
R20-01	52124	286	288.5	0.03	0.00	0.18		<0.002	283	0.87
R20-01	52125	288.5	291	0.048	0.00	0.35		0.006	540	1.6
R20-01	52126	291	293.5	0.02	0.00	0.11		<0.002	154.5	0.76
R20-01	52127	293.5	296	0.00	0.00	0.02		<0.002	13.1	0.66
R20-01	52128	296	298.5	0.052	0.00	0.46		<0.002	540	1.05
R20-01	52129	298.5	301	0.051	0.00	0.37		0.004	532	2.8
R20-01	52130	301	303.5	0.00	0.00	0.03		<0.002	45.2	1.24
R20-01	52131	303.5	306	0.01	0.00	0.06		<0.002	99.5	0.78
R20-01	52132	306	308.5	0.058	0.00	0.35		0.015	557	2.54
R20-01	52133	308.5	311	0.01	0.00	0.03		0.003	52.5	1.03
R20-01	52134	311	313.5	0.01	0.00	0.04		0.004	76.9	1.61
R20-01	52135	313.5	316	0.00	0.00	0.01		<0.002	15.1	0.78

Table 6 Rateria and West Valley Propoerties Diamond Drill Holes Assay, 2020										
DDH	**Sample-ID**	**From**	**To**	**Cu%**	**Mo%**	**Ag ppm**	**Au ppm**	**Re ppm**	**Cu ppm**	**Mo ppm**
R20-01	52136	316	318.5	0.00	0.00	<0.01		<0.002	4.5	0.88
R20-01	52137	318.5	320	0.01	0.00	0.04		<0.002	69.7	0.98
R20-01	52138	320	321.6	0.142	0.00	1.18		0.003	1480	3.94
R20-01	52139	321.6	324.1	0.00	0.00	0.01		<0.002	7.2	0.77
R20-01	52140	324.1	326.3	0.01	0.00	0.06		<0.002	102.5	0.79
R20-01	52141	326.3	328.5	1.08	0.00	6.15		0.031	>10000	32.7
R20-01	52142	328.5	331	0.01	0.00	0.05		<0.002	77.6	0.83
R20-01	52143	331	333.5	0.00	0.00	0.01		<0.002	12.8	1.5
R20-01	52144	333.5	336	0.00	0.00	0.01		<0.002	12	4.97
R20-01	52145	336	338.5	0.00	0.00	0.02		<0.002	8.4	5.7
R20-01	52146	338.5	341	0.00	0.00	0.01		<0.002	5.2	9.4
R20-01	52147	341	343.5	0.00	0.00	0.01		<0.002	14.2	1.53
R20-01	52148	343.5	346	0.00	0.00	0.01		<0.002	15.9	1.21
R20-01	52149	346	348.5	0.01	0.00	0.04		<0.002	53.7	0.92
R20-01	52150	STD	WCM Cu122	0.758	0.08	75.5		0.072	7710	772
R20-01	52151	348.5	351	0.00	0.00	0.06		<0.002	12	1.18
R20-01	52152	351	353.5	0.00	0.00	0.02		<0.002	6.1	0.88
R20-01	52153	353.5	356	0.00	0.00	0.01		<0.002	4.1	1.1
R20-01	52154	356	358	0.00	0.00	0.01		<0.002	6.5	0.97
R20-01	52155	358	359.5	0.00	0.00	0.01		<0.002	6.7	0.94
R20-01	52156	359.5	362	0.00	0.00	0.03		<0.002	33.7	0.84
R20-01	52157	362	364.5	0.00	0.00	0.01		<0.002	5.2	0.68
R20-01	52158	364.5	367	0.00	0.00	0.03		<0.002	38.7	0.7
R20-01	52159	367	369.5	0.01	0.00	0.08		<0.002	109	0.89
R20-01	52160	Blank		0.00	0.00	0.02		<0.002	2.6	0.19
R20-01	52161	369.5	372	0.01	0.00	0.05		<0.002	64.6	0.71
R20-01	52162	372	374.5	0.00	0.00	0.01		<0.002	13.6	0.79
R20-01	52163	374.5	377	0.00	0.00	0.02		<0.002	4	0.99
R20-01	52164	377	379.5	0.00	0.00	0.01		<0.002	6.4	0.76
R20-01	52165	379.5	382	0.00	0.00	0.06		<0.002	17.7	1.44
R20-01	52166	382	384.5	0.00	0.00	0.05		<0.002	42.2	0.78
R20-01	52167	384.5	387	0.00	0.00	0.02		<0.002	11.4	0.85
R20-01	52168	387	389.5	0.01	0.00	0.06		0.004	77.6	2.34
R20-01	52169	389.5	392	0.01	0.00	0.04		<0.002	58.1	0.76
R20-01	52170	dup		0.01	0.00	0.07		<0.002	96.5	0.71
R20-01	52171	392	394.5	0.01	0.00	0.1		<0.002	137.5	0.77
R20-01	52172	394.5	397	0.00	0.00	0.06		<0.002	46.8	0.83
R20-01	52173	397	399.5	0.00	0.00	0.02		<0.002	13.3	0.7
R20-01	52174	399.5	402	0.00	0.00	0.03		<0.002	19.1	0.99
R20-01	52175	402	404.5	0.01	0.00	0.08		<0.002	69.9	10.75
R20-01	52176	404.5	407	0.01	0.00	0.08		<0.002	115.5	1.82
R20-01	52177	407	409.5	0.01	0.00	0.12		<0.002	98.1	0.75
R20-01	52178	409.5	412	0.00	0.00	0.01		<0.002	5.7	0.59
R20-01	52179	412	414.5	0.00	0.00	0.04		<0.002	40.7	0.56
R20-01	52180	Blank		0.00	0.00	0.01		<0.002	1.6	0.07

Table 6 Rateria and West Valley Propoerties Diamond Drill Holes Assay, 2020										
DDH	**Sample-ID**	**From**	**To**	**Cu%**	**Mo%**	**Ag ppm**	**Au ppm**	**Re ppm**	**Cu ppm**	**Mo ppm**
R20-01	52181	414.5	417	0.03	0.00	0.34		0.007	339	2.68
R20-01	52182	417	419.5	0.02	0.00	0.19		0.002	217	4.39
R20-01	52183	419.5	422	0.00	0.00	0.04		<0.002	32.1	1.28
R20-01	52184	422	424.5	0.00	0.00	0.02		<0.002	12	0.7
R20-01	52185	424.5	427	0.00	0.00	0.01		<0.002	9.7	0.75
R20-01	52186	427	429.5	0.00	0.00	0.02		<0.002	15.4	1.12
R20-01	52187	429.5	432	0.00	0.00	0.02		<0.002	7.8	0.68
R20-01	52188	432	434.5	0.00	0.00	0.01		<0.002	4.7	1.11
R20-01	52189	434.5	437	0.00	0.00	0.02		<0.002	13.9	0.86
R20-01	52190	437	439.5	0.00	0.00	0.03		<0.002	21.9	0.71
R20-01	52191	439.5	442	0.00	0.00	0.01		<0.002	11.8	0.85
R20-01	52192	442	444.5	0.00	0.00	0.01	<0.001	<0.002	3.1	0.63
R20-01	52193	444.5	447	0.00	0.00	0.02	<0.001	<0.002	8.8	0.53
R20-01	52194	447	449.5	0.00	0.00	0.03	<0.001	<0.002	13.5	0.62
R20-01	52195	449.5	452	0.00	0.00	0.01	<0.001	<0.002	21.8	0.71
R20-01	52196	452	454.5	0.00	0.00	0.03	<0.001	<0.002	43.4	0.52
R20-01	52197	454.5	457	0.01	0.00	0.07	<0.001	<0.002	52.1	0.72
R20-01	52198	457	459.5	0.01	0.00	0.09	<0.001	<0.002	134	2.26
R20-01	52199	459.5	462	0.00	0.00	0.01	<0.001	<0.002	13.3	0.73
R20-01	52200	462	464.5	0.00	0.00	0.02	<0.001	<0.002	7.9	0.83
R20-01	52201	STD	WCM Cu122	0.748	0.08	74	0.035	0.067	7770	766
R20-01	52202	464.5	467	0.00	0.00	0.08	0.001	<0.002	47.8	1.64
R20-01	52203	467	469.5	0.00	0.00	0.02	<0.001	<0.002	5.2	0.97
R20-01	52204	469.5	472	0.00	0.00	0.03	<0.001	<0.002	4.4	0.96
R20-01	52205	472	474.5	0.00	0.00	0.02	<0.001	<0.002	16.8	0.79
R20-01	52206	474.5	477	0.00	0.00	0.01	<0.001	<0.002	3.1	1.15
R20-01	52207	477	479.5	0.00	0.00	0.02	<0.001	<0.002	8.1	0.8
R20-01	52208	479.5	482	0.00	0.00	0.01	<0.001	<0.002	17.8	0.78
R20-01	52209	482	484.5	0.01	0.00	0.1	<0.001	<0.002	137	0.94
R20-01	52210	484.5	487	0.03	0.00	0.18	<0.001	<0.002	297	0.96
R20-01	52211	dup		0.04	0.00	0.25	<0.001	<0.002	420	1
R20-01	52212	487	489.5	0.01	0.00	0.08	<0.001	<0.002	81.2	0.81
R20-01	52213	489.5	492	0.01	0.00	0.15	<0.001	<0.002	145	1.03
R20-01	52214	492	494.5	0.117	0.00	0.87	<0.001	<0.002	1160	0.94
R20-01	52215	494.5	497	0.02	0.00	0.19	<0.001	<0.002	236	0.77
R20-01	52216	497	499.5	0.02	0.00	0.17	<0.001	<0.002	244	0.93
R20-01	52217	499.5	502	0.03	0.00	0.48	<0.001	0.006	288	1.72
R20-01	52218	502	504.5	0.01	0.00	0.06	<0.001	<0.002	88.9	1.97
R20-01	52219	504.5	507	0.00	0.00	0.03	<0.001	<0.002	28.6	1.04
R20-01	52220	507	509.5	0.00	0.00	0.03	<0.001	<0.002	30.9	0.7
R20-01	52221	Blank		0.00	0.00	0.01	0.005	<0.002	1.6	0.08
R20-01	52222	509.5	512	0.01	0.00	0.11	<0.001	<0.002	149.5	0.72
R20-01	52223	512	514.5	0.01	0.00	0.04	<0.001	<0.002	57.5	0.93
R20-01	52224	514.5	517	0.02	0.00	0.13	<0.001	<0.002	220	0.83
R20-01	52225	517	519.5	0.02	0.00	0.14	<0.001	<0.002	227	0.99

Table 6 Rateria and West Valley Propoerties Diamond Drill Holes Assay, 2020										
DDH	**Sample-ID**	**From**	**To**	**Cu%**	**Mo%**	**Ag ppm**	**Au ppm**	**Re ppm**	**Cu ppm**	**Mo ppm**
R20-01	52226	519.5	522	0.03	0.00	0.29	<0.001	0.002	317	1.13
R20-01	52227	522	524.5	0.01	0.00	0.24	<0.001	0.005	127	2.12
R20-01	52228	524.5	527	0.03	0.00	0.2	<0.001	0.005	270	3
R20-01	52229	527	529.5	0.01	0.00	0.05	<0.001	<0.002	62.3	1.24
R20-01	52230	529.5	532	0.02	0.00	0.23	<0.001	0.002	198.5	1.85
R20-01	52231	STD	WCM Cu122	0.754	0.07	73.6	0.029	0.068	7560	749
R20-01	52232	532	534.5	0.01	0.00	0.15	<0.001	0.006	144	4.65
R20-01	52233	534.5	537	0.01	0.00	0.1	<0.001	<0.002	108	1.42
R20-01	52234	537	539.5	0.067	0.00	0.44	<0.001	0.003	670	3.8
R20-01	52235	539.5	542	0.057	0.00	0.46	<0.001	0.004	561	12.5
R20-01	52236	542	544	0.01	0.00	0.08	<0.001	0.005	88.7	6.5
R20-01	52237	544	546	0.02	0.00	0.25	<0.001	0.006	169.5	12.6
R20-01	52238	546	548	0.01	0.00	0.32	<0.001	0.009	139.5	7.69
R20-01	52239	548	550.5	0.056	0.00	0.4	<0.001	<0.002	630	2.39
R20-01	52240	550.5	553	0.067	0.00	0.98	<0.001	0.016	708	37.2
R20-01	52241	553	555.5	0.02	0.00	0.08	<0.001	0.002	151	7.08
R20-01	52242	555.5	558	0.00	0.00	0.03	<0.001	0.004	35.7	18.1
R20-01	52243	558	560.5	0.01	0.00	0.07	<0.001	0.003	124.5	4.26
R20-01	52244	560.5	563	0.02	0.00	0.18	<0.001	<0.002	209	1.66
R20-01	52245	563	565.5	0.01	0.00	0.08	<0.001	0.003	101.5	10.5
R20-01	52246	565.5	568	0.04	0.01	0.23	<0.001	0.021	386	83.7
R20-01	52247	568	570.5	0.01	0.00	0.13	<0.001	0.004	104.5	3.31
R20-01	52248	570.5	573	0.123	0.00	1.71	<0.001	0.016	1300	18.6
R20-01	52249	573	574.5	0.093	0.00	0.85	0.001	0.005	997	8.44
R20-01	52250	574.5	576	0.829	0.00	4.84	0.002	0.002	8580	8.32
R20-01	52251	Blank			0.00	0.02	<0.001	<0.002	15.7	0.13
R20-01	52252	576	578.5	0.221	0.00	2.82	0.002	0.003	2240	3.4
R20-01	52253	578.5	581	0.155	0.00	2.12	0.001	0.007	1610	2.88
R20-01	52254	581	583.5	0.101	0.00	0.76	<0.001	0.006	1010	5.51
R20-01	52255	583.5	586	0.07	0.00	0.67	<0.001	0.003	699	2.49
R20-01	52256	586	588.5	0.087	0.00	1.14	<0.001	0.011	925	6.69
R20-01	52257	588.5	591	0.00	0.00	0.02	<0.001	<0.002	23.2	0.82
R20-01	52258	591	593.5	0.00	0.00	0.02	<0.001	<0.002	26.9	0.85
R20-01	52259	593.5	596	0.065	0.00	0.41	<0.001	0.003	646	1.08
R20-01	52260	dup		0.054	0.00	0.35	<0.001	0.003	561	1.38
R20-01	52261	596	598.5	0.04	0.00	0.23	0.002	<0.002	403	0.94
R20-01	52262	598.5	601	0.01	0.00	0.07	<0.001	<0.002	111.5	0.85
R20-01	52263	601	603.5	0.00	0.00	0.03	<0.001	<0.002	41.8	0.85
R20-01	52264	603.5	606	0.02	0.00	0.13	0.002	<0.002	240	1.04
R20-01	52265	606	608.5	0.04	0.00	0.22	<0.001	<0.002	387	0.73
R20-01	52266	608.5	611	0.01	0.00	0.05	<0.001	<0.002	84.6	0.82
R20-01	52267	611	613.5	0.05	0.00	0.27	<0.001	<0.002	456	1.14
R20-01	52268	613.5	616	0.02	0.00	0.1	<0.001	<0.002	155.5	3.59
R20-01	52269	616	618.5	0.01	0.00	0.03	<0.001	<0.002	50	0.75
R20-01	52270	STD	WCM Cu122	0.748	0.08	70.4	0.03	0.076	7740	777

Table 6 Rateria and West Valley Propoerties Diamond Drill Holes Assay, 2020										
DDH	Sample-ID	From	To	Cu%	Mo%	Ag ppm	Au ppm	Re ppm	Cu ppm	Mo ppm
R20-01	52271	618.5	621	0.03	0.00	0.17	<0.001	<0.002	322	0.91
R20-01	52272	621	623.5	0.02	0.00	0.13	<0.001	<0.002	232	0.8
R20-01	52273	623.5	626	0.02	0.00	0.14	<0.001	<0.002	220	0.96
R20-01	52274	626	628.5	0.01	0.00	0.04	<0.001	<0.002	55.2	0.94
R20-01	52275	628.5	631	0.00	0.00	0.01	<0.001	<0.002	4	0.61
R20-01	52276	631	633.5	0.00	0.00	0.01	<0.001	<0.002	4	0.81
R20-01	52277	633.5	636	0.00	0.00	0.03	<0.001	<0.002	13.5	0.91
R20-01	52278	636	638.5	0.04	0.00	0.18	<0.001	<0.002	352	1.67
R20-01	52279	638.5	641	0.01	0.00	0.07	<0.001	<0.002	135	1.06
R20-01	52280	Blank		0.00	0.00	0.01	<0.001	<0.002	1.1	0.08
R20-01	52281	641	643.5	0.01	0.00	0.05	<0.001	<0.002	82.8	0.66
R20-01	52282	643.5	646	0.062	0.00	0.29	<0.001	<0.002	608	0.65
R20-01	52283	646	648.5	0.02	0.00	0.14	<0.001	<0.002	194.5	0.81
R20-01	52284	648.5	651	0.00	0.00	0.02	<0.001	<0.002	29.3	1.25
R20-01	52285	651	653.5	0.02	0.00	0.09	<0.001	<0.002	158.5	0.55
R20-01	52286	653.5	656	0.02	0.00	0.12	<0.001	<0.002	229	0.63
R20-01	52287	656	658.5	0.04	0.00	0.23	<0.001	<0.002	440	0.83
R20-01	52288	658.5	661	0.00	0.00	0.01	<0.001	<0.002	6.1	0.57
R20-01	52289	661	663.5	0.00	0.00	0.03	<0.001	<0.002	6	0.56
R20-01	52290	STD	WCM Cu12	0.769	0.08	75.5	0.027	0.077	7740	769
R20-01	52291	663.5	666	0.03	0.00	0.2	<0.001	<0.002	316	1
R20-01	52292	666	668.5	0.066	0.00	0.44	<0.001	<0.002	659	1.1
R20-01	52293	668.5	671	0.152	0.00	1.03	0.001	<0.002	1580	0.92
R20-01	52294	671	673.5	0.03	0.00	0.21	<0.001	<0.002	309	1.26
R20-01	52295	673.5	676	0.01	0.00	0.07	<0.001	<0.002	107.5	1.44
R20-01	52296	676	678.5	0.00	0.00	<0.01	<0.001	<0.002	3	0.87
R20-01	52297	678.5	681	0.01	0.00	0.06	<0.001	<0.002	96.7	1.04
R20-01	52298	681	683.5	0.00	0.00	0.01	<0.001	<0.002	19.6	0.62
R20-01	52299	683.5	686	0.01	0.00	0.11	<0.001	<0.002	149.5	0.96
R20-01	52300	686	689	0.01	0.00	0.03	<0.001	<0.002	52.8	0.78
R20-02	52301	20	22.5	0.01	0.00	0.03	<0.001	<0.002	57.6	0.86
R20-02	52302	22.5	25	0.01	0.00	0.04	<0.001	<0.002	80.7	1.59
R20-02	52303	25	27.5	0.01	0.00	0.03	<0.001	<0.002	50.3	1.1
R20-02	52304	27.5	30	0.01	0.00	0.05	<0.001	<0.002	82.4	1.14
R20-02	52305	30	32.5	0.00	0.00	0.02	<0.001	<0.002	30	1.24
R20-02	52306	32.5	35	0.01	0.00	0.04	<0.001	<0.002	78.5	1.01
R20-02	52307	35	37.5	0.01	0.00	0.03	<0.001	<0.002	60.6	1.11
R20-02	52308	37.5	40	0.01	0.00	0.05	<0.001	<0.002	93.6	1.34
R20-02	52309	40	42.5	0.02	0.00	0.08	<0.001	<0.002	186.5	1.28
R20-02	52310	42.5	45	0.02	0.00	0.1	0.001	<0.002	182	1.06
R20-02	52311	45	47.5	0.00	0.00	0.03	<0.001	<0.002	41.3	1.12
R20-02	52312	dup		0.00	0.00	0.03	<0.001	<0.002	42.8	1.09
R20-02	52313	47.5	50	0.01	0.00	0.04	<0.001	<0.002	57.5	1.19
R20-02	52314	50	52.5	0.02	0.00	0.1	<0.001	<0.002	167.5	1.16
R20-02	52315	52.5	55	0.01	0.00	0.06	0.001	<0.002	101	3.23

Table 6 Rateria and West Valley Propoerties Diamond Drill Holes Assay, 2020										
DDH	**Sample-ID**	**From**	**To**	**Cu%**	**Mo%**	**Ag ppm**	**Au ppm**	**Re ppm**	**Cu ppm**	**Mo ppm**
R20-02	52316	55	57.5	0.01	0.00	0.05	0.001	<0.002	107	1.3
R20-02	52317	57.5	60	0.01	0.00	0.04	<0.001	<0.002	65.2	1.47
R20-02	52318	60	62.5	0.00	0.00	0.04	<0.001	<0.002	44.6	4.45
R20-02	52319	62.5	65	0.02	0.00	0.12	<0.001	<0.002	209	3.59
R20-02	52320	Blank		0.00	0.00	0.02	0.001	<0.002	1.7	0.1
R20-02	52321	65	67.5	0.01	0.00	0.05	<0.001	<0.002	82.5	1.96
R20-02	52322	67.5	70	0.01	0.00	0.07	<0.001	<0.002	147	1.07
R20-02	52323	70	72.5	0.03	0.00	0.14	0.003	<0.002	286	2.8
R20-02	52324	72.5	75	0.03	0.00	0.16	<0.001	<0.002	335	1.1
R20-02	52325	75	77.5	0.085	0.00	0.43	0.007	<0.002	884	1.06
R20-02	52326	77.5	80	0.03	0.00	0.13	0.001	<0.002	316	1.07
R20-02	52327	80	82.5	0.01	0.00	0.04	<0.001	<0.002	86.3	1.88
R20-02	52328	82.5	85	0.03	0.00	0.16	0.003	<0.002	265	1.92
R20-02	52329	85	87.5	0.02	0.00	0.08	<0.001	<0.002	150.5	1.22
R20-02	52330	STD	WCM Cu12	0.789	0.07	73.1	0.028	0.073	7320	719
R20-02	52331	87.5	90	0.02	0.00	0.14	0.002	0.003	163.5	1.98
R20-02	52332	90	92.5	0.01	0.00	0.08	<0.001	<0.002	108.5	1.05
R20-02	52333	92.5	95	0.01	0.00	0.05	<0.001	<0.002	84.8	0.98
R20-02	52334	95	97.5	0.01	0.00	0.04	<0.001	<0.002	69.8	1.15
R20-02	52335	97.5	100	0.01	0.00	0.06	<0.001	<0.002	118	1.45
R20-02	52336	100	102.5	0.01	0.00	0.03	0.001	<0.002	63	1.13
R20-02	52337	102.5	105	0.00	0.00	0.03	<0.001	<0.002	44.2	1.12
R20-02	52338	105	107.5	0.00	0.00	0.02	<0.001	<0.002	36.8	0.9
R20-02	52339	107.5	110	0.01	0.00	0.04	<0.001	<0.002	107	1.11
R20-02	52340	110	112.5	0.01	0.00	0.07	<0.001	<0.002	109	1.06
R20-02	52341	dup		0.01	0.00	0.05	<0.001	<0.002	84.2	0.98
R20-02	52342	112.5	115	0.00	0.00	0.03	<0.001	<0.002	39.9	1.13
R20-02	52343	115	117.5	0.02	0.00	0.07	<0.001	<0.002	157.5	3.57
R20-02	52344	117.5	120	0.00	0.00	0.03	<0.001	<0.002	46.8	1.23
R20-02	52345	120	122.5	0.04	0.01	0.23	0.006	0.676	399	133
R20-02	52346	122.5	125	0.01	0.00	0.04	<0.001	0.003	71.8	1.27
R20-02	52347	125	127.5	0.259	0.01	1.78	0.018	0.205	2560	57
R20-02	52348	127.5	130	0.318	0.00	1.69	0.088	0.038	3170	9.51
R20-02	52349	130	132.5	0.01	0.00	0.04	<0.001	<0.002	53	2.08
R20-02	52350	Blank			0.00	0.01	0.002	<0.002	5.7	0.24
R20-02	52351	132.5	135	0.065	0.00	0.33	0.011	0.003	620	1.97
R20-02	52352	135	137.5	0.01	0.00	0.04	<0.001	<0.002	72.6	0.81
R20-02	52353	137.5	140	0.00	0.00	0.02	<0.001	<0.002	28.7	1.09
R20-02	52354	140	142.5	0.01	0.00	0.03	<0.001	<0.002	52.3	2.16
R20-02	52355	142.5	145	0.04	0.00	0.19	0.002	<0.002	356	2.45
R20-02	52356	145	147.5	0.03	0.00	0.18	0.005	0.003	336	3.76
R20-02	52357	147.5	150	0.01	0.00	0.03	0.001	<0.002	61	1.26
R20-02	52358	150	152.5	0.01	0.00	0.05	<0.001	<0.002	85.4	1.26
R20-02	52359	152.5	155	0.01	0.00	0.03	<0.001	<0.002	58.1	1.04
R20-02	52360	155	157.5	0.01	0.00	0.03	<0.001	<0.002	55.8	0.87

Table 6 Rateria and West Valley Propoerties Diamond Drill Holes Assay, 2020										
DDH	Sample-ID	From	To	Cu%	Mo%	Ag ppm	Au ppm	Re ppm	Cu ppm	Mo ppm
R20-02	52361	157.5	160	0.02	0.00	0.11	0.002	<0.002	204	1.66
R20-02	52362	STD	WCM Cu122	0.776	0.07	72.5	0.032	0.071	7540	731
R20-02	52363	160	162.5	0.01	0.00	0.09	0.003	<0.002	98.9	2.29
R20-02	52364	162.5	165	0.00	0.00	0.03	<0.001	<0.002	47.3	1.28
R20-02	52365	165	167.5	0.00	0.00	0.02	0.001	<0.002	30.1	1.41
R20-02	52366	167.5	170	0.085	0.00	0.41	0.016	<0.002	794	2.47
R20-02	52367	170	172.5	0.01	0.00	0.1	0.002	<0.002	148	1.04
R20-02	52368	172.5	175	0.00	0.00	0.02	<0.001	<0.002	34.9	5.27
R20-02	52369	175	177.5	0.01	0.00	0.1	0.002	<0.002	93.4	1.29
R20-02	52370	177.5	180	0.02	0.00	0.08	0.006	<0.002	171.5	3.14
R20-02	52371	180	182.5	0.01	0.00	0.05	0.002	<0.002	89.4	1.13
R20-02	52372	182.5	185	0.061	0.00	0.3	0.014	0.011	601	2.82
R20-02	52373	185	187.5	0.207	0.00	1.01	0.045	0.011	2020	2.6
R20-02	52374	187.5	190	0.01	0.00	0.05	0.002	<0.002	104	0.92
R20-02	52375	STD	WCM Cu122	0.777	0.07	74.3	0.031	0.072	7610	742
R20-02	52376	190	192.5	0.01	0.00	0.1	0.001	<0.002	138	1.35
R20-02	52377	192.5	195	0.01	0.00	0.03	<0.001	<0.002	60.8	0.99
R20-02	52378	195	197.5	0.01	0.00	0.04	<0.001	<0.002	56.1	1.02
R20-02	52379	197.5	200	0.02	0.00	0.07	0.001	<0.002	188.5	0.9
R20-02	52380	200	202.5	0.02	0.00	0.11	0.002	<0.002	249	0.86
R20-02	52381	202.5	205	0.01	0.00	0.05	0.001	0.002	104.5	1.3
R20-02	52382	205	207.5	0.01	0.00	0.04	<0.001	<0.002	79.7	1.15
R20-02	52383	207.5	210	0.01	0.00	0.06	<0.001	<0.002	133.5	0.81
R20-02	52384	210	212.3	0.01	0.00	0.06	<0.001	0.01	99.8	1.18
R20-02	52385	212.3	215	0.195	0.00	0.9	0.019	0.021	1935	1.82
R20-02	52386	215	216.6	0.158	0.00	0.77	0.03	0.093	1540	3.44
R20-02	52387	216.6	219	0.04	0.00	0.19	0.004	0.005	413	1.15
R20-02	52388	219	221.5	0.02	0.00	0.09	0.002	0.003	207	1.08
R20-02	52389	221.5	224	0.03	0.00	0.15	0.005	0.002	298	1.19
R20-02	52390	224	226.5	0.02	0.00	0.08	0.001	0.063	184.5	8.31
R20-02	52391	226.5	229	0.01	0.00	0.06	<0.001	<0.002	100.5	1.11
R20-02	52392	229	231.5	0.01	0.00	0.03	<0.001	<0.002	63.3	1.07
R20-02	52393	231.5	234	0.01	0.00	0.06	<0.001	<0.002	124.5	1.13
R20-02	52394	234	236.5	0.01	0.00	0.03	<0.001	0.002	52.1	0.95
R20-02	52395	236.5	239	0.01	0.00	0.06	0.001	0.005	104	1.25
R20-02	52396	239	241.5	0.03	0.00	0.13	0.004	0.017	256	1.52
R20-02	52397	241.5	244	0.03	0.00	0.15	0.007	0.003	301	1.06
R20-02	52398	244	246.5	0.135	0.00	0.64	0.023	0.008	1290	1.88
R20-02	52399	246.5	249	0.04	0.00	0.19	0.007	0.022	416	2.96
R20-02	52400	Blank		0.00	0.00	0.04	0.003	<0.002	3.2	0.12
R20-02	52401	249	251.5	0.136	0.00	0.5	0.052	0.012	1335	1.31
R20-02	52402	251.5	254	0.02	0.00	0.12	0.004	0.004	235	1.34
R20-02	52403	254	256.5	0.01	0.00	0.05	0.002	0.002	80	0.97
R20-02	52404	256.5	259	0.01	0.00	0.04	<0.001	0.003	60.3	1.51
R20-02	52405	259	261.5	0.01	0.00	0.04	<0.001	0.006	86.3	1.42

Table 6 Rateria and West Valley Propoerties Diamond Drill Holes Assay, 2020										
DDH	**Sample-ID**	**From**	**To**	**Cu%**	**Mo%**	**Ag ppm**	**Au ppm**	**Re ppm**	**Cu ppm**	**Mo ppm**
R20-02	52406	261.5	264	0.03	0.00	0.18	0.004	0.021	322	3.44
R20-02	52407	264	266.5	0.00	0.00	0.01	0.001	0.005	12.8	2.25
R20-02	52408	266.5	269	0.04	0.00	0.23	0.007	0.002	425	1.57
R20-02	52409	269	271.5	0.03	0.00	0.13	0.004	0.002	260	1.2
R20-02	52410	STD	WCM Cu122	0.772	0.08	76.1	0.029	0.074	7630	760
R20-02	52411	271.5	274	0.02	0.00	0.16	0.004	0.002	199.5	1.68
R20-02	52412	274	276.5	0.02	0.00	0.09	0.005	0.003	154	1.26
R20-02	52413	276.5	279	0.066	0.00	0.35	0.009	0.094	710	9.55
R20-02	52414	279	281.5	0.054	0.00	0.26	0.01	0.006	545	1.56
R20-02	52415	281.5	284	0.084	0.00	0.41	0.014	0.236	822	27.5
R20-02	52416	284	286.5	0.04	0.00	0.23	0.005	0.081	414	8.33
R20-02	52417	286.5	289	0.055	0.00	0.28	0.013	0.313	532	42.4
R20-02	52418	dup		0.04	0.00	0.21	0.01	0.01	380	2.05
R20-02	52419	289	290.5	0.07	0.00	0.36	0.008	0.027	697	4.66
R20-02	52420	290.5	293	0.02	0.00	0.12	0.003	0.004	206	1.5
R20-02	52421	293	295.5	0.03	0.00	0.14	0.007	0.006	282	1.79
R20-02	52422	295.5	298	0.083	0.00	0.45	0.02	0.071	853	5.08
R20-02	52423	298	300.5	0.02	0.00	0.1	0.002	0.002	174.5	1.45
R20-02	52424	300.5	303	0.01	0.00	0.04	0.002	0.005	74.7	2.3
R20-02	52425	303	305.5	0.121	0.00	0.59	0.07	0.016	1100	6.8
R20-02	52426	305.5	308	0.04	0.00	0.2	0.006	0.004	406	3.82
R20-02	52427	308	310	0.05	0.00	0.26	0.008	0.003	474	1.46
R20-02	52428	310	311.5	0.03	0.00	0.15	0.006	0.006	295	1.6
R20-02	52429	311.5	313.5	0.568	0.00	2.99	0.146	0.076	5840	11.15
R20-02	52430	STD	CDNH2-3	0.6	0.00	26.6	0.055	0.011	6340	16.3
R20-02	52431	313.5	315	0.858	0.00	4.64	0.383	0.092	8600	17.6
R20-02	52432	315	317	0.02	0.00	0.1	0.003	0.013	170.5	2.24
R20-02	52433	317	318.3	0.097	0.00	0.42	0.008	0.017	948	4.87
R20-02	52434	318.3	320.3	0.494	0.00	2.46	0.14	0.097	5130	10.85
R20-02	52435	320.3	323	0.082	0.00	0.41	0.029	0.018	797	3.12
R20-02	52436	323	325.5	0.02	0.00	0.11	0.005	0.008	217	4.54
R20-02	52437	325.5	328	0.03	0.00	0.15	0.006	0.02	262	4.32
R20-02	52438	328	330.5	0.02	0.00	0.1	0.009	<0.002	211	1.54
R20-02	52439	330.5	333	0.113	0.00	0.59	0.042	0.109	1130	14.1
R20-02	52440	Blank		0.00	0.00	0.02	0.002	<0.002	3.1	0.06
R20-02	52441	333	335.5	0.02	0.00	0.07	0.007	0.005	150	1.73
R20-02	52442	335.5	338	0.01	0.00	0.03	<0.001	0.003	51	1.23
R20-02	52443	338	340.5	0.00	0.00	0.03	<0.001	0.003	45.6	1.37
R20-02	52444	340.5	343	0.119	0.01	0.67	0.01	0.636	1180	81.6
R20-02	52445	343	345.5	0.02	0.00	0.09	0.002	0.017	152.5	2.86
R20-02	52446	345.5	348	0.01	0.00	0.02	<0.001	0.003	50.3	1.21
R20-02	52447	348	350.5	0.02	0.00	0.1	0.002	0.117	175.5	15.5
R20-02	52448	350.5	353	0.126	0.00	0.65	0.039	0.136	1320	27
R20-02	52449	353	355.5	0.05	0.01	0.25	0.008	0.498	462	124
R20-02	52450	355.5	358	0.00	0.00	0.02	<0.001	0.014	31	3.24

Table 6 Rateria and West Valley Propoerties Diamond Drill Holes Assay, 2020										
DDH	Sample-ID	From	To	Cu%	Mo%	Ag ppm	Au ppm	Re ppm	Cu ppm	Mo ppm
R20-02	52451	dup		0.00	0.00	0.01	<0.001	0.008	12	1.42
R20-02	52452	358	360.5	0.00	0.00	0.01	<0.001	0.005	18.7	1.37
R20-02	52453	360.5	363	0.00	0.00	0.02	<0.001	0.02	37.7	2.54
R20-02	52454	363	365.5	0.03	0.00	0.13	0.009	0.005	276	1.15
R20-02	52455	365.5	368	0.01	0.00	0.04	<0.001	0.004	58.6	0.83
R20-02	52456	368	370.5	0.00	0.00	0.01	<0.001	0.003	5.7	1.27
R20-02	52457	370.5	373	0.01	0.00	0.04	<0.001	0.002	72.7	1.65
R20-02	52458	373	375.5	0.00	0.00	0.02	<0.001	0.006	36.8	1.19
R20-02	52459	375.5	378	0.04	0.00	0.18	0.006	0.015	407	2.49
R20-02	52460	Blank		0.00	0.00	0.01	0.003	<0.002	1.4	0.05
R20-02	52461	378	380.5	0.00	0.00	0.03	<0.001	0.012	45	2.44
R20-02	52462	380.5	383	0.02	0.00	0.1	0.002	0.013	202	5.84
R20-02	52463	383	385.5	0.00	0.00	0.04	<0.001	0.008	46.1	1.71
R20-02	52464	385.5	387.5	0.01	0.00	0.06	0.002	0.014	94.1	4.15
R20-02	52465	387.5	389.8	0.445	0.00	2.32	0.215	0.37	4760	47.5
R20-02	52466	389.8	392	0.125	0.00	0.86	0.033	0.078	1250	5.54
R20-02	52467	392	393.5	0.343	0.01	2.52	0.165	0.253	3490	51.6
R20-02	52468	393.5	396	0.04	0.00	0.26	0.005	0.053	441	4.05
R20-02	52469	396	398.5	0.161	0.00	0.77	0.006	0.428	1620	21
R20-02	52470	STD	WCM Cu122	0.605	0.00	28.3	0.054	0.011	6190	16.35
R20-02	52471	398.5	401	0.00	0.00	0.02	<0.001	0.029	19.6	3.07
R20-02	52472	401	403.5	0.00	0.00	0.01	<0.001	0.071	19.4	7.9
R20-02	52473	403.5	406	0.00	0.00	0.03	<0.001	0.027	48.4	2.97
R20-02	52474	406	408.5	0.064	0.00	0.17	0.007	0.078	640	11
R20-02	52475	408.5	411	0.00	0.00	0.02	<0.001	0.021	30.4	3.04
R20-02	52476	411	413.5	0.01	0.00	0.04	<0.001	0.074	74.6	7.04
R20-02	52477	413.5	416	0.01	0.00	0.05	<0.001	0.004	80.7	1.5
R20-02	52478	416	418.5	0.01	0.00	0.03	<0.001	0.003	54.3	0.95
R20-02	52479	418.5	421	0.01	0.00	0.02	<0.001	0.004	54.7	1.29
R20-02	52480	421	423.5	0.02	0.00	0.09	0.001	0.004	152.5	2.05
R20-02	52481	423.5	426	0.00	0.00	0.02	<0.001	0.002	45.9	1.38
R20-02	52482	426	428.5	0.00	0.00	0.03	<0.001	0.003	47.6	1.62
R20-02	52483	428.5	431	0.00	0.00	0.04	<0.001	0.012	47.3	5.41
R20-02	52484	431	433.5	0.00	0.00	0.02	0.001	0.138	27.8	9.98
R20-02	52485	433.5	436	0.00	0.00	<0.01	<0.001	0.003	12.2	1.04
R20-02	52486	DUP	DUP	0.00	0.00	0.01	<0.001	0.004	11.9	1.03
R20-02	52487	436	438.5	0.00	0.00	0.01	<0.001	0.002	11.1	1.07
R20-02	52488	438.5	441	0.00	0.00	0.01	0.001	0.002	15.5	1.59
R20-02	52489	441	443.5	0.00	0.00	0.01	<0.001	0.003	14.1	1.64
R20-02	52490	Blank		0.00	0.00	0.02	0.002	<0.002	1.5	0.08
R20-02	52491	443.5	446	0.00	0.00	0.01	<0.001	0.005	7.2	1.18
R20-02	52492	446	448.5	0.00	0.00	0.01	<0.001	0.002	7.5	0.96
R20-02	52493	448.5	451	0.00	0.00	0.02	<0.001	0.003	21.1	0.99
R20-02	52494	451	453.5	0.00	0.00	<0.01	<0.001	0.004	11.8	0.99
R20-02	52495	453.5	456	0.00	0.00	<0.01	<0.001	0.003	6.9	1.01

Table 6 Rateria and West Valley Propoerties Diamond Drill Holes Assay, 2020										
DDH	Sample-ID	From	To	Cu%	Mo%	Ag ppm	Au ppm	Re ppm	Cu ppm	Mo ppm
R20-02	52496	456	458.5	0.00	0.00	0.01	<0.001	0.01	10.8	1.57
R20-02	52497	458.5	461	0.01	0.00	0.03	<0.001	0.003	54.4	1.39
R20-02	52498	461	463.5	0.00	0.00	0.01	<0.001	<0.002	3.4	4.6
R20-02	52499	463.5	466	0.00	0.00	0.02	<0.001	0.012	12.9	11
R20-02	52500	466	468.5	0.00	0.00	0.01	<0.001	0.009	9.7	2.98
R20-02	52501	STD	CDNH2-3	0.598	0.00	26.8	0.052	0.011	6350	17.4
R20-02	52502	468.5	471	0.00	0.00	0.01	<0.001	0.014	6.3	3.45
R20-02	52503	471	473.5	0.00	0.00	0.02	<0.001	0.024	29	5.3
R20-02	52504	473.5	475	0.01	0.00	0.07	<0.001	0.004	126.5	1.31
R20-02	52505	475	477.5	0.00	0.00	0.02	<0.001	0.004	34.7	1.32
R20-02	52506	477.5	480	0.00	0.00	0.02	<0.001	0.003	29.7	1.32
R20-02	52507	480	482.5	0.00	0.00	0.01	<0.001	0.028	19.2	5.77
R20-02	52508	482.5	485	0.00	0.01	0.01	<0.001	0.419	12.6	89.3
R20-02	52509	485	487.5	0.00	0.00	0.01		0.011	3.4	5.98
R20-02	52510	487.5	490	0.00	0.00	0.01		0.017	6.6	4.4
R20-02	52511	490	492.5	0.03	0.00	0.2		0.003	328	3.23
R20-02	52512	492.5	495	0.00	0.00	<0.01		0.002	3.7	3.96
R20-02	52513	495	497.5	0.00	0.00	0.01		0.002	9.2	1.41
R20-02	52514	497.5	500	0.00	0.00	0.01		0.005	4.5	1.41
R20-02	52515	500	502.5	0.00	0.00	<0.01		0.002	5.8	1.89
R20-02	52516	502.5	505	0.00	0.00	0.01		0.002	7.1	2.27
R20-02	52517	Blank	SAND	0.00	0.00	0.08		<0.002	49.3	0.99
R20-02	52518	505	507.5	0.00	0.00	0.01		0.008	4.3	1.8
R20-02	52519	507.5	510	0.00	0.00	<0.01		0.007	8.2	2.11
R20-02	52520	510	512.5	0.00	0.00	0.01		0.008	9	2.03
R20-02	52521	512.5	515	0.01	0.00	0.04		0.039	73.3	3.27
R20-02	52522	515	517.5	0.02	0.00	0.09		0.007	173.5	2.12
R20-02	52523	517.5	520	0.02	0.00	0.1		0.037	195	9.05
R20-02	52524	545	547.5	0.00	0.00	0.01		0.066	10.5	18.95
R20-02	52525	547.5	550	0.00	0.00	0.01		0.003	13.5	2.62
R20-02	52526	550	552.5	0.00	0.00	0.02		0.026	12.3	6.69
R20-02	52527	552.5	555	0.00	0.00	<0.01		0.004	2.6	1.55
R20-02	52528	555	557	0.00	0.00	0.01		0.041	13.8	9.82

Figures

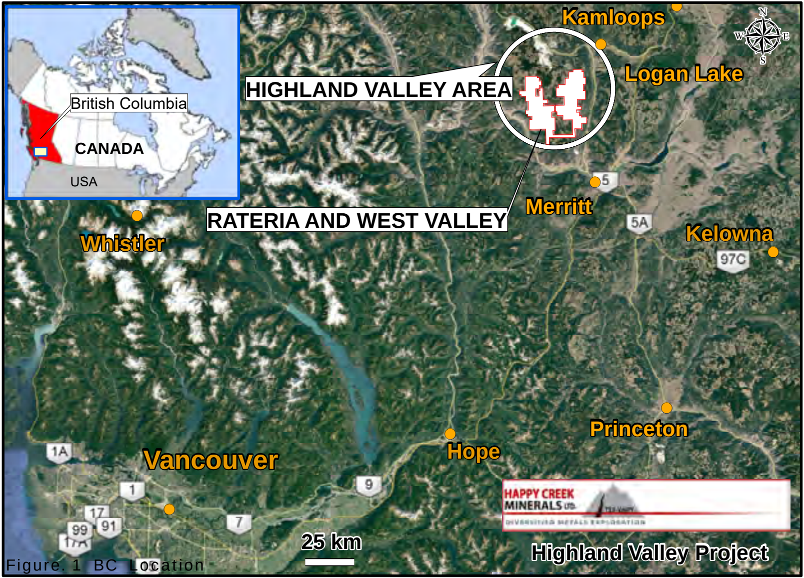


Figure. 1 BC Location

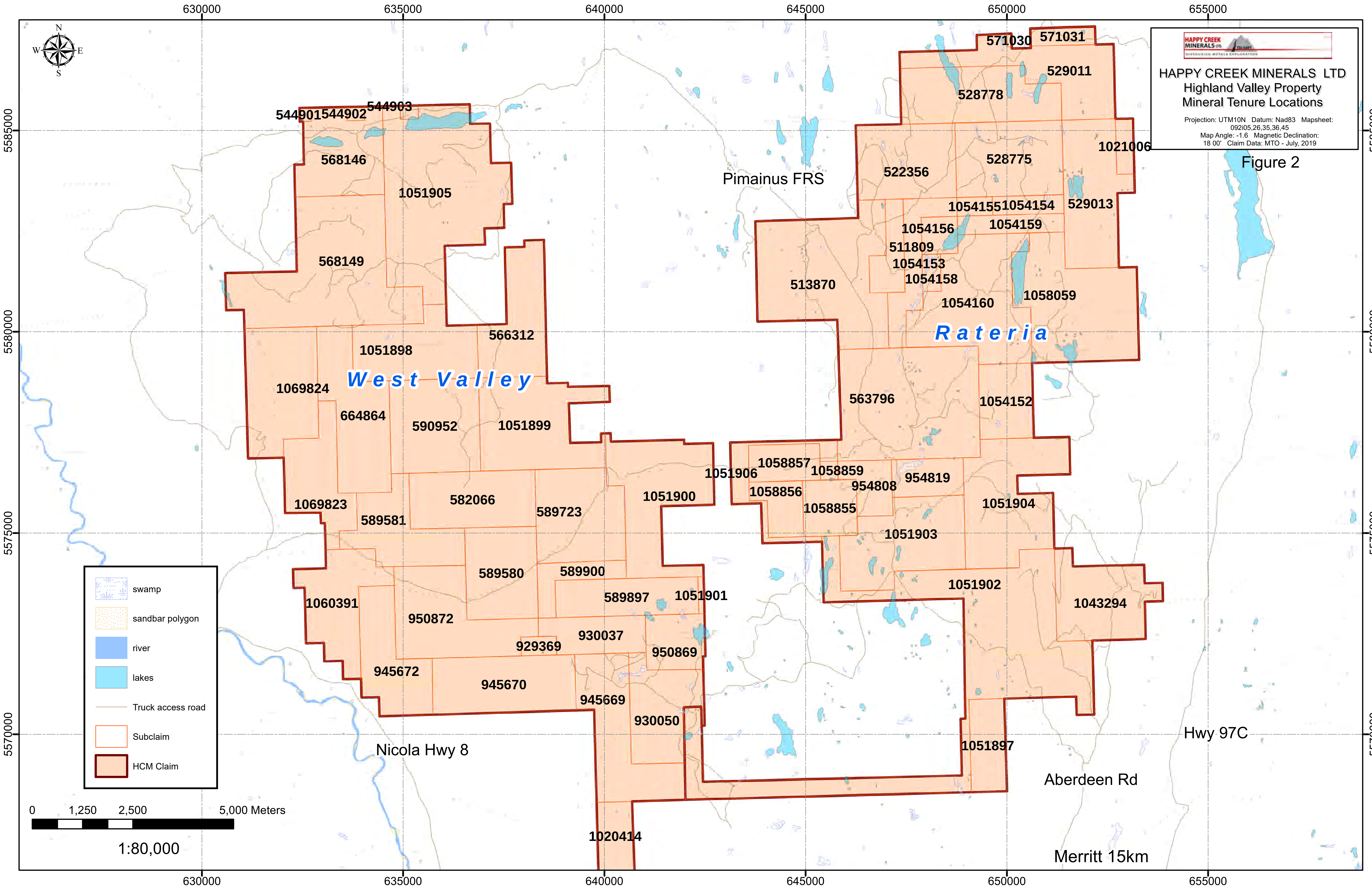
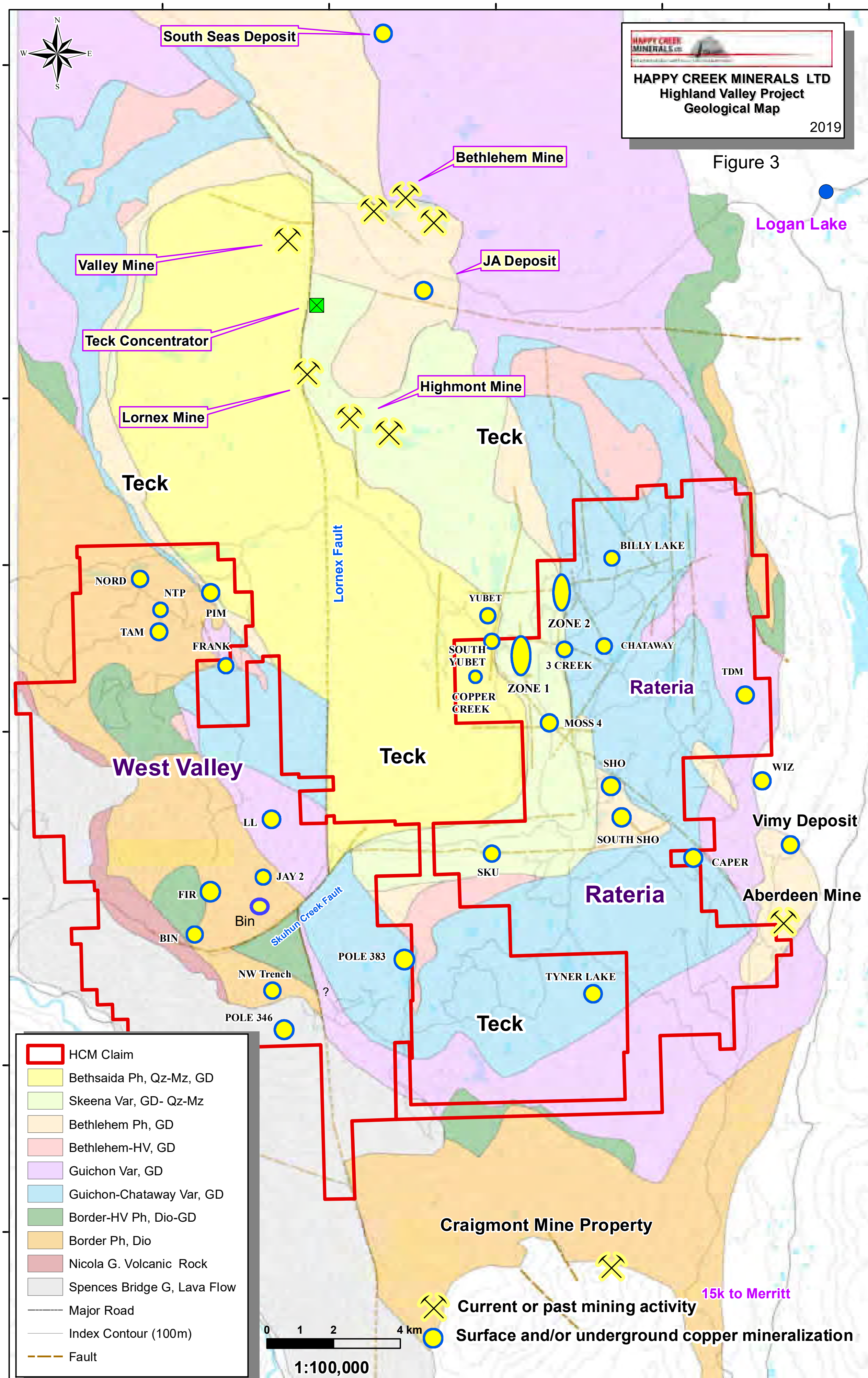
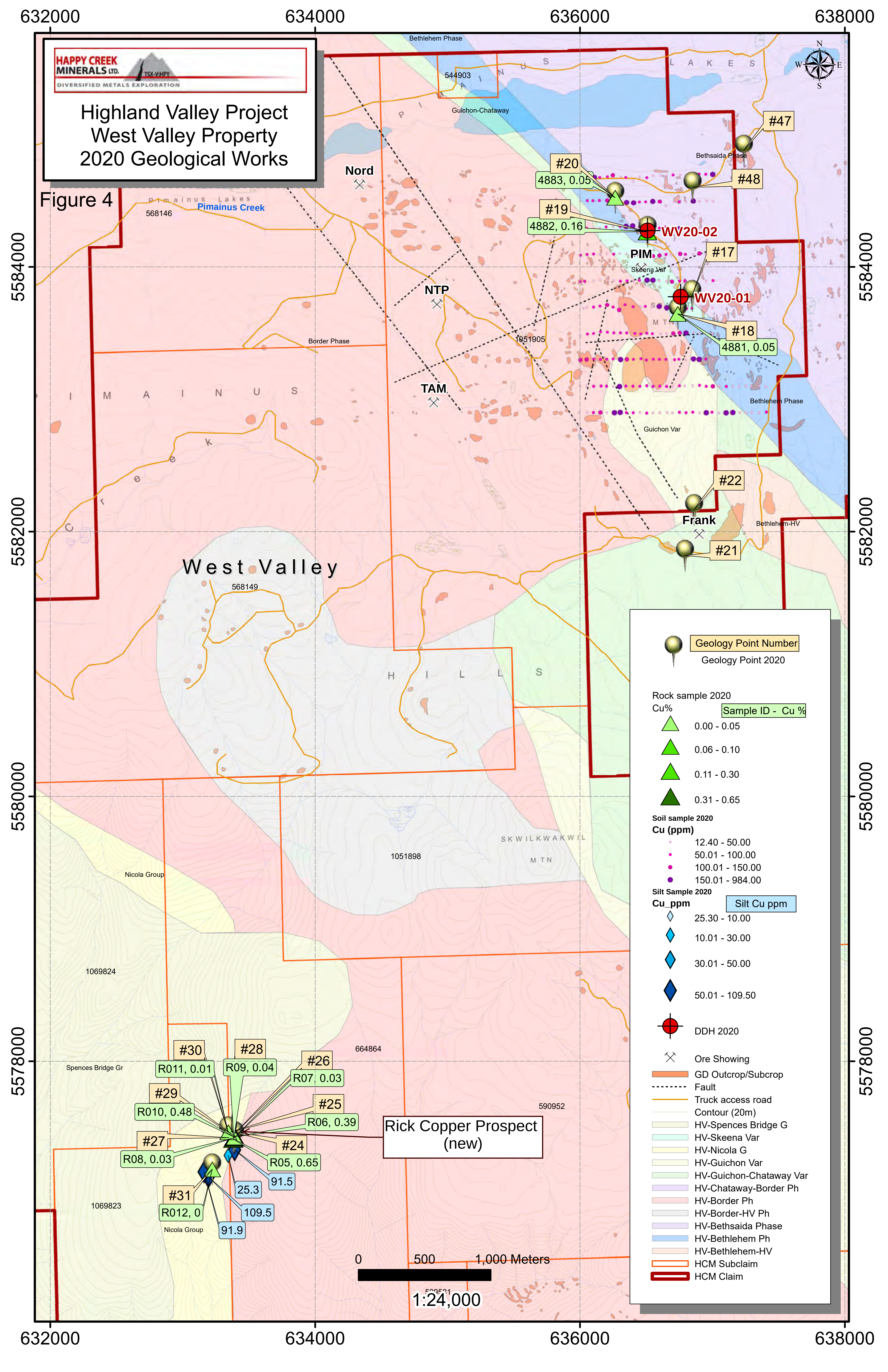
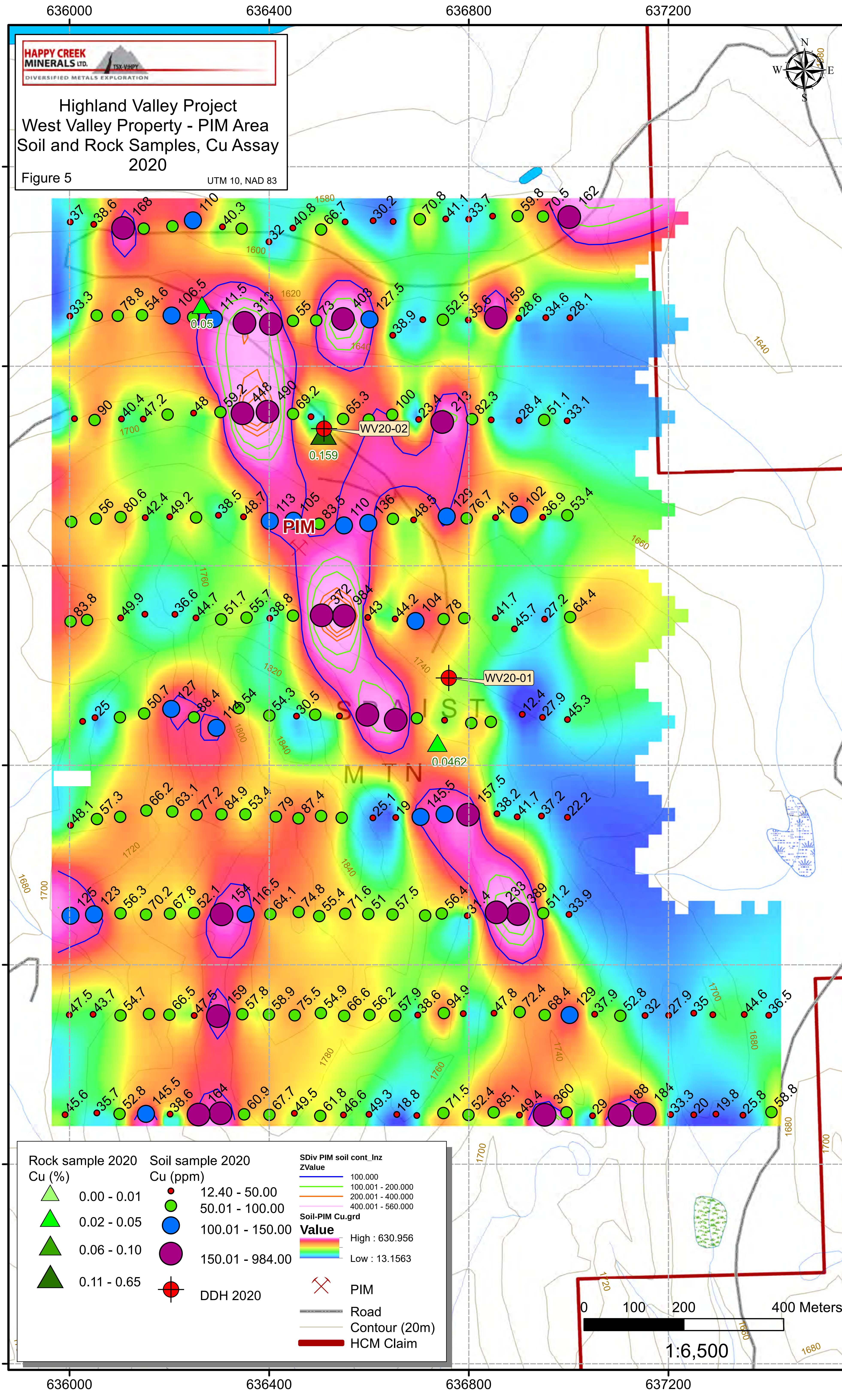

HAPPY CREEK MINERALS LTD
Highland Valley Property
Mineral Tenure Locations
Projection: UTM10N Datum: Nad83 Mapsheet: 092i05,26,35,36,45
Map Angle: -1.6 Magnetic Declination: 18 00' Claim Data: MTO - July, 2019
West Valley
Rateria
Pimainus FRS
Nicola Hwy 8
Hwy 97C
Aberdeen Rd
Merritt 15km
swamp
sandbar polygon
river
lakes
Truck access road
Subclaim
HCM Claim
0 1,250 2,500 5,000 Meters
1:80,000
630000
635000
640000
645000
650000
655000
5585000
5580000
5575000
5570000
544901
544902
544903
568146
1051905
568149
566312
1051898
1069824
664864
590952
1051899
1069823
589581
582066
589723
1051900
589580
589900
589897
1051901
1060391
950872
929369
930037
950869
945672
945670
945669
930050
1020414
571030
571031
529011
528778
1021006
522356
528775
529013
1054155
1054154
1054156
1054159
511809
1054153
1054158
513870
1054160
1058059
563796
1054152
1051906
1058857
1058859
954808
954819
1058856
1058855
1051904
1051903
1051902
1043294
1051897

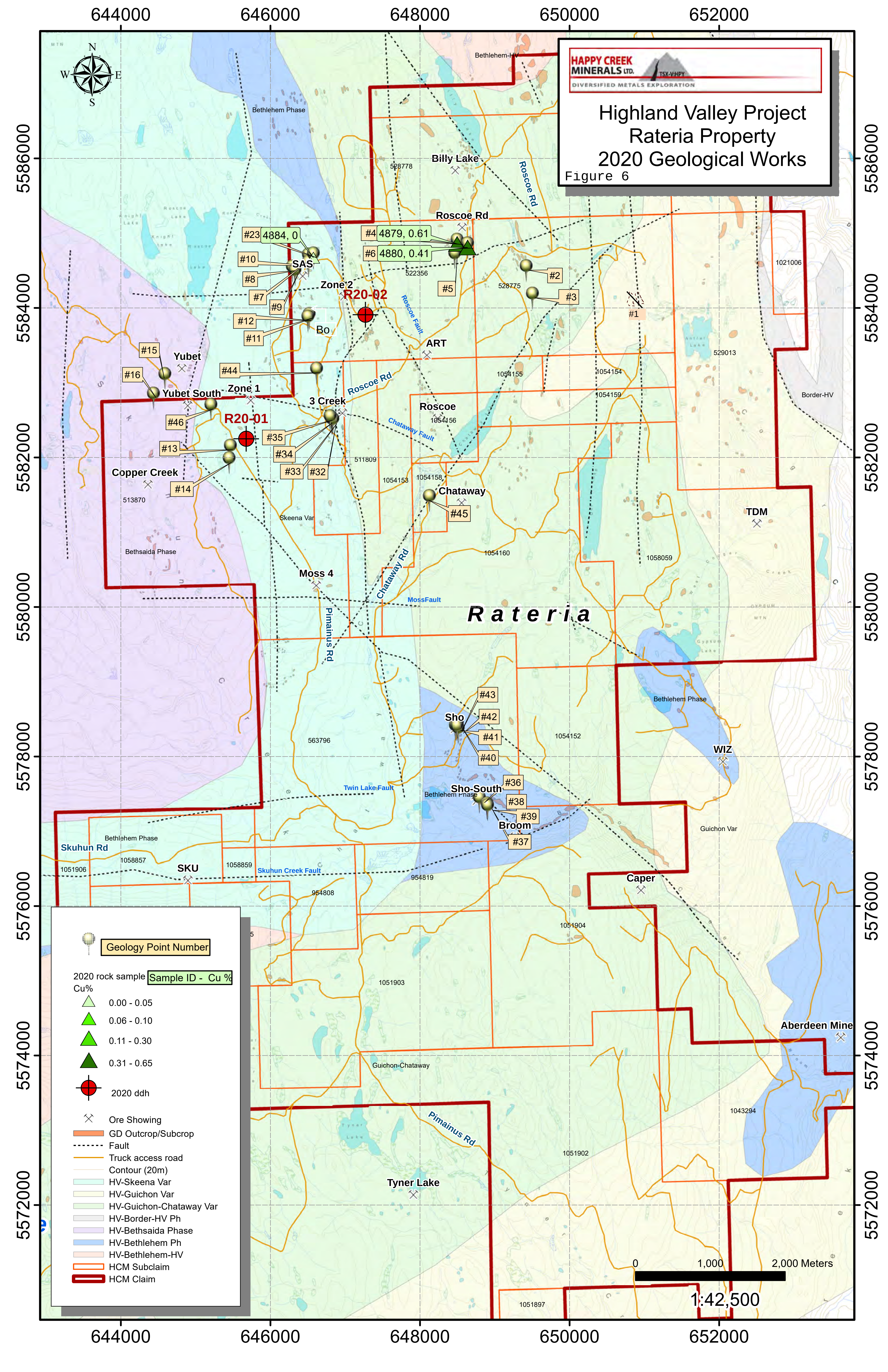
Figure 2



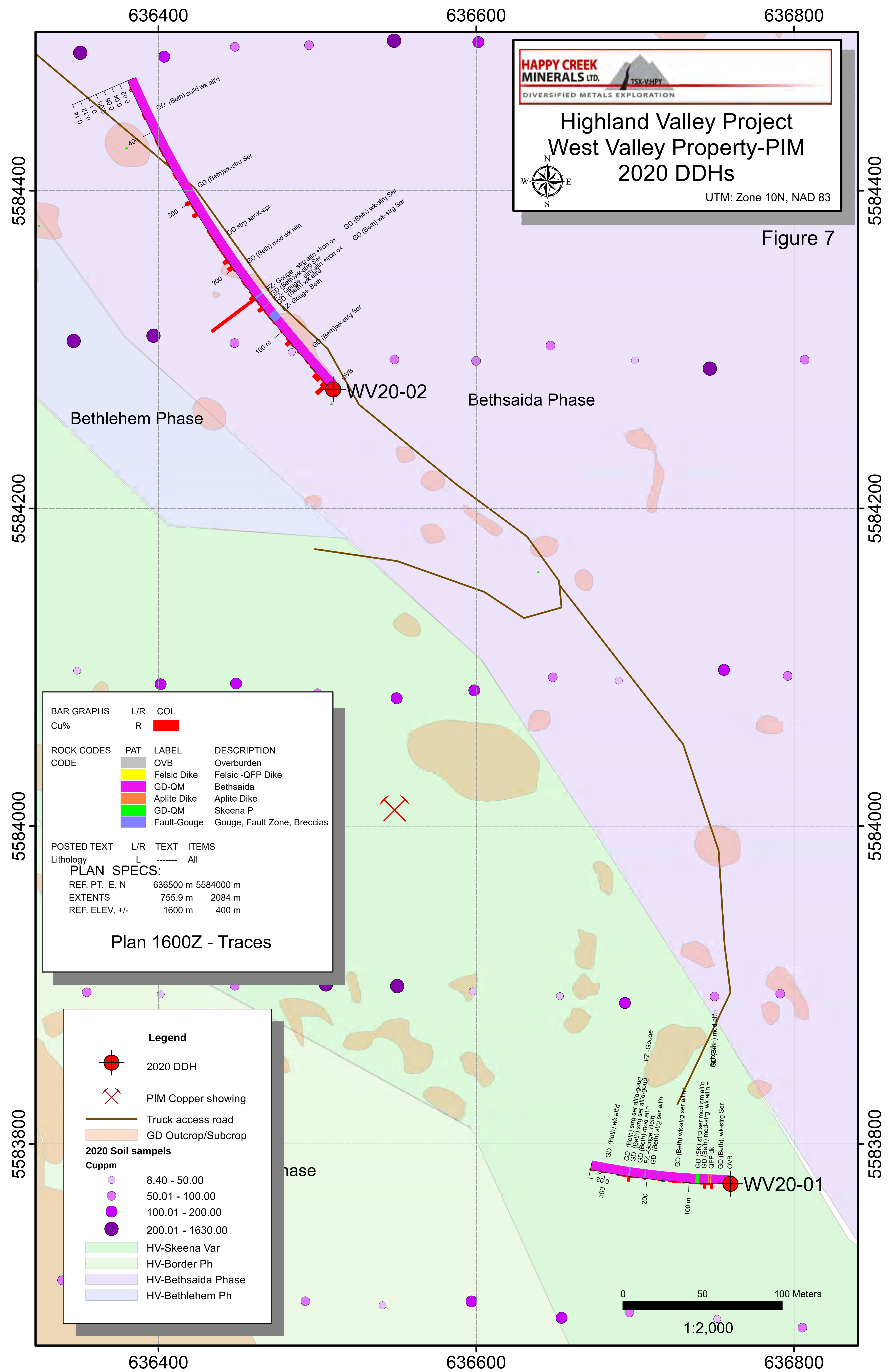
HAPPY CREEK MINERALS LTD
Highland Valley Project
Geological Map
2019
Figure 3
South Seas Deposit
Bethlehem Mine
Valley Mine
JA Deposit
Teck Concentrator
Highmont Mine
Lornex Mine
Logan Lake
Teck
Lornex Fault
NORD
NTP
PIM
TAM
FRANK
BILLY LAKE
YUBET
ZONE 2
SOUTH YUBET
3 CREEK
CHATAWAY
ZONE 1
COPPER CREEK
MOSS 4
Rateria
TDM
West Valley
SHO
WIZ
LL
SOUTH SHO
Vimy Deposit
SKU
CAPER
JAY 2
FIR
Bin
Skuhun Creek Fault
BIN
Aberdeen Mine
POLE 383
NW Trench
TYNER LAKE
POLE 346
HCM Claim
Bethsaida Ph, Qz-Mz, GD
Skeena Var, GD- Qz-Mz
Bethlehem Ph, GD
Bethlehem-HV, GD
Guichon Var, GD
Guichon-Chataway Var, GD
Border-HV Ph, Dio-GD
Border Ph, Dio
Nicola G. Volcanic Rock
Spences Bridge G, Lava Flow
Major Road
Index Contour (100m)
Fault
Craigmont Mine Property
15k to Merritt
Current or past mining activity
Surface and/or underground copper mineralization
0 1 2 4 km
1:100,000
635000
640000
645000
650000
655000
5600000
5595000
5590000
5585000
5580000
5575000
5570000
5565000


HAPPY CREEK MINERALS LTD.
TSX-V:HPY
DIVERSIFIED METALS EXPLORATION
Highland Valley Project
West Valley Property
2020 Geological Works
Figure 4
632000
634000
636000
638000
5584000
5582000
5580000
5578000
Nord
NTP
TAM
PIM
Frank
West Valley
Pimainus Creek
568146
568149
544903
1051905
1051898
1069824
1069823
664864
590952
Bethlehem Phase
Guichon-Chataway
Bethsaida Phase
Border Phase
Skeena Var
Guichon Var
Bethlehem-HV
Nicola Group
Spences Bridge Gr
SKWILKWAKWIL MTN
#47
#48
#20
4883, 0.05
#19
4882, 0.16
WV20-02
#17
WV20-01
#18
4881, 0.05
#22
#21
#30
R011, 0.01
#28
R09, 0.04
#26
R07, 0.03
#29
R010, 0.48
#25
R06, 0.39
#27
R08, 0.03
#24
R05, 0.65
91.5
25.3
#31
R012, 0
109.5
91.9
Rick Copper Prospect (new)
0
500
1,000 Meters
1:24,000
Geology Point Number
Geology Point 2020
Rock sample 2020
Cu%
Sample ID - Cu %
0.00 - 0.05
0.06 - 0.10
0.11 - 0.30
0.31 - 0.65
Soil sample 2020
Cu (ppm)
12.40 - 50.00
50.01 - 100.00
100.01 - 150.00
150.01 - 984.00
Silt Sample 2020
Cu_ppm
Silt Cu ppm
25.30 - 10.00
10.01 - 30.00
30.01 - 50.00
50.01 - 109.50
DDH 2020
Ore Showing
GD Outcrop/Subcrop
Fault
Truck access road
Contour (20m)
HV-Spences Bridge G
HV-Skeena Var
HV-Nicola G
HV-Guichon Var
HV-Guichon-Chataway Var
HV-Chataway-Border Ph
HV-Border Ph
HV-Border-HV Ph
HV-Bethsaida Phase
HV-Bethlehem Ph
HV-Bethlehem-HV
HCM Subclaim
HCM Claim

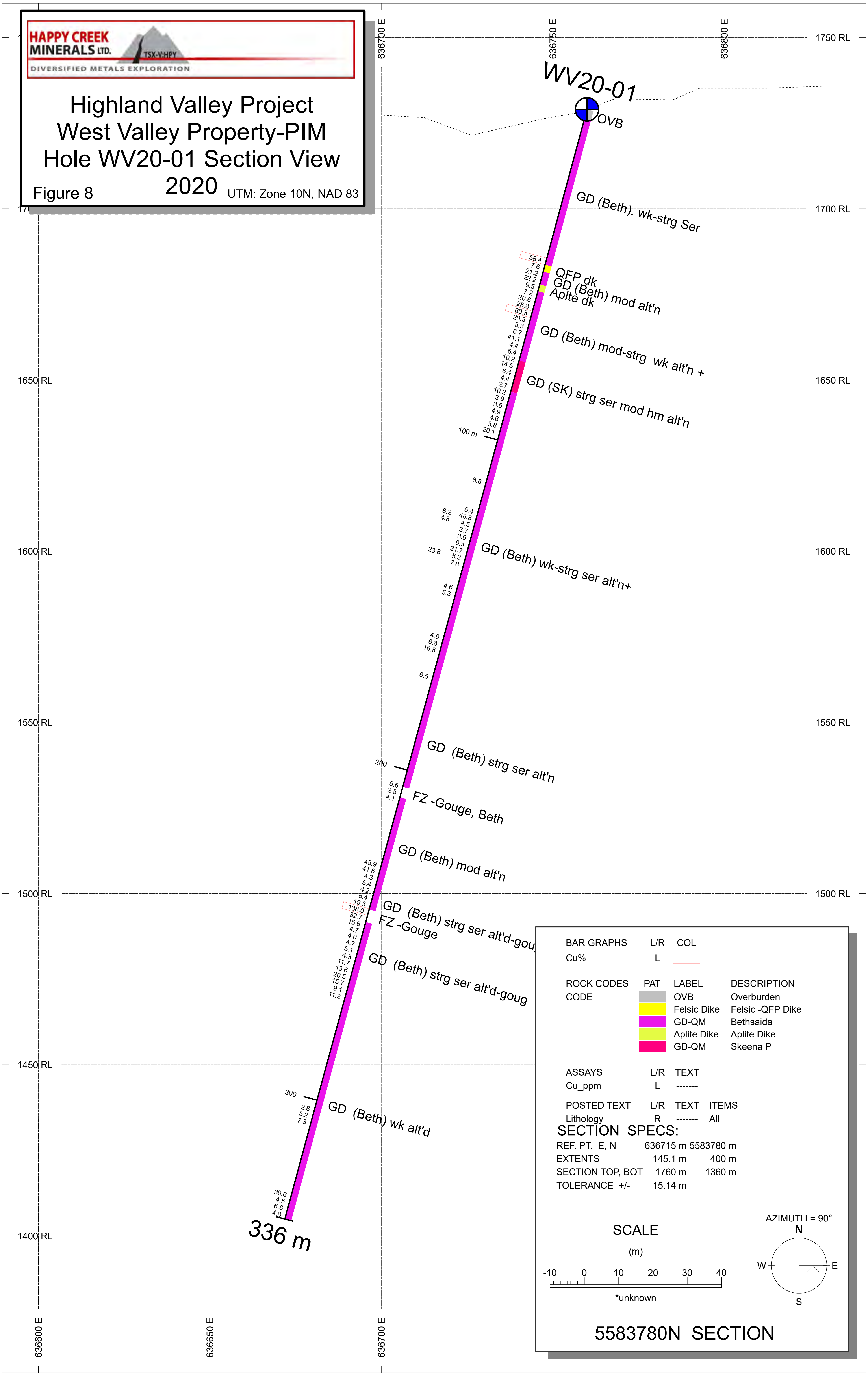

HAPPY CREEK MINERALS LTD.
TSX-V:HPY
DIVERSIFIED METALS EXPLORATION
Highland Valley Project
West Valley Property - PIM Area
Soil and Rock Samples, Cu Assay
2020
Figure 5
UTM 10, NAD 83
636000
636400
636800
637200
5584800
5584400
5584000
5583600
5583200
5582800
5582400
N
S
E
W
PIM
WV20-02
WV20-01
0.05
0.159
0.0462
SKAIST
MTN
Rock sample 2020
Cu (%)
0.00 - 0.01
0.02 - 0.05
0.06 - 0.10
0.11 - 0.65
Soil sample 2020
Cu (ppm)
12.40 - 50.00
50.01 - 100.00
100.01 - 150.00
150.01 - 984.00
DDH 2020
SDiv PIM soil cont_lnz
ZValue
100.000
100.001 - 200.000
200.001 - 400.000
400.001 - 560.000
Soil-PIM Cu.grd
Value
High : 630.956
Low : 13.1563
PIM
Road
Contour (20m)
HCM Claim
0
100
200
400 Meters
1:6,500



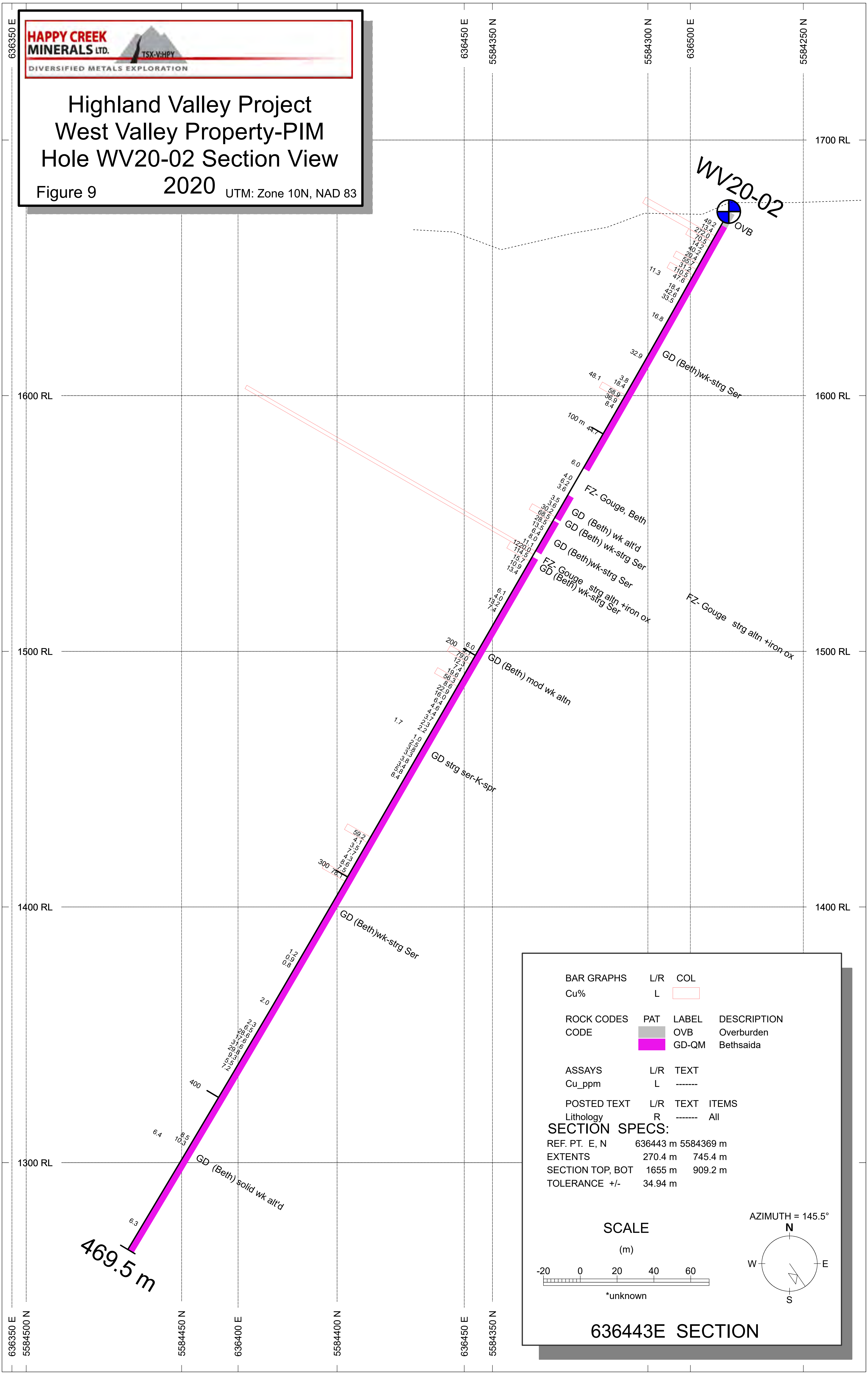
HAPPY CREEK MINERALS LTD.
TSX-V:HPY
DIVERSIFIED METALS EXPLORATION
Highland Valley Project
Rateria Property
2020 Geological Works
Figure 6
R a t e r i a
R20-01
R20-02
#4 4879, 0.61
#6 4880, 0.41
#23 4884, 0
Billy Lake
Roscoe Rd
Roscoe Fault
SAS
Zone 2
Bo
Yubet
Yubet South
Zone 1
3 Creek
ART
Roscoe
Chataway Fault
Chataway
Copper Creek
Moss 4
MossFault
Pimainus Rd
Chataway Rd
Sho
Sho-South
Broom
Twin Lake Fault
Skuhun Rd
SKU
Skuhun Creek Fault
Caper
TDM
WIZ
Aberdeen Mine
Tyner Lake
Bethlehem Phase
Bethsaida Phase
Skeena Var
Guichon Var
Guichon-Chataway
Border-HV
Bethlehem-HV
Geology Point Number
2020 rock sample Sample ID - Cu %
Cu%
0.00 - 0.05
0.06 - 0.10
0.11 - 0.30
0.31 - 0.65
2020 ddh
Ore Showing
GD Outcrop/Subcrop
Fault
Truck access road
Contour (20m)
HV-Skeena Var
HV-Guichon Var
HV-Guichon-Chataway Var
HV-Border-HV Ph
HV-Bethsaida Phase
HV-Bethlehem Ph
HV-Bethlehem-HV
HCM Subclaim
HCM Claim
0
1,000
2,000 Meters
1:42,500
644000
646000
648000
650000
652000
5586000
5584000
5582000
5580000
5578000
5576000
5574000
5572000



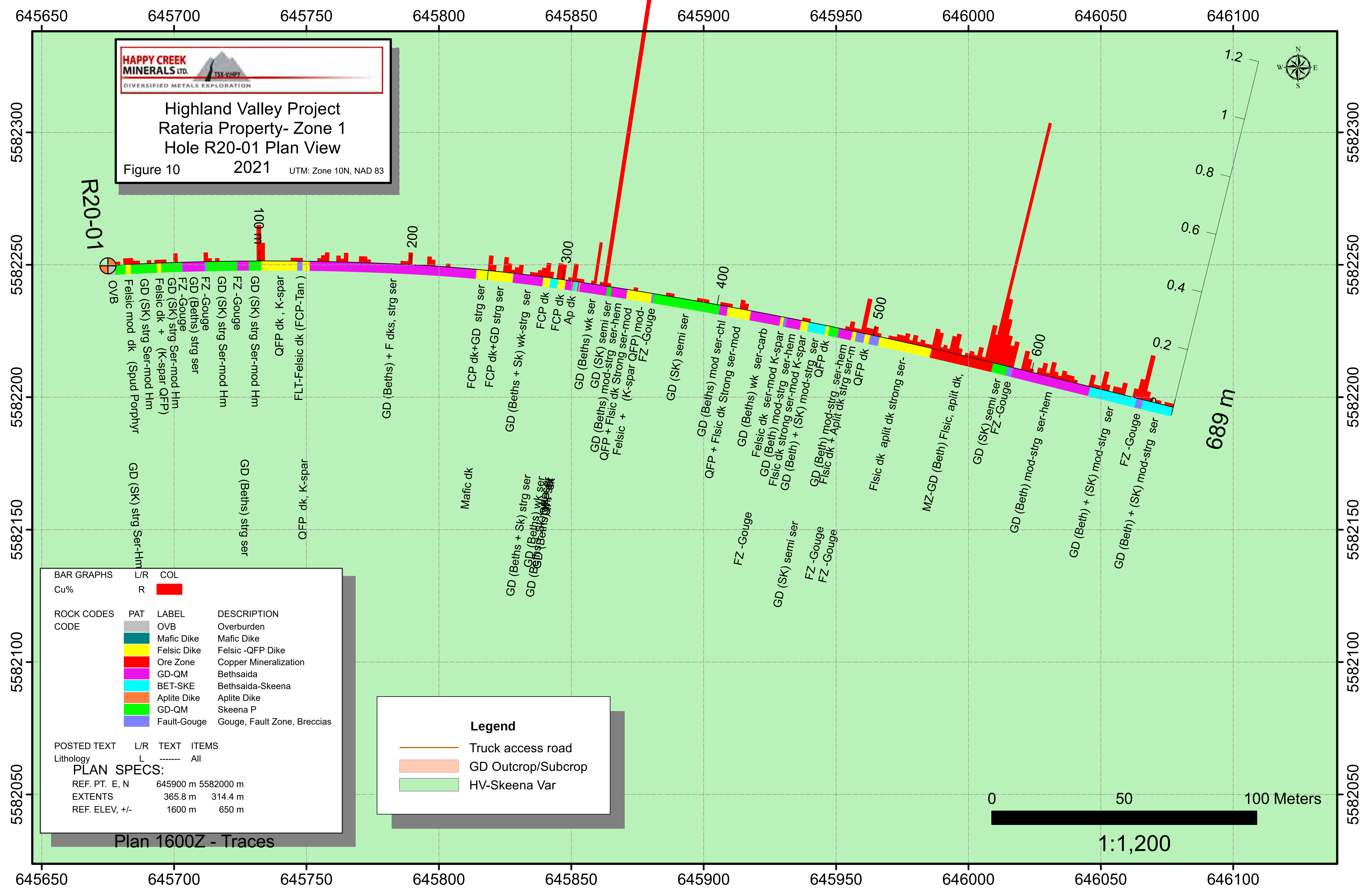
HAPPY CREEK MINERALS LTD.
TSX-V:HPY
DIVERSIFIED METALS EXPLORATION
Highland Valley Project
West Valley Property-PIM
2020 DDHs
UTM: Zone 10N, NAD 83
Figure 7
636400
636600
636800
5584400
5584200
5584000
5583800
WV20-02
WV20-01
Bethsaida Phase
Bethlehem Phase
BAR GRAPHS L/R COL
Cu% R
ROCK CODES PAT LABEL DESCRIPTION
CODE
OVB Overburden
Felsic Dike Felsic -QFP Dike
GD-QM Bethsaida
Aplite Dike Aplite Dike
GD-QM Skeena P
Fault-Gouge Gouge, Fault Zone, Breccias
POSTED TEXT L/R TEXT ITEMS
Lithology L ------- All
PLAN SPECS:
REF. PT. E, N 636500 m 5584000 m
EXTENTS 755.9 m 2084 m
REF. ELEV, +/- 1600 m 400 m
Plan 1600Z - Traces
Legend
2020 DDH
PIM Copper showing
Truck access road
GD Outcrop/Subcrop
2020 Soil sampels
Cuppm
8.40 - 50.00
50.01 - 100.00
100.01 - 200.00
200.01 - 1630.00
HV-Skeena Var
HV-Border Ph
HV-Bethsaida Phase
HV-Bethlehem Ph
0 50 100 Meters
1:2,000



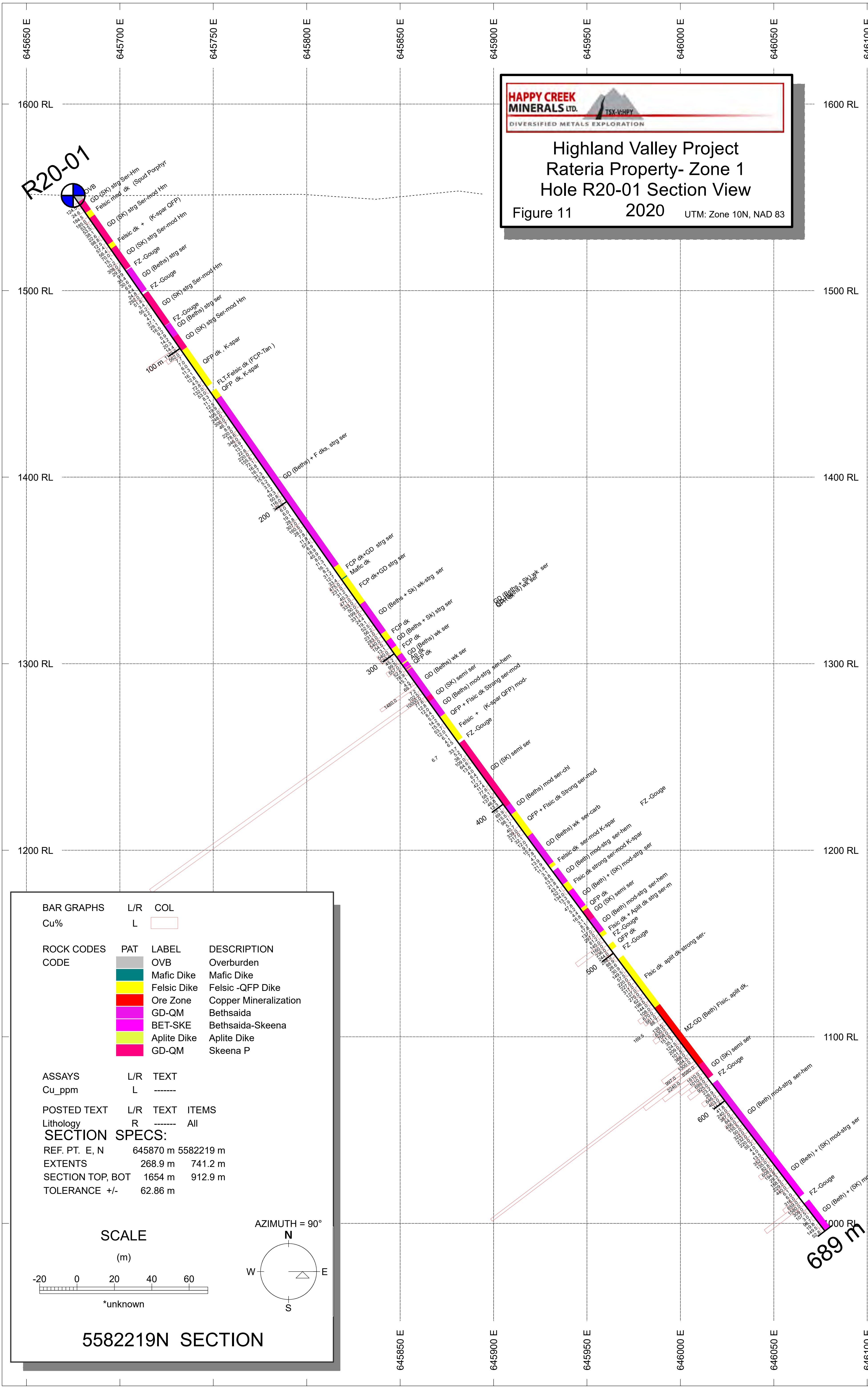
HAPPY CREEK MINERALS LTD.
TSX-V:HPY
DIVERSIFIED METALS EXPLORATION
Highland Valley Project
West Valley Property-PIM
Hole WV20-01 Section View
Figure 8
2020
UTM: Zone 10N, NAD 83
636600 E
636650 E
636700 E
636750 E
636800 E
1750 RL
1700 RL
1650 RL
1600 RL
1550 RL
1500 RL
1450 RL
1400 RL
WV20-01
OVB
GD (Beth), wk-strg Ser
QFP dk
GD (Beth) mod alt'n
Aplte dk
GD (Beth) mod-strg wk alt'n +
GD (SK) strg ser mod hm alt'n
100 m
GD (Beth) wk-strg ser alt'n+
GD (Beth) strg ser alt'n
200
FZ -Gouge, Beth
GD (Beth) mod alt'n
GD (Beth) strg ser alt'd-goug
FZ -Gouge
GD (Beth) strg ser alt'd-goug
300
GD (Beth) wk alt'd
336 m
BAR GRAPHS L/R COL
Cu% L
ROCK CODES PAT LABEL DESCRIPTION
CODE
OVB Overburden
Felsic Dike Felsic -QFP Dike
GD-QM Bethsaida
Aplite Dike Aplite Dike
GD-QM Skeena P
ASSAYS L/R TEXT
Cu_ppm L -------
POSTED TEXT L/R TEXT ITEMS
Lithology R ------- All
SECTION SPECS:
REF. PT. E, N 636715 m 5583780 m
EXTENTS 145.1 m 400 m
SECTION TOP, BOT 1760 m 1360 m
TOLERANCE +/- 15.14 m
SCALE
(m)
-10 0 10 20 30 40
*unknown
AZIMUTH = 90°
N
W
E
S
5583780N SECTION



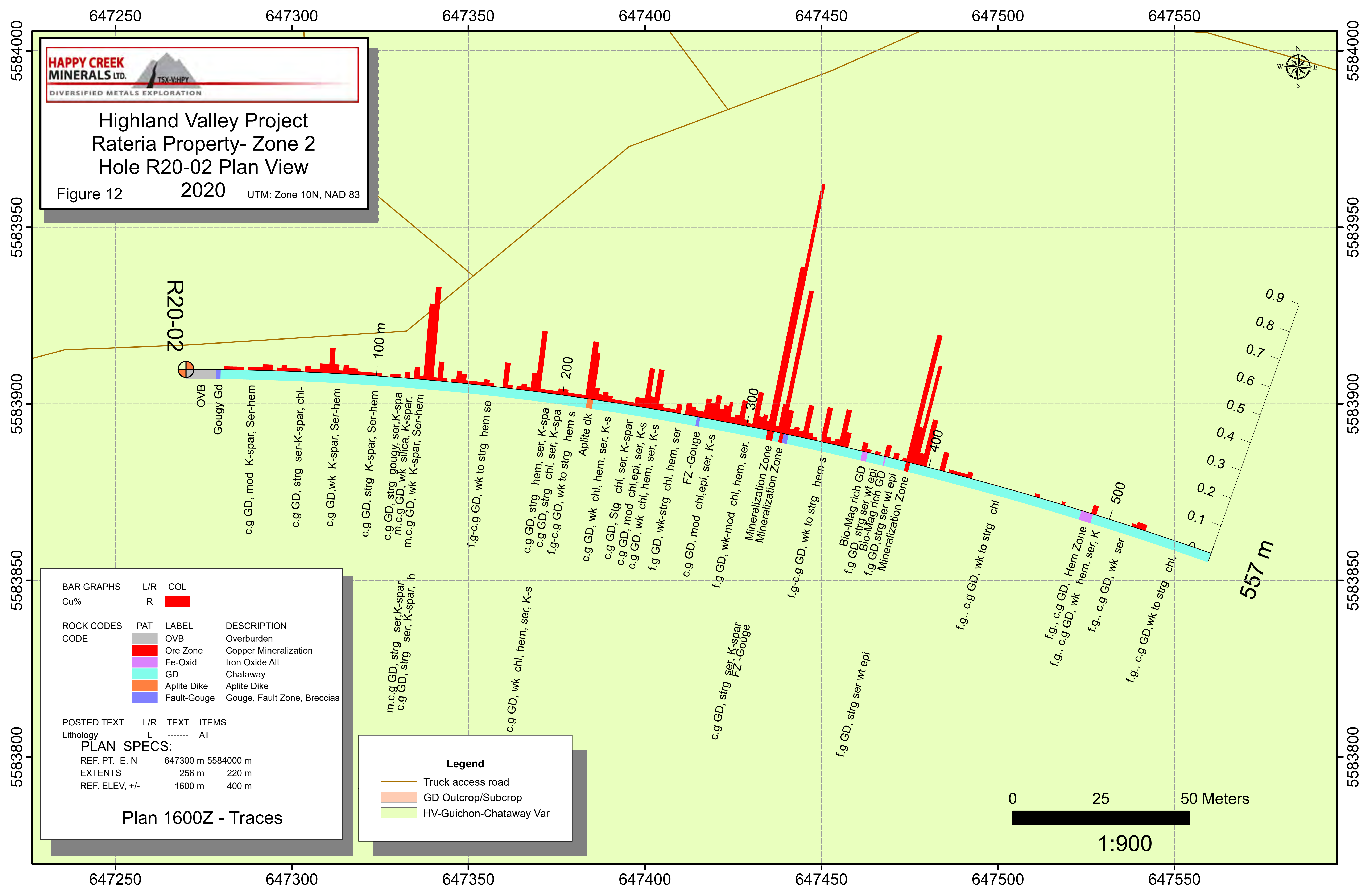
HAPPY CREEK MINERALS LTD.
TSX-V:HPY
DIVERSIFIED METALS EXPLORATION
Highland Valley Project
West Valley Property-PIM
Hole WV20-02 Section View
Figure 9
2020
UTM: Zone 10N, NAD 83
WV20-02
OVB
GD (Beth)wk-strg Ser
FZ- Gouge, Beth
GD (Beth) wk alt'd
GD (Beth) wk-strg Ser
GD (Beth)wk-strg Ser
FZ- Gouge strg altn +iron ox
GD (Beth) wk-strg Ser
FZ- Gouge strg altn +iron ox
GD (Beth) mod wk altn
GD strg ser-K-spr
GD (Beth)wk-strg Ser
GD (Beth) solid wk alt'd
469.5 m
100 m
200
300
400
1700 RL
1600 RL
1500 RL
1400 RL
1300 RL
636350 E
636400 E
636450 E
636500 E
5584500 N
5584450 N
5584400 N
5584350 N
5584300 N
5584250 N
BAR GRAPHS L/R COL
Cu% L
ROCK CODES PAT LABEL DESCRIPTION
CODE
OVB Overburden
GD-QM Bethsaida
ASSAYS L/R TEXT
Cu_ppm L -------
POSTED TEXT L/R TEXT ITEMS
Lithology R ------- All
SECTION SPECS:
REF. PT. E, N 636443 m 5584369 m
EXTENTS 270.4 m 745.4 m
SECTION TOP, BOT 1655 m 909.2 m
TOLERANCE +/- 34.94 m
SCALE
(m)
-20 0 20 40 60
*unknown
AZIMUTH = 145.5°
N
E
S
W
636443E SECTION

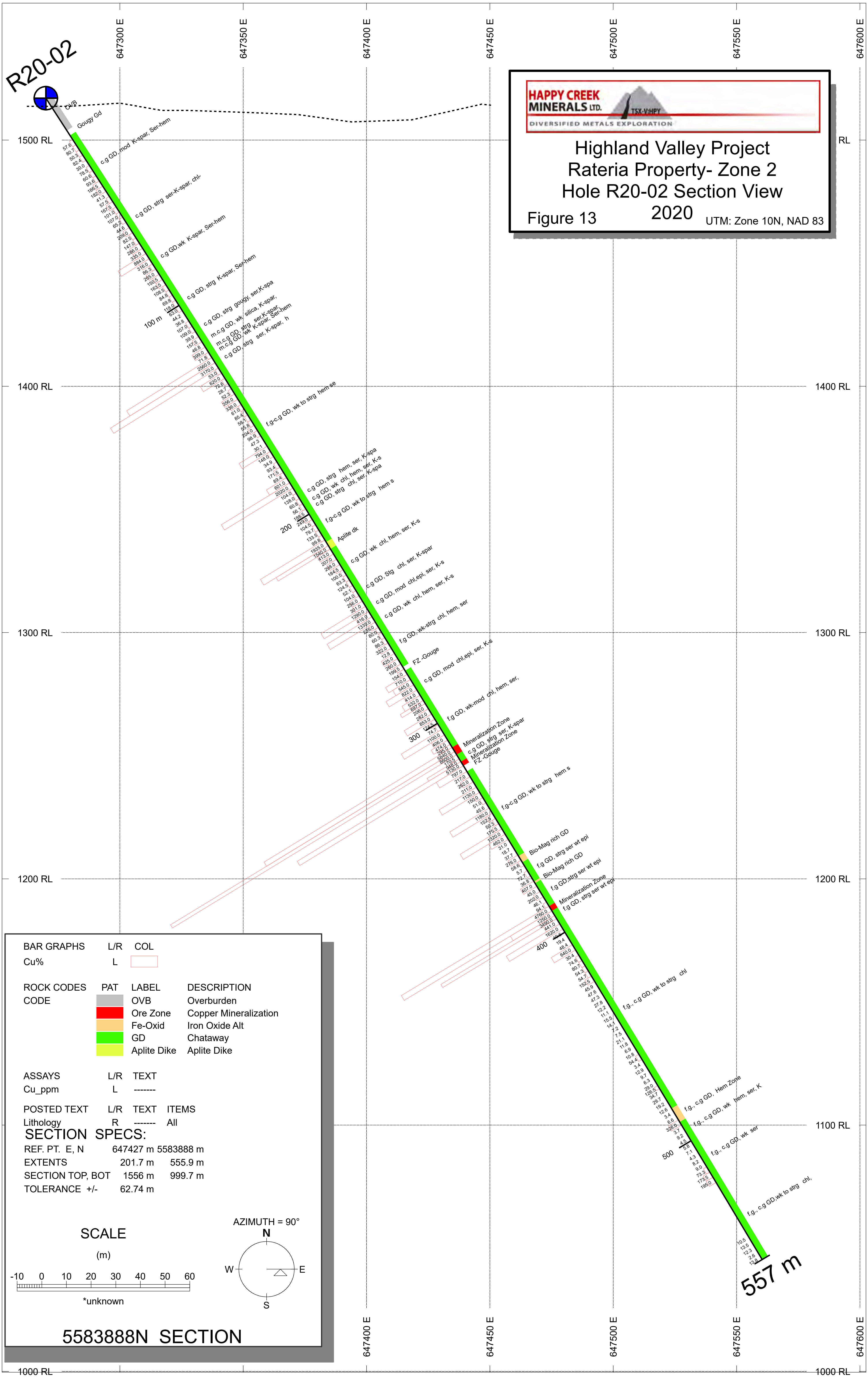


HAPPY CREEK MINERALS LTD.
TSX-V:HPY
DIVERSIFIED METALS EXPLORATION
Highland Valley Project
Rateria Property- Zone 1
Hole R20-01 Plan View
Figure 10
2021
UTM: Zone 10N, NAD 83
R20-01
689 m
1:1,200
0 50 100 Meters
BAR GRAPHS L/R COL
Cu% R
ROCK CODES PAT LABEL DESCRIPTION
CODE
OVB Overburden
Mafic Dike Mafic Dike
Felsic Dike Felsic -QFP Dike
Ore Zone Copper Mineralization
GD-QM Bethsaida
BET-SKE Bethsaida-Skeena
Aplite Dike Aplite Dike
GD-QM Skeena P
Fault-Gouge Gouge, Fault Zone, Breccias
POSTED TEXT L/R TEXT ITEMS
Lithology L ------- All
PLAN SPECS:
REF. PT. E, N 645900 m 5582000 m
EXTENTS 365.8 m 314.4 m
REF. ELEV, +/- 1600 m 650 m
Plan 1600Z - Traces
Legend
Truck access road
GD Outcrop/Subcrop
HV-Skeena Var



HAPPY CREEK MINERALS LTD.
TSX-V:HPY
DIVERSIFIED METALS EXPLORATION
Highland Valley Project
Rateria Property- Zone 1
Hole R20-01 Section View
Figure 11
2020
UTM: Zone 10N, NAD 83
R20-01
689 m
645650 E
645700 E
645750 E
645800 E
645850 E
645900 E
645950 E
646000 E
646050 E
646100 E
1600 RL
1500 RL
1400 RL
1300 RL
1200 RL
1100 RL
1000 RL
100 m
200
300
400
500
600
OVB
GD (SK) strg Ser-Hm
Felsic mod dk (Spud Porphyr
GD (SK) strg Ser-mod Hm
Felsic dk + (K-spar QFP)
GD (SK) strg Ser-mod Hm
FZ-Gouge
GD (Beths) strg ser
FZ-Gouge
GD (SK) strg Ser-mod Hm
FZ-Gouge
GD (Beths) strg ser
GD (SK) strg Ser-mod Hm
QFP dk , K-spar
FLT-Felsic dk (FCP-Tan)
QFP dk, K-spar
GD (Beths) + F dks, strg ser
FCP dk+GD strg ser
Mafic dk
FCP dk+GD strg ser
GD (Beths + Sk) wk-strg ser
FCP dk
GD (Beths + Sk) strg ser
FCP dk
GD (Beths) wk ser
Ap dk
QFP dk
GD (Beths) wk ser
GD (SK) semi ser
GD (Beths) mod-strg ser-hem
QFP + Flsic dk Strong ser-mod
Felsic + (K-spar QFP) mod-
FZ-Gouge
GD (SK) semi ser
GD (Beths) mod ser-chl
QFP + Flsic dk Strong ser-mod
GD (Beths) wk ser-carb
Felsic dk ser-mod K-spar
GD (Beth) mod-strg ser-hem
Flsic dk strong ser-mod K-spar
GD (Beth) + (SK) mod-strg ser
QFP dk
GD (SK) semi ser
GD (Beth) mod-strg ser-hem
Flsic dk + Aplit dk strg ser-m
FZ-Gouge
QFP dk
FZ-Gouge
FZ-Gouge
Flsic dk aplit dk strong ser-
MZ-GD (Beth) Flsic, aplit dk,
GD (SK) semi ser
FZ-Gouge
GD (Beth) mod-strg ser-hem
GD (Beth) + (SK) mod-strg ser
FZ-Gouge
GD (Beth) + (SK) mod-strg ser
BAR GRAPHS L/R COL
Cu% L
ROCK CODES PAT LABEL DESCRIPTION
CODE
OVB Overburden
Mafic Dike Mafic Dike
Felsic Dike Felsic -QFP Dike
Ore Zone Copper Mineralization
GD-QM Bethsaida
BET-SKE Bethsaida-Skeena
Aplite Dike Aplite Dike
GD-QM Skeena P
ASSAYS L/R TEXT
Cu_ppm L -------
POSTED TEXT L/R TEXT ITEMS
Lithology R ------- All
SECTION SPECS:
REF. PT. E, N 645870 m 5582219 m
EXTENTS 268.9 m 741.2 m
SECTION TOP, BOT 1654 m 912.9 m
TOLERANCE +/- 62.86 m
SCALE
(m)
-20 0 20 40 60
*unknown
AZIMUTH = 90°
N
W
E
S
5582219N SECTION


HAPPY CREEK MINERALS LTD.
TSX-V:HPY
DIVERSIFIED METALS EXPLORATION
Highland Valley Project
Rateria Property- Zone 2
Hole R20-02 Plan View
Figure 12
2020
UTM: Zone 10N, NAD 83
R20-02
557 m
100 m
200
300
400
500
OVB
Gougy Gd
Aplite dk
FZ -Gouge
Mineralization Zone
BAR GRAPHS L/R COL
Cu% R
ROCK CODES PAT LABEL DESCRIPTION
CODE
OVB Overburden
Ore Zone Copper Mineralization
Fe-Oxid Iron Oxide Alt
GD Chataway
Aplite Dike Aplite Dike
Fault-Gouge Gouge, Fault Zone, Breccias
POSTED TEXT L/R TEXT ITEMS
Lithology L ------- All
PLAN SPECS:
REF. PT. E, N 647300 m 5584000 m
EXTENTS 256 m 220 m
REF. ELEV, +/- 1600 m 400 m
Plan 1600Z - Traces
Legend
Truck access road
GD Outcrop/Subcrop
HV-Guichon-Chataway Var
0 25 50 Meters
1:900
647250 647300 647350 647400 647450 647500 647550
5584000 5583950 5583900 5583850 5583800

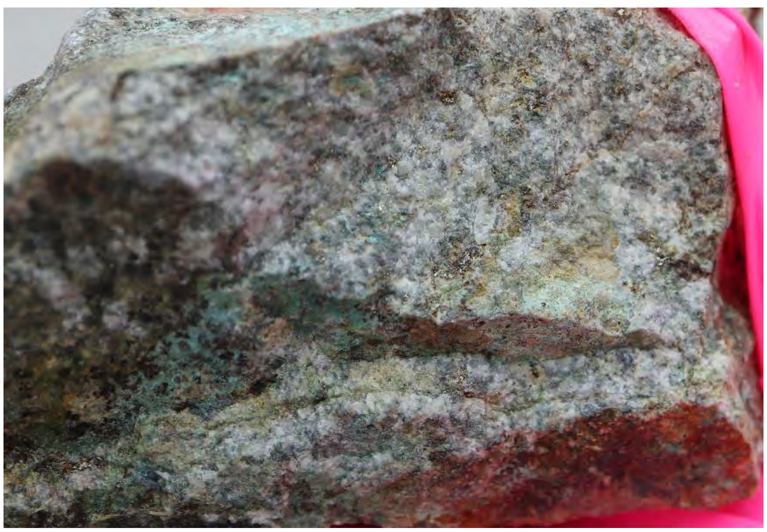


R20-02
HAPPY CREEK MINERALS LTD.
TSX-V:HPY
DIVERSIFIED METALS EXPLORATION
Highland Valley Project
Rateria Property- Zone 2
Hole R20-02 Section View
Figure 13
2020
UTM: Zone 10N, NAD 83
647300 E
647350 E
647400 E
647450 E
647500 E
647550 E
647600 E
1500 RL
1400 RL
1300 RL
1200 RL
1100 RL
1000 RL
OVB
Gougy Gd
100 m
200
300
400
500
557 m
Aplite dk
FZ -Gouge
Mineralization Zone
Bio-Mag rich GD
BAR GRAPHS L/R COL
Cu% L
ROCK CODES PAT LABEL DESCRIPTION
CODE
OVB Overburden
Ore Zone Copper Mineralization
Fe-Oxid Iron Oxide Alt
GD Chataway
Aplite Dike Aplite Dike
ASSAYS L/R TEXT
Cu_ppm L -------
POSTED TEXT L/R TEXT ITEMS
Lithology R ------- All
SECTION SPECS:
REF. PT. E, N 647427 m 5583888 m
EXTENTS 201.7 m 555.9 m
SECTION TOP, BOT 1556 m 999.7 m
TOLERANCE +/- 62.74 m
SCALE
(m)
-10 0 10 20 30 40 50 60
*unknown
AZIMUTH = 90°
N
W
E
S
5583888N SECTION

Appendix 1

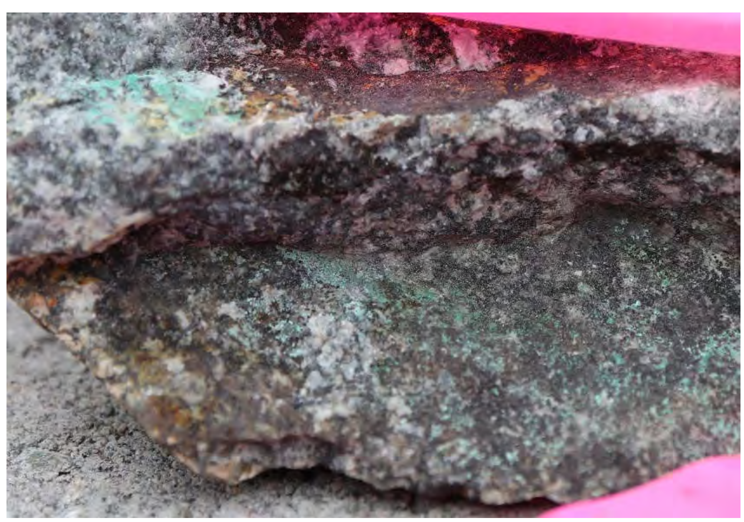
Photos of 2020 Field Work

Rick Prospect- a previously undocumented pyrite-chalcopyrite showing near the contact of the Guichon Batholith and Nicola Group/Spences Bridge Group, on west side of West Valley property, north of Skuhost Creek.



R-06 bi-chl-ep, ser with cp-py


R-10 mal-cp in epidote-garnet(?) calc sil


R12- Qtz-Ser- Py


R-05 Bi-chl, kaol, cp-mal

Pim copper target – south of Pimainus Lakes

4881- outcrop beneath moss

4881 intense ser with mal

intense Qtz-ser with mal

intense ser-qtz with mal

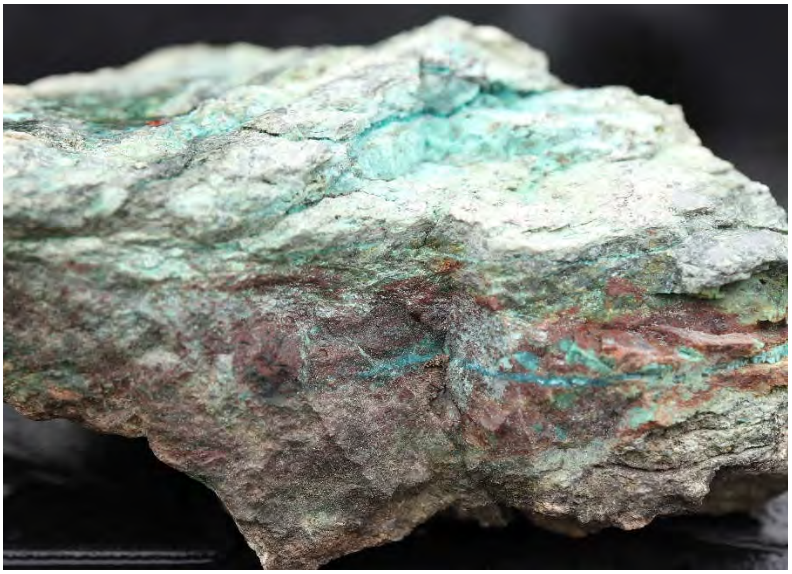
Pim Cp in musc veinlets

Frank North- ref #22 FeOx – ser frcts

DDH 20WV-02 qtz vein with cp, mal

DDH 20WV-02 cc in qtz vein

Rateria



Sample #4879 Billy Lake area trench muck pile

Sample #4880- Billy Lake road cut.

NW of Zone 2 ref #7

NW of Zone 2 sample 4882

Bo showing- ref #11

SW of Zone 1 old trench ref #13. Mal-FeOx ser

SW of Zone 1 Aplite dike (E-W) cuts Skeena ref #14

South Yubet ref #16.

Zone 1 DDH R20-01

Qtz-ser, chl with thin bo-cc veinlets and specs

Epidote -spec hem with thin bo-cc veinlets

Typical bleached and intensely ser-clay-hem in top of hole

thin spec hem-bo veinlets

Rateria DDH R20-02

Intense chl-ser-ca with qtz-bo-cc veins in highly broken, faulted rock.   K-feld envelope on Bo-Qtz vein

Bo-green mica veinlet in k- alt'd Chat Gd   close up of bornite

Typical bo-cc filled crackle veins in higher grade Cu-Mo-Au-Ag-Re zones.

Appendix 2

2020 HEG and Associates Geological Services Ltd. Report

2020 Report on the Hyperspectral and Field Program Completed on Happy Creek Mineral's Highland Valley Project

Prepared For:
Happy Creek Minerals Ltd
460-789 West Pender St
Vancouver, BC
V6C 1H2

John Ryan
HEG & Associates Geological Services, #202-1632 Dickson Ave Kelowna, BC V1Y 7T2

July 29, 2020

Field work completed by Ali Wasiliew, Ty Magee and John Ryan
HEG & Associates Geological Services, #202-1632 Dickson Ave Kelowna, BC V1Y 7T2

Data Packages Included:

- Drill Hole Geochem Compilation with Calculated Indexes
- Drill Hole Sulphide Geochemical Model
- Drill Hole Hyperspectral Results (Interpretation from the Halo)
- Drill Hole Hyperspectral Data File
- Strip logs of the holes reviewed
- Core photos of the core reviewed

- Field Station data
- Field Station photos
- Field Station Hyperspectral Results (Interpretation from the Halo)
- Field Station Hyperspectral Data Files

Map packages

- Field area geological maps
- Field area alteration maps
- Field area hyperspectral maps (spectral mineral presence and spectral indices)
- Field area geochemical maps
- Zone 1 and Zone 2 hyperspectral maps (spectral mineral presence and spectral indices)
- Zone 1 and Zone 2 area geochemical maps
- Project Overview maps of spectral indices
- Project Overview geochemical maps

Introduction

HEG and Associates (HEG) was retained to complete a 15 day program on Happy Creek Mineral's Highland Valley Project between 22 May and 5 June 2020 with two day following up the spectral results on June 22-23. The project consisted of a hyperspectral geology study of 19 drill holes (9 from Zone 1, 6 from Zone 2, and 4 holes from surrounding area) and a hyperspectral review of three principle field areas (Pim, Sho/South Sho and 3 Creeks/West Zone 2).

A total of 2538 spectral measurements were collected from drill core. During the field program 185 field stations were taken resulting in the collection of 42 geochemical samples (39 rock and 3 QAQC) and 253 spectral measurements.

The project objective was to examine the mineralogical and geochemical signatures of Zone 1 and Zone 2 in order to establish vectors to mineralization and evaluate the hyperspectral and geochemical response of the field areas.

Local Geology

Happy Creek Mineral's Highland Valley Project is located in the southern central portions of British Columbia approximately 200 km northeast of Vancouver and 32 km outside of the city of Merritt. The property is dominantly underlain by the Guichon Creek Batholith (GCB), which intruded the Nicola Formation during the late Triassic (Figure 1). Local skarn development is associated with the GCB-Nicola contact, the most significant of which is the historic Craigmont deposit, while the central portion of the GCB hosts among the most significant porphyry Cu-Mo deposits in British Columbia.

The GCB is a zoned intrusive body which consists of outer mafic phases that transition to a felsic inner core. From oldest to youngest these include the Border, Highland Valley (which includes the Guichon and Chataway varieties), Bethlehem, Skeena and Bethsaida phases (Northcote, 1969; McMillian, 1976). Recent age dating has shown that the major phases were emplaced between 211.02±0.17 and 208.15±0.22 Ma (D'Angelo et al., 2017). Porphyry mineralization in the batholith has been shown to have formed during two distinct periods; Bethlehem at 208.93±0.52 Ma and Valley-Lornex-Highmont around 208.15±0.22 Ma (Byrne et al., 2020).

Syn- and post-mineral dykes play an important role in defining the syn-mineral structural architecture. In the case of Bethlehem, dykes are focused into north trending dyke swarms (Ryan and Byrne, 2016). Within the Valley-Lornex-Highmont trend dykes are dominantly west-northwest trending approximately paralleling the main orientation of mineralization once post mineral-fault reconstruction is complete (Lesage, 2020).

Recent studies have better defined the alteration and hyperspectral signatures of the mineralization within the GCB. Four batholith-scale alteration domains have been defined and the extents mapped as part of a detailed fault reconstruction. This has demonstrated the importance of white mica in the batholith; a central white mica domain is closely associated with known mineralization, which transitions to a larger K-feldspar and subsequent propylitic footprint (Lesage, 2020); Figure 2). Sodic-Calcic alteration, centered on the porphyry systems, has also been defined, and has been linked to the influx and heating of saline seawater (Byrne et al., 2020).

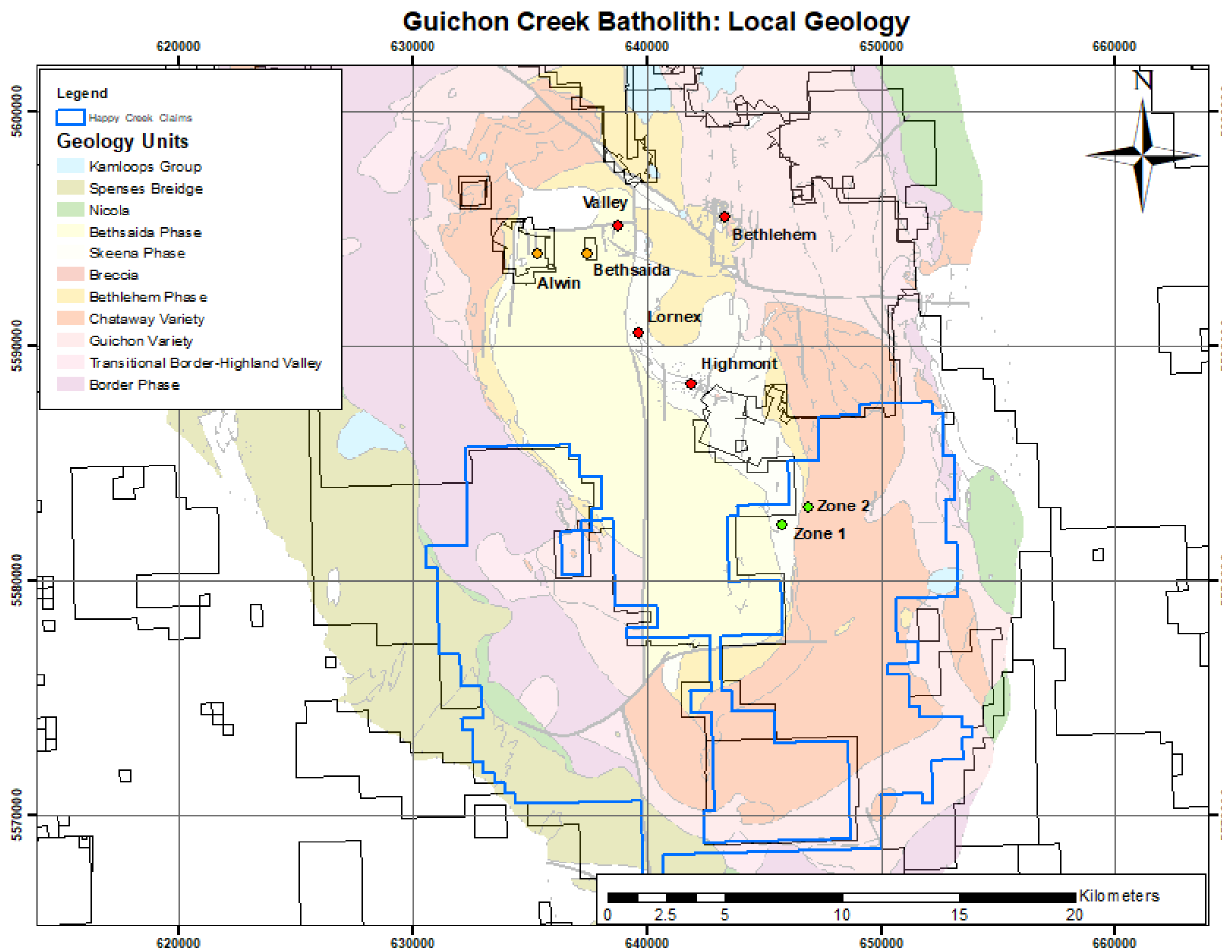


Figure 1: Simplified local geological map outlining Happy Creek Mineral's Highland Valley project (blue border), situated between Teck Resource's Highland Valley Copper mine and Nicola Mining's historic Craigmont mine.

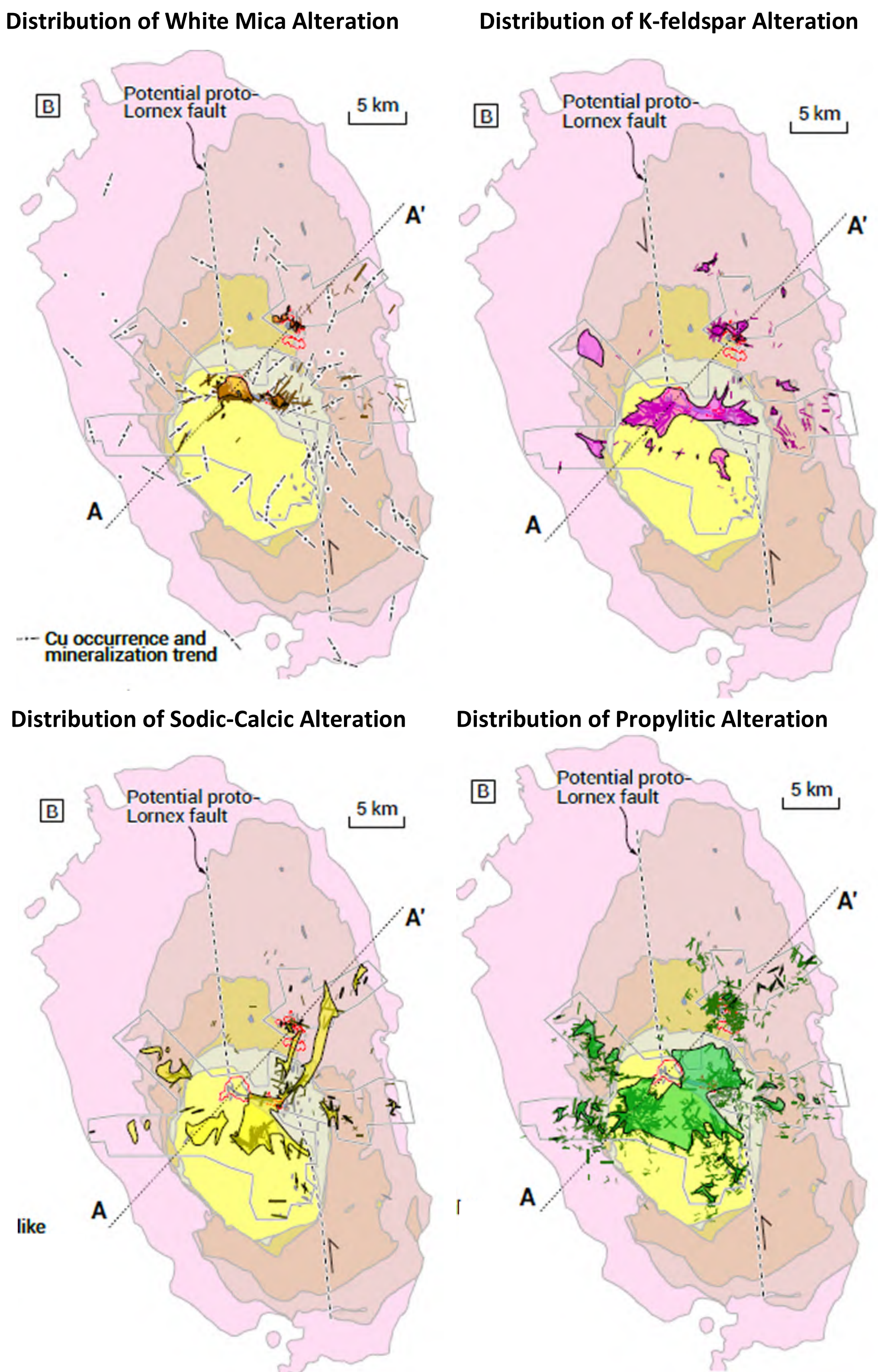


Figure 2: Plan view outline of alteration distribution of white-mica (orange), K-feldspar (pink), Sodic-calcic (yellow), and propylitic (green) alteration within the Guichon Creek Batholith, with focus on the Teck's Highland Valley Copper mine. (Modified from Lesage, 2020)

Hyperspectral Geology

Hyperspectral geology is a light based, non-destructive technique, which collects objective numerical data within the Visual/Near-Infrared (VNIR) and Short-Wave Infrared (SWIR) portion of the electromagnetic spectrum (Figure 3). Like how human eyes can detect shades of green based on subtle shifts in wavelengths within the visible potion of the spectrum, the spectrometers can measure subtle changes in the reflected/absorbed energy within the VNIR and SWIR portion of the spectrum.

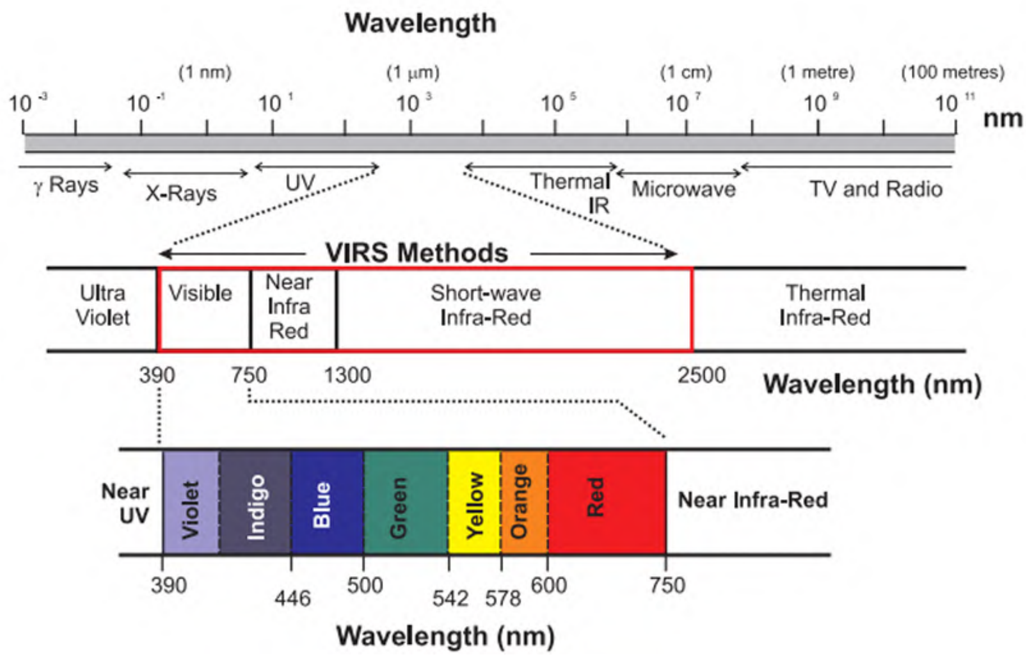


Figure 3: Schematic diagram outlining the electromagnetic spectrum, highlighting the visible/near infrared (VNIR) and short-wave infrared (SWIR) wavelength intervals.

Different elemental bonds have been linked to specific absorption features. Those absorption features related to cation-hydroxide, carbonate, ammonia, and water bonds are prominent between the 1300-2500nm portion of the spectral (Hauff, 2008). Combinations of these bonds have been linked to specific minerals through the development of robust reference libraries (Figure 4). Many softwares utilize the US Geological Survey Spectral Library, which allows for a comparison between field measurements and various laboratory samples of specific minerals, plants, chemical compounds, and man-made materials (Kokaly et al., 2017).

TABLE I – MAJOR ABSORPTION FEATURES

POSITION	MECHANISM	MINERAL GROUP
~1.4 µm	OH and WATER	CLAYS, SULFATES HYDROXIDES, ZEOLITES
~1.56 µm	NH_4	NH_4 SPECIES
~1.,8 µm	OH	SULFATES
~1.9 µm	WATER	SMECTITE
2.02, 2.12 µm	NH_4	NH_4 SPECIES
~2.2 µm	AL-OH	CLAYS,. SULFATES, MICAS
~2.29	Fe-OH	Fe-CLAYS
~2.31	Mg-OH	Mg-CLAYS, ORGANICS
~2.324	Mg-OH	CHLORITES
~2.35 +/- µm	CO_3^{-2}	CARBONATES
~2.35+	Fe-OH	Fe-CHLORITES

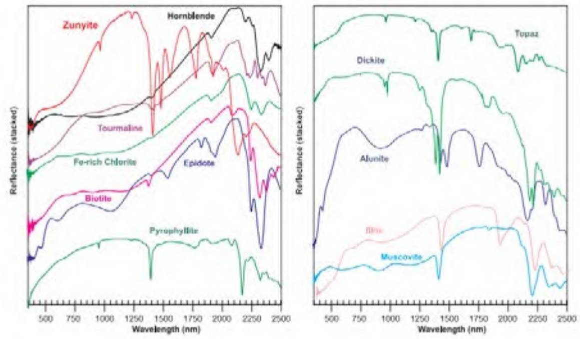


Figure 4: Specific elemental bonds are associated with particular elemental bonds which are then related to specific minerals. These combine to generate a spectra specific to certain minerals as defined by such reference libraries as the US Geological Survey Spectral library.

The elemental bonds which are responsive within the VNIR and SWIR portion of the spectra are well suited to inform exploration for base and precious metals. Many deposit styles are associated with fine-grained phyllosilicate, clays, and carbonate minerals which are difficult to confidently identify visually, and even more challenging to develop consistency in identification between large teams of geologists. These alteration minerals contain some of the most readily detected cation-hydroxide bonds. The terminology associated with these minerals is equally problematic, as field terms such as sericite and clay are often inconsistently applied between jurisdictions and projects adding to the consistency challenges.

Spectral geology can not produce quantitative measures of alteration mineral intensity; a rock completely altered to kaolinite and a rock with trace kaolinite will both results in a kaolinite spectral signature. Thus, large volumes of data are ideal as they can provide pseudo-quantitative measures of where minerals are present, where they are absent, and in some cases, how their compositions change. As the technique is light-based, light coloured minerals are preferentially detected over dark so care must be taken in the interpretation and supporting spectral interpretations with visual logging is advisable.

The application of hyperspectral geology on a project allows for the collection of objective numerical data. There are multiple methods of interpreting this information with increasing application of AI algorithm. The data can be reinterpreted as the interpretation methods evolve; thus, hyperspectral geology generates long lasting value for projects.

Spectral Properties of White Mica

White mica is a common feature throughout porphyry deposits and is commonly described as "sericite", a field term to indicate the presence of fine-grained phyllosilicates. This has led to white mica typically being grouped into sericitic or phyllic alteration zones. In reality, white micas are present in a variety of alteration environments ranging from high- to low-temperature (Alva-Jimenez et al., 2020).

White mica, for the purpose of this summary, includes those micas of the muscovite series, phengite series, and their respective illite counterparts. Changes in the crystal structure of white micas can be measured by short-wave infrared (SWIR, aka Hyperspectral, Multispectral) techniques. Variations in the Mg and Fe content of the mica is related to the Tschermak substitution of Al for Si (Halley et al., 2015). This can result in changes to the position of the AlOH spectral absorption feature (Alva-Jimenez et al., 2020; Figure 5). Changes from low-temperature illite to higher-temperature muscovite/phengite, can be inferred from the change in the water content of the white mica; measured by the ratio of the depth of the AlOH to the OH absorption features (Curtiss, PANalytical White Paper). This is commonly referred to as white mica crystallinity or illite spectral maturity (ISM). The shift between illite and muscovite/phengite is a solid solution within hyperspectral space and no one threshold is appropriate for each deposit. The change defined by the spectral data is a relative value, with higher values being more like muscovite and lower values more like illite. If the absolute boundary is important, then the mineralogical change must be confirmed by other analytical methods at which point the spectral data can serve as a proxy; previously collected data can be re-interpreted if and when this boundary is known.

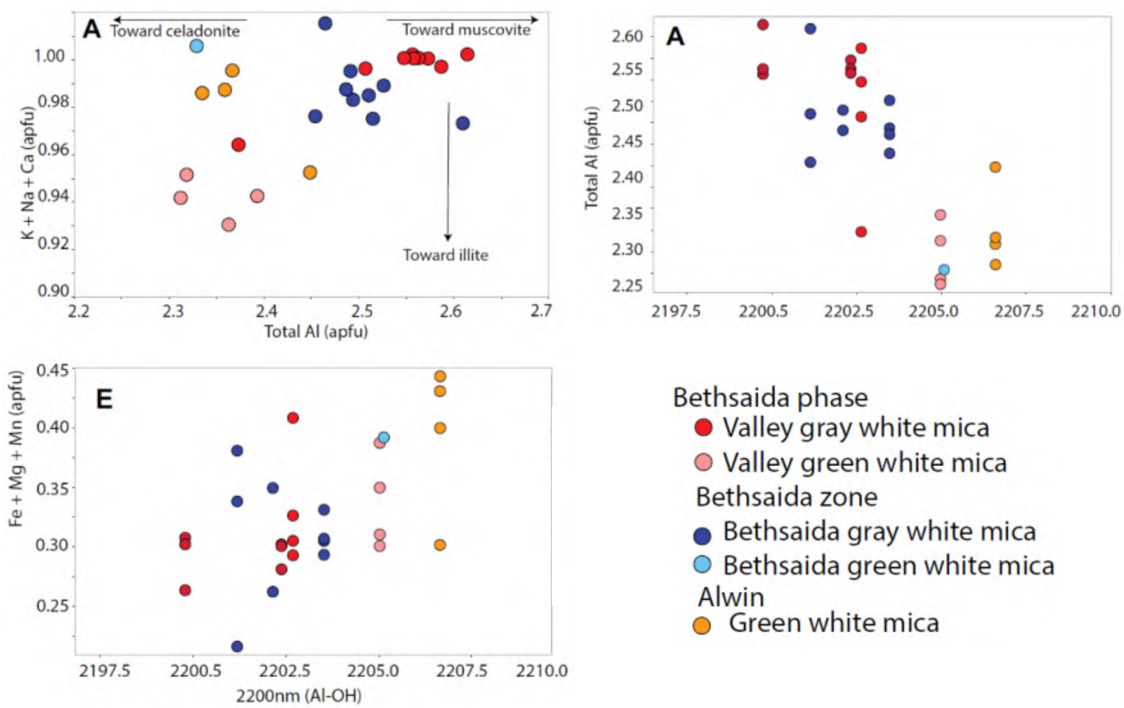


Figure 5: Changes in the composition of muscovite from a study of the Highland Valley Cu-Mo Camp show systematic changes in the position of the AlOH absorption feature linked to changes in Al, and Fe + Mg + Mn (modified from Alva-Jimenez et al., 2020).

Spectral Properties of Chlorite

Chlorite is a common "green rock" alteration around mineral systems, and often defines part of the propylitic alteration domain. Confidently vectoring within this domain has long been a challenge for geologists. Studies from around the Batu Hijau deposit have shown systematic changes in the chemistry of the chlorite with increasing distance from mineralization (Wilkinson et al., 2015). These changes partially manifest in the spectral results where the substitution for Fe and Mg within chlorite express as shifts in the position of the FeOH and MgOH absorption features. Chlorite with higher Mg numbers are associated with shorter FeOH and MgOH absorption features (Neal et al., 2018; Figure 6).

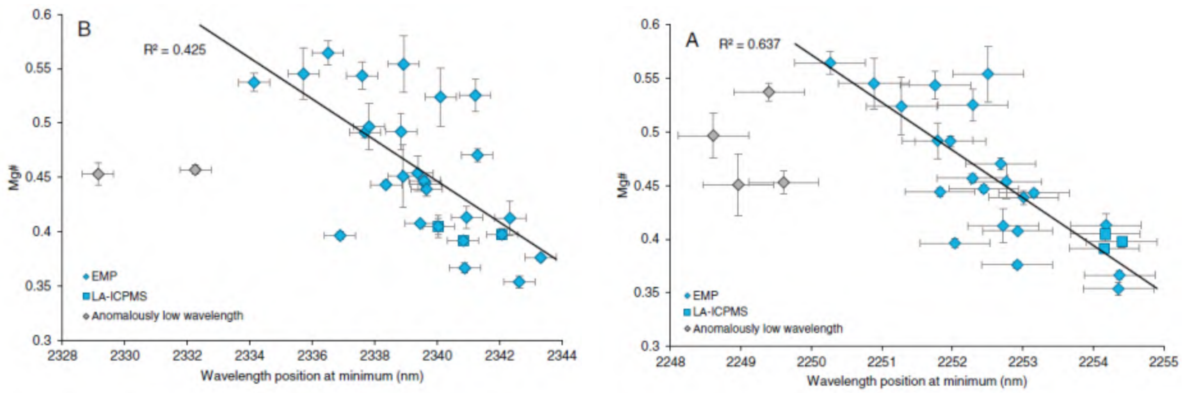


Figure 6: Shifts in the position of the FeOH and MgOH absorption features have been linked to the Mg# of chlorites (Neal, et al., 2018)

While in the case of Batu Hijau mineralization is associated with shorter FeOH and MgOH values, this is not consistent in all systems. In the case of the Bethlehem deposit in the GCB, Fe-rich chlorite is associated with the mineralized quartz-white mica-chlorite assemblage (Alva-Jimenez, 2011). This indicates that though systematic changes in chlorite may be a useful tool to vector to porphyry deposits, the relationship might need to be established locally.

Spectral Geology within the Guichon Creek Batholith

The differences in white mica compositions within the Valley-Bethsaida-Alwin and Bethlehem porphyry system has been reported by Alva-Jimenez et al. (2020) and Alva-Jimenez (2011) respectively. In the case of Valley-Bethsaida-Alwin, this has been shown to be part of a single alteration system by Lesage (2020). White mica-K-feldspar stability varies across the Valley-Bethsaida-Alwin system and is associated with changes in the white mica composition, mapped by shifts in the 2200 nm absorption feature (Alva-Jimenez et al., 2020). The AlOH absorption feature shifts from 2200nm in the center of the Valley deposit to 2207nm at the Alwin mine (Figure 7). This is paired with K-feldspar stability where K-feldspar is stable with white mica in the center of the Valley system while in the Bethsaida and Alwin portions of the alteration system, white mica alteration is K-feldspar destructive (Alva-Jimenez et al., 2020).

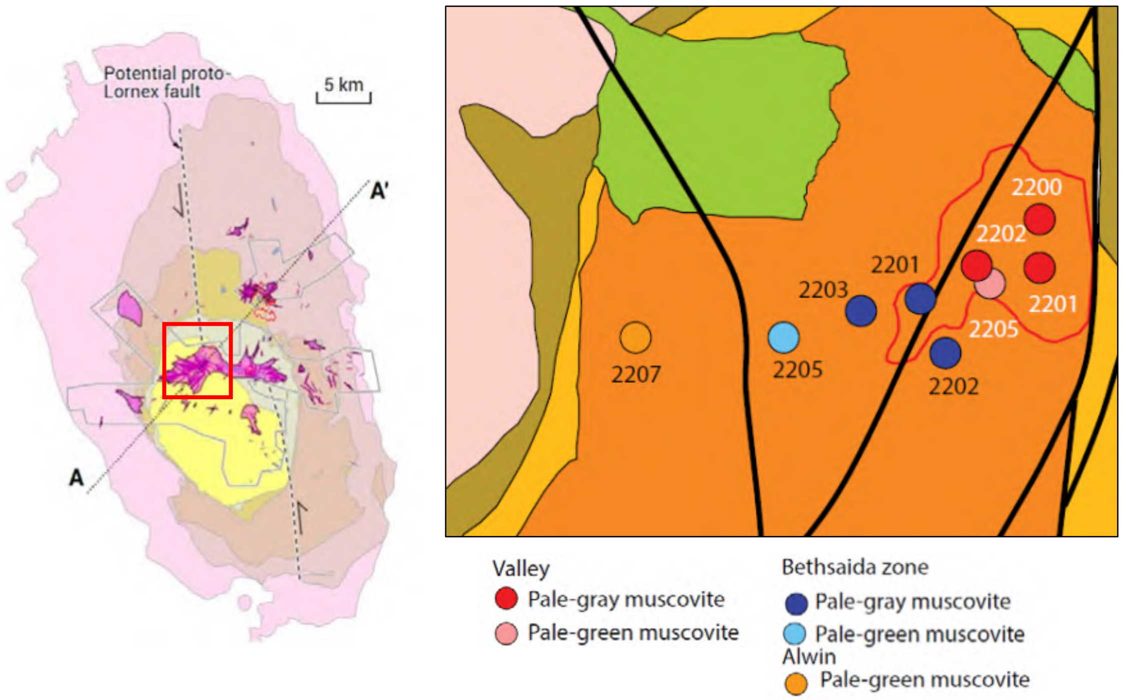


Figure 7: (Left) Plan view outline of K-feldspar alteration distribution within the Guichon Creek Batholith, focusing on the Highland Valley Copper Mine; (Right) Zoomed in schematic plan view of the Valley-Bethsaida-Alwin portion of the deposit, highlighting changes in the white mica composition.. Note that the left figure has the displacement along major structures removed while the figure on the right has not. (Modified from Lesage, 2020 and Alva-Jimenez et al., 2020)

The changes in white mica composition is significant as it is decoupled from the metal endowment of each portion of the system. The Alwin Mine reports considerably higher grades and saw small-scale production while the Bethsaida Zone was lower grade with only a limited history of bulk sampling. Historical data reports intercepts such as 1.51% Cu over 19.6m at the Alwin Mine (minfile 092ISW010) and 0.60% Cu over 34.8m at the Bethsaida zone (minfile 092ISW042). It is possible that the Alwin mine with its higher-grade was a red herring for historical porphyry exploration efforts. Had the spectral information been available, the partially blind Valley deposit may well have been discovered earlier in the history of the Highland Valley Copper camp.

Chlorite alteration is more dominant in the Bethlehem deposit, and is likely related to the more abundant iron which can be scavenged from the more mafic host rocks. In the “Phyllic” zone of the Bethlehem deposit, the associated chlorite has been shown to be relatively Fe-rich. Microprobe work shows the “Phyllic” chlorite reports more iron that the chlorite in other assemblages while spatially clustering in between the Jersey and Iona pits (Alva-Jimenez, 2011; Figure 8). This suggests that long wavelength FeOH features relating to chlorite may vector towards mineralization within the relatively mafic outer phases of the batholith.

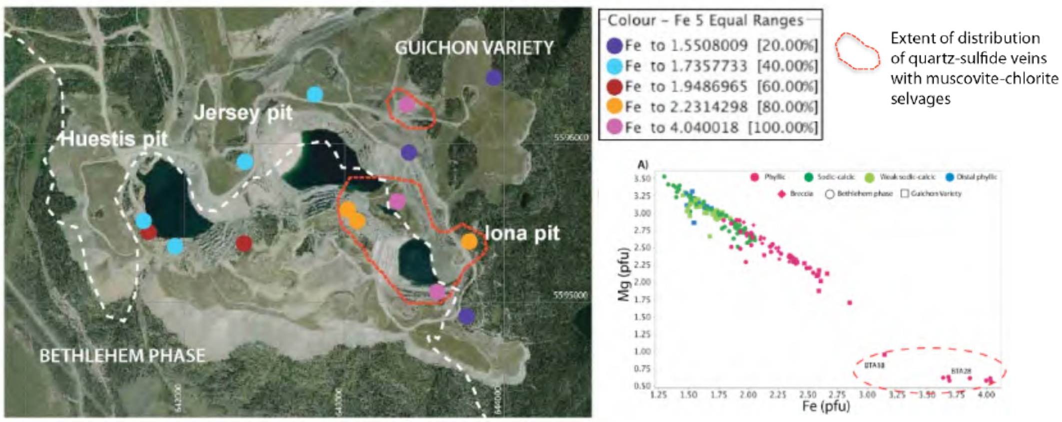


Figure 8: Shifts in the position of the FeOH and MgOH absorption features have been linked to the Mg# of chlorites (Neal, et al., 2018)

TerraSpec Halo – Data Capture

HEG utilized the TerraSpec Halo (Halo) to collect spectral data as part of this project. The Halo collects a spectra from a roughly 1 cm diameter field of view. Measurements are collected with a spectral resolution between 3 and 9.8 nm, in the range between 350-2500 nm.

On core, measurements were collected on average every 1.9m. The feature being measured was recorded for all measurements; with definitions provided in Table A. Where veining was present, measurements were focused on them. If the vein or vein halo was thick enough to completely cover the Halo measurement window, then the feature was recorded as vein fill or vein halo respectively. If the vein was thinner than the Halo measurement window, then the measurement was recorded as a stringer indicating potential contamination of the spectra from adjacent alteration. Measurements were only collected on core where the core was clean of staining and dry.

On field samples, measurements were collected from representative chip and grab samples, or on fresh outcrop. Metadata was collected about each measurement as was done on the drill core. Measurements avoided oxidized or visibly weathered surfaces unless intense oxidation was typical of the area in which case the alteration was considered representative. For two days, the Halo was deployed in the field as outcrops were dry. In this case, measurements focused on fresh surfaces. Where oxidized or organic-covered surfaces were present, the rock was broken to expose a fresh face.

Table A: Definitions of measurements features recorded in the spectral metadata.

Feature Type	Definition
Alt	Rock visibly altered. Measurement taken from typical pervasive or selective pervasive alteration
Clot	Alteration is visibly irregular. Measurement taken from distinct clot of alteration
Unaltered	Rock is visibly fresh. Measurement should be considered a comparison against background
Gouge	Measurement collected from fault gouge
Stringer	Measurement centers on thin stringer collecting a mix of vein, vein halo and host-rock alteration
Vein Fill	Measurement centered on vein fill which completely covered the Halo sensor window
Vein Halo	Measurement centered on the vein halo which completely covered the Halo sensor window.
Vein Plane	Measurement taken from the vein face potentially containing a mix of vein fill and halo mineralogy.

QAQC of TerraSpec Halo Data

The Halo undergoes regular, automatic-calibration during its use and requires re-referencing to a known white reference material if it fails the internal calibration. In addition to this, HEG has developed independent reference material to track instrumental drift. Field duplicate measurements are also collected to test for natural variability of the material to ensure that anomalies are of material importance and not due to natural, or sampler induced noise. Below is a summary of the QAQC results for the project.

Standards

HEG developed an independent reference standard by measuring a piece of cut reference material 120 times. The outline of the sensor end of the Halo was traced onto the reference material to ensure that approximately the sample location is measured every time. In developing the standard values, the Halo was repositioned between each of the 120 measurements.

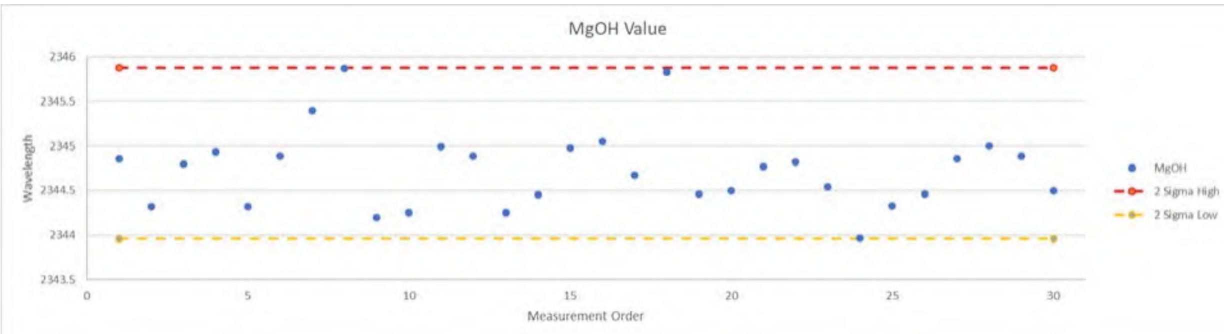
Standard values for Halo Standard 1 have been established for the AlOH and MgOH feature positions.

2 Std Dev Range for AlOH
Low 2198.12 High 2198.92

2 Std Dev Range for MgOH

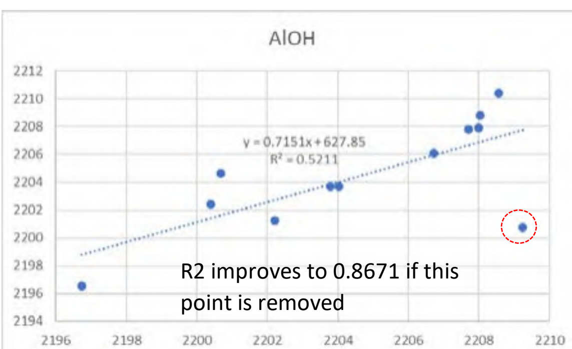
Low 2343.96 High 2345.88

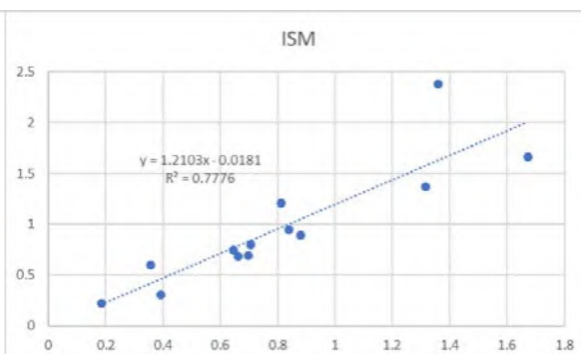
Throughout the program, the standard was measured 30 times. Ranges for the Halo results are provided below. Values between ±2 standard deviations are considered a pass, if the standard reports outside of this range it is immediately retested and if it fails again, the Halo is turned off and restarted.



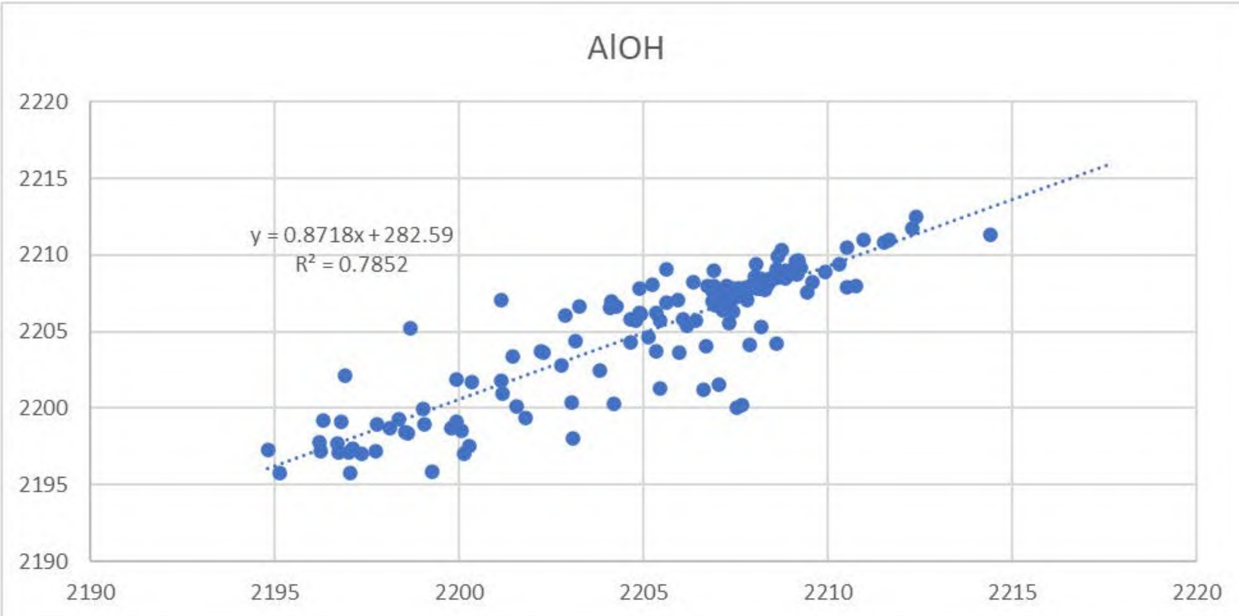
Duplicates

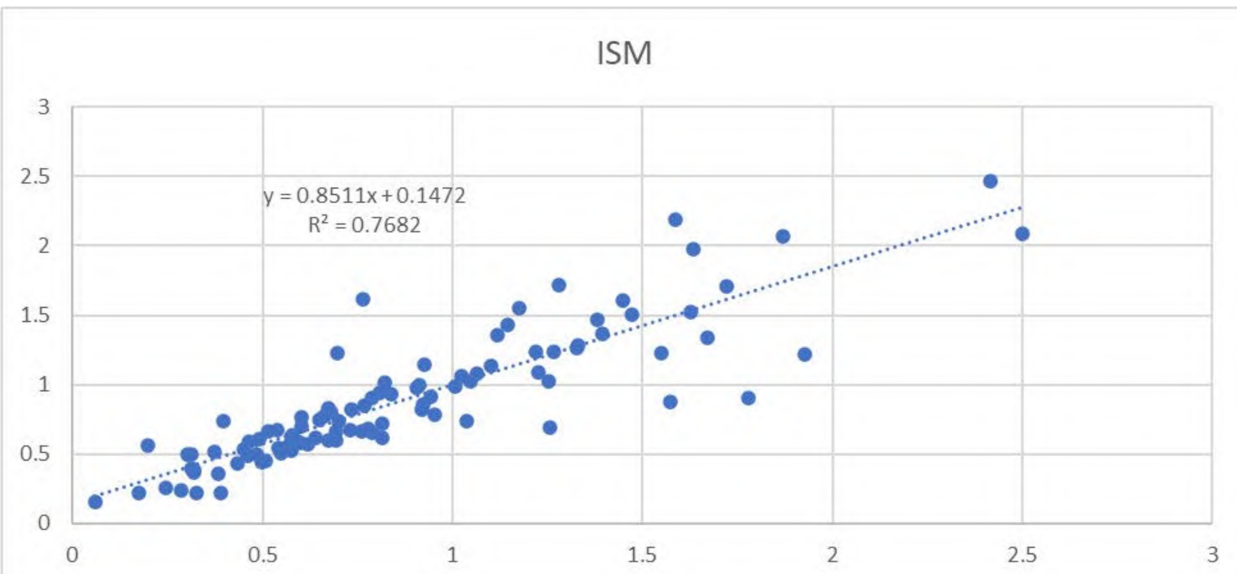
Duplicate measurements were collected for roughly 7% of the field samples (17/236). After a measurement was collected from the feature of interest, the Halo was removed and repositioned to a new location on the same feature (ie. The same vein halo or similar visual alteration) in order to examine the natural variability or sampler bias. Results for the position of the AlOH feature and calculated ISM values indicate R^2 values of 0.5211 and 0.7776 respectively. One outlier in the AlOH duplicate comparison is responsible for the lower R^2; if that point is removed the R^2 is 0.8671.





Duplicate measurements were collected for roughly 6.5% of the drill core measurements (168/2549). These were collected in the same manner as described for field samples. Results indicate an R2 of 0.7852 and 0.7682 for the AlOH and ISM values, respectively.





Results

The Halo standards demonstrate good instrumental consistency throughout the program. Duplicate measurements from both drill core and field samples also indicate good consistency from the sampled material. Duplicates have not been separated by feature (vein halo vs vein fill vs stringers vs host rock alteration), but the data suggested good consistency for features throughout the dataset. There is also good consistency in the duplicates from field samples, suggesting that variability due to surface oxidation was appropriately mitigated by selecting visually fresh rock to collect data on.

Data Cleaning

All spectra were run through HEG and Associates internal data cleaning procedures. This includes reviewing all interpretations reported by the Halo and, developing mineral presence columns as well as cleaning the spectral parameters.

The Terraspec Halo interprets the spectral results by comparing the spectra progressively against its built-in mineral library. The first mineral interpreted is based on the best fit that can be found between the spectra measured and the reference library. Subsequent mineral interpretations are based on the best fit of the residual spectra. As this process proceeds there is increased risk in interpreting noise as part of the results. Mineral picks 1-3 are therefore more reliable than mineral picks 4-7.

HEG repots mineral "Order" columns which reports if a mineral is spectrally detected and where it falls within the interpretation order. This simply transcribes the Halo interpretation and there is no modification to the interpretation. Minerals are then grouped into "Mineral Groups" (modified after Neal et al., 2018). This categorizes the diverse minerals which can be reported by the Halo into groups of similar mineralogical structure; for example, kaolinite and halloysite are grouped into the Kandite mineral group. The first occurrence of a mineral within a group is then reported in the mineral group order column.

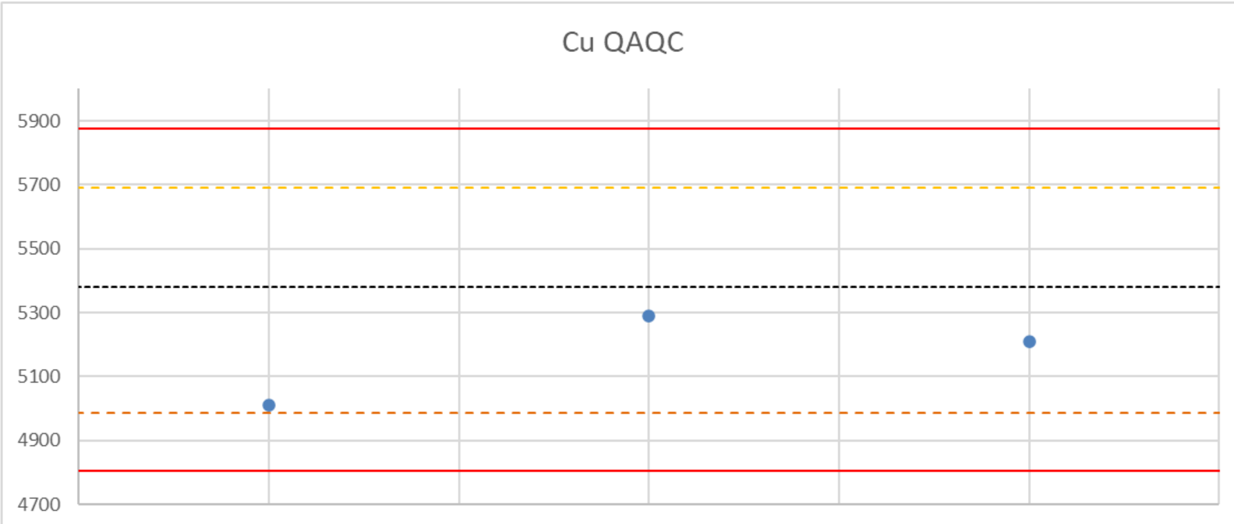
Data cleaning, in addition to that completed by the Halo, is done on the ISM, AlOH, and MgOH spectral parameters. This is based on the mineral group classification and removes the parameter if it is likely to be interfered with by bonds present in other minerals. For example, the ISM parameter is applicable to white mica and based on a calculation involving the OH and AlOH bonds. These bonds are also present in Kandite minerals; thus, the calculation is unreliable when Kandite-white mica mixes are present. All spectral parameters that are cleaned in this manner has "_clean" added to the column title.

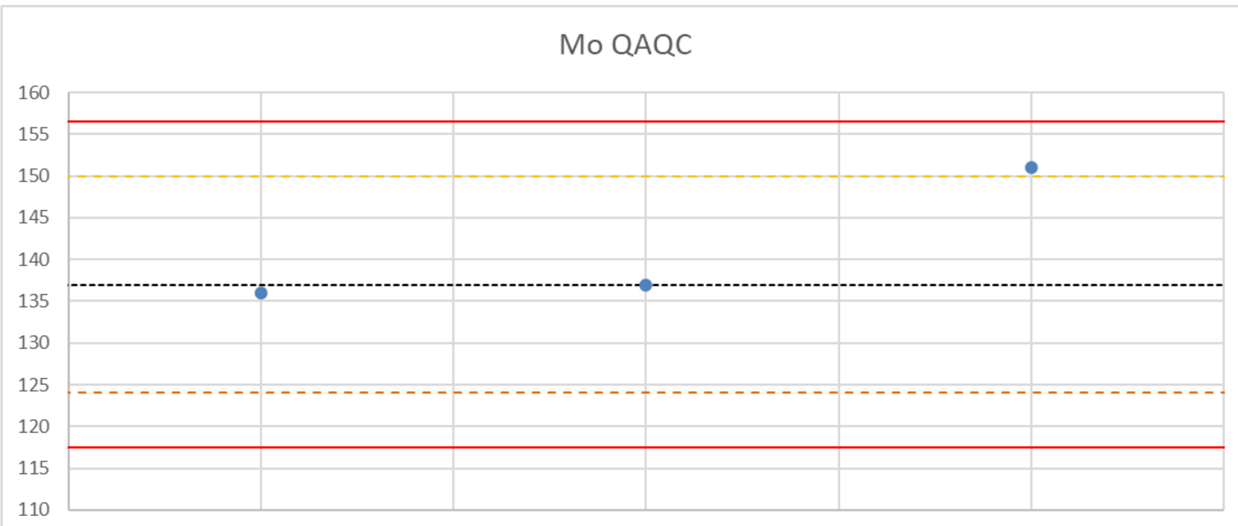
All original data is preserved, the Mineral Order, Mineral Groups and Cleaned columns are added to the dataset provided by the Halo.

Geochemical Sampling

HEG staff collected grab samples as part of the review of the Pim, Sho/South Sho, and 3 Creeks/Zone 2 West areas. These samples were generally focused on veins in order to examine subtle changes in the distribution of indicator elements (discussed below). Sampling avoided the collection of significant copper-oxide on surfaces as this is likely at least partially transported copper.

Samples were submitted to Act Labs in Kamloops for prep and analysis with their UT-6M method (QOP Total/QOP Ultratrace- 4acid Digest (Total Digestion ICPOES/ICPMS)). Three samples of standard CDN-CM-39 were blindly submitted to verify the results. The QAQC plots for copper and molybdenum are shown below. The certified values for copper of the standard are tighter than the precision of the geochemical analysis used. In consultation with Act Labs a pass-fail threshold of ±10% was used representing the analytical precision at the certified copper value while ±6.66% was used as the warning threshold. All samples passed QAQC with one Mo value just beyond the +2 Sigma warning threshold.





Geochemical Data Review

The following is a brief summary of the metal zonation in a porphyry system largely based on the work by Halley et al. (2015).

Metals zonation in the porphyry environment is largely controlled by the temperature of the hydrothermal fluids, which either deposit elements that were enriched in the hydrothermal fluid or strip elements that are present in the rock which the fluids pass through. Metals within a porphyry system zone vertically from the deep copper-rich environment up through a predictable series of pathfinder elements within the hydrothermal plume (Figure 9). Although these elements are generally of subeconomic quantities they provide significant insight into the level of erosion/depth of drilling investigation within a mineral system. The spatial distribution of these metals were examined from the results of the surface program and from within the drill data provided.

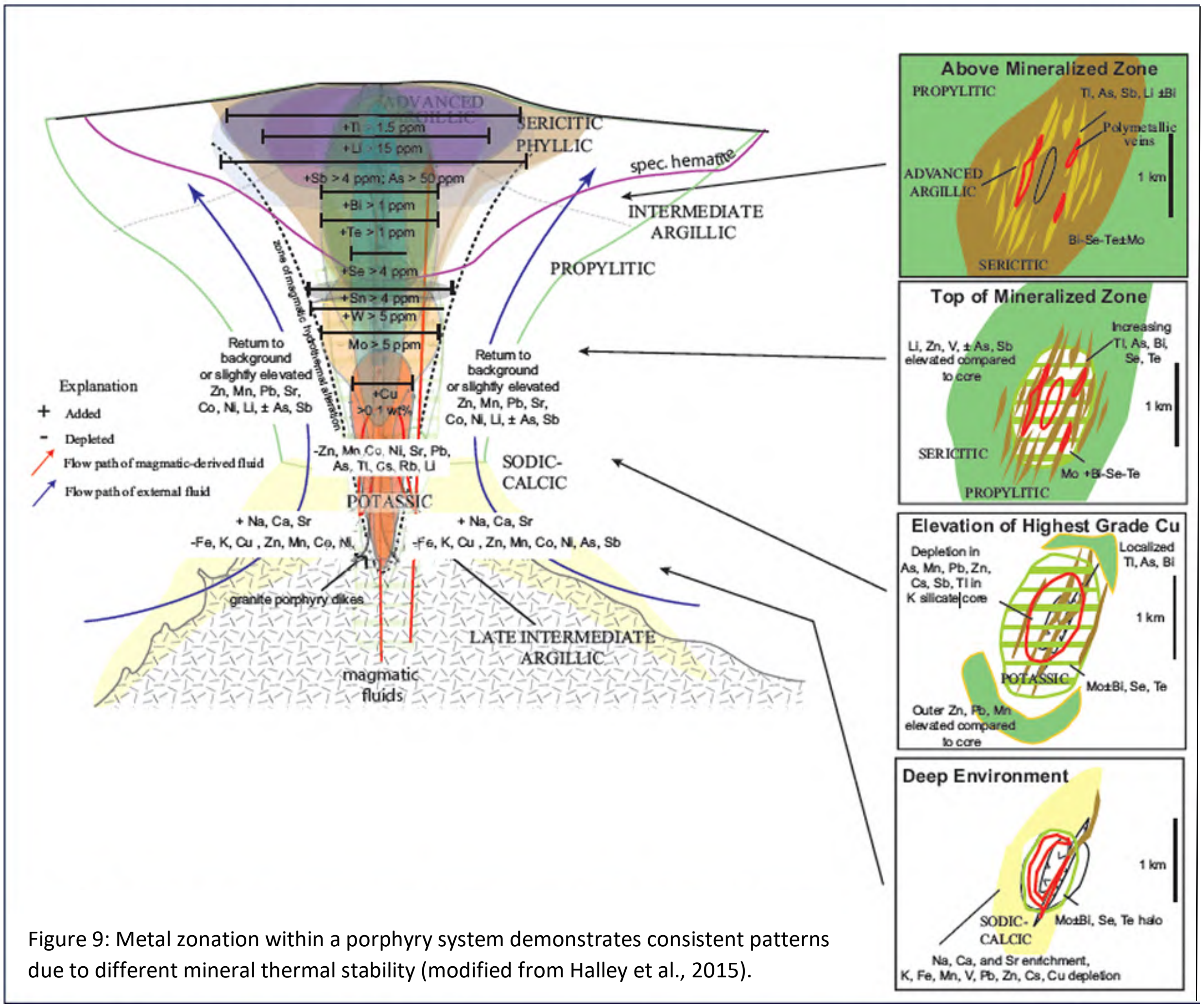


Figure 9: Metal zonation within a porphyry system demonstrates consistent patterns due to different mineral thermal stability (modified from Halley et al., 2015).

Authors such as Bouzari et al, (2019) have proposed ratios to help discern porphyry from epithermal targets (Equation 1). Often, sampling collects considerable oxide-rich mineralization which can strongly affect the results. To mitigate this, HEG employs a modified porphyry index which excludes copper from the calculation, considering only the deep near porphyry elements to highlight porphyry targets (Equation 2).

Equation 1: Porphyry Index after Bouzari et al., (2019)

$$Porphyry\ Index = \frac{\left(\frac{Cu}{10}\right) + Mo + (10 * W) + (20 * Sn)}{(5 * Sb) + (20 * Tl) + Ag + As + Li}$$

Equation 2: Modified porphyry index, modified after Bouzari et al., (2019)

$$Modified\ Porphyry\ Index = \frac{Mo + (10 * W) + (20 * Sn)}{(5 * Sb) + (20 * Tl) + Ag + As + Li}$$

An examination of immobile elements and mobile major cations was proposed within the scope of this study. This was not possible for the drill data due to the digestion used which will not breakdown feldspars enough to apply these geochemical tools.

The geochemical sulphide model proposed was possible. The model corrects for the presence of molybdenite then assumes all remaining sulphur is present in iron and copper sulphides. A low to intermediate sulphide assemblage is assumed, as is typical for most porphyry deposits. Based on the ratio of copper/sulphur the weight percentage of pyrite, chalcopyrite, bornite and chalcocite is calculated assuming the sulphide assemblage is in equilibrium. This model cannot accurately predict sulphides where two events with different sulphidation states are present (eg. A cpy-bn vein cut by a later py vein). Based on the observations made during the visual review of the core this is likely not a significant concern for Zone 1 and Zone 2.

The results from this model are provided in the strip logs for each hole and in the provided geochemical table.

Field Program

A total of 5 day were spent in the field (June 2-4 and June 22-23) reviewing 3 field areas: the Pim, Sho, and 3 Creeks targets while an additional quick review was conducted over the Zone 2 west area. Traverses were completed across the areas in order to develop geological context and generate hyperspectral data layers to aid in target development. From June 2-4 representative and chip samples were collected from each location to allow for post-field hyperspectral data collection while on June 22-23 environmental conditions (namely dry weather) allowed for the TerraSpec Halo to be carried in the field. A total of 186 field stations were collected, with 42 geochemical samples submitted (39 rock, 3 standards), and 253 spectral measurements collected from the field stations.

The areas were not mapped in detail, but observations and spectral results have been used to generate map layers to aid in targeting.

Data Capture

Data was collected using HEG's Fulcrum-based geotraverse app. Two types of stations are recorded, geological, and quick stations. Geological stations record the lithology, alteration, mineralization, veining, and structures at a single location. Because the data structure is based on a 1:1 relationship between a location and a vein or structure measurement, quick stations are used to record additional veins or structures at a single location. For example, an outcrop with 3 vein types, or orientations, will have one geological station and two quick stations. Quick stations are also used to capture individual veins or structures where there has been no material change in host lithology, alteration, or mineralization.

Alteration parameters consider the bulk change to the rock, including changes to rock forming minerals as well as any addition of hydrothermal minerals through veining or breccia fill. A 0-5 scale is used based on the definitions below (Table B). All structural measurements are collected using right hand rule.

Table B: Definitions of alteration intensity using HEG's 0-5 scale.

	Alteration intensity	Definition
1	Trace	Mineral Present but insignificantly altered the rock. Veining may be very sparse (<1cm of vein fill vein every 2m)
2	Weak	Mineral has materially changed the primary minerals, but all primary textures are well preserved. Veining should be common (>1cm of vein fill vein every 2m)
3	Moderate	Mineral has started to alter the rock to begin masking primary textures or veining intensity is considerable.
4	Strong	Mineral has altered the primary texture enough to mask textures or veining is intense.
5	Very Strong	Mineral has obliterated the texture of the rock

Field Vein Classification

Veins were classified into vein types based on visual mineralogy. This resulted in the following classification parameters modified after Lesage (2020) (Table C).

Table C: Vein type classification based on visual mineral presence.

Vein Type	Typical Vein Vill	Vein Halo	Vein Width	Associated Mineralization
K-Feldspar	K-Feldspar+-Quartz	Local Sericite	0.75 cm average	None Found
Sericitic	Quartz-Calcite-Chlorite-Specularite	Sericite-Chlorite	1.25 cm average	Malachite Dominant, local bornite-chalcocite(?)
Sodic-Calcic	Epidote-Quartz	Albite	0.50 cm average	None Found
Propylitic	Epidote-Chlorite-Prehnite	Sericite-Epidote	0.1 cm average	None Found
Propylitic-2	Epidote-Quartz	Sericite	0.65 cm average	Rare Malachite- bornite-chalcocite
Zeolite	Zeolite+-Sericite	Sericite	0.25 cm average	None Found
Limonitic	Limonite	Clay	0.1 cm average	None Found

Once classified into vein types, the spectral properties of the veining was examined. ISM vs AlOH plots demonstrate two populations: one group displaying low ISM values (<0.5) and a cluster with higher ISM values (Figure 10). The low ISM values likely do not reflect clean white mica measurement and are not appropriate to vector from. The population with the higher ISM signature show a shift from lower ISM, long AlOH values related to propylitic veins to increasing ISM and shorter AlOH values associated with the sericitic, propylitic-2 and sodic-calcic veins.

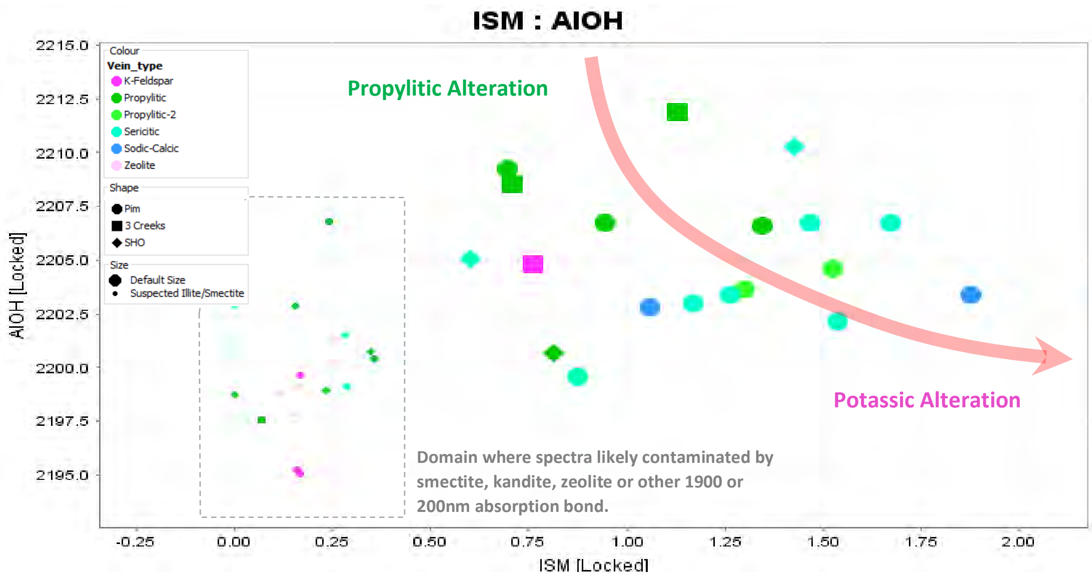


Figure 10: ISM vs ALOH plots indicat two populations of data from field samples. Overall, veins of the propylitic assemblage plot with longer wavelengths while those with shorter wavelengths tend to be of the sericitic of propylitic-2 vein types.

Examining only those veins with ISM values over 0.5 in box and whisker plots confirms that the highest ISM values are associated with the Sodic-Calcic, Propylitic-2, and Sericitic veins (Figure 11). These veins, along with the single K-Feldspar vein, also show the most prospective AlOH values with mean values between 2203 and 2205. The Propylitic veins on the other hand, show AlOH values which are typically outside of the prospective AlOH ranges and low ISM values. The single K-Feldspar vein does not provide a good population to work with and further data needs to be collected to build confidence in the typical ranges for that vein type.

This analysis shows this vein classification to be consistent with the expected alteration environments. Veining related from the propylitic-2, sericitic, sodic-calcic and K-feldspar groups should all be considered prospective while the propylitic veining is less interesting from an exploration prospective. The higher ISM and low AlOH ranges suggest a relatively hot and acidic environment associated with these veins and changes within these ranges should be able to further vector towards local focused of hydrothermal fluid.

Of the three target areas, Pim shows relatively consistent, high ISM and low AlOH values which suggests the hottest and most acidic environment out of the targets reviewed. (Figure 12). Sho displays slightly higher average ISM values associated with veining but longer AlOH values while 3 Creeks displays relatively low ISM values and moderate AlOH values. This suggests a relatively distal environment for both of these targets relative to Pim.

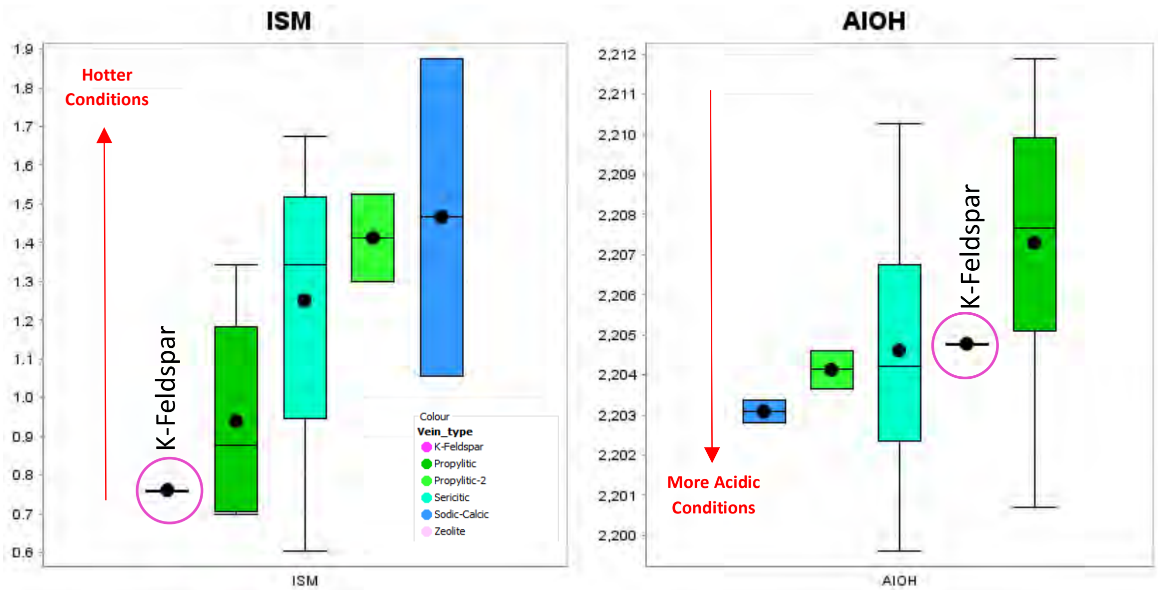


Figure 11: Box and whisker plots show the sericitic, propylitic-2 and sodic-calcic veins are associated with higher ISM values and lower AlOH absorption features.

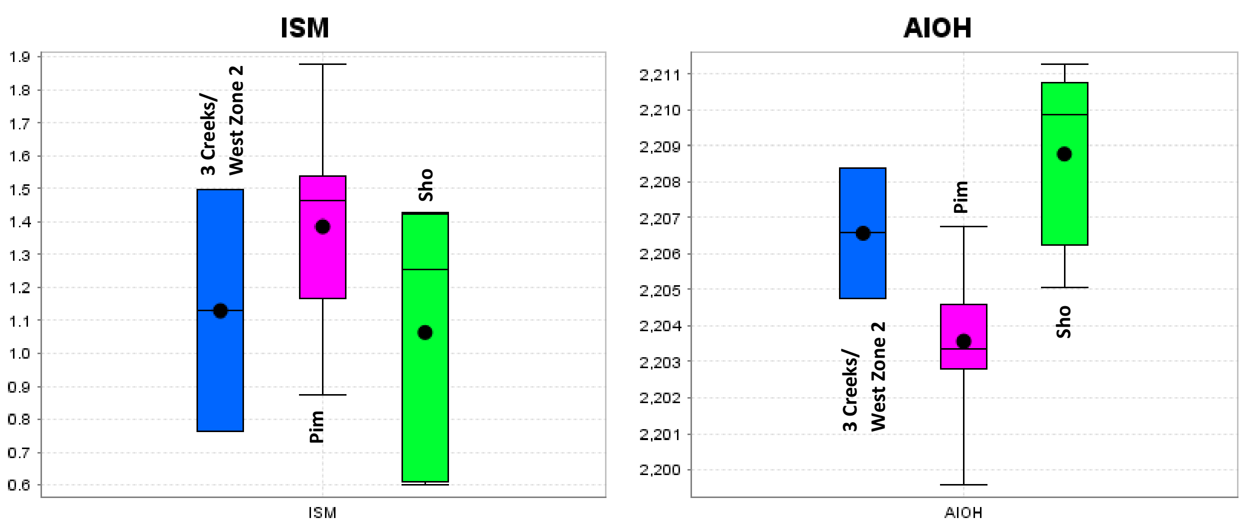


Figure 12: Box and whisker plots show that Pim is associated with the highest ISM and AlOH values.

Pim

The Pim target is hosted within the Bethsaida and Skeena phases of the GCB with a potential pendant of the Bethlehem phase locally preserved. Aplitic dykes are common throughout the area, trending north and northwest. Locally, aplite dykes display miarolitic-like cavity fill of K-feldspar and quartz (Figure 13) which may be an indication of hydrous magmatic conditions (Candela, 1997). Along strike these locally transition into K-Feldspar veins. Two main faults are interpreted in the area, one bounding the western side of the mapped area where a sharp change in topography was noted and another north-northeast trending linear recessive feature which is central to the target area.

Figure 13: Examples of aplite dykes within the Pim target area. These locally display miarolitic-like cavity file along the contacts and local lenses or centers of pegmatitic textures.

Alteration in the area is heavily vein-controlled with only trace white mica and chlorite observed to selectively alter primary feldspar and mafic minerals, respectively. Four vein types were observed: K-feldspar, sericitic, sodic-calcic and propylitic. Vein density measurements show an overall increase in veining towards the central interpreted structure which is coincident with the main zone of sericite alteration. Overall, veining is dominantly north-northeast trending with a secondary northwest set (Figure 14). Variation in the density of sericitic and sodic-calcic veining warrants the development of alteration domains (Map “Pim Alteration”). The K-feldspar and propylitic veining form a roughly homogeneous background, at least at the scale of this work. It also should be noted that the road cuts, which expose much of the outcrop in the area, are roughly east-west in orientation and may bias the exposure to highlight north-trending veins.

Mineralization is restricted to the quartz veining and fractures within the sericitic alteration domain. These veins often display coarse, centimeter scale, intergrown quartz crystals which could be described as epithermal-like (Figure 15). Malachite is often present within the quartz veining while also coating the adjacent fractures. Rare occurrences of bornite and chalcocite are preserved within the quartz. While the overall sulphide content of the veining is low, the vein’s vuggy nature and the abundance of malachite staining suggests that much of the sulphide has weathered out and may be preserved at depth.

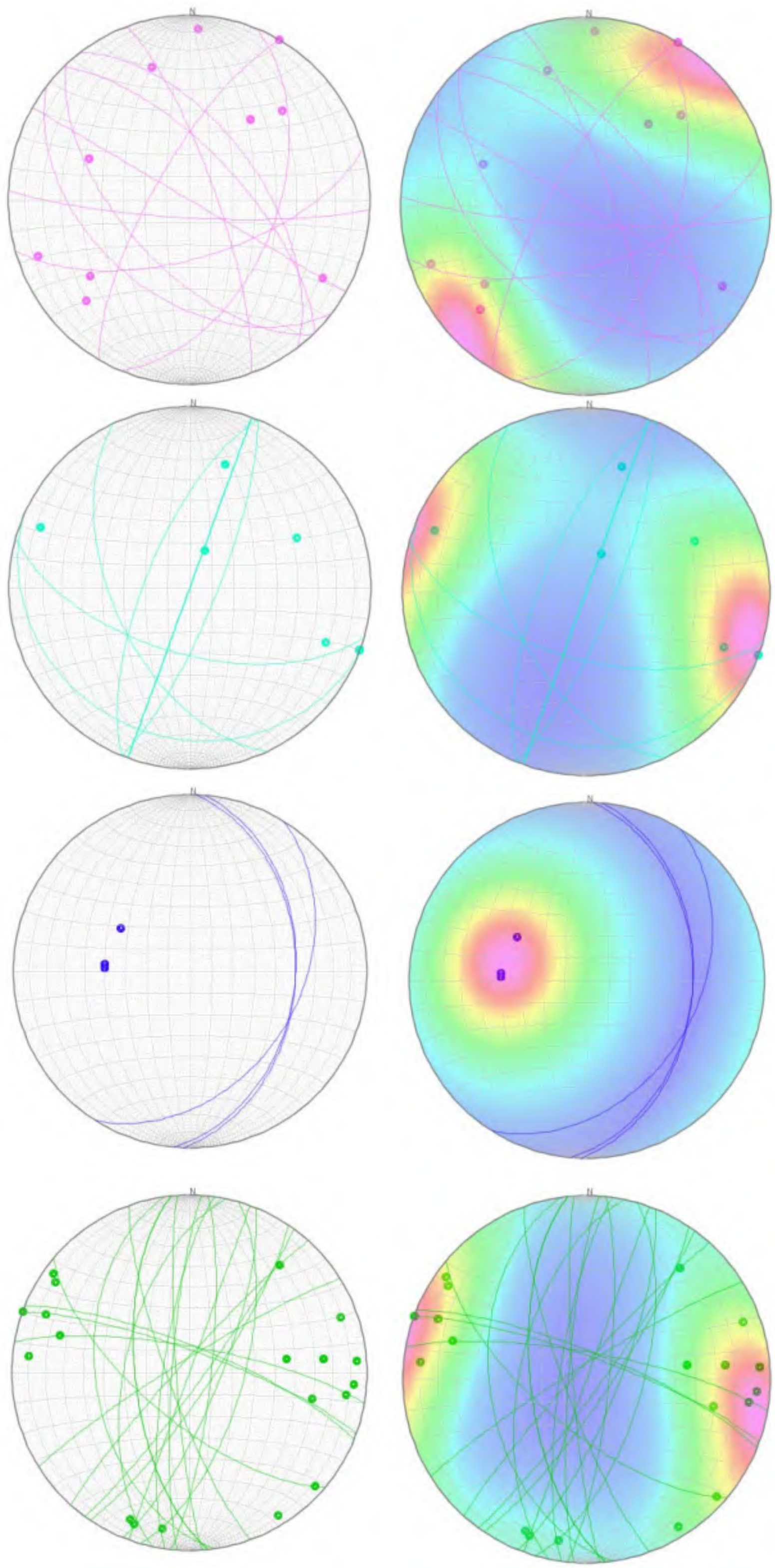


Figure: 14

Equal Area (Schmidt net) stereonet diagrams for the Pim target area showing orientations for K-feldspar (top), Sericitic (middle-top), Sodic-calcic (middle-bottom), and Propylitic (bottom) veins.

K-Feldspar veining is dominantly northwest while the other vein types show a more north-northeast dominant orientation although west north-west trends are present in both the Sericite and Propylitic veins types.

Most vein types in PIM exhibit a relatively steep dip however, local veins measured in the Sericitic and Sodic-Calcic veins do display a shallower dip

Pim Interpretation

As shown previously in the Field Vein Classification section, sericitic veining in the Pim area show elevated ISM values and shorter AlOH absorption features indicative of a relatively hot, acidic environment (Halley et al., 2015). The presence of quartz veins hosting sulphide mineralization is encouraging (Figure 15). The coarse quartz crystals and vuggy nature of the veins is not typical of porphyry style veining and may suggest the showing to be of a higher-level environment. The presence of sodic-calcic veining, albeit weakly developed, is also significant as this is linked to the movement of hotter fluids within the GCB and is spatially related to the Bethlehem and Valley-Lornex-Highmont porphyry systems (Byrne et al., 2020). Pim may represent either a distal expression of mineralization or the potential high-level expression of a yet to be identified porphyry.

Figure 15: Examples of veins and mineralization textures from the Pim target. Veins display local coarse quartz crystals with vugs and banded specular hematite. Malachite is common with bornite and potential chalcocite preserved in some veins.

Sho

The Sho target is hosted within the Chataway variety of the Highland Valley Phase of the GCB although locally the rock displays a texture similar to that of the Guichon variety. A small outcrop to the west of the target area may be of the Bethlehem phase. It is separated from the main showing area by an inferred north trending fault within a recessive creek. No other exposure was located in its immediate vicinity therefore, it is not clear if this is a dome of the Bethlehem phase poking through the Chataway unit or if the inferred fault separates the main body of Bethlehem to the west from Chataway to the east. Relatively few aplite dykes are present in the area, but the few that were noted strike roughly east west.

Faults in the area are interpreted from linear recessive features; two such features identified in the field were associated with talus displaying fault slicks on their surfaces, building confidence in this interpretation. A major north trending fault is inferred to occupy the gulley which bounds the western side of the Sho occurrence. To the south of the map area a potential continuation of the Skuhun Creek fault is inferred beneath a till blanket potentially connecting the major recessive gulley in the west to a similar feature east of the area reviewed.

Alteration in the area is heavily vein controlled with only trace white mica and chlorite observed to selectively altering primary feldspar and mafic minerals, respectively. Five vein styles are present: rare K-feldspar veins, sericitic veins, epidote-quartz±sulphide veins (propylitic-2 veins), propylitic veins and zeolite veins (Figure 16). Mineralization is generally restricted to the sericitic veins which contain chlorite and specularite at South Sho and are associated with visually identified muscovite at Sho. Veining is dominantly northwest trending except for the propylitic veins which are dominantly north trending (Figure 17).

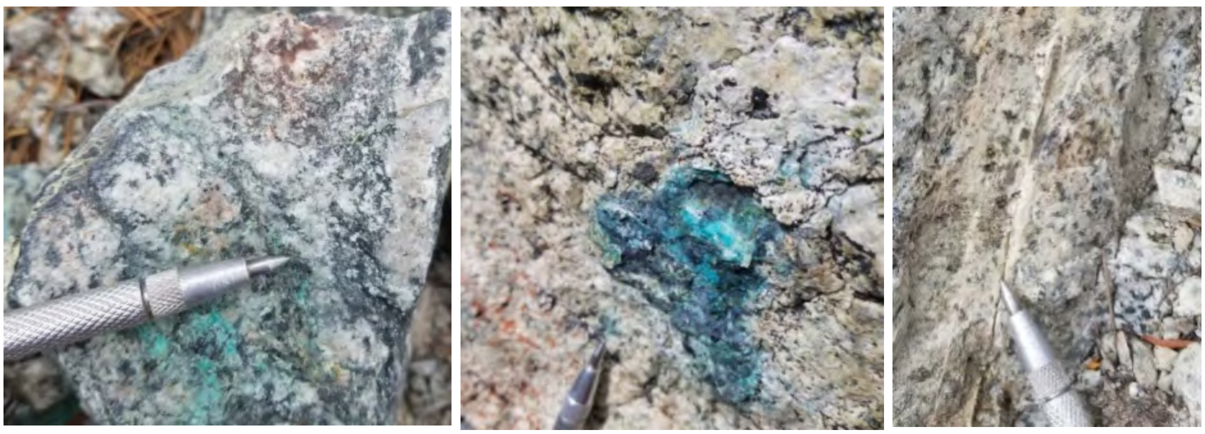


Figure 16: Examples veining and mineralization from Sho and South Sho. (Left) Sericitic veining often containing chlorite and specular hematite ; (Center) Propylitic-2 veins contain epidote and quartz with rare clots of sulphide associated with them. (Right) Soft, chalky veins are common throughout the area, consisting of zeolite with local pink dustings of hematite.

Vein density measurements show a relatively high density of veining is present at the showings and where other occurrences of malachite were noted. Despite this, the relatively sparse outcrop prevents any clear vector from being established.

Sho Interpretation

The strong northwest orientation of veining in the Sho area suggests a strong underlaying structural control on the orientation of the fluid movement in this area. This is significant as it is close to the orientation of the Valley-Lornex-Highmont trend, proposed by Lesage (2020). Spectral results suggest the white mica associated with the sericitic veins in this area is relatively phengitic. The visually identified “muscovite” at Sho is associated with high ISM values however this is also compositionally phengitic. This indicates a distal, Alwin-like environment for Sho using the Valley-Bethsaida-Alwin analog (Alva-Jimenez et al., 2020). Although cover may be masking additional veining in the area, a north west or south east vector should be further explored. Potential offsets along the inferred north trending structures should also be examined as this displacement plays an important role in other areas of the batholith (eg. The offset between the Valley and Lornex pits).

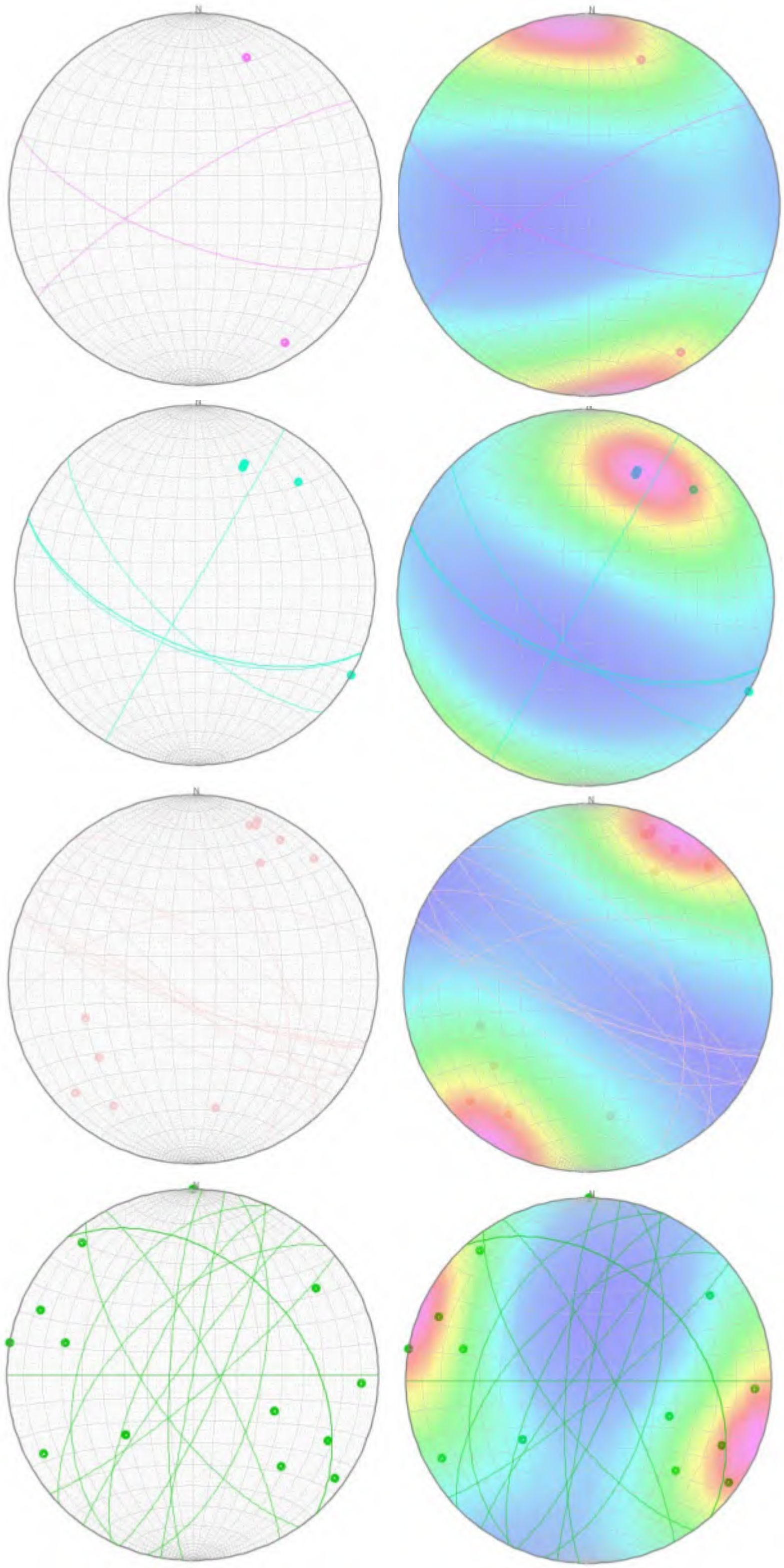


Figure 17:

Equal Area (Schmidt net) stereonet diagrams for the Sho target area showing orientations for K-feldspar (top), Sericitic (middle-top), Zeolite (middle-bottom), and Propylitic (bottom) veins.

K-feldspar, Sericitic and Zeolite veining is dominantly west- northwest oriented. Propylitic veins are varied in their orientation but show a main north-northeast orientation.

Veining is generally steeply dipping.

3 Creeks/Zone 2 West

The 3 Creeks target is hosted within the Chataway variety of the Highland Valley Phase. To the south of the main road in this area is a series of historic dozer trenches along the side of a north trending gully; these expose variably oxidized and altered outcrops. To the south of the trenches outcrop gives ways to local subcrop. Several small aplite dykes are mapped in the area trending east-west to southwest.

Alteration is locally strong within the trenches, consisting of iron-oxide staining along with sericite and quartz±hematite veining (Figure 18). Locally, this assemblage is associated malachite. A lack of exposure around the trenches make it difficult to determine the extent of this veining. Roughly 200 m north of the trenches, malachite was noted on a fracture surface which may indicate continuity along the length of the gully.

Figure 18: Alteration in the 3 Creeks area consists of limonitic coatings of quartz-hematite veins with associated sericite alteration. Malachite is present within veins and on fracture surfaces.

Veining displays elevated density adjacent to the gullies suggesting an increase in permeability in the area; likely reflecting an underlaying structure. Orientations of the presumably hotter veins show a preferential east-west orientation while likely cooler vein shows a preferred north-south orientation (Figure 19).

A cursory review was also conducted over the Zone 2 West target which is hosted by the Skeena phase of the GCB, though locally outsized hornblendes could lead to the area being interpreted as the Bethlehem phase. The area displays the same propylitic veining as 3 Creeks in similar orientations, but limonitic veining was present in areas of intermediate to strong clay±sericite alteration. This likely reflects an argillic alteration assemblage similar to that present in Zone 1 (discussed below). These veins show a similar orientation to the sericitic veins in 3 Creeks.

Spectrally, the 3 Creeks and Zone 2 West areas display relatively low ISM and moderate to long AlOH absorption features. This suggests the area is relatively distal however, the considerable oxidation of most outcrops may be resulting in a poor spectral response.

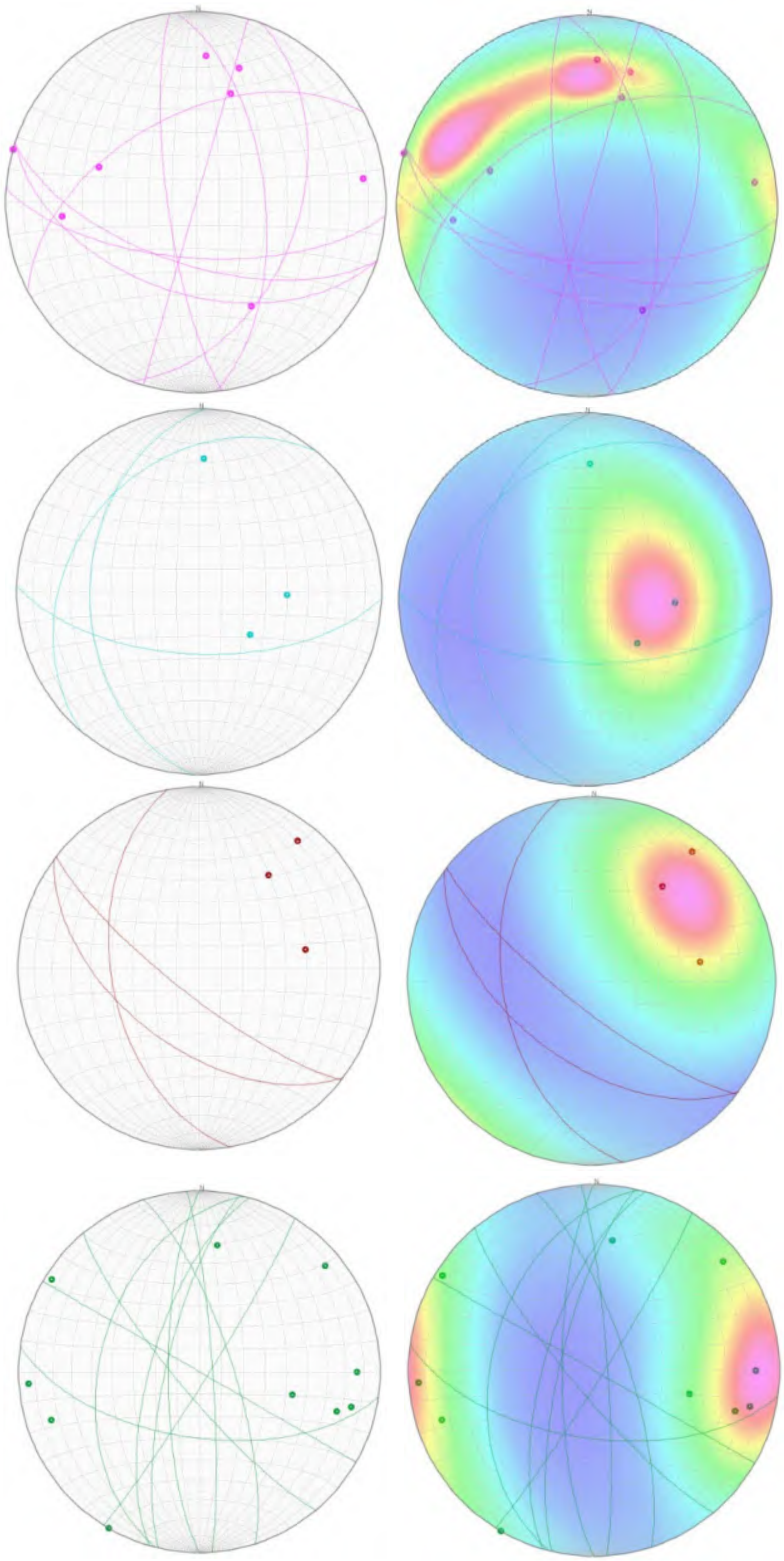


Figure 19:

Equal Area (Schmidt net) stereonet diagrams for the 3 Creeks target.

Veining in the 3 Creeks area is dominantly east-west and north-south trending. Like the other areas examined, the K-feldspar veining displays a stronger east-west orientation while sericitic and propylitic veining displays a stronger norther orientation.

Limonitic veins are more abundant in this area than what has been observed elsewhere. It is visually associated with strong clay alteration and the veins are heavily oxidized. Based on the similar cluster of poles, the limonitic veining may be most like the sericitic veining.

3 Creeks/ Zone 2 West Interpretation

Alteration in the 3 Creeks area is focused around the north trending gullies although. The area is likely a distal expression of alteration perhaps related to either Zone 1 or 2. Further mapping through the area is warranted in order to examine if the different generations of veining develop patterns to aid in targeting beneath cover.

Surface Geochemical Results

The distribution of porphyry and higher-level pathfinder elements demonstrate variable enrichment between the areas reviewed (Table D). Copper enrichment is noted within Sho and Pim while molybdenum enrichment is present at Pim and 3 Creeks. Pim is the only area which shows notable antimony while both the Pim and 3 Creeks areas display elevated arsenic. The lack of additional element enrichment at Sho supports the spectral interpretation that this area is likely distal while the presence of multiple deep and higher-level elements at Pim supports the spectral interpretation that Pim may represent the higher portion of a porphyry system. The anomalous molybdenum and arsenic in the 3 Creeks area suggest the area is more interesting than is indicted by the spectral data.

Table D: Enrichment noted in the different areas reviewed.

	Cu	Mo	Sb	As
Pim	X	X	X	X
Sho/South Sho	X			
3 Creeks/ Zone 2 West		X		X

The modified porphyry index was applied to the surface dataset and compared against the drill hole results (drilling geochem discussed in more detail below). The modified index highlights Pim and the 3 Creeks area as the most anomalous. A direct comparison of the 4-acid and aquaregia data is not possible; a standard deviation approach was selected to identify the most anomalous portion of each dataset. The results from this are provided in the included map package (Map “Project Overview Mod Porphyry Index”).

Core Program

Core from 19 holes was reviewed as part of this study (Table E). At the discretion of Happy Creek Minerals, some holes were completed top to bottom while some holes were only partially reviewed in areas of interesting alteration. The following section briefly describes the results from visual logging before examining the results from the spectral data collection and geochemical review.

Table E: List of holes reviewed in each area

Zone 1	Yubet	Zone 2	Zone 1-2
R10-15	R11-30	R11-36	R08-06
R10-16	R11-31	R11-40	
R10-25	R11-34	R11-41	
R11-11		R17-02	
R11-15		R17-05	
R11-21		R17-08	
R11-24			
R11-27			
R11-28			

Geology

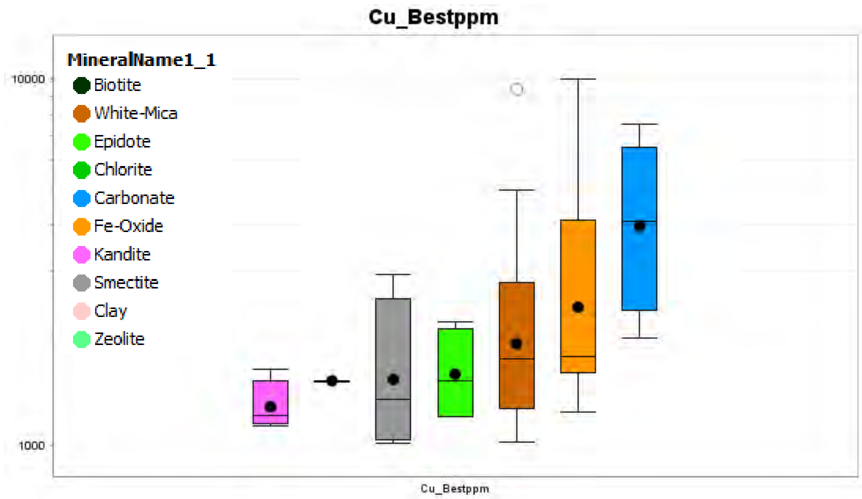
Zone 1 and the Yubet trend consist of a mix of vein and structurally controlled mineralization, hosted within the Skeena phase of the GCB. Skeena locally displays quartz-eyes which are coarser-grained than typical; this along with local books of biotite suggest the Bethsaida phase of the GCB may also bey present and the mineralization may occur close to the contact. K-feldspar is dominantly vein controlled, while the white mica and clay alteration tends to be more pervasive in nature. Epidote and chlorite alteration are also present, typically occurring lateral to the mineralization however, these also locally overprint the K-feldspar veins. Chlorite may also be locally present within some of the darker zones of sericitic alteration. Mineralization is dominated by bornite and chalcocite which was mostly observed as clots within veins.

Mineralization within Zone 2 is hosted in narrow veins and structures within the Chataway variety of the GCB. Local smaller bodies of Bethlehem may be present in the west and a finer-grained rock, potentially the Guichon variety, is present in the east. Mineralization is associated with fine quartz veins with K-feldspar halos, and within intensely altered gouge zones. K-feldspar alteration is locally stronger than that observed in Zone 1. Epidote and chlorite occur in veins throughout much of the core reviewed. These locally occur as center lines surrounded by K-feldspar. This may represent a re-opening of an earlier K-feldspar vein during later overprinting alteration event. As with Zone 1, mineralization is dominated by clots of bornite and chalcocite.

Spectral Interpretation

The spectral response of veins associated with mineralization was examined by merging the spectral results with the geochemical data. Veining within intervals of >1000 ppm copper was plotted on box in whisker plots in order to examine the average grades of copper associated with different dominant spectral minerals. It must be noted that this only examines a spatial relationship as this does not provide proof that the veining and mineralization are genetically related.

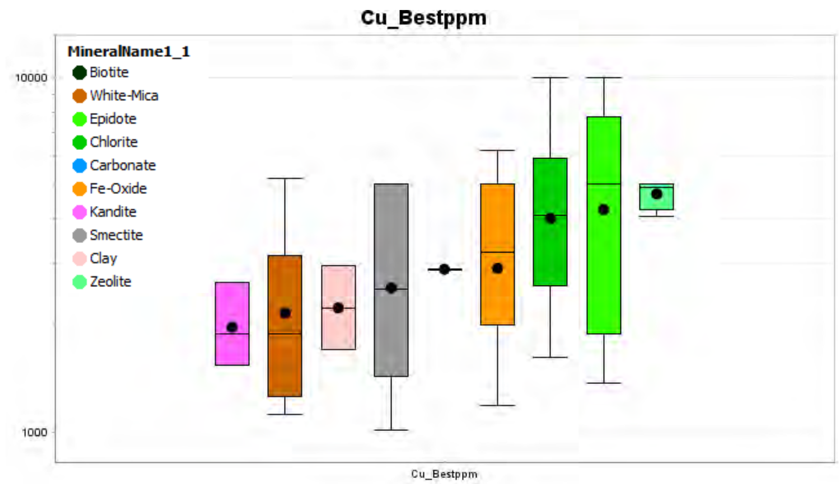
In Zone 1 and the Yubet trend, 100 vein measurements were collected in intervals which contain >1000 ppm copper. Of these, 72 veins are spectrally dominated by white mica (Figure 20). The highest grades occur in intervals containing carbonate and Fe-oxide dominant veining but numerically, these are a relatively small portion of the dataset. White mica dominant veins occur within intervals with the third highest average grades. The abundance of these veins and generally high average copper-grades suggest an important relationship is likely present and eludes to the significance of white mica within the alteration of Zone 1 and the Yubet trend.



	N
Total	100
White Mica	72
Epidote	5
Carbonate	4
Fe-Oxide	10
Kandite	4
Smectite	4
Zeolite	1

Figure 20: Box and whisker plots of copper-grade linked to dominant vein fill from the Zone 1 and Yubet trends.

In Zone 2, a total of 78 veins were measured within intervals containing >1000 ppm copper. There is considerably more variability in the spectrally dominant mineral reported with 19 white mica dominant, 18 of both smectite and Fe-oxide dominant, 7 epidote dominant, and 6 chlorite dominant veins (Figure 21). This indicates that the alteration in Zone 2 is more variable and that chlorite and epidote may be a more significant component which must be considered. The prominence of smectite minerals related to veining is suspicious as this is not well documented in porphyry deposits. This may be due to a low-temperature overprint on veins that lack a spectral signature (eg. Quatz veins with K-feldspar halos) which can not be accurately represented with spectral techniques.



	N
Total	78
White Mica	19
Epidote	7
Chlorite	6
Carbonate	1
Fe-Oxide	18
Kandite	3
Smectite	18
Clay	2
Zeolite	4

Figure 21: Box and whisker plots for the data in zone 2 show increased variability in the alteration associated with mineralization when compared to Zone 1/Yubet.

Spectral Vectors

White Mica compositions were further examined by plotting the ISM values vs the position of the AlOH absorption feature for the cleaned data. This was done twice for Zone 1/Yubet, once for vein related spectra, and once for the background alteration. Symbolizing data by associated copper content shows a relatively consistent relationship between the white mica spectral response and associated copper (Figure 22). This suggests that the white mica alteration is sufficiently consistent that both the veining and alteration datasets can be considered together.

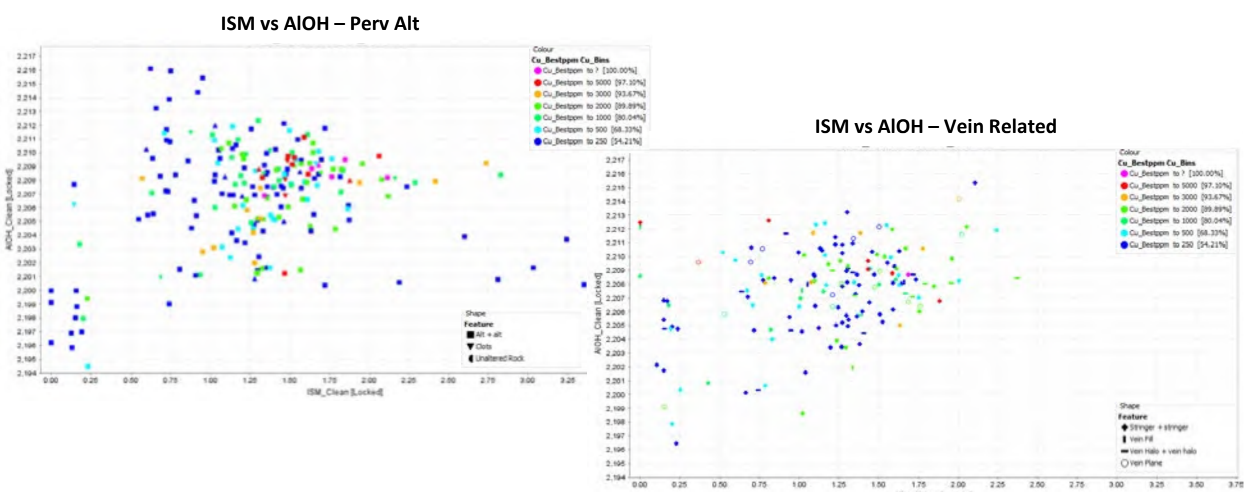


Figure 22: A comparison of the ISM vs AlOH distribution of pervasive alteration and vein related measurements shows a very consistent relationship between grade and spectral signature of the white mica.

Within Zone 1/Yubet, the plot of ISM vs the AlOH absorption feature suggests two populations as with the surface data. An ISM value of <0.5 is likely too low for white mica and is interpreted to reflect likely contamination of the spectral response by other minerals containing AlOH bonds. Examining only the AlOH values with an ISM >0.5 similarities can be drawn between Zone 1 and the Valley-Bethsaida-Alwin analog (Alva-Jimenez et al., 2020). The longer wavelengths may reflect an Alwin-like alteration environment while the shorter wavelengths are more typical of a Bethsaida-like or the edge of Valley-like alteration. A boundary of 2204 nm is proposed to separate “Sericitic” white mica related to longer wavelengths (potentially K-feldspar destructive) from shorter wavelength “Potassic” white mica (potentially K-Feldspar stable).

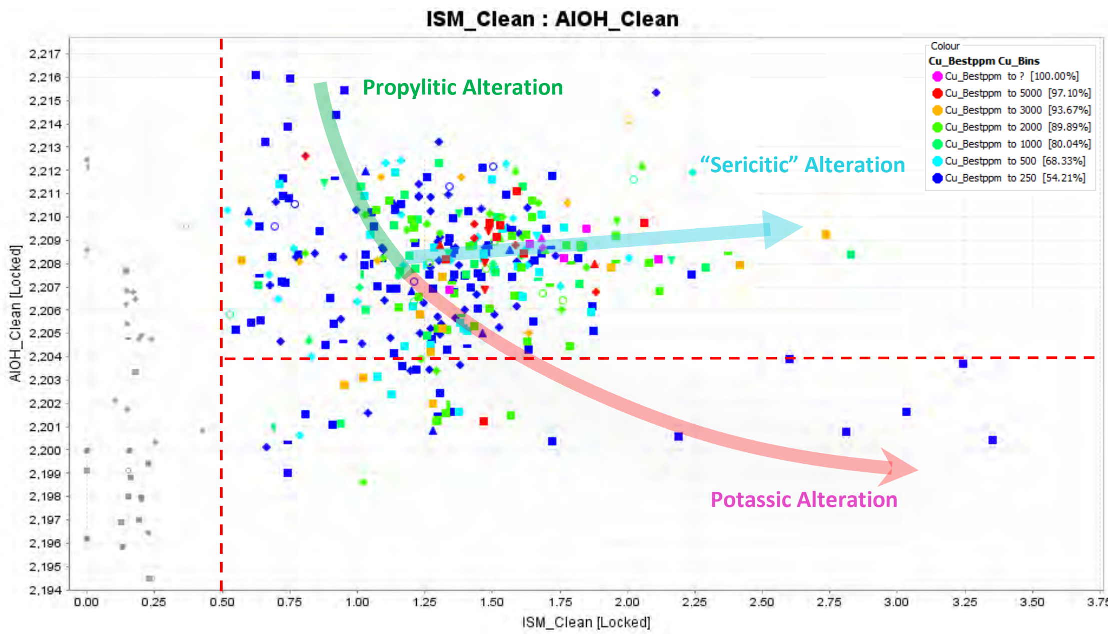


Figure 23: ISM and AlOH values for white mica in Zone 1/Yubet suggests the presence of both sericitic and potassic white mica.

Zone 2 displays similar relationships between the ISM vs AlOH diagram and copper grades although, fewer clean white mica spectra with ISM values >0.5 are reported in Zone 2. Significantly, there are very few spectra which plots as “Potassic” white mica. Nearly all white mica in Zone 2 appears to be part of the “Sericitic” type.

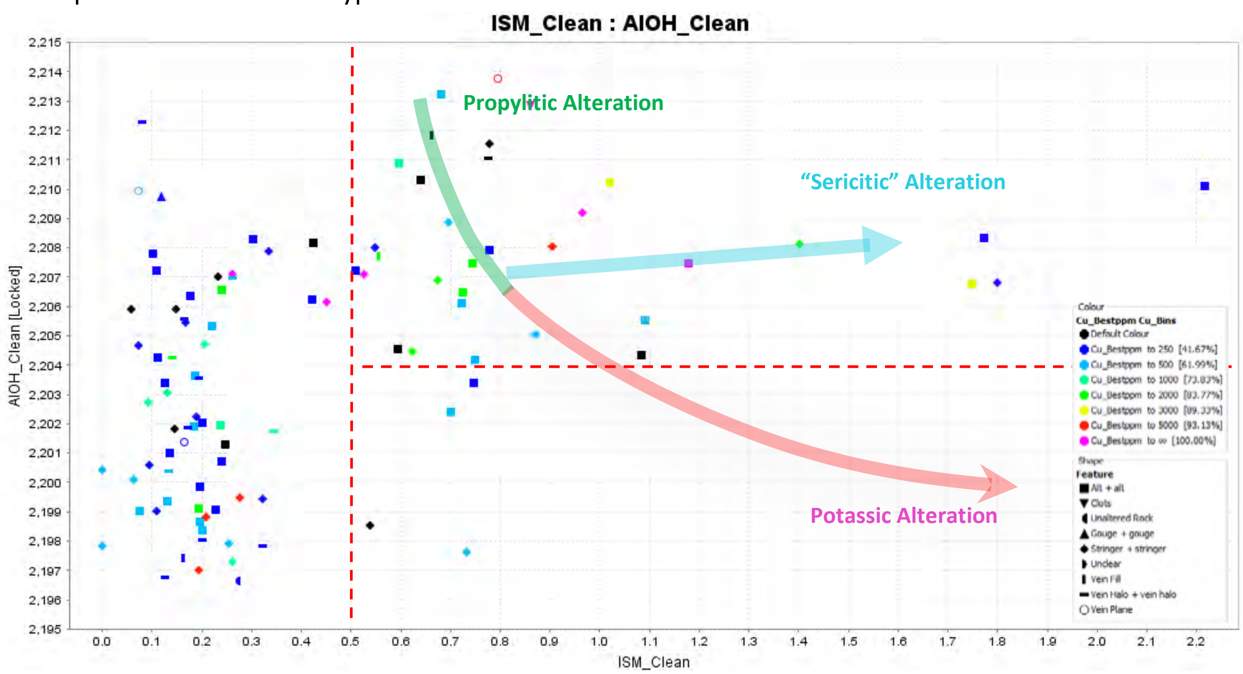


Figure 24: ISM and AlOH values for white mica in Zone 2 suggests a dominantly sericitic white mica environment.

Since the box and whisker plot for Zone 2 suggested epidote and chlorite to be of more significance than in Zone 1, changes in the FeOH and MgOH absorption features were examined relative to mineralization. This shows that most of the copper mineralization is associated with MgOH features between 2339-2342.5 nm and longer FeOH features, > 2250.5 nm. This spectral response would be consistent with relatively Fe-rich chlorite and may suggest a Bethlehem-like “Phyllic” environment as that described by Alva-Jimenez (2011).

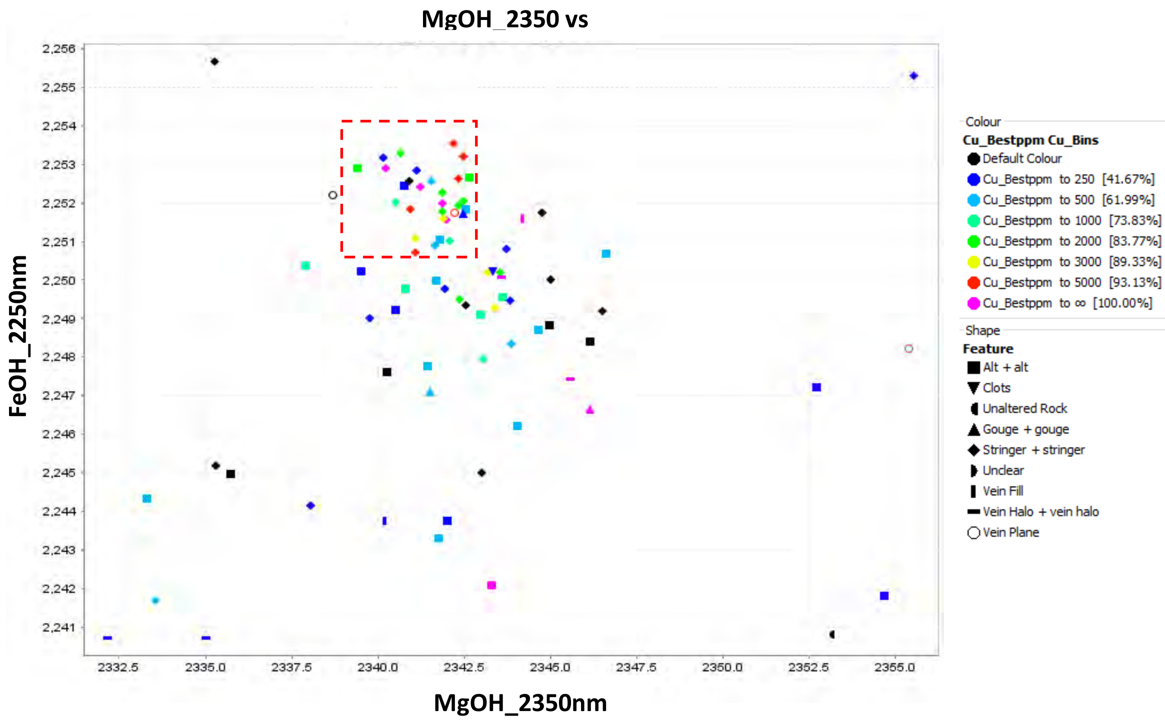


Figure 25: MgOH vs FeOH symbolized by copper content in Zone 2 indicates that copper mineralization is associated with these specific spectral parameters.

Spatial Spectral Results

Spectral relationships were then examined spatially to examine if the distribution of spectrally reported minerals and spectral parameters were geologically reasonable. This is summarized below for Zone 1 and Zone 2.

Zone 1

In Zone 1 the type section containing R11-11, R10-15 and R10-16 was examined in detail to determine vertical and lateral vectors towards mineralization (Figure 26, A-A'). Spectrally reported alteration minerals zone as would be expected in the porphyry environment. Chlorite, epidote and smectites are generally distal to the mineralization with epidote detected more often in the inner portion of this assemblage (Figure 27 C-E). Biotite was dominantly detected within the core of the mineralization (Figure 27 F) as was kandite alteration (Figure 27 G). White mica is present throughout the type section and its presence alone is not a useful vector.

The spectral parameters of the white mica indicate elevated ISM values generally coincident with mineralization (Figure 27 I). ISM values decrease to the east but remain elevated near surface to the west of the mineralization. The AlOH absorption features for ISM values >0.5 show relatively longer wavelengths near surface with slightly decreased values in the deeper portion of the section.

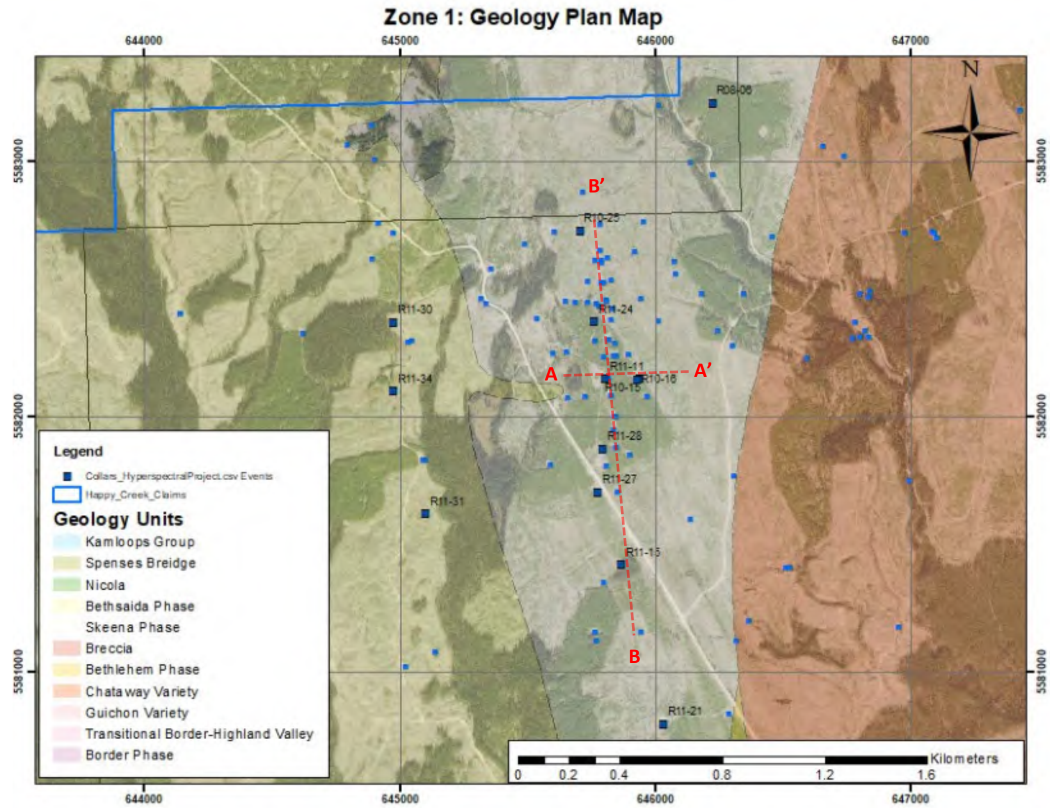
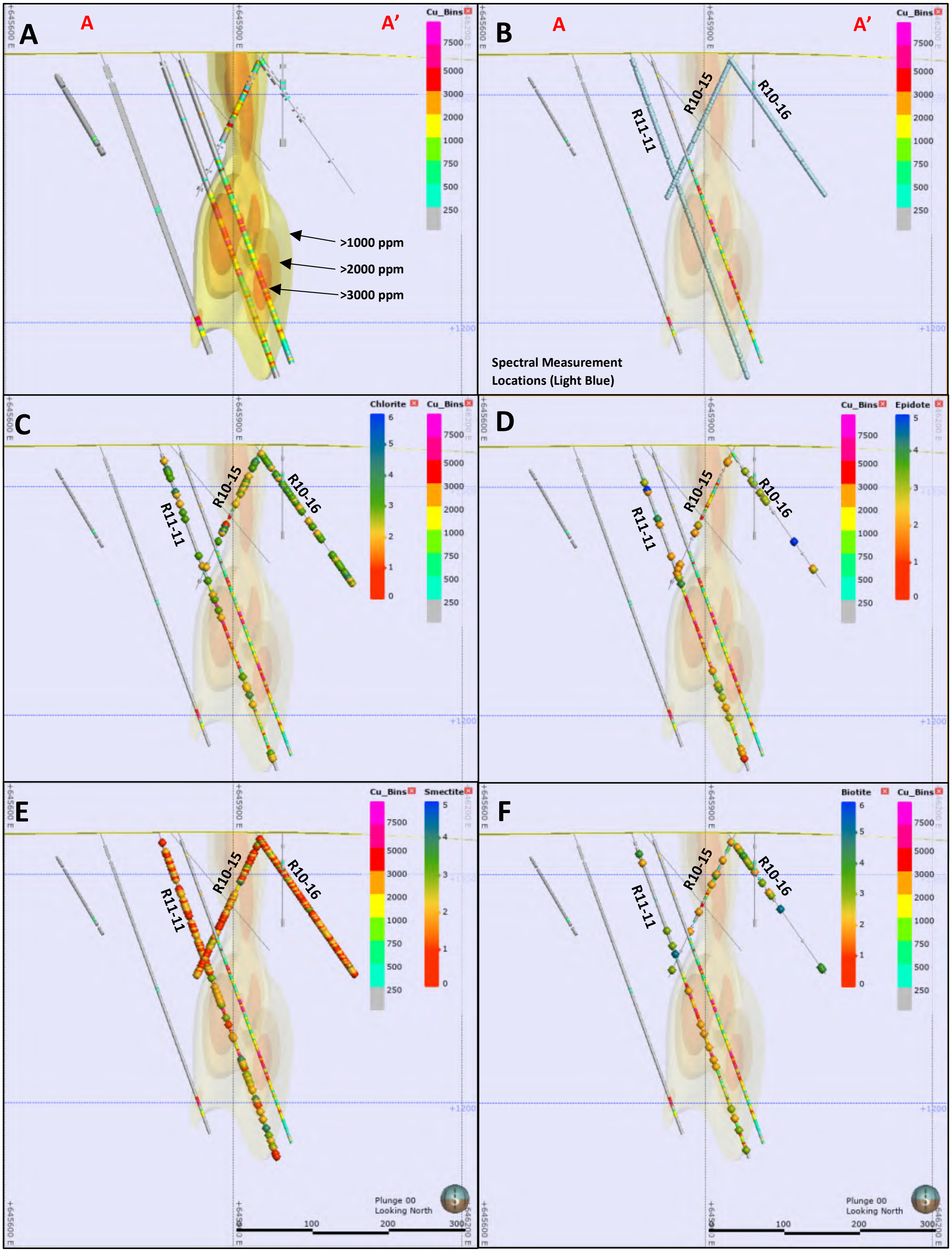


Figure 26: Plan map of the locations of collars included in the spectral study. The type section and long sections discussed in this report are mark A-A' and B-B' respectively.

In the long section view the plunge or potential fault offset of the mineralization is apparent (Figure 28 A). Many of the same mineralogical relationships are present in a long section through Zone 1 (Figure 26 B-B'); biotite is generally present in the center of the system and chlorite distal to the mineralization (Figure 28 B,C). Close to the location of the type section mineralization appears to drop down in the south of the system before stopping abruptly near hole R11-17; drilling in the south may have gone above the mineralized portion of the system. An examination of minerals typical of high-level alteration (eg. pyrophyllite, dickite, diaspore) show that while not common, these are present in the holes in the south of the deposit (Figure 28 D). Curiously, two occurrences of pyrophyllite are also reported in the norther portion of the deposit.

Much of the system displays relatively long AlOH absorption features however, zone of consistently shorter absorption features is present at depth in R11-24 (Figure 29 E). This may indicate a the development of a zone of K-feldspar stable white mica in this area.



A
A
A'
Cu_Bins
7500
5000
3000
2000
1000
750
500
250
>1000 ppm
>2000 ppm
>3000 ppm
B
R11-11
R10-15
R10-16
Spectral Measurement
Locations (Light Blue)
C
Chlorite
D
Epidote
E
Smectite
F
Biotite
Plunge 00
Looking North
100
200
300

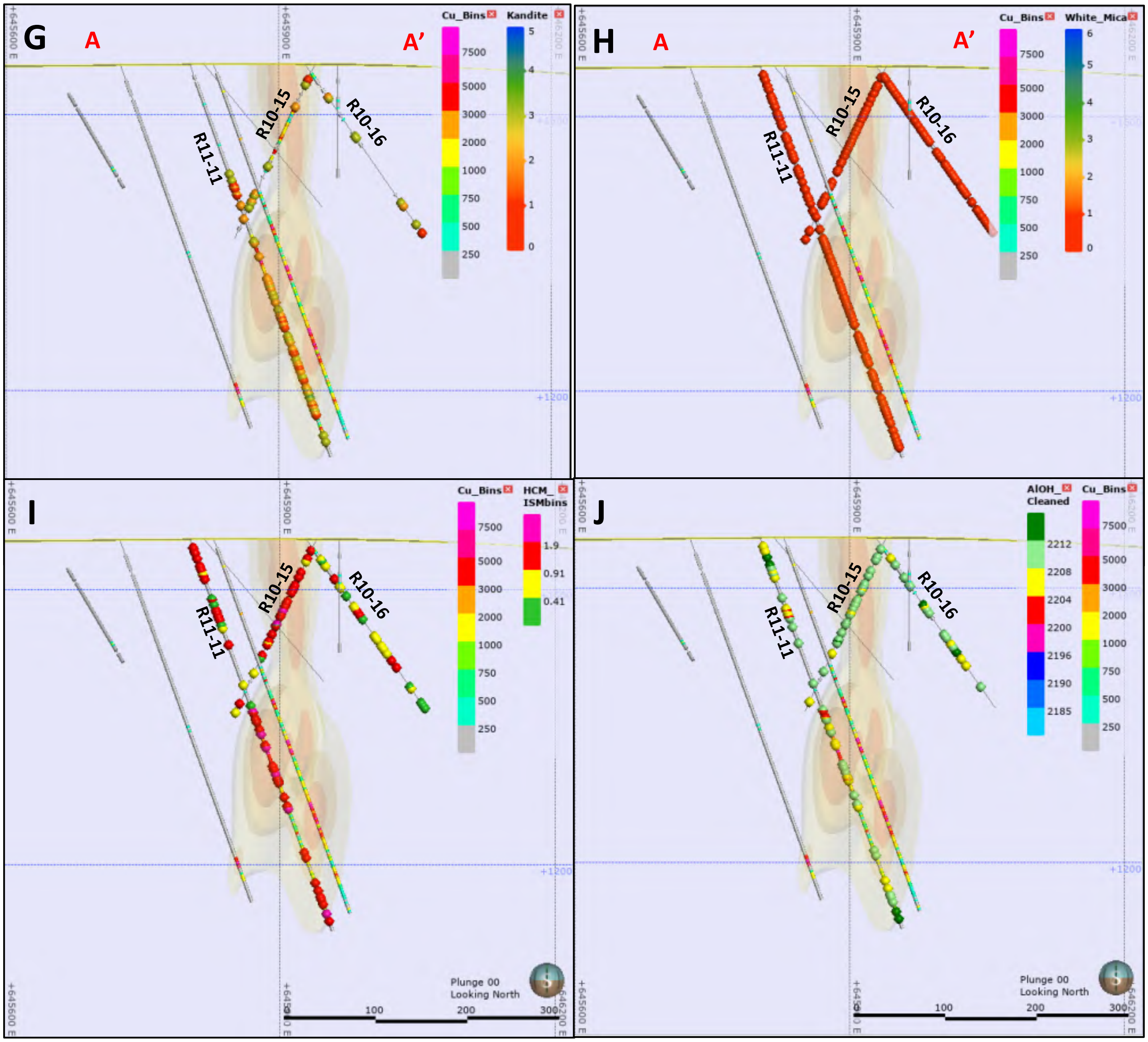


Figure 27: The zonation of spectrally detected minerals and shifts in key parameters for Zone (including previous page). A: Copper-grades and grade interpolants; B: location of spectral measurements; C,: presence of chlorite; D: presence of epidote; E: presence of smectites; F: presence of biotite; G: presences of kandites; H: presences of white mica: I ISM values; J; AlOH absorption feature position (ISM>0.5 only)

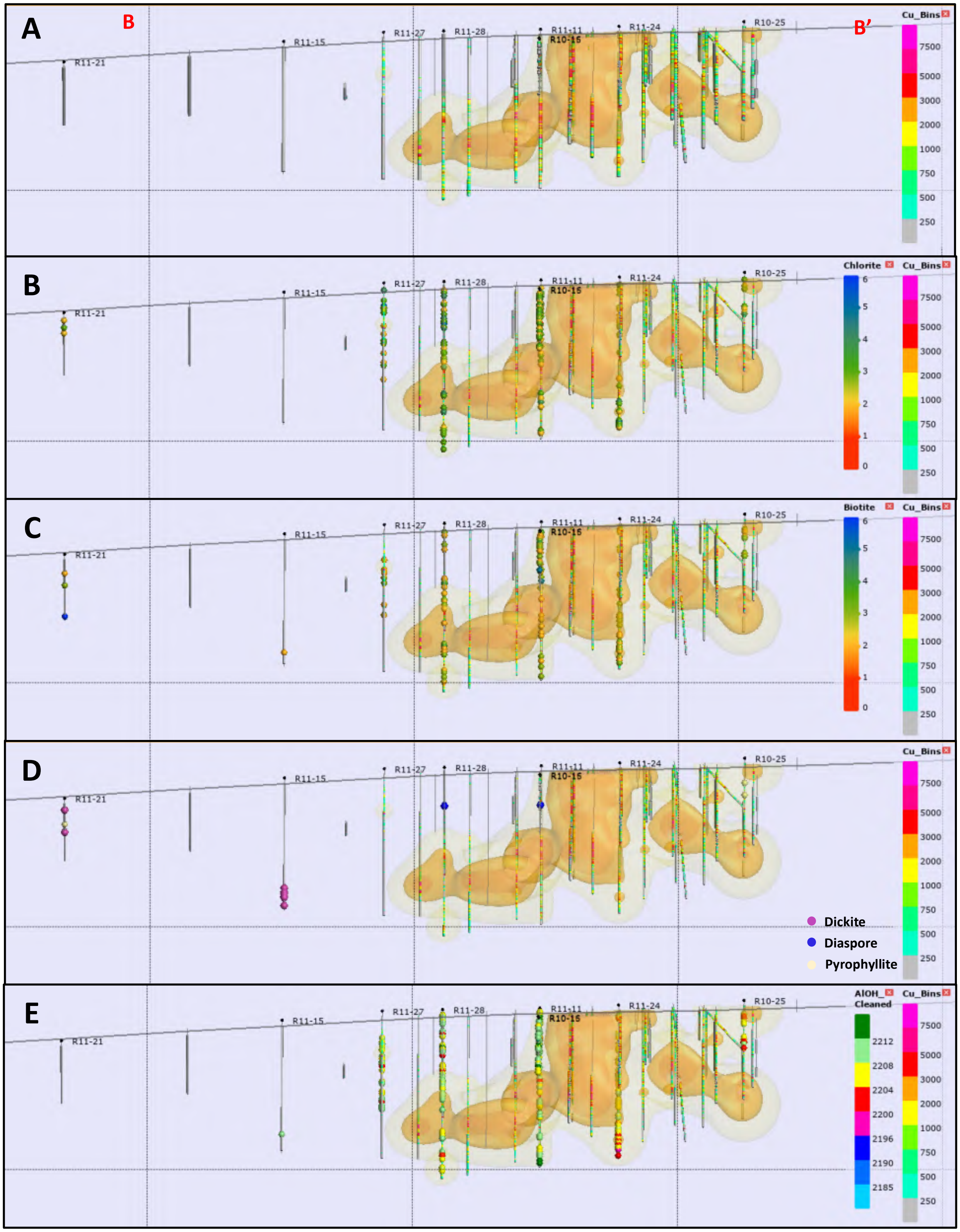


Figure 28: A long section view through Zone 1; A: Distribution of Copper and Cu-interpolants; B: Distribution of Chlorite; C: Distribution of Biotite; D: Location of "high level" alteration minerals; E: Position of the AlOH absorption feature.

Zone 2

Zone 2 displays a different alteration pattern than that of Zone 1. Data was examined in detail on section C-C’ (Figure 29). Chlorite is more prominent within the mineralized zone while epidote occurs within and around the mineralization (Figure 30, C, D). Smectite minerals are also more prominent though, these are reported further down in the interpretation order in areas of mineralization (Figure 30, E). Spatially, ISM values and changes in the position of the AlOH absorption feature show poor relationships to copper (Figure 30, I, J).

Changes in the position of the FeOH and MgOH absorption features appear to be the best vectoring tool within Zone 2. While the FeOH feature is less commonly detected, it consistently increases towards mineralization while the MgOH feature appears to decrease towards mineralization (Figure 30, K, L). This is inconsistent with the shifts in the Mg# of chlorite reported by Neal et al., (2018) where both values shift in the same direction. Mineralogical interference from other species, perhaps minor magnesium, and/or iron in more phengitic white micas, is likely. Despite the potential interference, the shifts appear consistent throughout Zone 2. Oblique views looking north-northwest (Figure 29 perspective D) show that longer FeOH and shorter MgOH features are consistent with the main zone of mineralization (Figure 31). A potential exploration target may exist near R11-40 where a similar patter exists but no significant mineralization has yet been discovered.

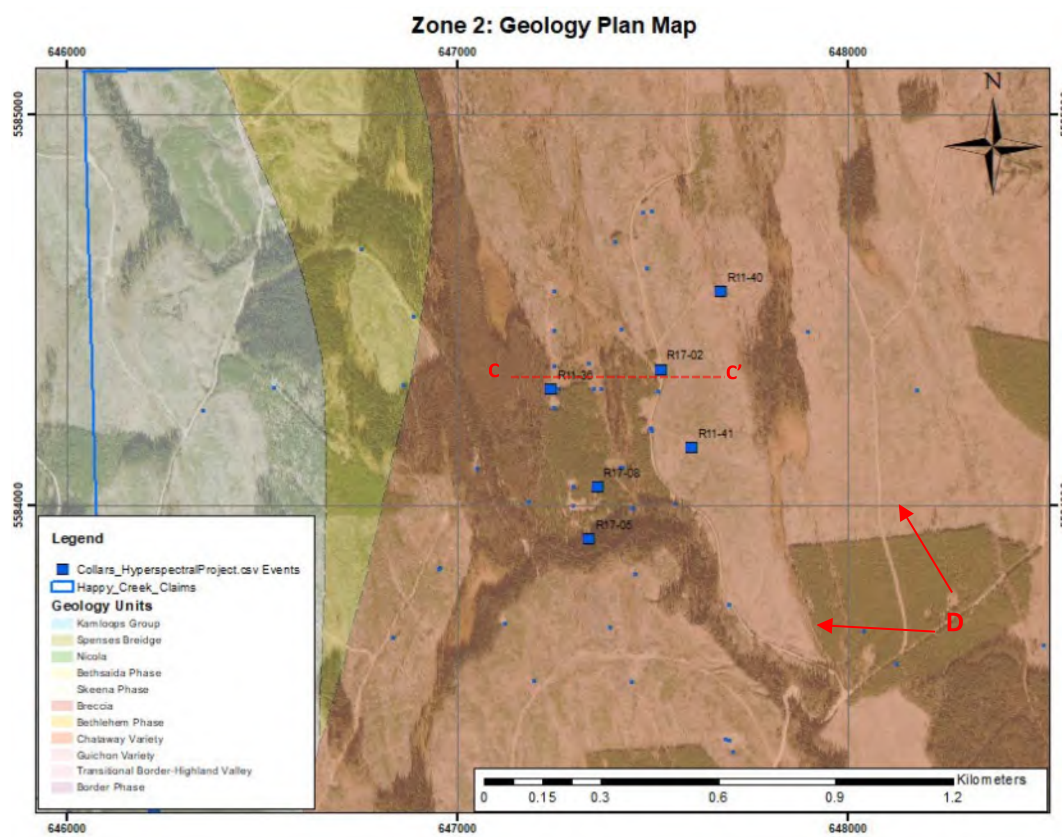
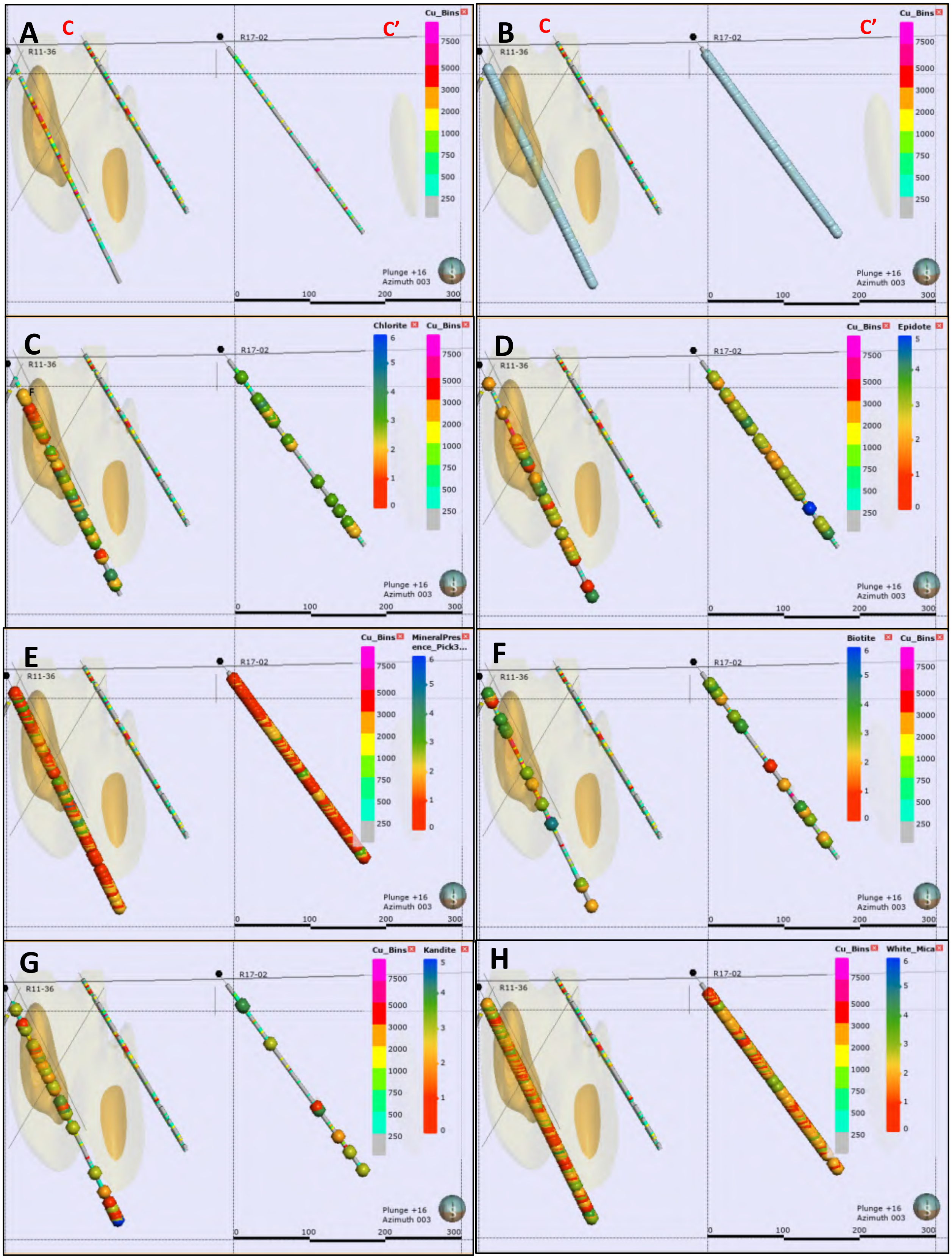


Figure 29: Plan map of Zone 2 showing the location of the holes reviewed as well as the section C-C’ and approximate perspective and view direction shown in the oblique overview from point D.



A
C
C’
R11-36
R17-02
Cu_Bins
7500
5000
3000
2000
1000
750
500
250
Plunge +16
Azimuth 003
0
100
200
300
B
C
C’
R11-36
R17-02
Cu_Bins
7500
5000
3000
2000
1000
750
500
250
Plunge +16
Azimuth 003
0
100
200
300
C
R11-36
R17-02
Chlorite
6
5
4
3
2
1
0
Cu_Bins
7500
5000
3000
2000
1000
750
500
250
Plunge +16
Azimuth 003
0
100
200
300
D
R11-36
R17-02
Cu_Bins
7500
5000
3000
2000
1000
750
500
250
Epidote
5
4
3
2
1
0
Plunge +16
Azimuth 003
0
100
200
300
E
R11-36
R17-02
Cu_Bins
7500
5000
3000
2000
1000
750
500
250
MineralPresence_Pick3...
6
5
4
3
2
1
0
Plunge +16
Azimuth 003
0
100
200
300
F
R11-36
R17-02
Biotite
6
5
4
3
2
1
0
Cu_Bins
7500
5000
3000
2000
1000
750
500
250
Plunge +16
Azimuth 003
0
100
200
300
G
R11-36
R17-02
Cu_Bins
7500
5000
3000
2000
1000
750
500
250
Kandite
5
4
3
2
1
0
Plunge +16
Azimuth 003
0
100
200
300
H
R11-36
R17-02
Cu_Bins
7500
5000
3000
2000
1000
750
500
250
White_Mica
6
5
4
3
2
1
0
Plunge +16
Azimuth 003
0
100
200
300

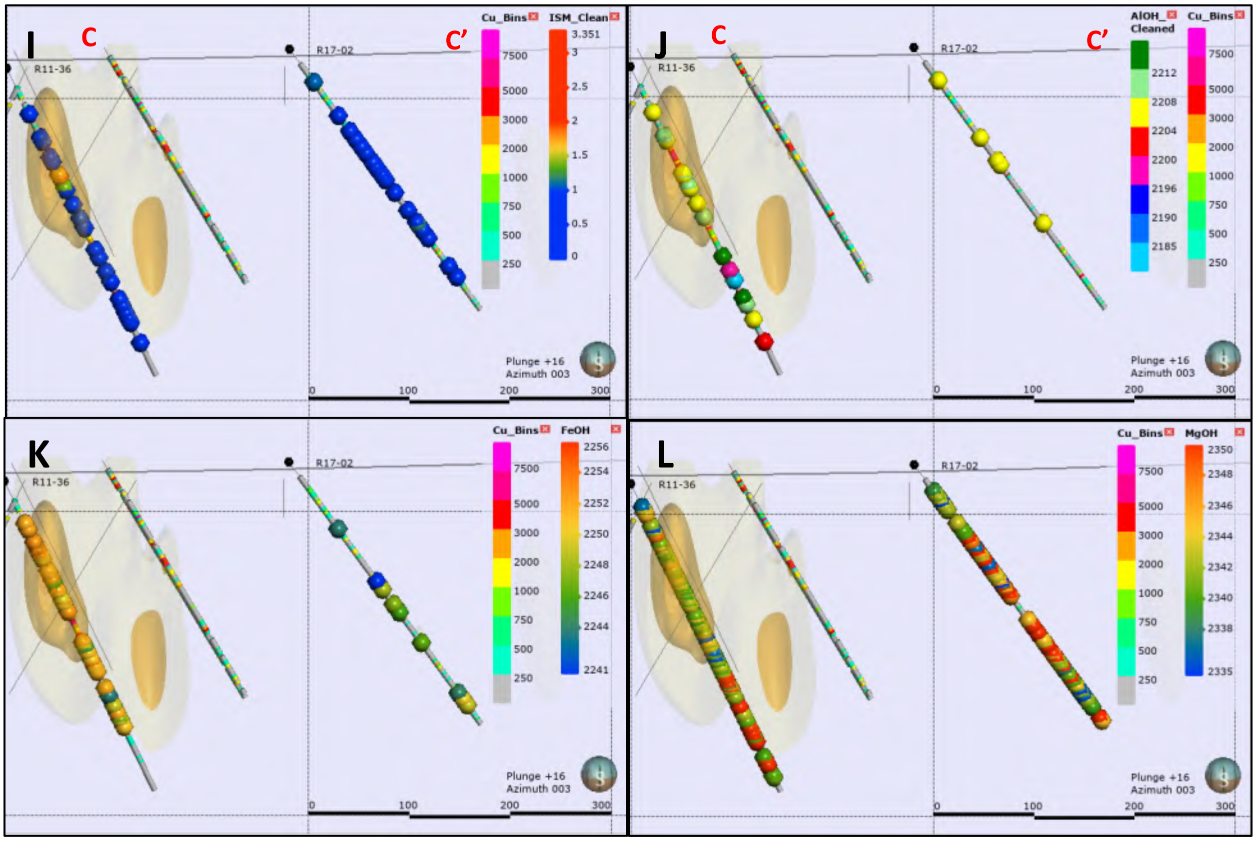


Figure 30: The zonation of spectrally detected minerals and shifts in key parameters for Zone 2 (including previous page). A: Copper-grades and grade interpolants; B: location of spectral measurements; C,: presence of chlorite; D: presence of epidote; E: presence of smectites; F: presence of biotite; G: presences of kandites; H: presences of white mica: I ISM values; J; AlOH absorption feature position (ISM>0.5 only); K: position of the FeOH absorption feature; L: position of the MgOH absorption feature.

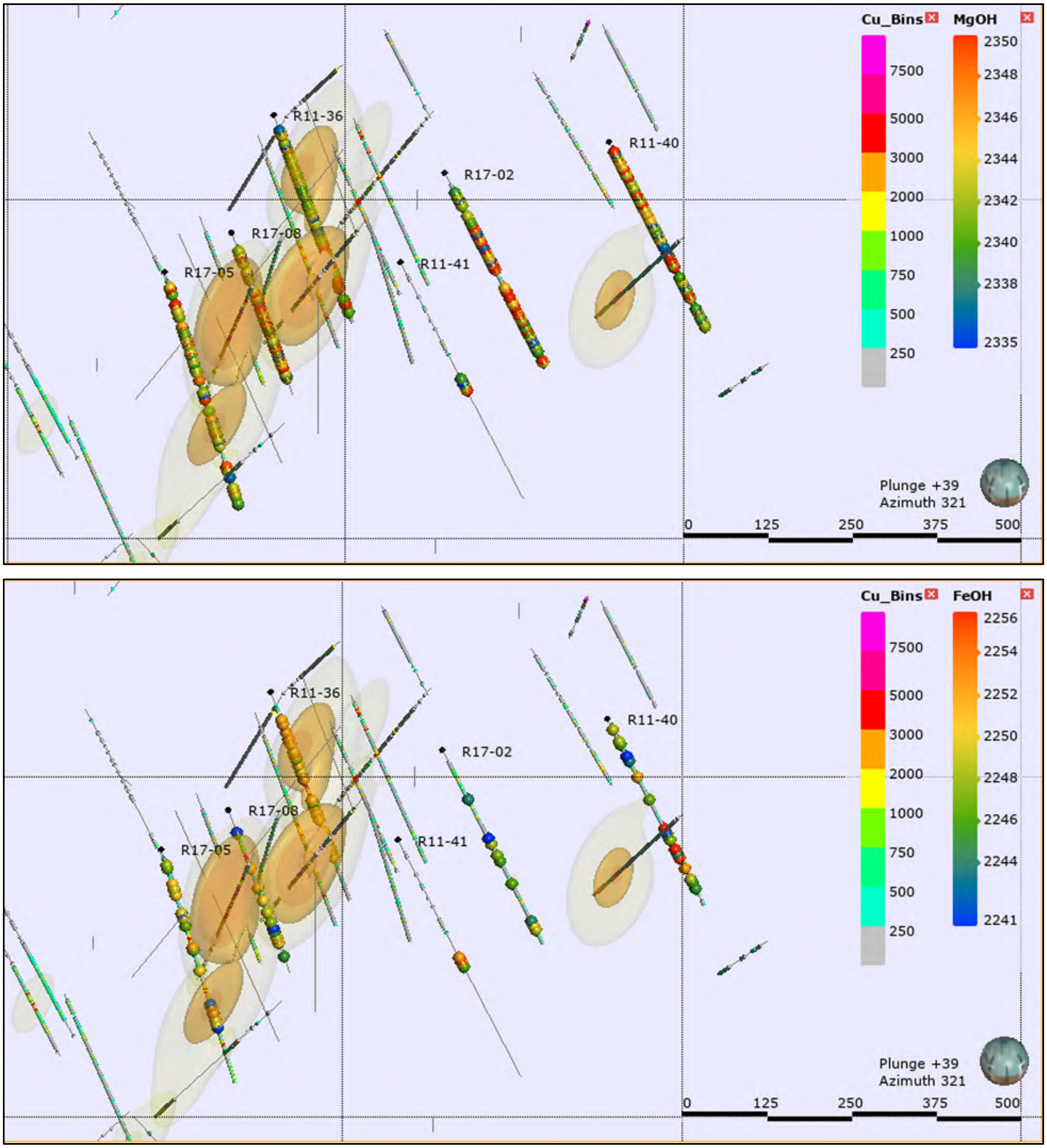


Figure 31: Oblique view looking west-northwest from point D (Figure 29), showing the change in the FeOH and MgOH absorption features throughout Zone 2.

Geochemistry

The geochemical interpretation of the drilling is challenging due to the use of various analytical techniques used through the historic of the project. Data was provided by Happy Creek minerals by means of a series of certificates and corresponding from and to intervals from the drill logs. Data was merged based off the common sample ID column. Where strong evidence of typos existed (eg. The certificate was provided in a specific hole folder but the prefix letter was different or a switch of two numbers was apparent from the log) these were manually changed and assumed to be a data entry error. Development of a complete database was outside the scope of this project and some of the provided data may have been missed in this compilation due to errors in joining resulting from typos that were not caught.

Trace element distribution was examined throughout Zone 1 and Zone 2. Halley et al., (2015) suggests that above copper mineralization, mobile elements zone from molybdenum to tungsten to higher level tin. Molybdenum and tungsten values of >5 ppm and tin >4 ppm are suggested as anomalous threshold. Molybdenum enrichment is noted in Zone 1 and 2 and notably within Yubet and a in an area SE of Zone 1. Tungsten is also enriched in the Yubet trend while no significant tin enrichment is present. This suggests that the Yubet trend may be less eroded than the other areas and deeper potential may exist in that area. The molybdenum SE of Zone 1 may represent a shallower target potentially similar in depth as Zone 1. Based on the metal distribution a relative exposure level for each is suggested in figure 32.

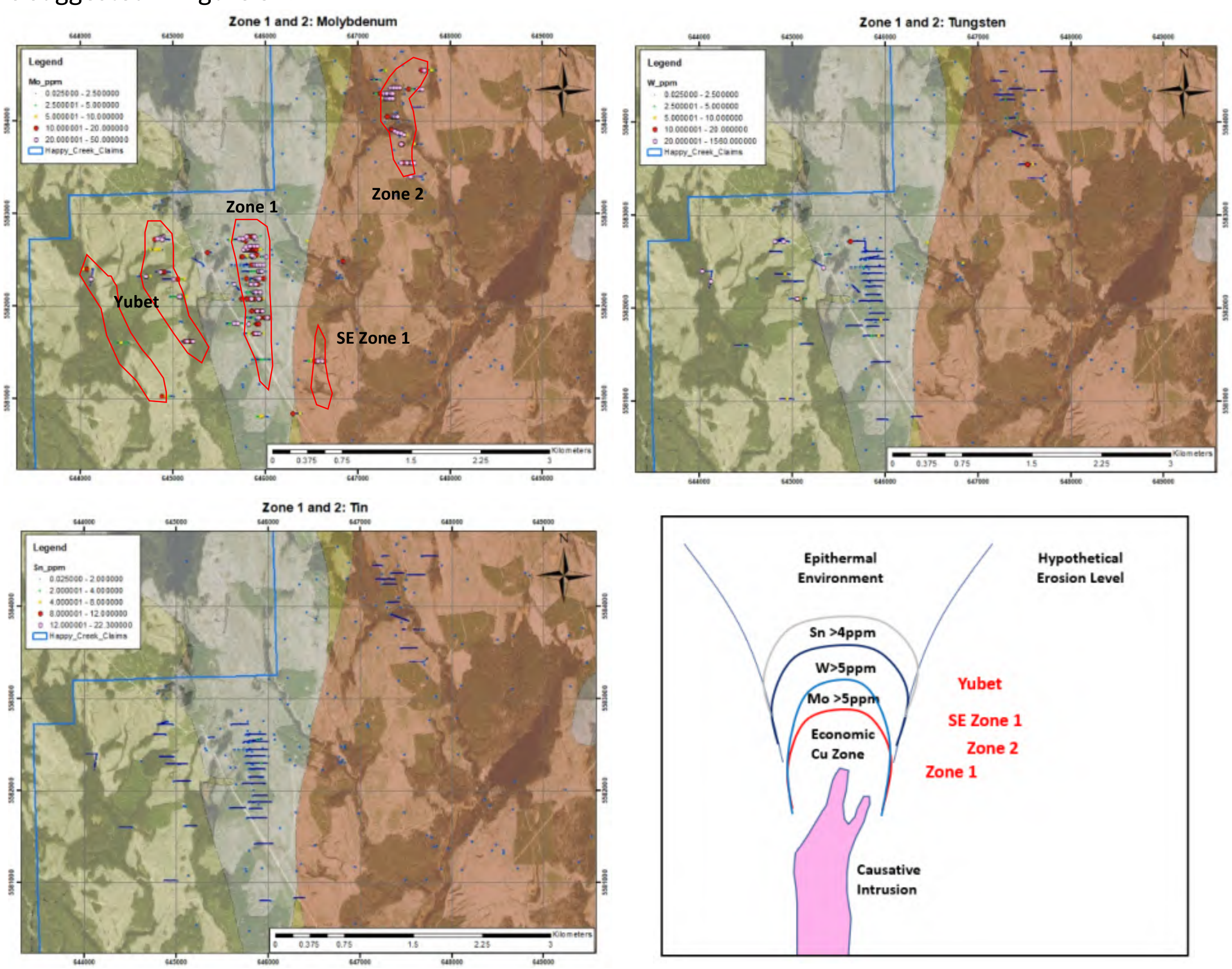


Figure 32: Plan maps showing the distribution of high-level indicator elements (Mo, W, and Sn) and a hypothetical erosion level for Zone 1, Zone 2, Yubet and Zone 1 SE.

Interpretation

Based on the results from the spectral study and a review of the available geochemical data, considerable potential remains in and around the Zone 1 and Zone 2 systems. Hyperspectral techniques appear to be an effective tool in vectoring towards mineralization however, Zone 1 and Zone 2 have different alteration styles that need to be controlled for. In the case of Zone 1, vectoring off white mica spectral parameters is likely effective. For Zone 2, greater emphasis must be placed on the MgOH and FeOH absorption features, likely relating to the more abundant chlorite and epidote as well as the more mafic host rock. Schematic diagrams outlining a theoretical mineral zonation and the changes in the key spectral parameters is provided in figure 33.

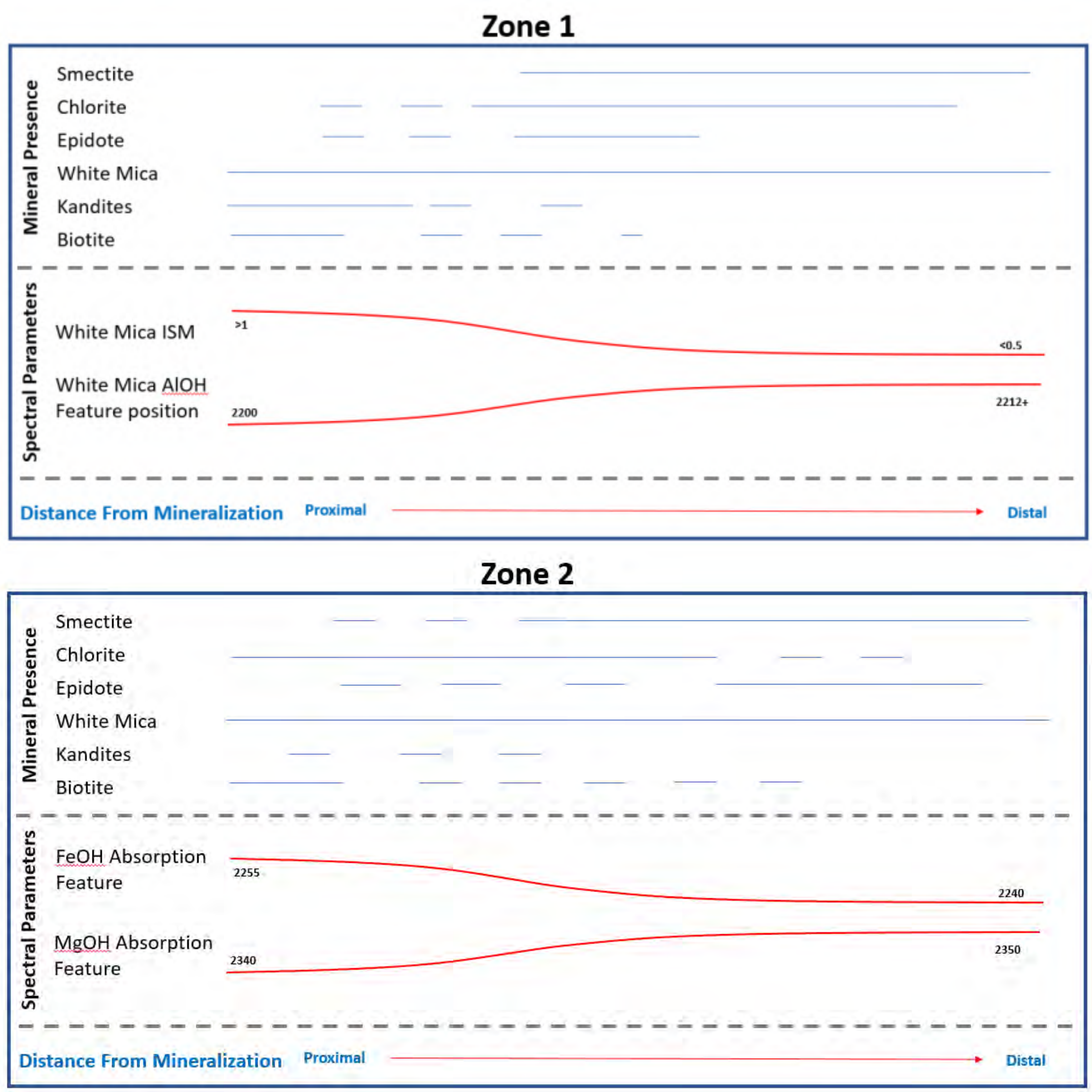


Figure 33: Schematic representation of the changes in spectral minerals and spectral parameters associated with Zone 1 and Zone 2

Similarities can be drawn between the spectral response of Zone 1 and the Valley-Bethsaida-Alwin system as well as between Zone 2 and the Bethlehem system (From Alva-Jimenez et al., 2020, and

2011 respectively). This may indicate that Zone 1 and 2 have a similar environment of formation as that which formed the most significant porphyry centers in the GCB.

Both the spectral results and mobile metal distribution indicate that the deposits are relatively shallowly eroded and further deep exploration potential remains. Zone 1 shows some indication of high-level alteration minerals in the form of dickite, diaspore and pyrophyllite while the southern portion of the system displays elevated tungsten. There is also a significant chargeable feature near the southern portion of this trend which has only been tested on the margins. This may well represent the top of a yet to be discovered system (Figure 34).

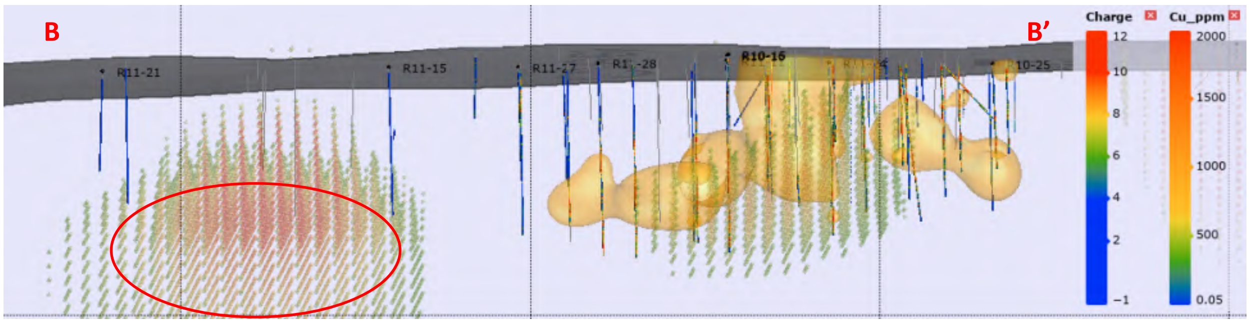


Figure 34: Long section through Zone 1 showing the location of chargeable features. Plan map shown in Fig 26.

Zone 2 has some similar depth potential. The most promising spectral results were obtained from hole R11-36 which is coincident with the most consistent copper mineralization within that system. Spectral results suggest a similarity to the “Phyllic” zone at Bethlehem as defined by Alva-Jimenez (2011). Despite the presence of K-feldspar in core, the true economic center of the system may not have been discovered yet. Lesage (2020) demonstrates that K-feldspar alteration extends beyond the economic portions of the Valley deposit and that the zonation of the white mica is the most important vector to follow. An exploration target remains at depth in this area (Figure 35).

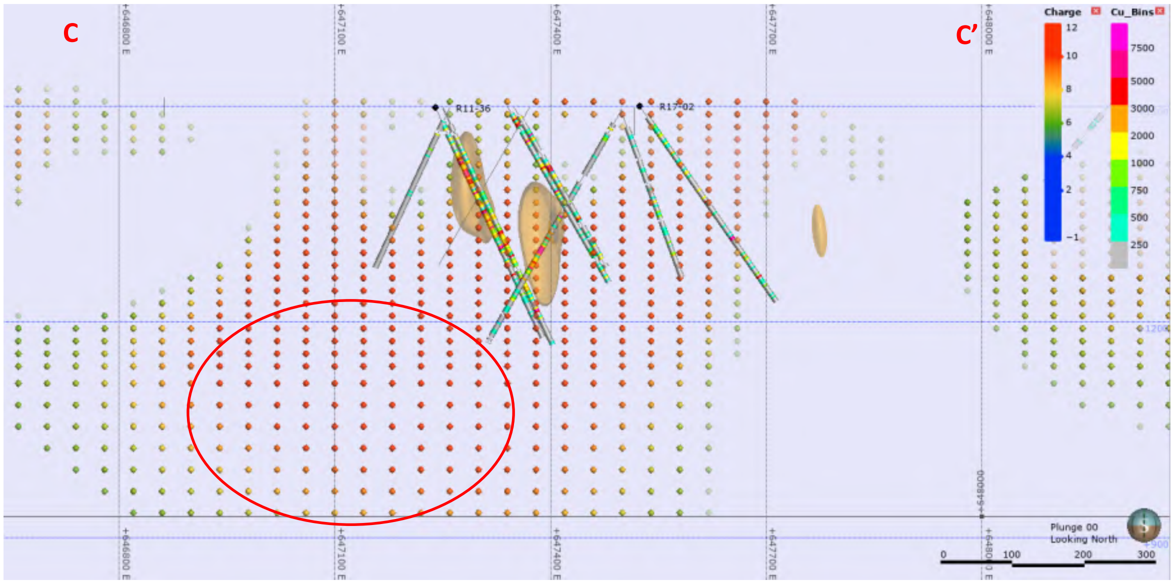


Figure 35: Cross section through Zone 2 showing the location of chargeable features. Plan map shown in Fig 29.

Within the larger Zone 1 and 2 area, prospective “potassic” white mica has been identified in the Yubet trend and in hole R08-06 (Figure 36). Additionally, the Fe-rich signature favorable to Zone 2 style mineralization is present in R08-06 and locally in the spectral measurements collected in the West Zone 2 field area (Figure 37).

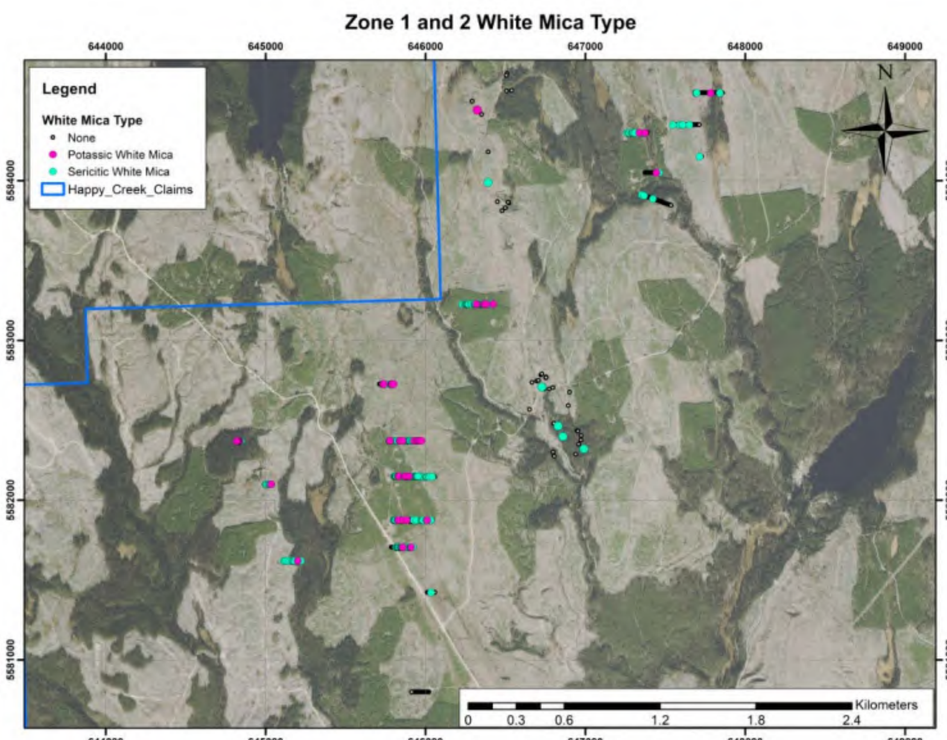


Figure 36: Plan map of “Potassic” and “Sericitic” white mica within the larger Zone 1 and Zone 2 area.

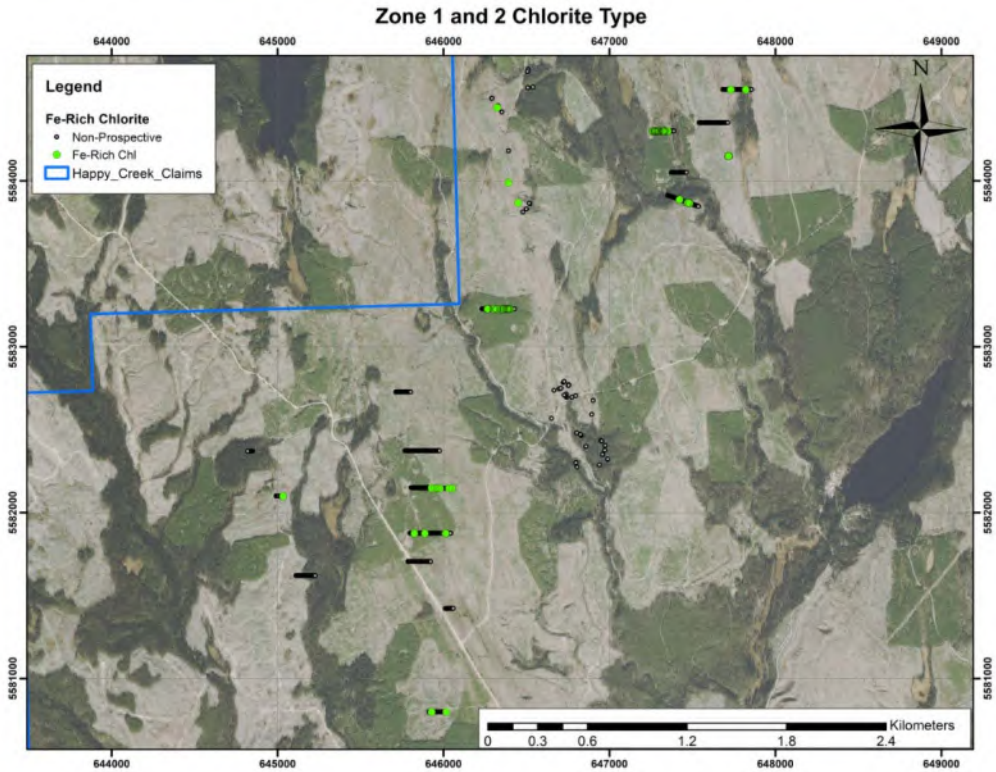


Figure 37: Plan map of the Fe-rich signature favorable for Zone 2 style mineralization within the larger Zone 1 and Zone 2 area.

Overall, there is a considerable focus of mineralization and alteration in the general area of Zone 1, Yubet and Zone 2. While the known mineralization and strongest alteration is restricted to a series of north trending features (presumably syn-mineral structure) these could be part of a single large hydrothermal system which coalesces at depth. There is some evidence that this may be possible as the hyperspectral and geochemical data from the area suggests a deeper alteration vector. Although purely theoretical, such a system could be up to several kilometers across. There is evidence that the GCB is capable of generating systems of this size as the Valley pit and Lornex pit are each measured to be roughly 2km wide in a north-south orientation (Bing imagery accessed in July 2020). A schematic cross-section of how that might look is provided in figure 38.

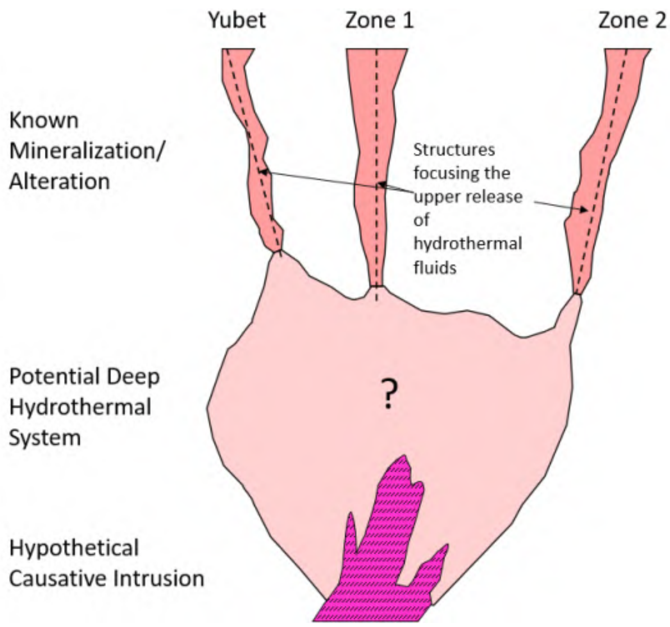


Figure 38: Hypothetically, the known mineralization/alteration could be the high-level, structurally focused expression of a very large system at depth.

Recommendations

Based on these results the following recommendation are made for future consideration.

General Geoscience

The hyperspectral study has established spatial relationships but lacks a true genetic understanding of the controls on mineralization. The following recommendation are provided to start developing such an understanding which will allow for improved targeting.

1. Develop a detailed vein paragenesis for the vein types in Zone 1 and 2.
2. Support the vein paragenesis work with thin section descriptions of the veining.
3. Consider detailed hyperspectral scans using a unit such as CoreScan or TerraCore on the thin section off cuts to link specific mineral relationship to veining which control distribution of mineralization.

Such a program would take time to implement and execute, likely evolving over several field season. Support for such a program might be achieved through Geoscience BC funding.

Additional benefit to the project might also be achieved through the following:

4. Compiling the data for the purpose of this study was challenging due to the need to generate multiple merged tables from primary sources. Development of an access or other geological database is recommended. This would save time during future studies and allow for the easy separation of different analytical techniques while preserving data integrity.
5. The use of 4 acid-digestions are recommended for future programs in order to allow for more sophisticated quantification of white mica and feldspar alterations.

Field Work:

Pim

1. Alteration at the Pim target displays promising spectral results. The mapping and spectral work should be expanded to the south to cove the footprint of the recent soil sampling camplaign.
2. Drilling should be considered on the main showing.

Sho

1. Veining at Sho is relatively narrow and based on spectral results represents a relatively distal portion of a mineral system. Prospecting/mapping should continue along a west-northwest and east-southeast direction looking for changes in the alteration while considering the potential for offsets across north-south faults.

3 Creeks/Zone 2 west

1. The 3 creeks area yielded the lest encouraging spectral results however, the geochemical results from that area warrant follow up work. It is recommended that the entire area from Yubet through 3 creeks and Zone 2 be mapped in detail with a focus on vein density and orientation along with supporting geochemistry and hyperspectral analysis. The objective of this should be to examine variations in vein density and orientation as well as trace element and spectral parameters to aid in vectoring beneath cover. A map area like the footprint shown in figure 36 is recommended.

Property Potential

1. Deep seeing geophysics should be considered in the Zone 1, Yubet and Zone 2 areas to investigate the potential of a deep, very large porphyry center. Deep seeing IP or MT should be considered with sufficient data coverage to generate a 3D model for targeting.
2. Many other prospects exist on the property. Systematic geochemical sampling and hyperspectral work is recommended over all prospects of interest. The objective of this should be to improve the geological characterization of each a better classify porphyry vs mesothermal/epithermal vein potential.

Drilling

Zone 1

1. Further spectral work should be completed on holes in the north of the deposit in order to establish a clearer vector towards potential deeper porphyry potential (Either the max case or within Zone 1). Holes R10-13, R11-04, R11-05 and R11-03 are recommended for this.
2. The chargeable anomaly in the southern portion of the Zone 1 trend likely warrants a drill test in the core of the anomaly. A review of assay and potential spectral data on holes R07-01 and R09-05 may help support a drill decision.
3. Detailed geological modelling of the deposit should be considered focusing on the location and orientation of faulting as well as the geometry of dykes.

Yubet

1. The parallel Yubet trend demonstrates similar white mica as Zone 1 while reporting elevated tungsten. This suggests the presence of high-level alteration and a deeper target in this area should be considered.

Zone 2

1. Further spectral work should be considered on holes west of the main mineralized trend. Holes R08-02, R08-04, R08-08 and R08-09 are recommended for thi. The objective of this work should be to inform a drilling decision deeper into the western portion of the chargeable anomaly which underlies Zone 2.
2. Detailed geological modelling of the deposit should be considered focusing on the location and orientation of faulting as well as the geometry of dykes.

References

Alva-Jimenez, T. R., (2011) Variations in Hydrothermal Muscovite and Chlorite composition in the Highland Valley Porphyry Cu-Mo District, British Columbia, Canada, UBC MSc Thesis.

Alva-Jimenez, T. R., Tosdal, R. M., Dilles, J. H., Dipple, G., Kent, A. J. R., and Halley, S., (2020) Chemical Variations in Hydrothermal White Mica Across the Highland Valley Porphyry Cu-Mo District, British Columbia, Canada, Economic Geology 115. No. 4, p903-926.

Byrne, K., Stock, E., Ryan, J., Johnson, C., Nisenson, J., Jimenez, T.A., Lapointe, M., Stewart, H., Grubisa, G., and Sykora, S., 2013, Porphyry Cu- (Mo) deposits in the Highland Valley district, south-central British Columbia: Society of Economic Geologists Guidebook, v. 43, p. 99–116.

Candela, P. A., (1997) A review of Shallow, Ore-related Granites: Textures, Volatiles and Ore Metals, Journal of Petrology, Vol 38, p1619-1633.

Curtiss, B, Field Characterization of White Micas Using the TerraSpec Halo, PANalytical White Paper.

D'Angelo, M., Alfaro, M., Hollings, P., Byrne, K., Piercey, S., and Creaser, R.A., (2017), Petorgenesis and Magmatic Evolution of the Guichon Creek Batholith: Highland Valley Porphyry Cu+- (Mo) District, South-Central BC., Society of Economic Geology 112, p1857-1888.

Halley, S., Dilles, J.H., and Tosdal, R.W., (2015) Footprints: Hydrothermal Alteration and Geochemical Dispersion Around Porphyry Copper Deposits, Society of Economic Geology Newsletter, No. 100.

Hauff, P., (2008) An over of VIS-NIR-SWIR field spectroscopy as applied to precious metals exploration, Spectral International Inc.

Kokaly, R.F., Clark, R.N., Swayze, G.A., Livo, K.E., Hoefen, T.M., Pearson, N.C., Wise, R.A., Benzel, W.M., Lowers, H.A., Driscoll, R.L., and Klein, A.J., 2017, USGS Spectral Library Version 7: U.S. Geological Survey Data Series 1035, 61 p., https://doi.org/10.3133/ds1035.

Legase, G (2020), Distribution of District-Scale Hydrothermal Alteration, Vein Orientations and White Mica Compositions in the Highland Valley Copper District, B.C, Canada: Implications for the Evolution of Porphyry Cu-Mo Systems, UBC PhD Thesis.

McMillan, W.J., 1976a, Geology and genesis of the Highland Valley ore deposits and the Guichon Creek batholith: Canadian Institute of Mining and Metallurgy, Special Volume 15, p. 85–104.

Neal, L.C., Wilkinson, J.J., Mason, P.J., and Chang, Z., (2018), Spectral characteristics of propylitic alteration minerals as a vectoring tool for porphyry copper deposits, Journal of Geochemical Exploration 184, p179-198

Northcote, K.E., 1969, Geology and geochronology of the Guichon Creek batholith, B.C.: Department of Mines and Petroleum Resources, Bulletin 56, 73 p.

Ryan, J., and Byrne, K. (2016) Geology of the Bethlehem Porphyry Cu-Mo Deposit, Kamloops exploration group conference presentation.

Tosdal, R.M., and Richards, J.P., (2001), Magmatic and Structural Controls on the Development of Porphyry Cu+-Mo+-Au Deposits, Society of Economic Geology, 14, p157-181.

Wilkinson, J.J., Chang, Z., Cooke, D.R., Baker, M.J., Wilkinson, C. C., Inglis, S., Chen., H., and Gemmell, J.B., (2015), The chlorite proximitor: A new tool for detecting porphyry ore deposits. Journal of Geochemical Exploration 152, p10-26

Appendix 3

2021 CJ Greig and Associates Ltd. Report

A Report on
Hyperspectral and Geochemical Review of
Zone 1 and Zone 2
Rateria Property
Highland Valley Project

Prepared for Happy Creek Minerals Ltd.

C.J. Greig & Associates

Tom Ver Hoeve, M.Sc., G.I.T.

Charlie Greig, M.Sc., P.Geo

April 15, 2021

Executive Summary

Happy Creek Minerals is a TSX-Venture listed Canadian junior mineral exploration company that holds mineral claims in the Highland Valley camp of southern British Columbia, where the company has explored for porphyry-style copper-molybdenum mineralization for over 15 years, beginning in 2005. Mineralization in the Highland Valley district is associated with the intrusion of the late Triassic Guichon Creek Batholith, which has been mined by for over 50 years and is currently operated by Teck Highland Valley Copper. Two major mineralized trends, Zone 1 and Zone 2, have been discovered on Happy Creek's claims and have been outlined through over 28,000 metres of diamond drilling since 2006. Much of the property remains underexplored with over 25 mineral showings that require follow up and testing.

C.J. Greig & Associates Ltd. is a geologic consulting firm located in Penticton, British Columbia with extensive history in the mineral exploration industry of British Columbia and broad experience in porphyry deposits. CJG has been hired by Happy Creek Minerals to assess their Highland Valley project and review core drilled in 2020 on the Zone 1 and Zone 2 targets using detailed hyperspectral analysis measured by Terraspec Halo. Hyperspectral analysis can reveal alteration mineral assemblages that cannot be determined visually in hand sample and can be used to identify facies of a porphyry system's hydrothermal footprint in order to vector towards potentially mineralized zones.

Core from two drill holes, R20-01 and R20-02, were shipped to the Penticton logging facility where the samples were analyzed systematically downhole by Terraspec every 1.5 metres, analyzed by XRF, and relogged for alteration and structure. Focused studies with the Terraspec on mineralized vein selvages were also undertaken to characterize more local alteration signatures. Finally, potassium feldspar staining of slabbed rock samples was performed to identify potassic alteration in the rocks. This process was undertaken in order to refine and add to the understanding of the Zone 1 and Zone 2 systems and improve future drill targeting.

Results from the hyperspectral work show that different alteration systems are present between Zone 1 and Zone 2 mineralized systems as indicated in the relative proportions of white mica minerals and smectites. Increased potassic alteration at Zone 2 likely represents higher temperature alteration. However, mineralization was found to be poorly correlated to variations in alteration assemblages, suggesting post-mineral overprinting signatures may be the dominant style preserved in the rocks.

This work is ongoing, with plans for enhanced geochemical review of the rocks in conjunction with the hyperspectral mineralogy and interpretation of the zones using 3D modelling software.

Table of Contents

1. Introduction

Happy Creek Minerals holds a large (240 km^2) tenure of mineral claims in the Highland Valley district of southern interior British Columbia where the company has explored for porphyry copper-molybdenum deposits since 2005 (Figure 1). The land package consists of two contiguous properties, the West Valley and the Rateria, which are adjacent to the south of Teck Highland Valley Copper's (HVC) past and current mining operations at the Highmont, Valley, Lornex, and Bethlehem pits which together represent Canada's largest copper mine. Mineralization in the Highland Valley camp is hosted within the Late Triassic Guichon Creek batholith (211.02-206.95 Ma; D'Angelo et al., 2017) a concentrically zoned intrusion consisting of five intrusive facies of which the youngest three – the Bethlehem, Skeena, and Bethsaida – all host porphyry Cu-(±Mo) mineralization.

Two discoveries on Happy Creek's Rateria claims southeast of the Highmont Mine, Zone 1 and Zone 2, have been outlined through over 28,000 metres of drilling. Each tend has been defined for over 1 km and remain open along strike and to depth. On both the Rateria and West Valley properties, numerous exploration target areas have been outlined through prospecting, surface geochemical sampling, and ground and air-based geophysics including induced polarization and magnetics. The current aim of Happy Creek Minerals in order to forward their Highland Valley project is to both grow the potential resources at the Zone 1 and Zone 2 discoveries and to make new discoveries across their underexplored land package.

In November of 2020, while drilling was progressing at the property, C.J. Greig & Associates was approached to provide geological consultation on the Highland Valley project with focus on a detailed review of the lithologies, geochemistry, alteration mineralogy, and structures present in the two 2020 drill holes on the Rateria's Zone 1 and Zone 2 discoveries as well as to provide guidance for future exploration across the property. Work is ongoing and this report summarizes the approach, results, and preliminary interpretations of the initial phases of the project as of early April 2021.

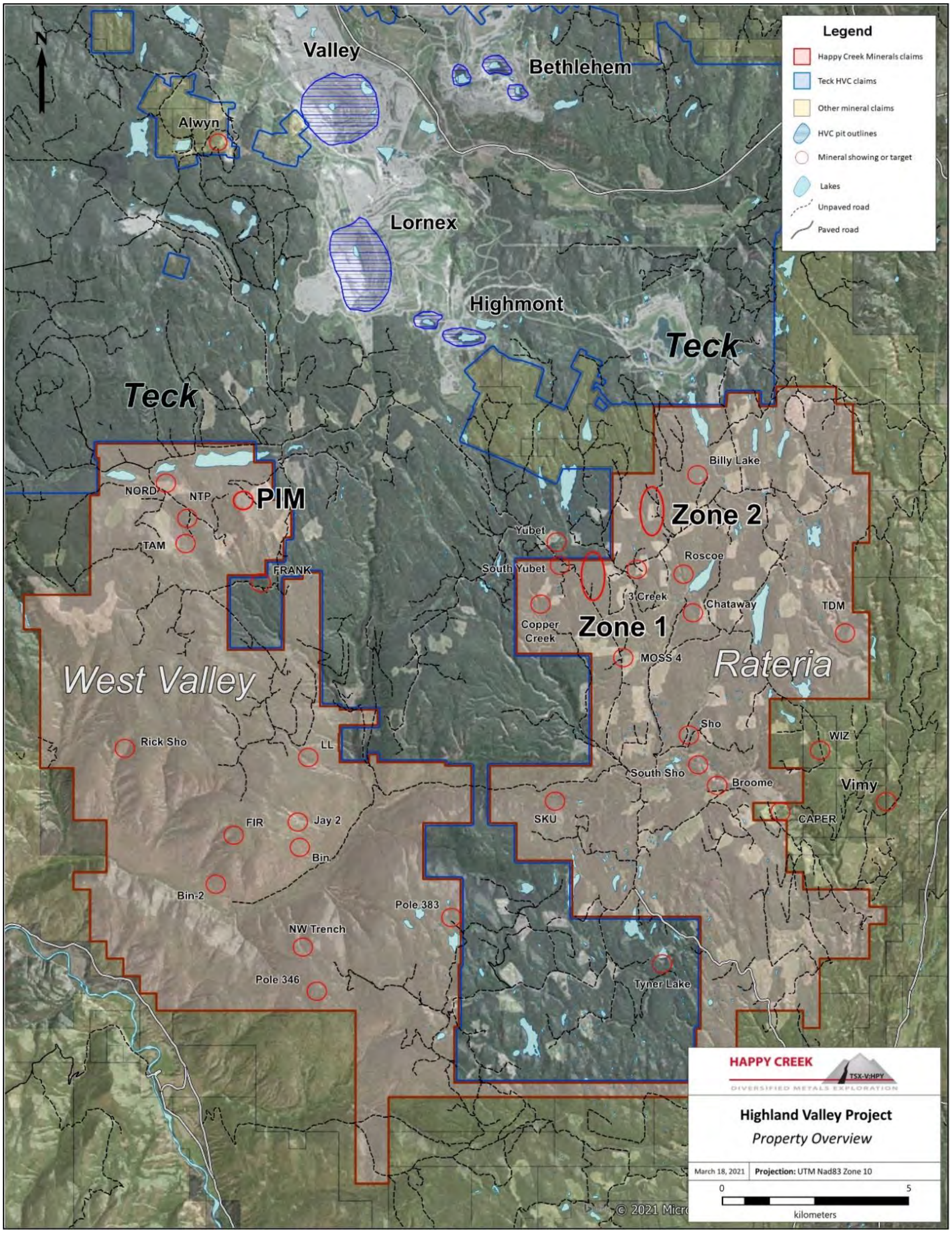


Figure 1. Plan map of the Highland Valley area showing mineral claims boundaries of Happy Creek Minerals, Teck Highland Valley Copper, and other 3rd party claims. Outlines of the mined mineral deposits are shown in blue-hatched circles, red circles indicate known mineral occurrences and exploration targets. The targets of 2020 drilling by Happy Creek Minerals, Zone 1, Zone 2, and PIM, are bolded for emphasis.

2. Highland Valley Property and Area of Interest

Happy Creek minerals conducted drilling on two areas of interest during the 2020 fall drill program – the Rateria, which hosts two mineralized zones, Zone 1 and Zone 2, discovered in 2006 and 2008, respectively, that have been well-defined by drilling, and the largely underexplored West Valley (Figure 1, Figure 2). Zone 1 is hosted in Skeena phase granodiorite that is cut by aplitic dykes and the mineralized zone trends roughly north-south over 1.2 km of strike and is 50-150m in width and is open at depth. Highlights from previous drilling include intercepts of 95 metres of 0.65% Cu and 250 metres of 0.25% Cu. Zone 2 is located roughly 3 km northeast from Zone 1. It is hosted along an interfingered contact between Bethelem and Chataway phases of the Guichon Creek batholith and mineralization here also trends north south over 1 km of strike, up to 150 metres in width, and remains open to depth. Zone 2 uniquely contains gold and rhenium enriched molybdenite in addition to Cu, with highlight intervals including 126.0 metres of 0.46% Cu, 0.10% Au and 105.5 metres of 0.37% Cu, 0.14 g/t Au, and 0.63 g/t Re.

In 2020 at Rateria, one hole each was drilled at the Zone 1 and Zone 2 mineralization trends, in each case stepping to the west from the previous drilling pattern and drilling angled holes with the aim of undercutting the mineralization and extending the grade to depth, where the systems remain untested. These two drill holes, R20-01 and R20-02, were 696 and 557 metres in length, respectively, and intersected various phases of Guichon Creek batholith intrusive rocks that had experienced various degrees of hydrothermal alteration and mineralization. These two drill holes, along with a short interval from the bottom of drill hole WV20-02, which tested the PIM target in the West Valley, were shipped to the C.J. Greig & Associates warehouse and core logging facility in Penticton, British Columbia where the core was processed, logged, and analyzed using various geochemical and hyperspectral techniques.

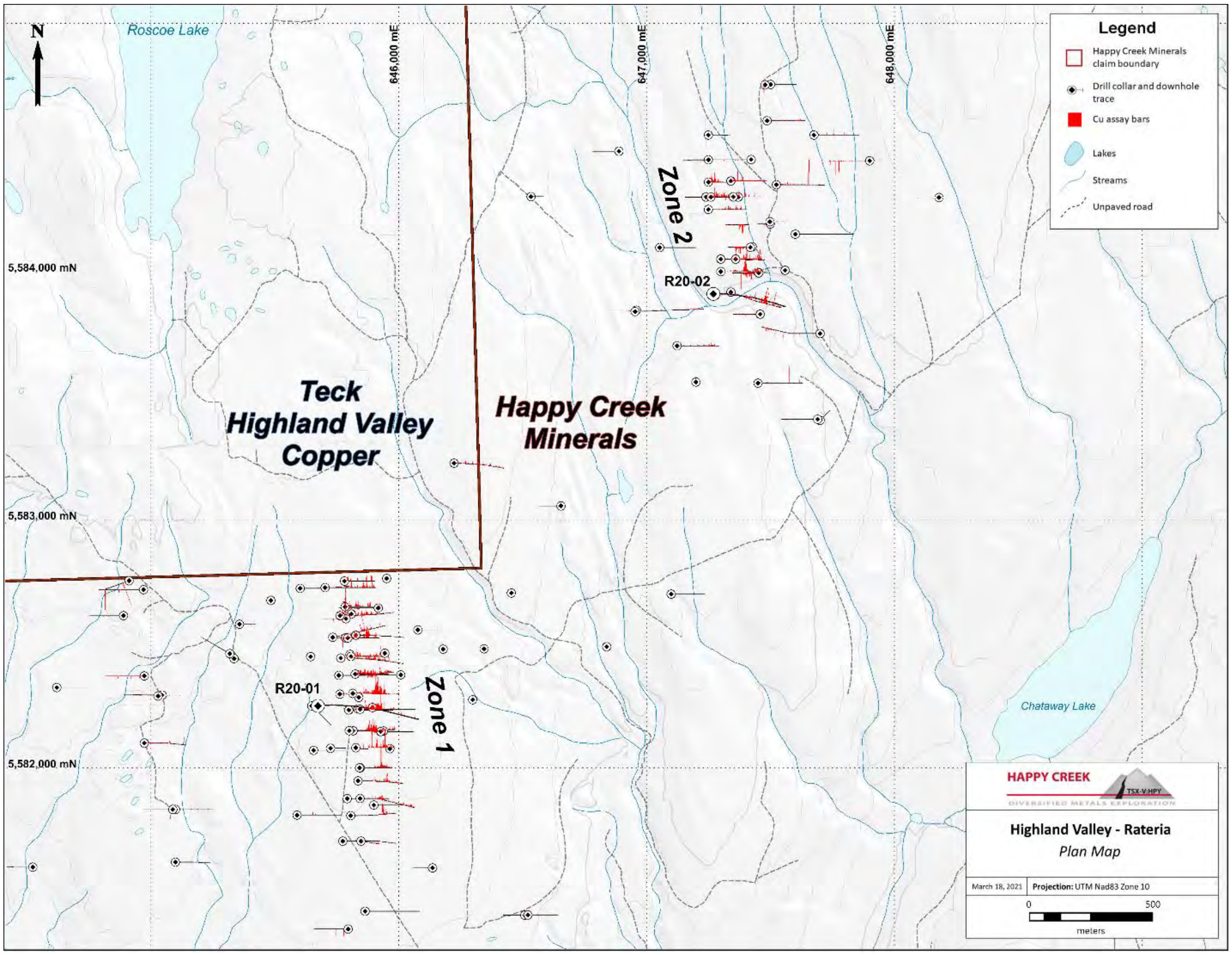


Figure 2. Plan map showing drill hole locations and projected traces at the Zone 1 and Zone 2 trends with the two 2020 holes analyzed in this report, R20-01 and R20-02, emphasized and labelled.

3. Core Analysis Program

3.1. Methodology and Rationale

3.1.1. Geology Review and Relog

Split and sampled core from the drill holes were laid on benches at the C.J. Greig & Associates warehouse and logging facility in Penticton, British Columbia (Figure 3). This environment allows for up to 400 metres of core to be displayed at once, giving greater context to the observed geological changes than previously available. Here, core was systematically observed and documented by a senior geologist while analytical measurements were collected by a junior geologist. This work did not constitute a full geological relog, as the work of the original logging geologist was typically accurate and complete for the extent of the holes. The purpose of this review was to document a greater detail of observation with respect to gradational changes in the intrusions texture and alteration assemblage in context with various structures observed downhole. This data was then used in conjunction with the assay geochemistry and collected hyperspectral data in create a detailed picture and interpretation of the mineralization styles and potential at the Zone 1 and Zone 2 targets.

Figure 3. Image of the core logging facilities at C.J. Greig & Associates warehouse in Penticton, B.C. Roughly 400 metres of drill core can be displayed at once in the heated facility in its current configuration.

3.1.2. Terraspec Halo

Hyperspectral analysis of rocks has become an increasingly used and essential tool in determining alteration minerals and assemblages and is particularly well-suited to characterizing the suite of clay alteration phases associated with the well-understood facies of hydrothermal alteration associated with porphyry emplacement. These clay minerals, in particular minerals of the white mica family which includes muscovite, illite, smectite, paraganite, and others, are reflective of the chemistry and temperature of the alteration fluids and can indicate the setting of a rock with respect to a porphyry core that may be associated with economic mineralization. Due to the fine-grained and similar appearance of many of these minerals, the Terraspec is crucial to their proper identification in environments like Highland Valley, where alteration styles have a wide range of appearances (Figure 4).

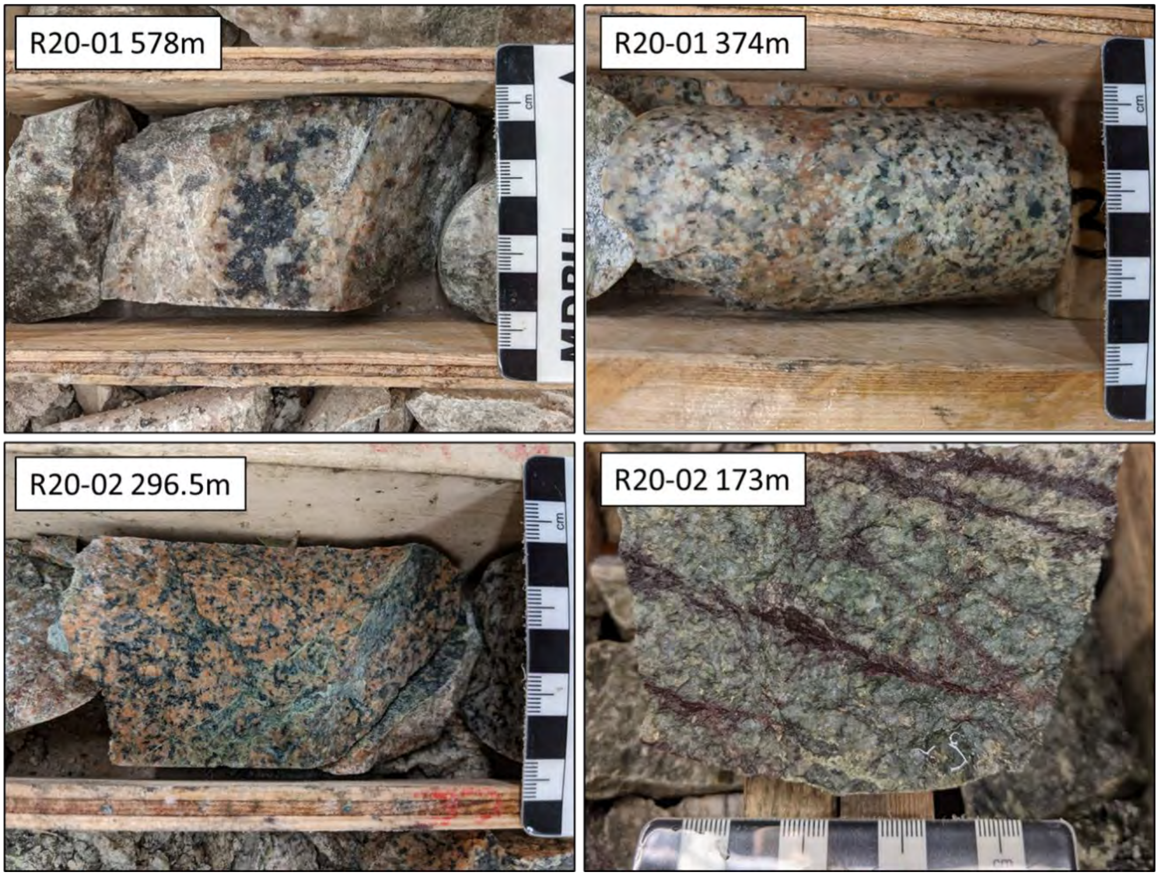


Figure 4. Collection of photographs of core from Zone 1 and Zone 2 drill core highlighting the variability in alteration mineralogy observed in the host granodiorite related to multiple generations of overprinting hydrothermal alteration.

Two programs of hyperspectral data collection were carried out on the drill holes – continuous and targeted. For the first pass of analysis, measurements were taken on the drill core roughly every 1.5 metres continuously down hole the readings being centered on homogeneous representative lithology and avoiding structures and veins when possible. This methodology allows for a continuous characterization of shifting spectral ratios and varying mineral assemblages in the host rock without screw from local small-scale features. The second program was targeted on these small-scale features and took analyses within and across features such as vein selvages to attempt to classify the fluid chemistry of the fluids that produced them.

3.1.3. Mineral Staining

Feldspar composition can be notoriously difficult to determine visually in altered rocks due to fine grain size. Staining of feldspars is an established technique by which a rock’s surface is etched using hydrofluoric acid (HF) and subsequently dyed using cobaltinitrite, which will bind to the surface of potassium feldspar (e.g., orthoclase) giving it a bright yellow appearance which easily differentiates it from sodic-calcic plagioclase feldspars (Figure 5). Potassium feldspar is a key mineral in porphyry alteration and is an alteration product of high temperature potassic alteration fluids which are commonly associated with the mineralizing phases of porphyry systems. It can used also be a powerful tool to accurately determine the lithological classification of granitoids using modal mineralogy.

Select samples were taken downhole for targeted K-feldspar staining on the Rateria drill holes. In each case, samples were chosen to answer questions about the mineral assemblage present in the rock or surrounding a select feature such as a vein selvage. Selvages in around numerous vein styles at highland valley are commonly orange/pink colour and interpreted as potassium feldspar, but this assumption is commonly inaccurate.

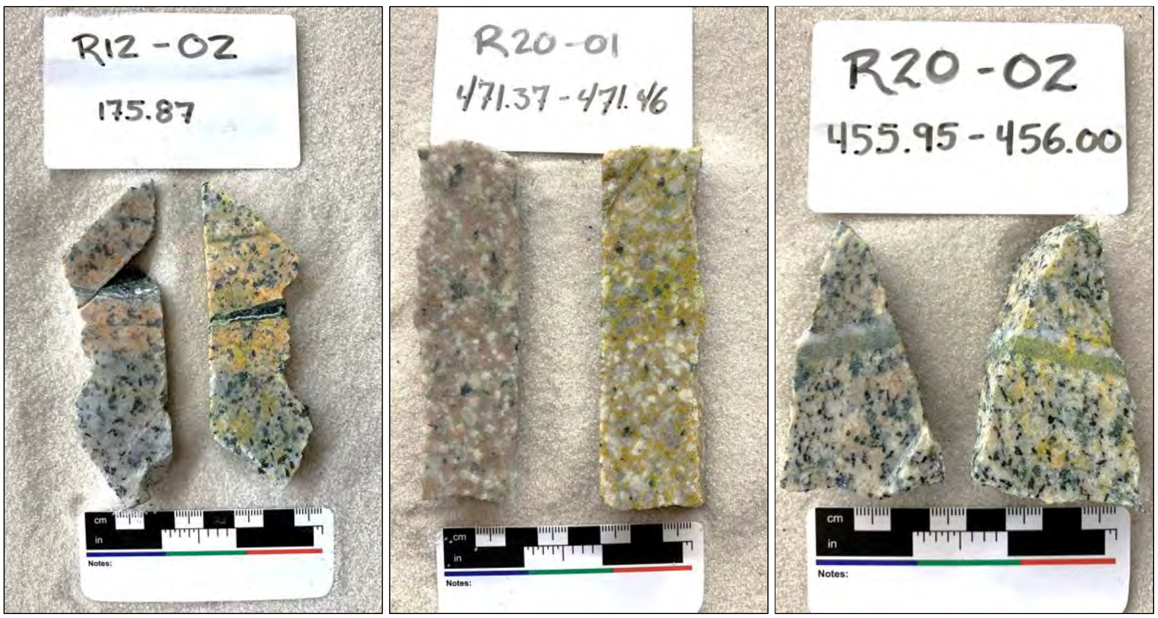


Figure 5. Photograph examples of stained slabs of drill core from Rateria drill holes. In each photo, the rock on the left is unaltered and the rock on the right has been stained with cobaltinitrite resulting in yellow-dyed potassium feldspar where present.

3.1.4. XRF

Portable x-ray fluorescence is a fast and cost-effective method of determining rock geochemistry prior to receiving lab results. Increasingly, immobile element geochemistry (e.g., Ti, Zr, Nb) determined by XRF is used to fingerprint and identify unique lithological units to aid logging and drill targeting while still in the field. XRF measurements were taken on the Rateria drill hole samples every metre down hole, again focusing on characterizing the base lithology of the rock and avoiding analyzing local veins and structures. Results from the XRF geochemistry was used both practically during the relog (which occurred prior to receipt of assays) to attempt to identify lithological units and to provide a comparison database which can be used to calibrate XRF to assay geochemical difference to assess the utility of the tool with respect to the Highland Valley Project.

4. Results and Discussion

4.1. R20-01

Hole R20-01 was drilled as a ~200 metre western step out to the core of the Zone 1 mineralized trend (Figure 2, Figure 6). The hole was drilled at an inclination of -60 with an azimuth of 085 to the east, with the aim of extending high grade Cu mineralization intercepted in R10-12, R10-11, and R11-06 to depth following an interpretation that the mineralized zone here is generally vertical and trending north-south. The drillhole collared into Skeena phase granodiorite after only 4.5 metres of overburden, and the Skeena granodiorite continues downhole as the dominant lithology while being locally interfingered with Bethsaida phase rocks, which are recognized by rounded quartz eye phenocrysts and abundant biotite. Local felsic and aplitic dykes with maximum thicknesses of 5 metre occur in spurts throughout the hole, most notably from 101.5-133.5 metres, from 309-346 metres, and from 407-421 metres. Considerable faulting is present throughout the entire drillhole, ranging from consistent cobble-sized fracturing to intervals of up to 20 metres of clay gouge. The low rock quality present throughout the hole is indicative of a likely subparallel structural feature, likely a fault or contact, that persists for much of the hole. Through the top of the hole, copper mineralization is sporadic and weak, when present occurring as a very fine chalcocite coating on fracture surfaces in the granodiorite with no dissemination in the host rock and no visible alteration surrounding the mineralization.

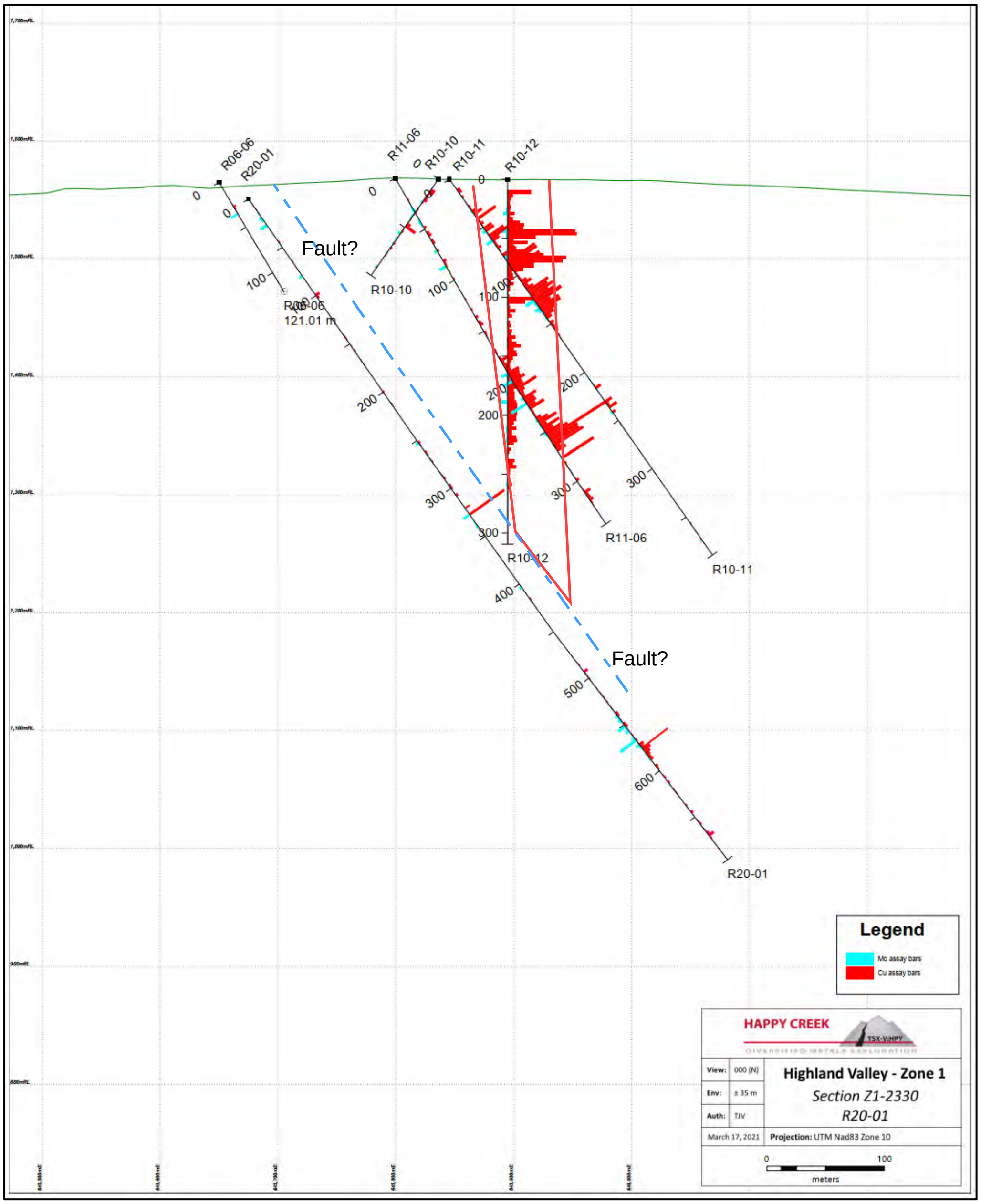


Figure 6. R20-01 cross section showing relative Cu (red) and Mo (blue) assays on the drill trace.

At 524 metres, the hole intersects a distinctive K-feldspar rich quartz-phyric porphyry that continues to 578.5 metres. The unit can also be easily recognized from its unique immobile trace element signature in Ti/Zr ratio (Figure 7). This unit hosts weak disseminated bornite and chalcopyrite throughout and the downhole contact from 574.5-578.5 hosts a chlorite-hematite rich shear structure with abundant chalcocite that reports the highest copper grades of the hole, up to 0.83% Cu. Below this structure, the hole continues through Skeena and Bethsaida phase granodiorites with local weak occurrences of Cu mineralization present as chalcocite on fractures. Intercepted mineralization in hole R20-01 did not align with the projected location and grades from previous drilling and the presence of heavy faulting through much of the hole indicates a likely structural offset of the zone in this area. Work is being done to interpret available geophysics data to understand the structural setting at Zone 1.

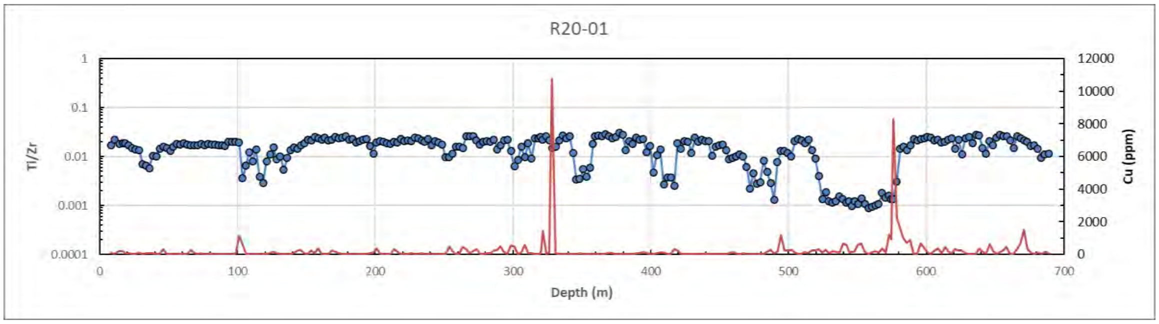


Figure 7. Ti/Zr ratio vs. depth for R20-01. The distinctive K-spar rich porphyry associated with the highest Cu grades in the hole is notable from in the Ti/Zr ratio from 524-578.5m. Cu assays are shown as a line trace.

4.2. R20-02

Hole R20-02 was drilled as a 100m western step out from hole R17-05 that intercepted a high-grade Cu-Au interval of 105.5 metres of 0.37% Cu, 0.14 g/t Au, 1.9 g/t Ag, and 0.63 g/t Re (Figure 8). Drilling at an inclination of -57 with an azimuth of 090 to the east, the hole intercepted coarse-grained Chataway phase granodiorite after 15.64 metres of overburden. Chataway phase is the predominant lithology throughout the hole, with local fluctuation between finer and coarse-grained varieties of the unit. Rare aplite and mafic dykes occur within the hole, rarely thicker than 1 metre. Copper mineralization begins with weak chalcocite on fractures around 125 metres depth and continues patchily downhole, generally increasing with depth until it peaks at 311.3-320.3 metres, which reports 8.8 metres of 0.41% Cu and 0.13 g/t Au. This zone contains significant vein-hosted bornite with distinctive orange (determined to be potassium feldspar) selvages. Mineralization wanes below this zone and dies out below 400 metres despite continued consistent Chataway phase geology. The controls on mineralization in R20-02 are not apparent as no distinctive structural features or lithological changes were observed in the hole.

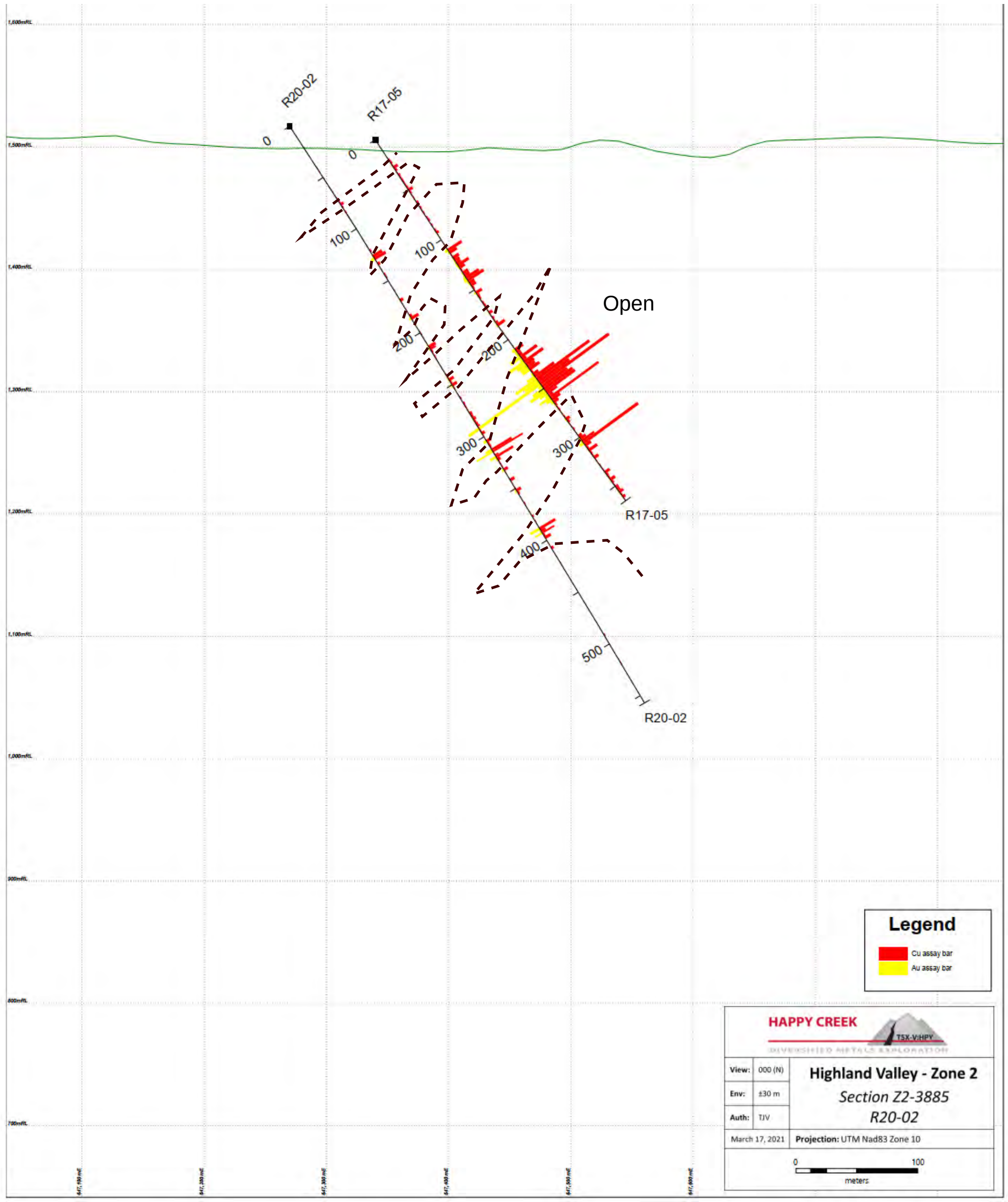


Figure 8. R20-02 cross section showing relative Cu (red) and Au (yellow) assays on the drill trace.

4.3. Hyperspectral Analysis

R20-01 and R20-02 were systematically analyzed with the Terraspec Halo (Halo) every 1.5m downhole with a total of 804 individual shots were taken of the core. The Halo reports on 152 different minerals, of which 51 were identified with various levels of confidence in the Highland Valley holes. In order to properly analyze the data collected, the results were first grouped into clay mineral families with common properties, the most abundant of which being white micas (muscovite, illite, paragonite), and smectites (vermiculite, montmorillonite). Kaolinites, chlorites and epidotes also account for a sizeable amount of identified mineralogy (Figure 9). The largest contrast between holes came from the increase of zeolite group minerals, from <1% of the proportion of minerals detected in R20-01 to 10% in R20-02 and a drop in white micas from 40% to 19% between the two holes (Figure 9).

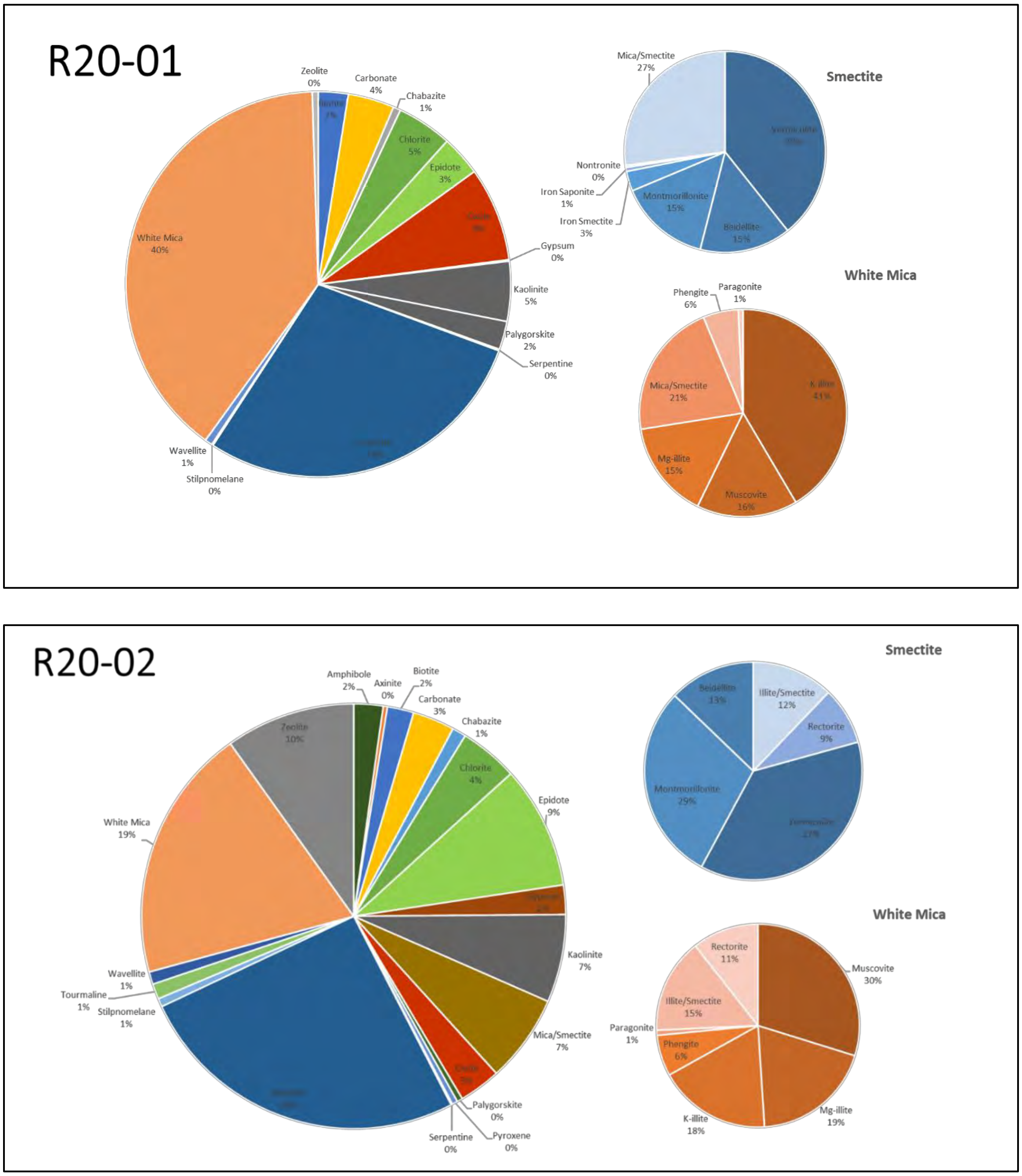


Figure 9. Pie charts showing mineral abundance grouped into their respective mineral families for holes R20-01 and R20-02

The hyperspectral data was then visualized downhole to help identify any trends, sudden drops or spikes in abundance of a given mineral and can be correlated with the mineralization. These downhole plots are then compared between holes to determine any patterns that might exist. While both holes have a similar distribution of minerals, one key distinction is an elevated and consistent abundance of K-illite in hole R20-01. After identifying trends individually downhole, the spatial occurrence of different mineral groups was compared to the copper (ppm) mineralization (Figure 10), allowing for the correlation of clay minerals to grade so that individual alteration assemblages could be associated with the mineralizing event. The relationship between grade and clay mineral species or vectors, such as the AlOH ratio is ambiguous across in the two holes analyzed (Figure 11, Figure 12). This could be a result of overprinting post-mineral alteration that has obscured the signature of the mineralizing fluids, or that the alteration fluids associated with grade were too structurally controlled and did not pervasively alter the host rock significantly. Since hyperspectral data varies depending on locality, it is most useful in comparison to other readings from the same area. Since only two holes were analyzed, the sample size is still small.

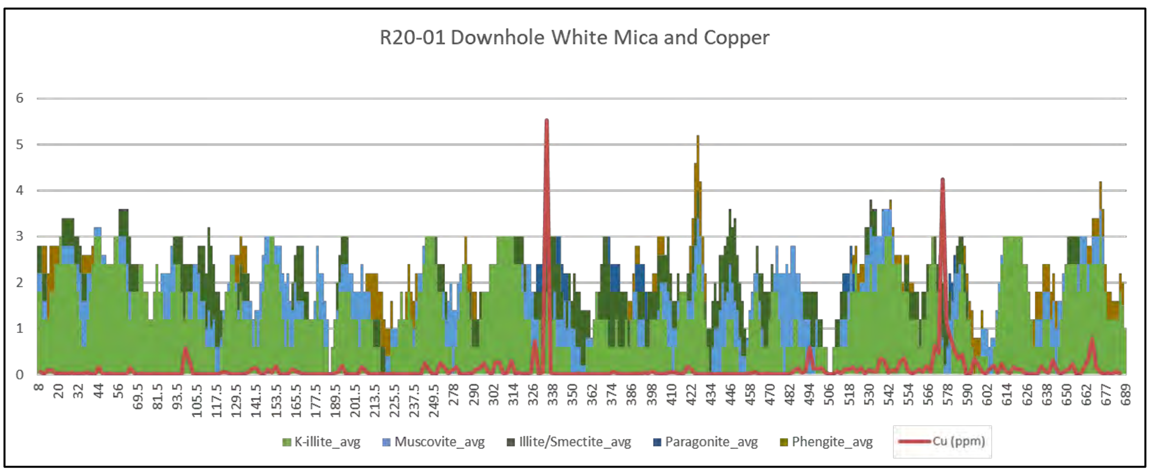


Figure 10. Downhole plot of systematic (1.5m) hyperspectral readings of the White Mica group minerals and copper assays.

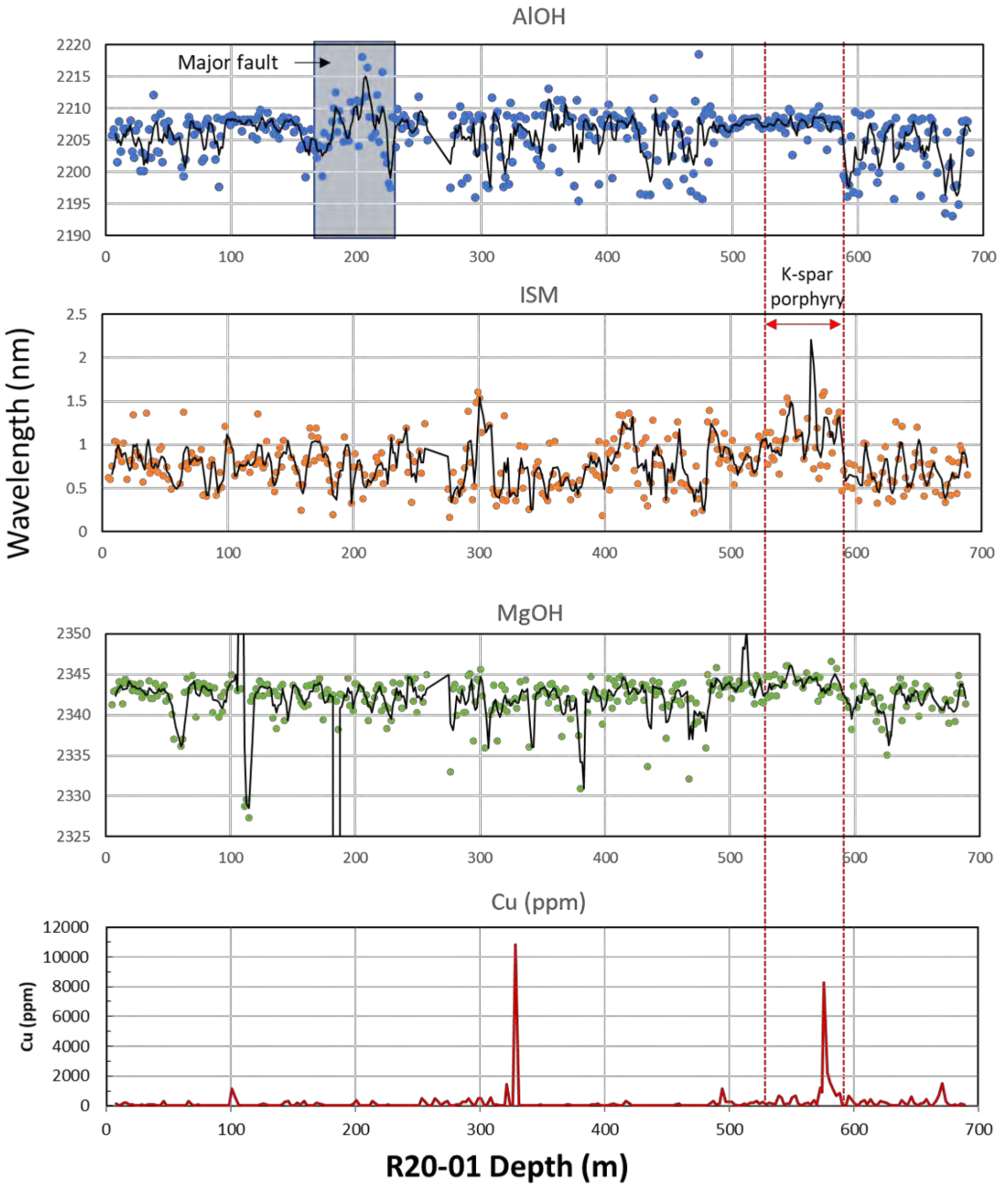


Figure 11. Downhole absorption features AlOH, ISM, and MgOH in hole R20-01. A notable elevation in all three features is present from 490-587 metres depth, occurring immediately prior to the K-spar rich porphyry unit that occurs from 524-587.5 metres that hosts the highest Cu grades of the drill hole. Black line represents a running average.

In addition to the systematic measuring of base lithology downhole, 46 samples of targeted measurements from hole R20-01 were also collected within and across features of interest. This work is ongoing and plans to be expanded to include R20-02 in the future. This analysis was focused on the regions approaching higher-grade samples most notable where a visible change in alteration had occurred. Once the data was collected and grouped into mineral families, the abundances were directly compared to the systematic data plotted downhole. Despite the distinct visual differences between less altered groundmass and selvages to copper mineralized veins, the data yielded very few differences in the clay mineralogy between the zones. One main observation of note was an elevated presence of epidote nearing mineralized zones.

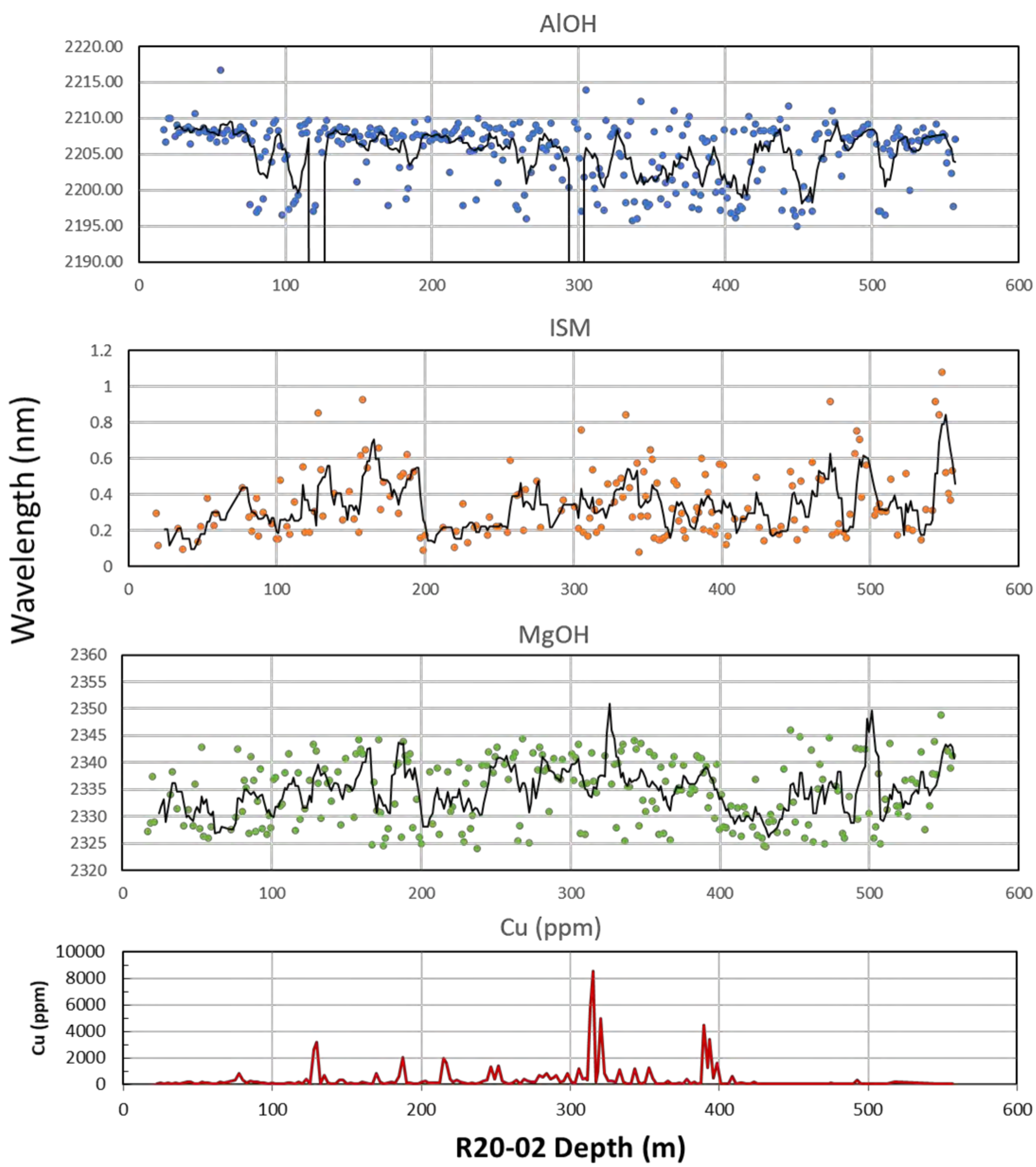


Figure 12. Downhole absorption features AlOH, ISM, and MgOH in hole R20-02. Black line represents a running average.

4.4. Staining

A total of 67 systematic downhole core samples were collected and stained for feldspar. The majority of which (25 and 36) were taken from holes R20-01 and R20-02, respectively. Five samples were also taken from hole a 2020 hole drilled in the PIM West Valley target, WV20-02, which indicated a presence of potassic feldspar phenocrysts. One sample was stained from R12-02, a 2012 drill hole that was one of the first holes to recognize the elevated Au in Zone 2, indicated weak potassic alteration occurring as a halo to a chlorite vein. The samples were commonly selected to test for the presence of potassium feldspar in order to classify certain assemblages associated with mineralization as potassic in nature. Results from the staining confirm that potassic alteration is in fact the observed selvage of some of mineralized, generally bornite or chalcocite-bearing) veins (Figure 13, left). Other vein types such as thin chlorite-epidote veinlets, however, bear visually similar pink-orange selvages but were revealed by the etching and staining process to not contain potassium feldspar and instead is the fine-grained pink material is likely plagioclase feldspar that has been altered to sericite or other clays (Figure 13, right). Overall, while potassic alteration was present, it was less common than initially perceived and generally only constrained to the selvages of copper sulphide bearing veins, with the selvage remaining highly local (<2 cm) to those veins and not pervasively affected the host rock.

Figure 13. Left: R20-02 sample from a depth of 435.92m where the cobaltinitrite staining has dyed the potassium feldspar yellow. Right: R20-01 sample from a depth of 638.38m were the lack of colour change after the etching and staining process has identified the pink colouring of the rock to be sodic-calcic plagioclase feldspar.

5. Conclusions and Recommendations

The Guichon Creek batholith is a large intrusive system that hosts massive copper-molybdenum deposits that have provided resources and economic value to British Columbia for decades and will be for years to come. Despite significant study of the known and mined deposits, much of the surrounding property remains underexplored due to heavy glacial overburden that covered much of the terrain. Prospective intrusive phases including the Skeena and Bethsaida phases of the batholith are present underlying the exploration claims of Happy Creek Minerals, where they have discovered two zones of significant Cu(±Mo±Au) mineralization as well as over 20 prospective targets across their expansive area. To aid in drill targeting both at the Zone 1 and Zone 2 targets and across the property, a strong understanding of the porphyry alteration system that has affected the rocks is required in order to determine the prospectivity of the rocks and vector towards a mineral deposit.

Terraspec, and staining in conjunction with geochemical analysis can help identify the alteration assemblages that are associated with mineralizing events. The results from Terraspec analysis of the Zone 1 and Zone 2 drill holes indicate overprinting of post-mineral hydrothermal systems that obscures the relationship between the current clay mineralogy and mineralized veins. However, staining results show that the bornite-hosting veins in Zone 2 do report bona fide potassic alteration selvages that reflect high-temperature fluid alteration of the granodiorite during emplacement. More work is required to delineate the generations of alteration at Zone 1 and Zone 2 and should utilize whole rock geochemistry and petrography in conjunction with newly acquired Terraspec mineralogy to fully characterize the alteration history of these rocks.

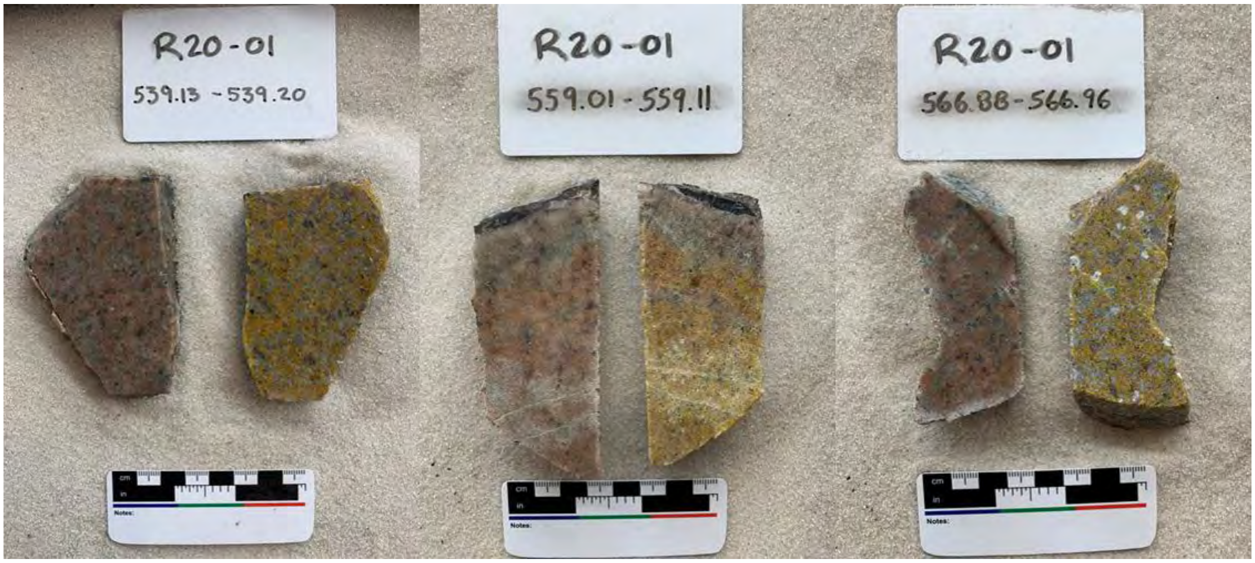
6. Stained Slab Photographs

Images of stained slabs from R20-01 and R20-02 holes. The slab on the left of each photograph is unaltered. The slab on the right was etched with hydrofluoric acid and subsequently dyed with cobaltinitrite, resulting in a yellow colouration adhered to potassium feldspar.

6.1. R20-01 Stained Samples


R20-01
307.00 - 307.11
R20-01
337.00 - 337.12
R20-01
428.90 - 429.00


R20-01
471.37 - 471.46
R20-01
496.29 - 496.39
R20-01
538.21 - 538.27


R20-01
539.13 - 539.20
R20-01
559.01 - 559.11
R20-01
566.88 - 566.96


R20-01
576.77-576.88
R20-01
606.32 - 606.42
R20-01
625.15 - 625.25


R20-01
638.38-638.45
cm
in
Notes:


R20-01
644.36-644.47


R20-01
658.50-658.63


R20-01
680.95-681.05
cm
in
Notes:

6.2. R20-02 Stained Samples


R20-02
114.73-114.82


R20-02
128.70-128.75


R20-02
154.00-154.06


R20-02
183.10-183.19


R20-02
213.14-213.22


R20-02
226.84-226.94


R20-02
243.00-243.09
R20-02
253.92-254.00
R20-02
262.54-262.60


R20-02
262.75-262.81
R20-02
281.00-281.07
R20-02
290.62-290.70


R20-02
307.60-307.71
R20-02
310.60-310.60
R20-02
318.51-318.55


R20-02
323.12-323.17
R20-02
336.00-336.09
R20-02
353.47-353.56


R20-02
366.15-366.21
R20-02
387.71 - 387.81
R20-02
409.46-409.58


R20-02
412.10-412.22
R20-02
435.92 - 436.00
R20-02
455.95 - 456.00


R20-02
462.53-462.63

R20-02
479.62 - 479.72

R20-02
500.64 - 500.71


R20-02
501.26-501.33

R20-02
525.82-526.00

R20-02
550.65 - 550.75

Appendix 4

2021 P Walcott and Associates Airborne Magnetic survey Report

A LOGISTICS REPORT

ON

AIRBORNE MAGNETIC SURVEYING

RATERIA PROPERTY

MERRITT, BRITISH COLUMBIA

KAMLOOPS M.D.
50° 20.7'N, 120° 54.3' W
NTS 092I/07

Claims:

511809,513870,522356,528775,528778,529011,529013,563796, 571030,571031,954808,954819,1021006,1043294,1051897, 1051902-906,1054152-160,1058059,1058855-57,1058859

Work Dates:
February 20th – 24th, 2021

FOR

HAPPY CREEK MINERALS LTD.
VANCOUVER, BRITISH COLUMBIA

BY

ALEXANDER WALCOTT

PETER E. WALCOTT & ASSOCIATES LIMITED
Coquitlam, British Columbia

APRIL 2021

TABLE OF CONTENTS

, **Page**

APPENDIX I

Personnel Employed on Project

ACCOMPANYING MAPS

Claim and Line Location Map Scale 1:20,000

Contours of Total Field Intensity (nT) Scale 1:20,000
Contours of 1VD of Total Field Intensity (nT)

INTRODUCTION.

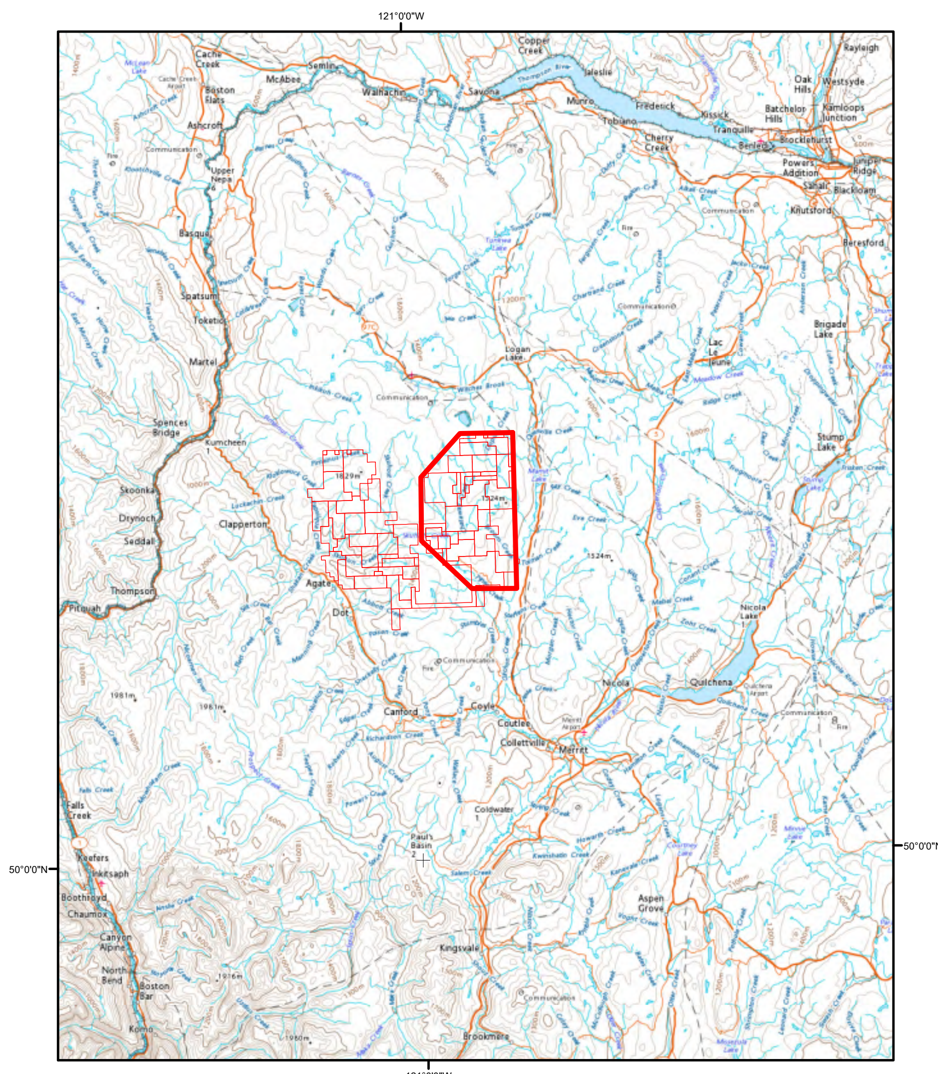
Between February 20th and 24th, 2021 Peter E. Walcott & Associates Limited undertook airborne magnetic surveying over the Rateria Property for Happy Creek Minerals Ltd.

The survey consisted of some 1660-line kilometers of airborne magnetic surveying on east-northeast flight lines with a nominal line spacing of some 100 m. In addition to the survey lines, orthogonal tie lines were carried out with a nominal spacing so some 1000 m.

PROPERTY LOCATION AND ACCESS

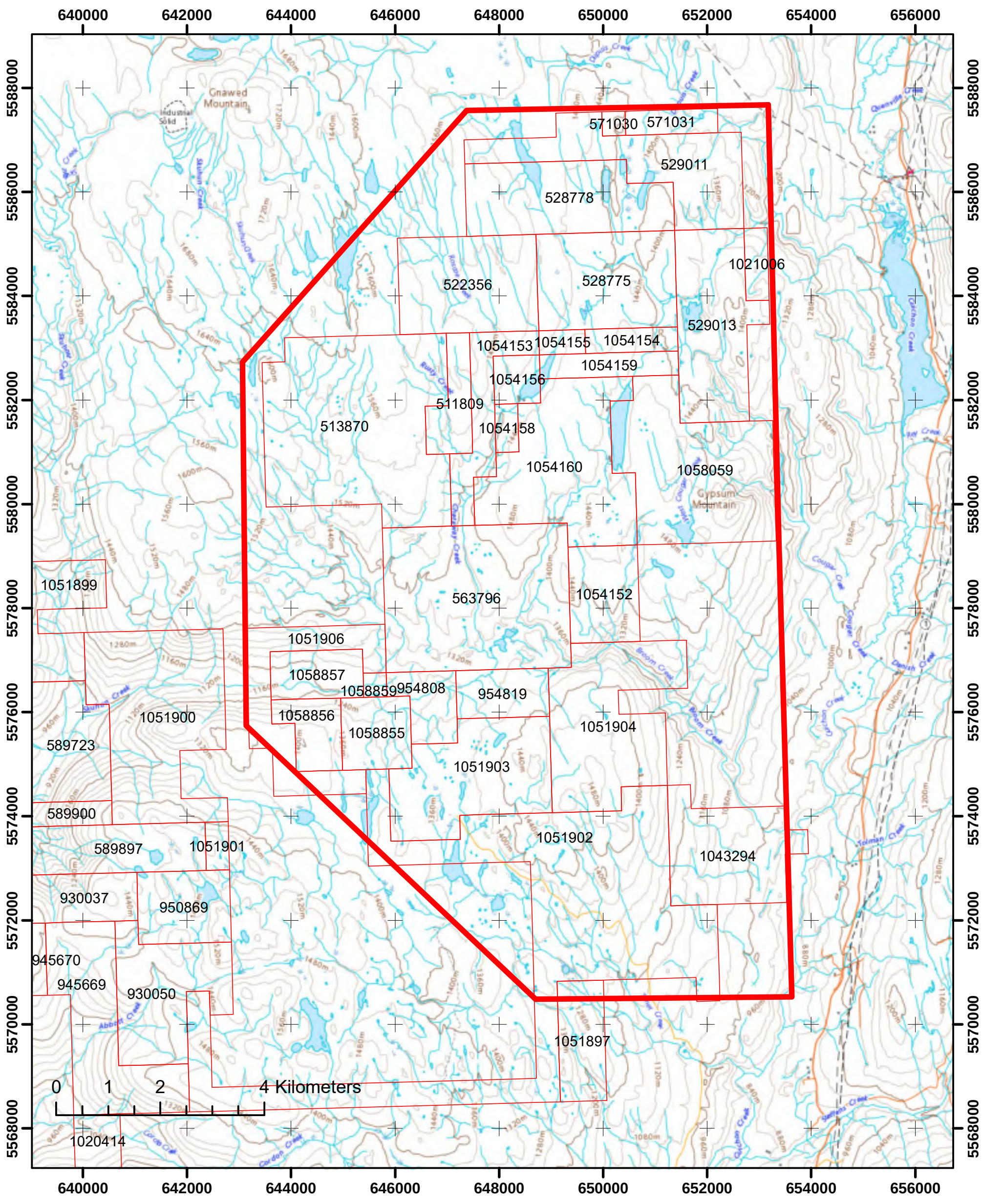
The Rateria Property is located some 26 kilometres north-northwest of the community of Merritt, British Columbia.

Access to the property can be via Highway 97C from the community of Merritt, B.C and then a series of resources roads.



Property Location Map

PROPERTY LOCATION AND ACCESS con't



Claim Location Map

SURVEY SPECIFICATIONS

The Airborne Magnetic Survey.

The airborne magnetic survey was carried out using a stinger type airborne magnetic system mounted on an AS350B2 operated by Silver King Helicopters of Smithers, British Columbia.

The total magnetic field was sampled at a rate of 50 Hz, using a Geometrics 824A sensor mounted in the front of the stinger.

Compensation for the airframe was achieved using a Bartington Mag-03 fluxgate magnetometer. The analog output of this vector magnetometer was then digitized at 50 Hz using a Kana8 24-bit GPS referenced digitizer.

The respective outputs along with a navigational information, were then logged on a Panasonic Toughbook using Geometrics Mag Log.

Navigation and survey height control for the airborne system was achieved using Nuvia Dynamics Inc. – AGIS system.

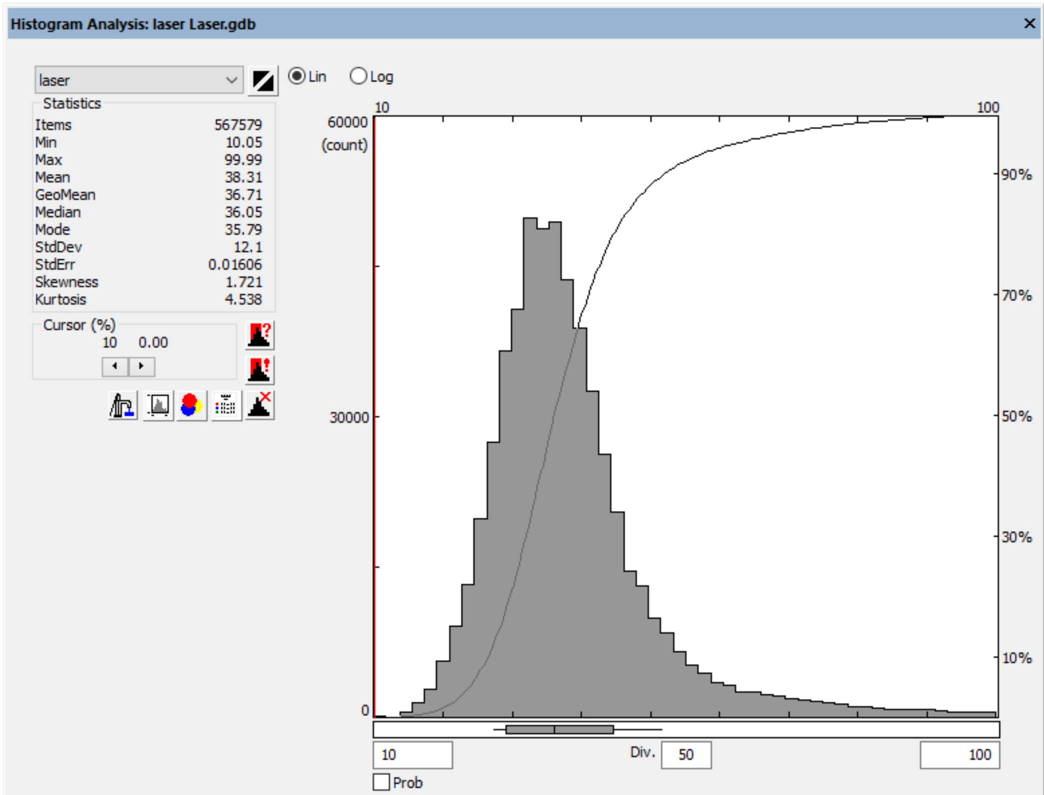
This utilized a Hemisphere R330 GPS sampling at 10 Hz, and an Optilogic RS400 laser range finder mounted in the mag boom beneath the helicopter. Flight navigation information for the pilot was displayed on an 8” LCD display showing offline deviation and helicopter height.

Two GSM-19 Overhauser base magnetometers were also established in the area, to record diurnal variations in the magnetic field. Both units were synchronized with a GPS time stamp, sampling at 1 Hz.

Compensation coefficients were calculated based on a calibration flight carried out immediately to the north of the survey area using QCTools.

The respective data was then uploading into Geosoft Oasis Montaj. The datasets were merged and corrected utilizing the GPS time stamp information. Tie line leveling, was then undertaken using the Geosoft Levelling Module.

SURVEY SPECIFICATIONS cont'd.



Histogram of Helicopter Height

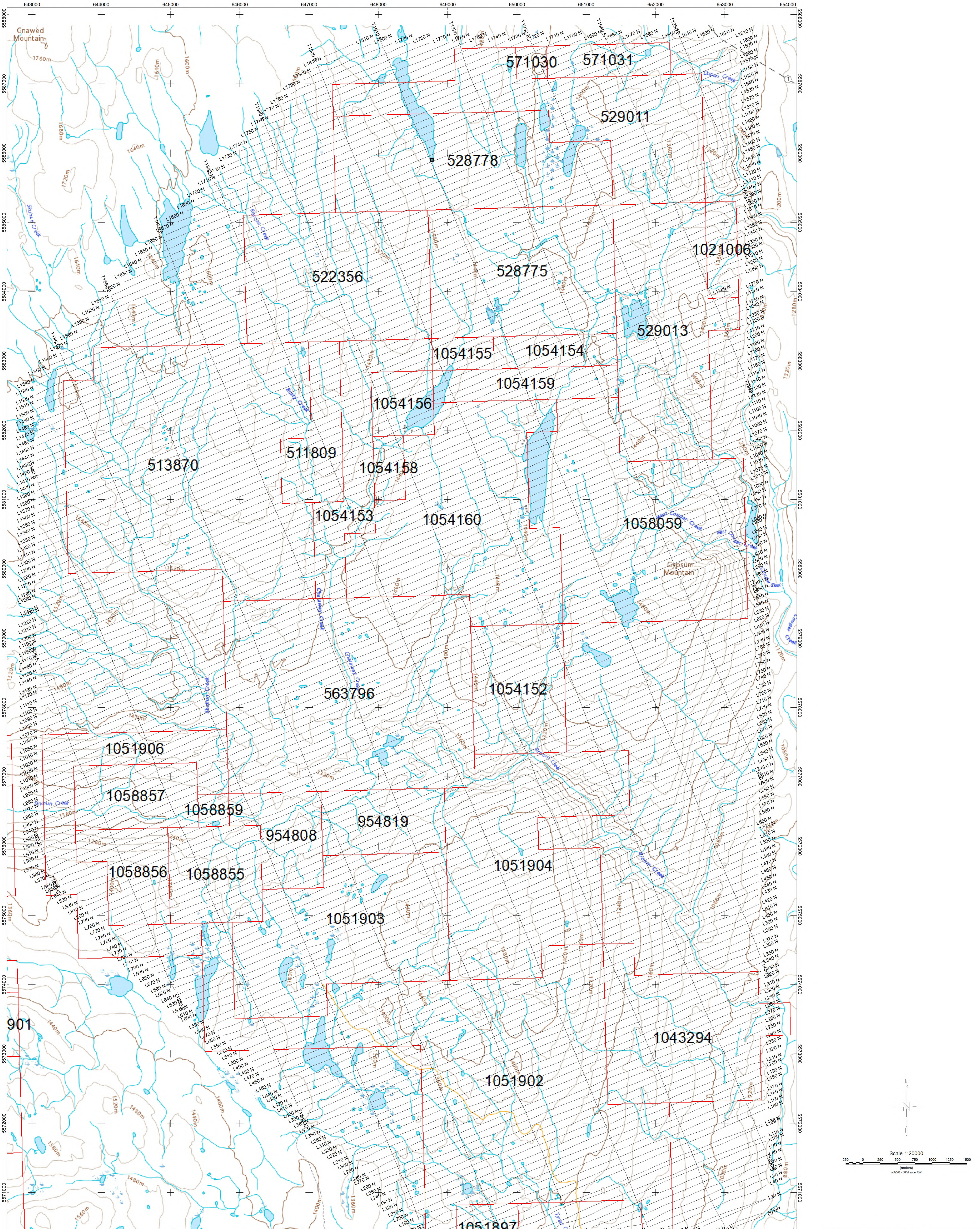
The mean height on this survey was 38 meters above ground.

Survey Area	# of Lines	# of Tie Lines	Total Distance
Rateria	180	14	1660 km

APPENDIX I

PERSONNEL EMPLOYED ON PROJECT.

Name	Occupation	Address	Dates Worked
Alex Walcott	Geophysicist	17-111 Fawcett Road, Coquitlam, B.C.	
Tom Kocan	Geophysical Operator	“	February 20th – 24th, 2021
Aberlardo Perez	Geophysicist	“	“
C. Goddyn	Pilot	Silver King Helicopters	“

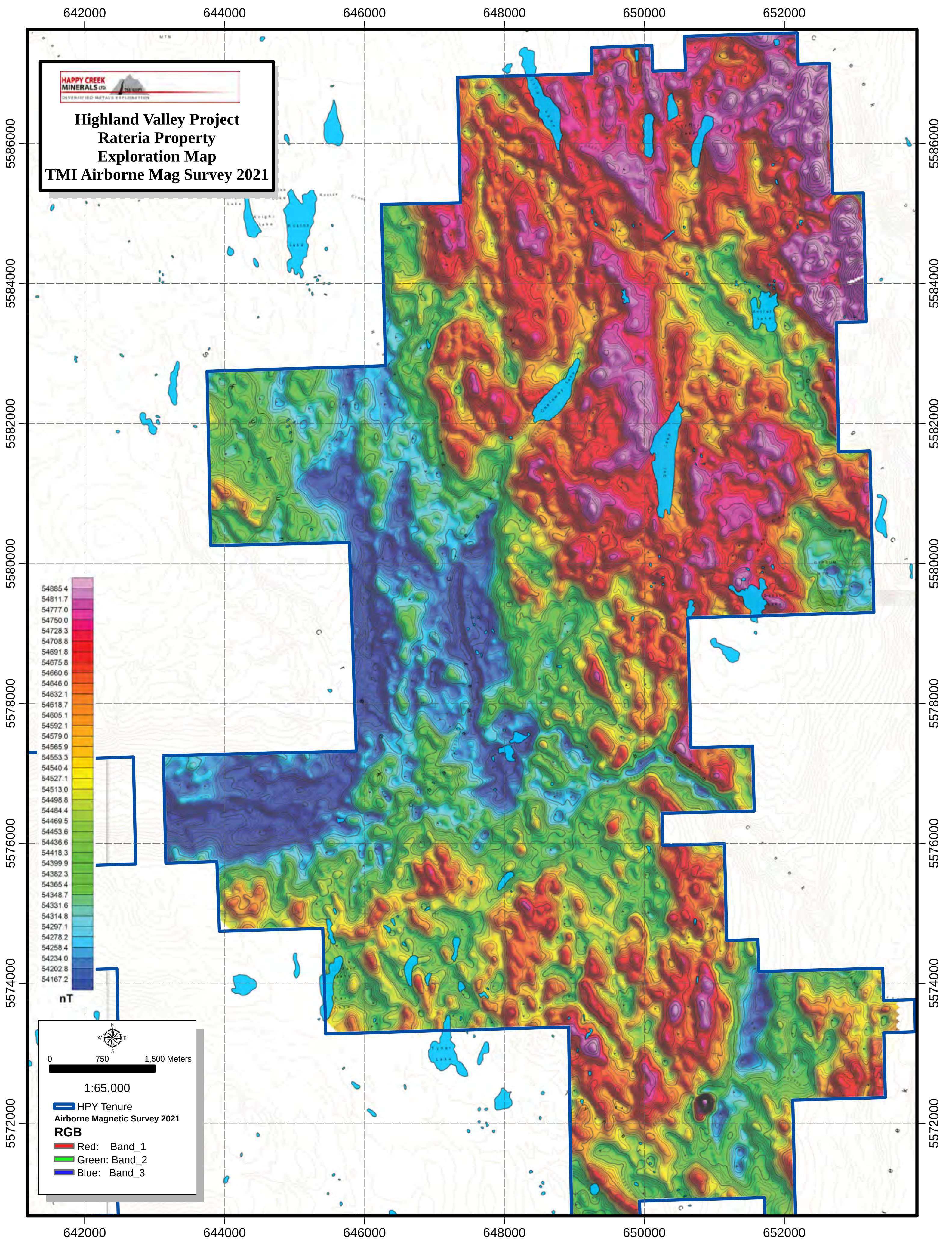


HAPPY CREEK MINERALS LTD.

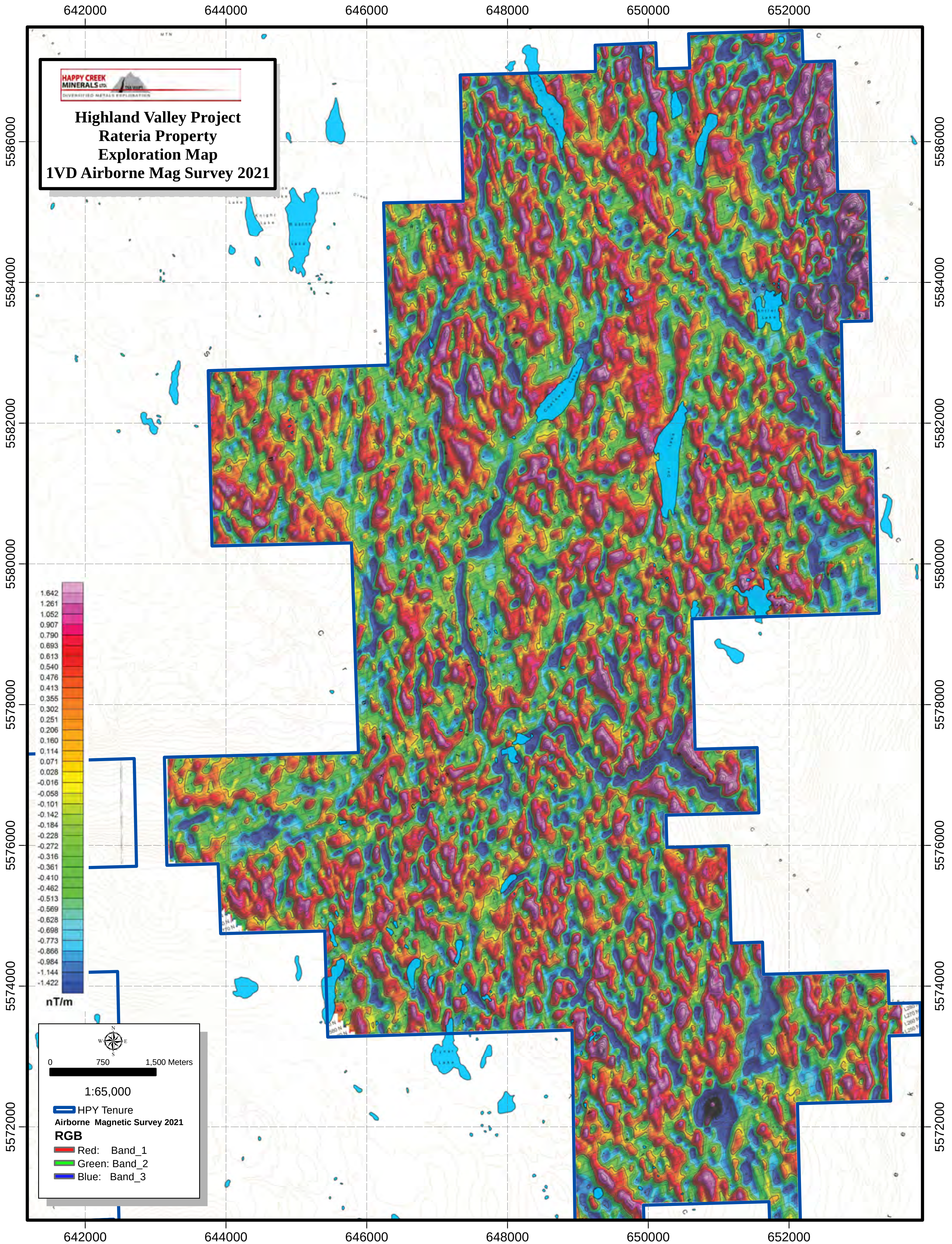
AIRBORNE MAGNETIC SURVEY
CLAIM AND LINE LOCATION MAP

HIGHLAND VALLEY PROJECT
MERRITT AREA, B.C.
MARCH 2021

PETER E. WALCOTT & ASSOCIATES LIMITED



HAPPY CREEK MINERALS LTD.
DIVERSIFIED METALS EXPLORATION
Highland Valley Project
Rateria Property
Exploration Map
TMI Airborne Mag Survey 2021
642000
644000
646000
648000
650000
652000
5586000
5584000
5582000
5580000
5578000
5576000
5574000
5572000
54885.4
54811.7
54777.0
54750.0
54728.3
54708.8
54691.8
54675.8
54660.6
54646.0
54632.1
54618.7
54605.1
54592.1
54579.0
54565.9
54553.3
54540.4
54527.1
54513.0
54498.8
54484.4
54469.5
54453.6
54436.6
54418.3
54399.9
54382.3
54365.4
54348.7
54331.6
54314.8
54297.1
54278.2
54258.4
54234.0
54202.8
54167.2
nT
N
W
E
S
0
750
1,500 Meters
1:65,000
HPY Tenure
Airborne Magnetic Survey 2021
RGB
Red: Band_1
Green: Band_2
Blue: Band_3


HAPPY CREEK MINERALS LTD.
DIVERSIFIED METALS EXPLORATION
Highland Valley Project
Rateria Property
Exploration Map
1VD Airborne Mag Survey 2021
642000
644000
646000
648000
650000
652000
5586000
5584000
5582000
5580000
5578000
5576000
5574000
5572000
1.642
1.261
1.052
0.907
0.790
0.693
0.613
0.540
0.476
0.413
0.355
0.302
0.251
0.206
0.160
0.114
0.071
0.028
-0.016
-0.058
-0.101
-0.142
-0.184
-0.228
-0.272
-0.316
-0.361
-0.410
-0.462
-0.513
-0.569
-0.628
-0.698
-0.773
-0.866
-0.984
-1.144
-1.422
nT/m
N
S
E
W
0
750
1,500 Meters
1:65,000
HPY Tenure
Airborne Magnetic Survey 2021
RGB
Red: Band_1
Green: Band_2
Blue: Band_3

Appendix 5

Diamond Drill Core Logs

Happy Creek Minerals		Hole ID: R20 - 01	Core Size: HQ	Down Hole Survey (Reflex)					Start Date: 22 Nov, 2020
Rateria	2020	Easting: 645675	Azimuth: 85	Az:	92.95	98.3	104	103	End Date:4 Dec , 2020
Zone 1		Northing: 5582250	Dip: -55	Dip:	-55.1	-58.2	-57.9	-57.7	Logger: S.liaghat
Driller:	Paycore	Elevation: 1551 m	Depth m: 689	Dept	200	300.0	599	689	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)								MINERALIZATION (%)							STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc		other
0.00	4.50	OVB	**Glacial Overburden/Casing** Glacial Overburden, rock with different origin (granite, granodiorite, diorite), and different grains size. Rate of alteration is different in rock pieces and changes from fresh to strongly altered rocks.																	
4.50	11.50	GD (Sk) strg ser-hm alt'n	**Medium Grained Skeena Granodiorite.** Skeena Phase of Guichon batholith. Moderate light grey color, locally pinkish brown. Moderate solid, in some area strongly fractured, gouged and moderately fractured. **Composition**: 60% anhedral to euhedral plagioclase (up to 4mm in size), 20 % grey subhedral quartz (up to 5 mm in size), 10% mafic (bio=hb), locally biotite book up to 4mm in dimension. Locally irregular crowded of mafic and dark minerals, interstitial K-spar ~10%, magnetite 1-2%. **Alteration:** Sericite is a major alteration mineral replacing groundmass of feldspar. Locally weak to moderate potassic alteration. Dark chlorite also present in some fractures and veins. Strong alteration zones characterized by mixing of salmon pink potassic alteration and light green sericitization. Locally K-spar is envelopes along fractures. Hematite light red, fine grained replacing mafic in groundmass and fillings some fractures. Locally hm crowded in shearing zones with carb inside. In some intervals quartz flooding, and undeveloped quartz veins observed. Ser-clay and chl filling fractures and replacing groundmass minerals. Locally rock is mod solid. Some areas chl fills fractures and veins. **Structures:** Rock variably broken. Some locations show several zones of ser-carb-clay gouge. Carb veins and in some parts accompany with hematite observed. Major fractures filled with ser-carb and probably clay. Rock mod broken. Locally gouge, fracs, and breccias wt qtz-hem and concentration of black minerals (+cc?). - Hm veins up to 1cm wide in few locations. -Hem veinlets and qtz-carb @ 8.25m, 1cm wide - Hem @ 8.45m 90° TCA, 0.7 cm wide. - Lim in fract @ 9.50m. **Mineralization.** tr Cu minerals observed in this interval	5	2	3	2	1	2	2	2		0	1	2	tr	0.00	tr		broken

Happy Creek Minerals		Hole ID: R20 - 01	Core Size: HQ	Down Hole Survey (Reflex)					Start Date: 22 Nov, 2020
Rateria	2020	Easting: 645675	Azimuth: 85	Az:	92.95	98.3	104	103	End Date:4 Dec , 2020
Zone 1		Northing: 5582250	Dip: -55	Dip:	-55.1	-58.2	-57.9	-57.7	Logger: S.liaghat
Driller:	Paycore	Elevation: 1551 m	Depth m: 689	Dept	200	300.0	599	689	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)								MINERALIZATION (%)						STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other
11.50	15.00	Felsic .Mod Dks (Spud Porphyry)	**Spud Dike** This interval mainly is Spud dike. f.g., bio,qtz,plag, mod phenos, light grey, broken, gougy, contact unclear and gougy. Locally mixed with some other dikes with sharp and gradual contacts, Dike are listed below. **GENERAL NOTE:** There are four felsic-moderate dikes cut the GD in this hole. The dikes are determined to be late and post mineralization and generally barren in Cu. In some locations, in contact to GD copper mineralization occured in minor amounts. Four types of felsic dike are: QFP, Tan Porphyry, Spud Porphyry and Aplite. These dikes are adjoining, neighboring and crosscut each others. Locally regularly mixed and strongly broken. Contacts generally sharp or in some locations gradual and unclear. In the following intervals, It would be difficult to separate different type of dikes. Therefore majority dike was named in logging form. Hematite veins and iron staining as well as carb, clay and light green ser veins are common. **Aplite dike** Appears to be latest intrusion . Light pinkish grey, moderate to strong pervasive orange-brown rusty, highly fractured with inter-mittent gouge. Fractures filled with rust +/-milky blueish-green, fine grained equigranular clay-ser. **Feldspar crowded porphyry (Spud?) dike (FCP)** Green grey, plag-hbl, qtz phyric intrusions. Moderately crowded phens wt euhedral to subhedral plag and hbl and rounded qtz. Initially described as feldspar crowded porphyry dike. Medium to coarse grained phenocrysts. Euhydral-subhydral plag and milky rounded qtz. **Quartz-feldspar porphyry dike** Crowded porphyry dike with phenocrysts of plag, qtz and minor kspar and bio +/-mag. Tan to dark grey aphanitic groundmass. In many locations contacts sharp and chilled. Dike varies from fine grained to strongly porphyritic. Grandmass is very fine grained locally pinkish (kspar?), locally green plag to ser. Composition is: qtz 20-30% <1-8mm anhedral; plag 25-35% <1-6mm often pale medium-green (ser) locally hard and white; minor bio. locally zoned looking.	2	2	3	2	1	2	2	1	1			1	0.00	0.00	0.00	broken

Happy Creek Minerals			Hole ID: R20 - 01	Core Size: HQ		Down Hole Survey (Reflex)					Start Date: 22 Nov, 2020
Rateria	2020		Easting: 645675	Azimuth:	85	Az:	92.95	98.3	104	103	End Date:4 Dec , 2020
Zone 1			Northing: 5582250	Dip:	-55	Dip:	-55.1	-58.2	-57.9	-57.7	Logger: S.liaghat
Driller:	Paycore		Elevation: 1551 m	Depth m:	689	Dept	200	300.0	599	689	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)									MINERALIZATION (%)					STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other
			Tan porphyry dike This interval is fine to medium grained porphyritic dike that contains about 20% pheons of plag, qtz and minor kspar in 80% aphanitic tan colored groundmass. Sharp and gradual contacts.																
15.00	32.30	GD (Sk) strg ser-mod hm alt'n	**Medium Grained Granodiorite.** Skeena Phase of Guichon batholith. Moderate light grey-green color, locally pinkish brown. Same as similar unit in above. Moderate broken. In some area strongly fractured, gouged and moderately fractured. Fractures 60°TCA, broken filled with carb-clay. - Hem veins 0° TCA, 30° TCA and 60° TCA. **Mineralization:** At 28.40m minor cc + trace bo and cpy observed in fracture, 60°TCA .	2	1	2	1	1	1	2	1			0	1	tr	tr	tr	broken fract
32.30	35.10	Felsic Dk + (K-spar QFP)	**Felsic and Quartz-Feldspar Porphyry Dike.** General characteristics are similar to 11.5-15m note. Porphyry, c.g, qtz-feld phenos, pink anhedral grains (Kspar?) broken contacts. At end of interval short core of aplite-tan dike. **Mineralization:** No copper minerals observed in logging time.		2	3	2	1	2	2	1	1			1	0.00	0.00	0.00	less gougy broken
35.10	48.75	GD (Sk) strg ser-mod hm alt'n	**Medium Grained Granodiorite.** Skeena Phase of Guichon batholith. Moderate light grey color, locally pinkish. Same as similar unit in above. Moderate solid. In some areas strongly fractured, gouged and mod fractured. Locally feld crowded grains in contact of veins. Hem -ser veins and gouge are common. - Hem vein is in every 2m. - Locally solid rock, e.g., from 46 to 48m. **Mineralization** No copper minerals observed in logging time.		1	2	1	1	1	2	1			0	1	0.00	0.00	0.00	solid less fract
48.75	49.30	FZ	**Fault Zone** . White gouge, broken, breccia, strg ser-carb alt'n + qtz-carb veins . Small pieces of aplite dk. **Mineralization**: No copper minerals observed in logging time.	3	2	3	1	1	3	1	3				2	0.00	0.00	0.00	FZ

Happy Creek Minerals		Hole ID: R20 - 01	Core Size: HQ		Down Hole Survey (Reflex)					Start Date: 22 Nov, 2020
Rateria	2020	Easting: 645675	Azimuth:	85	Az:	92.95	98.3	104	103	End Date:4 Dec , 2020
Zone 1		Northing: 5582250	Dip:	-55	Dip:	-55.1	-58.2	-57.9	-57.7	Logger: S.liaghat
Driller:	Paycore	Elevation: 1551 m	Depth m:	689	Dept	200	300.0	599	689	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)								MINERALIZATION (%)						STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other
49.30	63.75	GD (Beths) strg ser alt'n	**Medium Coarse Grained Granodiorite.** Bethsaida Phase of Guichon batholith. Bethsaida phase with composition ranging from quartz-monzonite to granodiorite is characteristics by rounded quartz phenocrysts and abundant coarse biotite and plagioclase phenocrysts The interval is light pink colour, wt c.g., qtz, bio, pag phenos. Rock strong ser and locally potassic alt'n. Tiny carb veins are common. Locally gouge, fracs, and breccias wt qtz-hem and concentration of black minerals (+cc?). Hem veins are common in some locations (less than Skeena unit). Near end of interval gougy rock. Hem-ep alteration and veins, K-spar-qtz-hem veins and chl-epi veins are common. Generally more fresh, less altered and broken than Skeena. Some short sub-intervals of Skeena observed, **Mineralization:** No copper minerals observed in logging time.	2	2	2	2	2	2	2	3		0	0	2	0.00	0.00	0.00	mod broken-gougy
63.75	65.00	FZ	**Fault Zone.** White gouge, broken, breccia, strg ser-carb alt'n + qtz-carb veins **Mineralization:** No copper minerals observed in logging time.		2	3	2	1	3	3	2			0	2	0.00	0.00	0.00	FZ
65.00	85.40	GD (Sk) strg ser-mod hm alt'n	**Medium Grained Granodiorite.** Skeena Phase of Guichon batholith. Moderate light grey color, locally pinkish. Same as similar unit in above. Moderate solid. In some areas gouged and mod- strongly fractured. Locally feld crowded grains, mainly in contact of veins. - Hem -ser veins and gouge are common. - qtz-carb vein @ about 70m, for 20cm . - Hem-carb qtz vein in several locations, e.g., @69.20m for 2cm, 90°TCA wt gradual contacts. - Some short intervals of Beths phase observed e.g., from 81 to to 83m . **Mineralization:** No copper minerals observed in logging time.	5	2	2	2	1	2	2	2		0		2	0.00	0.00	Tr	fract
85.40	85.60	FZ	**Fault Zone .** This short FZ is in contact of Sk and Beths units. White gouge, broken, breccia, strg ser-carb alt'n + qtz-carb veins **Mineralization:** No copper minerals observed in logging time.	2	1	3	2	1	3	3	2			0	1	0.00	0.00	0.00	FZ

Happy Creek Minerals	**Hole ID: R20 - 01**	Core Size: HQ	Down Hole Survey (Reflex)	Start Date: 22 Nov, 2020
Rateria 2020	Easting: 645675	Azimuth: 85	Az: 92.95 / 98.3 / 104 / 103	End Date:4 Dec , 2020
Zone 1	Northing: 5582250	Dip: -55	Dip: -55.1 / -58.2 / -57.9 / -57.7	Logger: S.liaghat
Driller: Paycore	Elevation: 1551 m	Depth m: 689	Dept 200 / 300.0 / 599 / 689	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)								MINERALIZATION (%)						STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other
85.60	93.00	GD (Beths) strg ser alt'n	**Medium Coarse Grained Granodiorite.** Bethsaida Phase of Guichon batholith. Same as similar unit in above. Some qtz-carb veins e.g., @85.60, 87.20m. - @ about 91.60m, 20cm qtz-carb vein. - Hem veins are generally parallel to fractures 70°TCA, **Mineralization:** No copper minerals observed in logging time.	2	2	2	2	1	2	2	2		0		2	0.00	0.00	0.00	frac gougy
93.00	101.50	GD (Sk) strg ser-mod hm alt'n'n	**Medium Grained Granodiorite.** Skeena Phase of Guichon batholith. Moderate light grey color, locally pinkish. Same as similar unit in above. Locally short intervals of clay-carb gouge. Strongly gougy. Broken contact to lower dk, 70°TCA. **Mineralization** Minor cc may present in dark gouge and fractures.		1	2	1	1	1	2	1			0	1	0.00	tr	tr	solid less fract
101.50	125.10	QFP Dk , K-spar alt'n	**Quartz-Feldspar Porphyry Dike** General characteristics are similar to 11.5-15m logging note. Porphyry, c.g, qtz-feld phenos, pink, anhedral grains (Kspar?). - Porphyry rock at 114.90m, 118.80m, 119.20m. F.g., dike wt euhedral recrystalized felds in selvage to veins, fractures and other rock types. Several hem veins observed locally. - Locally change to Spud and bleached rock. - @ 118.5m crowded of feld, very thin carb veins and aplite dike cut the unit irrg. - In several locations rock change to light green, dark-grey to pink Spud and Tan intrusives. - @114.90m broken pieces of aplite dike. - From 118.80m to 119.20m broken aplite dike, parallel TCA, irregular contact wt fine-grained euhedral feldspar (recrystalized). - @120m several hem veins, high angle TCA. **Mineralization:** No copper minerals observed in logging time.	2	2	2	2	1	2	2	2		0		2	0.00	0.00	0.00	solid,broken gougy
125.10	128.60	FLT-Felsic Dk (FCP-Tan)	**Tan-Feldspar Crowded Porphyry (Spud?) Dike + Fault.** General characteristics are similar to 11.5-15m logging note. Gouge, broken pieces of felsic dike, breccia, strg ser-carb alt'n + qtz-carb veins. **Mineralization:** No copper minerals observed in logging time.	3	2	2	2	1	2	2	2		0		1	0.00	0.00	0.00	broken gougy

Happy Creek Minerals		Hole ID: R20 - 01	Core Size: HQ		Down Hole Survey (Reflex)					Start Date: 22 Nov, 2020
Rateria	2020	Easting: 645675	Azimuth:	85	Az:	92.95	98.3	104	103	End Date:4 Dec , 2020
Zone 1		Northing: 5582250	Dip:	-55	Dip:	-55.1	-58.2	-57.9	-57.7	Logger: S.liaghat
Driller:	Paycore	Elevation: 1551 m	Depth m:	689	Dept	200	300.0	599	689	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)									MINERALIZATION (%)						STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc		other
128.60	133.40	QFP Dk, K-spar alt'n	**Quartz-Feldspar Porphyry Dike** General characteristics are similar to 11.5-15m. Porphyry, c.g, qtz-feld phenos, pink anhedral grains (Kspar?) changing between Spud and Tan intrusive , light green, dark-grey colour. **Mineralization:** No copper minerals observed in logging time.	2	2	2	1	1	2	2	2		0		1	0.00	0.00	0.00		broken gougy
133.40	243.45	GD (Beths) + F DKs, strg ser alt'n	**Medium Coarse Grained Bethsaida Granodiorite, Felsic Dike.** Bethsaida Phase of Guichon batholith. Same as similar unit in above. Interval mixed wt different dikes all through the interval, broken pieces of dikes and gougy fault (e.g., @168m). Interval starts wt hematite-potassic groundmass altered rock, with sub-intervals of light green ser rocks (It is possible that these units are dike with gradual contacts). From 135m Bethsaida unit strongly ser and mod chl-carb altered, broken, gougy with hem veins and fracture fillings. Locally some wk altered rocks. - From 152.5m to 153m carb-qtz vein. @168m for 2m breccia fault zone. - @169m carb vein, 3cm wide, on rim chl. Cavities filled wt carb crystals. - @170m, in several locations irreg carb -qtz veins wt chl in selvage. - @178.5m qtz-carb hem vein, irreg, 70° TCA. - Down to interval, rock locally strongly altered wt ser-chl. - locally gougy fault breccia zone, e.g., about 178.60,m. - From 180.5 to 183.30m weak alteration. - @ 243.45m felsic dike, 70° TCA, irrg contact. - Several carb veins cut through, 50 ° TCA. - Locally mafic mineral aggregate. - In general, in this interval there are many broken dikes, breccias, micro folded features and aggerate of mafic minerals present. **Mineralization**: No copper minerals observed in logging time.	2	2	3	1	1	2	2	2		0		1	0.00	0.00	0.00		broken gougy

Happy Creek Minerals		Hole ID: R20 - 01	Core Size: HQ		Down Hole Survey (Reflex)					Start Date: 22 Nov, 2020
Rateria	2020	Easting: 645675	Azimuth:	85	Az:	92.95	98.3	104	103	End Date:4 Dec , 2020
Zone 1		Northing: 5582250	Dip:	-55	Dip:	-55.1	-58.2	-57.9	-57.7	Logger: S.liaghat
Driller:	Paycore	Elevation: 1551 m	Depth m:	689	Dept	200	300.0	599	689	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)								MINERALIZATION (%)						STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other
243.45	250.80	FCP DK+GD strg ser alt'n	**Feldspar crowded porphyry (Spud?) Dike + Granodiorite** . General characteristics of dike are similar to 11.5-15m note. Gouge, broken pieces of felsic dike, breccia, strg ser-carb alt'n + qtz-carb veins. - Several short subintervals of GD observed - From 244 to 245m gougy, broken, breccias. - @245m several different dikes cut through without clear contacts and textures. - From 248m to bottom of interval several tiny carb veinlets crosscut each others in different directions. **Mineralization:** No copper minerals observed in logging time.	1	1	2	3	1	2	2	2		0		2	0.00	0.00	0.00	broken gougy
250.80	251.43	Mafic Dk	**Mafic Lamprophyre Dike** , Aphanitic, black-dark green, broken, wt broken contacts, UC sharp 60 ° TCA, LC sharp 50 ° TCA . Mild chl alteration in fractures, fractured filled wt carb. **Mineralization:** No copper minerals observed in logging time.	2	1	1	1	1	2	3	2		0		1	0.00	0.00	0.00	dk
251.43	267.80	FCP DK+GD Strg ser alt'n	**Feldspar crowded porphyry (Spud?) Dike + Granodiorite.** General characteristics of dike are similar to 11.5-15m note. Gouge, broken pieces of felsic dike, breccia, strg ser-carb alt'n + qtz-carb veins. - Several short subintervals of Skeena GD observed **Mineralization**: No copper minerals observed in logging time.	2	2	2	1	1	2	2	2		0		1	0.00	0.00	0.00	broken gougy
267.80	287.30	GD (Beths + Sk) wk-strg ser alt'n	**Medium to Coarse Grained Bethsaida -Skeena Granodiorites.** Same as similar units in above. Interval mixed wt. different dikes, broken pieces of dikes and gougy fault wt different rate of alteration (Ser+K-spar...) . This interval is changes between two GD units in several locations. Hem veins locally cut through as patches and filling fractures. - From 265m rock changes to more solid and less altered. - Fault gougy zone from 271.60 to 273m. **Mineralization** No copper minerals observed in logging time.	2	2	2	1	1	2	2	2		0		1	0.00	0.00	0.00	broken gougy
287.30	292.00	FCP Dk	**Feldspar Crowded Porphyry (Spud?) Dike + Granodiorite .** General characteristics of dike are similar to same rock in above. **Mineralization** No copper minerals observed in logging time.	2	2	2	3	2	2	2	2		0		2	0.00	0.00	0.00	dk

Happy Creek Minerals	Hole ID: R20 - 01	Core Size: HQ	Down Hole Survey (Reflex)					Start Date: 22 Nov, 2020
Rateria 2020	Easting: 645675	Azimuth: 85	Az:	92.95	98.3	104	103	End Date:4 Dec , 2020
Zone 1	Northing: 5582250	Dip: -55	Dip:	-55.1	-58.2	-57.9	-57.7	Logger: S.liaghat
Driller: Paycore	Elevation: 1551 m	Depth m: 689	Dept	200	300.0	599	689	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)									MINERALIZATION (%)						STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc		other
292.00	297.00	GD (Beths + Sk) strg ser alt'n	**Medium to Coarse Grained Bethsaida -Skeena Granodiorite**. Same as similar units in above. **Mineralization** No copper minerals observed in logging time.	2	2	2	1	1	2	2	2		0		1	0.00	0.00	0.00		broken gougy
297.00	302.00	FCP dk	**Feldspar Crowded Porphyry (Spud?) Dike + Granodiorite .** General characteristics of dike are similar to similar rock in above. In lower part of interval probably changes to QFP dike with pink dotted k-spar minerals (from 297.5 to 302m). Carb vein wt epi and ser in fractures. **Mineralization** No copper minerals observed in logging time.	2	2	2	1	1	2	2	2		0		1	0.00	0.00	0.00		broken gougy
302.00	306.59	GD (Beths) wk ser alt'n	**Medium Grained Skeena Granodiorite.** Skeena Phase of Guichon batholith. Moderate light grey color, Fresh and solid. Same as similar unit in above. From 305.35 for 5cm Ap dk , sharp contact, 60° TCA. Mineralization No copper minerals observed in logging time.	1	1	2	3	1	2	2	2		0		2	0.00	0.00	0.00		broken gougy
306.59	307.50	Ap Dk	**Aplite Dike.** General characteristics similar as described above. Pink, broken, sharp contacts, 55° TCA. **Mineralization** No copper minerals observed in logging time.	2	4	2	2	2	2	2	2		0		2	0.00	0.00	0.00		broken gougy
307.50	309.75	GD (Beths + Sk) wk ser alt'n	**Medium to Coarse Grained Bethsaida -Skeena Granodiorite.** Same as similar units in above. Weak and moderate solid rock continues. Less gougy zone and hem vein than before. Tiny carb veins are common. - From 309.40 to 309.75m wk ser-chl alt'n. **Mineralization** Trace bo in fracture @ 307.5m, 55° TCA .	1	1	2	3	1	2	2	2		0		2	0.00	tr	0.00		broken gougy
309.75	310.00	QFP Dk	**Quartz-Feldspar Porphyry Dike** General characteristics similar to above described QFP unit, pink porphyry, sharp contact LC 90 ° TCA, UC 85 ° TCA. Solid, tiny carb, epi, ser and hem veins. Few qtz-carb veins cut through. **Mineralization** No copper minerals observed in logging time.	2	4	2	2	2	2	2	2		0		2	0.00	0.00	0.00		broken gougy

Happy Creek Minerals	Hole ID: R20 - 01	Core Size: HQ	Down Hole Survey (Reflex)				Start Date: 22 Nov, 2020
Rateria 2020	Easting: 645675	Azimuth: 85	Az:	92.95	98.3	104	103	End Date:4 Dec , 2020
Zone 1	Northing: 5582250	Dip: -55	Dip:	-55.1	-58.2	-57.9	-57.7	Logger: S.liaghat
Driller: Paycore	Elevation: 1551 m	Depth m: 689	Dept	200	300.0	599	689	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)									MINERALIZATION (%)					STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other
310.00	311.00	GD (Beths) wk ser alt'n	**Medium Grained Skeena Granodiorite.** Skeena Phase same as similar unit in above. Solid weak altered. **Mineralization** No copper minerals observed in logging time.	2	2	4	3	2	3	3	2		0		3	0.00	0.00	0.00	broken gougy
311.00	311.45	QFP Dk	**Quartz-Feldspar Porphyry Dike** General characteristics similar to above described rock QFP unit is pink porphyry, sharp contacts. **Mineralization** No copper minerals observed in logging time.	3	2	2	2	1	2	2	2		0		5	0.00	0.00	0.00	broken gougy
311.45	329.00	GD (Beths) wk ser alt'n	**Medium Coarse Grained Bethsaida Granodiorite,** Bethsaida Phase of Guichon batholith. Same as similar unit in above. Wk alr'd , solid, c.g., fract 70 ° TCA. Core changes to ser-k-spar hem alt'd rock with carb-chl veins/ fractures.- From 326.30 to 329m Chl+ cc in fract and in strong potassic zones. Below the mineralization zone, rock strongly fractured (50 ° TCA) with hem-clay ser and carb, maybe felsic dike at end of interval? - From 311.45m to 320m solid, fresh fract 70° TCA. - From 320m to 321m more hem , k-spar in fractures wt carb. - From 321m to 326.30m solid, veins of carb. - Hem-clay and carb vein/fract s in lower part of zone (50° TCA). -Strong clay-carb and ser alteration at end of zone. **Mineralization:** From 326.30 to 329m Mineralization Zone: Chl+ cc in fract @320.5m. From 326.30 to 329.35m micro fractures/veins may contain cc +bo. In strong potassic zone from 329.35m for 27 cm cc +bo in several veinlets.	2	2	2	1	1	2	2	2		0		1	0.00	0.00	0.00	broken gougy
329.00	332.00	GD (Sk) semi ser	**Medium Grained Granodiorite.** Skeena Phase of Guichon batholith. Moderate light grey color, locally pinkish. Same as similar unit in above. Semi alt'd, fracd. Cut by 6cm @330m (60 ° TCA) and 4cm @330.40m (80 ° TCA) ap dikes. Rock more alt'd to bottom of interval and ended to fault gouge. **Mineralization** No copper minerals observed in logging time.	2	2	3	1	3	2	2	2		0		1	0.00	0.00	0.00	broken gougy
332.00	342.00	GD (Beths) mod-strg ser-hem alt'n	**Medium Coarse Grained Bethsaida Granodiorite,** Bethsaida Phase of Guichon batholith. Same as similar unit in above. Locally solid, and locally gougy and thin fault zones. Hem and carb veins are common. QFP dk @ 336.70m. **Mineralization:** cc may present in frac in several locations	2	2	2	1	1	2	2	2		0		1	0.00	0.00	tr	broken gougy

Happy Creek Minerals		Hole ID: R20 - 01	Core Size: HQ	Down Hole Survey (Reflex)					Start Date: 22 Nov, 2020
Rateria	2020	Easting: 645675	Azimuth: 85	Az:	92.95	98.3	104	103	End Date:4 Dec , 2020
Zone 1		Northing: 5582250	Dip: -55	Dip:	-55.1	-58.2	-57.9	-57.7	Logger: S.liaghat
Driller:	Paycore	Elevation: 1551 m	Depth m: 689	Dept	200	300.0	599	689	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)									MINERALIZATION (%)						STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc		other
342.00	346.00	QFP + Flsic Dk Strong ser-mod K-spar alt'n	**Quartz-Feldspar Porphyry Dike + Felsic Dike** General characteristics similar to above described units. QFP unit, pink porphyry, and felsic dike, fine grained white. Both strongly broken. Carb veins wt halo of ser, tr epi,. Locally brecciated and bleached. Some short intervals of GD. **Mineralization** No copper minerals observed in logging time.	2	2	3	1	3	2	2	2		0		1	0.00	0.00	0.00		broken gougy
346.00	358.00	Felsic + (K-spar QFP) mod-strg alt'nerd	**Felsic and Quartz-Feldspar Porphyry Dike** General characteristics are similar to 11.5-15m note. Felsic dike is f.g. white and ser altered. QFP is c.g qtz-feld phenos, pink anhedral grains (Kspar?). QFP, Felsic dk and GD mixed all through this interval wt broken contacts. Carb veins and fractures are common. Some location wt potassic alteration zones. Halo of ser altr'n in contact of carb veins. **Mineralization** No copper minerals observed in logging time.	2	4	2	2	2	2	2	2		0		2	0.00	0.00	0.00		broken gougy
358.00	359.50	FZ	**Fault Zone** White gouge, broken, breccia, strg ser-carb alt'n + qtz-carb veins **Mineralization:** hem+bo as patches in few locations in brecciated rock.	2	2	3	1	3	2	2	2		0		3	0.00	tr	0.00		broken gougy
359.50	402.00	GD (Sk) semi ser	**Medium Grained Granodiorite.** Skeena Phase of Guichon batholith. Moderate light grey color. Locally pink. Same as similar unit in above., Semi alt'd, fraced. Strong hem zone-gougy-clay. From 380 to 383m Fault Zone . - From 400 to 402m rock broken, carb-ser veins, brecciated. **Mineralization**: In some fractures CC with chl, @ 394 tr Cpy	2	2	2	1	2	2	2	2		0		2	tr	0.00	tr		broken gougy
402.00	407.00	GD (Beths) mod ser-chl alt'n	**Medium Coarse Grained Bethsaida Granodiorite,** Bethsaida Phase of Guichon batholith. Same as similar unit in above. Locally solid, and locally gougy. Interval rocks change between these three type of dikes, in several locations contacts are broken, irreg and alt'd. Fracturs filled with chl-carb-ser and bio and brecciated locally. **Mineralization** No copper minerals observed in logging time.	4	2	3	1	1	2	2	2		0		10	0.00	0.00	0.00		broken gougy

Happy Creek Minerals		Hole ID: R20 - 01	Core Size: HQ		Down Hole Survey (Reflex)					Start Date: 22 Nov, 2020
Rateria	2020	Easting: 645675	Azimuth:	85	Az:	92.95	98.3	104	103	End Date:4 Dec , 2020
Zone 1		Northing: 5582250	Dip:	-55	Dip:	-55.1	-58.2	-57.9	-57.7	Logger: S.liaghat
Driller:	Paycore	Elevation: 1551 m	Depth m:	689	Dept	200	300.0	599	689	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)								MINERALIZATION (%)							STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc		other
407.00	421.80	QFP + Flsic Dk Strong ser-mod K-spar alt'n	**Quartz-Feldspar Porphyry Dike + Felsic Dike** General characteristics are similar to above described rock. QFP unit is pink porphyry. Felsic dike is fine grained, white, strongly broken. Carb veins are common. **Mineralization:** In contact of above dike minor cc, tr cpy-bo observed in fractures.	2	2	2	1	1	2	2	2		0		2	tr	tr	tr		broken gougy
4+42:482 1.8	441.00	GD (Beths) wk ser-carb alt'n	**Medium Coarse Grained Bethsaida Granodiorite,** Bethsaida Phase of Guichon batholith. Same as similar unit in above. Locally solid, and locally gougy. Solid, wk altered. In frac carb chl . From 438m more alted, broken and gougy, **Mineralization:** No copper minerals observed in logging time.	2	2	2	1	1	2	2	2		0		2	0.00	0.00	0.00		broken gougy
441	443	Flsic Dk ser-mod K-spar alt'n	**Felsic Dike:** General characteristics similar to above dikes. Broken, carb-epi veins, brecciated, bleached. **Mineralization:** No copper minerals observed in logging time.	2	2	2	1	1	2	3	3		0		2	0	0			
443	445	FZ	**Fault Zone:** Gougy rock, broken, altered, hem+bo? as patches in few locations of brecciated rock. **Mineralization**: tr bo minerals observed in logging time.	3	3	3	3	1	3	3	3		0		2	0	tr			FZ
445	454	GD (Beths) mod-strg ser-hem alt'n'n	**Medium Coarse Grained Bethsaida Granodiorite**, Bethsaida Phase of Guichon batholith. Same as similar unit in above. Solid, wk altered, in fracs carb, chl and qtz-epi. **Mineralization:** tr specks of cpy, bo and cc	2	2	3	2	1	2	2	2		0		1	tr	tr	tr		broken gougy
454	458.8	Flsic Dk Strong ser-mod K-spar alt'n	**Felsic Dike:** General characteristics similar to above dikes. Broken, carb-ep veins, brecciated, bleached, **Mineralization:** No copper minerals observed in logging time.	2	2	2	1	1	2	3	3		0		2	0	0			broken gougy
458.8	470	GD (Beths) + (SK) mod-strg ser-hem alt'n	**Medium and Coarse Grained Bethsaida and Skeena Granodiorite.** Same as similar units in above. Mixing together. Solid, wk altered, locally strg alt'n. In fracs carb, chl and qtz-epi-hem. **Mineralization:** tr specks of cpy, bo and cc	2	2	3	2	1	2	2	2		0		1	tr	tr	tr		broken gougy

Happy Creek Minerals		Hole ID: R20 - 01	Core Size: HQ	Down Hole Survey (Reflex)					Start Date: 22 Nov, 2020
Rateria	2020	Easting: 645675	Azimuth: 85	Az:	92.95	98.3	104	103	End Date:4 Dec , 2020
Zone 1		Northing: 5582250	Dip: -55	Dip:	-55.1	-58.2	-57.9	-57.7	Logger: S.liaghat
Driller:	Paycore	Elevation: 1551 m	Depth m: 689	Dept	200	300.0	599	689	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)								MINERALIZATION (%)						STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other
470	472.05	QFP Dk	**Quartz-Feldspar Porphyry Dike** General characteristics similar to above described QFP unit, pink porphyry. K-spar alt'd, solid, veinlets of carb-epi, sharp contact, hm in fracs. **Mineralization** No copper minerals observed in logging time.	2	2	2	1	1	2	3	3		0		2	0	0		broken gougy
472.05	478.2	GD (Sk) semi ser	**Medium Grained Granodiorite.** Skeena Phase of Guichon batholith. Moderate light grey color, locally pinkish. Same as similar unit in above., Semi alt'd, fractured. Gougy, broken and fractured **Mineralization** No copper minerals observed in logging time.	2	2	3	2	1	2	2	2		0		1	0			broken gougy
478.2	486.8	GD (Beths) mod-strg ser-hem alt'n	**Medium Coarse Grained Bethsaida Granodiorite,** Bethsaida Phase of Guichon batholith. Same as similar unit in above. Strg K-spar alt'd, gouge, bleached (485-487m). Hem in fract. Mineralization: Cpy-py replacing some mafic minerals (disseminated text). cc maybe in frct @481.20m.	4	2	3	2	2	2	3	3		0		1	0.1	0.2	0.2	broken gougy
486.8	489.3	Flsic Dk + APT Dk Strong ser-mod K-spar alt'n	**Felsic Dike:** General characteristics similar to above dikes. Mixing of dikes, solid and broken,, pink ser, breccia, clay in fracts. **Mineralization:** No copper minerals observed in logging time.	2	2	2	1	1	2	3	3		0		2	0	0		broken gougy
489.3	494.7	FLT	**Fault Zone** Gouge, chl-hem are common, clay carb, breccia, some thin qtz vein. e.g. @ 492 m, for 2mm think. **Mineralization:** . cc in frct, cc + bo may present with back and dark minerals (chl-bio-hm) in fact and veins	3	3	3	3	1	3	3	3		0		2	tr	tr	tr	FZ
494.7	498	QFP Dk	**Quartz-Feldspar Porphyry Dike** General characteristics similar to above described QFP unit. Pink porphyry, K-spar alrt'd, solid, veinlets of carb-epi, c.g., solid, clay-carb-hem ser and chi in fract. Some qtz and hem veins. - Qtz vein @ 497.84m , 1mm thick. **Mineralization:** No copper minerals observed in logging time.	2	2	2	1	1	2	3	3		0		2	0	0	0	broken gougy
498	504	FLT	**Fault Zone** Gouge, chl-hem are common, clay carb, breccia, some thin qtz, clay and carb vns. **Mineralization**: No copper minerals observed in logging time.	3	3	3	3	1	3	3	3		0		2	0	0		FZ

Happy Creek Minerals		Hole ID: R20 - 01	Core Size: HQ	Down Hole Survey (Reflex)					Start Date: 22 Nov, 2020
Rateria	2020	Easting: 645675	Azimuth: 85	Az:	92.95	98.3	104	103	End Date:4 Dec , 2020
Zone 1		Northing: 5582250	Dip: -55	Dip:	-55.1	-58.2	-57.9	-57.7	Logger: S.liaghat
Driller:	Paycore	Elevation: 1551 m	Depth m: 689	Dept	200	300.0	599	689	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)								MINERALIZATION (%)							STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc		other
504	537	Flsic Dk APT DK Strong ser-mod K-spar alt'n	**Felsic Dike and Aplite Dike** : General characteristics similar to above dikes. Different dike colors (green-pink) mixed togethers and hem in veins and frac. **Mineralization :** cc may present @ 513.5m.	2	2	2	1	1	2	3	3		0		2	0	0	tr		broken gougy
537	576	GD (Beths) Flsic, APT DK Strong ser-mod K-spar alt'n	M**ixing of Bethsaida Granodiorite, Felsic Dike and Aplite Dike**. Different rock units mixing together, strongly altered, broken and fractured. GD strongly altered with pink broken felsic dike/aplite dk. Hem, epi, ser, carb and qtz veins are common. Some zones of gougy materials (clay carb, qtz) and broken pieces of rocks (550.5 to 552m). From 554 to 560 rock is solid, in fract qtz-carb. - Broken qtz vein @ 566m. - Hem in several fractures e.g., 565.90m . **Mineralization Zone** from 537 to 576m copper observed in some fractures and in some strong zones of mineralization. - Between 548 to 550m cc+ bo in several fractures - Between 552-553m cc +bo in several fractures - Most of fractures with Cu are oriented to high angle to drill trend (60 to 90° TCA – @ 552.30 and 552.35m two fractures with high grade cc +hem. - About 555.5m cc+chl in some fractures, - At 565.90m cc+chl in frac. - At 566m qtz vein with hem +cc, bo . - From 567 to 574.5m, rock strongly brecciated and broken, host for hem +cc. - Strong zone: from 574.5 to 575.5m qtz vein +epi+hem host for CC-bo.	4	2	3	2	2	2	3	3		0		1	0.1	0.2	0.5		broken gougy

Happy Creek Minerals		Hole ID: R20 - 01	Core Size: HQ		Down Hole Survey (Reflex)					Start Date: 22 Nov, 2020
Rateria	2020	Easting: 645675	Azimuth:	85	Az:	92.95	98.3	104	103	End Date:4 Dec , 2020
Zone 1		Northing: 5582250	Dip:	-55	Dip:	-55.1	-58.2	-57.9	-57.7	Logger: S.liaghat
Driller:	Paycore	Elevation: 1551 m	Depth m:	689	Dept	200	300.0	599	689	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)								MINERALIZATION (%)							STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc		other
576	585	GD (Sk) semi ser	**Medium Grained Granodiorite.** Skeena Phase of Guichon batholith. Moderate light grey color, locally pinkish. Same as similar unit in above., Rock sericitic altered, gougy, broken, hem vein @ 582.68 and 583m. - Bands of chl zone in several locations (e.g., 583.35 and 584.67m). - QFP dike cut interval @ 584.20m, 1.7cm wide, 90° TCA, sharp contacts. - Breccia zone @ 580.37 for 30cm. - Gouge zone @ 582.5m contains hem for 0.5m . **Mineralization:** mod to strg cc assoc wt hem, few specks of cpy bo in rock, - @577.5m cc with clay and hem in fractures. - Mafic minerals may replaced by cc or bo. .	2	2	3	2	1	2	2	2		0		1	0.1	0.1	0.2		broken gougy
585	588.57	FLT	**Fault Zone** Gouge, chl-hem common, clay carb, breccia, some thin qtz, clay and carb vn. K-spar alt'n, broken, bleached wt strg hem.	3	3	3	3	1	3	3	3		0		2	0	0	0		FZ
588.57	637	GD (Beths) mod-strg ser-hem alt'n	**Medium Coarse Grained Granodiorite,** Bethsaida Phase of Guichon batholith. Same as similar unit in above. GD fresh, wk altered, locally more ser altered with some fractures with minor cc. Minor hm in fract. Thin aplite dk @ 591.60m, for 0.5cm, 60 ° TCA. and @591.80m for 1cm, 60 ° TCA. - Fractures 60 to 70 ° TCA . - @609m hem zone wt potassic altr'n. - From 610m more K spar and carb. - Hem in fracture @ 612.30m . - Hem zone from 614 to 615.5m. - From 615.5 to 620 more solid rock. - Aplite @ 625 to 626m, irrg, pink. - Toward end of interval wk altered rock, few hm vn and thin qtz vein 90 ° TCA. Last parts of core is more altered with hem veins **Mineralization**: tr CC in fractures - @593.80m mafic minerals in fractures may contain cc. Few specks of cpy, cc bo in fractures of thin apl dk.	2	2	3	2	1	2	2	2		0		1	tr	tr	0.1		broken gougy
637	666	GD (Beths) + (SK) mod-strg ser-hem alt'n	**Medium and Coarse Grained Bethsaida and Skeena Granodiorite**. Same as similar units in above. Mixing rock units. Changing of wk and strg ser, potassic and locally chl alt'n. - Mod to strong potassic alt'n. - From 637 to 639.70m epi, carb and qtz vn are commom. From 639.7 to 642m mod ser-hem alt'n. - Locally strg alt'n, hematinic gouge and fracs. **Mineralization:** No copper minerals observed in logging time.	2	2	3	2	1	2	2	2		0		1	0				broken gougy

Happy Creek Minerals	Hole ID: R20 - 01	Core Size: HQ	Down Hole Survey (Reflex)				Start Date: 22 Nov, 2020
Rateria 2020	Easting: 645675	Azimuth: 85	Az:	92.95	98.3	104 / 103	End Date:4 Dec , 2020
Zone 1	Northing: 5582250	Dip: -55	Dip:	-55.1	-58.2	-57.9 / -57.7	Logger: S.liaghat
Driller: Paycore	Elevation: 1551 m	Depth m: 689	Dept	200	300.0	599 / 689	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)								MINERALIZATION (%)						STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other
666	670.25	FLT	**Fault Zone** Gouge, chl-hem are common. Clay carb, breccia, some thin qtz-clay-carb veins and epi and chl veins. **Mineralization**: No copper minerals observed in logging time.	3	3	3	3	1	3	3	3		0		2	0	0		FZ
670.25	689	GD (Beths) + (SK) mod-strg ser-hem alt'n	**Medium and Coarse Grained Bethsaida and Skeena Granodiorite.** Same as similar units in above. Mixing of rock units. Changing of wk and strg ser, potassic and locally chl alt'n. From 627 to 674.4m several high angle fracts TCA filled with black specular (Fe203) crystals. Locally broken, gougy and locally solid and wk alt'n. **Mineralization:** May contain Cc, bo?	2	2	3	2	1	2	2	2		0		1	0	tr	tr	broken gougy

Happy Creek Minerals		Hole ID: R20 - 02	Core Size: HQ		Down Hole Survey (Reflex)				Start Date:5 Dec,2020
Rateria	2020.00	Easting: 647270	Azimuth:	90	Az:	98.00	104.5	109.5	End Date:13 Dec,2020
Zone 2		Northing: 5583910	Dip:	-75	Dip:	-58.2	-57.9	-57.7	Logger: S.liaghat
Driller:	Paycore	Elevation: 1517 m	Depth m:	557	Depth:	200	401.0	557	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)								MINERALIZATION (%)						STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other
0.00	15.65	OVB	**Glacial Overburden/Casing** Glacial Overburden, gravel, sand, with different origin (granite, granodiorite, diorite), and different grain size. Rate of alteration is different and changes from fresh to strongly alt'd rocks.										0			0.0	0.0	0.0	broken
15.65	18.05	Gougy Gd	**Gougy Granodiorite** The contacts to upper OVB and lower bedrock are strongly broken, gougy, mixed with soil and broken rocks. **Mineralization:** No copper minerals observed in logging time.										0			0.0	0.0	0.0	broken
18.05	50.12	c.g GD Mod K-spar, Ser-hem alt'd	**Coarse Grained Granodiorite**. Chataway Phase of Guichon batholith. Mixing of light green color and locally pink color rocks. Moderate solid, in some areas strongly broken and gougy. Compositions: ~60% anhedral to euhedral plagioclase (up to 3mm in size), 6% Kspar, 9% hb, 7% bio, locally coarse biotite up to 5mm in dimension. ~10 % grey subhedral quartz (up to 5 mm in size), 4% mag. Alteration: In general weak alt'd, K-spar, carb and sericite are major alteration minerals; replacing groundmass of mafic minerals and feldspar. Dark chl with ser in fractures and veins, particularly in potassic zones. Epi in minor amount associated with chl. Carb veins observed and some parts accompanied with hematite. Bio and chl are black minerals concentrated in fractures. Hem inside gougy rocks are common, e.g., @32m. Toward the bottom of interval rocks more chloritized, hermitized and gougy. Structure: Moderate fractured in different directions (about 40-90° °TCA) and irregulary wt tiny chl +epi veins. Locally yellowish clay-gouge in joints. -Few brecciated fabrics in lower part of interval.- @ 32m hem gouge. - From 44.5 to 47.5 chl zone, **Mineralization**: No copper minerals observed in logging time.	1	2	3	2	1	1	2	1	1	0		0.5	0.0	0.0	0.0	qougy, broken

Happy Creek Minerals		Hole ID: R20 - 02	Core Size: HQ		Down Hole Survey (Reflex)					Start Date:5 Dec,2020
Rateria	2020.00	Easting: 647270	Azimuth:	90	Az:	98.00	104.5	109.5		End Date:13 Dec,2020
Zone 2		Northing: 5583910	Dip:	-75	Dip:	-58.2	-57.9	-57.7		Logger: S.liaghat
Driller:	Paycore	Elevation: 1517 m	Depth m:	557	Depth:	200	401.0	557		Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)								MINERALIZATION (%)							STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc		other
50.12	70.00	c.g GD Stg ser-K-spar, chl-hem alt'd	**Coarse Grained Granodiorite.** Chataway Phase of Guichon batholith. General characters similar to above interval. Rock more alt'd (potassic, ser and chl alt'n). Hem alteration and gougy zone are more common. - From 52.5 to 53m hem zone. - @ 54.10m Hem in fracture, 90° TCA, - @ 55.90m gougy zone. - @ 62m hem gouge, - From 65 to 66.60m, hem in brecciated gougy rock. - @ 72.5m hem in gouge for 1m, - Toward the bottom of interval rocks more alt'd, hermitized and gougy. **Mineralization:** @ 62,80m minor cc observed in fracture, 80°TCA		2	3	2	1	2	2	1	1			1	0.0	0.0	tr		more gougy broken
70.00	88.50	c.g GD Wk K-spar, Ser-hem alt'd	**Coarse Grained Granodiorite.** Chataway Phase of Guichon batholith. General characters similar to 18.5-50.12m interval. Rock more solid, less alt'd (potassic, ser and chl alt'n) and less fractured. - Locally more alt'd, chlorite and light green ser periodically changes. **Mineralization**: No copper minerals observed in logging time.		1	2	1	1	1	2	1			0	1	0.0	0.0	0.0		solid less fract
88.50	110.00	c.g GD Stg K-spar, Ser-hem alt'd	**Coarse Grained Granodiorite**. Chataway Phase of Guichon batholith. General characters similar to 18.5-50.12m interval. Rock more alt'd (potassic, ser and chl alt'n). Hem alteration and gougy zone are more common. Rocks more broken. Locally chl+ser in fractures. **Mineralization:** No copper minerals observed in logging time.		2	3	2	1	2	2	1	1			1	0.0	0.0	0.0		more gougy broken
110.00	113.80	c.g GD Stg gougy, ser,K-spar, hem alt'd	**Coarse Grained Gougy Granodiorite**. Chataway Phase of Guichon batholith. General characters similar to18.5-50.12m interval. Rock strong alt'd (potassic, ser and chl alt'n) , gougy. Hem alteration and gougy zone are more common. Tiny qtz-carb vein @ 112.45m. **Mineralization:** No copper minerals observed in logging time.	1	2	2	3	1	1	1	1				2	0.0	0.0	0.0		strg gougy, alrd

Happy Creek Minerals		Hole ID: R20 - 02		Core Size: HQ		Down Hole Survey (Reflex)					Start Date:5 Dec,2020
Rateria	2020.00	Easting: 647270		Azimuth:	90	Az:	98.00	104.5	109.5		End Date:13 Dec,2020
Zone 2		Northing: 5583910		Dip:	-75	Dip:	-58.2	-57.9	-57.7		Logger: S.liaghat
Driller:	Paycore	Elevation: 1517 m		Depth m:	557	Depth:	200	401.0	557		Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)								MINERALIZATION (%)							STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc		other
113.80	121.00	m.c.g GD Wk silica, K-spar, Ser-hem alt'd	**Medium Coarse Grained Silicified Granodiorite.** Chataway Phase of Guichon batholith. General characters similar to18.5-50.12m interval. Rock silicified and host for several tiny qtz-carb veins. More solid, less alt'd (potassic, ser and chl alt'n) and less fractured. - Interval cuts by some qtz-carb thin veins. e.g., from 113.35m to 115.80m, 50° TCA wt sharp contacts. - From 116.10m to 116.50m, biotite fine-grained in mass of qtz, 70° TCA. - Locally some thin qtz-carb veins . **Mineralization:** No copper minerals observed in logging time.	3	2	2	1	1	1	1	3				1	0.0	0.0	0.0		Qtz veins
121.00	122.00	m.c.g GD Stg ser,K-spar, hem-ep alt'd	**Medium Coarse Grained Granodiorite.** Chataway Phase of Guichon batholith. General characters similar to 18.5-50.12m interval. Rock strongly alt'd (potassic, ser and chl alt'n) and gougy. - Hem-ep alteration and veins, k-spar-qtz-hem veins and chl-epi veins are common. - Dark minerals (mafics) are in fractures. - Potassic alt'n in selvage of fractures, e.g., 119.30, 119.55m **Mineralization:** No copper minerals observed in logging time.	2	2	2	2	2	2	2	3		0	0	2	0.0	0.0	0.0		epi-qtz-chl carb veins
122.00	125.22	m.c.g GD Wk K-spar, Ser-hem alt'd	**Medium Coarse Grained Granodiorite.** Chataway Phase of Guichon batholith. General characters similar to18.5-50.12m interval. Rock more solid less alt'd (potassic, ser and chl alt'n) and less fractured. - Locally more alt'd, chlorite and light green ser. Locally fine-grained mafic minerals aggregate, has no sharp boundary to host rock. **Mineralization:** No copper minerals observed in logging time.		1	2	1	1	1	2	1			0	1	0.0	0.0	0.0		solid less fract
125.22	129.90	c.g GD Stg ser, K-spar, hem-qtz alt'n	**Coarse Grained Granodiorite.** Chataway Phase of Guichon batholith. General characters similar to18.5-50.12m interval. Rock strong gougy alt'd (potassic, ser and chl alt'n), gougy, broken and brecciated. - Hem-silica alteration and veins, k-spar-qtz-hem veins and chl-epi veins are common.- Dark minerals (mafic) are in fractures. Potassic alt'n in selvage of fractures. - Several qtz-carb veins. **Mineralization:** @ 127.20m CC inside qtz-carb vein. Several dark veinlets also may contain CC	5	2	2	2	1	2	2	2		0		2	0.0	0.0	Tr		veins and gougy

Happy Creek Minerals	Hole ID: R20 - 02	Core Size: HQ	Down Hole Survey (Reflex)			Start Date:5 Dec,2020
Rateria 2020.00	Easting: 647270	Azimuth: 90	Az: 98.00	104.5	109.5	End Date:13 Dec,2020
Zone 2	Northing: 5583910	Dip: -75	Dip: -58.2	-57.9	-57.7	Logger: S.liaghat
Driller: Paycore	Elevation: 1517 m	Depth m: 557	Depth: 200	401.0	557	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)								MINERALIZATION (%)						STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other
129.90	190.00	f.g-c.g GD Wk to Stg hem ser, K-spar, qtz alt'n	**Fine and Coarse Grained Granodiorite.** Mixing of med-fine and coarse grained Chataway Phase of Guichon batholith. General characters similar to18.5-50.12m interval. Weak to strong alt'n (potassic, ser and chl alt'n), gougy, broken and brecciated. Hem-silica veins, k-spar-qtz-hem veins and chl-epi veins are common. Dark minerals (mafics) are in fractures. Epi-qtz carb veins have halo of potassic alteration. Qtz-carb veins locally. Zones of hem-clay rich gouge in some areas. Locally broken and hem filled fractures. Fracture trend between 50 to 90 °TCA. - From 132.80m for 1 m lots of fractures wt hem in strongly ser-chl alt'd rock. - From 142.5 to 145.5m strongly chl alteration in broken rock. - From 146.50 to 147.5m strong hem. - @	10	2	2	2	1	2	2	2		0		2	0.0	0.0	0.1	veins and gougy
190.00	192.86	c.g GD Stg hem, ser, K-spar, qtz alt'n	**Coarse Grained Granodiorite.** Chataway Phase of Guichon batholith. General characters similar to18.5-50.12m interval. Rock is strongly gougy, alt'd (potassic, ser and chl alt'n) and broken **Mineralization:** No copper minerals observed in logging time.	5	2	2	2	1	2	2	2		0		2	0.0	0.0	Tr	veins and gougy
192.86	197.50	c.g GD Wk Chl, hem, ser, K-spar, alt'n	**Coarse Grained Granodiorite.** Chataway Phase of Guichon batholith. General characters similar to18.5-50.12m interval. Rock weakly alt'd, solid, Chl alteration is dominant. **Mineralization:** No copper minerals observed in logging time.		1	2	1	1	1	2	1			0	1	0.0	0.0	0.0	solid less fract
197.50	198.50	c.g GD Stg chl, ser, K-spar, alt'n	**Coarse Grained Granodiorite.** Chataway Phase of Guichon batholith. General characters similar to18.5-50.12m interval. Rock strongly gougy, alt'd (potassic, ser and chl alt'n) and broken. **Mineralization:** No copper minerals observed in logging time.	3	2	2	2	1	2	2	2		0		5	0.0	0.0	0.1	veins and gougy
198.50	213.30	f.g-c.g GD Wk to Stg hem ser, K-spar, qtz alt'n	**Fine and Coarse Grained Granodiorite.** General characters similar to 129.90-190m interval. Rock strongly gougy, alt'd (potassic, ser and chl alt'n) and broken. Wavey cleavage observed. Hem zone @204.40m for 5m. - @212.30m thin aplite dike cut the interval. **Mineralization:** No copper minerals observed in logging time. cc may present in dark fractures	3	2	2	2	1	2	2	2		0		5	0.0	0.0	0.0	veins and gougy

Happy Creek Minerals		Hole ID: R20 - 02	Core Size: HQ	Down Hole Survey (Reflex)				Start Date:5 Dec,2020
Rateria	2020.00	Easting: 647270	Azimuth: 90	Az:	98.00	104.5	109.5	End Date:13 Dec,2020
Zone 2		Northing: 5583910	Dip: -75	Dip:	-58.2	-57.9	-57.7	Logger: S.liaghat
Driller:	Paycore	Elevation: 1517 m	Depth m: 557	Depth:	200	401.0	557	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)								MINERALIZATION (%)						STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other
213.30	216.60	Ap Dk	**Aplite Dike,** f.g., pink felsic dike, broken, carb veinlets in different trends are common. Some fractures filled wt black minerals (bio) and some other wt light green ser. Both contacts broken, unclear. Hem zone in LC. **Mineralization:** No copper minerals observed in logging time.	2	2	2	1	1	2	2	2		0		1	0.0	0.0	0.0	veins and gougy
216.60	234.00	c.g GD Wk Chl, hem, ser, K-spar, alt'n	**Coarse Grained Granodiorite.** Chataway Phase of Guichon batholith. General characters similar to18.5-50.12m interval. Rock weakly alt'd, solid. Ser-chl alteration is dominant. Interval starts wt 1m strong ser alteration. Fractures 60- 80 °TCA. Ser, chl and dark minerals in fractures . Minor hem in fractures. **Mineralization**: No copper minerals observed in logging time.	2	2	2	1	1	2	2	2		0		1	0.0	0.0	0.0	veins and gougy
234.00	240.43	c.g GD Stg chl, ser, K-spar, alt'n	**Coarse Grained Granodiorite**. Chataway Phase of Guichon batholith. General characters similar to18.5-50.12m interval. Rock strongly gougy, alt'd (potassic, ser and chl alt'n) and broken. Chl alteration is dominant. Locally short potassic zone. **Mineralization**: No copper minerals observed in logging time.	1	1	2	3	1	2	2	2		0		2	0.0	0.0	0.0	veins and gougy
240.43	249.17	c.g GD mod Chl,epi, ser, K-spar, alt'n	**Coarse Grained Granodiorite.** Chataway Phase of Guichon batholith. General characters similar to18.5-50.12m interval. Rock mod alt'd, solid Ser-chl alteration is dominant. From 246.50 to 247.30m, more aggregate of mafic minerals. Epi veins with halo of potassic zone are common **Mineralization**: No copper minerals observed in logging time.	2	2	2	1	1	2	2	2		0		1	0.0	0.0	0.0	veins and gougy
249.17	254.00	c.g GD Wk Chl, hem, ser, K-spar, alt'n	**Coarse Grained Granodiorite**. Chataway Phase of Guichon batholith. General characters similar to 234 to 240m interval. Rock strongly gougy, alt'd (potassic, ser and chl alt'n) and broken. Chl alteration is dominant. Locally short potassic zone. **Mineralization:** No copper minerals observed in logging time.	2	2	2	1	1	2	2	2		0		1	0.0	0.0	0.0	veins and gougy

Happy Creek Minerals		Hole ID: R20 - 02	Core Size: HQ	Down Hole Survey (Reflex)				Start Date:5 Dec,2020
Rateria 2020.00		Easting: 647270	Azimuth: 90	Az:	98.00	104.5	109.5	End Date:13 Dec,2020
Zone 2		Northing: 5583910	Dip: -75	Dip:	-58.2	-57.9	-57.7	Logger: S.liaghat
Driller: Paycore		Elevation: 1517 m	Depth m: 557	Depth:	200	401.0	557	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)								MINERALIZATION (%)						STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other
254.00	273.00	f.g GD Wk-Strg Chl, hem, ser, K-spar, alt'n	**Fine Grained Granodiorite.** Chataway Phase of Guichon batholith. General characters same as before. Chl alt'n zone is strong in some parts. Zones of gouge, brecciated and locally K-spar zone. Epi-qtz veinlets have selvage of potassic alt'n. Some hem veins and fracts. **Mineralization:** Veinlets of mafic minerals have cc and bo in minor grade. Cc in fracs @ 262.5, 267.6, 272m	2	2	2	1	1	2	2	2		0		1	0.0	0.0	0.1	veins and gougy
273.00	274.80	Fault Zone	**Gougy Fault Zone.** Fault, gouge, bleached, strg ser, carb-hem veins **Mineralization:** No copper minerals observed in logging time.	2	2	4	3	2	3	3	2		0		3	0.0	0.0	0.0	Fz
274.80	290.00	c.g GD mod Chl,epi, ser, K-spar, alt'n	**Coarse Grained Granodiorite.** Chataway Phase of Guichon batholith. General characters similar as before intervals. Strong chl , zones of gouge in several locations. Locally K-spar zone. Several epi-qtz veinlets have selvage of potassic alt'n. Some hem veins and fract filling, aplite dk @ 287 for 1m, **Mineralization:** -bo in thin zone of potassic @ 279.40m, -dark minerals in fracts may have cc, -bo in vein @ 282.65m. -cc in some fracts e.g., 282.85m, 284.05m, 288m -bo replaced mafic in some grains -cc in fracts 290m, 291m, 295.5m.	2	2	2	1	1	2	2	2		0		1	0.0	0.0	0.3	veins and gougy

Happy Creek Minerals	Hole ID: R20 - 02	Core Size: HQ	Down Hole Survey (Reflex)				Start Date:5 Dec,2020
Rateria 2020.00	Easting: 647270	Azimuth: 90	Az:	98.00	104.5	109.5	End Date:13 Dec,2020
Zone 2	Northing: 5583910	Dip: -75	Dip:	-58.2	-57.9	-57.7	Logger: S.liaghat
Driller: Paycore	Elevation: 1517 m	Depth m: 557	Depth:	200	401.0	557	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)								MINERALIZATION (%)						STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other
290.00	311.50	f.g GD Wk-Mod Chl, hem, ser, K-spar, alt'n	**Fine Grained Granodiorite.** Chataway Phase of Guichon batholith. General characters same as before. Chl strong, Epi-carb and hem veins are common in fract and gougy zone. - Gouge @291.40m, epi @293.10m. - Zones of K-spar and epi veins from 296 tp 298m, - Hem-breccia zones from 297.97m to 297.5m, - Hem in fracts from 297.5 to 300m, - @304.20m some sericitic gouge zones. - Fractures 60 °TCA. - Toward to the bottom interval f.g. Gd gradually changes to c.g. - From 306.11 to 308.66m c.g., more solid Gd wt carb-qtz vein in f.g. contact (60°TCA). Rock change to solid core to end of interval. **Mineralization**: -cc wt epi in some fracts. cc in 295.5m, - bo @ 296.90, 297m, 300m in fracts, wt mafic, - bo+cc in several locations, from 304.20 to 306m in veinlets and mafic -cc @ 309 in fract.	2	2	2	1	1	2	2	2		0		1	0.0	0.0	0.2	veins and gougy
311.50	315.00	Min Zone	**Moderate Cu mineralization zone** . Fine grained Chataway Phase of Guichon batholith strongly potassic alt'd and fractured (60 to 90 °TCA). **Mineralization:** -From 311.5 to 315m in intense potassic alt'n several veins and fract filling of bo and cc. Every 20-30 cm, veins wt copper minerals, 1mm to 3mm wide, mostly 45 °TCA.	2	4	2	2	2	2	2	2		0		2	0.0	0.0	0.4	veins of copper
315.00	318.30	c.g GD Stg ser, K-spar, alt'n	**Coarse Grained Granodiorite.** Chataway Phase of Guichon batholith. General characters same as before. Locally zone of potassic in selvage of epi-carb veins. **Mineralization:** No copper minerals observed in logging time.	1	1	2	3	1	2	2	2		0		2	0.0	0.0	0.0	veins and gougy
318.30	320.30	Min Zone	**Moderate Cu mineralization zone** . Fine grained Chataway Phase of Guichon batholith strongly potassic alt'd and fractured (60 to 90 °TCA) **Mineralization:**-From 318.30 to 320.30 m in intense potassic alt'n several veinlets, veins and fractures contain bo and cc. - Patches of bo in carb and K-spar zones @ 318.35, 318.50, 319.9, 320m and several other spots .	2	4	2	2	2	2	2	2		0		2	0.0	0.0	0.4	veins of copper

Happy Creek Minerals		Hole ID: R20 - 02	Core Size: HQ		Down Hole Survey (Reflex)				Start Date:5 Dec,2020
Rateria	2020.00	Easting: 647270	Azimuth:	90	Az:	98.00	104.5	109.5	End Date:13 Dec,2020
Zone 2		Northing: 5583910	Dip:	-75	Dip:	-58.2	-57.9	-57.7	Logger: S.liaghat
Driller:	Paycore	Elevation: 1517 m	Depth m:	557	Depth:	200	401.0	557	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)								MINERALIZATION (%)						STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other
320.30	323.00	Flt Zone	**Gougy Fault Zone.** Fault, gouge, bleached, strg ser, carb-hem veins **Mineralization:** cc probably in gouge.	2	2	4	3	2	3	3	2		0		3	0.0	0.0	tr	Fz
323.00	363.50	f.g-c.g GD Wk to Stg hem ser, K-spar, qtz alt'n	**Fine and Coarse Grained Granodiorite.** General characters similar to Chataway Phase. Rock strongly gougy, alt'd (potassic, ser and chl) and broken wt hem rich zones. - From 323 to 331.75m f.g. rock. - Locally potassic alteration in margin of fractures. - From 331.75 to 332 stronger ser-clay alt'n. - From 332 solid rock, wk alt'd. Mixing of f.g, to c.g, and gougy rock from 335m for 1m. - About 342m K-spar-carb veins are common. - Wk alt'd-solid rocks continue down to 348.27m. - Potassic zone from 352.60 to 353.5m and 362.50 to 363.40m . **Mineralization**:Cc and bo in some fractures and veinlets (e.g., 330.55, 325.55, 332.5,340.5m -Potassic alt'n from 352 to 353.5 and 362.5 to 363.40m contains cc and bo in fracs and veinlets	3	2	2	2	1	2	2	2		0		5	0.0	0.0	0.3	veins and gougy
363.50	366.50	Bio-Mag rich GD	**Biotite-Magnetite Rich Granodiorite**. c.g. mafic rich Gd, bio and mag rich zone (Probably Guichon phase?), Mineralogy gedually changes in contact to upper and lower units. Carb and ser alt'n and veins are common. Fracture trends are 20 to 50 °TCA **Mineralization**: No copper minerals observed in logging time.	2	2	2	1	1	2	2	2		0	5	1	0.0	0.0	0.0	veins and gougy
366.50	375.70	f.g GD Strg ser wt epi alt'n	**Fine Grained Granodiorite.** Chataway Phase same as before. Ser-epi are common and strong. Epi-carb and hem veins are common in fracts and gougy zone. In fracs green ser. Potassic zones are also present. **Mineralization:** Cc may present within dark fractures	2	2	3	1	3	2	2	2		0		1	0.0	0.0	tr	veins and gougy
375.70	376.50	Bio-Mag rich GD	**Biotite-Magnetite Rich Granodiorite**. c.g. mafic rich Gd, bio and mag rich zone (Probably Guichon phase?). Mineralogy gedually changes in contact to upper and lower units . Carb and ser alt'n and veins are common. Potassic zone from 366.5 to 369m. - Green ser in fractures. **Mineralization:** No copper minerals observed in logging time.	2	2	2	1	1	2	2	2		0	5	1	0.0	0.0	0.0	veins and gougy

Happy Creek Minerals		Hole ID: R20 - 02	Core Size: HQ		Down Hole Survey (Reflex)					Start Date:5 Dec,2020
Rateria	2020.00	Easting: 647270	Azimuth:	90	Az:	98.00	104.5	109.5		End Date:13 Dec,2020
Zone 2		Northing: 5583910	Dip:	-75	Dip:	-58.2	-57.9	-57.7		Logger: S.liaghat
Driller:	Paycore	Elevation: 1517 m	Depth m:	557	Depth:	200	401.0	557		Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)								MINERALIZATION (%)						STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other
376.50	387.50	f.g GD Strg ser wt epi alt'n	**Fine Grained Granodiorite.** Chataway Phase same as before. Ser-epi are common and strong. Epi-carb and hem veins are common in fractss and gougy zone. Green ser in fracs. Potassic zones also present. **Mineralization:** Cc may present within dark fractures	2	2	3	1	3	2	2	2		0		1	0.0	0.0	tr	veins and gougy
387.50	389.80	Min Zone	**Strong Cu mineralization zone** . Fine and c.g grained Chataway Phase of Guichon batholith. Strongly potassic alt'd and fractured . **Mineralization:** Strong Cu mineralization zone Strg K-alt'n, cc minerals fill fractures, strongest part from 389 to 389.50m. bo observed as fine grained crystals inside fractures and locally patchy. copper replacing mafic minerals.	2	4	2	2	2	2	2	2		0		2	0.0	0.1	0.5	veins of copper
389.80	393.50	f.g GD Strg ser wt epi alt'n	**Fine Grained Granodiorite.** Chataway Phase same as before. Ser-epi are common and strong. Epi-carb and hem veins are common in fracts and gougy zone. In fracs green ser. Potassic zones also present. **Mineralization:** Locally cc minerals fill fractures, bo in veinlets and replacing mafics	2	2	3	1	3	2	2	2		0		3	0.0	tr	wk	veins and gougy
393.50	484.50	f.g., c.g GD Wk to Strg Chl, hem, ser, K-spar, alt'n	**Fine-Coarse Grained Granodiorite.** Chataway Phase. Wk to strg alt'n, locally gouge and solid. Zones of potassic alt'n, carb veins common. Locally hem and gougy ser. Some zones of mag rich rock. Hem veins @419.10 for 1m , 30 °TCA, and @424.5m. - Ser alt'n from 429 to 431, light green. - Ser alt'n from 432 to 432.90m. - Gougy zone +hem @ 433m. - Hem zone from 470 to 471.5m. - Wk alt'd rock start at 475m for 10m . Several epi veins observed. **Mineralization:** @409.80m tr bo in K-spar zone.	2	2	2	1	2	2	2	2		0		2	0.0	tr	0.0	veins and gougy

Happy Creek Minerals		Hole ID: R20 - 02	Core Size: HQ		Down Hole Survey (Reflex)				Start Date:5 Dec,2020
Rateria	2020.00	Easting: 647270	Azimuth:	90	Az:	98.00	104.5	109.5	End Date:13 Dec,2020
Zone 2		Northing: 5583910	Dip:	-75	Dip:	-58.2	-57.9	-57.7	Logger: S.liaghat
Driller:	Paycore	Elevation: 1517 m	Depth m:	557	Depth:	200	401.0	557	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5)								MINERALIZATION (%)						STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other
484.50	491.00	f.g., c.g GD Hem Zone	**Fine-Coarse Grained Granodiorite.** Chataway Phase. Wk to strg alt'n, locally gouge and solid. Strong hem zone: hem gouge and hem fracts are common. Carb and epi veins are common. Green ser alt'n. Short sub-intervals of potassic alt'n. **Mineralization**: No copper minerals observed in logging time.	2	2	2	1	1	2	2	2		0		30	0.0	0.0	0.0	veins and gougy
491.00	499.00	f.g., c.g GD Wk hem, ser, K-spar, alt'n	**Fine-Coarse Grained Granodiorite.** Chataway Phase. Wk alt'n, More solid, wk pervasive potassic alt'd, hem in fracts and groundmass. Qtz-epi vein @ 498.20m, 2cm wide, 90 °TCA, Locally accumulation of coarse grain magnetite. Several thin aplite dikes cut through. **Mineralization:** Cc may present within dark fractures	4	2	3	1	1	2	2	2		0		10	0.0	0.0	0.0	qz v and aplot dk
499.00	519.00	f.g., c.g GD Wk ser alt'n	**Fine-Coarse Grained Granodiorite.** Chataway Phase. f.g. and c.g. Gd with several short zones of potassic alt'n. Hem in fracs is common. Thin carb-qtz veins locally, e.g., @ 513.95 m, 0.5cm wide, 45 °TCA, and @ 518.90m, 1cm wide, parallel °TCA. - Carb-qtz veins hosted in half m f.g. intrusive. - Aggragate of plag in contacts of veins. @518.90m qtz-carb vein parallel °TCA. **Mineralization:** Cc may present within dark fractures	2	2	2	1	1	2	2	2		0		2	0.0	0.0	0.0	veins and gougy
519.00	577 EOH	f.g., c.g GD Wk to Strg Chl, hem, ser, K-spar, alt'n	**Fine-Coarse Grained Granodiorite.** Chataway Phase. f.g. and c.g. Gd with few short zones of potassic alt'n. Locally hem in fracs. Thin carb-qtz veins locally **Mineralization:** No copper minerals observed in logging time.	2	2	2	1	1	2	2	2		0		2	0.0	0.0	0.0	veins and gougy

Happy Creek Minerals		Hole ID: WV20 - 01	Core Size: HQ		Down Hole Survey (Reflex)					Start Date: 1 Nov, 2020
West Valley	2020	Easting: 636760	Azimuth:	270	Az:	277.50	281.5			End Date: 10 Nov, 2020
PIM		Northing: 5583775	Dip:	-75	Dip:	-74.5	-74.5			Logger: S.Liaghat
Driller:	Paycore	Elevation: 1710 m	Depth m:	336	Depth:	200	336.0			Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5):								MINERALIZATION (%):						STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other
0.00	3.00	OVB	**Glacial Overburden/Casing** Glacial Overburden. Broken pieces of rocks with different origins (granite, granodiorite, diorite), and grain sizes. Rate of alteration is different in rock pieces and change from fresh to strong.																
3.00	47.00	GD (Beths) wk to strg ser alt'n	**Medium Coarse Grained Granodiorite.** Bethsaida Phase of Guichon batholith. Light pink colour tarnished. Composition ranging from quartz-monzonite to granodiorite. Characterised by rounded quartz and abundant coarse biotite book and plagioclase phenocrysts. Locally wt mild ser alteration. Border Phase in first 10 cm of core interval. From 8 to 11m rock strongly broken. High angle fractures along the core and filled wt carb, hem and ser+ qtz. Locally limonite in fracts and in rock base. - From 21m light green ser alt'n. Toward the bottom of interval rock gradually changes to more ser-chl alteration with more f.g. bio. **Mineralization:** No copper minerals observed in logging time.	2	2	3	2	1	2	2	2		0	0	0	0.0	0.0	0.0	broken gougy
47.00	49.08	QFP Dk	**Quartz-Feldspar Porphyry Dike:** Porphyry dike with phenocrysts of bio (book), plag and qtz wt minor K-spar and +/-mag. Tan to dark grey aphanitic groundmass. Medium to coarse grained phenocrysts . Euhydral-subhydral plag and rounded milky qtz. The dike silicified and mildly chl-ser alt'd, maidly in contacts. UC irrg, LC with low angle TCA. **Mineralization:** No copper minerals observed in logging time.	2	2	2	1	1	2	2	3				0	0.0	0.0	0.0	Dk
49.08	52.93	GD (Beths) mod alt'n	**Medium Coarse Grained Granodiorite.** Bethsaida Phase of Guichon batholith. Same as similar unit in above. Pink colour, mod alt'd, more fractured and broken. Locally carb-fracs. Strg carb-epi alt'n in contact with upper and lower dikes. **Mineralization:** No copper minerals observed in logging time.	1	1	2	1	1	1	2	1			0	0	0.0	0.0	0.0	broken fract

Happy Creek Minerals		Hole ID: WV20 - 01	Core Size: HQ	Down Hole Survey (Reflex)				Start Date: 1 Nov, 2020
West Valley 2020		Easting: 636760	Azimuth: 270	Az:	277.50	281.5		End Date: 10 Nov, 2020
PIM		Northing: 5583775	Dip: -75	Dip:	-74.5	-74.5		Logger: S.Liaghat
Driller: Paycore		Elevation: 1710 m	Depth m: 336	Depth:	200	336.0		Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5):								MINERALIZATION (%):						STRUC	
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other	
52.93	55.00	Apl Dk	**Aplite dike** Aphanitic, Light pinkish grey, fine grained equigranular. Irreg thin qtz-hem veins are common. UC and LC are broken. **Mineralization:** No copper minerals observed in logging time.	0	2	2	1	1	1	1	2	1			2	0.0	0.0	0.0		dk
55.00	76.00	GD (Beths) mod-strg wk alt'n + Apl dk	**Medium Coarse Grained Granodiorite.** Bethsaida Phase of Guichon batholith. Same as similar unit in above. Pink colour. - More broken and alt'd. Broken, in UC, strg ser alt'd. - Entire of interval mild ser-carb and epi alt'n. - Few thin aplite dike and gouge zone cut through. - Some small sub intervals of Skeena Phase observed. - From 60.87 to 62.05m aplite dike with broken contacts. - Locally mild K-spar alteration e.g., @ 66m, 69m. - From 66 to 72m several carb, ser zones of alt'n. - Ser-carb-epi veins @ 66.74m, @ 68.90m 10°TCA, @ 69.15m 30 °TCA, @ 69.35m 45°TCA. Aggregate of alb mineral ? @ 70.15m. - Locally f.g. aggregate of bio observed, like 74.25m. - Intense ser-potassic alteration areas @ 74.80m and 74.65m. - Toward the bottom of interval rock change to more solid and fracture trends change to parallel TCA. **Mineralization:** No copper minerals observed in logging time.	1	1	2	1	1	2	2	2			0	1	0.0	0.0	0.0		broken fract
76.00	85.40	GD (Sk) strg ser-mod hm alt'n	**Medium Grained Skeena Granodiorite.** Skeena Phase of Guichon batholith. Moderate light grey color, locally pinkish. m.g. Moderate solid, in some area strongly fractured, gouged and moderately fractured. Composition: 60% anhedral to euhedral plagioclase (up to 4mm in size), 20 % grey subhedral quartz (up to 5 mm in size), 10% mafic (bio=hb), locally biotite book up to 4mm in dimension. - @ 83m for 7cm gougy fault zone. Hem-ser-carb vein/fractures 90 °TCA. @ 85.40 gougy ser-carb for 3cm, 80°TCA. **Mineralization:** No copper minerals observed in logging time.	1	2	3	2	2	2	1	2				1	0.0	0.0	0.1		broken fract

Happy Creek Minerals
West Valley 2020
PIM
Driller: Paycore

Hole ID: WV20 - 01
Easting: 636760
Northing: 5583775
Elevation: 1710 m

Core Size: HQ
Azimuth: 270
Dip: -75
Depth m: 336

Down Hole Survey (Reflex)		
Az:	277.50	281.5
Dip:	-74.5	-74.5
Depth:	200	336.0

Start Date: 1 Nov, 2020
End Date: 10 Nov, 2020
Logger: S.Liaghat
Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5):								MINERALIZATION (%):						STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other
85.40	177.00	GD (Beths) wk-strg ser alt'n+ Apl DK	**Medium Coarse Grained Granodiorite.** Bethsaida Phase of Guichon batholith. Strong ser and locally potassic alt'n are dominant. Tiny carb veins are common. Locally gouge, fracs, and breccias wt qtz-hem minerals. Hem-ep alteration and veins, and k-spar-qtz-hem-chl veins are common. Aplite dk @ 80.7m for 40 cm, sharp contacts, 80 & 75° TCA.- From 99.5 to 101.20m green ser alt'n is common. - From 102.28 to 103.5m broken aplite dk. - @ 104.05 for 5cm aplite dike , sharp 60°TCA. - @104.60m for 25cm aplite dk with carb veinlets, sharp UC 80°TCA, LC irrg. - @112.15m aplite dk for 5cm, sharp, 60° TCA. - @119.85m aplite and broken GD rock for 20cm. - @ 122.04m aplite dk for 15 cm, irrg. - From 123.70m to 125m ser-light green alt'n wt ser-epi veins along core axis. - From 135 to 138m mild light green alt'n wt carb epi veins. From 160.5m to 164m broken rock wt strongly k-spar-ser-chl-carb and hem alt'n and more intense in fractures. - Carb-ser-epi veins for 2m long of core are parallel TCA with broken pices of rocks and potassic-epi alteration in selvage. Trend of fractures change from 40 to 60° TCA around 171m depth. Interval down to end of interval cuts with several thin -broken aplite dk. **Mineralization** No copper minerals observed in logging time.	2	3	3	2	3	2	3	3		0	0	2	0.0	0.0	0.0	strng broken-gougy
177.00	205.05	GD (Beths) strg ser alt'n	**Medium Coarse Grained Granodiorite.** Bethsaida Phase, same as before. Strg alt'n, broken and locally gougy, mod fractured. Green ser alt'n is common. Trends of carb veins in different directions. Fracture 60-70° TCA, - From 191 to 200m several irrg qtz-carb veins in gougy rock. - @ 193 m for 10 cm qtz-carb veins in strong ser zone. - From 195m rock changes to more solid and then ser and potassic alt'n increase close to lower fault zone . **Mineralization:** No copper minerals observed in logging time.	2	1	2	2	2	2	2	3			0	1	0.0	0.0	0.0	solid

Happy Creek Minerals		Hole ID: WV20 - 01	Core Size: HQ		Down Hole Survey (Reflex)					Start Date: 1 Nov, 2020
West Valley	2020	Easting: 636760	Azimuth:	270	Az:	277.50	281.5			End Date: 10 Nov, 2020
PIM		Northing: 5583775	Dip:	-75	Dip:	-74.5	-74.5			Logger: S.Liaghat
Driller:	Paycore	Elevation: 1710 m	Depth m:	336	Depth:	200	336.0			Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5):								MINERALIZATION (%):						STRUC	
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other	
205.05	208.19	FZ (Beths)	**Fault Zone**, Flt zone in the same rock as noted before (Bethsaida). Broken, soft, light green, brecciated, alt'd (ser-carb-ep) . Thin carb veins and mild hem -epi. **Mineralization:** No copper minerals observed in logging time.	1	2	2	2	2	2	2	2			0	1		0.0	0.0	0	FZ
208.19	237	GD (Beths) mod alt'n	**Medium Coarse Grained Granodiorite.** Bethsaida Phase of Guichon batholith. Same as similar unit in above. Pink colour. mod alt'd, more fractured and broken. Locally carb-fracs. Interval starts with wk alt'n, and then changes to more ser-potassic carb and clay alt'n. - From 231.5 to 232.5m rock strongly broken. - Fracts 40 to 60° TCA. Thin carb veins are common in lower part of interval. - @ 211m zone of mag rich rock. **Mineralization:** No copper minerals observed in logging time.	2	1	2	2	2	2	3	2		1	1	1	0.0	0.0	0.0	0	broken fract
237	242.2	GD (Beths) strg ser alt'd-gougy	**Medium Coarse Grained Granodiorite.** Bethsaida Phase , same as before. Strg alt'n, broken and locally gougy, strg fractured. Green ser alt'n is common. Carb veins common. K-spar alt'n in some areas are strong. **Mineralization:** No copper minerals observed in logging time.	1	2	3	1	1	2	3	2				0	0.0	0.0	0.0	0	
242.2	246	FZ (Beths)	**Fault Zone**, Flt zone in a same rock as before (Bethsaida). Broken, soft, light green, brecciated, alt'd (ser-Carb-ep) . Thin carb veins and mild hem -epi everywhere. **Mineralization:** No copper minerals observed in logging time.	1	2	2	2	2	2	2	2			0	1		0.0	0.0	0	FZ

Happy Creek Minerals		Hole ID: WV20 - 01	Core Size: HQ		Down Hole Survey (Reflex)			Start Date: 1 Nov, 2020
West Valley	2020	Easting: 636760	Azimuth:	270	Az:	277.50	281.5	End Date: 10 Nov, 2020
PIM		Northing: 5583775	Dip:	-75	Dip:	-74.5	-74.5	Logger: S.Liaghat
Driller:	Paycore	Elevation: 1710 m	Depth m:	336	Depth:	200	336.0	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5):								MINERALIZATION (%):						STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other
246	265	GD (Beths) strg ser alt'd-gougy	**Medium Coarse Grained Granodiorite.** Bethsaida Phase , same as before. Strg alt'n, broken and locally gougy, Alteration more intense and pervasive as before. Carb veins (thin) and frac filling are common. Some irrg qtz veins and silica flooding. Fractures 60° TCA. Ch-epi and black minerals (cc?) inside fracts at 249.32m. - @252m strg k-spar zone wt qtz-carb veins. - @252.15m irrg qtz vein in broken K-spar zones, rock silicified here. - Locally epi veins in highly potassic alt'n zone. - Potassic alteration increases toward the bottom of interval. - @ 259m epi veins in strong potassic zone, and more epi veins between 258 to 259m. - 3mm thick qtz-carb vein cut the interval @ 261.75m, 261.85m 20° TCA. Trace Py in some qtz-carb veins and fracs (e.g., @ 258.12m). **Mineralization:** No copper minerals observed in logging time.	3	2	3	2	3	2	3	3		0.1		0	0.0	0.0	0.0	
265	336	GD (Beths) wks alt'd-	**Medium Coarse Grained Granodiorite.** Bethsaida Phase, same as before. Wk alt'd, pink, c.g., fresh, solid, few short aplite dk. -In few locations short range of ser-epi alt'n. Hole ended in fresh rock. **Mineralization:** No copper minerals observed in logging time.	3	2	3	2	3	2	3	3		0.1		0	0.0	0.0	0.0	

Happy Creek Minerals		Hole ID: WV20 - 02	Core Size: NQ		Down Hole Survey (Reflex)					Start Date: 11 Nov, 2020
West Valley	2020	Easting: 636510	Azimuth:	315	Az:	318.70	320.5	329	336.4	End Date:20 Nov , 2020
PIM		Northing: 5584275	Dip:	-60	Dip:	-60.8	-60.0	-60	-58.5	Logger: S.Liaghat
Driller: Paycore		Elevation: m	Depth m:	469.5	Deptl	22	100.0	301.5	469.5	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5):								MINERALIZATION (%):							STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other	
0.00	6.00	OVB	**Glacial Overburden/Casing** Glacial Overburden. Broken pieces of rocks with different origins (granite, granodiorite, diorite), and different grain sizes. Rate of alteration is changes from fresh to strong.																	

Happy Creek Minerals		Hole ID: WV20 - 02	Core Size: NQ	Down Hole Survey (Reflex)					Start Date: 11 Nov, 2020
West Valley	2020	Easting: 636510	Azimuth: 315	Az:	318.70	320.5	329	336.4	End Date:20 Nov , 2020
PIM		Northing: 5584275	Dip: -60	Dip:	-60.8	-60.0	-60	-58.5	Logger: S.Liaghat
Driller: Paycore		Elevation: m	Depth m: 469.5	Depth	22	100.0	301.5	469.5	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5):								MINERALIZATION (%):							STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other	
6.00	115.50	GD (Beths) wk to strg ser alt'n	**Medium Coarse Grained Granodiorite.** Bethsaida Phase of Guichon batholith. Bethsaida phase with composition ranging from quartz-monzonite to granodiorite. Minerals are include rounded quartz phenocrysts and abundant coarse biotite and plagioclase phenocrysts. The interval is light pink colour wt c.g. qtz, bio (book) and plag phenos. Locally gougy and mild to strg ser, epi and potassic alt'n. Interval starts with broken, wk to strong ser alt'n. - From 6 to 39m rock is broken-fractured wt minor thin epi, ser in carb veins. - Altering of wk, mod and strg alterations continue to 65m and then wk alt'd wt some qtz veins down to 76m. - From 76 to 87.90m broken rock has more ser, ep, carb, and potassic alt'n zones. - Qtz veins and gougy (fault) are more observed here. - From 77.5 to 77.95m strg K-spar zone. - From 87.90 to 115.5m rock changes to more solid and less altered, some qtz veins and some fractures wt dark hem-lim. - From 78.5m to 79.5m strg broken rock. - Iron oxide (hem-lim), qtz and clay (+carb) are in fractures, e.g., @ 82.40m, 82.60m and 83.50m. - Then changed to solid and wk alteration. After, mod to strg alt'n + iron oxide continues to 87.90m and from this depth to 115.5m rock is solid wt wk alt'n. - Locally thin gouge fault and fracs observed. Breccia's spaces filled wt qtz-hem and black minerals. Hem veins are common in some locations. Hem-ep alteration and veins every where. - Some qtz flow (tiny vein) in dark hematitic fractures. - @48.10m, for 2cm wide hem vein is in thin fault wt 30cm epi zone in selvage. - Fractures in this area changes from 40 to 60 °TCA. - Qtz vein is common in this part. - Several breccias and gougy sections mixed wt qtz, carb, clay and hem-lim. - Locally strg potassic zone, epi zone and hematitic zone. - 3 cm hem-qtz vein observed in gougy rock @ 84.95m. - From 86 to 87.5m several qtz veins wt unclear contact (about 70 °TCA). - From 86.5 to 88m strg gouge-hem qtz vein in broken and alt'd rock. - Fault breccia @86.60m, 87m and 87.80m.	30	2	3	2	2	3	3	4		0	1	4	tr	tr	tr		broken gougy

Happy Creek Minerals			Hole ID: WV20 - 02	Core Size: NQ		Down Hole Survey (Reflex)					Start Date: 11 Nov, 2020
West Valley	2020		Easting: 636510	Azimuth:	315	Az:	318.70	320.5	329	336.4	End Date:20 Nov , 2020
PIM			Northing: 5584275	Dip:	-60	Dip:	-60.8	-60.0	-60	-58.5	Logger: S.Liaghat
Driller:	Paycore		Elevation: m	Depth m:	469.5	Depth	22	100.0	301.5	469.5	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5):								MINERALIZATION (%):							STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other	
			- Some fractures filled wt carb, e.g, @94m.- From 95,5 to 96,82 wk alt'd rock. Strg hem zone and qtz-carb vein from 99.40 to 101.54m. Qtz vein and hem-lim zone are common in this part. Strobe zone of qtz-carb area has 23cm long and strg hem zone is 1m long. - This interval continue with same pink colour Bethsaida and then ended with few meters of solid, wk altred rock. **Mineralization:** Locally thin gouge, fracs and breccias filled wt qtz-hem, black minerals (cc?) and stains of mal, e.g., @30m. - @ 39m qtz-breccia zone contains mal + tr cp.																	
115.50	127.50	FZ (Beths)	**Fault Zone,** Flt zone cut the interval wt same rock types as noted before (Bethsaida). Broken, sandy, soft, light green, and locally red, brecciated rocks. Dominate alt'n minerals are ser-carb and iron ox. From 120.70 to 121.5m strg hm zone. **Mineralization:** No copper minerals observed in logging time.	3	2	4	2	2	3	4	2				10	0.00	0.00	0.00		FZ
127.50	136.50	GD (Beths) wk alt'n	**Medium Coarse Grained Granodiorite.** Bethsaida Phase of Guichon batholith. Same as similar unit in above. Pink colour. Wk altr'd, less fractured, 60°TCA. Locally carb-ser fracs. More alt'n toward the bottom of interval. **Mineralization:** No copper minerals observed in logging time.	2	1	2	1	1	1	2	1			0	1	0.00	0.00	0.00		broken fract
136.50	138.00	GD (Beths) wk-strg ser alt'n	**Medium Coarse Grained Granodiorite.** Bethsaida Phase of Guichon batholith. Same as similar unit in above. Pink colour. In general, interval rock is strongly ser alt'd, but locally changing between wk to strong alteration. - Broken rocks and hm-lim-carb veins are common. Rock faulted and brecciated in several areas. Hm vein are in different trends. Lim is common in fractures, mainly from 145 to 187m. **Mineralization:** No copper minerals observed in logging time.	4	2	2	2	1	2	2	1	1			2	0.00	0.00	0.00		gougy broken
138.00	139.00	FZ strg altn +iron oxi	**Fault:** from 138 to 139m, brecciated, ser-hm, wt irrg qtz veins.	3	2	4	2	2	3	4	2				10	0.00	0.00	0.00		FZ

Happy Creek Minerals		Hole ID: WV20 - 02	Core Size: NQ		Down Hole Survey (Reflex)					Start Date: 11 Nov, 2020
West Valley	2020	Easting: 636510	Azimuth:	315	Az:	318.70	320.5	329	336.4	End Date:20 Nov , 2020
PIM		Northing: 5584275	Dip:	-60	Dip:	-60.8	-60.0	-60	-58.5	Logger: S.Liaghat
Driller:	Paycore	Elevation: m	Depth m:	469.5	Depth	22	100.0	301.5	469.5	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5):								MINERALIZATION (%):							STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other	
139.00	152.94	GD (Beths) wk-strg ser alt'n	**Medium Coarse Grained Granodiorite.** Bethsaida Phase of Guichon batholith. Same as similar unit in above. From 148 to 150m potassic alt'n. - From 151.75 to 172.40m (few intervals in below) broken rocks wt lim in fractures. **Mineralization**: No copper minerals observed in logging time	5	2	3	2	1	2	2	1	1			2	0.00	0.00	0.00		gougy broken
152.94	155.40	FZ strg altn +iron oxi	**Fault:** From 152.94 to 155.40m, broken, gougy, hem-ser-carb-qtz veins. Clay, sandy, tiny cavities filled with carb crystals. Toward the deeper core in this area rock strongly brecciated with carb-clay and qtz veins. **Mineralization**: In 153m for more than a meter, rock strongly alt'd, brecciated with irrg qtz-carb veins. In this area, on top of 15cm carb vein, few grains of cc, bn sulfide minerals (<5mm dia) hosted in 5 cm qtz-carb-ser brecciated rock.	3	2	4	2	2	3	4	2				10	0.00	0.10	0.10		FZ
155.40	159.00	GD (Beths) wk-strg ser alt'n	**Medium Coarse Grained Granodiorite.** Bethsaida Phase of Guichon batholith. Same as similar unit in above. **Mineralization**: No copper minerals observed in logging time	5	2	3	2	1	2	2	1	1			2	0.00	0.00	0.00		gougy broken
159.00	236.00	GD (Beths) mod wk altn	**Medium Coarse Grained Granodiorite.** Bethsaida Phase of Guichon batholith. Same as similar unit in above. Pink colour. More solid and less alt'd. - Some fracts filled wt carb, hm and lim, e.g., @ 163m. - Hem zone @ 164m for 75 cm and common in other parts of interval. - @ 200.15m qtz-carb veins 30°TCA , 4cm and 7cm wide in ch zone. - Fracture 40-60°TCA. Some qtz vn near end of interval, 90 °TCA. - Hem vein @ 214m for 20cm. - From 219 to 229 rock wt mild altr'd. - From 229m rock more ser-k-spar altered wt irrg qtz veins. - Hem zone from 222.90 to 224m in broken rock. **Mineralization:** No copper minerals observed in logging time.	5	1	2	1	1	3	3	2			0	4	0.00	0.00	0.00		solid less fract

Happy Creek Minerals		Hole ID: WV20 - 02	Core Size: NQ		Down Hole Survey (Reflex)					Start Date: 11 Nov, 2020
West Valley	2020	Easting: 636510	Azimuth:	315	Az:	318.70	320.5	329	336.4	End Date:20 Nov , 2020
PIM		Northing: 5584275	Dip:	-60	Dip:	-60.8	-60.0	-60	-58.5	Logger: S.Liaghat
Driller:	Paycore	Elevation: m	Depth m:	469.5	Deptl	22	100.0	301.5	469.5	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5):								MINERALIZATION (%):							STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other	
236.00	247.50	GD strg ser-K-spr	**Medium Coarse Grained Granodiorite.** Bethsaida Phase of Guichon batholith. Same as similar unit in above. Pink colour. Rock strongly ser-potassic alt'd, broken, locally gougy. Short zone of iron ox stained and frac filling. Carb vein and qtz veins in some places. **Mineralization**: From 246.10 to 247.30m up to 5mm thick cc present in strongly K-spar, ser carb alteration zone and in fractures parallel to core axis.	3	2	3	2	2	3	1	3				5	0.00	0.00	0.10		FZ

Happy Creek Minerals		Hole ID: WV20 - 02	Core Size: NQ	Down Hole Survey (Reflex)					Start Date: 11 Nov, 2020
West Valley	2020	Easting: 636510	Azimuth: 315	Az:	318.70	320.5	329	336.4	End Date:20 Nov , 2020
PIM		Northing: 5584275	Dip: -60	Dip:	-60.8	-60.0	-60	-58.5	Logger: S.Liaghat
Driller: Paycore		Elevation: m	Depth m: 469.5	Depth	22	100.0	301.5	469.5	Sampler: S.Liaghat

INTERVAL (m):		ROCK TYPE	DESCRIPTION	QTZ VEINS	ALTERATION (1-5):								MINERALIZATION (%):							STRUC
FROM	TO m			>3mm	K-spar	Ser	Chl	Ep	Kaol	Carb	Silica	Mus	Py	Mag	FeOX	Cpy	Bn	Cc	other	
247.50	379.00	GD (Beths) wk-strg ser alt'n	**Medium Coarse Grained Granodiorite.** Bethsaida Phase of Guichon batholith. Rock strongly ser alt'd and locally potassic alt'n is dominant. Tiny carb veins are common. Locally gouge, fracs, and breccias wt qtz-hem and concentration of black minerals (+cc?). Hem veins are common in some locations. K-spar-qtz-hem, chl- and epi are common in vein and groundmass. - Fract 60 to 70°TCA and locally change to 20°TCA. Locally carb vein 90 °TCA wt strg ser in selvage. - From 247.5 to 254m rock strongly ser-potassic altd, broken and locally gougy. Short zone of iron ox stain and frac filling. Carb and qtz veins are in some places. - From 254 to 264m rock more solid and less alt'd. Some fracts filled wt carb, hm and lim. - From 264 to 282m rock more solid and less alt'd than before. - From 282 to 334m rock changes between wk and strg ser-potassic alt'ns. Locally hematitic zone, gougy zone, and broken rocks. From 284.30m for 30 cm hematitic, broken and gougy. Locally strong alteration, e.g., from 289 to 289.5m. Potassic alt'n from 289.5 to 290.5m. Toward to the end of this interval rock alteration changes in various rate. - From 334 to 379m rock more broken, more fract, locally strg iron ox, locally short ser alt'n zone and gougy. - From 337 to 388m and 342 to 344m strg iron ox zones. - From 354m for 0.5m ser-gouge zone. - From 357 to 358.5m rock strongly broken. - From 367 to 379 hem, ser in broken rock. - From 372.5 to 375m hem in intensive fractured rock. - @ 384.5m for 2m strg ser alt'n. **Mineralization:** Cc @ 256m in frac parallel TCA. - @301m cc + hm fracts in ser zone.	4	2	2	2	2	2	2	3		0	0	5	0.00	0.00	0.10		mod broken-gougy
379.00	469.50	GD (Beths) solid wk alred	**Medium Coarse Grained Granodiorite.** Bethsaida Phase of Guichon batholith. Wk alt'd, solid, mod fractured. Locally hem zone, locally wk green ser zone **Mineralization:** No copper minerals observed in logging time.	2	1	3	1	1	1	1	2			0	2	0.00	0.00	0.00		solid

Appendix 6

RQD Report

HOLE # R20-01															
From	To	Interval	Length of core	Recovery	Length > 10 cm	RQD	# Frac	Average Core angle	#Qtz-ser Veins	Ave Core angle	Mag Sus Avg	Mag Sus max	Mass Air	Mass Water	SG
0	4.70	4.70	0	0%	0	0%									
4.7	5.00	0.30	30	100%	0	0%									
5	8	3.00	183	61%	0	0%	3	75	5	80					
8	11	3.00	265	88%	0	0%									
11	14	3.00	142	47%	0	0%									
14	17	3.00	225	75%	0	0%					0.043	0.139			
17	20	3.00	225	75%	0	0%	5	80							
20	23	3.00	233	78%	112	48%		60							
23	26	3.00	283	94%	130	46%									
26	29	3.00	268	89%	69	26%									
29	32	3.00	269	90%	112	42%		65							
32	35	3.00	267	89%	25	9%							347	218.0	2.69
35	38	3.00	249	83%	111	45%					0.758	4.049			
38	41	3.00	228	76%	77	34%									
41	44	3.00	274	91%	23	8%		60	1	68					
44	47	3.00	286	95%	98	34%									
47	50	3.00	289	96%	163	56%									
50	53	3.00	286	95%	35	12%									
53	56	3.00	272	91%	157	58%		70			3.533	8.902			
56	59	3.00	275	92%	115	42%									
59	62	3.00	281	94%	142	51%									
62	65	3.00	273	91%	87	32%					2.415	7.32			
65	68	3.00	269	90%	86	32%							875	539.0	2.60
68	71	3.00	294	98%	45	15%					1.375	15.74			
71	74	3.00	285	95%	145	51%									
74	77	3.00	280	93%	185	66%		70							
77	80	3.00	293	98%	240	82%									
80	83	3.00	260	87%	50	19%									
83	86	3.00	281	94%	0	0%			3						
86	89	3.00	278	93%	25	9%									
89	92	3.00	277	92%	120	43%									
92	95	3.00	267	89%	15	6%									
95	98	3.00	277	92%	51	18%									
98	101	3.00	276	92%	48	17%							278	175.0	2.70
101	104	3.00	244	81%	14	6%									
104	107	3.00	240	80%	47	20%									
107	110	3.00	210	70%	117	56%		70			0.026	0.24			
110	113	3.00	284	95%	234	82%									
113	116	3.00	275	92%	87	32%									

HOLE # R20-01

From	To	Interval	Length of core	Recovery	Length > 10 cm	RQD	# Frac	Average Core angle	#Qtz-ser Veins	Ave Core angle	Mag Sus Avg	Mag Sus max	Mass Air	Mass Water	SG
116	119	3.00	242	81%	0	0%									
119	122	3.00	283	94%	80	28%									
122	125	3.00	276	92%	55	20%									
125	128	3.00	288	96%	62	22%									
128	131	3.00	283	94%	145	51%									
131	134	3.00	281	94%	87	31%									
134	137	3.00	290	97%	137	47%		60							
137	140	3.00	273	91%	87	32%							730	440.0	2.52
140	143	3.00	287	96%	121	42%					0.306	0.95			
143	146	3.00	269	90%	115	43%									
146	149	3.00	271	90%	79	29%									
149	152	3.00	280	93%	20	7%									
152	155	3.00	281	94%	0	0%									
155	158	3.00	269	90%	0	0%		65							
158	161	3.00	281	94%	0	0%									
161	164	3.00	290	97%	0	0%							701	437.0	2.66
164	167	3.00	293	98%	0	0%									
167	170	3.00	281	94%	140	50%									
170	173	3.00	291	97%	151	52%									
173	176	3.00	289	96%	121	42%									
176	179	3.00	290	97%	47	16%		70							
179	182	3.00	300	100%	77	26%									
182	185	3.00	270	90%	92	34%							383	241.0	2.70
185	188	3.00	249	83%	33	13%		75							
188	191	3.00	256	85%	0	0%									
191	194	3.00	276	92%	47	17%									
194	197	3.00	264	88%	26	10%									
197	200	3.00	270	90%	40	15%					1.203	4.473			
200	203	3.00	274	91%	162	59%									
203	206	3.00	280	93%	173	62%									
206	209	3.00	279	93%	93	33%									
209	212	3.00	270	90%	82	30%									
212	215	3.00	288	96%	0	0%		80							
215	218	3.00	267	89%	33	12%									
218	221	3.00	276	92%	103	37%		70					789	492.0	2.66
221	224	3.00	278	93%	44	16%									
224	227	3.00	282	94%	175	62%									
227	230	3.00	297	99%	212	71%									
230	233	3.00	276	92%	14	5%									

HOLE # R20-01

From	To	Interval	Length of core	Recovery	Length > 10 cm	RQD	# Frac	Average Core angle	#Qtz-ser Veins	Ave Core angle	Mag Sus Avg	Mag Sus max	Mass Air	Mass Water	SG
233	236	3.00	300	100%	17	6%									
236	239	3.00	277	92%	48	17%									
239	242	3.00	295	98%	95	32%					0.027	0.296			
242	245	3.00	289	96%	34	12%									
245	248	3.00	260	87%	0	0%									
248	251	3.00	276	92%	0	0%									
251	254	3.00	277	92%	44	16%									
254	257	3.00	294	98%	0	0%									
257	260	3.00	270	90%	0	0%									
260	263	3.00	250	83%	0	0%									
263	266	3.00	271	90%	69	25%									
266	269	3.00	278	93%	40	14%							574	351.0	2.57
269	272	3.00	290	97%	48	17%									
272	275	3.00	285	95%	46	16%									
275	278	3.00	283	94%	242	86%									
278	281	3.00	294	98%	270	92%									
281	284	3.00	278	93%	60	22%		70							
284	287	3.00	281	94%	32	11%									
287	290	3.00	277	92%	80	29%					0.011	1.459	219	140.0	2.77
290	293	3.00	280	93%	38	14%									
293	296	3.00	300	100%	81	27%									
296	299	3.00	291	97%	140	48%									
299	302	3.00	300	100%	140	47%		65							
302	305	3.00	300	100%	245	82%									
305	308	3.00	295	98%	200	68%									
308	311	3.00	269	90%	123	46%									
311	314	3.00	287	96%	117	41%									
314	317	3.00	279	93%	117	42%									
317	320	3.00	294	98%	294	100%							634	392.0	2.62
320	323	3.00	285	95%	193	68%									
323	326	3.00	278	93%	106	38%					5.785	17.57			
326	329	3.00	280	93%	129	46%									
329	332	3.00	290	97%	75	26%									
332	335	3.00	268	89%	28	10%									
335	338	3.00	245	82%	0	0%									
338	341	3.00	264	88%	68	26%									
341	344	3.00	280	93%	83	30%									
344	347	3.00	280	93%	0	0%									
347	350	3.00	291	97%	40	14%									
350	353	3.00	294	98%	25	9%					4.712	12.51			
353	356	3.00	280	93%	32	11%							517	321.0	2.64
356	359	3.00	274	91%	20	7%									

HOLE # R20-01

From	To	Interval	Length of core	Recovery	Length > 10 cm	RQD	# Frac	Average Core angle	#Qtz-ser Veins	Ave Core angle	Mag Sus Avg	Mag Sus max	Mass Air	Mass Water	SG
359	362	3.00	281	94%	43	15%									
362	365	3.00	295	98%	112	38%									
365	368	3.00	300	100%	215	72%									
368	371	3.00	270	90%	57	21%									
371	374	3.00	283	94%	123	43%									
374	377	3.00	260	87%	198	76%									
377	380	3.00	263	88%	118	45%									
380	383	3.00	300	100%	0	0%									
383	386	3.00	259	86%	0	0%									
386	389	3.00	289	96%	72	25%									
389	392	3.00	265	88%	0	0%									
392	395	3.00	288	96%	116	40%					2.193	4.712			
395	398	3.00	273	91%	36	13%									
398	401	3.00	273	91%	0	0%									
401	404	3.00	271	90%	0	0%									
404	407	3.00	290	97%	0	0%									
407	410	3.00	269	90%	0	0%									
410	413	3.00	287	96%	0	0%									
413	416	3.00	290	97%	59	20%									
416	419	3.00	300	100%	140	47%									
419	422	3.00	290	97%	20	7%									
422	425	3.00	278	93%	0	0%									
425	428	3.00	285	95%	246	86%									
428	431	3.00	286	95%	232	81%									
431	434	3.00	273	91%	102	37%									
434	437	3.00	282	94%	178	63%									
437	440	3.00	279	93%	34	12%									
440	443	3.00	280	93%	0	0%									
443	446	3.00	273	91%	67	25%									
446	449	3.00	288	96%	120	42%					3.289	10.13			
449	452	3.00	269	90%	0	0%									
452	455	3.00	274	91%	56	20%									
455	458	3.00	279	93%	0	0%									
458	461	3.00	285	95%	68	24%									
461	464	3.00	277	92%	110	40%									
464	467	3.00	270	90%	56	21%									
467	470	3.00	285	95%	107	38%									
470	473	3.00	258	86%	182	71%					0.399	1.251			
473	476	3.00	280	93%	140	50%									
476	479	3.00	285	95%	200	70%									
479	482	3.00	286	95%	201	70%									
482	485	3.00	268	89%	39	15%									

HOLE # R20-01

From	To	Interval	Length of core	Recovery	Length > 10 cm	RQD	# Frac	Average Core angle	#Qtz-ser Veins	Ave Core angle	Mag Sus Avg	Mag Sus max	Mass Air	Mass Water	SG
485	488	3.00	288	96%	43	15%									
488	491	3.00	280	93%	59	21%									
491	494	3.00	279	93%	47	17%									
494	497	3.00	297	99%	280	94%									
497	500	3.00	290	97%	268	92%									
500	503	3.00	273	91%	50	18%									
503	506	3.00	279	93%	60	22%									
506	509	3.00	295	98%	140	47%									
509	512	3.00	290	97%	40	14%									
512	515	3.00	285	95%	0	0%									
515	518	3.00	280	93%	0	0%									
518	521	3.00	281	94%	0	0%									
521	524	3.00	290	97%	0	0%									
524	527	3.00	295	98%	0	0%									
527	530	3.00	290	97%	0	0%									
530	533	3.00	287	96%	0	0%									
533	536	3.00	291	97%	0	0%									
536	539	3.00	295	98%	0	0%					14.91	19.36			
539	542	3.00	287	96%	0	0%									
542	545	3.00	291	97%	0	0%									
545	548	3.00	278	93%	0	0%									
548	551	3.00	289	96%	0	0%									
551	554	3.00	300	100%	0	0%									
554	557	3.00	300	100%	0	0%									
557	560	3.00	280	93%	0	0%									
560	563	3.00	275	92%	0	0%					13.98	16.15			
563	566	3.00	278	93%	0	0%									
566	569	3.00	278	93%	0	0%									
569	572	3.00	269	90%	0	0%									
572	575	3.00	280	93%	0	0%									
575	578	3.00	281	94%	0	0%									
578	581	3.00	295	98%	25	8%					0.011	3.241	954	611.0	2.78
581	584	3.00	300	100%	0	0%									
584	587	3.00	301	100%	63	21%									
587	590	3.00	289	96%	127	44%									
590	593	3.00	298	99%	290	97%									
593	596	3.00	289	96%	280	97%							671	430.0	2.78
596	599	3.00	298	99%	263	88%									
599	602	3.00	295	98%	285	97%									
602	605	3.00	288	96%	260	90%					0.15	14.52			
605	608	3.00	295	98%	200	68%									
608	611	3.00	300	100%	130	43%									

HOLE # R20-01

From	To	Interval	Length of core	Recovery	Length > 10 cm	RQD	# Frac	Average Core angle	#Qtz-ser Veins	Ave Core angle	Mag Sus Avg	Mag Sus max	Mass Air	Mass Water	SG
611	614	3.00	302	101%	142	47%									
614	617	3.00	290	97%	217	75%									
617	620	3.00	294	98%	215	73%									
620	623	3.00	300	100%	200	67%									
623	626	3.00	301	100%	195	65%									
626	629	3.00	300	100%	190	63%									
629	632	3.00	291	97%	200	69%									
632	635	3.00	297	99%	178	60%							470	297.0	2.72
635	638	3.00	299	100%	117	39%									
638	641	3.00	300	100%	65	22%									
641	644	3.00	300	100%	0	0%									
644	647	3.00	290	97%	100	34%									
647	650	3.00	292	97%	85	29%									
650	653	3.00	281	94%	191	68%									
653	656	3.00	270	90%	190	70%									
656	659	3.00	289	96%	85	29%							349	218.0	2.66
659	662	3.00	300	100%	80	27%									
662	665	3.00	295	98%	100	34%									
665	668	3.00	269	90%	85	32%									
668	671	3.00	270	90%	120	44%					11.93	17.41			
671	674	3.00	290	97%	115	40%									
674	677	3.00	285	95%	89	31%									
677	680	3.00	294	98%	73	25%									
680	683	3.00	281	94%	75	27%									
683	686	3.00	290	97%	110	38%									
686	689	3.00	300	100%	210	70%									

HOLE # R20-02

From	To	Interval	Length of core	Recovery	Length > 10 cm	RQD	# Frac	Average Core angle	#Qtz-ser Veins	Ave Core angle	Mag Sus Avg	Mag Sus max	Mass Air	Mass Water	SG
0	5	5.00	45	9%	0	0%									
5	8	3.00	290	97%	0	0%									
8	11	3.00	295	98%	0	0%									
11	14	3.00	287	96%	0	0%							732	465	2.74
14	17	3.00	273	91%	0	0%									
17	20	3.00	259	86%	59	23%									
20	23	3.00	241	80%	47	20%									
23	26	3.00	261	87%	69	26%									
26	29	3.00	281	94%	110	39%		60							
29	32	3.00	273	91%	101	37%									
32	35	3.00	277	92%	47	17%									
35	38	3.00	300	100%	200	67%									
38	41	3.00	295	98%	200	68%									
41	44	3.00	285	95%	143	50%									
44	47	3.00	260	87%	0	0%									
47	50	3.00	281	94%	59	21%									
50	53	3.00	261	87%	110	42%		70					768	480	2.67
53	56	3.00	269	90%	115	43%									
56	59	3.00	287	96%	100	35%									
59	62	3.00	291	97%	0	0%									
62	65	3.00	269	90%	0	0%									
65	68	3.00	270	90%	0	0%									
68	71	3.00	260	87%	0	0%		60					329	205	2.65
71	74	3.00	259	86%	0	0%									
74	77	3.00	280	93%	150	54%									
77	80	3.00	285	95%	0	0%									
80	83	3.00	300	100%	290	97%		70			5.841	22.69			
83	86	3.00	300	100%	240	80%									
86	89	3.00	295	98%	200	68%		75							
89	92	3.00	290	97%	195	67%									
92	95	3.00	290	97%	0	0%									
95	98	3.00	287	96%	117	41%		70			1.179	7.678			
98	101	3.00	295	98%	219	74%									
101	104	3.00	294	98%	201	68%									
104	107	3.00	300	100%	215	72%									
107	110	3.00	298	99%	225	76%							493	315	2.77
110	113	3.00	280	93%	48	17%									
113	116	3.00	300	100%	260	87%									
116	119	3.00	295	98%	255	86%							410	267	2.87

HOLE # R20-02															
From	To	Interval	Length of core	Recovery	Length > 10 cm	RQD	# Frac	Average Core angle	#Qtz-ser Veins	Ave Core angle	Mag Sus Avg	Mag Sus max	Mass Air	Mass Water	SG
119	122	3.00	298	99%	190	64%									
122	125	3.00	300	100%	280	93%					3.967	21.6			
125	128	3.00	273	91%	0	0%		70							
128	131	3.00	281	94%	0	0%									
131	134	3.00	270	90%	40	15%									
134	137	3.00	290	97%	140	48%									
137	140	3.00	287	96%	95	33%									
140	143	3.00	294	98%	100	34%									
143	146	3.00	280	93%	64	23%							486	293	2.52
146	149	3.00	240	80%	0	0%									
149	152	3.00	289	96%	215	74%									
152	155	3.00	290	97%	225	78%					6.132	15.58			
155	158	3.00	299	100%	195	65%									
158	161	3.00	300	100%	215	72%							421	267	2.73
161	164	3.00	300	100%	117	39%									
164	167	3.00	295	98%	180	61%		55							
167	170	3.00	300	100%	230	77%									
170	173	3.00	300	100%	210	70%		70							
173	176	3.00	290	97%	200	69%									
176	179	3.00	295	98%	195	66%									
179	182	3.00	295	98%	190	64%									
182	185	3.00	290	97%	173	60%									
185	188	3.00	273	91%	58	21%							286	178	2.65
188	191	3.00	275	92%	10	4%									
191	194	3.00	288	96%	120	42%									
194	197	3.00	295	98%	220	75%									
197	200	3.00	280	93%	47	17%		60							
200	203	3.00	277	92%	0	0%		60							
203	206	3.00	289	96%	40	14%		60							
206	209	3.00	295	98%	115	39%		60							
209	212	3.00	300	100%	170	57%		60							
212	215	3.00	290	97%	0	0%		60							
215	218	3.00	291	97%	10	3%		60			2.503	12.21			
218	221	3.00	297	99%	120	40%		60							
221	224	3.00	295	98%	130	44%									
224	227	3.00	300	100%	270	90%									
227	230	3.00	298	99%	260	87%									
230	233	3.00	300	100%	147	49%									
233	236	3.00	300	100%	200	67%									

HOLE # R20-02

From	To	Interval	Length of core	Recovery	Length > 10 cm	RQD	# Frac	Average Core angle	#Qtz-ser Veins	Ave Core angle	Mag Sus Avg	Mag Sus max	Mass Air	Mass Water	SG
236	239	3.00	290	97%	120	41%							399	253	2.73
239	242	3.00	295	98%	115	39%									
242	245	3.00	281	94%	195	69%					2.9	17.82			
245	248	3.00	285	95%	0	0%		75							
248	251	3.00	280	93%	47	17%									
251	254	3.00	290	97%	0	0%									
254	257	3.00	273	91%	47	17%									
257	260	3.00	294	98%	198	67%									
260	263	3.00	294	98%	149	51%					10.034	18.22			
263	266	3.00	298	99%	280	94%		65							
266	269	3.00	295	98%	267	91%		65							
269	272	3.00	290	97%	215	74%		65							
272	275	3.00	290	97%	187	64%							766	470	2.59
275	278	3.00	290	97%	110	38%									
278	281	3.00	290	97%	73	25%									
281	284	3.00	280	93%	110	39%									
284	287	3.00	278	93%	97	35%									
287	290	3.00	270	90%	0	0%					7	12.22			
290	293	3.00	278	93%	0	0%									
293	296	3.00	279	93%	0	0%									
296	299	3.00	290	97%	0	0%							459	290	2.72
299	302	3.00	291	97%	0	0%									
302	305	3.00	297	99%	170	57%									
305	308	3.00	289	96%	47	16%									
308	311	3.00	295	98%	52	18%					4.126	23.12			
311	314	3.00	290	97%	63	22%									
314	317	3.00	300	100%	172	57%									
317	320	3.00	295	98%	195	66%									
320	323	3.00	288	96%	75	26%							470	294	2.67
323	326	3.00	280	93%	30	11%									
326	329	3.00	287	96%	0	0%									
329	332	3.00	281	94%	0	0%									
332	335	3.00	295	98%	40	14%									
335	338	3.00	300	100%	265	88%									
338	341	3.00	297	99%	275	93%									
341	344	3.00	294	98%	200	68%									
344	347	3.00	287	96%	245	85%									
347	350	3.00	295	98%	295	100%									
350	353	3.00	281	94%	45	16%							418	268	2.79
353	356	3.00	300	100%	145	48%									
356	359	3.00	295	98%	80	27%									
359	362	3.00	299	100%	147	49%									

HOLE # R20-02

From	To	Interval	Length of core	Recovery	Length > 10 cm	RQD	# Frac	Average Core angle	#Qtz-ser Veins	Ave Core angle	Mag Sus Avg	Mag Sus max	Mass Air	Mass Water	SG
362	365	3.00	300	100%	290	97%									
365	368	3.00	280	93%	140	50%									
368	371	3.00	291	97%	149	51%					27	145.2			
371	374	3.00	295	98%	215	73%									
374	377	3.00	283	94%	171	60%							368	235	2.77
377	380	3.00	287	96%	181	63%					8.2	53.1			
380	383	3.00	290	97%	180	62%									
383	386	3.00	297	99%	55	19%									
386	389	3.00	288	96%	93	32%					19.61	103.9			
389	392	3.00	290	97%	43	15%									
392	395	3.00	288	96%	110	38%									
395	398	3.00	289	96%	115	40%									
398	401	3.00	290	97%	110	38%									
401	404	3.00	295	98%	217	74%									
404	407	3.00	300	100%	239	80%									
407	410	3.00	300	100%	250	83%									
410	413	3.00	301	100%	275	91%									
413	416	3.00	291	97%	290	100%					5.633	15.061			
416	419	3.00	300	100%	258	86%									
419	422	3.00	275	92%	60	22%									
422	425	3.00	295	98%	190	64%									
425	428	3.00	297	99%	230	77%							429	269	2.68
428	431	3.00	293	98%	149	51%									
431	434	3.00	298	99%	235	79%									
434	437	3.00	299	100%	219	73%									
437	440	3.00	300	100%	214	71%									
440	443	3.00	300	100%	200	67%					1.959	8.323			
443	446	3.00	298	99%	222	74%									
446	449	3.00	295	98%	211	72%									
449	452	3.00	294	98%	209	71%									
452	455	3.00	290	97%	207	71%									
455	458	3.00	300	100%	195	65%									
458	461	3.00	300	100%	89	30%									
461	464	3.00	289	96%	73	25%									
464	467	3.00	273	91%	70	26%									
467	470	3.00	290	97%	60	21%									
470	473	3.00	280	93%	0	0%									
473	476	3.00	273	91%	0	0%					2.822	10.236			
476	479	3.00	280	93%	0	0%									
479	482	3.00	260	87%	0	0%									
482	485	3.00	285	95%	0	0%									
485	488	3.00	290	97%	120	41%									

HOLE # R20-02															
From	To	Interval	Length of core	Recovery	Length > 10 cm	RQD	# Frac	Average Core angle	#Qtz-ser Veins	Ave Core angle	Mag Sus Avg	Mag Sus max	Mass Air	Mass Water	SG
488	491	3.00	299	100%	101	34%									
491	494	3.00	300	100%	101	34%									
494	497	3.00	298	99%	117	39%							362	227	2.68
497	500	3.00	289	96%	117	40%									
500	503	3.00	299	100%	140	47%									
503	506	3.00	300	100%	291	97%					11.79	203.5			
506	509	3.00	299	100%	294	98%									
509	512	3.00	295	98%	290	98%									
512	515	3.00	299	100%	215	72%									
515	518	3.00	301	100%	210	70%					13.5	200.2			
518	521	3.00	300	100%	260	87%									
521	524	3.00	300	100%	290	97%									
524	527	3.00	300	100%	298	99%									
527	530	3.00	300	100%	300	100%									
530	533	3.00	300	100%	300	100%									
533	536	3.00	300	100%	300	100%									
536	539	3.00	300	100%	299	100%									
539	542	3.00	300	100%	299	100%									
542	545	3.00	300	100%	289	96%									
545	548	3.00	300	100%	294	98%									
548	551	3.00	300	100%	298	99%									
551	554	3.00	300	100%	298	99%									
554	557	3.00	300	100%	291	97%									

HOLE # WV20-01

From	To	Interval	Length of core	Recovery	Length > 10 cm	RQD	# Frac	Average Core angle	#Qtz-ser Veins	Ave Core angle	Mag Sus Avg	Mag Sus max	Mass Air	Mass Water	SG
0	3.00	3.00	0	0%	0	0%									
3	6.00	3.00	240	80%	196	82%					2.437	9.297			
6	9.00	3.00	259	86%	170	66%									
9	12.00	3.00	258	86%	109	42%									
12	15.00	3.00	249	83%	105	42%									
15	18.00	3.00	302	101%	194	64%							345	215.0	2.65
18	21.00	3.00	290	97%	285	98%					8.223	15.040			
21	24.00	3.00	289	96%	272	94%									
24	27.00	3.00	300	100%	300	100%									
27	30.00	3.00	292	97%	176	60%									
30	33.00	3.00	303	101%	303	100%					3.037	5.288			
33	36.00	3.00	290	97%	290	100%									
36	39.00	3.00	291	97%	282	97%									
39	42.00	3.00	287	96%	258	90%									
42	45.00	3.00	290	97%	290	100%					3.619	8.168			
45	48.00	3.00	279	93%	267	96%									
48	51.00	3.00	264	88%	184	70%									
51	54.00	3.00	280	93%	245	88%									
54	57.00	3.00	206	69%	143	69%					1.929	7.978			
57	60.00	3.00	290	97%	202	70%									
60	63.00	3.00	250	83%	177	71%									
63	66.00	3.00	283	94%	159	56%									
66	69.00	3.00	297	99%	297	100%					1.194	4.017			
69	72.00	3.00	291	97%	177	61%									
72	75.00	3.00	270	90%	198	73%									
75	78.00	3.00	285	95%	243	85%									
78	81.00	3.00	291	97%	291	100%					1.356	6.606			
81	84.00	3.00	285	95%	264	93%									
84	87.00	3.00	282	94%	236	84%							380	239	2.70
87	90.00	3.00	300	100%	300	100%					1.364	8.578	471	294.0	2.66
90	93.00	3.00	292	97%	292	100%									
93	96.00	3.00	303	101%	303	100%									
96	99.00	3.00	297	99%	297	100%									
99	102.00	3.00	283	94%	283	100%					3.68	19.940			
102	105.00	3.00	287	96%	163	57%									
105	108.00	3.00	296	99%	296	100%									
108	111.00	3.00	271	90%	234	86%									
111	114.00	3.00	305	102%	305	100%					3.341	9.305			
114	117.00	3.00	296	99%	296	100%									

HOLE # WV20-01

From	To	Interval	Length of core	Recovery	Length > 10 cm	RQD	# Frac	Average Core angle	#Qtz-ser Veins	Ave Core angle	Mag Sus Avg	Mag Sus max	Mass Air	Mass Water	SG
117	120.00	3.00	285	95%	263	92%									
120	123.00	3.00	279	93%	279	100%									
123	126.00	3.00	304	101%	304	100%					3.164	8.252			
126	129.00	3.00	292	97%	292	100%									
129	132.00	3.00	297	99%	297	100%									
132	135.00	3.00	292	97%	233	80%									
135	138.00	3.00	290	97%	267	92%					4.220	11.330			
138	141.00	3.00	294	98%	294	100%									
141	144.00	3.00	286	95%	286	100%									
144	147.00	3.00	304	101%	304	100%									
147	150.00	3.00	283	94%	283	100%					0.122	1.678			
150	153.00	3.00	298	99%	298	100%							972	604.0	2.64
153	156.00	3.00	290	97%	290	100%									
156	159.00	3.00	285	95%	285	100%									
159	162.00	3.00	272	91%	213	78%					2.248	6.975			
162	165.00	3.00	280	93%	192	69%									
165	168.00	3.00	285	95%	285	100%									
168	171.00	3.00	293	98%	293	100%									
171	174.00	3.00	295	98%	295	100%					1.204	7.456	947	589.0	2.65
174	177.00	3.00	28	9%	287	1025%									
177	180.00	3.00	292	97%	232	79%									
180	183.00	3.00	294	98%	294	100%									
183	186.00	3.00	283	94%	237	84%					1.982	9.143			
186	189.00	3.00	292	97%	243	83%									
189	192.00	3.00	291	97%	291	100%									
192	195.00	3.00	287	96%	23	8%							1344	849	2.72
195	198.00	3.00	279	93%	243	87%					1.638	6.791			
198	201.00	3.00	270	90%	205	76%									
201	204.00	3.00	274	91%	164	60%									
204	207.00	3.00	279	93%	213	76%									
207	210.00	3.00	280	93%	264	94%									
210	213.00	3.00	299	100%	299	100%					8.582	112.500			
213	216.00	3.00	298	99%	298	100%									
216	219.00	3.00	291	97%	283	97%									
219	222.00	3.00	281	94%	281	100%							672	418.0	2.65
222	225.00	3.00	291	97%	283	97%					1.05	3.991			
225	228.00	3.00	290	97%	290	100%									
228	231.00	3.00	262	87%	163	62%									
231	234.00	3.00	249	83%	176	71%									

HOLE # WV20-01															
From	To	Interval	Length of core	Recovery	Length > 10 cm	RQD	# Frac	Average Core angle	#Qtz-ser Veins	Ave Core angle	Mag Sus Avg	Mag Sus max	Mass Air	Mass Water	SG
234	237.00	3.00	266	89%	150	56%					7.143	15.120			
237	240.00	3.00	258	86%	133	52%									
240	243.00	3.00	289	96%	237	82%									
243	246.00	3.00	252	84%	136	54%									
246	249.00	3.00	287	96%	287	100%					3.944	8.168			
249	252.00	3.00	282	94%	282	100%									
252	255.00	3.00	277	92%	237	86%									
255	258.00	3.00	292	97%	292	100%									
258	261.00	3.00	294	98%	294	100%					7.871	16.230	957	590.0	2.61
261	264.00	3.00	278	93%	278	100%									
264	267.00	3.00	289	96%	289	100%									
267	270.00	3.00	286	95%	241	84%									
270	273.00	3.00	276	92%	223	81%					1.736	8.289			
273	276.00	3.00	287	96%	287	100%									
276	279.00	3.00	300	100%	300	100%									
279	282.00	3.00	300	100%	300	100%									
282	285.00	3.00	302	101%	302	100%					1.531	4.238			
285	288.00	3.00	296	99%	296	100%									
288	291.00	3.00	295	98%	278	94%									
291	294.00	3.00	306	102%	306	100%									
294	297.00	3.00	288	96%	288	100%					3.71	6.052	1123	701.0	2.66
297	300.00	3.00	295	98%	295	100%									
300	303.00	3.00	266	89%	88	33%									
303	306.00	3.00	291	97%	118	41%									
306	309.00	3.00	302	101%	285	94%					2.231	5.162			
309	312.00	3.00	290	97%	290	100%									
312	315.00	3.00	303	101%	303	100%									
315	318.00	3.00	295	98%	295	100%									
318	321.00	3.00	301	100%	301	100%					2.03	5.378			
321	324.00	3.00	294	98%	294	100%									
324	327.00	3.00	297	99%	297	100%									
327	330.00	3.00	298	99%	298	100%							831	517.0	2.65
330	333.00	3.00	290	97%	258	89%									
333	336.00	3.00	270	90%	258	96%									

HOLE # WV20-02

From	To	Interval	Length of core	Recovery	Length > 10 cm	RQD	# Frac	Average Core angle	#Qtz-ser Veins	Ave Core angle	Mag Sus Avg	Mag Sus max	Mass Air	Mass Water	SG
0	6.00	6.00	0	0%	0	0%									
6	10.50	4.50	405	90%	199	49%									
10.5	13.50	3.00	267	89%	177	66%					1.752	6.835			
13.5	16.50	3.00	178	59%	0	0%									
16.5	19.50	3.00	300	100%	159	53%									
19.5	22.50	3.00	278	93%	176	63%									
22.5	25.50	3.00	264	88%	195	74%					3.520	7.039			
25.5	28.50	3.00	268	89%	166	62%									
28.5	31.50	3.00	244	81%	110	45%									
31.5	34.50	3.00	268	89%	196	73%		40-60							
34.5	37.50	3.00	238	79%	113	47%					0.554	1.384			
37.5	40.50	3.00	230	77%	111	48%									
40.5	43.50	3.00	270	90%	138	51%									
43.5	46.50	3.00	289	96%	289	100%									
46.5	49.50	3.00	298	99%	295	99%					1.232	4.564			
49.5	52.50	3.00	291	97%	283	97%									
52.5	55.50	3.00	287	96%	273	95%									
55.5	58.50	3.00	289	96%	232	80%									
58.5	61.50	3.00	298	99%	298	100%					1.232	5.109	663	401.0	2.53
61.5	64.50	3.00	285	95%	280	98%									
64.5	67.50	3.00	284	95%	221	78%									
67.5	70.50	3.00	300	100%	317	106%		70							
70.5	73.50	3.00	287	96%	287	100%					1.719	4.608			
73.5	76.50	3.00	290	97%	243	84%									
76.5	79.50	3.00	266	89%	149	56%									
79.5	82.50	3.00	292	97%	182	62%									
82.5	85.50	3.00	289	96%	165	57%					0.067	0.873	694	428	2.61
85.5	88.50	3.00	275	92%	120	44%									
88.5	91.50	3.00	295	98%	290	98%									
91.5	94.50	3.00	294	98%	294	100%									
94.5	97.50	3.00	300	100%	300	100%		60-70							
97.5	100.50	3.00	300	100%	263	88%									
100.5	103.50	3.00	290	97%	170	59%					0.050	1.427	467	294.0	2.70
103.5	106.50	3.00	300	100%	289	96%									
106.5	109.50	3.00	290	97%	290	100%									
109.5	112.50	3.00	305	102%	305	100%									
112.5	115.50	3.00	260	87%	260	100%									
115.5	118.50	3.00	89	30%	0	0%					7.159	12.700	866	538.0	2.64
118.5	121.50	3.00	238	79%	0	0%									

HOLE # WV20-02															
From	To	Interval	Length of core	Recovery	Length > 10 cm	RQD	# Frac	Average Core angle	#Qtz-ser Veins	Ave Core angle	Mag Sus Avg	Mag Sus max	Mass Air	Mass Water	SG
121.5	124.50	3.00	222	74%	156	70%									
124.5	127.50	3.00	215	72%	34	16%									
127.5	130.50	3.00	300	100%	284	95%					1.425	6.397			
130.5	133.50	3.00	274	91%	216	79%									
133.5	136.50	3.00	288	96%	213	74%									
136.5	139.50	3.00	274	91%	170	62%									
139.5	142.50	3.00	276	92%	119	43%									
142.5	145.50	3.00	208	69%	84	40%									
145.5	148.50	3.00	256	85%	41	16%									
148.5	151.50	3.00	283	94%	160	57%		50-70							
151.5	154.50	3.00	264	88%	172	65%									
154.5	157.50	3.00	266	89%	178	67%									
157.5	160.50	3.00	319	106%	282	88%									
160.5	163.50	3.00	278	93%	236	85%									
163.5	166.50	3.00	295	98%	295	100%					3.531	8.182	542	339.0	2.67
166.5	169.50	3.00	287	96%	287	100%									
169.5	172.50	3.00	296	99%	296	100%									
172.5	175.50	3.00	290	97%	298	103%									
175.5	178.50	3.00	298	99%	263	88%									
178.5	181.50	3.00	283	94%	187	66%									
181.5	184.50	3.00	295	98%	257	87%									
184.5	187.50	3.00	285	95%	287	101%									
187.5	190.50	3.00	299	100%	299	100%					1.280	5.610			
190.5	193.50	3.00	303	101%	303	100%									
193.5	196.50	3.00	289	96%	289	100%									
196.5	199.50	3.00	289	96%	289	100%					0.419	1.394			
199.5	202.50	3.00	257	86%	149	58%									
202.5	205.50	3.00	243	81%	70	29%									
205.5	208.50	3.00	296	99%	296	100%									
208.5	211.50	3.00	264	88%	242	92%									
211.5	214.50	3.00	272	91%	79	29%									
214.5	217.50	3.00	276	92%	187	68%									
217.5	220.50	3.00	284	95%	208	73%									
220.5	223.50	3.00	291	97%	287	99%					2.256	5.162	492	308.0	2.67
223.5	226.50	3.00	270	90%	209	77%									
226.5	229.50	3.00	287	96%	264	92%									
229.5	232.50	3.00	278	93%	93	33%									
232.5	235.50	3.00	280	93%	176	63%					1.251	3.502			
235.5	238.50	3.00	278	93%	196	71%									

HOLE # WV20-02

From	To	Interval	Length of core	Recovery	Length > 10 cm	RQD	# Frac	Average Core angle	#Qtz-ser Veins	Ave Core angle	Mag Sus Avg	Mag Sus max	Mass Air	Mass Water	SG
238.5	241.50	3.00	284	95%	243	86%									
241.5	244.50	3.00	268	89%	153	57%									
244.5	247.50	3.00	264	88%	149	56%					0.074	1.906			
247.5	250.50	3.00	274	91%	118	43%									
250.5	253.50	3.00	249	83%	131	53%									
253.5	256.50	3.00	294	98%	294	45%									
256.5	259.50	3.00	300	100%	232	98%					2.296	5.109			
259.5	262.50	3.00	284	95%	247	82%									
262.5	265.50	3.00	279	93%	204	89%									
265.5	268.50	3.00	294	98%	246	69%									
268.5	271.50	3.00	305	102%	310	81%					2.752	6.950			
271.5	274.50	3.00	286	95%	286	108%									
274.5	277.50	3.00	289	96%	289	99%							587	365.0	2.64
277.5	280.50	3.00	288	96%	288	100%									
280.5	283.50	3.00	288	96%	248	86%					3.805	29.500			
283.5	286.50	3.00	302	101%	291	96%									
286.5	289.50	3.00	267	89%	20	7%									
289.5	292.50	3.00	286	95%	227	79%									
292.5	295.50	3.00	246	82%	184	75%					3.722	9.081			
295.5	298.50	3.00	306	102%	170	56%									
298.5	301.50	3.00	266	89%	253	95%									
301.5	304.50	3.00	288	96%	262	91%									
304.5	307.50	3.00	304	101%	304	100%					2.422	10.510	795	497.0	2.67
307.5	310.50	3.00	294	98%	294	100%									
310.5	313.50	3.00	294	98%	294	100%									
313.5	316.50	3.00	294	98%	294	100%									
316.5	319.50	3.00	299	100%	299	100%					1.262	3.462			
319.5	322.50	3.00	290	97%	290	100%									
322.5	325.50	3.00	299	100%	299	100%									
325.5	328.50	3.00	298	99%	298	100%									
328.5	331.50	3.00	300	100%	300	100%					4.193	11.000			
331.5	334.50	3.00	283	94%	283	100%									
334.5	337.50	3.00	235	78%	136	58%									
337.5	340.50	3.00	267	89%	165	62%									
340.50	343.50	3.00	278	93%	147	53%					2.489	3.649			
343.50	346.50	3.00	284	95%	212	75%									
346.50	349.50	3.00	292	97%	274	94%									
349.50	352.50	3.00	292	97%	260	89%									
352.50	355.50	3.00	299	100%	299	100%					0.253	1.298			
355.50	358.50	3.00	282	94%	174	62%									
358.50	361.50	3.00	284	95%	284	100%									
361.50	364.50	3.00	294	98%	294	100%									

HOLE # WV20-02															
From	To	Interval	Length of core	Recovery	Length > 10 cm	RQD	# Frac	Average Core angle	#Qtz-ser Veins	Ave Core angle	Mag Sus Avg	Mag Sus max	Mass Air	Mass Water	SG
364.50	367.50	3.00	290	97%	179	62%					1.799	6.240	626	392.0	2.68
367.50	370.50	3.00	272	91%	169	62%					0.464	5.135			
370.50	373.50	3.00	252	84%	164	65%									
373.50	376.50	3.00	251	84%	178	71%									
376.50	379.50	3.00	291	97%	251	86%									
379.50	382.50	3.00	284	95%	263	93%					1.200	28.400			
382.50	385.50	3.00	297	99%	272	92%									
385.50	388.50	3.00	243	81%	92	38%									
388.50	391.50	3.00	247	82%	130	53%									
391.50	394.50	3.00	279	93%	228	82%					4.452	8.236			
394.50	397.50	3.00	263	88%	158	60%									
397.50	400.50	3.00	285	95%	285	100%									
400.50	403.50	3.00	291	97%	291	100%									
403.50	406.50	3.00	309	103%	309	100%					0.949	5.288			
406.50	409.50	3.00	288	96%	288	100%									
409.50	412.50	3.00	282	94%	233	83%									
412.50	415.50	3.00	300	100%	207	69%									
415.50	418.50	3.00	292	97%	292	100%									
418.50	421.50	3.00	263	88%	124	47%									
421.50	424.50	3.00	294	98%	234	80%									
424.50	427.50	3.00	261	87%	205	79%									
427.50	430.50	3.00	300	100%	300	100%					1.121	6.975			
430.50	433.50	3.00	299	100%	299	100%									
433.50	436.50	3.00	298	99%	298	100%									
436.50	439.50	3.00	299	100%	299	100%									
439.50	442.50	3.00	287	96%	276	96%									
442.50	445.50	3.00	297	99%	297	100%									
445.50	448.50	3.00	287	96%	180	63%									
448.50	451.50	3.00	303	101%	265	87%									
451.50	454.50	3.00	285	95%	285	100%									
454.50	457.50	3.00	296	99%	296	100%					0.003	2.741			
457.50	460.50	3.00	290	97%	273	94%									

Appendix 7

ALS Global Certificates of Analyses

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 22-JUN-2020
Account: HACMIN

CERTIFICATE VA20122202

Project: HV

This report is for 14 Rock samples submitted to our lab in Vancouver, BC, Canada on 10-JUN-2020.

The following have access to data associated with this certificate:

DAVID BLANN	SASSAN LIAGHAT	

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login - Rcd w/o BarCode
CRU-QC	Crushing QC Test
PUL-QC	Pulverizing QC Test
CRU-31	Fine crushing - 70% <2mm
SPL-21	Split sample - riffle splitter
PUL-31	Pulverize up to 250g 85% <75 um

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
Au-AA23	Au 30g FA-AA finish	AAS
ME-MS61	48 element four acid ICP-MS	

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:
Saa Traxler, General Manager, North Vancouver

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 22-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122202

Sample Description	Method	WEI-21	Au-AA23	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Recvd Wt.	Au	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu
	Units	kg	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm
	LOD	0.02	0.005	0.01	0.01	0.2	10	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2
R05		0.86	0.005	3.18	8.11	12.4	150	0.46	0.13	2.92	0.26	8.77	13.4	36	0.44	6450
R06		0.92	<0.005	0.49	8.23	8.1	110	0.44	0.13	3.75	0.17	9.00	23.9	38	0.34	3920
R07		1.40	<0.005	0.36	6.78	25.8	80	0.32	0.24	4.34	0.04	9.40	19.5	39	0.51	328
R08		0.96	0.007	0.18	8.35	5.2	350	0.33	0.59	0.13	<0.02	23.5	1.7	28	1.66	334
R09		1.60	<0.005	0.09	8.22	5.0	210	0.39	0.07	2.22	0.05	10.25	16.2	38	0.77	446
R10		0.88	<0.005	0.19	6.93	10.8	110	0.46	0.24	6.01	0.25	7.05	35.9	28	0.60	4830
R11		0.84	<0.005	0.14	7.84	2.7	220	0.36	0.04	4.51	0.10	10.15	15.8	33	0.57	89.9
R12		0.76	0.005	0.16	7.20	24.7	1200	0.73	0.48	0.18	<0.02	28.7	0.7	10	1.25	24.5
4879		0.86	0.033	3.52	7.75	1.5	760	0.85	0.67	2.73	0.07	21.3	16.0	16	1.26	6090
4880		0.70	0.023	2.17	8.00	1.6	680	0.99	2.59	2.81	0.04	29.9	10.8	16	1.22	4090
4881		0.84	<0.005	0.34	7.54	1.4	820	1.19	0.06	1.64	0.05	19.80	2.7	18	1.23	462
4882		0.88	0.006	1.65	8.06	1.1	1530	0.75	0.16	2.16	0.09	10.65	3.7	21	1.72	1590
4883		0.84	<0.005	0.48	8.35	1.0	1230	1.09	0.07	0.74	0.02	22.7	3.5	22	1.60	500
4884		2.16	<0.005	0.04	8.52	9.6	790	0.78	0.04	1.84	0.02	16.70	5.4	11	1.04	33.4

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 22-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122202

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Fe	Ga	Ge	Hf	In	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P
	Units	%	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm
	LOD	0.01	0.05	0.05	0.1	0.005	0.01	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10
R05		5.09	17.15	0.09	0.4	0.199	0.59	2.9	11.9	1.93	843	13.85	3.43	0.8	10.8	650
R06		5.14	17.30	0.08	0.5	0.115	0.38	3.2	15.9	2.38	1230	5.76	2.55	0.7	12.3	590
R07		6.39	15.00	0.06	0.5	0.188	0.49	3.7	17.4	1.67	1280	6.53	0.50	0.7	13.3	530
R08		2.03	11.00	0.11	0.9	0.028	3.44	9.9	2.5	0.15	76	24.0	0.11	1.9	1.3	320
R09		5.03	16.40	0.09	0.4	0.083	0.74	3.6	13.5	2.02	934	2.74	2.60	0.8	9.8	490
R10		5.26	20.4	0.08	0.6	0.160	0.55	2.1	15.3	1.39	1560	9.64	0.20	0.7	15.4	450
R11		5.12	16.70	0.09	0.4	0.084	0.49	3.4	8.6	1.81	1020	1.40	2.56	0.8	11.7	640
R12		1.84	17.45	0.12	5.6	0.116	3.24	13.5	7.6	0.23	56	7.49	0.08	8.1	0.5	170
4879		3.61	18.20	0.14	0.6	0.022	1.73	9.1	11.1	1.21	572	1.73	2.76	2.1	13.3	830
4880		2.95	18.85	0.17	1.0	0.020	1.85	10.9	10.6	0.92	373	2.32	2.95	2.8	9.0	640
4881		1.40	17.25	0.14	1.3	0.020	2.23	10.1	4.9	0.26	984	1.90	2.60	2.5	1.5	330
4882		1.65	18.55	0.13	0.6	0.016	3.37	4.8	7.8	0.31	673	2.47	1.30	1.5	1.9	480
4883		1.98	19.10	0.15	0.8	0.038	3.50	10.4	4.3	0.32	1700	2.78	1.32	1.9	2.5	450
4884		2.12	17.40	0.12	0.6	0.018	1.35	6.5	9.4	0.20	446	7.66	3.46	1.6	2.9	650

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

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 22-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122202

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U
	Units	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm
	LOD	0.5	0.1	0.002	0.01	0.05	0.1	1	0.2	0.2	0.05	0.05	0.01	0.005	0.02	0.1
R05		7.8	7.1	0.003	0.28	2.02	28.9	5	8.1	336	0.05	1.12	0.49	0.425	0.12	1.3
R06		5.4	4.9	0.004	0.33	3.37	29.2	2	0.9	434	0.05	0.74	0.44	0.395	0.08	0.9
R07		5.9	11.2	0.002	0.19	3.81	23.7	2	2.2	425	<0.05	2.31	0.57	0.385	0.10	1.2
R08		2.7	95.6	0.004	0.07	0.80	9.1	2	9.2	51.9	0.12	2.49	3.79	0.252	0.70	1.3
R09		5.2	15.1	0.011	1.09	0.90	30.2	2	0.8	311	0.06	1.56	0.41	0.392	0.12	0.4
R10		6.9	8.3	<0.002	0.10	5.54	25.1	1	2.2	705	0.05	1.21	0.47	0.337	0.13	1.0
R11		3.8	5.4	0.019	2.04	0.34	28.9	2	6.7	320	0.05	0.12	0.47	0.439	0.11	0.2
R12		8.9	85.6	<0.002	0.72	0.82	14.3	2	2.2	42.8	0.51	1.49	5.40	0.466	0.75	2.3
4879		4.5	46.2	<0.002	0.03	0.72	9.5	1	1.7	602	0.13	<0.05	4.35	0.312	0.20	2.7
4880		4.4	63.0	<0.002	0.05	0.21	8.0	1	5.4	554	0.22	0.07	6.20	0.267	0.30	3.7
4881		5.6	51.8	<0.002	0.01	2.30	3.2	<1	0.5	236	0.19	<0.05	3.32	0.121	0.24	1.1
4882		2.9	71.9	<0.002	0.01	1.33	3.1	1	1.4	115.0	0.11	<0.05	1.02	0.134	0.35	0.5
4883		3.0	88.4	<0.002	<0.01	1.23	3.5	1	5.2	105.5	0.14	<0.05	2.59	0.128	0.37	0.9
4884		3.9	26.7	<0.002	0.01	0.20	4.3	1	0.6	721	0.11	<0.05	1.37	0.203	0.11	0.4

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 22-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122202

Sample Description	Method Analyte Units LOD	ME-MS61 V ppm 1	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5
R05		167	1.6	19.8	93	7.1
R06		209	1.6	20.8	86	8.0
R07		150	1.7	13.6	73	8.5
R08		92	4.1	4.9	10	27.8
R09		191	0.4	20.6	65	7.4
R10		180	1.0	17.8	73	14.8
R11		188	0.3	22.9	68	6.1
R12		69	0.9	13.9	16	222
4879		123	0.4	9.7	60	10.8
4880		97	0.6	14.0	51	24.1
4881		32	0.1	6.0	38	22.1
4882		40	0.3	5.3	36	8.6
4883		41	0.1	5.7	28	10.0
4884		63	0.4	4.3	39	10.2

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

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 22-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122202

CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

REEs may not be totally soluble in this method.
Applies to Method: ME-MS61

LABORATORY ADDRESSES

Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.

Applies to Method:

Au-AA23	CRU-31	CRU-QC	LOG-22
ME-MS61	PUL-31	PUL-QC	SPL-21
WEI-21			

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

CERTIFICATE VA20122205

Project: HV

This report is for 230 Soil samples submitted to our lab in Vancouver, BC, Canada on 10-JUN-2020.

The following have access to data associated with this certificate:

DAVID BLANN	SASSAN LIAGHAT	

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login - Rcd w/o BarCode
SCR-41	Screen to -180um and save both

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION
ME-MS61	48 element four acid ICP-MS

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:
Saa Traxler, General Manager, North Vancouver

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
RH001		0.30	0.22	8.84	3.6	1150	1.49	0.15	2.16	0.15	52.3	9.9	50	2.66	162.0	3.46
RH002		0.38	0.16	8.44	1.8	960	1.06	0.13	2.44	0.10	32.2	10.2	82	2.01	70.5	3.11
RH003		0.40	0.08	7.86	2.7	690	0.87	0.10	1.53	0.06	23.4	5.6	31	1.20	59.8	2.48
RH004		0.50	0.07	8.07	2.5	740	0.89	0.09	1.54	0.03	20.7	5.5	27	0.93	44.6	2.27
RH005		0.42	0.25	8.01	2.9	690	1.10	0.10	1.83	0.06	26.6	8.0	41	1.68	33.7	2.72
RH006		0.46	0.15	7.88	2.7	640	1.04	0.13	1.55	0.06	24.1	6.8	42	1.89	41.1	2.73
RH007		0.36	0.25	8.54	4.6	660	1.40	0.16	1.63	0.20	29.7	11.7	79	2.60	70.8	3.73
RH008		0.32	0.11	8.23	4.6	720	1.19	0.19	1.45	0.15	32.6	8.1	55	3.13	19.8	3.88
RH009		0.34	0.14	7.93	2.3	670	0.91	0.09	1.80	0.05	23.3	6.7	35	1.63	30.2	2.67
RH010		0.36	0.43	8.16	3.7	650	1.28	0.19	1.55	0.11	30.4	7.2	51	2.36	38.1	3.08
RH011		0.36	0.27	7.81	2.0	740	0.94	0.10	1.79	0.08	25.8	6.2	39	1.40	66.7	2.46
RH012		0.28	0.58	8.03	4.0	620	1.34	0.21	1.52	0.15	32.0	7.9	49	2.55	40.8	3.03
RH013		0.30	0.41	8.12	4.2	590	1.28	0.18	1.51	0.13	28.8	8.7	53	2.39	32.0	3.18
RH014		0.32	0.40	8.23	4.7	670	1.27	0.21	1.68	0.13	30.4	9.5	64	2.88	61.9	3.52
RH015		0.46	0.08	7.77	1.5	800	0.88	0.08	1.71	0.05	24.1	4.6	26	1.15	40.3	1.74
RH016		0.36	0.18	7.78	2.5	830	0.99	0.11	2.14	0.10	27.1	7.5	44	1.91	110.0	2.84
RH017		0.36	0.20	7.61	1.7	820	0.78	0.09	2.11	0.12	21.9	7.6	74	1.61	64.5	2.82
RH018		0.30	0.55	7.80	2.0	770	1.25	0.32	1.71	0.15	29.7	7.0	40	2.79	71.3	2.32
RH019		0.34	0.45	8.32	3.0	950	1.19	0.15	2.20	0.19	35.0	10.8	61	3.14	168.0	3.23
RH020		0.36	0.30	8.11	3.9	620	1.33	0.20	1.59	0.13	31.1	8.1	51	2.60	38.6	2.98
RH021		0.36	0.39	7.64	3.1	610	1.12	0.17	1.60	0.12	26.8	7.8	51	2.17	37.0	2.85
RH022		0.56	0.08	7.17	2.0	670	0.90	0.07	1.89	0.06	21.5	6.0	33	1.00	33.3	2.18
RH023		0.40	0.29	8.07	2.1	710	1.05	0.13	1.97	0.08	25.3	8.3	50	2.08	74.2	2.81
RH024		0.44	0.28	8.35	2.5	800	1.12	0.16	2.14	0.08	29.9	8.4	56	2.12	78.8	2.76
RH025		0.58	0.14	8.03	1.5	800	0.92	0.08	2.02	0.06	26.1	5.6	33	1.56	54.6	2.49
RH026		0.54	0.23	8.09	2.5	830	0.97	0.09	1.96	0.08	31.7	7.6	37	1.77	106.5	2.72
RH027		0.58	0.17	7.88	2.0	820	0.95	0.10	2.18	0.08	27.5	7.2	41	1.93	86.4	2.73
RH028		0.48	0.28	7.81	1.8	730	0.94	0.09	2.06	0.07	23.5	6.3	41	1.52	111.5	2.44
RH029		0.70	0.17	8.09	2.1	810	1.08	0.09	1.88	0.06	28.7	6.1	39	1.84	313	2.60
RH030		0.56	0.21	8.30	2.0	820	1.23	0.10	1.99	0.07	25.2	6.2	36	1.90	177.0	2.13
RH031		0.46	0.39	7.95	2.4	760	1.05	0.11	1.82	0.08	23.4	5.6	38	1.71	55.0	2.57
RH032		0.46	0.21	8.59	2.1	840	1.35	0.12	1.97	0.07	30.7	9.4	39	2.38	73.0	2.69
RH033		0.52	0.21	8.13	1.9	920	0.93	0.08	2.03	0.06	24.6	5.7	38	1.30	403	2.34
RH034		0.46	0.28	8.74	2.5	1000	1.26	0.13	2.07	0.10	32.1	9.3	58	2.83	127.5	3.23
RH035		0.62	0.06	7.74	1.7	710	0.96	0.07	2.07	0.04	22.9	4.9	37	1.32	38.9	1.79
RH036		0.30	0.22	8.70	4.6	720	1.51	0.19	2.04	0.12	31.4	9.8	63	3.20	30.7	3.74
RH037		0.30	0.38	8.56	3.7	720	1.33	0.16	1.71	0.11	29.3	8.6	49	2.62	52.5	2.95
RH038		0.38	0.05	7.86	2.2	680	0.81	0.08	1.54	0.04	20.7	4.7	28	0.85	35.6	2.25
RH039		0.32	0.23	9.83	2.7	1090	1.61	0.19	2.01	0.08	25.5	9.2	54	3.40	159.0	3.79
RH040		0.32	0.26	8.30	3.3	710	1.43	0.21	1.68	0.10	33.3	9.3	54	2.68	28.6	3.15

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

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method Analyte Units LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
RH001		18.65	0.14	1.9	0.043	1.12	25.4	27.4	0.68	860	2.20	2.13	5.0	20.0	590	8.0
RH002		17.70	0.12	1.9	0.042	1.29	16.1	33.9	0.84	519	1.33	2.56	7.2	19.7	320	8.7
RH003		15.65	0.11	1.1	0.028	1.18	11.7	14.4	0.47	369	1.45	3.00	4.2	7.8	600	6.1
RH004		15.55	0.12	1.1	0.025	1.29	10.1	11.0	0.40	315	1.58	3.49	4.2	7.0	360	5.8
RH005		16.80	0.12	1.9	0.037	1.28	13.1	18.5	0.57	386	2.13	2.85	5.3	15.1	770	7.5
RH006		17.45	0.13	1.8	0.035	1.25	11.8	21.8	0.52	365	1.99	2.68	5.6	12.6	890	8.3
RH007		19.25	0.12	3.0	0.058	1.13	14.7	29.5	0.77	425	2.75	2.13	7.8	26.4	1690	10.1
RH008		27.7	0.11	2.6	0.051	1.20	16.0	48.2	0.70	488	2.32	2.00	8.7	14.8	2790	12.3
RH009		16.70	0.11	1.5	0.034	1.24	11.3	16.5	0.51	329	1.88	3.02	4.7	11.2	670	6.9
RH010		20.1	0.14	2.8	0.041	1.35	14.3	29.7	0.55	360	5.50	2.41	7.6	14.8	1590	11.5
RH011		16.45	0.12	1.3	0.031	1.22	12.6	16.5	0.47	320	1.30	2.91	4.2	11.0	620	6.6
RH012		19.70	0.14	3.5	0.050	1.36	16.2	30.9	0.58	433	2.94	2.24	8.2	14.1	1690	11.8
RH013		18.85	0.14	3.0	0.049	1.24	14.4	29.8	0.58	445	2.78	2.14	7.3	16.5	1500	10.9
RH014		22.8	0.11	2.7	0.053	1.36	14.8	35.8	0.66	428	4.10	2.33	8.7	19.5	1890	12.5
RH015		15.35	0.12	1.1	0.024	1.25	11.0	13.5	0.41	329	0.80	3.43	3.9	7.1	230	5.5
RH016		17.30	0.06	1.4	0.035	1.13	13.2	17.2	0.61	461	0.99	2.49	4.3	16.0	270	7.0
RH017		14.65	0.05	1.2	0.029	1.12	10.5	17.5	0.72	398	1.02	2.62	5.2	17.7	260	6.5
RH018		21.4	0.06	2.7	0.047	1.52	15.1	34.0	0.55	369	3.41	2.46	6.8	14.3	590	12.4
RH019		20.7	0.06	1.7	0.047	1.27	14.7	23.2	0.79	553	2.30	1.97	5.6	24.3	470	8.7
RH020		21.1	0.07	3.3	0.045	1.32	15.1	29.6	0.57	473	6.05	2.24	7.8	15.7	1660	12.2
RH021		19.80	0.06	2.2	0.040	1.26	13.1	24.9	0.58	362	6.96	2.34	6.6	16.2	1290	10.3
RH022		16.15	0.06	1.0	0.025	1.16	9.6	10.5	0.53	346	1.04	3.15	3.8	10.0	270	5.7
RH023		17.10	0.07	1.8	0.035	1.30	12.3	20.6	0.72	427	1.28	2.79	5.4	16.8	440	8.7
RH024		18.15	0.09	1.8	0.044	1.33	14.7	23.1	0.76	437	1.36	2.83	6.5	17.3	260	10.5
RH025		15.85	0.10	1.1	0.027	1.27	11.8	14.3	0.50	429	0.84	3.22	4.0	10.2	200	5.5
RH026		16.05	0.06	1.3	0.031	1.26	14.7	20.4	0.60	408	1.26	2.83	4.1	14.4	290	6.8
RH027		16.20	0.06	1.3	0.032	1.17	13.7	18.6	0.59	521	1.09	2.85	4.7	14.3	250	7.1
RH028		14.90	0.05	1.3	0.031	1.17	11.3	16.8	0.57	339	0.81	3.02	4.5	13.3	220	6.5
RH029		16.15	0.06	1.1	0.029	1.25	13.2	16.2	0.51	486	1.02	3.02	4.4	12.2	210	6.0
RH030		17.05	0.05	1.5	0.031	1.33	13.8	21.2	0.56	411	1.00	3.08	4.8	11.2	170	7.9
RH031		15.90	0.06	1.7	0.030	1.30	11.0	19.1	0.52	334	1.62	2.74	4.8	11.3	680	7.7
RH032		18.40	0.06	1.6	0.030	1.33	14.6	23.0	0.66	635	1.58	2.78	5.3	13.5	430	8.9
RH033		14.00	0.05	1.1	0.025	1.16	13.2	15.9	0.57	389	0.94	3.02	3.7	10.4	200	5.8
RH034		18.75	0.06	1.6	0.038	1.18	14.5	27.3	0.82	554	1.95	2.36	5.9	21.9	330	8.3
RH035		14.75	0.06	1.1	0.023	1.17	10.7	12.7	0.52	333	0.77	3.18	3.9	9.5	120	5.8
RH036		21.1	0.07	3.0	0.056	1.33	15.6	39.8	0.78	610	2.18	2.19	8.2	20.8	2330	12.3
RH037		19.95	0.05	2.4	0.039	1.38	14.2	27.9	0.60	451	3.30	2.64	6.3	16.5	1010	10.5
RH038		14.35	0.05	1.0	0.025	1.15	9.6	10.7	0.37	283	1.09	3.31	3.8	7.6	510	5.3
RH039		21.2	0.06	1.9	0.049	1.02	13.9	54.4	0.76	485	2.03	1.78	6.1	28.5	390	9.5
RH040		21.2	0.11	3.4	0.047	1.47	16.0	32.5	0.62	421	5.42	2.52	9.2	16.9	1100	13.7

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

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
RH001		47.8	<0.002	0.02	0.58	14.0	1	1.1	435	0.32	<0.05	4.62	0.357	0.25	10.3	95
RH002		37.0	<0.002	0.01	0.48	11.8	<1	1.1	455	0.49	<0.05	2.70	0.483	0.21	1.6	96
RH003		38.1	<0.002	0.01	0.67	6.0	<1	0.7	483	0.29	<0.05	1.81	0.303	0.14	0.9	77
RH004		37.5	<0.002	<0.01	0.73	5.5	<1	0.7	545	0.27	<0.05	1.56	0.294	0.14	0.9	75
RH005		36.2	<0.002	0.01	0.52	8.1	1	1.0	463	0.36	<0.05	2.59	0.349	0.17	1.2	83
RH006		39.3	<0.002	0.01	0.50	7.4	1	1.0	406	0.37	<0.05	2.33	0.351	0.17	1.3	81
RH007		37.0	<0.002	0.02	0.54	12.3	1	1.4	320	0.49	<0.05	3.85	0.491	0.21	1.5	105
RH008		40.3	<0.002	0.02	0.46	9.3	<1	1.9	327	0.52	<0.05	3.60	0.513	0.23	1.4	97
RH009		38.5	<0.002	0.01	0.54	7.2	1	0.9	489	0.33	<0.05	1.97	0.333	0.16	1.0	84
RH010		37.1	<0.002	0.02	0.47	8.6	1	1.4	347	0.49	<0.05	3.58	0.444	0.21	1.4	82
RH011		34.6	<0.002	0.01	0.55	6.8	<1	0.8	476	0.28	<0.05	1.94	0.290	0.14	1.0	76
RH012		38.9	<0.002	0.02	0.44	8.9	1	1.5	312	0.55	<0.05	4.09	0.436	0.24	1.6	80
RH013		37.3	<0.002	0.02	0.48	8.8	1	1.4	318	0.47	<0.05	3.64	0.418	0.21	1.5	85
RH014		45.5	<0.002	0.01	0.50	10.9	1	1.6	345	0.56	0.05	3.44	0.501	0.24	1.5	97
RH015		38.4	<0.002	<0.01	0.58	5.6	<1	0.7	543	0.27	<0.05	1.51	0.284	0.14	1.0	57
RH016		34.9	<0.002	0.01	0.54	8.3	<1	0.7	473	0.28	<0.05	2.44	0.338	0.18	3.9	86
RH017		28.5	<0.002	0.01	0.45	8.2	<1	0.8	455	0.35	<0.05	1.88	0.426	0.14	1.0	97
RH018		43.3	<0.002	0.01	0.38	7.7	<1	1.3	364	0.50	0.09	3.36	0.392	0.24	1.7	64
RH019		50.5	<0.002	0.02	0.51	10.4	<1	1.0	401	0.37	<0.05	3.60	0.381	0.24	6.0	92
RH020		38.9	<0.002	0.02	0.46	8.8	<1	1.4	327	0.54	0.05	4.07	0.443	0.23	1.6	80
RH021		39.0	<0.002	0.02	0.44	8.3	<1	1.1	356	0.44	<0.05	3.11	0.399	0.21	1.3	83
RH022		34.4	<0.002	<0.01	0.63	7.2	1	0.6	537	0.25	<0.05	1.46	0.296	0.13	0.9	81
RH023		42.3	<0.002	0.01	0.53	8.5	<1	0.9	446	0.36	<0.05	2.20	0.401	0.19	1.0	87
RH024		46.3	<0.002	0.01	0.52	9.7	<1	1.0	463	0.42	<0.05	2.62	0.431	0.23	1.2	86
RH025		41.3	<0.002	0.01	0.57	6.6	<1	0.7	539	0.28	<0.05	1.67	0.294	0.16	1.0	79
RH026		40.8	<0.002	0.01	0.54	7.5	<1	0.8	473	0.28	<0.05	2.27	0.327	0.16	1.6	84
RH027		38.9	<0.002	0.01	0.60	8.0	1	0.8	497	0.32	<0.05	2.19	0.341	0.18	1.9	85
RH028		36.2	<0.002	0.01	0.53	7.7	<1	0.7	507	0.31	<0.05	1.75	0.333	0.14	1.0	79
RH029		44.0	<0.002	0.01	0.62	7.0	<1	0.7	493	0.30	<0.05	2.07	0.321	0.19	1.8	82
RH030		44.9	<0.002	0.01	0.54	7.5	<1	0.8	500	0.34	<0.05	2.32	0.324	0.21	1.9	63
RH031		34.7	<0.002	0.01	0.43	6.6	1	0.9	433	0.33	<0.05	2.27	0.363	0.15	1.1	72
RH032		52.5	<0.002	0.01	0.47	7.9	<1	0.9	455	0.36	<0.05	2.71	0.341	0.22	1.3	75
RH033		33.0	<0.002	0.01	0.52	6.8	<1	0.7	509	0.24	<0.05	1.93	0.320	0.15	1.5	74
RH034		50.1	<0.002	0.01	0.54	10.2	<1	1.0	417	0.38	<0.05	2.64	0.429	0.25	2.0	92
RH035		38.8	<0.002	<0.01	0.54	7.3	<1	0.7	542	0.27	<0.05	1.54	0.294	0.15	1.0	59
RH036		46.4	<0.002	0.01	0.51	10.5	<1	1.4	342	0.56	<0.05	4.32	0.517	0.25	1.7	95
RH037		48.4	<0.002	0.01	0.52	8.9	1	1.2	396	0.44	<0.05	3.28	0.413	0.22	1.4	80
RH038		34.1	<0.002	<0.01	0.67	5.1	<1	0.6	508	0.27	<0.05	1.62	0.282	0.14	0.9	69
RH039		42.3	<0.002	0.01	0.45	10.2	1	1.2	348	0.43	<0.05	3.09	0.438	0.28	4.0	88
RH040		42.9	<0.002	0.01	0.50	9.4	<1	1.5	341	0.57	<0.05	3.95	0.492	0.26	1.6	85

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

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method / Analyte / Units / LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5
RH001		1.1	23.8	74	63.9
RH002		0.7	12.6	113	66.7
RH003		1.0	8.4	49	30.2
RH004		1.0	7.1	36	28.5
RH005		0.7	11.3	75	66.2
RH006		0.7	9.5	80	63.0
RH007		0.7	12.1	195	116.5
RH008		0.7	12.2	157	97.5
RH009		0.7	9.7	55	49.9
RH010		0.8	12.1	111	112.0
RH011		0.7	10.0	66	44.5
RH012		0.8	12.6	117	133.5
RH013		0.7	12.2	129	120.0
RH014		1.0	12.3	140	105.5
RH015		1.1	8.2	41	26.9
RH016		0.8	10.2	61	42.6
RH017		0.6	7.9	116	40.4
RH018		2.1	11.5	111	106.0
RH019		0.9	11.4	86	59.3
RH020		0.8	12.2	109	130.5
RH021		0.7	9.8	103	85.5
RH022		0.8	7.8	40	27.4
RH023		0.8	10.4	75	63.8
RH024		0.9	11.6	80	64.9
RH025		0.7	9.4	50	30.1
RH026		0.8	10.5	55	43.3
RH027		0.7	10.0	49	41.3
RH028		0.7	8.4	52	40.2
RH029		0.9	8.2	49	32.1
RH030		0.9	9.6	54	46.3
RH031		0.7	8.3	75	60.6
RH032		0.8	9.5	71	54.7
RH033		0.8	9.1	48	32.4
RH034		0.8	10.7	87	58.5
RH035		0.5	8.2	37	29.6
RH036		0.8	12.2	177	116.0
RH037		1.0	10.4	104	92.2
RH038		0.8	6.3	35	25.6
RH039		1.0	9.6	107	61.5
RH040		0.8	13.7	94	129.0

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

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method / Analyte / Units / LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
RH041		0.40	0.09	7.85	2.5	710	0.90	0.10	1.50	0.04	23.4	6.0	31	1.03	34.6	2.32
RH042		0.34	0.14	7.72	2.7	670	0.99	0.12	1.75	0.05	24.3	7.2	38	1.52	28.1	2.67
RH043		0.40	0.20	7.95	2.6	710	1.03	0.12	1.61	0.06	26.5	6.8	35	1.48	33.1	2.54
RH044		0.34	0.18	8.10	2.3	940	1.25	0.16	2.06	0.09	30.7	10.3	73	2.82	51.1	2.97
RH045		0.38	0.06	7.78	2.0	710	0.91	0.10	1.54	0.04	20.9	6.1	37	1.46	28.4	2.49
RH046		0.26	0.18	8.03	3.6	630	1.25	0.19	1.60	0.08	29.4	9.4	51	2.82	36.9	3.23
RH047		0.56	0.14	8.20	2.1	880	0.98	0.10	2.00	0.06	24.2	7.1	43	1.94	82.3	2.88
RH048		0.44	0.31	9.62	3.5	1200	1.46	0.19	1.94	0.13	37.8	14.5	56	3.82	213	4.30
RH049		0.30	0.18	7.85	3.0	620	1.07	0.15	1.61	0.10	27.0	7.7	41	1.81	23.4	2.94
RH050		0.60	0.21	8.19	2.2	810	1.13	0.15	1.94	0.07	24.1	7.6	51	2.51	100.0	2.63
RH051		0.54	0.19	8.70	1.8	910	1.20	0.14	2.03	0.08	25.5	7.3	42	2.60	95.1	2.56
RH052		0.56	0.04	7.67	1.9	720	0.86	0.07	2.05	0.03	26.5	6.4	46	1.13	65.3	3.69
RH053		0.40	0.28	7.72	2.6	630	1.09	0.11	1.82	0.06	25.4	7.1	40	1.50	35.3	2.78
RH054		0.40	0.20	8.20	2.9	660	1.18	0.12	1.82	0.06	25.9	7.4	45	1.69	69.2	3.06
RH055		0.64	0.27	8.09	2.2	790	0.91	0.11	2.16	0.06	27.4	7.5	56	1.68	490	2.63
RH056		0.42	0.22	8.81	3.1	900	1.37	0.14	1.88	0.06	37.2	10.9	60	3.66	448	3.78
RH057		0.52	0.14	7.69	2.0	800	1.02	0.12	2.20	0.06	27.6	7.8	67	1.62	59.2	2.68
RH058		0.46	0.22	7.68	1.9	700	1.04	0.11	1.94	0.06	26.7	7.4	44	1.75	48.0	2.51
RH059		0.52	0.12	7.73	2.4	720	1.12	0.11	2.02	0.06	24.7	7.7	54	1.77	57.7	2.74
RH060		0.34	0.10	7.89	2.4	770	1.15	0.12	2.22	0.05	27.1	9.4	61	2.16	47.2	2.95
RH061		0.38	0.04	7.57	2.7	700	1.06	0.10	1.89	0.04	25.0	8.1	36	1.49	40.4	2.67
RH062		0.28	0.19	8.71	4.5	670	1.48	0.19	1.54	0.09	29.8	10.2	51	3.24	90.0	3.42
RH063		0.38	0.08	8.23	2.1	660	0.81	0.08	1.92	0.04	20.1	6.5	36	1.48	43.6	2.93
RH064		0.30	0.10	8.46	4.3	650	1.50	0.20	1.61	0.06	31.8	8.6	44	2.56	45.3	3.13
RH065		0.28	0.11	7.94	2.8	770	1.11	0.12	1.66	0.06	25.7	6.9	34	1.74	27.9	2.83
RH066		0.28	0.11	7.75	2.2	660	1.24	0.18	1.84	0.06	29.1	7.6	39	2.18	12.4	2.77
RH067		0.34	0.09	8.43	4.1	700	1.19	0.16	1.73	0.09	27.5	10.2	55	2.49	66.1	3.56
RH068		0.32	0.06	8.44	4.4	660	1.07	0.14	1.62	0.05	24.5	7.8	45	1.98	63.9	3.27
RH069		0.30	0.10	8.57	2.9	710	0.94	0.17	1.18	0.05	23.2	5.9	36	2.89	47.1	2.88
RH070		0.32	0.13	7.87	2.7	670	0.93	0.11	1.85	0.05	25.0	7.7	42	1.62	71.9	2.92
RH071		0.30	0.04	8.71	2.7	780	0.96	0.09	1.51	0.06	24.2	7.9	37	1.67	22.2	2.84
RH072		0.24	0.16	7.98	3.6	670	1.27	0.18	1.66	0.09	29.5	9.5	46	2.49	37.2	2.93
RH073		0.28	0.21	8.32	2.9	740	1.16	0.12	1.90	0.09	30.3	9.7	47	2.15	41.7	2.99
RH074		0.28	0.05	8.42	3.8	710	1.05	0.14	1.70	0.06	23.9	9.4	47	2.39	38.2	3.24
RH075		0.32	0.08	8.69	3.3	820	1.07	0.14	1.91	0.08	29.4	11.1	59	3.26	157.5	3.52
RH076		0.30	0.06	9.15	2.9	850	1.23	0.15	1.78	0.10	34.7	9.6	51	3.19	116.5	3.48
RH077		0.36	0.07	8.82	3.4	740	1.29	0.17	1.77	0.06	31.2	8.3	46	2.92	145.5	3.19
RH078		0.26	0.07	7.80	2.4	710	1.52	0.15	1.88	0.05	32.7	7.2	26	1.86	19.0	2.67
RH079		0.26	0.11	7.80	2.5	670	1.13	0.12	1.88	0.06	27.3	6.8	34	2.02	25.1	2.85
RH080		0.28	0.09	8.35	4.2	610	1.02	0.15	1.66	0.08	26.5	8.5	51	2.45	60.1	3.47

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

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Ga	Ge	Hf	In	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb
	Units	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm
	LOD	0.05	0.05	0.1	0.005	0.01	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5
RH041		16.20	0.10	1.2	0.027	1.21	11.2	12.1	0.43	331	1.40	3.29	4.2	8.9	500	6.3
RH042		16.15	0.10	1.7	0.035	1.23	11.5	16.2	0.54	362	2.46	2.94	4.7	14.1	590	7.4
RH043		17.25	0.11	1.5	0.032	1.23	12.8	16.7	0.47	340	2.00	3.05	5.0	11.5	910	7.4
RH044		20.7	0.12	2.4	0.042	1.38	16.8	45.2	0.77	433	2.36	2.51	8.0	27.7	380	11.3
RH045		15.95	0.09	1.4	0.027	1.21	10.3	17.3	0.48	331	1.64	3.10	4.8	11.0	320	6.8
RH046		20.3	0.10	3.2	0.046	1.37	14.4	33.4	0.67	583	5.91	2.29	8.1	15.8	1920	12.3
RH047		16.85	0.11	1.2	0.036	1.22	11.1	20.0	0.60	461	1.66	2.67	4.2	14.8	200	6.5
RH048		25.0	0.11	1.9	0.055	1.19	16.2	30.7	0.82	1040	1.88	1.48	5.6	29.3	360	9.7
RH049		18.35	0.12	2.2	0.041	1.25	13.3	22.2	0.53	387	2.21	2.66	6.1	13.3	1310	9.2
RH050		18.75	0.12	1.8	0.040	1.23	11.7	22.0	0.71	372	1.02	2.62	5.9	17.8	220	9.8
RH051		18.00	0.06	1.6	0.033	1.33	13.2	22.8	0.72	441	0.97	2.68	5.2	13.8	310	8.8
RH052		14.55	0.06	1.2	0.023	1.18	12.4	11.6	0.53	438	0.92	3.14	4.3	10.3	150	5.4
RH053		15.90	0.05	1.6	0.025	1.22	11.6	17.1	0.54	523	1.23	2.77	5.0	13.2	1070	7.4
RH054		17.10	0.07	1.6	0.029	1.21	12.2	18.2	0.58	412	1.42	2.79	5.1	14.9	930	7.9
RH055		15.95	0.05	1.3	0.031	1.19	12.6	18.7	0.68	443	0.88	2.81	5.2	14.1	200	7.9
RH056		18.65	0.06	1.4	0.043	1.28	15.7	22.3	0.83	740	1.13	2.05	5.5	22.4	470	8.0
RH057		16.25	0.07	1.6	0.035	1.20	12.8	21.0	0.72	440	0.87	2.76	6.0	16.9	190	9.2
RH058		16.35	0.06	1.4	0.029	1.22	12.1	18.6	0.63	398	1.19	2.78	5.1	12.8	330	8.2
RH059		15.95	0.06	1.6	0.031	1.23	11.4	18.7	0.74	392	0.92	2.78	5.2	15.6	190	7.9
RH060		17.35	0.06	1.7	0.034	1.23	12.6	23.3	0.79	417	1.02	2.65	6.0	17.9	260	9.1
RH061		16.30	0.06	1.3	0.029	1.17	11.5	17.3	0.64	383	1.05	2.74	5.0	13.0	330	7.5
RH062		20.3	0.07	2.5	0.048	1.13	14.0	31.2	0.65	368	1.75	2.05	6.7	22.8	1340	11.2
RH063		14.20	0.05	1.0	0.026	1.16	8.8	14.6	0.61	354	0.89	2.98	3.5	12.1	540	5.7
RH064		18.95	0.06	2.9	0.039	1.31	15.3	28.3	0.62	442	1.78	2.38	7.0	17.4	930	11.3
RH065		18.45	0.11	1.6	0.037	1.33	12.4	19.0	0.54	371	1.36	2.71	5.6	12.0	780	8.4
RH066		19.40	0.11	2.5	0.039	1.51	14.5	28.6	0.69	488	1.43	2.71	7.9	13.6	760	11.9
RH067		19.10	0.10	2.1	0.051	1.31	13.8	23.7	0.74	530	1.63	2.47	6.5	21.9	930	9.6
RH068		18.00	0.10	2.3	0.041	1.23	11.9	19.5	0.63	378	1.50	2.66	5.4	16.2	990	8.2
RH069		22.5	0.13	1.8	0.037	1.58	11.7	20.7	0.60	327	1.71	2.40	6.2	10.9	480	9.7
RH070		16.30	0.11	1.3	0.028	1.23	11.9	14.8	0.60	366	1.14	2.87	4.4	14.3	560	6.7
RH071		17.95	0.11	1.6	0.033	1.27	11.6	18.2	0.67	579	1.05	2.87	5.0	15.3	480	7.3
RH072		19.05	0.12	2.7	0.047	1.32	14.3	26.8	0.61	608	1.96	2.48	6.9	18.2	980	10.9
RH073		17.70	0.10	2.1	0.036	1.32	13.6	21.0	0.65	546	1.47	2.80	5.8	20.4	1120	8.8
RH074		18.75	0.10	1.8	0.043	1.26	11.6	21.1	0.72	419	1.28	2.53	5.8	21.3	580	8.4
RH075		18.00	0.11	1.5	0.045	1.11	14.0	26.9	0.82	459	1.11	1.98	6.0	25.5	370	9.0
RH076		18.95	0.05	1.6	0.044	1.42	13.3	24.6	0.83	895	1.35	2.28	6.1	22.3	820	9.5
RH077		19.70	0.06	2.0	0.047	1.29	15.3	25.2	0.76	416	1.24	2.35	6.4	18.1	610	10.3
RH078		18.50	0.06	2.4	0.034	1.81	16.2	23.7	0.81	498	1.75	2.87	8.4	12.6	340	11.4
RH079		17.55	0.06	1.7	0.036	1.41	13.3	20.8	0.70	429	1.29	2.72	6.3	11.8	860	9.5
RH080		16.25	0.06	1.9	0.041	1.19	12.7	20.8	0.78	550	1.47	2.26	5.7	18.5	1340	8.8

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method Analyte Units LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
RH041		38.5	<0.002	0.01	0.68	5.6	<1	0.7	495	0.28	<0.05	1.83	0.303	0.15	1.0	74
RH042		35.8	<0.002	0.01	0.55	7.2	<1	0.8	455	0.32	<0.05	2.07	0.340	0.16	1.0	81
RH043		39.8	<0.002	0.01	0.64	6.7	<1	0.8	468	0.32	<0.05	2.38	0.332	0.18	1.1	72
RH044		45.0	<0.002	0.01	0.50	10.9	<1	1.3	402	0.53	<0.05	2.99	0.506	0.24	1.7	90
RH045		37.3	<0.002	0.01	0.58	6.1	<1	0.8	468	0.31	<0.05	1.72	0.342	0.17	1.0	76
RH046		39.0	<0.002	0.02	0.46	9.1	<1	1.5	320	0.53	<0.05	3.75	0.477	0.25	1.5	82
RH047		44.7	<0.002	0.01	0.53	8.0	<1	0.8	490	0.33	<0.05	2.10	0.327	0.22	2.7	84
RH048		61.8	<0.002	0.01	0.47	13.1	1	1.0	317	0.35	<0.05	3.89	0.389	0.35	5.3	102
RH049		35.7	<0.002	0.01	0.50	7.7	<1	1.0	397	0.40	<0.05	2.85	0.368	0.19	1.2	81
RH050		46.2	<0.002	0.01	0.52	8.8	<1	1.1	433	0.38	<0.05	2.15	0.412	0.22	1.2	75
RH051		50.9	<0.002	0.01	0.49	7.7	<1	0.9	462	0.34	<0.05	2.47	0.387	0.26	1.5	72
RH052		33.4	<0.002	0.01	0.65	6.6	1	0.7	537	0.28	<0.05	1.79	0.363	0.14	1.1	126
RH053		33.9	<0.002	0.01	0.53	7.1	<1	0.9	440	0.34	<0.05	2.30	0.351	0.18	1.1	80
RH054		36.0	<0.002	0.01	0.54	7.5	1	0.8	446	0.35	<0.05	2.62	0.359	0.21	1.3	88
RH055		37.1	<0.002	0.01	0.55	8.5	1	0.8	470	0.35	<0.05	2.25	0.409	0.20	1.7	85
RH056		51.8	<0.002	0.01	0.55	9.3	1	0.9	372	0.35	<0.05	3.18	0.413	0.27	2.5	113
RH057		33.8	<0.002	0.01	0.57	9.5	<1	0.9	464	0.40	<0.05	2.41	0.451	0.19	1.1	88
RH058		39.3	<0.002	0.01	0.52	8.0	<1	0.8	452	0.33	<0.05	2.01	0.375	0.16	1.0	80
RH059		39.8	<0.002	<0.01	0.58	8.8	<1	0.9	451	0.35	<0.05	2.24	0.403	0.18	1.0	88
RH060		37.5	<0.002	0.01	0.51	10.0	<1	1.0	444	0.38	<0.05	2.45	0.445	0.18	1.2	96
RH061		34.1	<0.002	0.01	0.53	7.9	1	0.8	448	0.34	<0.05	2.22	0.356	0.17	1.1	86
RH062		37.9	<0.002	0.02	0.46	8.8	1	1.3	310	0.44	<0.05	3.60	0.434	0.22	1.5	88
RH063		31.1	<0.002	0.01	0.44	6.3	<1	0.6	489	0.23	<0.05	1.49	0.330	0.12	0.8	88
RH064		40.9	<0.002	0.01	0.48	8.7	<1	1.2	346	0.46	0.05	3.88	0.410	0.25	1.6	81
RH065		44.3	<0.002	0.01	0.52	7.3	<1	0.9	428	0.38	<0.05	2.44	0.343	0.20	1.2	81
RH066		42.3	<0.002	0.01	0.40	8.4	<1	1.3	393	0.52	<0.05	3.64	0.435	0.26	1.4	76
RH067		43.4	<0.002	0.01	0.56	9.1	<1	1.1	389	0.41	<0.05	2.96	0.422	0.20	1.4	97
RH068		38.8	<0.002	0.01	0.59	8.2	<1	1.0	412	0.34	<0.05	2.94	0.362	0.20	1.2	93
RH069		64.8	<0.002	0.01	0.82	7.2	<1	1.1	309	0.40	<0.05	2.40	0.379	0.31	1.2	87
RH070		38.3	<0.002	0.01	0.59	7.9	1	0.7	473	0.28	<0.05	2.21	0.330	0.15	1.0	90
RH071		44.3	<0.002	0.01	0.53	7.1	<1	0.9	429	0.34	<0.05	2.64	0.359	0.19	1.1	82
RH072		42.8	<0.002	0.02	0.50	8.7	1	1.3	370	0.46	<0.05	3.60	0.410	0.22	1.4	79
RH073		43.7	<0.002	0.01	0.53	8.9	<1	1.0	444	0.39	<0.05	2.95	0.381	0.19	1.2	86
RH074		45.1	<0.002	0.01	0.63	8.5	<1	1.0	410	0.37	<0.05	2.33	0.387	0.22	1.0	94
RH075		41.8	<0.002	0.01	0.61	9.6	<1	1.0	358	0.38	<0.05	3.12	0.412	0.24	3.6	102
RH076		56.5	<0.002	0.02	0.76	8.6	1	1.0	382	0.42	<0.05	3.11	0.414	0.27	1.4	94
RH077		46.9	<0.002	0.01	0.56	9.3	<1	1.2	375	0.44	<0.05	3.23	0.438	0.24	1.5	89
RH078		45.7	<0.002	0.01	0.37	8.4	<1	1.1	400	0.63	<0.05	4.64	0.389	0.27	1.8	71
RH079		45.0	<0.002	0.01	0.47	8.8	<1	1.0	422	0.43	<0.05	3.30	0.383	0.22	1.4	83
RH080		37.7	<0.002	0.02	0.51	9.1	<1	0.9	364	0.38	0.05	3.06	0.424	0.22	1.3	94

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	W	Y	Zn	Zr
	Units	ppm	ppm	ppm	ppm
	LOD	0.1	0.1	2	0.5
RH041		0.9	7.2	40	32.2
RH042		0.8	9.3	59	53.5
RH043		0.9	9.1	63	50.9
RH044		0.9	12.9	117	88.4
RH045		0.7	7.9	54	42.3
RH046		0.8	12.6	117	120.0
RH047		0.7	9.3	57	36.2
RH048		1.0	11.9	105	59.5
RH049		0.8	10.3	75	77.6
RH050		0.8	9.8	73	63.5
RH051		0.9	9.8	65	56.1
RH052		0.7	9.2	42	32.2
RH053		0.7	8.9	67	53.8
RH054		0.8	8.8	67	57.7
RH055		0.8	9.0	66	44.9
RH056		0.9	11.7	74	47.0
RH057		0.7	10.5	62	55.9
RH058		0.8	9.1	64	49.9
RH059		0.8	9.0	58	57.7
RH060		0.8	10.7	56	60.5
RH061		0.8	8.9	46	46.6
RH062		0.9	11.3	94	98.6
RH063		0.7	7.1	54	30.4
RH064		0.7	12.1	73	113.0
RH065		0.7	9.5	80	54.7
RH066		0.7	11.4	88	88.8
RH067		0.8	10.6	96	74.7
RH068		0.8	10.1	55	79.3
RH069		0.6	7.6	54	60.1
RH070		0.7	9.2	56	40.7
RH071		0.6	8.3	75	49.4
RH072		0.9	11.9	101	99.3
RH073		0.8	11.3	103	75.1
RH074		0.6	9.6	65	64.0
RH075		0.7	11.1	63	53.8
RH076		0.7	8.7	83	53.0
RH077		0.8	11.4	71	70.2
RH078		0.6	10.6	59	93.7
RH079		0.7	9.4	73	63.8
RH080		0.8	9.6	75	71.6

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

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: **HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2**

**Finalized Date: 30-JUN-2020
Account: HACMIN**

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method / Analyte / Units / LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
RH081		0.26	0.04	8.38	4.7	600	1.05	0.13	1.74	0.06	28.3	10.2	50	2.14	74.4	3.51
RH082		0.26	0.06	8.41	5.5	560	1.14	0.13	1.79	0.07	27.9	9.5	51	2.25	87.4	3.67
RH083		0.32	0.09	8.21	3.8	640	1.14	0.12	1.95	0.08	29.1	10.5	52	2.36	79.0	3.33
RH084		0.30	0.06	8.46	4.1	620	1.14	0.11	1.85	0.06	25.9	8.5	50	1.83	53.4	3.36
RH085		0.36	0.03	8.45	4.3	610	1.11	0.12	1.85	0.06	28.8	10.2	51	1.93	84.9	3.46
RH086		0.26	0.08	8.19	4.8	560	1.13	0.15	1.96	0.08	26.7	12.1	54	2.51	77.2	3.64
RH087		0.32	0.05	8.06	2.6	650	1.12	0.13	2.01	0.05	31.8	9.6	56	1.99	63.1	3.26
RH088		0.24	0.11	8.17	3.3	580	1.05	0.14	2.07	0.08	27.7	10.5	49	2.06	66.2	3.41
RH089		0.30	0.18	8.00	3.3	650	1.06	0.11	2.16	0.07	28.2	9.6	50	1.89	79.5	3.34
RH090		0.26	0.25	8.08	3.2	590	1.08	0.12	2.15	0.09	26.0	11.6	46	1.97	57.3	3.55
RH091		0.30	0.12	8.25	3.5	610	1.08	0.11	2.12	0.08	26.2	10.0	52	1.80	48.1	3.39
RH092		0.26	0.05	7.85	3.0	570	0.98	0.11	2.11	0.06	26.7	9.7	43	1.46	46.1	3.32
RH093		0.26	0.10	7.88	4.2	580	1.18	0.21	2.26	0.06	28.9	9.6	37	1.50	25.0	3.87
RH094		0.34	0.15	7.94	2.6	640	1.07	0.13	1.92	0.06	28.9	8.5	53	1.98	56.1	3.03
RH095		0.40	0.16	8.21	1.9	700	1.03	0.12	2.13	0.06	27.1	8.3	52	2.23	50.7	2.66
RH096		0.20	0.08	8.68	4.6	590	1.20	0.16	2.14	0.08	31.6	14.6	50	2.38	127.0	3.98
RH097		0.40	0.02	8.68	3.7	620	0.94	0.11	1.98	0.07	27.2	9.5	45	1.89	88.4	3.88
RH098		0.26	0.11	6.38	4.1	600	0.89	0.16	2.05	0.14	28.0	12.8	31	1.77	114.0	2.96
RH099		0.26	0.05	7.45	6.2	480	1.08	0.18	1.81	0.10	26.2	10.3	46	2.15	54.0	3.81
RH100		0.32	0.06	8.09	4.8	580	1.10	0.16	1.69	0.08	28.5	10.4	51	2.43	54.3	3.64
RH101		0.28	0.12	7.22	5.4	520	0.95	0.24	1.59	0.10	28.1	7.4	66	2.09	30.5	3.51
RH102		0.22	0.08	8.38	4.6	650	1.11	0.17	1.62	0.10	30.5	11.3	64	2.51	61.2	3.98
RH103		0.26	0.10	7.98	4.0	650	1.29	0.14	1.66	0.08	31.5	8.8	49	2.47	47.9	3.29
RH104		0.20	0.69	7.86	2.9	690	1.30	0.19	1.59	0.12	31.6	6.8	39	3.04	194.0	2.83
RH105		0.50	0.09	8.33	3.9	690	1.24	0.15	1.57	0.06	30.5	9.6	53	3.26	181.0	3.28
Bm001		0.48	0.15	8.09	1.8	800	1.16	0.12	2.02	0.06	27.1	8.2	50	2.30	58.8	2.66
Bm002		0.30	0.17	7.62	2.4	670	1.06	0.12	1.80	0.08	25.8	7.5	44	1.85	25.8	2.74
Bm003		0.36	0.25	7.98	2.8	720	1.29	0.15	1.90	0.10	31.3	10.5	54	2.56	19.8	3.03
Bm004		0.38	0.13	8.12	2.4	640	1.15	0.12	1.89	0.08	26.4	9.7	47	2.09	20.0	3.10
Bm005		0.30	0.22	7.79	3.0	700	1.34	0.20	1.62	0.11	31.0	9.5	45	2.99	33.3	3.07
Bm006		0.42	0.25	7.91	2.5	790	1.09	0.12	2.13	0.10	32.1	7.8	52	2.54	184.0	2.92
Bm007		0.34	0.09	7.93	3.1	670	0.92	0.09	1.51	0.05	29.0	7.7	37	1.73	188.0	3.14
Bm008		0.34	0.20	8.33	2.5	570	1.10	0.19	2.21	0.10	24.9	10.2	36	2.29	29.0	3.73
Bm009		0.34	0.25	7.91	3.5	690	1.27	0.15	1.67	0.08	28.9	9.8	49	2.59	69.1	3.01
Bm010		0.24	0.61	8.29	4.0	660	1.36	0.19	1.69	0.08	31.5	10.2	53	3.10	360	3.31
Bm011		0.40	0.12	7.83	2.7	630	0.94	0.09	1.91	0.04	23.0	8.0	42	1.53	49.4	2.99
Bm012		0.40	0.19	8.08	2.9	810	0.94	0.10	2.27	0.08	25.9	8.8	47	1.49	85.1	3.17
Bm013		0.32	0.06	7.49	2.8	660	1.05	0.11	2.05	0.06	25.5	9.5	45	1.80	52.4	3.09
Bm014		0.36	0.14	7.72	3.1	630	0.96	0.12	1.98	0.06	23.9	9.5	55	1.91	71.5	3.26
Bm015		0.38	0.05	8.15	3.3	650	1.01	0.11	2.04	0.05	26.0	10.2	47	1.89	36.8	3.37

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
RH081		17.00	0.06	1.6	0.035	1.11	12.4	19.0	0.82	540	1.42	2.31	5.0	22.4	940	7.9
RH082		17.90	0.06	2.0	0.042	1.10	13.3	20.2	0.88	427	1.83	2.22	5.5	21.6	1170	8.8
RH083		17.05	0.08	1.4	0.040	1.15	13.1	22.8	0.83	533	1.49	2.44	5.2	20.9	590	8.2
RH084		16.75	0.07	1.8	0.034	1.18	12.3	18.8	0.76	420	1.62	2.63	5.2	19.1	880	7.7
RH085		16.85	0.07	1.5	0.038	1.10	12.2	17.2	0.86	487	1.32	2.43	5.2	22.0	670	7.7
RH086		17.85	0.07	1.9	0.044	1.05	12.2	23.2	0.91	688	2.01	2.17	6.0	25.4	880	8.8
RH087		17.80	0.11	1.5	0.040	1.14	15.5	19.1	0.80	433	1.29	2.59	5.8	18.9	460	7.7
RH088		18.25	0.14	1.8	0.039	1.13	12.4	21.8	0.90	462	1.67	2.52	5.9	18.8	660	7.9
RH089		16.60	0.15	1.6	0.043	1.13	14.3	16.8	0.79	487	1.58	2.58	4.9	16.2	920	7.4
RH090		17.35	0.15	2.1	0.044	1.16	12.4	19.0	0.88	444	1.65	2.52	5.3	18.7	1390	7.5
RH091		17.20	0.17	1.8	0.038	1.17	12.1	16.4	0.79	463	1.52	2.69	5.1	17.4	1170	7.3
RH092		17.10	0.15	1.4	0.035	1.02	12.7	15.0	0.88	499	1.35	2.56	4.7	16.3	810	7.3
RH093		23.6	0.16	2.3	0.041	1.48	14.3	20.2	1.06	536	2.11	2.71	8.5	14.4	610	10.9
RH094		18.40	0.18	1.9	0.037	1.18	14.3	19.6	0.66	372	1.34	2.59	6.0	16.3	790	8.3
RH095		18.05	0.15	1.7	0.034	1.25	13.3	19.8	0.78	426	1.13	2.92	6.1	13.9	310	8.3
RH096		20.2	0.14	2.1	0.049	1.10	14.7	25.7	1.08	553	1.86	2.30	6.7	22.0	500	9.2
RH097		17.85	0.19	1.4	0.037	1.09	11.9	14.6	0.82	423	1.39	2.50	4.5	17.3	690	6.6
RH098		15.95	0.12	1.3	0.038	0.80	14.1	14.5	0.98	730	1.58	1.60	4.6	19.1	1630	10.3
RH099		18.45	0.10	1.8	0.047	1.00	12.5	20.5	0.97	478	1.89	1.96	6.2	19.2	1330	9.5
RH100		18.10	0.11	1.9	0.045	1.19	13.5	20.6	0.87	482	1.73	2.25	6.3	21.8	820	9.4
RH101		20.6	0.08	2.2	0.054	1.10	13.4	21.8	0.80	434	2.24	1.93	9.6	16.8	1880	12.2
RH102		18.65	0.10	2.0	0.045	1.19	13.4	22.4	0.89	843	2.01	2.17	6.6	21.0	1650	9.6
RH103		17.55	0.11	2.1	0.043	1.17	15.4	19.6	0.73	483	1.70	2.21	6.1	18.4	1610	9.1
RH104		20.1	0.10	3.0	0.044	1.37	14.7	34.9	0.55	362	1.49	2.33	7.2	11.8	810	11.2
RH105		20.2	0.09	1.7	0.046	1.25	14.3	21.3	0.79	478	1.50	2.16	6.1	19.2	490	8.5
Bm001		18.95	0.11	1.8	0.045	1.29	14.7	25.5	0.68	418	0.92	2.77	6.1	14.8	430	9.0
Bm002		17.85	0.11	1.9	0.034	1.27	13.0	20.8	0.58	425	1.40	2.68	5.8	13.6	970	8.3
Bm003		19.75	0.10	2.8	0.044	1.38	14.7	30.5	0.72	835	1.61	2.46	8.4	19.0	1590	11.0
Bm004		19.70	0.10	1.8	0.042	1.21	13.3	25.9	0.75	629	1.51	2.60	6.5	17.9	790	9.0
Bm005		20.6	0.11	2.9	0.048	1.39	14.7	31.4	0.68	1020	1.67	2.25	8.8	17.0	2190	12.1
Bm006		16.95	0.10	1.5	0.036	1.11	21.2	28.4	0.68	759	0.99	2.18	5.1	16.1	440	7.9
Bm007		16.35	0.10	1.3	0.031	1.19	11.9	13.0	0.73	415	1.47	2.55	3.9	13.2	960	6.0
Bm008		24.3	0.10	1.7	0.048	1.22	12.3	29.3	1.05	1090	1.38	2.55	7.3	14.2	1010	10.5
Bm009		19.00	0.09	2.5	0.045	1.26	14.1	25.5	0.70	871	1.47	2.36	6.7	19.6	790	10.0
Bm010		21.1	0.11	2.7	0.051	1.30	14.7	27.6	0.70	757	1.69	2.28	7.8	20.2	990	11.7
Bm011		16.80	0.10	1.3	0.038	1.12	10.8	13.7	0.66	501	1.03	2.89	4.3	13.3	520	6.7
Bm012		17.25	0.11	1.3	0.037	1.18	12.1	15.4	0.76	400	1.34	2.91	4.4	13.8	290	6.7
Bm013		16.50	0.11	1.5	0.037	1.14	11.5	16.8	0.76	631	1.16	2.57	5.0	18.5	1000	8.2
Bm014		15.85	0.10	1.6	0.037	1.11	10.8	16.9	0.74	444	1.33	2.55	5.2	20.8	850	7.2
Bm015		17.55	0.12	1.6	0.038	1.15	12.3	18.1	0.83	563	1.33	2.63	5.4	20.8	570	7.9

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

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method Analyte Units LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
RH081		39.3	<0.002	0.01	0.60	9.6	1	0.9	395	0.34	<0.05	3.08	0.382	0.20	1.2	101
RH082		36.0	<0.002	0.02	0.59	10.8	1	1.0	378	0.37	<0.05	3.53	0.407	0.21	1.5	104
RH083		42.8	<0.002	0.02	0.59	10.0	1	0.9	426	0.36	<0.05	2.55	0.410	0.16	1.4	102
RH084		37.2	<0.002	0.02	0.58	9.6	1	0.9	430	0.35	<0.05	2.83	0.394	0.19	1.3	98
RH085		36.7	<0.002	0.01	0.64	10.3	1	0.9	424	0.34	<0.05	3.03	0.411	0.18	1.2	105
RH086		38.5	<0.002	0.02	0.51	10.6	1	1.0	389	0.42	0.05	2.67	0.440	0.21	1.3	108
RH087		37.4	<0.002	0.01	0.56	9.5	<1	0.9	442	0.36	<0.05	2.36	0.428	0.17	1.1	104
RH088		35.5	<0.002	0.01	0.50	9.7	<1	1.0	447	0.38	<0.05	2.26	0.441	0.18	1.1	103
RH089		33.2	<0.002	0.02	0.51	10.4	1	0.9	461	0.31	<0.05	2.38	0.402	0.16	1.3	98
RH090		35.0	<0.002	0.01	0.49	11.3	1	0.9	432	0.33	<0.05	2.45	0.406	0.16	1.1	104
RH091		35.5	<0.002	0.02	0.52	10.0	<1	0.8	452	0.33	<0.05	2.41	0.384	0.17	1.1	104
RH092		28.7	<0.002	0.02	0.48	9.4	<1	0.8	463	0.30	<0.05	2.16	0.395	0.14	1.1	100
RH093		36.8	<0.002	0.01	0.40	10.2	<1	1.2	429	0.57	<0.05	3.18	0.479	0.22	1.4	114
RH094		37.9	<0.002	0.01	0.50	9.0	<1	1.0	418	0.38	<0.05	2.40	0.420	0.16	1.2	93
RH095		39.2	<0.002	0.01	0.56	9.3	1	0.9	489	0.39	<0.05	2.17	0.447	0.17	1.1	83
RH096		32.9	<0.002	0.02	0.46	12.4	1	1.1	425	0.41	<0.05	2.72	0.454	0.19	1.5	112
RH097		32.3	<0.002	0.01	0.63	9.0	<1	0.8	448	0.29	<0.05	2.44	0.394	0.17	1.1	120
RH098		25.8	<0.002	0.08	0.37	9.1	1	0.8	486	0.30	<0.05	2.16	0.297	0.17	1.2	90
RH099		32.7	<0.002	0.03	0.49	10.2	<1	1.0	351	0.40	<0.05	2.87	0.406	0.18	1.3	110
RH100		37.1	<0.002	0.02	0.56	9.6	1	1.0	369	0.40	<0.05	3.06	0.413	0.24	1.3	104
RH101		33.2	<0.002	0.03	0.50	10.6	1	1.4	292	0.60	<0.05	3.56	0.505	0.25	1.4	109
RH102		38.3	<0.002	0.03	0.57	9.3	1	1.1	352	0.42	<0.05	3.21	0.451	0.23	1.3	110
RH103		37.6	<0.002	0.03	0.53	8.9	<1	1.1	355	0.39	<0.05	3.31	0.387	0.22	1.6	92
RH104		43.6	<0.002	0.02	0.50	7.8	<1	1.4	325	0.47	<0.05	3.41	0.408	0.23	1.6	71
RH105		49.5	<0.002	0.01	0.70	9.0	<1	1.0	360	0.41	<0.05	2.66	0.412	0.28	1.3	105
Bm001		41.6	<0.002	0.01	0.57	8.9	<1	1.0	443	0.39	<0.05	2.33	0.422	0.21	1.2	81
Bm002		40.0	<0.002	0.02	0.52	7.8	<1	1.0	427	0.38	<0.05	2.83	0.376	0.18	1.2	79
Bm003		46.8	<0.002	0.02	0.45	9.6	<1	1.3	374	0.53	<0.05	4.79	0.459	0.28	1.5	82
Bm004		43.3	<0.002	0.01	0.56	8.8	<1	1.0	451	0.43	<0.05	2.58	0.429	0.22	1.2	93
Bm005		45.0	<0.002	0.02	0.45	8.7	1	1.4	331	0.54	<0.05	3.66	0.444	0.30	1.4	78
Bm006		36.9	<0.002	0.02	0.51	8.8	<1	0.9	413	0.33	<0.05	2.57	0.359	0.20	2.5	82
Bm007		35.7	<0.002	0.02	0.68	7.7	<1	0.6	415	0.25	<0.05	2.49	0.328	0.15	1.5	94
Bm008		37.6	<0.002	0.01	0.40	10.9	<1	1.3	405	0.47	<0.05	3.04	0.484	0.24	1.2	99
Bm009		44.0	<0.002	0.01	0.60	8.7	<1	1.2	368	0.44	<0.05	3.10	0.418	0.26	1.3	84
Bm010		46.5	<0.002	0.02	0.61	9.2	<1	1.3	355	0.49	<0.05	3.49	0.429	0.24	1.5	88
Bm011		37.6	<0.002	0.01	0.73	7.7	<1	0.8	496	0.27	<0.05	1.96	0.328	0.17	1.0	94
Bm012		35.6	<0.002	0.01	0.63	9.1	<1	0.8	513	0.30	<0.05	2.13	0.359	0.16	1.3	106
Bm013		39.9	<0.002	0.01	0.55	8.8	<1	0.8	449	0.32	<0.05	2.24	0.360	0.15	1.1	95
Bm014		35.1	<0.002	0.01	0.59	9.1	<1	0.9	433	0.34	<0.05	2.34	0.393	0.14	1.0	102
Bm015		38.7	<0.002	0.01	0.55	9.2	<1	1.0	462	0.35	<0.05	2.32	0.390	0.16	1.0	104

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

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method / Analyte / Units / LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5
RH081		0.8	8.9	68	54.8
RH082		0.8	10.0	62	73.6
RH083		0.8	10.0	61	47.5
RH084		0.8	9.0	57	65.7
RH085		0.8	9.2	60	50.9
RH086		1.0	9.7	61	68.0
RH087		0.8	11.8	56	55.8
RH088		0.8	10.8	58	65.8
RH089		0.8	11.0	59	59.7
RH090		0.7	11.4	74	80.9
RH091		0.8	11.4	64	69.0
RH092		0.7	9.9	59	50.4
RH093		0.8	11.4	66	91.9
RH094		0.8	11.3	75	71.0
RH095		0.8	10.4	61	62.1
RH096		0.8	11.9	68	85.1
RH097		0.8	9.5	53	46.0
RH098		0.5	9.7	66	47.0
RH099		0.7	10.5	68	65.0
RH100		0.7	10.8	72	68.5
RH101		0.8	10.9	74	84.2
RH102		0.8	10.6	99	72.8
RH103		0.8	12.6	76	79.1
RH104		0.7	13.2	73	116.5
RH105		0.9	10.7	69	55.3
Bm001		0.8	12.3	81	63.5
Bm002		0.7	10.6	77	66.8
Bm003		0.7	12.8	174	104.0
Bm004		0.7	10.2	108	62.8
Bm005		0.7	12.0	139	110.5
Bm006		0.6	17.0	64	53.2
Bm007		0.7	9.5	60	41.7
Bm008		0.6	9.8	130	62.0
Bm009		0.7	11.6	82	91.8
Bm010		0.8	12.5	83	99.5
Bm011		0.6	8.9	52	42.4
Bm012		0.7	11.1	61	42.9
Bm013		0.6	10.1	64	51.4
Bm014		0.8	10.0	65	54.9
Bm015		0.8	10.0	63	53.3

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

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method / Analyte / Units / LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
Bm016		0.30	0.06	7.81	4.0	520	1.22	0.18	1.90	0.07	26.9	10.1	44	2.24	18.8	3.60
Bm017		0.36	0.17	7.44	2.6	670	0.96	0.11	2.12	0.13	27.7	11.0	46	1.85	49.3	3.31
Bm018		0.40	0.06	8.08	2.9	650	0.97	0.10	2.00	0.05	26.5	9.2	44	1.80	46.6	3.15
Bm019		0.34	0.09	7.55	4.2	570	1.05	0.11	2.10	0.11	27.7	11.3	61	2.33	61.8	3.99
Bm020		0.32	0.11	7.99	4.2	590	1.23	0.19	1.74	0.08	31.2	11.6	60	2.84	49.5	3.72
Bm021		0.34	0.06	8.29	3.5	590	0.89	0.13	1.81	0.10	24.8	11.3	47	2.79	67.7	3.40
Bm022		0.30	0.08	7.68	4.0	550	1.15	0.19	1.91	0.07	29.7	9.8	45	2.91	60.9	3.31
Bm023		0.36	0.08	7.84	3.4	530	0.94	0.18	1.94	0.07	27.1	9.2	54	2.46	205	3.34
Bm024		0.36	0.12	8.46	5.4	630	1.19	0.15	2.02	0.08	31.7	13.3	66	2.54	164.0	4.11
Bm025		0.32	0.07	7.77	4.0	550	1.04	0.14	2.17	0.07	26.9	10.6	43	2.00	38.6	3.38
Bm026		0.36	0.06	8.57	5.4	530	0.97	0.30	2.36	0.06	24.8	13.5	57	1.92	145.5	4.32
Bm027		0.40	0.13	7.90	2.8	510	0.85	0.07	2.93	0.07	22.5	14.5	45	1.43	52.8	4.45
Bm028		0.38	0.15	8.16	1.7	430	0.91	0.08	3.37	0.07	21.4	16.7	36	1.58	35.7	4.60
Bm029		0.38	0.14	7.72	2.4	490	0.95	0.10	2.81	0.07	24.1	14.2	48	1.83	45.6	4.57
Bm030		0.36	0.10	7.95	3.4	560	0.86	0.09	2.49	0.06	25.2	10.9	46	1.61	47.5	3.44
Bm031		0.36	0.07	7.79	3.2	580	1.08	0.13	2.06	0.07	26.5	9.5	46	2.10	43.7	3.32
Bm032		0.30	0.17	7.59	3.2	550	1.02	0.11	2.17	0.08	27.9	9.3	43	1.96	54.7	3.22
Bm033		0.46	0.08	7.91	2.4	640	1.09	0.11	2.25	0.07	26.4	10.4	65	2.52	72.3	3.42
Bm034		0.42	0.09	7.81	2.1	610	1.05	0.10	2.30	0.05	27.9	8.8	48	1.80	66.5	3.09
Bm035		0.38	0.06	7.89	3.1	620	1.03	0.10	2.18	0.06	24.4	8.6	45	1.80	47.5	3.38
Bm036		0.36	0.07	8.08	4.3	580	1.05	0.11	2.17	0.07	29.8	11.0	52	1.99	159.0	3.62
Bm037		0.32	0.12	7.87	3.1	560	1.18	0.15	1.98	0.08	28.4	12.7	54	2.45	57.8	3.51
Bm038		0.36	0.09	7.76	3.5	620	0.99	0.12	1.87	0.06	27.4	10.0	51	2.12	58.9	3.19
Bm039		0.36	0.25	8.26	3.2	680	1.23	0.16	1.66	0.12	29.9	9.5	54	2.50	64.4	3.09
Bm040		0.42	0.09	7.59	2.5	650	0.93	0.10	1.69	0.05	26.2	6.6	38	1.55	27.2	2.77
Bm041		0.58	0.05	7.94	1.7	790	0.88	0.07	2.08	0.04	26.6	7.5	44	1.88	45.7	3.59
Bm042		0.40	0.14	7.84	2.9	630	0.93	0.12	1.68	0.08	23.7	6.9	46	1.90	41.7	2.92
Bm043		0.44	0.11	7.92	2.9	750	1.02	0.14	1.91	0.09	28.0	10.1	65	2.48	59.7	3.33
Bm044		0.38	0.16	8.22	2.9	670	1.25	0.15	1.71	0.08	29.9	9.3	51	2.59	78.0	3.23
Bm045		0.38	0.14	8.61	2.4	730	1.18	0.14	1.91	0.08	32.4	9.8	51	2.37	104.0	3.06
Bm046		0.40	0.07	7.78	3.9	600	1.03	0.14	1.64	0.06	25.4	8.0	46	2.20	44.2	3.09
Bm047		0.42	0.14	7.85	2.2	670	1.01	0.13	1.77	0.07	26.1	7.0	41	1.96	43.0	2.72
Bm048		0.38	0.40	8.17	2.8	730	1.14	0.13	1.94	0.07	30.3	9.6	48	2.52	984	3.21
Bm049		0.28	0.46	8.04	4.0	660	1.14	0.17	1.69	0.07	30.1	8.8	49	3.11	372	3.35
Bm050		0.38	0.04	7.89	3.3	610	0.98	0.11	1.72	0.05	27.1	8.9	44	2.27	55.6	3.41
Bm051		0.34	0.09	7.83	3.0	670	1.22	0.19	1.77	0.07	32.4	10.2	46	2.76	38.8	3.00
Bm052		0.36	0.07	8.06	3.8	660	1.35	0.15	1.75	0.09	33.1	9.3	48	2.48	55.7	3.19
Bm053		0.36	0.04	8.21	4.1	620	0.88	0.14	1.84	0.06	28.3	9.0	49	2.33	51.7	3.63
Bm054		0.44	0.08	8.11	3.1	660	1.19	0.10	2.00	0.06	27.7	9.6	48	1.93	44.7	3.22
Bm055		0.32	0.06	8.33	3.4	570	1.08	0.13	1.98	0.08	31.9	11.6	56	2.59	36.6	3.36

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: **HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2**

**Finalized Date: 30-JUN-2020
Account: HACMIN**

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
Bm016		21.2	0.12	2.0	0.045	1.25	13.7	25.6	0.97	502	2.46	2.35	7.9	18.7	660	11.6
Bm017		16.90	0.11	1.3	0.054	1.06	12.8	17.9	0.78	877	1.31	2.44	4.6	17.7	1160	7.7
Bm018		18.15	0.05	1.5	0.035	1.16	11.9	15.8	0.76	519	1.38	2.71	5.4	19.2	420	7.4
Bm019		17.45	0.06	1.6	0.044	1.07	12.8	15.5	0.89	840	1.62	2.32	5.3	22.0	780	7.9
Bm020		21.0	0.07	2.3	0.046	1.21	14.6	24.4	0.85	747	2.19	2.24	7.9	24.6	1120	10.4
Bm021		17.25	0.06	1.7	0.045	1.09	11.3	19.2	0.83	1240	1.51	2.23	6.3	23.4	550	9.1
Bm022		19.80	0.08	2.1	0.043	1.28	14.4	22.0	1.03	555	2.12	2.22	8.0	19.9	980	11.1
Bm023		19.45	0.09	1.9	0.042	1.11	13.3	20.3	0.94	488	2.00	2.26	7.0	19.7	880	9.8
Bm024		18.15	0.08	2.3	0.050	1.03	13.9	21.1	1.16	646	1.60	2.09	6.7	29.4	980	10.0
Bm025		17.70	0.06	1.8	0.042	1.16	13.1	19.0	1.00	701	1.38	2.53	6.0	19.3	760	9.7
Bm026		18.15	0.08	2.1	0.048	0.96	10.4	19.2	1.24	579	1.34	2.27	5.4	25.9	1250	7.6
Bm027		16.50	0.07	1.5	0.041	0.96	9.6	14.2	1.35	701	0.96	2.55	4.3	22.1	770	5.8
Bm028		17.70	0.06	1.6	0.045	0.80	9.0	17.1	1.71	766	0.87	2.21	4.2	24.1	1370	5.9
Bm029		17.50	0.08	2.0	0.045	0.99	11.0	18.1	1.39	676	1.52	2.35	4.7	25.1	900	7.7
Bm030		16.55	0.07	1.6	0.045	1.05	11.4	15.9	0.99	563	1.30	2.65	4.6	20.3	890	6.7
Bm031		17.85	0.07	2.2	0.039	1.22	12.8	21.4	0.83	451	1.87	2.49	6.6	19.0	740	9.1
Bm032		15.65	0.07	2.2	0.036	1.10	13.5	17.3	0.83	529	1.31	2.49	5.1	16.8	1170	7.9
Bm033		17.80	0.06	1.5	0.039	1.09	12.7	22.1	0.93	444	1.11	2.65	6.0	21.8	340	7.6
Bm034		15.95	0.07	1.4	0.032	1.09	14.0	19.8	0.81	460	1.07	2.73	5.0	16.9	370	7.3
Bm035		15.95	0.07	1.6	0.035	1.17	11.2	17.2	0.76	405	1.17	2.86	4.9	16.9	810	7.4
Bm036		16.35	0.07	1.7	0.039	1.08	12.8	17.7	0.95	562	1.44	2.46	5.2	22.0	900	7.5
Bm037		19.85	0.06	1.7	0.041	1.05	13.8	22.3	0.90	1200	1.34	2.17	6.2	24.7	900	10.1
Bm038		18.65	0.08	1.8	0.036	1.14	12.9	19.4	0.77	606	1.42	2.45	5.2	20.4	790	8.4
Bm039		21.7	0.08	2.3	0.041	1.28	14.2	28.3	0.65	414	3.31	2.43	6.8	20.3	580	10.4
Bm040		17.75	0.06	1.6	0.032	1.20	12.9	18.7	0.52	336	1.90	2.64	4.9	12.2	930	7.7
Bm041		17.35	0.07	1.1	0.025	1.10	11.3	20.9	0.58	607	0.98	2.83	4.1	13.0	210	5.6
Bm042		18.90	0.06	1.8	0.032	1.22	11.4	21.4	0.54	338	1.54	2.67	5.3	13.2	870	8.4
Bm043		20.5	0.07	1.7	0.038	1.13	13.7	25.1	0.67	382	2.09	2.39	6.5	22.3	690	8.7
Bm044		20.9	0.07	2.1	0.046	1.25	14.7	24.6	0.65	419	1.66	2.41	6.8	19.5	1290	9.7
Bm045		20.3	0.09	1.5	0.035	1.21	14.4	23.2	0.70	738	1.45	2.55	5.8	18.9	470	8.7
Bm046		19.80	0.05	1.9	0.039	1.24	12.3	20.6	0.63	442	1.69	2.51	6.1	17.7	660	8.9
Bm047		20.1	0.06	1.7	0.031	1.31	12.2	19.0	0.62	381	1.31	2.75	5.8	12.9	390	8.5
Bm048		19.70	0.07	1.7	0.038	1.23	15.2	22.9	0.68	502	1.12	2.61	5.9	18.2	630	8.4
Bm049		20.4	0.06	1.6	0.044	1.34	13.8	20.3	0.77	495	1.47	2.29	6.2	19.5	710	9.0
Bm050		17.15	0.06	1.5	0.032	1.16	12.2	16.0	0.75	449	1.34	2.44	4.9	17.6	630	7.3
Bm051		22.5	0.07	2.1	0.036	1.38	15.7	22.0	0.75	503	1.32	2.60	7.6	17.8	500	11.2
Bm052		21.0	0.07	2.0	0.037	1.27	16.1	20.7	0.75	421	1.51	2.52	6.5	19.7	630	9.3
Bm053		20.8	0.08	1.8	0.040	1.24	13.5	17.2	0.78	416	1.99	2.64	6.0	18.2	470	8.2
Bm054		18.65	0.05	1.6	0.035	1.21	13.0	16.5	0.70	431	1.17	2.83	5.3	18.8	990	7.4
Bm055		21.2	0.06	1.6	0.042	1.17	15.5	22.9	0.91	648	1.16	2.37	7.9	23.8	1210	9.6

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

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method Analyte Units LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
Bm016		37.1	<0.002	0.01	0.56	10.3	<1	1.2	384	0.52	<0.05	3.15	0.439	0.21	1.3	102
Bm017		38.3	<0.002	0.02	0.48	9.0	<1	0.9	462	0.30	<0.05	2.26	0.339	0.14	1.0	100
Bm018		36.8	<0.002	0.01	0.53	8.3	<1	0.9	465	0.39	<0.05	2.28	0.368	0.16	1.0	98
Bm019		35.8	<0.002	0.02	0.63	10.5	<1	0.9	414	0.36	<0.05	2.81	0.411	0.18	1.2	128
Bm020		39.9	<0.002	0.02	0.54	10.0	1	1.2	357	0.56	<0.05	3.56	0.457	0.25	1.6	104
Bm021		42.6	<0.002	0.01	0.50	8.5	<1	1.0	386	0.43	<0.05	2.54	0.414	0.23	1.0	100
Bm022		37.4	<0.002	0.02	0.44	10.0	1	1.3	359	0.55	<0.05	3.57	0.451	0.24	1.6	101
Bm023		35.9	<0.002	0.02	0.55	9.7	1	1.2	391	0.47	0.05	2.92	0.466	0.21	1.3	103
Bm024		31.6	<0.002	0.02	0.57	11.7	<1	1.1	399	0.43	<0.05	3.53	0.459	0.21	1.4	122
Bm025		32.4	<0.002	0.02	0.55	10.3	1	1.0	444	0.39	<0.05	2.92	0.389	0.20	1.2	103
Bm026		25.5	<0.002	0.02	0.61	11.9	1	1.0	448	0.34	0.05	3.22	0.462	0.17	1.2	140
Bm027		25.8	<0.002	0.01	0.43	12.5	1	0.8	544	0.28	<0.05	2.06	0.435	0.13	0.9	148
Bm028		19.0	<0.002	0.01	0.26	12.9	1	0.8	603	0.28	<0.05	2.00	0.433	0.12	0.8	144
Bm029		27.2	<0.002	0.01	0.39	12.8	<1	1.0	482	0.31	<0.05	2.28	0.432	0.16	0.9	150
Bm030		29.4	<0.002	0.01	0.68	11.0	1	0.8	514	0.32	<0.05	2.08	0.394	0.14	1.0	110
Bm031		33.5	<0.002	0.01	0.49	9.5	<1	1.0	418	0.47	<0.05	2.90	0.419	0.22	1.2	100
Bm032		31.5	<0.002	0.02	0.50	9.7	1	0.8	436	0.33	<0.05	3.06	0.379	0.17	1.2	98
Bm033		35.6	<0.002	0.01	0.54	10.9	<1	1.0	462	0.41	<0.05	2.34	0.468	0.18	1.0	115
Bm034		32.0	<0.002	0.01	0.50	9.3	1	0.8	475	0.33	<0.05	2.11	0.410	0.14	1.1	100
Bm035		36.3	<0.002	0.01	0.54	9.1	<1	0.8	490	0.36	<0.05	2.08	0.370	0.15	1.0	105
Bm036		32.2	<0.002	0.02	0.55	10.5	1	0.8	437	0.35	0.05	2.85	0.398	0.18	1.1	111
Bm037		35.8	<0.002	0.02	0.51	10.6	1	1.1	385	0.42	<0.05	3.40	0.424	0.27	1.3	103
Bm038		37.4	<0.002	0.01	0.57	9.9	1	0.9	415	0.36	<0.05	2.93	0.379	0.20	1.2	95
Bm039		42.5	<0.002	0.01	0.53	9.4	1	1.2	369	0.46	<0.05	3.44	0.422	0.23	1.3	90
Bm040		36.0	<0.002	0.01	0.53	7.3	1	0.9	414	0.34	<0.05	2.76	0.341	0.17	1.3	83
Bm041		40.2	<0.002	0.01	0.56	7.3	<1	0.7	499	0.29	<0.05	1.78	0.319	0.18	1.4	114
Bm042		38.8	<0.002	0.01	0.51	7.7	<1	0.9	413	0.37	<0.05	2.74	0.369	0.18	1.2	85
Bm043		40.6	<0.002	0.01	0.55	8.8	<1	1.0	394	0.45	<0.05	2.58	0.422	0.19	1.6	103
Bm044		41.5	<0.002	0.01	0.48	8.6	<1	1.1	374	0.48	<0.05	3.22	0.415	0.22	1.7	90
Bm045		42.7	<0.002	0.01	0.52	8.4	<1	1.0	423	0.43	<0.05	2.45	0.397	0.20	1.8	90
Bm046		41.2	<0.002	0.01	0.55	8.0	1	1.0	385	0.43	<0.05	2.85	0.379	0.22	1.3	89
Bm047		40.8	<0.002	0.01	0.50	7.8	<1	0.9	433	0.43	<0.05	2.49	0.377	0.19	1.2	84
Bm048		42.2	<0.002	0.01	0.58	8.7	<1	1.0	426	0.43	<0.05	2.88	0.390	0.20	2.0	98
Bm049		47.3	<0.002	0.02	0.63	9.0	1	1.0	377	0.45	<0.05	2.94	0.399	0.25	1.3	97
Bm050		32.9	<0.002	0.02	0.49	8.3	<1	0.8	401	0.34	0.05	2.65	0.377	0.15	1.1	100
Bm051		47.2	<0.002	0.02	0.51	9.0	<1	1.3	399	0.55	<0.05	3.26	0.445	0.26	1.7	86
Bm052		41.5	<0.002	0.01	0.55	9.4	1	1.1	397	0.45	<0.05	2.94	0.410	0.23	1.4	92
Bm053		40.4	<0.002	0.01	0.66	9.9	<1	1.0	432	0.43	<0.05	2.87	0.409	0.21	1.3	112
Bm054		40.6	<0.002	0.01	0.57	9.2	<1	0.9	476	0.39	<0.05	2.59	0.371	0.16	1.2	98
Bm055		45.8	<0.002	0.01	0.56	10.7	1	1.1	416	0.56	<0.05	3.47	0.466	0.23	1.3	99

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method / Analyte / Units / LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5
Bm016		0.7	10.7	70	72.5
Bm017		0.5	10.1	89	46.6
Bm018		0.7	9.6	55	47.1
Bm019		0.7	11.0	76	58.7
Bm020		0.8	10.9	88	82.3
Bm021		0.8	8.5	69	55.5
Bm022		0.7	11.0	76	77.0
Bm023		0.7	9.3	70	63.9
Bm024		0.7	10.9	95	81.3
Bm025		0.6	9.6	67	62.9
Bm026		0.7	9.4	75	71.3
Bm027		0.5	9.7	70	46.6
Bm028		0.6	9.0	85	59.1
Bm029		0.5	10.9	74	70.6
Bm030		0.7	10.0	58	54.3
Bm031		0.7	10.4	57	80.8
Bm032		0.7	10.1	62	72.0
Bm033		0.7	9.9	63	50.3
Bm034		0.7	9.6	50	46.7
Bm035		0.7	9.5	49	50.9
Bm036		0.7	10.4	60	59.5
Bm037		0.7	10.1	82	59.2
Bm038		0.8	10.0	64	63.4
Bm039		1.0	11.1	97	84.2
Bm040		0.7	9.1	64	55.9
Bm041		0.6	8.5	53	30.7
Bm042		0.8	8.8	65	63.0
Bm043		0.8	9.5	92	58.8
Bm044		0.7	10.1	96	78.5
Bm045		0.8	9.3	68	52.7
Bm046		0.8	8.8	60	66.2
Bm047		0.8	8.6	69	54.9
Bm048		0.7	10.9	63	60.7
Bm049		0.7	9.4	69	57.9
Bm050		0.7	8.9	61	52.4
Bm051		0.8	10.4	70	77.9
Bm052		0.8	11.4	64	76.3
Bm053		1.1	10.0	55	59.9
Bm054		0.7	9.9	61	50.0
Bm055		0.8	10.1	80	57.3

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method	WEI-21	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Recvd Wt.	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe
	Units	kg	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%
	LOD	0.02	0.01	0.01	0.2	10	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01
Bm056		0.42	0.17	8.00	2.9	670	0.99	0.09	2.23	0.06	27.4	9.1	43	1.60	38.1	3.10
Bm057		0.56	0.17	8.00	1.6	710	1.01	0.10	2.38	0.06	29.3	8.3	49	2.15	49.9	2.66
Bm058		0.46	0.21	8.50	3.3	710	1.32	0.15	1.72	0.09	31.8	10.9	53	2.57	77.4	3.19
Bm059		0.36	0.08	7.02	4.2	640	1.25	0.12	1.61	0.07	32.6	11.8	54	2.51	83.8	3.32
Bm060		0.32	0.51	8.10	3.2	680	1.22	0.14	1.80	0.21	31.8	10.2	53	2.78	67.2	3.23
Bm061		0.40	0.06	8.20	2.9	650	1.08	0.11	1.96	0.06	27.7	10.3	40	2.15	56.0	3.06
Bm062		0.40	0.13	8.20	4.2	670	1.08	0.13	1.96	0.08	32.5	12.6	58	3.00	80.6	3.65
Bm063		0.36	0.05	7.97	3.6	610	1.05	0.13	1.59	0.06	24.0	8.3	38	2.07	42.4	2.95
Bm064		0.36	0.05	8.01	3.5	610	0.96	0.10	1.71	0.05	24.5	8.6	44	1.95	49.2	3.14
Bm065		0.40	0.10	8.21	3.6	660	1.25	0.13	1.74	0.07	30.8	10.5	51	2.59	66.3	3.23
Bm066		0.40	0.10	8.36	3.4	690	1.12	0.12	1.95	0.08	30.0	9.2	47	1.95	38.5	3.18
Bm067		0.36	0.22	7.94	3.0	680	1.14	0.11	1.91	0.07	26.9	8.4	46	2.02	48.7	3.03
Bm068		0.30	0.30	9.16	2.3	1030	1.44	0.15	2.06	0.11	29.1	12.6	50	3.54	113.0	3.38
Bm069		0.44	0.22	8.32	3.2	700	1.16	0.16	1.69	0.07	28.4	8.2	50	2.81	105.0	3.22
Bm070		0.46	0.30	8.01	2.6	730	1.29	0.12	1.82	0.09	31.8	8.4	42	2.18	83.5	2.73
Bm071		0.50	0.20	8.27	2.6	760	1.06	0.11	1.85	0.09	27.9	8.0	37	1.91	110.0	2.94
Bm072		0.40	0.11	8.91	3.1	1200	1.16	0.09	1.45	0.04	27.1	8.3	26	3.38	136.0	2.91
Bm073		0.52	0.13	8.05	2.2	760	1.14	0.11	1.84	0.07	27.1	7.3	40	1.76	54.1	2.77
Bm074		0.50	0.22	8.11	3.4	630	1.20	0.12	1.66	0.07	24.3	6.3	39	1.93	48.5	2.99
Bm075		0.34	0.20	8.77	2.6	840	1.32	0.13	1.93	0.06	30.6	9.7	53	2.68	129.0	3.15
Bm076		0.46	0.09	8.68	3.2	850	1.18	0.13	1.76	0.06	25.2	7.6	45	2.00	76.7	2.71
Bm077		0.38	0.15	8.09	3.3	680	1.20	0.14	1.72	0.07	28.9	7.9	44	1.97	41.6	2.85
Bm078		0.34	0.06	8.31	4.0	610	1.12	0.17	1.44	0.06	28.9	8.3	55	2.51	102.0	3.24
Bm079		0.34	0.43	8.31	3.3	660	1.28	0.16	1.58	0.09	29.5	7.1	40	2.30	36.9	2.72
Bm080		0.38	0.35	8.35	2.7	710	1.14	0.13	1.59	0.08	30.4	7.6	39	2.07	53.4	2.59
Bm081		0.38	0.17	8.22	3.4	660	1.16	0.13	1.62	0.07	25.4	8.0	45	1.83	36.5	2.84
Bm082		0.40	0.07	8.12	3.1	780	1.16	0.10	1.76	0.05	28.2	8.3	44	1.83	44.6	2.73
Bm083		0.42	0.11	8.27	3.7	650	1.07	0.15	1.58	0.07	24.6	7.9	49	2.44	45.9	3.06
Bm084		0.40	0.08	8.42	4.2	730	1.18	0.13	1.63	0.06	29.3	8.2	43	2.14	35.0	2.95
Bm085		0.44	0.20	8.04	3.1	640	1.19	0.12	1.66	0.07	30.0	6.7	46	1.83	27.9	2.92
Bm086		0.28	0.23	8.06	3.1	850	1.26	0.15	1.91	0.20	31.8	9.6	40	4.13	32.0	2.93
Bm087		0.30	0.07	8.78	3.7	720	1.29	0.17	1.53	0.09	28.4	10.5	53	2.88	52.8	3.20
Bm088		0.34	0.10	8.50	4.3	720	1.25	0.15	1.62	0.06	29.2	9.0	51	2.91	37.9	3.32
Bm089		0.38	0.16	8.57	2.8	760	1.14	0.13	1.82	0.08	33.5	9.4	52	2.66	129.0	3.04
Bm090		0.34	0.28	8.22	3.2	680	1.24	0.13	1.77	0.10	29.6	9.5	49	2.55	68.4	2.99
Bm091		0.42	0.23	8.05	2.4	690	0.95	0.10	1.79	0.07	23.8	8.0	41	1.80	72.4	2.85
Bm092		0.46	0.31	8.07	2.2	710	1.00	0.13	1.73	0.11	26.1	7.5	43	2.50	47.8	2.70
Bm093		0.34	0.12	8.18	2.7	730	1.09	0.14	1.88	0.09	27.6	9.6	45	2.54	36.5	2.93
Bm094		0.36	0.16	8.07	2.8	670	0.98	0.11	1.87	0.07	23.8	9.5	45	2.04	94.9	3.09
Bm095		0.42	0.07	8.06	2.8	760	1.02	0.12	2.01	0.07	26.1	9.9	49	2.06	38.6	3.16

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

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
Bm056		18.30	0.07	1.4	0.031	1.26	12.7	15.0	0.71	429	1.15	3.08	4.7	17.3	740	6.7
Bm057		17.60	0.07	1.5	0.036	1.18	15.2	18.6	0.74	468	1.02	2.85	5.3	15.2	270	7.9
Bm058		20.9	0.07	2.3	0.040	1.22	14.8	23.6	0.70	590	1.70	2.43	6.5	23.5	940	9.8
Bm059		20.1	0.08	2.3	0.042	1.20	15.1	20.4	0.83	500	1.79	2.35	6.7	24.5	930	8.8
Bm060		20.1	0.07	2.1	0.044	1.30	14.7	22.3	0.71	1050	1.67	2.48	6.1	18.9	1830	9.1
Bm061		19.25	0.07	1.4	0.035	1.17	12.4	17.0	0.72	422	1.39	2.72	5.2	18.8	480	7.5
Bm062		19.90	0.07	1.9	0.039	1.20	14.9	20.9	0.87	602	1.69	2.37	6.1	25.5	940	8.8
Bm063		19.15	0.07	1.8	0.035	1.19	11.2	18.9	0.61	474	1.45	2.56	5.7	16.8	710	8.6
Bm064		17.45	0.06	1.7	0.035	1.15	10.9	16.1	0.70	471	1.39	2.56	5.0	18.9	730	7.2
Bm065		20.3	0.06	1.9	0.041	1.22	14.5	21.4	0.71	605	1.44	2.44	6.2	22.4	830	9.4
Bm066		19.10	0.07	1.8	0.031	1.32	13.9	18.3	0.67	510	1.58	2.88	5.7	19.9	730	8.2
Bm067		18.15	0.07	1.6	0.035	1.29	13.3	18.5	0.66	390	1.60	2.71	5.2	15.8	990	8.0
Bm068		22.4	0.07	1.5	0.043	1.13	13.8	25.6	0.81	734	1.38	2.30	6.0	22.5	510	8.8
Bm069		20.9	0.07	2.0	0.037	1.31	13.8	23.8	0.63	407	1.83	2.50	6.6	18.9	990	9.9
Bm070		19.90	0.06	1.9	0.035	1.34	15.5	22.5	0.66	406	1.29	2.64	5.9	16.1	460	8.7
Bm071		19.75	0.07	1.6	0.036	1.25	13.6	18.4	0.55	340	1.36	2.91	4.7	14.2	810	7.5
Bm072		23.0	0.06	1.5	0.037	1.50	11.3	47.8	0.61	422	3.31	2.18	5.0	11.6	360	9.1
Bm073		19.20	0.07	1.5	0.031	1.30	13.3	18.8	0.54	353	1.69	2.99	5.1	12.7	460	7.5
Bm074		19.00	0.06	1.9	0.036	1.33	11.4	21.4	0.53	338	1.96	2.71	5.5	12.5	1530	8.5
Bm075		20.9	0.07	1.5	0.037	1.14	14.5	23.3	0.77	586	1.37	2.35	5.9	20.4	370	8.5
Bm076		19.85	0.11	1.8	0.041	1.31	13.6	21.6	0.57	346	1.51	2.66	5.6	16.4	640	9.3
Bm077		18.25	0.12	2.1	0.040	1.23	13.3	20.2	0.56	463	1.62	2.58	6.1	16.0	1000	8.8
Bm078		19.55	0.11	2.4	0.042	1.20	13.7	22.5	0.70	451	2.09	2.17	7.0	22.8	700	10.0
Bm079		19.10	0.13	2.7	0.045	1.31	13.4	24.6	0.50	574	2.59	2.52	7.0	14.2	1760	10.3
Bm080		19.95	0.12	1.8	0.037	1.34	14.1	21.4	0.53	391	2.10	2.79	6.0	13.1	680	8.9
Bm081		19.65	0.14	2.0	0.043	1.25	12.0	22.2	0.59	438	1.53	2.50	6.3	16.9	870	9.3
Bm082		18.30	0.14	1.6	0.034	1.19	13.0	18.7	0.59	723	1.42	2.70	5.4	16.8	730	7.9
Bm083		20.6	0.14	1.8	0.044	1.23	11.7	22.8	0.56	395	1.87	2.46	6.2	16.7	1400	8.8
Bm084		19.35	0.12	2.3	0.038	1.26	13.1	21.5	0.62	461	1.43	2.48	6.2	17.1	690	8.7
Bm085		18.30	0.15	2.4	0.033	1.26	13.9	19.7	0.53	357	1.51	2.62	6.1	12.8	950	8.6
Bm086		19.40	0.11	2.4	0.040	1.37	14.0	28.6	0.64	1340	1.62	2.27	6.3	15.8	3080	10.6
Bm087		20.8	0.11	2.4	0.047	1.23	12.9	25.8	0.74	723	1.66	2.23	7.2	25.4	810	10.6
Bm088		23.7	0.12	2.1	0.046	1.34	13.5	26.6	0.70	419	1.81	2.42	7.4	18.8	540	10.3
Bm089		19.80	0.14	1.7	0.041	1.19	15.8	22.1	0.73	940	1.28	2.43	6.3	18.7	440	9.4
Bm090		19.45	0.13	2.2	0.046	1.27	13.9	22.5	0.66	706	1.42	2.44	6.6	18.8	1140	9.2
Bm091		18.40	0.12	1.4	0.035	1.25	11.3	16.1	0.64	438	1.57	2.70	4.9	14.5	510	6.8
Bm092		20.1	0.14	1.7	0.041	1.32	11.7	21.9	0.64	379	2.19	2.49	6.2	14.8	340	9.3
Bm093		19.00	0.13	2.2	0.040	1.20	11.7	22.3	0.69	791	1.87	2.41	6.2	20.8	1220	9.4
Bm094		18.40	0.11	1.5	0.042	1.18	10.9	18.7	0.74	501	1.46	2.45	5.7	19.4	640	8.3
Bm095		18.30	0.13	1.5	0.038	1.14	11.5	18.7	0.77	763	1.29	2.51	5.6	20.8	780	8.0

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

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method Analyte Units LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
Bm056		38.2	<0.002	0.01	0.61	9.4	<1	0.8	525	0.32	<0.05	2.41	0.345	0.14	1.2	97
Bm057		40.0	<0.002	0.01	0.52	9.6	<1	0.8	500	0.37	<0.05	2.25	0.384	0.20	1.3	83
Bm058		40.3	<0.002	0.01	0.52	9.5	<1	1.1	387	0.47	<0.05	3.48	0.411	0.24	1.4	85
Bm059		38.8	<0.002	0.01	0.63	10.2	1	1.1	356	0.46	<0.05	3.35	0.441	0.22	1.4	104
Bm060		45.4	<0.002	0.01	0.50	9.5	1	1.0	395	0.43	<0.05	3.33	0.402	0.21	1.4	89
Bm061		40.8	<0.002	0.01	0.63	9.1	1	0.8	464	0.36	<0.05	2.17	0.375	0.18	1.1	97
Bm062		40.2	<0.002	0.01	0.60	10.9	<1	1.0	402	0.43	<0.05	3.46	0.446	0.21	1.4	110
Bm063		35.9	<0.002	0.02	0.52	7.7	<1	1.0	397	0.39	<0.05	2.71	0.356	0.19	1.2	86
Bm064		34.6	<0.002	0.01	0.54	8.4	1	0.8	416	0.35	<0.05	2.64	0.362	0.19	1.1	92
Bm065		43.8	<0.002	0.02	0.55	9.1	1	1.0	398	0.43	<0.05	2.84	0.400	0.20	1.3	96
Bm066		40.2	<0.002	0.01	0.57	9.1	<1	0.9	463	0.39	<0.05	2.90	0.382	0.21	1.3	95
Bm067		39.3	<0.002	0.01	0.51	8.6	1	0.9	442	0.36	<0.05	2.54	0.370	0.18	1.2	89
Bm068		43.1	<0.002	0.02	0.47	9.3	<1	1.1	410	0.42	<0.05	2.55	0.422	0.23	1.7	91
Bm069		45.5	<0.002	0.01	0.56	8.4	1	1.1	391	0.46	<0.05	3.00	0.422	0.22	1.4	94
Bm070		42.7	<0.002	0.01	0.48	8.7	1	1.0	419	0.42	<0.05	2.79	0.376	0.20	1.4	79
Bm071		40.2	<0.002	0.01	0.56	8.0	1	0.8	473	0.34	<0.05	2.45	0.327	0.17	1.6	86
Bm072		64.1	<0.002	0.02	0.57	7.2	<1	0.8	340	0.35	<0.05	2.69	0.342	0.21	2.8	83
Bm073		40.0	<0.002	0.01	0.54	7.5	1	0.8	479	0.35	<0.05	2.31	0.352	0.16	1.2	85
Bm074		36.6	<0.002	0.01	0.46	7.0	<1	0.9	413	0.40	<0.05	2.79	0.346	0.18	1.3	84
Bm075		46.3	<0.002	0.01	0.51	9.3	1	1.0	408	0.41	<0.05	2.83	0.395	0.25	2.1	90
Bm076		43.3	<0.002	0.01	0.50	7.6	1	1.0	435	0.35	<0.05	2.61	0.355	0.19	1.9	80
Bm077		38.5	<0.002	0.01	0.55	7.7	1	1.1	412	0.37	<0.05	2.88	0.364	0.19	1.2	82
Bm078		42.5	<0.002	0.02	0.55	8.4	1	1.2	334	0.42	<0.05	3.67	0.415	0.24	1.4	91
Bm079		40.9	<0.002	0.02	0.50	7.6	1	1.3	374	0.44	<0.05	3.40	0.383	0.21	1.4	72
Bm080		43.9	<0.002	0.01	0.58	7.3	<1	1.1	433	0.36	<0.05	2.62	0.361	0.21	1.2	74
Bm081		38.9	<0.002	0.02	0.52	7.8	1	1.1	384	0.40	<0.05	2.68	0.380	0.20	1.2	81
Bm082		41.5	<0.002	0.01	0.65	7.8	<1	1.0	445	0.33	<0.05	2.39	0.343	0.17	1.1	81
Bm083		47.6	<0.002	0.01	0.58	7.8	<1	1.1	395	0.37	<0.05	2.85	0.395	0.23	1.2	86
Bm084		41.1	<0.002	0.01	0.53	7.9	1	1.2	394	0.39	<0.05	2.76	0.379	0.20	1.2	84
Bm085		40.4	<0.002	0.02	0.54	7.7	<1	1.1	409	0.40	<0.05	3.06	0.378	0.18	1.3	88
Bm086		50.2	<0.002	0.02	0.45	8.1	1	1.3	405	0.41	<0.05	3.34	0.396	0.25	1.3	74
Bm087		47.1	<0.002	0.01	0.60	8.6	<1	1.3	361	0.44	0.05	3.23	0.412	0.28	1.3	88
Bm088		51.0	<0.002	0.01	0.75	9.3	1	1.3	379	0.45	<0.05	2.94	0.434	0.25	1.3	101
Bm089		43.0	<0.002	0.01	0.69	8.8	<1	1.1	413	0.40	<0.05	2.53	0.409	0.20	1.4	95
Bm090		45.4	<0.002	0.01	0.58	9.0	<1	1.2	397	0.42	<0.05	2.90	0.403	0.20	1.3	86
Bm091		42.4	<0.002	0.01	0.75	8.0	<1	0.9	449	0.30	<0.05	2.14	0.353	0.18	1.0	93
Bm092		48.5	<0.002	0.01	0.64	8.2	<1	1.2	413	0.40	<0.05	2.59	0.399	0.22	1.2	81
Bm093		41.9	<0.002	0.01	0.55	8.6	1	1.2	420	0.39	<0.05	2.85	0.388	0.20	1.2	84
Bm094		39.3	<0.002	0.01	0.64	8.5	<1	1.1	433	0.37	<0.05	2.16	0.398	0.17	1.0	98
Bm095		38.0	<0.002	0.01	0.53	8.8	<1	1.0	449	0.35	<0.05	2.30	0.395	0.18	1.0	99

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method / Analyte / Units / LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5
Bm056		0.7	10.1	60	46.4
Bm057		0.6	10.5	54	47.5
Bm058		0.9	11.3	99	81.5
Bm059		0.8	12.6	71	81.5
Bm060		0.8	10.9	137	75.8
Bm061		0.9	9.7	54	44.0
Bm062		0.9	12.1	78	68.8
Bm063		0.8	8.5	59	63.3
Bm064		0.8	8.7	61	59.7
Bm065		0.8	10.4	75	66.2
Bm066		0.8	10.2	70	64.2
Bm067		0.7	9.3	66	58.7
Bm068		0.9	9.5	85	53.7
Bm069		0.8	9.6	72	72.7
Bm070		0.7	11.1	70	66.6
Bm071		0.8	10.1	59	51.2
Bm072		0.5	7.0	59	41.4
Bm073		0.7	9.1	59	51.6
Bm074		0.7	8.5	67	69.6
Bm075		0.8	9.7	66	53.8
Bm076		0.7	11.0	58	65.7
Bm077		0.7	11.2	71	85.8
Bm078		0.8	10.7	74	92.5
Bm079		0.8	11.6	98	110.5
Bm080		1.0	10.1	74	69.1
Bm081		0.8	10.2	75	78.2
Bm082		0.7	10.3	62	60.0
Bm083		0.8	9.7	85	72.6
Bm084		0.7	11.6	75	88.5
Bm085		0.7	12.4	67	91.2
Bm086		0.6	11.9	166	94.8
Bm087		0.9	10.5	93	93.6
Bm088		0.7	11.6	82	85.2
Bm089		0.8	12.1	69	60.8
Bm090		0.7	11.7	95	84.8
Bm091		0.6	9.4	57	47.1
Bm092		0.8	9.6	87	66.4
Bm093		0.8	10.8	95	79.9
Bm094		0.8	9.5	64	52.6
Bm095		0.8	10.1	75	52.9

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

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
Bm096		0.36	0.06	7.79	3.2	670	1.03	0.11	1.94	0.09	24.7	9.9	52	2.00	57.9	3.16
Bm097		0.38	0.10	8.27	3.9	650	1.03	0.11	2.07	0.08	29.0	10.4	52	1.91	56.2	3.41
Bm098		0.40	0.05	8.23	4.3	610	0.96	0.10	1.96	0.06	26.3	11.4	54	1.81	66.6	3.50
Bm099		0.24	0.10	8.60	5.8	520	1.28	0.20	1.54	0.08	33.5	8.3	54	2.64	54.9	3.53
Bm100		0.38	0.11	8.18	3.0	640	0.98	0.11	1.97	0.10	27.2	9.5	44	1.53	75.5	3.22
Bm101		0.34	0.05	8.19	5.7	550	1.16	0.17	1.79	0.09	31.4	11.1	58	2.50	64.1	3.92
Bm102		0.38	0.14	8.19	4.0	630	1.15	0.16	1.91	0.10	29.1	12.1	54	2.48	116.5	3.53
Bm103		0.40	0.04	8.31	6.7	550	1.08	0.13	1.71	0.07	28.8	11.2	71	1.95	154.0	3.81
Bm104		0.32	0.30	8.11	3.9	610	1.19	0.15	1.79	0.14	31.3	10.5	54	2.45	52.1	3.26
Bm105		0.36	0.06	8.30	3.6	570	0.91	0.09	2.27	0.06	23.9	10.9	47	1.58	67.8	3.44
Bm106		0.44	0.05	7.84	3.9	610	0.93	0.08	2.11	0.05	26.6	10.4	53	1.52	70.2	3.46
Bm107		0.38	0.28	8.11	3.4	630	1.05	0.10	2.30	0.13	27.3	11.2	48	1.76	56.3	3.23
Bm108		0.34	0.08	8.31	3.9	490	1.09	0.15	2.09	0.10	25.8	13.3	44	2.15	123.0	3.69
Bm109		0.40	0.03	8.38	2.9	520	0.83	0.08	2.39	0.05	21.7	12.0	43	1.36	125.0	4.04
Bm110		0.34	0.07	8.86	3.1	630	1.17	0.17	1.84	0.06	28.4	11.0	54	2.75	74.8	3.44
Bm111		0.36	0.09	8.25	3.7	660	1.00	0.12	2.05	0.08	25.7	11.6	57	2.32	55.4	3.47
Bm112		0.34	0.07	7.73	5.2	580	1.10	0.14	1.57	0.08	30.9	9.2	50	2.20	71.6	3.15
Bm113		0.40	0.03	8.00	3.6	580	0.93	0.11	1.65	0.05	23.7	8.1	43	1.77	51.0	3.05
Bm114		0.36	0.05	7.61	5.5	510	0.90	0.12	1.73	0.07	24.5	8.1	38	1.89	57.5	3.48
Bm115		0.30	0.12	7.91	3.9	680	1.17	0.18	1.53	0.11	31.4	9.1	45	2.69	54.9	3.03
Bm116		0.28	0.12	7.89	3.4	710	1.14	0.15	1.62	0.12	27.4	8.6	50	2.82	56.4	2.98
Bm117		0.38	0.06	8.84	2.1	750	0.91	0.12	1.50	0.07	24.2	8.3	33	3.10	31.4	2.78
Bm118		0.36	0.19	8.15	4.0	840	1.15	0.17	1.70	0.16	34.1	11.4	68	3.08	233	3.48
Bm119		0.40	0.44	8.83	2.8	660	1.07	0.18	1.40	0.06	26.3	6.8	37	3.02	389	2.55
Bm120		0.30	0.06	8.23	4.8	610	1.14	0.17	1.42	0.07	29.7	6.2	38	2.35	51.2	2.94
Bm121		0.40	0.07	8.26	4.5	700	1.36	0.18	1.59	0.07	33.4	10.0	57	2.62	33.9	3.38
R20SL01		0.56	0.06	7.72	2.6	580	0.96	0.10	2.99	0.12	42.5	18.4	44	1.09	109.5	4.53
R20SL02		0.54	0.04	7.83	2.6	580	0.92	0.08	3.18	0.12	42.1	17.6	48	0.96	91.9	5.24
R20SL03		0.28	0.02	0.32	0.8	50	0.07	0.01	27.6	0.18	1.67	0.8	3	0.11	25.3	0.15
R20SL04		0.58	0.08	7.72	5.3	650	1.15	0.12	2.26	0.16	46.2	16.2	34	1.36	91.5	3.51

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
Bm096		17.20	0.12	1.5	0.041	1.06	11.0	16.8	0.77	847	1.44	2.35	5.4	21.1	940	8.7
Bm097		18.05	0.13	1.5	0.039	1.10	13.8	16.6	0.83	714	1.34	2.50	5.6	23.5	1050	7.6
Bm098		18.30	0.12	1.4	0.044	1.04	11.5	15.7	0.85	482	1.92	2.43	5.5	22.6	740	6.9
Bm099		22.3	0.14	3.6	0.054	1.14	15.6	28.0	0.75	421	3.17	2.02	9.2	19.7	1850	12.2
Bm100		17.85	0.12	1.5	0.038	1.10	12.2	15.0	0.76	848	1.26	2.53	5.1	19.0	1010	7.4
Bm101		20.4	0.13	2.0	0.053	1.06	13.9	20.6	0.92	558	2.07	2.13	7.2	25.9	1030	10.0
Bm102		19.45	0.13	1.9	0.046	1.18	13.0	20.9	0.82	802	1.67	2.38	7.0	21.6	1040	9.7
Bm103		18.45	0.13	2.1	0.047	0.96	12.5	18.1	0.96	453	2.02	2.11	6.3	28.1	1280	8.0
Bm104		18.70	0.13	2.6	0.045	1.18	14.1	22.2	0.73	701	1.78	2.28	7.0	21.9	1580	10.1
Bm105		17.50	0.12	1.5	0.040	0.98	10.4	13.9	0.95	662	1.00	2.55	5.0	20.0	770	6.8
Bm106		16.90	0.13	1.4	0.040	1.05	11.6	12.4	0.87	446	1.23	2.61	4.5	21.2	620	6.0
Bm107		17.70	0.13	1.8	0.038	1.11	12.0	16.7	0.91	575	1.43	2.58	5.3	22.3	1160	7.7
Bm108		19.60	0.14	2.0	0.046	0.97	11.8	19.3	1.11	620	1.62	2.10	6.1	22.7	1270	8.3
Bm109		18.25	0.13	1.0	0.042	0.87	9.6	11.9	1.17	477	0.94	2.46	3.8	21.9	530	5.2
Bm110		20.6	0.12	1.8	0.042	1.12	13.6	23.0	0.90	563	1.56	2.17	7.3	26.1	510	11.0
Bm111		18.60	0.13	1.6	0.040	1.19	11.9	17.3	0.85	748	1.49	2.55	5.7	21.3	850	8.2
Bm112		18.30	0.15	2.0	0.038	1.07	13.8	19.5	0.74	573	2.01	2.12	6.1	22.0	1020	11.0
Bm113		18.05	0.12	1.3	0.035	1.03	10.5	15.2	0.66	400	1.39	2.51	5.1	16.2	490	7.3
Bm114		19.25	0.12	1.4	0.035	1.03	11.3	18.2	0.79	419	1.82	2.18	5.2	13.4	1090	7.8
Bm115		20.2	0.13	2.3	0.043	1.21	13.2	26.8	0.69	667	1.62	2.14	7.3	19.7	1290	11.0
Bm116		20.8	0.14	1.8	0.044	1.16	12.7	24.6	0.67	393	2.18	2.09	6.4	16.8	620	9.9
Bm117		21.4	0.13	1.3	0.037	1.43	10.8	27.5	0.67	415	1.28	2.04	4.9	12.1	290	7.9
Bm118		19.95	0.14	1.9	0.059	1.27	14.7	22.4	0.89	1640	1.47	1.94	6.7	23.6	2240	9.9
Bm119		25.7	0.14	1.8	0.038	1.18	12.7	34.3	0.55	314	2.28	2.52	7.0	13.3	240	11.0
Bm120		20.6	0.16	2.9	0.042	1.21	14.3	23.4	0.58	383	1.43	2.17	6.8	12.8	1010	10.2
Bm121		20.7	0.15	2.4	0.047	1.27	15.3	25.4	0.82	598	1.89	2.13	8.0	24.0	1040	11.1
R20SL01		18.15	0.16	1.4	0.045	1.17	17.6	11.6	1.37	862	1.28	2.33	4.6	21.7	820	7.1
R20SL02		18.10	0.15	1.5	0.050	1.12	17.4	10.3	1.35	861	1.37	2.49	4.6	21.6	840	6.8
R20SL03		0.96	0.14	0.1	<0.005	0.06	0.9	1.4	0.21	61	0.99	0.10	0.2	1.2	510	0.9
R20SL04		17.35	0.17	1.5	0.050	1.37	17.9	13.4	0.82	989	1.53	2.54	4.6	13.7	460	10.2

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method Analyte Units LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
Bm096		37.5	<0.002	0.02	0.59	8.7	<1	1.0	426	0.33	<0.05	2.52	0.381	0.17	1.0	98
Bm097		37.7	<0.002	0.01	0.56	9.2	<1	1.0	457	0.34	<0.05	3.02	0.395	0.18	1.1	107
Bm098		34.1	<0.002	0.01	0.59	9.8	1	0.9	449	0.33	<0.05	2.24	0.398	0.18	1.0	110
Bm099		35.0	<0.002	0.03	0.52	10.0	1	1.6	308	0.54	<0.05	4.36	0.475	0.23	1.7	97
Bm100		33.9	<0.002	0.02	0.55	8.5	<1	1.0	462	0.31	<0.05	2.32	0.361	0.18	1.0	99
Bm101		36.1	<0.002	0.02	0.64	10.7	1	1.2	375	0.42	<0.05	3.27	0.459	0.21	1.3	118
Bm102		41.2	<0.002	0.01	0.50	9.2	1	1.2	415	0.46	<0.05	2.83	0.432	0.24	1.2	106
Bm103		29.3	<0.002	0.03	0.63	11.3	1	1.0	376	0.37	0.05	3.39	0.418	0.20	1.3	119
Bm104		37.9	<0.002	0.02	0.55	10.4	1	1.3	374	0.42	<0.05	3.22	0.406	0.20	1.3	91
Bm105		31.2	<0.002	0.01	0.57	10.6	1	1.0	499	0.33	<0.05	2.11	0.408	0.15	0.9	113
Bm106		31.6	<0.002	0.01	0.56	10.0	1	0.8	478	0.27	<0.05	2.12	0.365	0.12	1.0	120
Bm107		33.6	<0.002	0.01	0.49	11.4	1	1.0	479	0.32	<0.05	2.40	0.391	0.17	1.1	100
Bm108		30.6	<0.002	0.02	0.43	11.1	1	1.1	404	0.38	<0.05	2.74	0.373	0.18	1.1	104
Bm109		28.5	<0.002	0.01	0.47	11.9	1	0.8	498	0.24	0.05	1.62	0.349	0.14	0.7	144
Bm110		41.1	<0.002	0.01	0.55	9.4	1	1.2	394	0.46	0.05	2.73	0.455	0.21	1.2	105
Bm111		42.1	<0.002	0.01	0.66	10.6	<1	1.0	455	0.35	<0.05	2.57	0.427	0.18	1.1	112
Bm112		36.2	<0.002	0.02	0.81	9.3	<1	1.0	351	0.37	<0.05	3.30	0.383	0.23	1.3	94
Bm113		34.0	<0.002	0.01	0.64	8.2	<1	0.8	425	0.32	<0.05	2.20	0.371	0.19	1.0	101
Bm114		31.9	<0.002	0.02	0.63	9.4	1	0.9	395	0.30	<0.05	2.88	0.372	0.18	1.2	104
Bm115		41.5	<0.002	0.01	0.53	8.4	1	1.2	342	0.46	<0.05	3.23	0.400	0.23	1.4	83
Bm116		41.7	<0.002	0.02	0.59	8.7	<1	1.1	347	0.41	<0.05	2.60	0.388	0.21	1.4	87
Bm117		58.7	<0.002	0.01	0.58	7.6	<1	0.9	350	0.32	<0.05	2.00	0.330	0.26	1.1	88
Bm118		51.3	<0.002	0.02	0.75	10.4	<1	1.1	334	0.42	<0.05	3.16	0.416	0.23	1.4	99
Bm119		40.4	<0.002	0.01	1.08	7.5	1	1.3	334	0.46	<0.05	2.56	0.413	0.29	2.0	87
Bm120		36.5	<0.002	0.02	0.61	7.9	<1	1.2	331	0.42	<0.05	4.14	0.382	0.26	2.5	77
Bm121		42.4	<0.002	0.02	0.56	9.5	<1	1.3	335	0.51	<0.05	3.72	0.440	0.28	1.5	96
R20SL01		31.0	<0.002	0.05	0.48	16.7	1	0.9	529	0.27	0.14	3.04	0.444	0.15	1.1	161
R20SL02		30.2	<0.002	0.04	0.47	16.9	1	0.9	565	0.27	0.13	4.01	0.499	0.15	1.2	199
R20SL03		1.7	0.007	0.36	0.16	0.7	3	<0.2	284	<0.05	<0.05	0.13	0.017	0.02	2.7	6
R20SL04		36.3	<0.002	0.04	0.58	13.5	<1	0.9	468	0.28	0.33	2.91	0.389	0.19	1.2	112

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

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: **HAPPY CREEK MINERALS LTD.**
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

Sample Description	Method Analyte Units LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5
Bm096		0.7	9.6	73	56.7
Bm097		0.8	10.7	73	57.0
Bm098		1.2	10.4	64	49.9
Bm099		0.8	13.0	73	144.0
Bm100		0.7	10.3	69	52.2
Bm101		0.8	12.0	76	79.9
Bm102		0.8	11.0	81	70.7
Bm103		0.7	11.5	68	81.7
Bm104		0.8	12.7	122	106.5
Bm105		0.7	10.9	59	49.7
Bm106		0.7	11.0	56	47.4
Bm107		0.7	11.4	99	72.4
Bm108		0.6	10.8	84	78.5
Bm109		0.6	9.2	56	33.0
Bm110		0.8	10.1	70	69.4
Bm111		0.9	11.1	72	57.8
Bm112		0.7	11.1	70	77.4
Bm113		0.8	8.3	50	45.7
Bm114		0.6	9.0	55	49.9
Bm115		0.8	11.4	85	89.4
Bm116		0.7	11.1	86	68.1
Bm117		0.5	8.4	62	45.7
Bm118		0.8	11.1	102	70.6
Bm119		0.6	9.3	56	70.8
Bm120		0.7	10.8	59	114.5
Bm121		0.7	12.3	88	93.6
R20SL01		0.5	18.2	76	46.0
R20SL02		1.0	17.9	74	46.3
R20SL03		<0.1	2.5	5	2.8
R20SL04		0.5	23.5	86	56.0

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 30-JUN-2020
Account: HACMIN

Project: HV

CERTIFICATE OF ANALYSIS VA20122205

CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

REEs may not be totally soluble in this method.

Applies to Method: ME-MS61

LABORATORY ADDRESSES

Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.

Applies to Method: LOG-22 ME-MS61 SCR-41 WEI-21

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: HAPPY CREEK MINERALS LTD.
460–789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 29–JAN–2021
Account: HACMIN

CERTIFICATE VA20264856

Project: Highland Valley P1M–01

This report is for 85 samples of Drill Core submitted to our lab in Vancouver, BC, Canada on 13–NOV–2020.

The following have access to data associated with this certificate:

DAVID BLANN	SASSAN LIAGHAT	

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI–21	Received Sample Weight
LOG–21	Sample logging – ClientBarCode
CRU–31	Fine crushing – 70% <2mm
SPL–21	Split sample – riffle splitter
PUL–31	Pulverize up to 250g 85% <75 um
LOG–23	Pulp Login – Rcvd with Barcode
CRU–QC	Crushing QC Test
PUL–QC	Pulverizing QC Test

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME–OG62	Ore Grade Elements – Four Acid	ICP–AES
Cu–OG62	Ore Grade Cu – Four Acid	
ME–MS61	48 element four acid ICP–MS	

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:
Saa Traxler, General Manager, North Vancouver

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 29-JAN-2021
Account: HACMIN

Project: Highland Valley P1M-01

CERTIFICATE OF ANALYSIS VA20264856

Sample Description	Method / Analyte / Units / LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
F00051801		7.40	0.07	6.67	1.2	690	0.79	0.02	2.51	0.02	12.05	2.5	18	1.38	58.4	1.30
F00051802		8.04	0.02	6.37	1.1	310	1.47	<0.01	1.48	<0.02	14.60	0.7	17	0.45	7.6	0.70
F00051803		7.36	0.03	7.68	1.5	560	1.12	0.01	2.20	<0.02	14.40	2.7	12	0.49	21.2	1.29
F00051804		8.12	0.03	7.94	1.0	770	0.96	<0.01	2.24	0.02	13.85	3.1	15	0.62	22.2	1.47
F00051805		9.12	0.02	6.55	0.9	450	1.04	<0.01	1.41	<0.02	12.05	0.7	17	0.59	9.5	0.88
F00051806		5.06	0.01	7.59	1.3	470	1.13	<0.01	2.69	<0.02	15.10	2.8	13	0.49	7.2	1.49
F00051807		7.82	0.05	7.73	1.3	930	0.96	0.02	2.26	0.02	14.65	3.5	12	0.81	20.6	1.55
F00051808		8.06	0.03	7.67	1.2	770	1.01	0.02	2.23	0.02	14.70	3.7	12	1.08	25.8	1.63
F00051809		5.74	0.07	7.04	1.0	600	0.97	0.02	1.77	<0.02	14.70	2.0	16	0.98	60.3	1.08
F00051810		0.06	32.4	4.27	291	470	0.88	199.5	16.40	1.17	48.9	41.8	92	1.86	1945	10.70
F00051811		6.14	0.06	7.61	1.2	1180	0.98	0.88	2.00	<0.02	16.80	3.2	16	0.63	20.3	1.49
F00051812		7.58	0.03	8.00	1.1	1010	0.88	0.10	2.35	<0.02	15.90	3.6	9	0.52	5.3	1.63
F00051813		7.86	0.02	7.84	1.2	890	0.97	0.06	2.21	<0.02	14.45	3.5	13	0.62	6.7	1.56
F00051814		8.32	0.06	7.87	1.4	990	0.81	0.07	1.74	<0.02	17.85	3.6	13	0.87	41.1	1.57
F00051815		6.90	0.01	7.59	2.4	900	0.88	0.03	2.18	<0.02	17.30	3.7	13	0.47	4.4	1.63
F00051816		6.28	<0.01	7.94	1.7	930	0.94	0.04	2.18	<0.02	25.4	4.9	12	0.49	6.4	2.05
F00051817		7.82	0.02	7.81	1.5	890	1.05	0.03	2.46	<0.02	21.5	4.6	18	0.59	10.2	1.84
F00051818		8.04	0.02	7.78	1.3	1180	0.94	0.04	2.57	<0.02	24.9	5.6	35	0.59	14.5	2.23
F00051819		7.12	0.03	8.20	0.9	1220	1.07	0.05	2.92	<0.02	19.85	5.8	14	0.53	6.4	2.12
F00051820		1.06	0.01	0.06	0.4	10	<0.05	0.02	38.3	<0.02	0.21	0.5	1	<0.05	1.2	0.04
F00051821		7.70	0.01	7.84	0.9	1090	0.90	0.03	3.01	<0.02	14.80	5.7	11	0.58	4.4	2.12
F00051822		6.48	0.02	7.50	1.2	750	0.85	0.03	2.97	<0.02	15.50	4.9	18	0.94	2.7	1.86
F00051823		7.56	0.02	8.06	0.9	740	0.89	0.03	2.71	<0.02	15.60	4.8	11	0.58	10.2	1.88
F00051824		8.70	0.02	7.80	0.4	1040	0.92	0.03	2.33	<0.02	20.9	3.6	12	0.48	3.9	1.62
F00051825		8.38	0.02	7.59	0.8	930	0.83	0.02	2.26	<0.02	19.35	3.4	15	0.48	3.6	1.56
F00051826		8.92	0.02	7.89	0.8	990	0.90	0.02	2.36	<0.02	20.5	3.7	12	0.52	4.9	1.62
F00051827		9.24	0.02	7.67	0.4	1000	0.96	0.03	2.33	<0.02	20.9	3.6	13	0.59	4.6	1.64
F00051828		7.68	0.02	8.02	0.4	1050	0.92	0.03	2.39	<0.02	19.50	3.8	19	0.59	3.8	1.75
F00051829		4.50	0.03	7.63	0.5	760	1.11	0.03	2.05	<0.02	19.30	3.0	12	0.57	20.1	1.46
F00051830		4.30	0.03	7.72	1.1	850	1.10	0.03	2.12	<0.02	17.95	3.2	16	0.56	13.1	1.52
F00051831		6.66	0.02	7.51	0.5	1120	0.96	0.03	2.17	<0.02	18.25	3.0	14	0.74	8.8	1.49
F00051832		9.16	0.01	7.64	1.6	1040	0.92	0.03	2.39	<0.02	17.90	3.6	12	0.62	8.2	1.59
F00051833		8.36	0.01	7.61	1.1	1070	0.95	0.02	2.20	<0.02	19.80	3.6	12	0.52	4.8	1.60
F00051834		7.12	0.04	7.52	1.8	1000	0.87	0.02	2.13	<0.02	21.1	3.6	12	0.56	23.8	1.56
F00051835		7.88	0.04	7.64	1.1	1100	0.84	0.03	2.29	<0.02	19.25	3.7	14	0.55	4.6	1.69
F00051836		8.14	0.02	7.59	0.8	1150	0.85	0.02	2.21	<0.02	18.05	3.5	13	0.56	5.3	1.60
F00051837		8.96	0.02	7.56	0.4	1080	0.87	0.01	2.25	<0.02	19.35	3.7	12	0.63	4.6	1.58
F00051838		6.18	0.02	6.96	2.0	430	0.84	0.02	2.89	<0.02	13.75	3.5	10	1.79	6.8	1.79
F00051839		8.22	0.02	7.44	1.1	1000	0.97	0.03	2.22	<0.02	17.50	3.3	10	0.69	16.8	1.46
F00051840		7.98	0.02	7.54	0.7	970	0.85	0.02	2.07	<0.02	19.70	3.5	15	0.49	6.5	1.57

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 29-JAN-2021
Account: HACMIN

Project: Highland Valley P1M-01

CERTIFICATE OF ANALYSIS VA20264856

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
F00051801		14.75	0.13	0.8	0.010	2.08	5.9	10.8	0.25	362	1.22	1.79	1.5	1.6	390	2.5
F00051802		17.40	0.11	3.3	0.007	0.97	16.7	4.3	0.09	230	1.13	3.46	2.2	0.8	30	3.5
F00051803		16.90	0.09	0.9	0.014	1.41	8.7	7.4	0.25	408	0.91	3.53	1.8	1.3	310	5.5
F00051804		16.55	0.11	0.5	0.012	1.81	7.0	7.7	0.33	449	1.03	3.48	1.8	1.6	390	5.0
F00051805		16.70	0.09	3.0	0.007	2.46	11.8	4.9	0.08	225	1.13	2.81	1.9	0.8	60	7.5
F00051806		18.25	0.11	1.2	0.012	1.22	8.5	8.0	0.25	475	1.08	3.28	2.3	1.5	350	9.2
F00051807		16.65	0.09	0.5	0.014	1.81	7.6	10.3	0.35	483	1.41	3.39	1.8	3.2	430	6.2
F00051808		17.60	0.10	0.5	0.017	1.83	7.1	23.4	0.34	497	1.06	3.28	2.0	2.0	450	4.9
F00051809		17.20	0.11	2.0	0.009	1.43	10.6	10.9	0.19	327	1.22	3.30	1.6	1.3	230	4.2
F00051810		12.50	0.13	1.6	1.900	0.64	24.5	13.1	1.54	2350	352	0.62	8.3	90.3	980	148.5
F00051811		17.30	0.11	1.0	0.014	1.66	9.8	8.8	0.31	435	1.62	3.41	2.0	1.7	380	4.9
F00051812		17.60	0.11	0.6	0.014	1.67	7.9	11.7	0.36	490	0.76	3.57	1.9	1.5	430	5.3
F00051813		17.30	0.09	0.5	0.015	1.75	7.1	13.2	0.36	468	0.96	3.53	1.8	1.6	410	4.9
F00051814		17.35	0.11	0.6	0.014	1.98	8.2	16.8	0.35	456	1.01	3.29	1.9	1.6	440	5.0
F00051815		16.50	0.10	0.6	0.014	1.73	7.4	9.9	0.38	506	0.83	3.52	2.0	1.7	450	4.6
F00051816		17.15	0.12	0.6	0.018	1.72	10.6	12.1	0.51	614	0.80	3.54	2.6	2.3	550	4.5
F00051817		17.60	0.11	0.6	0.019	1.67	9.1	12.4	0.46	524	1.14	3.43	2.3	2.6	520	4.7
F00051818		17.95	0.13	0.7	0.019	1.61	9.9	15.1	0.52	584	2.22	3.41	2.5	3.7	630	5.0
F00051819		18.55	0.12	0.5	0.021	1.25	8.7	15.1	0.59	581	0.99	3.71	2.1	3.1	590	4.9
F00051820		0.26	0.21	<0.1	<0.005	0.01	<0.5	0.4	1.77	23	0.10	0.01	<0.1	0.2	30	<0.5
F00051821		17.05	0.15	0.5	0.021	1.37	6.5	13.9	0.57	561	0.88	3.53	1.7	3.0	560	4.5
F00051822		17.30	0.16	0.5	0.016	1.38	6.7	13.6	0.49	521	1.17	3.17	1.8	2.5	520	3.7
F00051823		17.65	0.16	0.5	0.020	1.42	7.0	13.4	0.48	498	0.85	3.50	1.7	2.5	510	4.4
F00051824		17.35	0.20	0.6	0.015	1.78	9.5	15.7	0.36	464	0.86	3.38	2.2	1.6	420	5.2
F00051825		17.00	0.16	0.6	0.014	1.79	9.3	18.1	0.34	461	0.94	3.37	2.0	1.6	400	5.0
F00051826		17.85	0.14	0.6	0.015	1.84	9.5	17.4	0.36	470	0.87	3.45	2.0	1.6	450	4.9
F00051827		17.40	0.17	0.6	0.012	1.78	9.5	20.2	0.36	471	0.92	3.39	2.2	1.6	430	5.0
F00051828		17.65	0.15	0.6	0.014	1.84	8.7	21.4	0.38	498	1.23	3.51	2.1	2.0	450	5.0
F00051829		17.95	0.15	1.0	0.012	2.05	9.9	12.0	0.29	439	0.86	3.43	2.3	1.4	360	6.1
F00051830		17.40	0.14	1.1	0.013	2.11	9.3	11.9	0.31	455	1.01	3.50	2.2	1.8	390	5.8
F00051831		16.60	0.14	1.0	0.015	2.18	9.0	18.9	0.33	487	0.93	3.22	2.2	1.6	360	6.1
F00051832		17.10	0.13	0.7	0.014	1.81	8.3	10.6	0.36	504	0.81	3.33	2.2	1.7	390	4.9
F00051833		16.80	0.13	0.7	0.013	1.91	9.3	11.1	0.37	475	0.81	3.33	2.2	1.7	400	5.3
F00051834		17.10	0.15	0.6	0.015	1.81	9.8	12.3	0.35	513	0.84	3.44	2.4	2.0	410	5.1
F00051835		16.90	0.14	0.6	0.012	1.65	9.0	13.8	0.39	505	0.91	3.38	2.1	1.9	450	4.8
F00051836		16.55	0.12	0.6	0.013	1.88	8.0	13.6	0.36	479	0.88	3.31	2.0	1.7	420	5.3
F00051837		17.65	0.14	0.7	0.016	1.76	8.9	13.0	0.34	501	0.82	3.47	2.5	1.7	420	5.2
F00051838		16.90	0.11	0.7	0.017	1.80	5.9	13.6	0.27	559	0.77	2.89	2.2	1.7	430	5.9
F00051839		17.30	0.14	0.8	0.011	1.73	9.1	9.4	0.33	510	0.71	3.36	2.0	1.5	330	4.9
F00051840		16.75	0.12	0.6	0.014	1.99	10.6	10.1	0.34	454	0.90	3.37	2.1	1.7	390	4.5

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 29-JAN-2021
Account: HACMIN

Project: Highland Valley P1M-01

CERTIFICATE OF ANALYSIS VA20264856

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
F00051801		43.5	<0.002	<0.01	0.82	2.4	<1	0.3	245	0.10	<0.05	1.77	0.111	0.18	0.7	35
F00051802		21.5	0.002	<0.01	0.52	1.6	<1	0.2	232	0.15	<0.05	9.18	0.049	0.08	2.9	10
F00051803		27.9	<0.002	<0.01	0.41	2.4	<1	0.3	521	0.12	<0.05	2.44	0.115	0.10	1.2	31
F00051804		33.9	<0.002	<0.01	0.41	2.5	<1	0.3	473	0.13	<0.05	1.43	0.132	0.12	0.7	36
F00051805		45.1	<0.002	<0.01	0.42	1.5	<1	0.2	311	0.12	<0.05	8.56	0.054	0.14	2.4	13
F00051806		23.3	0.002	<0.01	0.55	2.7	<1	0.4	728	0.16	<0.05	2.89	0.132	0.08	1.5	36
F00051807		35.0	<0.002	<0.01	0.63	2.8	<1	0.4	484	0.13	<0.05	1.52	0.137	0.12	0.7	39
F00051808		35.8	<0.002	<0.01	0.52	3.1	1	0.4	425	0.13	<0.05	1.25	0.142	0.14	0.7	41
F00051809		33.1	<0.002	<0.01	0.51	2.4	1	0.3	296	0.12	<0.05	6.63	0.089	0.14	2.0	24
F00051810		23.8	0.016	2.75	87.8	12.4	2	136.5	305	0.49	55.3	5.19	0.440	0.32	2.9	96
F00051811		31.3	<0.002	<0.01	0.44	2.8	<1	0.5	493	0.13	0.08	3.49	0.128	0.13	1.2	35
F00051812		30.7	<0.002	0.01	0.20	3.0	<1	0.4	606	0.12	<0.05	1.69	0.137	0.10	0.8	39
F00051813		30.4	<0.002	<0.01	0.25	2.8	<1	0.4	558	0.13	<0.05	1.49	0.137	0.11	0.7	39
F00051814		38.9	<0.002	0.01	0.30	3.0	<1	0.4	525	0.14	<0.05	1.68	0.137	0.14	0.8	39
F00051815		29.3	<0.002	<0.01	0.32	2.9	<1	0.4	572	0.15	<0.05	1.73	0.150	0.12	0.8	41
F00051816		31.5	<0.002	<0.01	0.43	3.9	<1	0.5	544	0.19	<0.05	1.72	0.189	0.11	1.0	55
F00051817		32.3	<0.002	<0.01	0.24	3.6	1	0.5	555	0.17	<0.05	1.95	0.166	0.11	0.9	50
F00051818		31.5	<0.002	0.01	0.34	4.3	<1	0.5	583	0.19	<0.05	1.85	0.191	0.12	1.0	62
F00051819		24.3	<0.002	0.01	0.23	4.6	1	0.5	688	0.15	<0.05	1.46	0.191	0.10	0.9	61
F00051820		0.2	<0.002	0.05	0.06	0.1	1	<0.2	4640	<0.05	<0.05	0.02	<0.005	<0.02	1.2	1
F00051821		20.3	<0.002	0.01	0.70	4.0	<1	0.4	636	0.12	<0.05	1.44	0.182	0.10	0.8	60
F00051822		24.2	<0.002	<0.01	0.75	3.5	1	0.4	557	0.13	<0.05	1.21	0.167	0.12	0.6	52
F00051823		25.7	<0.002	<0.01	0.39	3.8	1	0.4	587	0.11	<0.05	1.26	0.163	0.11	0.8	52
F00051824		33.7	<0.002	<0.01	0.17	2.9	<1	0.4	587	0.17	<0.05	2.06	0.144	0.13	1.4	39
F00051825		32.7	<0.002	<0.01	0.10	2.8	1	0.4	575	0.16	<0.05	1.99	0.138	0.12	1.1	38
F00051826		34.6	<0.002	<0.01	0.12	3.0	<1	0.4	595	0.15	<0.05	1.85	0.142	0.12	1.1	40
F00051827		34.0	<0.002	<0.01	0.14	2.9	<1	0.4	594	0.16	<0.05	2.13	0.147	0.10	1.1	41
F00051828		33.0	<0.002	<0.01	0.12	2.9	1	0.4	614	0.16	<0.05	1.98	0.151	0.12	1.0	43
F00051829		42.0	<0.002	<0.01	0.12	2.8	<1	0.4	507	0.17	<0.05	2.86	0.124	0.15	1.6	34
F00051830		41.0	<0.002	<0.01	0.12	2.7	<1	0.4	525	0.16	<0.05	3.31	0.128	0.14	1.6	37
F00051831		46.7	<0.002	<0.01	0.13	2.8	1	0.3	538	0.16	<0.05	2.71	0.129	0.16	1.8	35
F00051832		37.3	<0.002	<0.01	0.31	2.9	<1	0.4	617	0.18	<0.05	2.27	0.143	0.13	1.3	40
F00051833		40.3	<0.002	<0.01	0.16	2.9	1	0.4	515	0.16	<0.05	2.39	0.142	0.14	1.3	38
F00051834		39.0	<0.002	0.01	0.38	3.1	1	0.4	533	0.16	<0.05	1.88	0.142	0.13	1.0	38
F00051835		33.0	<0.002	<0.01	0.13	3.0	1	0.4	597	0.14	<0.05	1.48	0.144	0.12	0.9	41
F00051836		36.2	<0.002	<0.01	0.11	2.7	<1	0.4	567	0.15	<0.05	1.53	0.139	0.14	1.0	39
F00051837		32.4	<0.002	<0.01	0.14	2.8	<1	0.4	568	0.18	<0.05	1.81	0.147	0.14	0.9	39
F00051838		33.8	<0.002	0.01	0.31	2.9	<1	0.4	543	0.16	<0.05	1.61	0.165	0.16	1.4	46
F00051839		32.6	<0.002	0.01	0.23	2.7	1	0.4	551	0.14	<0.05	2.85	0.120	0.13	1.3	34
F00051840		35.6	<0.002	<0.01	0.16	2.9	<1	0.4	498	0.16	<0.05	1.92	0.137	0.14	0.8	38

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 29-JAN-2021
Account: HACMIN

Project: Highland Valley P1M-01

CERTIFICATE OF ANALYSIS VA20264856

Sample Description	Method / Analyte / Units / LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	Cu-OG62 Cu % 0.001
F00051801		0.2	3.8	30	11.3	
F00051802		0.1	1.6	11	47.0	
F00051803		0.1	3.9	31	13.6	
F00051804		0.1	4.2	41	7.7	
F00051805		0.1	2.0	12	51.1	
F00051806		0.1	4.5	31	19.8	
F00051807		0.1	4.7	46	7.4	
F00051808		0.9	4.5	44	8.1	
F00051809		0.8	3.6	23	33.5	
F00051810		57.8	17.1	227	62.3	0.182
F00051811		0.2	4.7	40	15.7	
F00051812		0.1	4.8	42	8.9	
F00051813		0.2	4.6	42	7.6	
F00051814		0.3	5.6	43	9.1	
F00051815		0.1	5.8	47	9.7	
F00051816		0.1	8.8	60	9.2	
F00051817		0.1	7.7	48	10.0	
F00051818		0.1	8.9	55	10.4	
F00051819		0.1	6.7	53	7.8	
F00051820		0.1	0.2	<2	<0.5	
F00051821		0.1	5.3	57	6.4	
F00051822		0.2	5.3	51	7.8	
F00051823		0.2	5.4	50	8.2	
F00051824		0.1	6.5	41	9.1	
F00051825		0.1	5.7	39	9.6	
F00051826		0.1	6.2	41	9.8	
F00051827		0.1	6.4	41	9.4	
F00051828		0.1	6.0	44	9.6	
F00051829		0.1	5.7	36	15.5	
F00051830		0.1	5.4	37	17.0	
F00051831		0.1	5.4	38	15.9	
F00051832		0.1	5.5	43	10.8	
F00051833		0.1	5.9	43	10.2	
F00051834		0.1	6.3	45	10.9	
F00051835		0.1	5.7	45	9.3	
F00051836		0.1	5.5	44	9.6	
F00051837		0.1	5.6	45	11.5	
F00051838		0.3	4.8	41	10.5	
F00051839		0.1	5.1	41	12.1	
F00051840		0.1	5.7	41	8.9	

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 29-JAN-2021
Account: HACMIN

Project: Highland Valley P1M-01

CERTIFICATE OF ANALYSIS VA20264856

Sample Description	Method / Analyte / Units / LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
F00051841		8.42	0.02	7.72	1.4	960	0.91	0.02	2.05	<0.02	21.5	4.0	12	0.62	5.4	1.54
F00051842		8.10	0.02	7.59	1.4	1460	0.85	0.02	2.11	<0.02	21.2	3.8	13	0.47	5.4	1.64
F00051843		7.04	0.04	7.29	1.4	950	0.81	0.02	2.36	<0.02	16.40	3.7	12	1.31	48.8	1.63
F00051844		6.94	0.03	7.72	1.3	780	0.79	0.02	2.31	<0.02	16.35	3.6	15	0.57	4.5	1.59
F00051845		7.98	0.01	7.71	1.1	760	0.84	0.02	2.09	<0.02	18.25	3.6	14	0.49	3.7	1.60
F00051846		8.38	0.01	7.80	1.2	1010	0.89	0.02	2.37	<0.02	19.60	3.6	14	0.41	3.9	1.65
F00051847		8.30	0.01	7.18	0.8	760	0.81	0.01	3.00	<0.02	15.60	3.6	14	0.60	6.3	1.65
F00051848		7.50	0.02	7.38	0.4	770	0.69	0.01	2.68	0.02	17.70	3.7	15	0.87	21.7	1.69
F00051849		8.38	0.01	6.93	1.1	760	0.81	0.02	2.78	0.02	14.85	3.4	15	0.69	5.3	1.58
F00051850		7.64	0.01	7.55	1.1	850	0.83	0.02	2.12	<0.02	17.15	3.6	14	0.79	7.8	1.64
F00051851		0.06	30.8	4.18	276	460	0.91	202	16.10	1.26	52.0	43.3	89	2.02	1880	10.50
F00051852		7.12	0.01	7.48	1.6	1060	0.93	0.01	2.14	<0.02	18.35	3.9	15	0.50	5.6	1.52
F00051853		7.80	0.02	6.12	0.9	620	0.65	0.09	2.63	<0.02	10.25	3.1	16	1.52	2.5	1.36
F00051854		7.50	0.01	7.74	1.4	870	0.85	0.06	2.22	<0.02	15.75	3.4	15	0.71	4.1	1.54
F00051855		7.62	0.06	7.88	1.5	950	0.87	0.08	2.13	<0.02	19.40	3.4	10	0.50	45.9	1.57
F00051856		8.14	0.06	7.60	1.8	770	0.77	0.08	2.13	<0.02	18.55	3.5	12	0.59	41.5	1.57
F00051857		7.32	0.01	8.12	1.3	950	1.02	0.03	2.20	<0.02	23.7	3.9	14	0.49	4.3	1.69
F00051858		7.64	0.02	7.64	1.4	860	0.89	0.03	2.23	<0.02	22.2	3.6	17	0.71	5.4	1.65
F00051859		7.38	0.02	7.74	0.9	1230	0.84	0.03	2.06	<0.02	18.25	3.8	10	0.60	4.2	1.61
F00051860		0.94	0.01	0.07	<0.2	10	<0.05	0.04	36.6	<0.02	0.25	0.5	1	<0.05	1.1	0.04
F00051861		6.44	0.04	7.48	1.4	1020	0.88	0.07	2.24	0.02	15.30	3.8	13	0.85	5.4	1.65
F00051862		7.30	0.04	7.78	0.9	940	0.86	0.03	2.29	<0.02	20.4	4.0	13	0.56	19.3	1.73
F00051863		6.78	0.17	6.96	0.4	980	0.67	0.04	2.81	0.03	14.65	3.8	13	1.34	138.0	1.53
F00051864		6.70	0.03	7.31	1.1	880	0.79	0.03	2.81	0.02	14.00	3.8	16	1.29	32.7	1.57
F00051865		7.00	0.02	7.30	2.5	820	0.75	0.03	2.42	<0.02	15.65	3.7	15	0.74	15.6	1.59
F00051866		7.92	0.02	7.62	8.3	990	0.86	0.02	1.86	<0.02	17.20	3.8	15	1.26	4.7	1.67
F00051867		7.20	0.02	7.68	3.1	1040	0.90	0.02	2.11	<0.02	19.30	3.7	12	1.05	4.0	1.63
F00051868		8.14	0.02	7.60	4.9	1010	0.83	0.02	2.03	<0.02	18.95	3.5	19	1.22	4.7	1.62
F00051869		4.06	0.02	7.69	2.7	820	0.81	0.03	1.98	<0.02	19.95	4.0	12	0.82	5.1	1.65
F00051870		4.00	0.02	7.79	3.2	850	1.00	0.02	2.03	<0.02	20.2	4.0	14	0.90	4.8	1.68
F00051871		7.70	0.01	7.56	3.2	1140	0.96	0.03	1.97	<0.02	17.95	3.6	24	0.99	4.3	1.63
F00051872		7.96	0.03	7.36	2.8	900	1.01	0.02	1.93	<0.02	18.05	3.8	15	1.12	11.7	1.61
F00051873		7.68	0.03	7.72	1.7	890	1.12	0.03	2.09	<0.02	18.90	4.0	17	0.82	13.6	1.67
F00051874		6.78	0.04	7.71	1.3	1050	1.07	0.05	2.23	<0.02	19.30	4.0	14	0.69	20.5	1.73
F00051875		7.70	0.03	7.57	1.7	950	0.99	0.04	2.20	<0.02	16.95	4.0	11	0.73	15.7	1.66
F00051876		8.20	0.02	7.70	1.2	1360	0.97	0.03	2.24	<0.02	20.4	4.0	14	0.63	9.1	1.75
F00051877		7.90	0.02	7.94	1.9	750	1.06	0.04	2.18	<0.02	20.1	4.2	20	0.73	11.2	1.63
F00051878		6.60	0.01	7.78	1.7	1050	0.91	0.02	2.60	<0.02	16.65	3.7	12	1.04	2.8	1.63
F00051879		7.70	0.04	7.27	1.1	1040	0.86	0.02	2.14	0.05	17.10	3.6	13	0.61	5.2	1.54
F00051880		0.04	71.2	5.34	68.2	790	0.73	5.38	1.28	0.62	12.80	1.8	333	0.95	7260	1.20

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 29-JAN-2021
Account: HACMIN

Project: Highland Valley P1M-01

CERTIFICATE OF ANALYSIS VA20264856

Sample Description	Method Analyte Units LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
F00051841		18.25	0.16	0.6	0.015	1.84	9.4	9.3	0.40	480	0.88	3.43	2.2	1.9	420	4.7
F00051842		17.00	0.15	0.6	0.016	1.75	10.8	10.7	0.40	532	0.89	3.49	2.3	1.8	410	5.5
F00051843		16.00	0.12	0.5	0.016	1.92	6.7	11.6	0.36	544	0.97	2.87	2.0	1.8	390	4.6
F00051844		16.20	0.11	0.6	0.012	1.74	7.2	11.4	0.36	465	0.92	3.39	1.9	1.6	400	4.0
F00051845		16.15	0.13	0.6	0.011	1.72	8.0	9.3	0.37	465	0.93	3.47	2.0	1.7	410	4.6
F00051846		16.85	0.13	0.6	0.015	1.86	8.1	8.2	0.38	530	0.85	3.44	2.1	1.7	420	4.8
F00051847		16.45	0.13	0.6	0.018	2.05	6.7	7.1	0.35	991	1.08	2.98	1.7	1.5	380	3.9
F00051848		15.70	0.14	0.5	0.019	2.33	7.7	5.7	0.36	914	1.30	2.49	1.6	1.6	390	2.5
F00051849		15.70	0.12	0.6	0.015	2.03	6.5	7.2	0.31	983	1.08	2.86	1.6	1.6	370	3.6
F00051850		16.20	0.12	0.6	0.014	2.08	7.4	8.2	0.35	682	1.01	3.00	1.9	1.6	390	4.0
F00051851		12.85	0.19	1.8	2.04	0.62	25.6	13.9	1.51	2310	330	0.61	8.9	94.0	930	152.5
F00051852		18.15	0.23	0.6	0.014	1.93	8.5	12.2	0.31	470	1.12	3.36	2.4	1.9	390	4.8
F00051853		15.20	0.14	0.5	0.013	2.32	4.6	9.5	0.19	433	1.22	2.01	1.6	1.4	350	1.7
F00051854		16.05	0.13	0.6	0.012	1.92	7.0	11.0	0.34	491	1.03	3.29	1.9	1.6	420	3.7
F00051855		16.55	0.14	0.7	0.014	1.90	8.6	14.0	0.34	478	0.72	3.58	2.4	1.3	400	5.1
F00051856		16.00	0.14	0.7	0.013	1.76	8.3	13.5	0.36	483	0.79	3.40	2.2	1.4	400	5.2
F00051857		17.20	0.14	0.6	0.017	1.89	11.3	15.6	0.41	516	0.95	3.53	2.3	1.7	420	4.7
F00051858		16.80	0.14	0.6	0.013	1.66	9.9	12.0	0.33	503	1.15	3.43	2.4	1.7	420	5.1
F00051859		16.90	0.13	0.6	0.013	1.93	7.6	12.6	0.36	480	0.73	3.29	2.3	1.6	420	5.4
F00051860		0.32	0.26	<0.1	<0.005	0.01	<0.5	0.5	1.81	23	0.11	0.01	<0.1	<0.2	40	<0.5
F00051861		16.60	0.23	0.5	0.015	1.73	6.5	12.8	0.39	509	0.96	3.33	2.0	1.7	440	4.9
F00051862		17.05	0.23	0.6	0.015	1.75	8.7	14.1	0.41	537	0.91	3.48	2.2	1.8	450	4.3
F00051863		15.90	0.26	0.4	0.016	2.30	6.1	9.7	0.35	602	1.08	2.26	1.5	1.5	390	2.0
F00051864		16.00	0.23	0.5	0.015	2.04	5.9	11.1	0.37	542	2.26	2.57	1.7	1.6	420	2.5
F00051865		15.95	0.19	0.5	0.016	1.74	6.2	14.0	0.34	504	2.34	3.20	1.8	1.7	420	4.0
F00051866		17.00	0.20	0.5	0.016	1.96	6.9	17.5	0.34	460	20.5	2.97	2.1	1.7	450	4.1
F00051867		16.95	0.22	0.5	0.014	1.86	7.9	22.0	0.33	461	33.5	3.23	2.2	1.5	410	4.4
F00051868		16.40	0.19	0.5	0.012	1.90	8.6	22.9	0.31	442	14.85	3.01	1.9	1.7	430	4.4
F00051869		17.15	0.19	0.6	0.016	1.72	8.7	17.0	0.38	487	3.14	3.36	2.0	1.7	440	4.6
F00051870		17.40	0.17	0.6	0.016	1.81	10.3	18.2	0.38	499	7.52	3.37	2.1	2.1	440	4.9
F00051871		16.35	0.15	0.5	0.013	1.92	7.0	15.1	0.33	460	4.63	3.18	1.9	2.0	420	4.4
F00051872		16.40	0.15	0.6	0.016	1.80	7.3	20.4	0.36	467	5.94	3.23	1.9	1.7	430	4.3
F00051873		17.40	0.13	0.7	0.017	1.75	8.7	18.1	0.40	506	3.81	3.39	2.1	1.9	430	4.4
F00051874		17.80	0.17	0.7	0.016	1.80	8.7	18.9	0.40	513	1.00	3.44	2.2	1.7	420	5.0
F00051875		16.55	0.14	0.7	0.016	1.67	8.1	19.0	0.39	533	5.23	3.30	2.0	1.6	410	4.3
F00051876		16.25	0.15	0.6	0.016	1.92	8.6	15.1	0.42	535	0.94	3.31	2.3	1.8	440	4.7
F00051877		17.05	0.17	0.6	0.015	1.76	9.0	15.1	0.43	509	1.32	3.52	2.4	2.1	430	5.3
F00051878		17.15	0.16	0.5	0.013	1.83	7.3	11.1	0.35	485	0.83	3.39	1.8	1.6	430	4.6
F00051879		17.15	0.07	0.5	0.014	1.70	7.9	12.3	0.33	446	1.64	3.37	2.2	3.5	420	7.1
F00051880		15.30	0.07	0.2	0.037	2.91	6.0	13.3	0.17	260	722	1.22	2.0	5.5	400	120.5

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: HAPPY CREEK MINERALS LTD.
460–789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 29–JAN–2021
Account: HACMIN

Project: Highland Valley P1M–01

CERTIFICATE OF ANALYSIS VA20264856

Sample Description	Method / Analyte / Units / LOD	ME–MS61 Rb ppm 0.1	ME–MS61 Re ppm 0.002	ME–MS61 S % 0.01	ME–MS61 Sb ppm 0.05	ME–MS61 Sc ppm 0.1	ME–MS61 Se ppm 1	ME–MS61 Sn ppm 0.2	ME–MS61 Sr ppm 0.2	ME–MS61 Ta ppm 0.05	ME–MS61 Te ppm 0.05	ME–MS61 Th ppm 0.01	ME–MS61 Ti % 0.005	ME–MS61 Tl ppm 0.02	ME–MS61 U ppm 0.1	ME–MS61 V ppm 1
F00051841		35.9	<0.002	0.01	0.28	3.2	1	0.4	479	0.14	<0.05	1.77	0.134	0.12	0.8	39
F00051842		29.3	<0.002	0.02	0.31	3.3	1	0.4	546	0.17	<0.05	2.20	0.149	0.11	0.8	41
F00051843		35.5	<0.002	0.01	0.56	3.1	<1	0.4	447	0.14	<0.05	1.32	0.134	0.14	0.5	40
F00051844		30.5	<0.002	<0.01	0.34	2.9	1	0.3	474	0.14	<0.05	1.61	0.136	0.13	0.7	39
F00051845		30.0	<0.002	<0.01	0.23	2.9	<1	0.4	517	0.16	<0.05	2.13	0.136	0.11	0.8	39
F00051846		29.8	<0.002	<0.01	0.15	3.2	1	0.4	570	0.16	<0.05	1.88	0.144	0.12	0.7	41
F00051847		34.6	<0.002	<0.01	0.41	2.8	1	0.4	439	0.13	<0.05	1.62	0.130	0.15	0.6	39
F00051848		46.9	<0.002	<0.01	0.68	2.9	1	0.4	253	0.12	<0.05	1.86	0.127	0.18	0.6	39
F00051849		36.5	<0.002	<0.01	0.43	2.8	<1	0.3	357	0.13	<0.05	1.68	0.117	0.14	0.7	37
F00051850		38.7	<0.002	<0.01	0.36	2.9	<1	0.4	408	0.15	<0.05	1.75	0.130	0.14	0.8	39
F00051851		24.8	0.013	2.68	86.6	13.4	2	145.5	299	0.51	57.9	5.26	0.431	0.33	3.0	94
F00051852		32.5	<0.002	<0.01	0.31	3.0	<1	0.4	456	0.18	<0.05	1.60	0.140	0.13	0.8	38
F00051853		51.4	<0.002	<0.01	0.37	2.3	<1	0.4	162.5	0.11	<0.05	1.04	0.112	0.18	0.3	33
F00051854		36.2	<0.002	<0.01	0.22	3.0	1	0.4	428	0.15	<0.05	1.60	0.141	0.14	0.9	39
F00051855		32.3	<0.002	<0.01	0.23	2.9	1	0.4	553	0.19	<0.05	2.03	0.138	0.13	1.0	38
F00051856		31.2	<0.002	0.01	0.21	2.9	<1	0.4	495	0.17	<0.05	2.14	0.136	0.12	1.1	38
F00051857		33.7	<0.002	<0.01	0.18	3.1	1	0.4	577	0.18	<0.05	2.03	0.149	0.12	0.9	41
F00051858		30.6	<0.002	<0.01	0.23	3.2	<1	0.4	597	0.19	<0.05	1.89	0.146	0.10	0.8	40
F00051859		35.1	<0.002	<0.01	0.23	3.2	<1	0.4	676	0.17	<0.05	1.99	0.148	0.13	0.9	40
F00051860		0.2	<0.002	0.13	<0.05	0.1	2	<0.2	4810	<0.05	<0.05	0.02	<0.005	<0.02	1.4	1
F00051861		30.4	<0.002	<0.01	0.31	3.1	1	0.4	525	0.15	<0.05	1.58	0.148	0.13	0.7	42
F00051862		30.4	<0.002	<0.01	0.22	3.5	<1	0.4	547	0.17	<0.05	1.79	0.158	0.11	0.7	44
F00051863		45.2	<0.002	0.01	1.14	2.8	<1	0.3	224	0.12	<0.05	1.45	0.124	0.18	0.5	39
F00051864		40.4	<0.002	<0.01	0.89	2.8	1	0.3	324	0.12	<0.05	1.48	0.126	0.18	0.6	40
F00051865		29.7	<0.002	0.01	0.33	2.8	<1	0.4	479	0.13	<0.05	1.71	0.140	0.13	0.7	40
F00051866		35.0	<0.002	0.03	0.25	3.1	<1	0.4	544	0.15	<0.05	1.63	0.157	0.19	0.7	43
F00051867		34.6	0.002	0.02	0.20	2.9	1	0.4	567	0.15	<0.05	1.55	0.145	0.18	0.7	41
F00051868		33.5	0.002	0.02	0.25	2.8	1	0.4	548	0.14	<0.05	1.33	0.138	0.17	0.6	41
F00051869		32.9	<0.002	0.01	0.23	3.2	1	0.4	531	0.15	<0.05	2.02	0.145	0.13	1.1	41
F00051870		33.1	<0.002	0.01	0.25	3.3	1	0.4	539	0.16	<0.05	2.13	0.146	0.15	1.0	42
F00051871		32.9	<0.002	0.01	0.17	3.0	1	0.4	519	0.14	<0.05	1.64	0.143	0.14	0.8	41
F00051872		33.3	<0.002	0.02	0.37	3.1	<1	0.4	449	0.14	<0.05	1.54	0.140	0.13	0.8	40
F00051873		32.7	<0.002	0.01	0.16	3.2	1	0.4	556	0.15	<0.05	2.40	0.150	0.12	1.5	41
F00051874		35.2	<0.002	<0.01	0.12	3.3	1	0.4	570	0.15	<0.05	2.44	0.149	0.12	1.5	41
F00051875		30.9	<0.002	0.01	0.20	3.2	1	0.4	531	0.15	<0.05	2.22	0.147	0.12	1.5	41
F00051876		33.7	<0.002	<0.01	0.12	3.4	1	0.4	566	0.17	<0.05	1.81	0.157	0.13	1.2	44
F00051877		31.7	<0.002	<0.01	0.25	3.2	1	0.4	505	0.18	<0.05	2.28	0.157	0.11	1.3	41
F00051878		38.3	<0.002	0.01	0.20	3.0	<1	0.3	552	0.14	<0.05	2.09	0.131	0.14	0.9	39
F00051879		29.5	<0.002	0.01	0.51	2.7	<1	0.4	527	0.17	<0.05	1.26	0.141	0.12	0.7	39
F00051880		44.3	0.071	0.78	160.0	1.5	1	1.6	352	0.09	0.67	0.98	0.073	0.23	1.5	36

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 29-JAN-2021
Account: HACMIN

Project: Highland Valley P1M-01

CERTIFICATE OF ANALYSIS VA20264856

Sample Description	Method / Analyte / Units / LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	Cu-OG62 Cu % 0.001
F00051841		0.1	6.2	44	11.3	
F00051842		0.1	6.4	47	9.8	
F00051843		0.2	5.6	44	8.1	
F00051844		0.2	5.2	48	9.0	
F00051845		0.1	5.7	41	9.6	
F00051846		0.1	6.2	45	8.9	
F00051847		0.1	5.3	41	8.8	
F00051848		0.2	5.3	36	9.0	
F00051849		0.2	5.2	40	8.8	
F00051850		0.2	5.7	43	8.8	
F00051851		60.5	18.8	225	59.7	0.184
F00051852		0.1	6.1	41	11.2	
F00051853		0.4	3.7	36	8.8	
F00051854		0.1	5.3	43	9.3	
F00051855		0.2	5.9	41	10.2	
F00051856		0.2	5.9	42	9.5	
F00051857		0.1	7.0	44	8.5	
F00051858		0.2	7.2	40	8.6	
F00051859		0.2	6.3	47	9.2	
F00051860		0.1	0.2	<2	<0.5	
F00051861		0.2	5.0	46	6.9	
F00051862		0.1	6.9	47	8.7	
F00051863		0.3	5.0	36	6.5	
F00051864		0.2	5.1	40	7.9	
F00051865		0.4	5.5	42	7.7	
F00051866		0.4	6.0	45	7.1	
F00051867		0.2	6.4	41	7.5	
F00051868		0.5	6.0	39	7.2	
F00051869		0.2	6.3	44	8.7	
F00051870		0.2	6.3	45	8.6	
F00051871		0.3	5.9	41	7.7	
F00051872		0.4	6.1	44	8.1	
F00051873		0.2	5.8	46	9.2	
F00051874		0.1	6.4	43	10.1	
F00051875		0.1	5.7	46	10.0	
F00051876		0.1	6.7	45	8.2	
F00051877		0.2	6.7	49	9.0	
F00051878		0.1	5.2	45	6.8	
F00051879		0.1	4.9	50	6.1	
F00051880		0.9	3.4	82	3.6	0.762

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 29-JAN-2021
Account: HACMIN

Project: Highland Valley P1M-01

CERTIFICATE OF ANALYSIS VA20264856

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
F00051881		10.46	0.05	7.26	0.9	1350	0.97	0.05	2.41	0.03	17.40	3.6	13	0.72	7.3	1.57
F00051882		7.36	0.04	6.93	0.5	810	0.80	0.08	2.40	<0.02	14.60	3.0	13	0.59	30.6	1.50
F00051883		8.12	0.01	7.37	0.8	830	0.93	0.02	2.41	<0.02	18.55	3.4	14	0.50	4.5	1.54
F00051884		8.40	0.01	7.41	1.1	940	0.87	0.01	2.18	<0.02	17.60	3.5	10	0.45	6.6	1.53
F00051885		6.86	0.01	7.26	1.2	980	0.91	0.01	2.21	<0.02	19.45	3.5	11	0.40	4.8	1.58

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 29-JAN-2021
Account: HACMIN

Project: Highland Valley P1M-01

CERTIFICATE OF ANALYSIS VA20264856

Sample Description	Method Analyte Units LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
F00051881		17.90	0.07	0.6	0.014	1.18	8.9	14.2	0.36	410	1.53	3.34	2.4	1.8	420	3.8
F00051882		16.45	0.07	0.5	0.014	1.92	6.6	10.7	0.30	411	1.19	2.76	1.9	1.7	400	3.4
F00051883		17.35	0.09	0.4	0.012	1.75	7.3	10.9	0.34	465	1.05	3.19	2.3	1.8	420	4.0
F00051884		17.10	0.07	0.5	0.013	1.69	7.7	12.3	0.36	453	0.85	3.24	2.2	1.8	420	3.9
F00051885		17.40	0.08	0.5	0.014	1.62	8.3	11.9	0.34	458	0.88	3.39	2.3	1.6	430	4.0

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 29-JAN-2021
Account: HACMIN

Project: Highland Valley P1M-01

CERTIFICATE OF ANALYSIS VA20264856

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
F00051881		19.8	<0.002	0.02	0.75	2.9	<1	0.4	618	0.17	<0.05	1.74	0.145	0.08	0.9	38
F00051882		36.8	<0.002	<0.01	0.22	2.7	<1	0.3	442	0.15	<0.05	1.25	0.130	0.13	0.7	39
F00051883		32.4	<0.002	<0.01	0.18	3.2	<1	0.4	538	0.17	<0.05	1.53	0.145	0.12	0.8	40
F00051884		28.7	<0.002	0.01	0.16	2.9	<1	0.4	538	0.16	<0.05	1.50	0.143	0.12	0.9	39
F00051885		26.4	<0.002	<0.01	0.17	2.9	1	0.4	568	0.18	<0.05	1.40	0.142	0.11	0.9	40

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 29-JAN-2021
Account: HACMIN

Project: Highland Valley P1M-01

CERTIFICATE OF ANALYSIS VA20264856

Sample Description	Method Analyte Units LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	Cu-OG62 Cu % 0.001
F00051881		0.1	4.8	41	9.3	
F00051882		0.1	4.8	30	6.8	
F00051883		0.1	6.3	37	6.8	
F00051884		0.1	5.4	40	7.6	
F00051885		0.1	6.8	40	8.2	

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 29-JAN-2021
Account: HACMIN

Project: Highland Valley P1M-01

CERTIFICATE OF ANALYSIS VA20264856

CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

REEs may not be totally soluble in this method.

Applies to Method: ME-MS61

LABORATORY ADDRESSES

Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.

Applies to Method:

CRU-31	CRU-QC	Cu-OG62	LOG-21
LOG-23	ME-MS61	ME-OG62	PUL-31
PUL-QC	SPL-21	WEI-21	

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 2-MAR-2021
Account: HACMIN

CERTIFICATE VA20285074

Project: Highland Valley (Z1)

This report is for 153 samples of Drill Core submitted to our lab in Vancouver, BC, Canada on 3-DEC-2020.

The following have access to data associated with this certificate:

DAVID BLANN	SASSAN LIAGHAT	

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-21	Sample logging - ClientBarCode
CRU-31	Fine crushing - 70% <2mm
SPL-21	Split sample - riffle splitter
PUL-31	Pulverize up to 250g 85% <75 um
LOG-23	Pulp Login - Rcvd with Barcode
CRU-QC	Crushing QC Test
PUL-QC	Pulverizing QC Test

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-OG62	Ore Grade Elements - Four Acid	ICP-AES
Cu-OG62	Ore Grade Cu - Four Acid	
Au-ICP21	Au 30g FA ICP-AES Finish	ICP-AES
ME-MS61	48 element four acid ICP-MS	

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:
Saa Traxler, General Manager, North Vancouver

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 2-MAR-2021
Account: HACMIN

Project: Highland Valley (Z1)

CERTIFICATE OF ANALYSIS VA20285074

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
F00052118		10.02	0.03	7.84	2.9	780	0.85	0.04	2.66	0.02	15.60	4.5	10	0.71	24.4	1.83
F00052119		8.62	0.02	8.38	1.3	960	0.93	0.02	2.58	<0.02	17.45	4.7	7	0.55	19.1	1.93
F00052120		0.06	78.3	5.78	67.8	850	0.71	5.70	1.37	0.72	14.40	1.8	365	1.03	7850	1.27
F00052121		8.78	0.09	7.74	1.4	790	0.86	0.04	2.46	0.02	15.70	4.5	13	0.71	52.5	1.81
F00052122		6.84	0.05	7.83	1.2	710	0.94	0.07	2.49	0.02	15.10	4.6	13	0.58	56.2	1.82
F00052123		7.38	0.14	7.79	0.5	830	0.86	0.05	2.69	<0.02	14.85	4.6	7	0.67	231	1.91
F00052124		8.76	0.18	7.95	1.3	630	1.24	0.05	2.29	0.02	17.45	4.2	11	0.71	283	1.73
F00052125		8.52	0.35	7.07	0.8	1400	0.98	0.05	3.24	0.08	12.10	4.7	10	1.74	540	1.83
F00052126		8.50	0.11	6.91	0.7	1020	0.86	0.03	3.17	0.03	11.30	4.5	8	1.41	154.5	1.80
F00052127		8.48	0.02	7.89	1.6	1070	0.83	0.01	2.47	<0.02	15.00	4.6	10	0.68	13.1	1.80
F00052128		7.92	0.46	7.81	1.1	1060	0.82	0.08	2.85	0.04	13.05	4.2	14	0.91	540	1.66
F00052129		8.78	0.37	7.48	0.3	1030	0.94	0.07	2.29	<0.02	13.10	2.2	9	1.21	532	1.11
F00052130		8.60	0.03	7.38	0.3	1010	0.91	0.01	2.26	<0.02	15.25	3.1	11	0.58	45.2	1.33
F00052131		10.06	0.06	7.82	0.7	1000	0.91	0.01	2.51	<0.02	18.70	4.7	11	0.47	99.5	1.83
F00052132		8.68	0.35	7.41	0.6	830	0.96	0.02	2.23	<0.02	16.05	4.5	9	0.92	557	1.72
F00052133		9.86	0.03	7.69	1.1	900	0.87	0.02	2.63	<0.02	14.25	4.7	9	0.56	52.5	1.77
F00052134		9.62	0.04	7.19	1.1	810	0.84	0.02	2.45	<0.02	14.45	3.8	13	0.77	76.9	1.51
F00052135		8.20	0.01	7.92	0.7	920	0.89	0.02	2.80	<0.02	14.30	5.1	10	0.56	15.1	1.89
F00052136		9.28	<0.01	7.80	1.0	910	0.91	0.02	2.75	<0.02	14.50	5.0	11	0.48	4.5	1.87
F00052137		4.82	0.04	7.96	1.4	840	1.00	0.02	2.58	<0.02	16.10	5.2	12	0.44	69.7	1.88
F00052138		5.94	1.18	7.08	0.4	950	0.83	0.05	3.34	0.05	10.35	5.3	12	0.96	1480	1.86
F00052139		9.68	0.01	7.44	0.7	750	0.89	0.02	2.92	<0.02	13.45	5.1	9	0.43	7.2	1.82
F00052140		8.00	0.06	8.00	1.9	310	1.00	0.06	2.78	<0.02	15.40	6.4	10	0.35	102.5	1.76
F00052141		9.62	6.15	8.02	2.8	370	1.30	0.58	4.30	0.03	15.05	4.0	7	0.65	>10000	2.19
F00052142		9.08	0.05	7.88	0.9	430	1.16	0.08	2.72	<0.02	17.40	5.0	9	0.79	77.6	1.72
F00052143		8.80	0.01	6.86	0.6	890	1.02	0.02	3.18	0.06	12.40	4.6	8	1.20	12.8	1.71
F00052144		8.78	0.01	7.77	0.7	900	0.94	0.01	2.73	0.06	13.80	4.7	10	1.02	12.0	1.80
F00052145		8.16	0.02	7.92	2.5	1190	0.97	0.01	2.58	0.03	15.10	4.9	12	0.94	8.4	1.85
F00052146		8.54	0.01	7.86	0.7	930	0.97	0.01	2.70	<0.02	16.10	4.7	8	0.72	5.2	1.80
F00052147		7.80	0.01	7.22	0.8	900	0.88	0.01	2.74	0.02	11.80	2.9	9	0.77	14.2	1.25
F00052148		8.80	0.01	7.33	0.6	1040	1.01	0.01	1.97	0.02	11.35	1.7	15	0.79	15.9	0.76
F00052149		8.86	0.04	7.34	0.5	720	0.95	0.02	2.13	0.03	10.85	1.9	10	0.95	53.7	0.81
F00052150		0.06	75.5	5.77	63.8	860	0.74	5.89	1.41	0.65	12.95	1.9	365	1.05	7710	1.28
F00052151		9.16	0.06	7.65	0.4	960	0.97	0.01	2.24	0.03	14.45	2.8	9	0.97	12.0	1.15
F00052152		8.04	0.02	7.40	0.5	850	1.01	0.01	1.65	<0.02	10.75	1.5	11	0.71	6.1	0.72
F00052153		8.74	0.01	7.65	0.7	900	0.94	0.01	2.28	0.02	13.70	2.5	15	0.69	4.1	1.04
F00052154		7.36	0.01	7.93	0.5	1040	0.86	0.01	2.39	0.03	13.35	4.4	11	0.99	6.5	1.75
F00052155		6.16	0.01	5.83	0.7	520	0.92	0.01	4.85	0.10	12.20	4.9	8	1.42	6.7	1.81
F00052156		9.96	0.03	7.52	0.8	830	0.81	0.02	2.80	0.02	13.95	4.8	10	0.99	33.7	1.83
F00052157		7.52	0.01	7.68	0.9	720	0.88	0.01	2.44	0.03	14.65	4.6	9	0.63	5.2	1.79

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 2-MAR-2021
Account: HACMIN

Project: Highland Valley (Z1)

CERTIFICATE OF ANALYSIS VA20285074

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
F00052118		17.50	0.18	0.7	0.016	1.41	6.9	10.1	0.47	525	1.64	3.57	1.9	2.4	520	4.8
F00052119		18.30	0.19	0.6	0.019	1.51	8.1	9.6	0.52	526	0.63	3.73	1.9	2.2	520	4.7
F00052120		16.10	0.15	0.3	0.041	3.08	7.0	12.7	0.18	283	790	1.30	2.1	6.1	430	124.5
F00052121		17.45	0.19	0.6	0.018	1.47	7.1	9.3	0.46	523	1.20	3.50	1.9	2.7	520	4.8
F00052122		18.10	0.17	0.6	0.016	1.43	6.5	8.6	0.51	527	0.92	3.72	1.9	2.3	500	5.0
F00052123		17.50	0.16	0.6	0.019	1.60	6.5	8.1	0.48	615	0.90	3.48	1.9	2.0	500	4.0
F00052124		17.75	0.21	0.8	0.015	1.21	7.9	7.5	0.43	440	0.87	3.70	2.1	2.0	460	4.7
F00052125		17.40	0.19	0.6	0.027	2.30	5.1	7.5	0.31	636	1.60	2.21	1.7	1.9	490	5.3
F00052126		16.90	0.17	0.5	0.028	2.09	4.7	7.3	0.33	600	0.76	2.56	1.6	1.9	490	4.6
F00052127		17.55	0.19	0.5	0.016	1.05	6.7	11.5	0.50	505	0.66	3.96	1.7	2.4	510	4.6
F00052128		17.05	0.18	0.6	0.021	1.88	6.3	8.1	0.39	599	1.05	3.21	1.4	4.2	400	3.8
F00052129		17.10	0.08	0.8	0.036	2.65	7.1	3.3	0.22	566	2.80	2.50	1.5	1.5	200	3.6
F00052130		17.25	0.06	0.8	0.011	1.85	7.0	6.0	0.30	432	1.24	3.35	1.8	1.5	320	4.4
F00052131		18.25	0.08	0.7	0.017	1.65	8.8	7.6	0.48	524	0.78	3.45	2.2	2.1	520	4.5
F00052132		19.00	0.08	0.9	0.031	2.18	8.7	6.5	0.38	618	2.54	2.95	1.9	1.7	450	4.4
F00052133		18.20	0.08	0.6	0.021	1.69	6.9	7.6	0.46	562	1.03	3.38	1.6	1.8	490	4.4
F00052134		17.30	0.07	0.9	0.016	1.96	6.9	6.7	0.36	501	1.61	3.35	1.7	1.7	420	5.2
F00052135		19.25	0.08	0.5	0.019	1.47	6.7	8.3	0.50	512	0.78	3.62	1.7	2.1	530	4.6
F00052136		18.75	0.07	0.6	0.016	1.41	6.6	8.2	0.51	512	0.88	3.62	1.7	2.1	540	4.3
F00052137		18.50	0.08	0.5	0.016	1.25	7.0	7.8	0.51	523	0.98	3.77	1.8	2.4	530	4.4
F00052138		17.90	0.07	0.5	0.019	2.18	4.4	7.8	0.37	670	3.94	2.56	1.4	2.0	520	3.6
F00052139		18.55	0.07	0.5	0.018	1.12	6.0	7.9	0.51	546	0.77	3.51	1.6	2.0	510	4.2
F00052140		18.95	0.07	0.5	0.018	0.56	7.6	12.5	0.64	636	0.79	4.01	1.6	2.2	540	3.0
F00052141		23.5	0.09	0.8	0.047	0.82	6.7	6.9	0.33	1090	32.7	3.97	2.3	2.1	540	5.0
F00052142		18.85	0.06	0.7	0.017	0.77	8.4	11.2	0.57	597	0.83	3.48	2.0	2.2	500	3.5
F00052143		17.70	0.07	0.5	0.016	2.11	5.2	10.6	0.33	718	1.50	2.14	1.8	1.8	460	4.6
F00052144		19.00	0.09	0.5	0.018	2.03	6.0	9.0	0.36	508	4.97	3.02	1.8	2.0	500	5.5
F00052145		18.80	0.09	0.6	0.017	1.90	6.7	10.1	0.45	530	5.70	3.09	1.8	2.2	530	4.3
F00052146		18.50	0.08	0.5	0.018	1.62	7.4	8.8	0.50	515	9.40	3.48	1.8	2.0	520	4.6
F00052147		16.65	0.05	0.6	0.012	1.88	5.4	7.6	0.32	433	1.53	3.33	1.5	3.7	310	4.7
F00052148		17.35	0.06	0.9	0.006	2.03	6.3	6.1	0.19	255	1.21	3.30	1.3	1.0	130	4.6
F00052149		17.30	0.07	1.1	0.008	2.08	5.5	5.0	0.19	270	0.92	3.04	1.4	0.9	150	4.4
F00052150		16.75	0.08	0.3	0.044	3.05	6.1	13.1	0.19	280	772	1.30	2.0	5.5	430	123.0
F00052151		18.05	0.06	0.9	0.008	2.13	6.9	7.2	0.29	347	1.18	3.17	1.6	1.2	260	5.0
F00052152		17.45	0.06	0.8	0.006	1.99	6.2	5.1	0.20	201	0.88	3.68	1.3	0.9	120	5.1
F00052153		18.20	0.07	0.9	0.009	2.06	7.2	5.9	0.25	295	1.10	3.48	1.8	1.3	230	5.6
F00052154		18.30	0.07	0.6	0.014	1.91	6.0	7.7	0.39	469	0.97	3.19	1.8	1.9	470	4.8
F00052155		17.25	0.09	0.4	0.018	2.61	5.3	8.6	0.29	921	0.94	1.53	1.7	1.8	450	6.4
F00052156		17.80	0.08	0.5	0.018	1.76	6.0	7.8	0.43	523	0.84	3.15	1.8	1.9	510	4.2
F00052157		18.35	0.08	0.5	0.017	1.35	6.6	9.7	0.55	521	0.68	3.54	1.8	2.3	530	5.1

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 2-MAR-2021
Account: HACMIN

Project: Highland Valley (Z1)

CERTIFICATE OF ANALYSIS VA20285074

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
F00052118		23.6	<0.002	0.02	0.47	3.5	<1	0.5	727	0.13	<0.05	1.44	0.169	0.11	0.7	51
F00052119		27.8	<0.002	0.01	0.35	3.8	<1	0.4	793	0.13	<0.05	2.29	0.176	0.10	1.0	52
F00052120		50.6	0.075	0.86	176.0	1.6	2	1.6	380	0.09	0.79	0.93	0.078	0.21	1.0	38
F00052121		26.9	<0.002	0.01	0.71	3.5	1	0.4	713	0.13	<0.05	1.86	0.164	0.09	0.9	50
F00052122		25.2	<0.002	0.01	0.61	3.4	1	0.4	790	0.13	<0.05	1.56	0.166	0.11	0.8	50
F00052123		28.0	<0.002	0.01	0.51	3.3	1	0.4	743	0.13	<0.05	1.85	0.163	0.10	1.0	49
F00052124		25.7	<0.002	0.02	0.69	3.0	<1	0.4	659	0.16	<0.05	2.06	0.151	0.10	1.3	45
F00052125		49.2	0.006	0.04	1.39	3.0	1	0.4	442	0.12	<0.05	1.15	0.153	0.21	0.9	50
F00052126		40.3	<0.002	0.02	1.13	2.9	<1	0.4	480	0.11	<0.05	0.79	0.154	0.19	0.5	49
F00052127		17.2	<0.002	0.02	0.64	3.5	1	0.4	889	0.12	<0.05	1.17	0.163	0.07	0.7	50
F00052128		37.7	<0.002	0.03	0.58	2.8	<1	0.3	645	0.10	<0.05	1.31	0.130	0.14	0.8	40
F00052129		69.4	0.004	0.02	0.52	1.7	<1	0.3	307	0.12	<0.05	1.78	0.088	0.23	0.7	20
F00052130		35.1	<0.002	0.01	0.42	2.3	<1	0.3	540	0.15	<0.05	1.53	0.112	0.13	0.8	32
F00052131		29.1	<0.002	0.01	0.48	3.6	<1	0.4	690	0.17	<0.05	1.47	0.165	0.11	0.7	49
F00052132		54.6	0.015	0.02	1.42	3.6	<1	0.4	507	0.11	<0.05	1.98	0.145	0.20	1.2	43
F00052133		32.6	0.003	0.01	0.85	3.6	<1	0.4	680	0.11	<0.05	1.18	0.163	0.15	0.7	48
F00052134		38.4	0.004	0.01	0.81	3.0	<1	0.3	577	0.12	<0.05	1.77	0.139	0.15	0.9	40
F00052135		26.8	<0.002	<0.01	0.37	3.9	1	0.4	767	0.10	<0.05	1.36	0.177	0.11	0.8	52
F00052136		26.8	<0.002	0.01	0.32	3.8	<1	0.4	765	0.11	<0.05	1.40	0.175	0.10	0.8	53
F00052137		22.7	<0.002	0.01	0.64	3.8	1	0.4	718	0.13	<0.05	1.26	0.179	0.09	0.9	53
F00052138		41.5	0.003	0.05	1.01	3.2	1	0.4	374	0.10	<0.05	0.89	0.156	0.22	0.6	49
F00052139		19.9	<0.002	0.01	1.10	3.5	<1	0.4	763	0.11	<0.05	1.11	0.167	0.09	0.7	51
F00052140		9.9	<0.002	0.01	3.15	3.8	1	0.4	803	0.10	<0.05	1.13	0.164	0.05	0.8	47
F00052141		14.9	0.031	0.31	10.70	3.6	<1	0.5	964	0.16	0.05	1.22	0.185	0.08	0.8	65
F00052142		14.9	<0.002	0.01	2.18	3.8	<1	0.4	812	0.13	<0.05	1.61	0.161	0.07	0.9	46
F00052143		40.5	<0.002	0.02	1.87	3.0	<1	0.4	445	0.14	<0.05	0.84	0.155	0.20	0.6	47
F00052144		40.8	<0.002	0.01	1.42	3.7	<1	0.4	463	0.12	<0.05	1.54	0.168	0.17	0.8	51
F00052145		38.7	<0.002	0.02	1.03	3.7	1	0.4	550	0.12	<0.05	1.24	0.169	0.16	0.8	51
F00052146		30.4	<0.002	0.01	0.42	3.6	<1	0.4	752	0.13	<0.05	1.22	0.172	0.13	0.8	50
F00052147		32.3	<0.002	0.01	0.55	2.3	1	0.3	605	0.12	<0.05	1.24	0.110	0.14	0.6	31
F00052148		40.9	<0.002	0.01	0.75	1.6	<1	0.2	429	0.11	<0.05	2.02	0.060	0.16	0.9	16
F00052149		45.7	<0.002	0.01	0.82	1.6	<1	0.2	369	0.12	<0.05	2.38	0.070	0.18	1.1	18
F00052150		48.8	0.072	0.84	170.5	1.6	1	1.6	377	0.09	0.78	0.85	0.078	0.24	1.0	37
F00052151		44.0	<0.002	0.01	0.81	2.3	<1	0.3	444	0.13	<0.05	1.64	0.099	0.18	0.7	28
F00052152		38.9	<0.002	<0.01	0.39	1.5	<1	0.2	520	0.10	<0.05	1.88	0.059	0.14	0.8	14
F00052153		38.9	<0.002	<0.01	0.50	2.2	<1	0.3	519	0.14	<0.05	1.91	0.098	0.15	0.9	24
F00052154		40.0	<0.002	0.01	0.75	3.3	<1	0.4	578	0.13	<0.05	1.20	0.157	0.17	0.9	47
F00052155		57.4	<0.002	0.01	1.55	2.7	<1	0.4	344	0.12	<0.05	0.73	0.149	0.28	0.5	47
F00052156		35.8	<0.002	0.01	0.85	3.6	<1	0.4	595	0.13	<0.05	1.04	0.161	0.16	0.7	50
F00052157		26.0	<0.002	0.01	0.90	3.5	1	0.4	690	0.12	<0.05	1.13	0.165	0.12	0.7	50

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 2-MAR-2021
Account: HACMIN

Project: Highland Valley (Z1)

CERTIFICATE OF ANALYSIS VA20285074

Sample Description	Method / Analyte / Units / LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	Cu-OG62 Cu % 0.001	Au-ICP21 Au ppm 0.001
F00052118		0.2	5.2	48	9.7		
F00052119		0.4	5.3	46	8.7		
F00052120		1.1	3.6	76	4.2	0.747	
F00052121		0.3	5.0	42	8.0		
F00052122		0.2	5.1	43	8.2		
F00052123		0.4	5.1	39	7.3		
F00052124		0.2	5.1	42	10.9		
F00052125		2.9	4.2	45	9.1	0.048	
F00052126		1.4	3.7	49	7.1		
F00052127		1.8	4.4	46	7.5		
F00052128		5.6	3.9	35	10.1	0.052	
F00052129		1.1	3.2	15	14.1	0.051	
F00052130		2.2	4.4	26	13.3		
F00052131		0.9	5.8	37	10.3		
F00052132		1.2	4.1	24	15.2	0.058	
F00052133		1.3	4.2	37	8.8		
F00052134		1.1	4.5	32	15.2		
F00052135		0.6	4.8	41	7.4		
F00052136		1.1	5.2	43	7.4		
F00052137		1.3	5.4	34	7.2		
F00052138		1.1	4.1	34	7.0	0.142	
F00052139		1.5	4.9	35	6.5		
F00052140		1.1	5.1	30	7.6		
F00052141		1.1	5.2	19	12.3	1.080	
F00052142		1.2	5.7	32	10.2		
F00052143		2.1	4.3	50	7.3		
F00052144		1.3	4.8	50	6.2		
F00052145		1.6	5.0	39	7.2		
F00052146		0.6	5.3	39	6.6		
F00052147		0.5	3.7	28	9.3		
F00052148		1.0	2.8	15	17.8		
F00052149		0.7	3.1	20	20.1		
F00052150		1.0	3.8	73	4.3	0.758	
F00052151		0.4	4.2	28	17.9		
F00052152		0.9	2.5	17	15.3		
F00052153		0.6	3.9	25	16.6		
F00052154		0.6	4.5	43	8.8		
F00052155		1.7	4.7	50	5.8		
F00052156		0.7	4.9	34	5.9		
F00052157		0.4	5.1	39	6.3		

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 2-MAR-2021
Account: HACMIN

Project: Highland Valley (Z1)

CERTIFICATE OF ANALYSIS VA20285074

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
F00052158		9.68	0.03	8.01	0.8	970	0.90	0.02	2.60	<0.02	17.75	5.0	8	0.67	38.7	1.88
F00052159		9.20	0.08	7.66	0.4	1130	0.92	0.05	2.94	0.04	12.95	5.1	10	0.98	109.0	1.93
F00052160		1.82	0.02	0.08	<0.2	10	0.05	0.02	21.3	0.02	1.00	0.7	1	0.08	2.6	0.13
F00052161		9.78	0.05	8.04	0.9	890	1.04	0.02	2.64	<0.02	15.05	5.0	10	0.60	64.6	1.93
F00052162		7.68	0.01	8.17	1.0	910	0.95	0.02	2.54	0.02	18.10	4.9	10	0.66	13.6	1.88
F00052163		7.58	0.02	8.02	1.3	940	0.93	0.01	2.52	<0.02	15.30	4.8	12	0.54	4.0	1.89
F00052164		7.92	0.01	7.90	1.4	880	0.93	0.01	2.67	<0.02	14.80	5.1	9	0.55	6.4	1.91
F00052165		8.50	0.06	7.28	2.3	1610	1.22	0.03	2.98	0.04	13.15	6.9	13	1.37	17.7	2.06
F00052166		8.88	0.05	6.93	0.8	640	1.00	0.02	3.02	0.05	12.80	5.8	9	1.38	42.2	1.84
F00052167		7.92	0.02	8.13	1.1	860	1.11	0.01	2.72	0.03	14.70	5.0	9	1.01	11.4	1.84
F00052168		9.24	0.06	7.74	1.2	830	1.07	0.05	2.63	0.03	14.80	5.3	7	0.90	77.6	1.87
F00052169		4.46	0.04	8.43	1.0	870	1.18	0.05	2.31	<0.02	18.80	5.6	8	0.82	58.1	1.99
F00052170		4.42	0.07	8.00	0.3	860	1.06	0.05	2.37	0.02	14.90	5.0	8	0.79	96.5	1.84
F00052171		8.92	0.10	7.93	0.8	1130	0.96	0.05	2.42	0.02	15.60	5.5	8	0.81	137.5	1.91
F00052172		9.84	0.06	6.76	1.3	1050	1.01	0.02	2.91	0.04	13.65	4.6	8	1.10	46.8	1.67
F00052173		7.24	0.02	7.78	1.2	930	1.12	0.02	2.14	0.02	15.05	4.6	7	0.85	13.3	1.73
F00052174		9.06	0.03	7.62	0.6	870	1.18	0.01	1.84	<0.02	15.90	2.5	12	0.81	19.1	0.99
F00052175		8.46	0.08	7.64	0.9	980	1.09	0.08	1.83	<0.02	16.35	4.1	9	0.75	69.9	1.49
F00052176		9.22	0.08	7.49	0.4	650	1.14	0.13	2.18	0.02	15.35	4.3	8	1.06	115.5	1.59
F00052177		8.08	0.12	7.53	0.2	780	1.09	0.04	1.94	0.03	16.30	2.3	7	0.98	98.1	1.19
F00052178		8.92	0.01	6.40	0.4	2120	0.83	0.01	2.85	0.06	10.65	2.3	6	0.97	5.7	1.13
F00052179		8.80	0.04	6.92	0.2	830	0.91	0.01	2.34	0.06	11.95	2.5	5	1.21	40.7	1.18
F00052180		1.66	0.01	0.10	<0.2	10	0.05	0.03	20.7	0.03	1.12	1.2	1	0.09	1.6	0.14
F00052181		8.70	0.34	6.76	0.7	800	0.92	0.12	2.08	0.04	12.90	2.2	5	1.02	339	1.11
F00052182		8.26	0.19	6.81	0.8	880	0.94	0.13	2.89	0.03	11.55	4.3	8	1.15	217	1.72
F00052183		9.10	0.04	8.01	1.3	820	1.12	0.03	2.50	0.04	17.65	4.7	11	1.03	32.1	1.75
F00052184		8.22	0.02	7.85	1.3	850	1.11	0.03	2.11	0.02	15.75	5.0	8	1.17	12.0	1.83
F00052185		10.74	0.01	7.81	0.8	1000	1.04	0.02	2.47	<0.02	15.60	4.8	9	0.83	9.7	1.72
F00052186		9.68	0.02	7.94	0.6	780	1.11	0.01	2.45	0.03	16.00	4.5	13	1.07	15.4	1.69
F00052187		10.74	0.02	7.88	1.0	980	1.05	0.01	2.55	0.02	14.75	4.9	8	0.71	7.8	1.79
F00052188		8.70	0.01	7.93	1.2	900	1.05	0.01	2.40	0.02	15.85	5.0	10	0.81	4.7	1.84
F00052189		10.14	0.02	8.26	0.7	880	1.14	0.02	2.61	0.02	16.05	4.7	11	0.92	13.9	1.80
F00052190		9.20	0.03	7.97	0.6	730	1.04	0.03	2.19	0.02	18.60	4.6	9	1.04	21.9	1.76
F00052191		9.74	0.01	6.97	0.9	710	0.98	0.02	2.75	0.04	16.15	4.4	9	1.12	11.8	1.62
F00052192		8.08	0.01	5.68	0.9	480	0.91	0.01	3.22	0.05	9.60	3.7	7	1.29	3.1	1.32
F00052193		9.22	0.02	7.19	0.9	980	1.11	0.02	2.74	0.04	13.30	4.5	7	1.03	8.8	1.66
F00052194		9.76	0.03	7.81	0.9	820	1.26	0.03	2.71	0.02	16.95	4.7	8	0.53	13.5	1.70
F00052195		8.82	0.01	7.57	1.0	660	1.06	0.04	2.97	0.04	13.80	4.9	9	1.09	21.8	1.78
F00052196		9.44	0.03	7.62	1.6	520	1.03	0.05	2.32	0.02	14.95	4.7	6	0.63	43.4	1.61
F00052197		9.12	0.07	7.88	1.3	400	1.23	0.16	3.10	0.03	16.40	5.3	7	1.53	52.1	1.59

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 2-MAR-2021
Account: HACMIN

Project: Highland Valley (Z1)

CERTIFICATE OF ANALYSIS VA20285074

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
F00052158		19.00	0.08	0.5	0.020	1.51	8.2	9.4	0.55	529	0.70	3.51	2.0	1.9	520	4.6
F00052159		18.35	0.08	0.5	0.023	2.03	5.5	8.6	0.41	613	0.89	2.88	1.8	1.9	530	6.1
F00052160		0.24	0.09	<0.1	<0.005	0.03	0.6	1.4	13.65	138	0.19	0.02	0.1	0.3	10	1.0
F00052161		18.60	0.12	0.5	0.017	1.44	6.8	11.3	0.53	518	0.71	3.59	1.8	1.9	540	4.3
F00052162		19.00	0.13	0.5	0.017	1.56	7.7	10.9	0.56	526	0.79	3.72	2.1	2.0	550	4.3
F00052163		18.80	0.09	0.4	0.016	1.46	7.2	12.2	0.62	516	0.99	3.67	1.8	2.2	540	4.2
F00052164		18.80	0.10	0.5	0.016	1.47	6.3	16.7	0.45	477	0.76	3.55	1.9	2.1	510	4.4
F00052165		18.60	0.06	0.7	0.026	1.34	5.2	21.2	0.48	492	1.44	2.56	1.9	6.6	560	6.9
F00052166		17.60	0.07	0.5	0.018	1.63	5.2	13.3	0.62	687	0.78	2.66	1.8	3.4	500	5.2
F00052167		19.20	0.08	0.6	0.017	1.60	6.5	13.2	0.43	567	0.85	3.49	1.7	2.6	540	5.5
F00052168		18.90	0.06	0.5	0.020	1.50	6.1	11.3	0.47	583	2.34	3.44	1.8	2.6	520	6.1
F00052169		18.55	0.07	0.5	0.019	1.69	8.5	10.4	0.49	530	0.76	3.61	2.0	2.3	530	4.6
F00052170		18.15	0.06	0.9	0.019	1.69	6.2	9.0	0.44	510	0.71	3.54	1.7	2.1	490	4.2
F00052171		18.30	0.07	0.6	0.020	1.60	6.5	10.4	0.45	504	0.77	3.39	1.8	2.3	510	4.5
F00052172		18.20	0.10	0.7	0.021	1.94	5.9	8.4	0.33	634	0.83	2.52	2.0	2.1	430	4.8
F00052173		18.25	0.07	0.7	0.018	1.70	6.8	11.3	0.46	521	0.70	3.45	1.9	2.1	470	5.7
F00052174		18.50	0.06	1.0	0.009	2.12	7.5	7.9	0.28	330	0.99	3.42	1.8	1.5	220	5.4
F00052175		18.00	0.07	0.7	0.020	2.05	6.8	10.5	0.40	486	10.75	3.35	2.0	2.0	400	6.2
F00052176		18.50	0.06	0.7	0.040	1.83	6.7	7.5	0.35	570	1.82	3.26	1.9	2.1	450	5.8
F00052177		17.60	0.06	1.5	0.012	1.85	7.1	6.8	0.22	458	0.75	3.32	2.2	0.9	290	5.7
F00052178		16.70	0.06	1.0	0.007	2.20	4.3	5.6	0.18	680	0.59	2.59	1.8	0.9	290	3.6
F00052179		17.35	0.07	1.0	0.007	2.56	4.9	4.8	0.20	530	0.56	2.19	1.8	0.8	290	4.1
F00052180		0.28	0.09	<0.1	<0.005	0.04	0.6	1.6	13.00	134	0.07	0.02	0.1	0.5	30	1.2
F00052181		16.65	0.11	1.5	0.021	2.57	5.4	4.6	0.21	496	2.68	2.12	2.3	0.7	260	3.2
F00052182		17.85	0.09	0.5	0.055	2.37	4.8	5.6	0.28	668	4.39	2.45	1.6	1.9	450	4.2
F00052183		18.70	0.09	0.7	0.025	2.08	8.1	8.0	0.41	556	1.28	2.89	2.0	2.1	500	5.2
F00052184		18.00	0.07	0.6	0.017	1.67	6.6	11.9	0.53	523	0.70	3.24	1.8	2.1	500	4.4
F00052185		18.50	0.07	0.6	0.018	1.66	6.5	7.9	0.44	451	0.75	3.37	1.7	2.3	500	4.9
F00052186		19.10	0.08	0.8	0.016	2.09	7.1	8.2	0.37	453	1.12	2.85	1.9	2.3	490	5.0
F00052187		18.65	0.07	0.5	0.018	1.58	6.2	9.1	0.47	503	0.68	3.51	1.8	2.5	500	5.3
F00052188		18.70	0.06	0.6	0.018	1.56	6.8	10.8	0.50	499	1.11	3.58	1.9	2.3	510	4.9
F00052189		19.30	0.08	0.6	0.018	1.82	6.9	10.1	0.43	492	0.86	3.54	2.0	2.3	530	4.9
F00052190		17.95	0.08	0.5	0.019	2.00	7.2	9.2	0.44	519	0.71	3.13	2.1	2.7	490	4.6
F00052191		18.00	0.07	0.6	0.015	1.97	5.5	9.7	0.27	478	0.85	2.49	2.4	2.0	460	5.8
F00052192		15.15	0.07	0.6	0.013	2.00	3.8	13.3	0.22	644	0.63	1.80	1.4	1.6	310	3.9
F00052193		17.70	0.06	0.7	0.017	1.90	5.7	11.3	0.39	605	0.53	2.52	1.8	2.3	480	5.2
F00052194		18.75	0.07	0.7	0.019	1.38	7.7	10.0	0.46	524	0.62	3.51	1.9	2.2	480	5.5
F00052195		18.50	0.08	0.6	0.028	1.77	5.9	10.2	0.46	646	0.71	2.91	1.7	2.1	470	4.5
F00052196		17.75	0.07	0.7	0.020	1.15	6.6	8.1	0.47	479	0.52	3.40	1.9	2.0	520	4.9
F00052197		19.05	0.07	0.9	0.062	1.96	6.8	9.5	0.39	598	0.72	2.60	2.4	2.0	410	4.6

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 2-MAR-2021
Account: HACMIN

Project: Highland Valley (Z1)

CERTIFICATE OF ANALYSIS VA20285074

Sample Description	Method Analyte Units LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
F00052158		30.9	<0.002	0.01	0.56	3.8	<1	0.4	685	0.14	<0.05	1.32	0.176	0.11	0.8	51
F00052159		40.1	<0.002	0.02	0.93	3.5	<1	0.4	527	0.13	<0.05	1.25	0.172	0.18	0.7	51
F00052160		1.1	<0.002	<0.01	0.07	0.1	<1	<0.2	46.3	<0.05	<0.05	0.10	<0.005	<0.02	<0.1	<1
F00052161		25.8	<0.002	0.01	0.33	3.9	<1	0.4	744	0.12	<0.05	1.50	0.172	0.12	0.9	53
F00052162		28.5	<0.002	0.01	0.26	3.7	1	0.4	785	0.17	<0.05	1.29	0.176	0.12	0.8	53
F00052163		26.2	<0.002	0.01	0.20	3.9	<1	0.4	771	0.12	<0.05	1.16	0.174	0.11	0.9	52
F00052164		26.9	<0.002	<0.01	0.28	3.8	<1	0.4	744	0.13	<0.05	1.46	0.175	0.10	0.8	52
F00052165		22.1	<0.002	0.04	1.24	5.3	1	0.4	741	0.12	<0.05	1.06	0.204	0.12	1.0	64
F00052166		29.8	<0.002	0.01	0.96	3.6	<1	0.4	609	0.12	<0.05	1.29	0.161	0.15	0.9	47
F00052167		30.7	<0.002	0.01	0.70	3.9	<1	0.4	702	0.11	<0.05	1.25	0.168	0.13	0.8	52
F00052168		28.1	0.004	0.01	1.51	3.9	<1	0.4	716	0.11	<0.05	1.14	0.161	0.10	0.7	49
F00052169		38.1	<0.002	0.01	1.04	4.1	<1	0.4	621	0.14	<0.05	1.50	0.166	0.13	0.8	49
F00052170		32.2	<0.002	0.01	0.90	3.6	1	0.4	585	0.12	<0.05	1.92	0.153	0.12	0.9	46
F00052171		31.0	<0.002	0.02	0.81	3.7	<1	0.4	647	0.13	<0.05	1.69	0.166	0.12	0.8	50
F00052172		38.1	<0.002	0.02	1.14	3.2	<1	0.3	433	0.14	<0.05	1.34	0.142	0.17	0.8	44
F00052173		34.1	<0.002	0.01	1.26	3.5	<1	0.4	646	0.12	<0.05	1.85	0.158	0.11	1.1	45
F00052174		44.0	<0.002	0.01	0.49	2.3	1	0.3	519	0.13	<0.05	2.38	0.091	0.14	1.1	23
F00052175		38.2	<0.002	0.01	0.60	3.1	<1	0.3	684	0.15	<0.05	1.55	0.132	0.13	0.8	39
F00052176		40.1	<0.002	0.01	1.00	3.5	<1	0.4	466	0.13	<0.05	2.26	0.140	0.12	1.0	43
F00052177		47.2	<0.002	0.01	0.75	2.4	1	0.3	520	0.16	<0.05	1.52	0.109	0.18	1.0	25
F00052178		49.0	<0.002	0.04	0.86	1.7	<1	0.2	396	0.12	<0.05	0.64	0.106	0.21	0.4	25
F00052179		61.3	<0.002	0.01	1.08	1.8	<1	0.2	292	0.12	<0.05	0.77	0.111	0.25	0.5	25
F00052180		1.8	<0.002	<0.01	0.05	0.2	<1	<0.2	45.3	<0.05	<0.05	0.13	<0.005	0.02	0.1	2
F00052181		64.0	0.007	0.01	0.83	2.0	<1	0.3	248	0.17	<0.05	1.24	0.098	0.25	0.8	22
F00052182		52.2	0.002	0.02	1.06	3.2	<1	0.3	364	0.10	<0.05	1.11	0.141	0.19	0.7	46
F00052183		48.4	<0.002	0.01	1.03	3.8	<1	0.4	452	0.14	<0.05	2.01	0.156	0.19	1.0	48
F00052184		34.7	<0.002	0.01	1.27	3.8	<1	0.4	657	0.13	<0.05	1.33	0.158	0.14	0.8	46
F00052185		32.4	<0.002	0.01	0.80	3.7	1	0.3	608	0.12	<0.05	1.40	0.158	0.13	0.8	47
F00052186		44.7	<0.002	0.01	1.22	3.8	<1	0.3	438	0.13	<0.05	1.82	0.152	0.17	0.9	47
F00052187		28.5	<0.002	0.01	0.68	3.9	<1	0.3	704	0.12	<0.05	1.14	0.160	0.11	0.7	49
F00052188		29.2	<0.002	0.01	0.66	3.9	<1	0.4	704	0.13	<0.05	1.39	0.168	0.11	0.9	50
F00052189		35.0	<0.002	0.01	0.87	3.7	1	0.4	615	0.14	<0.05	1.50	0.167	0.13	0.8	50
F00052190		45.2	<0.002	0.01	0.85	3.5	1	0.4	519	0.17	<0.05	1.50	0.157	0.16	0.7	46
F00052191		40.0	<0.002	0.01	1.33	3.1	<1	0.4	366	0.20	<0.05	1.30	0.159	0.18	0.7	45
F00052192		38.2	<0.002	0.01	1.49	1.9	<1	0.3	289	0.11	<0.05	0.88	0.109	0.19	0.5	33
F00052193		37.3	<0.002	0.01	1.13	3.4	<1	0.4	581	0.12	<0.05	1.58	0.152	0.16	0.8	46
F00052194		30.0	<0.002	0.01	0.91	3.8	<1	0.3	663	0.13	<0.05	2.42	0.158	0.11	1.2	46
F00052195		34.6	<0.002	<0.01	2.64	3.5	<1	0.3	632	0.11	<0.05	1.31	0.153	0.15	0.7	47
F00052196		22.0	<0.002	<0.01	2.58	3.5	<1	0.4	780	0.12	<0.05	1.62	0.150	0.08	0.9	44
F00052197		46.2	<0.002	<0.01	3.60	3.1	<1	0.4	566	0.18	<0.05	1.86	0.137	0.19	0.9	35

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 2-MAR-2021
Account: HACMIN

Project: Highland Valley (Z1)

CERTIFICATE OF ANALYSIS VA20285074

Sample Description	Method Analyte Units LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	Cu-OG62 Cu % 0.001	Au-ICP21 Au ppm 0.001
F00052158		0.7	5.9	38	6.2		
F00052159		0.7	4.5	36	6.7		
F00052160		0.1	0.3	4	0.5		
F00052161		0.6	5.2	37	7.3		
F00052162		0.6	6.5	40	7.1		
F00052163		0.3	5.1	41	5.7		
F00052164		0.7	4.9	40	6.4		
F00052165		0.8	5.7	38	15.0		
F00052166		0.8	5.1	46	7.7		
F00052167		0.8	5.2	44	9.2		
F00052168		0.7	5.3	35	6.7		
F00052169		0.6	6.2	31	7.5		
F00052170		0.8	4.8	28	13.9		
F00052171		0.5	5.4	31	7.4		
F00052172		0.8	4.5	34	11.6		
F00052173		0.8	4.8	37	9.7		
F00052174		0.6	4.1	24	19.1		
F00052175		0.6	4.9	41	12.5		
F00052176		1.3	5.1	37	10.2		
F00052177		0.6	5.4	37	41.1		
F00052178		0.6	3.9	46	28.5		
F00052179		0.8	3.9	43	29.4		
F00052180		0.1	0.3	4	1.0		
F00052181		0.8	4.5	31	38.8		
F00052182		1.4	4.0	27	7.5		
F00052183		1.0	5.5	41	10.7		
F00052184		0.9	5.2	32	7.7		
F00052185		0.8	5.2	37	7.8		
F00052186		1.4	4.9	47	12.8		
F00052187		0.4	5.1	43	6.6		
F00052188		0.6	5.5	47	8.5		
F00052189		0.7	5.6	36	7.5		
F00052190		0.6	6.3	38	7.6		
F00052191		1.2	6.2	36	7.7		
F00052192		1.4	3.5	32	10.6		<0.001
F00052193		0.9	4.6	45	9.7		<0.001
F00052194		0.5	5.6	43	9.4		<0.001
F00052195		1.2	4.7	31	8.6		<0.001
F00052196		0.7	4.8	30	11.3		<0.001
F00052197		1.6	5.1	24	15.6		<0.001

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 2-MAR-2021
Account: HACMIN

Project: Highland Valley (Z1)

CERTIFICATE OF ANALYSIS VA20285074

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
F00052198		8.60	0.09	6.97	2.6	690	0.77	0.93	6.38	0.02	11.25	4.4	6	2.17	134.0	2.83
F00052199		9.06	0.01	7.54	1.1	840	1.24	0.02	2.25	0.02	17.85	4.2	10	0.66	13.3	1.53
F00052200		10.32	0.02	7.10	0.7	1180	1.18	0.02	3.24	0.05	15.75	4.9	9	0.61	7.9	1.79
F00052201		0.06	74.0	5.77	65.7	840	0.65	6.10	1.42	0.68	14.60	1.9	360	1.10	7770	1.29
F00052202		8.48	0.08	7.53	1.3	780	1.08	0.03	2.32	0.02	17.05	4.1	18	0.75	47.8	1.67
F00052203		9.38	0.02	7.31	1.4	1070	1.06	0.02	1.98	<0.02	18.25	3.3	13	0.74	5.2	1.41
F00052204		10.18	0.03	6.95	1.5	910	0.98	0.02	1.39	<0.02	16.10	1.8	10	0.55	4.4	0.88
F00052205		8.56	0.02	7.09	1.5	840	1.16	0.01	1.54	0.02	17.40	2.6	11	0.77	16.8	1.15
F00052206		8.54	0.01	6.79	1.5	800	0.90	0.01	1.19	<0.02	17.35	1.7	17	0.54	3.1	0.97
F00052207		9.06	0.02	6.79	0.8	830	0.94	0.01	1.44	<0.02	17.35	2.1	11	0.64	8.1	1.03
F00052208		8.74	0.01	7.38	1.7	1000	1.10	0.03	2.42	<0.02	19.15	3.8	10	0.58	17.8	1.60
F00052209		8.84	0.10	6.97	1.3	660	1.02	0.07	1.91	0.02	17.95	3.2	11	0.99	137.0	1.32
F00052210		3.54	0.18	6.86	1.1	780	0.91	0.09	1.97	0.02	18.40	2.8	13	0.74	297	1.18
F00052211		3.44	0.25	6.90	1.0	1000	0.89	0.14	1.86	<0.02	20.5	2.8	13	0.76	420	1.22
F00052212		9.06	0.08	6.39	0.9	930	0.83	0.03	1.64	0.03	21.8	1.4	11	0.78	81.2	0.81
F00052213		9.32	0.15	6.53	0.8	820	0.88	0.08	2.80	0.03	11.65	4.5	9	1.41	145.0	1.61
F00052214		8.06	0.87	6.26	1.2	840	0.84	0.51	3.27	0.05	10.70	4.7	8	1.25	1160	1.72
F00052215		9.06	0.19	6.55	2.0	1630	0.97	0.14	2.88	0.05	10.60	4.9	10	1.11	236	1.85
F00052216		8.82	0.17	6.64	1.0	660	0.83	0.12	2.88	0.03	10.40	4.2	8	1.05	244	1.68
F00052217		10.78	0.48	6.20	0.9	4500	0.86	0.14	3.16	0.05	11.80	4.5	6	2.27	288	1.71
F00052218		9.80	0.06	7.75	1.7	770	0.91	0.09	2.47	0.02	13.55	6.0	6	1.12	88.9	2.12
F00052219		6.68	0.03	7.50	3.1	740	0.87	0.09	2.89	0.02	11.65	5.0	9	1.56	28.6	1.90
F00052220		10.26	0.03	6.97	2.5	870	0.75	0.04	2.66	<0.02	13.75	4.0	7	1.46	30.9	1.59
F00052221		0.86	0.01	0.11	0.7	10	<0.05	0.03	21.6	0.03	1.06	0.4	2	0.09	1.6	0.14
F00052222		8.20	0.11	7.02	2.1	940	0.78	0.07	2.72	0.03	16.05	4.9	6	2.43	149.5	1.80
F00052223		8.40	0.04	5.58	2.0	1410	0.61	0.05	4.33	0.02	10.70	4.4	6	0.99	57.5	1.79
F00052224		8.82	0.13	7.22	2.9	670	1.07	0.11	2.72	0.02	11.85	5.0	6	1.54	220	1.91
F00052225		9.78	0.14	7.03	1.5	1080	1.01	0.14	2.47	0.02	14.45	4.1	10	0.96	227	1.77
F00052226		7.86	0.29	7.22	1.7	510	0.97	0.18	2.04	0.04	12.15	3.8	6	1.34	317	1.32
F00052227		9.62	0.24	6.94	2.3	700	0.97	0.10	1.70	0.03	10.00	1.4	8	1.00	127.0	0.76
F00052228		9.54	0.20	7.31	3.1	640	1.30	0.10	1.66	<0.02	10.75	1.2	8	0.76	270	0.77
F00052229		8.46	0.05	6.98	2.2	580	1.37	0.03	1.55	0.02	14.95	1.6	11	0.64	62.3	0.67
F00052230		7.90	0.23	6.79	1.8	920	1.22	0.10	1.49	0.02	13.70	1.2	9	0.66	198.5	0.70
F00052231		0.06	73.6	5.63	67.0	820	0.72	6.01	1.41	0.64	14.45	1.9	348	1.07	7560	1.27
F00052232		8.92	0.15	6.93	2.3	1100	1.38	0.08	1.37	<0.02	15.65	1.2	9	0.60	144.0	0.68
F00052233		11.02	0.10	7.02	1.9	820	1.47	0.07	1.16	<0.02	16.00	1.8	10	0.58	108.0	0.81
F00052234		10.60	0.44	7.16	3.3	690	1.66	0.35	1.31	<0.02	14.25	1.5	10	0.71	670	0.77
F00052235		8.88	0.46	7.67	1.4	640	1.51	0.32	1.41	0.02	14.30	1.4	8	1.03	561	0.77
F00052236		7.50	0.08	7.25	2.1	760	1.49	0.06	1.47	<0.02	14.15	1.4	8	0.63	88.7	0.67
F00052237		7.68	0.25	6.51	1.9	780	1.19	0.11	1.30	0.04	14.00	1.4	11	0.63	169.5	0.79

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 2-MAR-2021
Account: HACMIN

Project: Highland Valley (Z1)

CERTIFICATE OF ANALYSIS VA20285074

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
F00052198		24.1	0.10	1.0	0.423	3.08	4.3	4.6	0.19	1160	2.26	1.30	2.6	1.5	540	6.0
F00052199		17.85	0.08	0.8	0.021	1.28	8.4	9.6	0.43	539	0.73	3.41	2.0	2.1	410	4.2
F00052200		18.70	0.08	0.8	0.026	1.67	7.9	10.5	0.39	809	0.83	3.13	2.4	2.4	440	6.6
F00052201		16.25	0.10	0.3	0.048	3.10	7.2	12.0	0.19	286	766	1.31	2.2	6.0	420	137.5
F00052202		17.40	0.08	0.8	0.024	1.62	8.0	11.1	0.44	542	1.64	3.46	2.4	2.3	470	5.0
F00052203		16.65	0.11	1.1	0.022	2.03	8.5	10.2	0.34	465	0.97	3.33	2.3	1.7	370	6.4
F00052204		16.25	0.11	1.9	0.013	2.70	9.1	6.8	0.19	296	0.96	3.21	1.9	1.0	190	7.3
F00052205		17.00	0.09	1.0	0.016	2.17	9.1	6.6	0.28	360	0.79	3.31	2.2	1.3	260	6.4
F00052206		14.95	0.10	1.4	0.013	2.73	9.0	8.3	0.20	338	1.15	3.15	2.2	1.2	200	7.2
F00052207		15.30	0.10	1.7	0.014	2.52	9.3	6.6	0.23	315	0.80	3.22	2.2	1.2	220	6.0
F00052208		17.05	0.11	0.9	0.027	1.84	8.7	9.5	0.41	488	0.78	3.40	2.4	1.7	410	5.0
F00052209		15.50	0.10	1.1	0.036	2.00	8.7	6.0	0.24	317	0.94	2.96	2.3	1.4	300	4.2
F00052210		14.90	0.10	1.5	0.021	1.65	9.1	7.3	0.24	419	0.96	3.25	2.3	1.3	260	5.2
F00052211		14.80	0.09	1.6	0.024	1.69	10.9	7.2	0.25	399	1.00	3.24	2.4	1.4	250	5.7
F00052212		13.40	0.08	2.1	0.014	1.59	13.9	5.4	0.15	327	0.81	2.72	1.9	0.7	100	3.7
F00052213		15.70	0.10	1.0	0.037	2.42	5.5	9.0	0.27	567	1.03	1.73	2.0	1.6	390	4.1
F00052214		16.35	0.10	0.7	0.045	2.69	4.9	9.7	0.32	590	0.94	1.39	2.0	1.7	410	3.8
F00052215		16.20	0.11	0.7	0.040	2.59	4.9	8.9	0.25	548	0.77	1.52	1.9	1.8	420	3.8
F00052216		16.60	0.10	0.7	0.032	2.34	4.7	8.4	0.27	499	0.93	2.03	1.9	1.6	420	4.1
F00052217		14.90	0.11	0.7	0.089	2.86	5.5	19.9	0.31	743	1.72	0.46	1.7	1.5	380	3.7
F00052218		17.55	0.11	0.5	0.037	1.31	6.1	17.7	0.36	429	1.97	3.27	1.8	2.1	490	4.4
F00052219		17.20	0.10	0.5	0.024	1.33	5.6	20.7	0.35	447	1.04	3.13	1.6	2.0	510	4.6
F00052220		15.75	0.08	0.5	0.021	1.64	5.6	13.0	0.28	386	0.70	2.90	2.0	1.5	440	3.8
F00052221		0.35	0.21	<0.1	0.006	0.04	0.6	2.2	13.75	142	0.08	0.02	0.1	0.4	20	1.3
F00052222		17.05	0.21	0.6	0.019	1.35	7.4	19.1	0.39	428	0.72	2.90	2.0	1.9	470	4.6
F00052223		14.45	0.17	0.5	0.019	1.27	5.0	20.5	0.53	654	0.93	2.72	1.7	1.7	440	6.6
F00052224		16.45	0.17	0.7	0.020	1.78	5.9	20.5	0.30	380	0.83	2.51	2.0	1.7	430	6.8
F00052225		16.10	0.13	1.0	0.023	2.11	6.9	8.8	0.27	346	0.99	2.63	2.0	1.6	540	6.5
F00052226		16.20	0.13	1.3	0.022	2.32	6.5	9.4	0.20	266	1.13	2.17	2.0	1.3	260	4.8
F00052227		15.50	0.11	1.8	0.021	2.18	6.3	4.2	0.12	250	2.12	2.67	1.9	0.7	70	2.2
F00052228		16.80	0.12	1.5	0.028	2.30	6.6	5.6	0.10	196	3.00	3.14	2.2	0.7	90	4.9
F00052229		16.15	0.11	2.2	0.012	2.51	10.4	6.9	0.08	160	1.24	3.07	2.3	1.0	80	6.4
F00052230		16.55	0.11	2.3	0.021	2.54	9.5	6.2	0.09	186	1.85	2.82	2.6	0.7	70	4.7
F00052231		16.25	0.12	0.3	0.046	3.03	7.0	13.5	0.19	283	749	1.28	2.2	5.6	420	126.0
F00052232		16.60	0.10	2.2	0.013	2.53	11.1	8.0	0.09	142	4.65	3.04	2.2	0.6	100	6.2
F00052233		16.70	0.10	2.0	0.013	2.86	11.4	7.2	0.10	124	1.42	3.12	2.5	1.0	130	7.7
F00052234		17.65	0.12	2.0	0.024	2.71	9.1	6.7	0.09	144	3.80	3.26	2.6	0.8	130	7.3
F00052235		18.05	0.10	1.9	0.035	2.57	9.8	4.8	0.13	196	12.50	3.36	2.1	0.7	60	5.2
F00052236		16.95	0.10	1.9	0.026	2.55	8.9	3.3	0.09	177	6.50	3.48	2.2	0.9	80	5.6
F00052237		15.80	0.10	2.2	0.025	2.56	10.5	3.0	0.09	195	12.60	2.96	2.1	3.1	80	8.3

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 2-MAR-2021
Account: HACMIN

Project: Highland Valley (Z1)

CERTIFICATE OF ANALYSIS VA20285074

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
F00052198		62.1	<0.002	<0.01	9.78	2.8	<1	0.6	793	0.17	<0.05	1.05	0.182	0.34	1.1	57
F00052199		30.1	<0.002	0.01	1.24	3.5	<1	0.4	621	0.13	<0.05	1.69	0.141	0.11	0.9	40
F00052200		32.0	<0.002	0.01	1.95	3.3	<1	0.5	603	0.16	<0.05	1.84	0.147	0.12	0.9	42
F00052201		49.2	0.067	0.82	164.0	1.6	2	1.7	369	0.09	0.70	0.98	0.076	0.24	1.0	37
F00052202		34.2	<0.002	<0.01	1.30	3.4	<1	0.5	622	0.13	<0.05	1.63	0.151	0.14	0.9	43
F00052203		45.2	<0.002	<0.01	0.45	3.1	<1	0.4	502	0.16	<0.05	1.61	0.130	0.17	0.9	35
F00052204		58.9	<0.002	<0.01	0.41	1.9	1	0.3	359	0.15	<0.05	3.76	0.074	0.19	2.3	19
F00052205		49.8	<0.002	<0.01	0.91	2.1	<1	0.4	434	0.14	<0.05	1.85	0.098	0.20	0.9	25
F00052206		57.9	<0.002	<0.01	0.23	1.7	<1	0.3	309	0.15	<0.05	2.94	0.081	0.20	1.6	20
F00052207		48.7	<0.002	<0.01	0.47	1.8	<1	0.3	367	0.17	<0.05	2.45	0.092	0.18	1.4	23
F00052208		34.4	<0.002	0.01	0.67	3.2	<1	0.4	581	0.16	<0.05	1.72	0.136	0.14	0.9	39
F00052209		46.0	<0.002	0.01	0.81	2.4	<1	0.4	288	0.18	<0.05	2.14	0.107	0.17	1.0	29
F00052210		35.7	<0.002	0.02	0.76	2.1	1	0.4	337	0.18	<0.05	2.93	0.094	0.13	1.3	23
F00052211		36.8	<0.002	0.03	0.80	2.3	<1	0.4	336	0.18	<0.05	2.72	0.098	0.16	1.3	24
F00052212		35.2	<0.002	0.02	0.68	1.3	<1	0.2	189.0	0.15	<0.05	4.72	0.057	0.13	2.1	12
F00052213		48.4	<0.002	0.01	1.14	2.6	<1	0.4	282	0.13	<0.05	1.51	0.126	0.24	0.8	37
F00052214		49.7	<0.002	0.05	1.24	2.8	<1	0.4	236	0.14	<0.05	1.51	0.142	0.25	0.9	42
F00052215		46.2	<0.002	0.04	1.42	2.7	1	0.4	276	0.14	<0.05	1.36	0.144	0.21	0.7	42
F00052216		43.2	<0.002	0.01	1.69	2.8	<1	0.4	294	0.13	<0.05	1.23	0.138	0.23	0.7	42
F00052217		62.3	0.006	0.11	1.79	2.7	<1	0.3	333	0.11	<0.05	1.22	0.119	0.27	0.8	35
F00052218		23.9	<0.002	0.02	1.03	3.6	1	0.4	637	0.12	<0.05	1.23	0.163	0.12	0.8	48
F00052219		23.6	<0.002	0.01	1.01	3.7	<1	0.4	620	0.10	<0.05	1.07	0.161	0.13	0.6	49
F00052220		28.9	<0.002	0.02	0.77	2.8	<1	0.4	503	0.16	<0.05	1.05	0.144	0.14	0.5	42
F00052221		1.4	<0.002	<0.01	0.16	0.2	<1	<0.2	43.9	<0.05	<0.05	0.14	<0.005	<0.02	0.1	<1
F00052222		26.8	<0.002	0.02	0.81	3.6	<1	0.4	459	0.13	<0.05	1.31	0.152	0.12	0.8	45
F00052223		17.9	<0.002	0.03	0.74	2.7	<1	0.4	376	0.11	<0.05	0.74	0.148	0.11	0.8	45
F00052224		32.6	<0.002	0.02	0.84	3.1	<1	0.4	458	0.12	<0.05	1.52	0.143	0.14	1.3	42
F00052225		41.8	<0.002	0.02	0.79	2.8	1	0.4	371	0.14	<0.05	1.97	0.141	0.17	1.4	44
F00052226		50.2	0.002	0.02	0.93	2.2	<1	0.3	296	0.12	<0.05	2.50	0.093	0.20	1.9	24
F00052227		47.3	0.005	0.01	0.86	1.2	<1	0.3	201	0.12	<0.05	2.70	0.041	0.18	1.7	9
F00052228		49.1	0.005	0.01	0.49	1.7	<1	0.3	309	0.13	<0.05	3.55	0.049	0.17	2.0	10
F00052229		50.0	<0.002	0.01	0.46	1.7	<1	0.3	282	0.15	<0.05	4.96	0.046	0.17	2.8	8
F00052230		54.4	0.002	0.02	0.58	1.6	1	0.4	231	0.16	<0.05	4.96	0.044	0.18	2.0	9
F00052231		48.6	0.068	0.81	167.5	1.6	2	1.9	361	0.09	1.12	0.96	0.075	0.24	1.0	36
F00052232		53.7	0.006	0.02	0.67	1.6	<1	0.4	252	0.14	<0.05	4.99	0.043	0.19	2.4	9
F00052233		59.3	<0.002	0.01	0.56	1.6	<1	0.4	252	0.14	<0.05	4.46	0.057	0.20	2.7	12
F00052234		61.1	0.003	0.02	0.49	1.7	<1	0.4	303	0.15	<0.05	4.42	0.050	0.18	2.9	12
F00052235		62.1	0.004	0.02	0.55	1.7	<1	0.3	321	0.12	<0.05	4.45	0.035	0.20	2.2	10
F00052236		54.5	0.005	0.01	0.44	1.9	<1	0.4	309	0.14	<0.05	4.25	0.042	0.19	2.2	8
F00052237		54.0	0.006	0.01	0.86	1.6	<1	0.3	217	0.14	<0.05	5.11	0.039	0.18	2.1	10

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 2-MAR-2021
Account: HACMIN

Project: Highland Valley (Z1)

CERTIFICATE OF ANALYSIS VA20285074

Sample Description	Method / Analyte / Units / LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	Cu-OG62 Cu % 0.001	Au-ICP21 Au ppm 0.001
F00052198		1.0	4.6	20	19.3		<0.001
F00052199		0.3	5.6	33	14.0		<0.001
F00052200		2.2	5.0	43	13.5		<0.001
F00052201		1.1	4.0	76	5.3	0.748	0.035
F00052202		0.5	5.4	35	14.9		0.001
F00052203		0.2	5.6	43	21.6		<0.001
F00052204		0.5	4.0	24	33.2		<0.001
F00052205		1.6	4.6	28	21.3		<0.001
F00052206		0.2	4.7	26	29.6		<0.001
F00052207		0.7	5.0	21	31.0		<0.001
F00052208		0.5	5.9	27	16.7		<0.001
F00052209		0.7	5.0	17	22.3		<0.001
F00052210		0.7	5.5	19	32.4		<0.001
F00052211		0.6	5.8	18	32.7		<0.001
F00052212		0.6	4.6	16	43.8		<0.001
F00052213		1.4	4.0	26	16.6		<0.001
F00052214		1.4	4.0	27	10.9	0.117	<0.001
F00052215		1.4	4.0	27	10.9		<0.001
F00052216		1.1	3.9	25	11.6		<0.001
F00052217		1.7	4.0	33	11.8		<0.001
F00052218		6.0	4.8	28	7.9		<0.001
F00052219		0.4	4.3	40	7.0		<0.001
F00052220		0.5	4.8	29	6.7		<0.001
F00052221		0.4	0.3	14	0.5		0.005
F00052222		0.6	4.9	33	8.1		<0.001
F00052223		0.5	4.7	31	6.8		<0.001
F00052224		0.5	4.3	30	10.7		<0.001
F00052225		0.5	4.4	37	15.3		<0.001
F00052226		3.6	3.6	35	23.5		<0.001
F00052227		0.5	2.5	22	30.6		<0.001
F00052228		0.3	2.6	15	26.5		<0.001
F00052229		6.7	3.1	13	37.3		<0.001
F00052230		0.4	3.0	16	39.1		<0.001
F00052231		1.1	3.9	75	5.2	0.754	0.029
F00052232		0.3	3.1	15	35.6		<0.001
F00052233		4.3	3.4	17	37.4		<0.001
F00052234		0.3	3.2	16	37.7	0.067	<0.001
F00052235		0.3	3.0	16	31.1	0.057	<0.001
F00052236		3.6	3.3	10	33.9		<0.001
F00052237		0.4	3.0	16	40.4		<0.001

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 2-MAR-2021
Account: HACMIN

Project: Highland Valley (Z1)

CERTIFICATE OF ANALYSIS VA20285074

Sample Description	Method / Analyte / Units / LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
F00052238		7.46	0.32	6.73	2.3	920	1.11	0.09	1.38	0.03	12.75	1.2	15	0.65	139.5	0.81
F00052239		7.56	0.40	6.13	0.9	850	1.16	0.32	0.64	0.02	14.50	1.3	12	0.43	630	0.79
F00052240		8.28	0.98	6.33	2.5	680	1.12	0.34	0.95	0.02	18.30	1.3	11	0.65	708	0.92
F00052241		10.44	0.08	6.49	1.1	700	1.24	0.12	0.69	<0.02	19.70	1.0	17	0.57	151.0	0.79
F00052242		9.50	0.03	5.98	1.2	750	1.04	0.05	0.68	<0.02	13.60	1.1	13	0.48	35.7	0.69
F00052243		10.48	0.07	6.12	1.2	700	1.06	0.09	0.79	<0.02	16.75	0.8	10	0.43	124.5	0.71
F00052244		9.16	0.18	6.14	1.2	540	1.04	0.12	1.24	0.03	20.8	1.0	9	0.60	209	0.69
F00052245		7.86	0.08	6.16	1.4	870	1.04	0.08	0.71	<0.02	19.35	1.9	10	0.45	101.5	0.73
F00052246		10.16	0.23	6.20	1.1	880	0.92	0.23	1.49	<0.02	17.00	1.3	11	0.67	386	0.96
F00052247		8.62	0.13	6.58	1.6	890	1.04	0.08	1.26	0.02	17.90	1.3	11	0.57	104.5	0.85
F00052248		8.56	1.71	6.78	1.1	700	0.90	0.79	1.42	0.02	22.0	1.8	8	1.11	1300	1.07
F00052249		6.70	0.85	6.51	1.4	390	1.07	0.56	2.22	0.04	20.2	1.8	6	1.57	997	1.14
F00052250		6.22	4.84	7.69	4.5	600	1.37	5.77	3.95	0.06	13.00	1.4	11	2.97	8580	4.02
F00052251		2.22	0.02	0.14	0.6	10	0.06	0.06	21.4	0.03	1.35	0.4	1	0.12	15.7	0.17
F00052252		9.54	2.82	6.01	1.3	710	0.63	1.23	2.29	0.04	14.55	1.9	9	1.31	2240	1.46
F00052253		9.68	2.12	6.88	1.2	1060	0.98	0.81	2.79	0.05	16.30	5.8	11	1.54	1610	2.62
F00052254		9.22	0.76	7.13	1.0	910	1.00	0.50	3.16	0.05	15.50	5.8	7	1.37	1010	2.06
F00052255		9.64	0.67	7.12	1.2	740	0.96	0.31	3.00	0.07	13.10	5.5	12	1.25	699	1.89
F00052256		11.24	1.14	6.72	2.0	810	0.87	0.55	3.57	0.05	10.70	4.9	9	1.64	925	1.86
F00052257		9.16	0.02	8.00	1.9	830	0.87	0.03	2.71	<0.02	15.70	5.0	8	0.50	23.2	1.92
F00052258		9.70	0.02	7.68	1.9	830	0.93	0.03	2.53	<0.02	14.60	4.9	9	0.50	26.9	1.87
F00052259		5.28	0.41	8.01	1.7	750	0.90	0.38	2.64	0.02	15.45	5.3	10	0.54	646	2.00
F00052260		5.32	0.35	8.07	1.6	760	0.88	0.35	2.60	<0.02	16.00	5.4	7	0.56	561	1.97
F00052261		9.98	0.23	8.00	1.8	1080	0.92	0.24	2.81	<0.02	18.50	5.2	12	0.50	403	1.90
F00052262		10.28	0.07	8.09	1.9	950	0.88	0.06	2.59	0.02	15.45	5.3	10	0.54	111.5	2.01
F00052263		11.22	0.03	7.69	2.5	850	0.91	0.04	2.59	<0.02	15.75	4.8	11	0.44	41.8	1.89
F00052264		10.78	0.13	7.87	0.8	790	0.91	0.12	2.52	0.02	15.95	5.1	13	0.61	240	1.96
F00052265		9.86	0.22	7.82	1.2	870	0.85	0.20	2.41	<0.02	21.1	4.6	8	0.59	387	1.81
F00052266		9.44	0.05	7.02	1.7	810	0.87	0.05	2.55	<0.02	13.25	3.9	9	0.72	84.6	1.45
F00052267		9.82	0.27	8.03	1.5	730	0.92	0.28	2.36	0.02	18.55	5.9	12	0.70	456	2.22
F00052268		8.42	0.10	7.58	2.2	460	0.83	0.11	2.51	<0.02	14.45	4.6	8	1.13	155.5	1.69
F00052269		8.10	0.03	7.74	2.2	660	0.81	0.03	2.77	0.02	14.25	4.4	11	0.72	50.0	1.78
F00052270		0.06	70.4	5.73	55.0	840	0.73	5.47	1.43	0.61	13.30	1.8	340	1.06	7740	1.29

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 2-MAR-2021
Account: HACMIN

Project: Highland Valley (Z1)

CERTIFICATE OF ANALYSIS VA20285074

Sample Description	Method Analyte Units LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
F00052238		15.90	0.09	1.8	0.027	2.77	8.3	4.5	0.11	214	7.69	2.79	2.1	1.9	100	6.0
F00052239		15.00	0.11	2.3	0.010	3.31	9.3	2.9	0.05	91	2.39	2.78	2.1	2.7	140	8.3
F00052240		15.15	0.10	2.1	0.030	2.83	12.8	5.0	0.09	158	37.2	2.63	2.2	1.1	160	7.2
F00052241		15.60	0.10	2.0	0.025	3.30	13.8	3.5	0.06	133	7.08	2.88	1.9	0.9	80	8.8
F00052242		14.75	0.11	2.3	0.025	3.11	9.1	2.3	0.05	139	18.10	2.74	1.9	1.0	60	7.4
F00052243		14.35	0.08	2.1	0.030	2.62	11.2	3.4	0.05	131	4.26	2.93	2.3	0.9	70	6.0
F00052244		13.80	0.08	2.1	0.027	1.86	12.8	7.0	0.07	189	1.66	2.63	2.2	0.6	60	4.1
F00052245		13.60	0.10	1.9	0.013	3.10	12.9	4.5	0.06	116	10.50	2.75	2.0	1.0	80	7.9
F00052246		15.20	0.10	1.5	0.073	2.30	8.0	4.8	0.09	270	83.7	2.71	2.4	0.9	130	5.2
F00052247		15.30	0.09	1.6	0.016	2.56	7.7	5.8	0.09	195	3.31	2.81	2.0	0.9	120	6.2
F00052248		15.95	0.11	1.6	0.064	2.06	11.4	4.4	0.14	282	18.60	2.75	2.0	1.0	130	3.8
F00052249		15.05	0.09	2.1	0.044	1.69	10.0	7.2	0.14	503	8.44	2.49	2.3	0.8	120	5.1
F00052250		29.8	0.12	1.7	0.245	3.07	6.3	23.9	0.13	1040	8.32	1.07	2.2	0.7	70	12.1
F00052251		0.53	0.24	<0.1	0.006	0.05	0.7	1.7	13.45	151	0.13	0.02	0.1	0.7	20	1.8
F00052252		12.35	0.18	1.2	0.062	2.42	7.3	5.7	0.17	523	3.40	1.36	1.6	1.3	290	2.1
F00052253		17.65	0.19	0.7	0.068	2.96	7.3	7.0	0.28	736	2.88	1.35	2.0	2.2	820	3.1
F00052254		18.45	0.18	0.5	0.064	2.68	6.9	9.0	0.25	643	5.51	1.68	1.8	2.0	480	4.2
F00052255		16.70	0.16	0.6	0.033	2.54	5.9	8.7	0.28	538	2.49	1.72	1.9	2.1	430	4.2
F00052256		18.60	0.17	0.5	0.081	3.02	4.6	8.8	0.23	687	6.69	1.23	1.6	1.9	460	3.0
F00052257		18.00	0.15	0.5	0.023	1.29	7.3	11.1	0.49	443	0.82	3.67	1.8	2.1	520	4.6
F00052258		17.95	0.13	0.5	0.021	1.31	7.3	9.3	0.51	448	0.85	3.64	1.8	2.4	480	5.2
F00052259		17.60	0.12	0.5	0.023	1.35	7.2	7.9	0.52	412	1.08	3.62	1.8	2.1	480	4.4
F00052260		18.45	0.13	0.5	0.026	1.33	7.4	8.3	0.50	396	1.38	3.67	1.8	2.2	490	4.4
F00052261		17.40	0.12	0.5	0.018	1.43	8.0	7.5	0.50	448	0.94	3.61	2.2	2.5	520	4.4
F00052262		18.30	0.13	0.5	0.025	1.46	7.2	8.1	0.52	430	0.85	3.70	1.8	2.4	500	4.6
F00052263		17.60	0.12	0.5	0.020	1.46	7.5	8.2	0.49	445	0.85	3.52	1.9	2.3	500	4.5
F00052264		17.75	0.12	0.5	0.023	1.54	7.4	7.5	0.50	430	1.04	3.58	1.9	2.5	500	4.4
F00052265		16.80	0.13	0.5	0.015	1.42	8.3	7.8	0.46	444	0.73	3.55	2.1	2.1	450	4.7
F00052266		16.85	0.10	0.4	0.015	1.48	5.5	6.7	0.26	347	0.82	3.48	1.8	1.8	380	4.5
F00052267		17.80	0.11	0.5	0.019	1.42	8.3	12.3	0.50	370	1.14	3.65	2.2	2.4	490	3.9
F00052268		16.75	0.09	0.5	0.024	1.51	6.1	23.5	0.35	312	3.59	3.33	2.0	1.9	450	4.0
F00052269		16.60	0.11	0.5	0.018	1.26	6.8	16.8	0.46	427	0.75	3.58	1.7	2.0	460	4.6
F00052270		15.95	0.08	0.2	0.042	3.11	6.6	13.0	0.19	287	777	1.31	2.0	5.7	430	116.5

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 2-MAR-2021
Account: HACMIN

Project: Highland Valley (Z1)

CERTIFICATE OF ANALYSIS VA20285074

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
F00052238		57.4	0.009	0.01	0.63	1.5	1	0.3	207	0.13	<0.05	3.59	0.044	0.20	1.6	10
F00052239		64.7	<0.002	0.02	0.45	1.4	<1	0.3	118.0	0.15	<0.05	4.71	0.050	0.22	2.5	11
F00052240		60.8	0.016	0.03	0.69	1.6	1	0.3	154.0	0.15	<0.05	4.95	0.060	0.24	2.7	16
F00052241		74.2	0.002	0.01	0.67	1.4	<1	0.2	121.5	0.13	<0.05	4.88	0.046	0.25	2.7	12
F00052242		69.0	0.004	0.01	0.43	1.1	<1	0.2	101.5	0.15	<0.05	4.38	0.042	0.23	2.9	10
F00052243		54.5	0.003	0.01	0.52	1.1	1	0.2	146.5	0.22	<0.05	4.33	0.044	0.20	2.0	10
F00052244		40.7	<0.002	0.01	0.93	1.2	<1	0.2	197.5	0.17	<0.05	3.79	0.043	0.13	1.6	9
F00052245		63.2	0.003	0.01	0.56	1.3	<1	0.2	135.5	0.17	<0.05	3.63	0.047	0.22	3.3	11
F00052246		52.6	0.021	0.02	1.09	1.5	<1	0.4	206	0.20	<0.05	2.52	0.058	0.19	1.8	17
F00052247		50.8	0.004	0.01	0.70	1.4	<1	0.3	235	0.20	<0.05	2.62	0.054	0.20	2.0	12
F00052248		56.8	0.016	0.05	0.99	1.4	<1	0.3	200	0.16	<0.05	2.66	0.061	0.20	1.4	18
F00052249		45.5	0.005	0.03	1.37	1.5	<1	0.2	274	0.18	<0.05	3.03	0.062	0.18	1.6	13
F00052250		69.3	0.002	0.22	9.75	1.2	1	0.5	362	0.20	0.13	2.53	0.047	0.32	1.7	36
F00052251		2.0	<0.002	<0.01	0.20	0.2	1	<0.2	45.6	<0.05	<0.05	0.19	<0.005	<0.02	0.1	1
F00052252		57.1	0.003	0.07	1.26	1.4	<1	0.2	157.0	0.11	<0.05	2.19	0.083	0.22	1.2	25
F00052253		67.7	0.007	0.05	1.64	3.2	<1	0.4	178.0	0.12	<0.05	1.59	0.177	0.31	1.2	60
F00052254		62.6	0.006	0.04	1.50	3.5	1	0.4	257	0.13	<0.05	1.27	0.139	0.26	1.0	45
F00052255		54.7	0.003	0.03	1.47	3.1	1	0.4	269	0.18	<0.05	1.58	0.137	0.26	1.0	40
F00052256		65.8	0.011	0.03	1.47	3.3	1	0.4	248	0.11	<0.05	1.08	0.143	0.35	0.9	51
F00052257		21.7	<0.002	0.01	0.44	3.9	1	0.4	700	0.13	<0.05	1.46	0.167	0.09	0.8	49
F00052258		22.9	<0.002	0.01	0.53	3.8	<1	0.4	671	0.13	<0.05	1.62	0.158	0.09	1.0	48
F00052259		22.2	0.003	0.03	0.54	3.8	<1	0.4	610	0.12	<0.05	1.46	0.160	0.08	0.8	49
F00052260		23.2	0.003	0.02	0.60	4.0	<1	0.4	635	0.13	<0.05	1.51	0.154	0.09	0.8	48
F00052261		24.1	<0.002	0.01	0.39	3.7	1	0.4	621	0.16	<0.05	1.51	0.166	0.09	0.8	49
F00052262		24.8	<0.002	0.01	0.58	3.9	<1	0.4	683	0.13	<0.05	1.63	0.166	0.09	0.9	50
F00052263		23.7	<0.002	0.01	0.37	4.0	1	0.4	666	0.13	<0.05	1.73	0.164	0.10	0.9	49
F00052264		26.1	<0.002	0.01	0.55	3.8	<1	0.4	606	0.14	<0.05	1.44	0.160	0.10	0.8	50
F00052265		24.8	<0.002	0.02	0.57	3.3	<1	0.4	580	0.18	<0.05	1.38	0.150	0.09	0.7	45
F00052266		25.1	<0.002	0.01	0.52	2.8	<1	0.3	484	0.15	<0.05	1.19	0.128	0.10	0.6	39
F00052267		25.9	<0.002	0.02	0.49	3.9	1	0.4	653	0.16	<0.05	1.47	0.154	0.09	0.7	50
F00052268		24.8	<0.002	0.01	0.60	3.2	1	0.3	420	0.16	<0.05	1.32	0.154	0.12	0.7	43
F00052269		21.8	<0.002	0.01	0.43	3.6	<1	0.3	593	0.12	<0.05	1.46	0.158	0.07	0.8	45
F00052270		47.7	0.076	0.81	153.5	1.7	1	1.5	365	0.09	0.65	0.94	0.075	0.22	1.0	37

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 2-MAR-2021
Account: HACMIN

Project: Highland Valley (Z1)

CERTIFICATE OF ANALYSIS VA20285074

Sample Description	Method / Analyte / Units / LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	Cu-OG62 Cu % 0.001	Au-ICP21 Au ppm 0.001
F00052238		0.5	3.2	28	36.2		<0.001
F00052239		4.0	3.7	9	46.1	0.056	<0.001
F00052240		0.6	3.6	15	43.2	0.067	<0.001
F00052241		0.5	3.3	10	43.2		<0.001
F00052242		4.1	3.5	8	47.8		<0.001
F00052243		0.5	3.9	8	46.4		<0.001
F00052244		0.7	4.1	15	43.2		<0.001
F00052245		14.4	4.1	9	43.8		<0.001
F00052246		0.8	4.6	15	32.4		<0.001
F00052247		0.5	5.2	15	37.5		<0.001
F00052248		3.2	5.1	18	38.0	0.123	<0.001
F00052249		0.9	5.3	18	46.2	0.093	0.001
F00052250		1.9	2.9	26	34.5	0.829	0.002
F00052251		0.4	0.4	6	1.6		<0.001
F00052252		1.2	3.8	29	26.8	0.221	0.002
F00052253		1.4	5.1	39	12.3	0.155	0.001
F00052254		0.9	5.0	35	8.7	0.101	<0.001
F00052255		5.2	4.3	36	10.1	0.070	<0.001
F00052256		1.2	4.2	37	8.5	0.087	<0.001
F00052257		0.1	5.1	36	7.4		<0.001
F00052258		1.6	5.0	40	7.5		<0.001
F00052259		0.2	5.3	29	7.0	0.065	<0.001
F00052260		0.2	5.1	28	7.3	0.054	<0.001
F00052261		7.1	6.5	39	7.1		0.002
F00052262		0.2	5.1	34	6.5		<0.001
F00052263		0.2	5.2	38	6.8		<0.001
F00052264		1.6	5.5	35	7.5		0.002
F00052265		0.1	7.8	44	6.9		<0.001
F00052266		0.2	5.0	35	6.7		<0.001
F00052267		1.9	5.6	28	7.6		<0.001
F00052268		0.4	4.8	35	7.0		<0.001
F00052269		0.1	4.7	37	6.7		<0.001
F00052270		1.0	3.9	73	4.1	0.748	0.030

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 2-MAR-2021
Account: HACMIN

Project: Highland Valley (Z1)

CERTIFICATE OF ANALYSIS VA20285074

CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

REEs may not be totally soluble in this method.

Applies to Method: ME-MS61

LABORATORY ADDRESSES

Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.

Applies to Method:

Au-ICP21	CRU-31	CRU-QC	Cu-OG62
LOG-21	LOG-23	ME-MS61	ME-OG62
PUL-31	PUL-QC	SPL-21	WEI-21

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 4-MAR-2021
Account: HACMIN

CERTIFICATE VA20285078

Project: Highland Valley -P1M-02

This report is for 91 samples of Drill Core submitted to our lab in Vancouver, BC, Canada on 3-DEC-2020.

The following have access to data associated with this certificate:

DAVID BLANN	SASSAN LIAGHAT	

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-21	Sample logging - ClientBarCode
CRU-31	Fine crushing - 70% <2mm
SPL-21	Split sample - riffle splitter
PUL-31	Pulverize up to 250g 85% <75 um
LOG-23	Pulp Login - Rcvd with Barcode
CRU-QC	Crushing QC Test
PUL-QC	Pulverizing QC Test

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-OG62	Ore Grade Elements - Four Acid	ICP-AES
Cu-OG62	Ore Grade Cu - Four Acid	
ME-MS61	48 element four acid ICP-MS	

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:

Saa Traxler, General Manager, North Vancouver

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 4-MAR-2021
Account: HACMIN

Project: Highland Valley -P1M-02

CERTIFICATE OF ANALYSIS VA20285078

Sample Description	Method / Analyte / Units / LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
F00051886		5.42	0.05	7.81	1.2	780	1.03	0.01	1.77	<0.02	19.35	3.9	6	1.04	49.2	1.64
F00051887		5.58	0.02	7.49	1.0	1310	0.89	0.01	2.17	<0.02	19.85	3.7	7	0.75	13.4	1.53
F00051888		4.86	0.22	7.47	0.9	990	0.81	0.04	2.38	0.02	18.30	3.9	7	1.24	272	1.63
F00051889		2.64	0.14	7.48	1.1	870	0.71	0.04	2.21	0.04	16.00	4.2	7	1.15	70.5	1.61
F00051890		0.06	71.5	5.67	63.2	830	0.72	5.63	1.41	0.72	13.10	2.1	344	1.08	7530	1.26
F00051891		5.04	0.09	7.66	1.1	440	0.75	0.03	2.29	0.02	17.45	3.5	7	0.77	14.2	1.57
F00051892		5.86	0.07	7.89	1.2	860	0.90	0.02	2.40	0.02	17.20	4.2	8	0.81	40.2	1.64
F00051893		5.26	0.07	7.56	0.6	1030	0.84	0.02	2.52	<0.02	19.05	4.2	10	0.87	20.4	1.72
F00051894		5.18	0.08	7.46	0.8	1000	0.94	0.03	2.29	0.02	17.65	3.8	8	0.81	55.7	1.52
F00051895		4.62	0.03	7.57	0.8	780	1.03	0.02	2.15	0.02	16.95	3.8	8	0.72	31.2	1.55
F00051896		4.50	0.09	7.36	0.8	720	0.93	0.07	2.22	0.02	17.45	3.4	6	0.97	110.5	1.44
F00051897		4.78	0.08	7.62	0.9	830	0.91	0.03	2.19	<0.02	16.20	3.3	7	0.76	47.6	1.46
F00051898		3.08	0.02	7.65	1.1	1030	0.98	0.02	2.27	<0.02	17.75	3.4	8	0.54	11.3	1.48
F00051899		4.56	0.06	7.81	1.3	1020	1.04	0.03	2.20	<0.02	18.95	3.4	6	0.58	18.4	1.52
F00051900		5.44	0.06	7.47	1.1	1200	0.94	0.04	2.15	<0.02	19.85	2.9	6	0.60	42.6	1.41
F00051901		5.14	0.05	7.67	1.0	990	1.06	0.05	2.41	<0.02	18.75	3.5	8	0.68	33.5	1.50
F00051902		6.42	0.02	7.56	0.9	1640	1.05	0.02	2.90	0.02	16.55	3.4	9	0.76	16.8	1.63
F00051903		4.70	0.05	7.56	1.0	880	0.89	0.02	2.44	0.02	17.25	3.9	7	0.96	32.9	1.57
F00051904		5.16	0.01	7.52	0.8	1090	0.82	0.01	2.34	<0.02	19.25	3.2	8	0.62	3.8	1.49
F00051905		4.42	0.04	7.54	0.9	1060	0.88	0.02	1.99	0.02	18.15	3.5	6	0.92	18.4	1.48
F00051906		3.68	0.02	7.08	0.9	820	0.68	0.01	2.41	<0.02	13.80	3.0	5	0.78	48.1	1.37
F00051907		5.10	0.06	7.15	0.6	720	0.77	0.02	2.70	0.02	15.20	3.5	8	1.08	58.9	1.46
F00051908		4.74	0.06	6.36	0.3	730	0.77	0.02	3.32	<0.02	13.15	3.2	7	1.39	36.9	1.34
F00051909		5.20	0.02	7.14	0.9	690	0.77	0.02	3.10	0.02	15.80	3.3	8	1.18	8.4	1.52
F00051910		0.98	<0.01	0.13	0.3	20	<0.05	<0.01	37.1	<0.02	0.45	0.4	1	<0.05	1.5	0.05
F00051911		5.28	0.05	6.10	0.8	1360	0.85	0.10	5.49	0.05	12.95	2.6	6	2.16	44.7	1.97
F00051912		3.32	0.03	7.65	0.8	880	0.94	0.02	2.28	<0.02	21.0	3.4	6	0.77	6.0	1.58
F00051913		3.42	0.03	5.63	0.3	650	0.82	0.01	5.90	<0.02	10.75	3.6	4	1.52	4.9	1.34
F00051914		5.50	0.04	7.14	1.6	760	0.78	0.02	2.51	0.02	14.40	2.9	5	1.85	4.0	1.50
F00051915		4.82	0.11	7.53	1.0	1420	0.93	0.02	2.24	<0.02	12.20	3.5	5	0.80	6.2	1.51
F00051916		4.72	0.11	7.15	1.0	400	0.74	0.02	2.17	<0.02	12.40	3.1	5	0.78	3.6	1.31
F00051917		5.90	0.02	7.40	0.7	1010	0.85	0.02	2.34	<0.02	16.45	3.4	6	0.47	10.9	1.47
F00051918		5.50	0.01	7.84	0.6	1060	0.94	0.02	2.51	<0.02	19.40	3.6	7	0.68	3.5	1.58
F00051919		3.14	0.04	7.72	0.6	1030	0.97	0.01	2.41	<0.02	20.0	3.6	7	0.49	3.6	1.60
F00051920		2.98	0.02	8.03	0.6	1120	1.01	0.02	2.46	<0.02	17.10	3.7	6	0.50	3.7	1.59
F00051921		5.62	0.06	7.87	1.1	680	0.98	0.02	2.64	<0.02	16.80	3.9	6	0.71	30.2	1.57
F00051922		5.40	0.09	6.67	1.1	1190	0.68	0.03	4.08	0.05	11.15	3.8	6	1.44	68.5	1.47
F00051923		5.38	0.04	7.36	0.4	980	0.84	0.03	2.85	0.03	13.85	3.6	8	0.99	28.5	1.51
F00051924		4.38	0.03	7.46	0.8	880	1.00	0.03	2.55	0.02	15.05	3.5	8	0.77	13.5	1.56
F00051925		4.42	0.02	7.42	1.0	720	1.06	0.03	2.27	<0.02	13.30	3.1	5	0.65	6.4	1.41

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 4-MAR-2021
Account: HACMIN

Project: Highland Valley -P1M-02

CERTIFICATE OF ANALYSIS VA20285078

Sample Description	Method Analyte Units LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
F00051886		18.05	0.10	0.7	0.017	1.94	9.1	12.8	0.38	587	0.43	3.38	2.2	1.8	430	4.2
F00051887		17.15	0.11	0.5	0.014	1.84	8.0	12.2	0.37	478	0.34	3.44	2.3	1.4	410	4.8
F00051888		16.60	0.11	0.5	0.015	1.85	7.8	11.1	0.38	588	0.63	2.87	1.9	1.6	430	3.2
F00051889		17.80	0.10	0.6	0.019	1.81	7.0	8.3	0.36	508	1.40	2.94	1.9	5.8	430	8.7
F00051890		17.20	0.12	0.3	0.048	3.04	6.8	11.6	0.19	271	762	1.28	2.1	7.4	410	122.5
F00051891		18.20	0.11	0.6	0.021	1.24	8.1	6.6	0.34	481	0.96	3.59	2.5	1.9	420	7.1
F00051892		19.20	0.08	0.6	0.025	1.62	8.0	8.7	0.40	543	1.19	3.45	2.2	2.1	440	5.4
F00051893		17.95	0.12	0.6	0.020	1.60	8.2	9.5	0.42	541	1.29	3.36	2.5	2.1	440	5.9
F00051894		18.90	0.11	0.7	0.026	1.57	8.2	9.2	0.36	494	0.52	3.42	2.3	1.9	410	5.4
F00051895		18.70	0.09	0.7	0.018	1.52	8.2	9.4	0.37	449	0.39	3.47	2.3	1.7	420	5.5
F00051896		17.60	0.13	0.7	0.024	1.75	8.4	8.7	0.34	450	0.47	3.12	2.2	2.2	410	4.7
F00051897		18.00	0.10	0.6	0.023	1.89	8.0	8.6	0.33	477	0.36	3.33	2.2	1.6	370	6.0
F00051898		18.40	0.11	0.6	0.024	1.89	8.2	9.5	0.34	479	0.31	3.45	2.4	1.6	390	5.6
F00051899		18.75	0.10	0.7	0.025	1.97	8.8	9.8	0.35	465	0.54	3.54	2.5	1.7	410	5.9
F00051900		17.80	0.10	1.2	0.026	1.94	9.3	8.2	0.31	459	0.33	3.31	2.5	1.5	370	6.7
F00051901		18.65	0.12	0.7	0.026	1.63	8.5	10.5	0.33	443	0.35	3.43	2.4	1.7	400	5.0
F00051902		19.70	0.10	0.7	0.023	1.50	7.7	11.4	0.32	505	0.42	3.28	2.5	2.0	390	6.7
F00051903		18.90	0.09	0.7	0.024	1.55	9.0	11.2	0.36	463	0.42	3.33	1.9	1.7	420	4.3
F00051904		18.05	0.11	0.6	0.023	1.64	8.5	10.1	0.33	458	0.25	3.48	2.2	1.5	390	5.3
F00051905		17.85	0.12	0.6	0.027	1.89	7.3	10.0	0.32	452	0.41	3.47	2.3	1.8	390	5.1
F00051906		17.45	0.09	0.6	0.022	1.72	6.1	6.7	0.29	472	0.27	3.35	2.0	1.3	390	2.8
F00051907		17.70	0.10	0.6	0.029	1.69	6.6	11.1	0.33	458	0.57	2.56	1.8	1.6	390	3.2
F00051908		16.85	0.11	0.5	0.026	1.87	5.5	11.8	0.26	520	0.90	1.89	1.8	1.6	380	2.7
F00051909		18.00	0.11	0.5	0.023	1.58	6.9	11.4	0.30	428	0.70	2.43	1.8	1.5	410	3.3
F00051910		0.34	0.10	<0.1	0.011	0.02	<0.5	0.8	1.72	25	0.08	0.03	<0.1	0.2	30	<0.5
F00051911		26.0	0.12	0.7	0.029	2.56	5.6	10.1	0.19	1100	4.45	1.45	1.9	1.4	390	3.5
F00051912		18.45	0.11	0.6	0.020	1.70	9.3	10.6	0.34	454	0.35	3.25	2.3	1.6	400	5.5
F00051913		17.25	0.10	0.5	0.024	1.39	5.0	8.8	0.39	526	0.36	2.90	2.0	1.6	340	5.2
F00051914		17.85	0.12	0.6	0.023	1.57	6.9	8.5	0.27	427	0.85	3.12	2.2	1.5	400	5.4
F00051915		18.60	0.10	0.5	0.021	1.75	5.6	10.4	0.31	395	1.05	2.93	2.2	1.8	400	6.0
F00051916		16.75	0.10	0.5	0.025	1.47	5.8	7.2	0.29	401	0.83	3.17	2.1	1.5	390	8.2
F00051917		17.80	0.11	0.5	0.016	1.70	7.3	10.3	0.32	451	0.51	3.36	2.2	1.7	400	5.2
F00051918		18.50	0.11	0.5	0.023	1.76	8.6	12.1	0.36	485	0.35	3.36	2.2	1.7	420	5.2
F00051919		18.60	0.11	0.6	0.023	1.65	8.7	9.5	0.36	464	0.30	3.44	2.3	2.2	440	5.0
F00051920		19.00	0.09	0.5	0.019	1.75	7.6	9.8	0.37	467	0.37	3.59	2.0	1.9	460	5.4
F00051921		18.85	0.11	0.5	0.025	1.41	7.0	10.6	0.37	483	0.31	3.68	2.2	1.8	440	4.9
F00051922		16.80	0.11	0.5	0.020	2.50	4.5	14.3	0.31	547	0.81	1.42	1.4	1.7	430	3.9
F00051923		17.35	0.12	0.5	0.025	1.66	5.8	13.8	0.34	475	0.95	2.91	1.8	1.8	440	3.3
F00051924		18.45	0.11	0.6	0.020	1.42	6.6	11.8	0.32	453	0.99	3.34	2.1	1.6	430	4.6
F00051925		17.00	0.15	0.7	0.013	1.66	5.9	8.8	0.27	380	1.04	3.34	2.0	1.6	400	3.6

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 4-MAR-2021
Account: HACMIN

Project: Highland Valley -P1M-02

CERTIFICATE OF ANALYSIS VA20285078

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
F00051886		44.3	<0.002	<0.01	0.55	3.1	<1	0.3	401	0.15	<0.05	1.92	0.143	0.14	0.7	40
F00051887		34.4	<0.002	<0.01	0.27	3.0	<1	0.4	545	0.18	<0.05	1.29	0.143	0.12	0.5	38
F00051888		39.7	0.002	0.01	1.36	2.9	<1	0.3	350	0.13	<0.05	1.69	0.139	0.16	0.5	39
F00051889		38.1	<0.002	0.01	1.47	3.1	1	0.4	432	0.15	<0.05	1.24	0.134	0.16	0.5	39
F00051890		49.1	0.087	0.84	162.0	1.8	2	1.7	370	0.09	0.84	0.90	0.077	0.23	1.0	37
F00051891		25.6	<0.002	<0.01	0.78	3.1	1	0.4	636	0.17	<0.05	1.37	0.142	0.12	0.7	39
F00051892		32.4	<0.002	<0.01	1.12	3.5	1	0.4	553	0.14	<0.05	1.38	0.142	0.17	0.6	40
F00051893		27.7	<0.002	<0.01	0.90	3.5	<1	0.4	543	0.17	<0.05	1.31	0.160	0.12	0.6	43
F00051894		30.8	<0.002	0.01	0.65	3.1	1	0.4	528	0.15	<0.05	1.75	0.142	0.12	0.7	38
F00051895		29.8	<0.002	<0.01	0.67	3.1	1	0.4	513	0.16	<0.05	1.59	0.140	0.13	0.6	39
F00051896		38.7	<0.002	<0.01	0.75	3.0	1	0.4	375	0.14	<0.05	1.71	0.126	0.15	0.7	36
F00051897		39.5	0.002	<0.01	0.66	2.9	1	0.4	409	0.15	<0.05	1.70	0.129	0.14	0.6	35
F00051898		36.2	0.002	<0.01	0.27	2.9	<1	0.4	504	0.17	<0.05	1.72	0.139	0.16	0.7	36
F00051899		37.9	<0.002	<0.01	0.36	3.1	1	0.4	510	0.17	<0.05	1.97	0.136	0.12	0.8	37
F00051900		37.5	<0.002	<0.01	0.36	2.8	1	0.4	503	0.17	<0.05	2.95	0.133	0.14	1.1	34
F00051901		33.3	<0.002	<0.01	0.67	3.0	1	0.4	548	0.17	<0.05	1.79	0.133	0.13	0.7	36
F00051902		31.0	<0.002	0.02	0.70	3.0	<1	0.4	692	0.17	<0.05	1.96	0.131	0.11	1.0	38
F00051903		31.2	<0.002	<0.01	1.06	3.0	1	0.4	514	0.12	<0.05	1.58	0.131	0.13	0.6	38
F00051904		31.2	<0.002	0.01	0.17	2.9	<1	0.4	524	0.17	<0.05	1.61	0.139	0.12	0.7	37
F00051905		37.6	<0.002	<0.01	0.38	3.0	<1	0.4	504	0.18	<0.05	1.26	0.138	0.17	0.7	36
F00051906		36.9	<0.002	<0.01	0.41	2.8	1	0.4	296	0.13	<0.05	1.22	0.126	0.13	0.6	35
F00051907		39.1	<0.002	<0.01	1.46	2.6	1	0.4	304	0.13	<0.05	1.45	0.123	0.18	0.5	37
F00051908		38.5	<0.002	<0.01	1.49	2.6	1	0.4	303	0.12	<0.05	1.09	0.115	0.22	0.4	33
F00051909		31.8	<0.002	<0.01	1.83	2.7	1	0.4	424	0.14	<0.05	1.57	0.120	0.15	0.6	38
F00051910		0.7	<0.002	0.08	0.09	0.2	1	<0.2	4700	<0.05	<0.05	0.06	<0.005	<0.02	1.3	<1
F00051911		46.6	<0.002	<0.01	2.45	2.3	1	0.4	339	0.13	<0.05	1.12	0.121	0.33	0.6	54
F00051912		34.9	<0.002	<0.01	0.23	3.1	1	0.4	548	0.16	<0.05	1.44	0.139	0.11	1.2	38
F00051913		19.3	<0.002	0.02	0.39	2.3	<1	0.3	777	0.14	<0.05	0.88	0.119	0.10	0.5	34
F00051914		30.6	<0.002	0.02	0.54	2.8	1	0.4	421	0.15	<0.05	1.37	0.137	0.11	0.7	37
F00051915		32.6	<0.002	0.02	0.24	3.0	1	0.4	612	0.14	<0.05	1.21	0.143	0.13	0.9	39
F00051916		29.5	<0.002	<0.01	0.28	2.8	1	0.4	519	0.14	<0.05	1.48	0.135	0.10	0.9	35
F00051917		30.8	<0.002	<0.01	0.22	2.9	1	0.4	574	0.15	<0.05	1.15	0.142	0.14	0.8	38
F00051918		35.5	<0.002	<0.01	0.12	3.4	1	0.4	597	0.15	<0.05	1.37	0.145	0.13	0.8	39
F00051919		32.9	<0.002	<0.01	0.16	3.4	1	0.4	597	0.15	<0.05	1.52	0.148	0.10	0.9	40
F00051920		34.1	<0.002	0.01	0.19	3.3	<1	0.4	621	0.15	<0.05	1.32	0.144	0.14	0.8	40
F00051921		27.4	<0.002	<0.01	0.58	3.3	1	0.4	585	0.16	<0.05	1.48	0.146	0.11	0.8	39
F00051922		47.1	<0.002	<0.01	2.18	2.6	1	0.3	351	0.10	<0.05	0.79	0.117	0.25	0.4	35
F00051923		33.2	<0.002	<0.01	0.99	2.8	1	0.4	466	0.12	<0.05	0.99	0.127	0.16	0.6	38
F00051924		28.1	<0.002	0.01	0.72	3.1	<1	0.4	532	0.15	<0.05	1.34	0.137	0.09	1.1	39
F00051925		36.1	<0.002	<0.01	0.29	2.5	<1	0.3	423	0.15	<0.05	2.15	0.130	0.12	1.0	36

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 4-MAR-2021
Account: HACMIN

Project: Highland Valley -P1M-02

CERTIFICATE OF ANALYSIS VA20285078

Sample Description	Method / Analyte / Units / LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	Cu-OG62 Cu % 0.001
F00051886		0.3	6.0	46	10.8	
F00051887		0.1	6.9	41	8.9	
F00051888		0.2	5.4	44	8.4	
F00051889		0.2	5.8	49	7.9	
F00051890		1.0	4.0	71	4.6	0.739
F00051891		0.2	6.0	41	8.4	
F00051892		0.1	5.6	44	8.1	
F00051893		0.3	6.3	46	7.9	
F00051894		0.1	5.8	41	10.4	
F00051895		0.1	5.4	45	9.6	
F00051896		0.1	5.6	42	10.4	
F00051897		0.2	5.5	39	9.7	
F00051898		0.1	5.8	39	10.2	
F00051899		0.1	5.7	41	10.5	
F00051900		0.1	6.5	36	18.0	
F00051901		0.1	6.2	40	10.1	
F00051902		0.1	5.7	37	11.3	
F00051903		0.2	5.2	44	11.2	
F00051904		0.1	6.4	36	8.7	
F00051905		0.3	6.8	38	9.2	
F00051906		0.2	4.8	32	9.1	
F00051907		0.2	5.5	33	9.1	
F00051908		0.3	4.9	28	8.8	
F00051909		0.2	5.8	30	8.8	
F00051910		<0.1	0.4	<2	0.6	
F00051911		0.3	5.2	30	10.3	
F00051912		0.2	6.9	37	8.5	
F00051913		0.3	5.0	39	7.7	
F00051914		0.6	5.5	35	8.6	
F00051915		1.1	4.2	40	8.4	
F00051916		0.8	3.9	33	6.9	
F00051917		0.2	6.2	37	8.7	
F00051918		0.1	6.6	39	8.2	
F00051919		0.3	7.2	40	8.9	
F00051920		0.3	6.2	40	7.7	
F00051921		0.6	6.6	44	8.1	
F00051922		0.2	5.3	44	8.3	
F00051923		0.3	5.9	43	8.1	
F00051924		0.4	5.8	41	8.5	
F00051925		0.3	4.5	36	9.0	

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 4-MAR-2021
Account: HACMIN

Project: Highland Valley -P1M-02

CERTIFICATE OF ANALYSIS VA20285078

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
F00051926		5.38	0.02	7.57	1.7	1000	0.96	0.02	2.38	<0.02	14.60	3.3	4	0.53	8.0	1.54
F00051927		7.10	0.02	7.55	1.0	770	0.87	0.02	2.80	0.02	16.25	3.6	9	0.58	11.1	1.62
F00051928		2.92	0.73	6.01	0.8	1210	0.57	0.19	6.14	0.07	10.25	2.9	8	2.03	1220	1.24
F00051929		6.10	0.10	7.20	1.1	1050	0.77	0.05	3.79	0.03	11.90	3.4	8	1.32	114.5	1.62
F00051930		0.06	71.2	5.61	64.0	820	0.74	5.94	1.40	0.66	13.85	1.8	342	0.99	7420	1.25
F00051931		5.34	0.07	7.43	0.8	810	0.94	0.02	2.55	<0.02	16.55	3.3	8	0.83	15.7	1.51
F00051932		5.26	0.03	7.61	1.1	840	0.88	0.02	2.42	<0.02	16.45	3.6	7	0.66	10.9	1.62
F00051933		5.46	0.02	7.31	1.6	720	0.81	0.02	2.65	<0.02	14.70	3.3	8	0.74	13.4	1.53
F00051934		5.54	0.02	7.40	0.8	1100	0.87	0.02	2.58	<0.02	15.05	3.4	9	1.19	6.1	1.63
F00051935		5.86	<0.01	7.51	1.4	810	0.79	0.02	2.66	<0.02	16.40	3.4	7	0.77	4.0	1.66
F00051936		5.74	0.02	7.82	1.5	940	0.86	0.02	2.43	<0.02	17.15	3.9	7	0.65	13.2	1.67
F00051937		5.62	0.02	7.54	1.0	880	0.80	0.01	2.66	<0.02	15.25	3.6	5	1.36	7.4	1.52
F00051938		5.22	0.01	7.52	1.2	830	0.87	0.01	2.53	0.02	14.90	3.7	7	0.59	6.0	1.57
F00051939		5.08	0.01	6.82	0.7	700	0.72	0.01	3.07	0.02	22.5	2.6	5	0.82	3.1	1.42
F00051940		5.18	0.04	6.98	1.2	730	0.82	0.03	2.84	0.02	12.50	3.7	8	1.06	79.0	1.55
F00051941		4.72	0.01	7.33	1.4	760	0.85	0.01	2.54	<0.02	14.85	3.8	9	0.64	12.3	1.56
F00051942		6.02	0.01	7.44	0.8	930	0.88	0.01	2.51	<0.02	16.45	3.6	7	0.52	7.4	1.60
F00051943		5.22	0.03	7.46	0.8	810	0.93	0.02	2.47	<0.02	16.95	3.6	9	0.64	19.6	1.55
F00051944		5.84	0.09	6.86	0.6	1280	0.79	0.04	3.33	0.02	11.80	3.2	6	1.78	56.3	1.74
F00051945		5.42	0.01	7.54	1.1	870	0.87	0.02	2.62	<0.02	16.20	3.8	6	0.84	8.6	1.57
F00051946		4.74	0.03	7.54	0.9	900	0.95	0.03	2.42	<0.02	15.00	3.7	6	0.62	22.9	1.60
F00051947		5.90	0.02	7.57	0.8	940	0.89	0.02	2.50	<0.02	16.70	3.8	6	0.76	16.0	1.60
F00051948		5.44	0.01	7.85	1.0	950	0.94	0.02	2.46	<0.02	16.65	3.7	7	0.59	6.4	1.58
F00051949		5.16	0.02	7.62	0.8	780	0.87	0.02	2.61	<0.02	14.55	3.8	9	0.69	4.6	1.65
F00051950		5.48	0.02	7.66	1.6	930	0.83	0.01	2.47	0.02	16.00	3.7	6	0.56	4.4	1.66
F00051951		1.42	<0.01	0.09	0.7	20	<0.05	<0.01	36.9	0.02	0.31	0.6	1	<0.05	1.2	0.05
F00051952		3.98	0.02	7.69	1.2	880	0.77	0.02	2.35	<0.02	15.70	3.7	7	0.71	3.7	1.72
F00051953		6.24	0.01	7.86	1.4	920	0.80	0.01	2.41	<0.02	18.10	3.5	9	0.59	2.3	1.63
F00051954		5.42	0.01	5.76	0.9	870	0.72	0.01	5.32	<0.02	9.82	3.3	5	0.51	2.2	1.50
F00051955		3.20	0.01	7.56	1.2	800	0.89	0.01	2.29	<0.02	14.65	3.7	7	1.04	1.7	1.63
F00051956		5.46	<0.01	7.27	2.1	1520	0.65	0.01	3.16	0.02	13.25	3.0	7	1.16	1.0	2.06
F00051957		5.74	0.01	7.67	1.3	620	0.68	0.01	2.22	0.02	16.10	3.9	6	0.94	2.5	1.60
F00051958		4.16	0.01	7.56	1.2	470	0.74	0.01	2.77	0.02	15.40	3.3	6	1.14	3.8	1.81
F00051959		4.68	0.09	7.86	4.0	570	0.79	0.01	1.22	0.04	16.05	4.5	6	1.70	3.3	1.47
F00051960		0.06	72.4	5.54	66.0	800	0.74	5.74	1.37	0.69	13.00	1.8	337	0.99	7360	1.23
F00051961		6.48	0.05	7.29	2.1	510	0.82	0.02	1.12	0.02	15.95	3.9	5	1.45	3.8	1.51
F00051962		4.38	0.20	7.08	3.1	620	1.06	0.02	2.27	<0.02	14.85	3.5	5	2.04	3.4	1.51
F00051963		5.32	0.02	7.36	0.7	820	0.90	0.02	2.50	0.02	14.20	3.7	8	1.03	5.8	1.63
F00051964		5.40	0.03	7.30	0.9	720	0.82	0.02	2.45	0.02	15.75	3.5	6	1.07	8.4	1.61
F00051965		5.84	0.10	7.65	1.1	760	0.94	0.02	2.50	0.02	26.6	5.1	7	0.83	59.2	2.17

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 4-MAR-2021
Account: HACMIN

Project: Highland Valley -P1M-02

CERTIFICATE OF ANALYSIS VA20285078

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
F00051926		17.35	0.15	0.6	0.011	1.39	7.0	9.7	0.35	466	0.58	3.49	1.8	1.5	410	5.0
F00051927		17.00	0.14	0.6	0.011	1.32	7.9	11.3	0.36	520	1.15	3.30	1.9	1.6	430	4.9
F00051928		12.60	0.17	0.6	0.013	3.53	4.3	14.9	0.20	755	1.07	0.32	1.7	2.0	460	2.5
F00051929		16.75	0.15	0.6	0.013	2.16	5.3	11.9	0.30	617	1.17	2.17	1.5	2.1	450	3.8
F00051930		15.85	0.14	0.3	0.039	2.98	6.5	14.0	0.18	268	741	1.26	1.9	5.7	400	126.0
F00051931		17.45	0.15	0.6	0.012	1.50	7.4	9.1	0.34	456	1.44	3.29	1.8	1.7	420	4.3
F00051932		17.25	0.15	0.7	0.010	1.45	7.8	9.7	0.37	492	0.66	3.55	1.9	1.4	440	4.4
F00051933		17.40	0.12	0.5	0.007	1.35	6.6	14.6	0.32	457	0.91	3.36	1.8	1.5	420	4.6
F00051934		17.25	0.14	0.5	0.013	1.62	6.9	10.8	0.31	445	0.96	3.26	1.8	1.4	430	8.2
F00051935		17.80	0.15	0.6	0.014	1.46	7.3	10.6	0.33	483	0.68	3.34	2.0	1.9	450	4.7
F00051936		17.35	0.13	0.5	0.012	1.67	8.0	12.7	0.43	517	0.78	3.43	2.0	1.7	450	3.9
F00051937		17.00	0.15	0.5	0.010	1.77	6.7	21.3	0.35	479	0.73	3.01	1.8	1.5	420	3.2
F00051938		17.25	0.11	0.4	0.014	1.37	6.4	9.8	0.37	532	0.79	3.47	1.7	1.5	430	4.6
F00051939		16.85	0.14	0.9	0.012	1.86	12.2	7.4	0.28	862	0.69	2.48	1.7	1.5	340	2.8
F00051940		16.95	0.12	0.6	0.011	2.08	5.6	15.2	0.29	785	1.33	2.29	1.6	1.4	400	2.9
F00051941		16.90	0.12	0.4	0.013	1.42	6.1	11.7	0.36	502	0.91	3.24	1.8	1.5	450	3.7
F00051942		17.55	0.13	0.6	0.011	1.44	7.4	9.4	0.37	501	0.75	3.43	1.9	1.7	440	4.2
F00051943		17.25	0.14	0.6	0.012	1.48	7.4	12.6	0.36	502	0.87	3.25	2.0	1.6	440	3.8
F00051944		18.00	0.15	0.5	0.012	2.22	5.0	14.6	0.27	682	3.36	2.14	1.6	1.3	420	2.8
F00051945		17.75	0.14	0.5	0.010	1.48	7.0	13.5	0.36	505	0.74	3.20	2.0	1.6	460	4.0
F00051946		17.80	0.14	0.6	0.011	1.57	7.0	10.3	0.36	472	0.60	3.47	1.8	1.5	440	4.4
F00051947		18.10	0.12	0.6	0.013	1.55	7.9	10.6	0.37	511	0.56	3.38	2.0	1.5	430	4.7
F00051948		17.60	0.15	0.5	0.013	1.53	7.8	10.2	0.37	499	0.75	3.47	1.8	1.6	440	5.6
F00051949		17.85	0.14	0.5	0.011	1.60	6.5	10.9	0.38	501	0.84	3.40	1.7	1.5	450	3.7
F00051950		17.50	0.13	0.5	0.013	1.49	7.3	10.5	0.39	516	0.52	3.52	1.8	1.5	460	4.7
F00051951		0.37	0.27	<0.1	<0.005	0.01	<0.5	1.0	1.49	24	0.14	0.03	<0.1	0.5	30	<0.5
F00051952		16.85	0.21	0.5	0.013	1.59	7.4	9.5	0.37	476	0.75	3.54	1.8	2.1	480	4.7
F00051953		17.75	0.22	0.6	0.012	1.63	8.5	9.3	0.38	484	0.82	3.60	2.0	1.3	470	3.9
F00051954		16.15	0.20	0.4	0.011	1.40	4.1	9.0	0.40	455	0.50	3.27	1.7	1.6	430	3.8
F00051955		17.30	0.18	0.4	0.012	1.82	6.3	15.6	0.40	499	0.89	2.96	1.7	1.5	450	2.9
F00051956		18.20	0.18	0.4	0.013	1.61	5.8	8.7	0.27	592	0.71	2.70	1.7	1.7	440	5.3
F00051957		17.80	0.19	0.5	0.012	1.50	7.7	13.6	0.38	522	0.57	3.50	1.9	1.5	460	4.1
F00051958		18.05	0.17	0.4	0.014	1.66	6.7	8.4	0.31	544	0.63	3.20	2.0	1.4	480	4.6
F00051959		17.40	0.14	0.4	0.011	2.03	7.9	20.2	0.42	410	210	3.05	1.7	1.7	480	4.7
F00051960		15.75	0.16	0.2	0.043	2.98	6.1	13.0	0.18	264	739	1.26	1.9	5.8	400	119.0
F00051961		16.45	0.10	0.5	0.012	1.91	8.3	21.5	0.42	408	19.70	2.70	1.7	6.0	440	4.8
F00051962		17.15	0.09	0.4	0.015	1.81	7.0	19.8	0.34	490	541	2.86	1.6	1.8	430	7.9
F00051963		17.00	0.09	0.5	0.014	2.12	6.1	9.6	0.35	565	2.58	2.90	1.6	1.9	460	3.3
F00051964		16.25	0.08	0.5	0.013	1.72	6.7	10.0	0.34	514	0.77	3.28	1.7	1.8	460	3.2
F00051965		19.15	0.11	0.5	0.023	1.81	12.1	21.0	0.45	572	6.72	3.13	2.8	2.1	570	3.4

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 4-MAR-2021
Account: HACMIN

Project: Highland Valley -P1M-02

CERTIFICATE OF ANALYSIS VA20285078

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
F00051926		27.0	<0.002	0.01	0.38	2.8	1	0.3	600	0.12	<0.05	1.73	0.136	0.10	1.0	39
F00051927		26.5	<0.002	0.01	0.71	2.8	1	0.4	538	0.13	<0.05	1.82	0.144	0.11	0.9	40
F00051928		60.8	<0.002	0.04	1.69	2.2	1	0.4	217	0.11	<0.05	1.13	0.135	0.37	0.5	29
F00051929		40.9	<0.002	0.01	1.18	2.6	<1	0.3	460	0.10	<0.05	1.01	0.127	0.21	0.5	39
F00051930		48.0	0.074	0.82	162.5	1.5	2	1.5	361	0.08	0.77	0.89	0.075	0.20	0.9	37
F00051931		32.1	<0.002	0.01	0.57	2.7	1	0.3	533	0.12	<0.05	1.20	0.129	0.12	0.7	38
F00051932		29.3	<0.002	0.01	0.38	2.9	1	0.4	550	0.13	<0.05	1.32	0.148	0.11	0.7	41
F00051933		26.5	<0.002	0.01	0.46	2.7	1	0.3	620	0.11	<0.05	0.93	0.137	0.10	0.6	38
F00051934		35.2	<0.002	0.02	0.26	2.9	1	0.3	628	0.13	<0.05	1.03	0.146	0.13	0.6	40
F00051935		27.9	<0.002	0.01	0.23	3.1	1	0.4	653	0.13	<0.05	1.10	0.154	0.11	0.7	42
F00051936		32.3	<0.002	0.01	0.34	3.1	1	0.4	501	0.14	<0.05	1.43	0.158	0.13	0.8	42
F00051937		38.4	<0.002	0.01	0.48	2.7	1	0.3	401	0.12	<0.05	1.13	0.141	0.15	0.6	39
F00051938		25.3	0.002	0.02	0.32	2.8	1	0.3	684	0.12	<0.05	0.94	0.142	0.09	0.6	40
F00051939		41.7	<0.002	0.01	0.40	2.4	1	0.3	434	0.10	<0.05	2.70	0.114	0.17	0.8	35
F00051940		42.3	<0.002	<0.01	0.54	2.5	<1	0.3	300	0.11	<0.05	1.40	0.128	0.16	0.9	37
F00051941		25.0	<0.002	0.01	0.47	2.5	1	0.3	538	0.12	<0.05	0.98	0.141	0.10	0.7	40
F00051942		25.3	<0.002	<0.01	0.37	2.7	1	0.3	631	0.14	<0.05	1.39	0.147	0.11	0.7	41
F00051943		28.1	<0.002	<0.01	0.43	2.7	1	0.4	532	0.12	<0.05	1.37	0.141	0.11	1.0	39
F00051944		40.2	<0.002	0.01	1.06	2.3	<1	0.3	348	0.11	<0.05	1.44	0.128	0.20	0.8	46
F00051945		27.7	0.002	0.01	0.50	2.7	1	0.4	556	0.13	<0.05	1.38	0.148	0.10	0.8	40
F00051946		28.5	0.002	0.01	0.17	2.8	1	0.3	592	0.11	<0.05	1.53	0.138	0.11	0.9	40
F00051947		28.9	0.002	0.01	0.25	3.2	<1	0.4	581	0.13	<0.05	1.31	0.148	0.10	0.7	41
F00051948		29.7	0.002	0.01	0.22	3.0	1	0.4	571	0.12	<0.05	1.56	0.142	0.11	1.0	40
F00051949		30.9	<0.002	0.01	0.19	2.9	1	0.3	521	0.11	<0.05	1.02	0.141	0.11	0.7	41
F00051950		26.8	<0.002	0.01	0.19	3.0	1	0.3	607	0.12	<0.05	1.38	0.155	0.10	0.8	42
F00051951		0.3	0.002	0.08	<0.05	0.2	1	<0.2	4750	<0.05	<0.05	0.02	<0.005	<0.02	1.3	<1
F00051952		28.2	<0.002	0.01	0.28	2.9	<1	0.4	539	0.13	<0.05	1.21	0.146	0.10	0.7	42
F00051953		30.3	<0.002	0.01	0.16	2.9	1	0.3	542	0.14	<0.05	1.32	0.151	0.09	0.8	42
F00051954		15.9	<0.002	0.01	0.15	2.2	1	0.3	920	0.12	<0.05	0.97	0.144	0.08	0.6	40
F00051955		35.5	<0.002	0.01	0.28	2.9	1	0.3	396	0.11	<0.05	1.27	0.145	0.12	0.8	42
F00051956		30.3	<0.002	0.04	0.31	2.7	1	0.4	777	0.11	<0.05	0.93	0.141	0.12	0.6	46
F00051957		29.5	<0.002	0.01	0.20	3.1	1	0.3	428	0.13	<0.05	1.23	0.149	0.12	0.6	42
F00051958		32.3	<0.002	0.02	0.26	3.1	<1	0.4	526	0.12	<0.05	1.01	0.153	0.12	0.9	42
F00051959		45.1	0.174	0.08	0.55	3.0	1	0.3	261	0.11	<0.05	1.30	0.148	0.70	0.9	42
F00051960		48.4	0.070	0.82	161.0	1.6	2	1.5	357	0.08	0.68	0.96	0.076	0.21	0.9	36
F00051961		49.5	0.012	0.03	0.63	3.0	<1	0.3	245	0.10	<0.05	1.45	0.143	0.20	1.0	42
F00051962		42.3	0.132	0.07	0.99	2.8	1	0.3	352	0.11	<0.05	1.01	0.132	1.56	0.7	40
F00051963		47.3	0.002	0.01	0.34	2.9	1	0.3	304	0.11	<0.05	1.45	0.136	0.17	0.7	43
F00051964		36.0	<0.002	0.01	0.28	3.1	<1	0.3	384	0.12	<0.05	1.18	0.145	0.11	0.6	43
F00051965		42.5	0.007	0.01	0.36	4.7	<1	0.5	430	0.23	<0.05	1.54	0.195	0.14	0.8	60

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 4-MAR-2021
Account: HACMIN

Project: Highland Valley -P1M-02

CERTIFICATE OF ANALYSIS VA20285078

Sample Description	Method Analyte Units LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	Cu-OG62 Cu % 0.001
F00051926		0.3	4.8	40	8.2	
F00051927		0.3	4.9	39	8.5	
F00051928		0.3	3.7	27	8.9	0.126
F00051929		0.2	4.0	37	9.5	
F00051930		1.0	3.7	72	4.1	0.757
F00051931		0.2	5.0	42	8.7	
F00051932		0.1	5.3	44	9.7	
F00051933		0.1	4.8	36	7.7	
F00051934		0.2	5.0	39	7.8	
F00051935		0.1	5.3	34	8.1	
F00051936		0.1	5.6	46	7.5	
F00051937		0.2	4.8	40	7.9	
F00051938		0.1	4.9	39	6.5	
F00051939		0.2	4.2	31	12.3	
F00051940		0.5	4.1	40	9.0	
F00051941		0.2	4.8	39	6.3	
F00051942		0.1	5.5	38	8.3	
F00051943		0.2	5.4	39	8.6	
F00051944		0.4	4.2	37	7.6	
F00051945		0.2	5.6	39	7.4	
F00051946		0.1	4.8	40	8.8	
F00051947		0.1	5.6	43	8.5	
F00051948		0.1	5.2	42	7.0	
F00051949		0.2	4.9	44	7.7	
F00051950		0.1	5.2	41	6.7	
F00051951		<0.1	0.3	6	0.5	
F00051952		0.2	5.2	46	6.6	
F00051953		0.1	6.0	40	7.6	
F00051954		0.1	3.7	36	5.6	
F00051955		0.2	4.9	39	5.7	
F00051956		0.3	4.6	36	5.5	
F00051957		0.5	5.2	44	6.7	
F00051958		0.4	5.4	40	6.0	
F00051959		0.8	4.6	49	5.1	
F00051960		1.0	3.6	70	4.2	0.754
F00051961		0.5	4.6	53	6.6	
F00051962		0.2	4.9	43	5.7	
F00051963		0.2	4.5	44	7.0	
F00051964		0.1	4.8	43	6.8	
F00051965		0.2	9.6	50	6.7	

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

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: HAPPY CREEK MINERALS LTD.
460–789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 4–MAR–2021
Account: HACMIN

Project: Highland Valley –P1M–02

CERTIFICATE OF ANALYSIS VA20285078

Sample Description	Method	WEI–21	ME–MS61	ME–MS61	ME–MS61	ME–MS61	ME–MS61	ME–MS61	ME–MS61	ME–MS61	ME–MS61	ME–MS61	ME–MS61	ME–MS61	ME–MS61	ME–MS61
	Analyte	Recvd Wt.	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe
	Units	kg	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%
	LOD	0.02	0.01	0.01	0.2	10	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01
F00051966		5.66	0.01	7.58	1.2	900	0.91	0.01	2.38	0.02	17.90	3.5	7	0.61	4.1	1.59
F00051967		5.32	0.01	7.29	1.2	1010	0.93	0.01	2.49	<0.02	15.95	3.6	7	0.56	3.5	1.58
F00051968		5.20	0.05	7.18	1.0	810	0.86	0.01	2.15	<0.02	18.95	3.5	9	0.49	7.7	1.46
F00051969		4.76	0.02	7.47	1.4	1130	0.94	0.02	2.77	<0.02	17.05	3.2	6	0.47	4.3	1.64
F00051970		5.64	0.02	7.74	1.2	1040	0.93	0.02	2.41	<0.02	19.20	3.7	6	0.51	8.6	1.71
F00051971		5.78	0.01	7.40	1.1	950	0.97	0.02	2.29	<0.02	17.70	3.5	7	0.46	7.5	1.63
F00051972		5.72	0.07	7.48	0.5	850	0.88	0.02	2.35	0.02	16.15	3.2	9	0.52	78.1	1.51
F00051973		4.78	0.02	6.74	1.5	2030	0.93	0.04	4.05	0.08	11.70	3.2	7	0.93	1.2	1.60
F00051974		5.46	0.01	6.87	1.3	1460	0.88	0.05	3.97	0.04	14.00	3.0	7	0.68	0.9	1.41
F00051975		5.58	0.02	6.50	1.6	3660	1.02	0.07	4.86	0.05	12.15	2.7	7	0.76	0.8	1.41
F00051976		5.66	0.01	6.03	0.6	2050	0.89	0.05	4.68	0.03	11.05	2.9	5	1.02	2.0	1.52

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 4-MAR-2021
Account: HACMIN

Project: Highland Valley -P1M-02

CERTIFICATE OF ANALYSIS VA20285078

Sample Description	Method Analyte Units LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
F00051966		16.60	0.10	0.4	0.012	1.43	8.7	26.8	0.38	464	0.80	3.41	1.9	1.5	490	4.4
F00051967		16.10	0.09	0.5	0.013	1.48	7.3	12.7	0.39	467	0.81	3.26	1.9	2.0	460	4.6
F00051968		16.15	0.10	0.5	0.013	1.40	8.8	10.9	0.34	430	0.73	3.50	2.2	3.1	450	4.6
F00051969		17.40	0.08	0.5	0.015	1.34	8.1	11.0	0.32	501	0.81	3.51	2.0	1.4	440	5.0
F00051970		16.65	0.08	0.5	0.014	1.58	8.9	13.7	0.39	495	0.70	3.54	2.2	1.7	500	4.5
F00051971		16.75	0.09	0.5	0.014	1.53	8.6	12.7	0.36	471	0.83	3.49	2.0	1.6	470	3.8
F00051972		16.80	0.08	0.8	0.015	1.70	8.1	11.8	0.33	459	1.37	3.23	1.9	1.5	440	3.4
F00051973		18.90	0.08	0.5	0.015	0.88	4.7	28.2	0.31	417	0.68	2.33	1.6	1.5	440	6.0
F00051974		17.60	0.09	0.5	0.015	0.68	5.9	38.7	0.31	378	0.76	2.34	1.6	1.4	450	4.7
F00051975		17.45	0.11	0.5	0.015	0.74	5.2	19.0	0.22	478	0.76	1.79	1.5	1.3	440	4.8
F00051976		19.90	0.11	0.5	0.017	1.66	4.3	11.2	0.20	579	0.71	1.70	1.6	1.7	430	3.8

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 4-MAR-2021
Account: HACMIN

Project: Highland Valley -P1M-02

CERTIFICATE OF ANALYSIS VA20285078

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
F00051966		25.3	0.002	0.01	0.18	3.3	<1	0.3	579	0.13	<0.05	1.16	0.149	0.08	0.6	43
F00051967		25.5	<0.002	0.02	0.14	3.1	<1	0.3	600	0.13	<0.05	1.26	0.146	0.09	0.7	42
F00051968		26.5	<0.002	0.05	0.19	3.1	<1	0.4	572	0.17	<0.05	1.47	0.148	0.09	0.9	40
F00051969		23.3	<0.002	0.02	0.26	2.9	<1	0.3	762	0.15	<0.05	1.89	0.149	0.09	1.0	42
F00051970		27.7	<0.002	0.01	0.17	3.4	<1	0.4	593	0.16	<0.05	1.54	0.167	0.09	0.9	47
F00051971		28.0	<0.002	0.01	0.14	3.1	<1	0.4	564	0.15	<0.05	1.47	0.147	0.09	0.8	42
F00051972		35.3	<0.002	0.01	0.14	3.0	<1	0.3	490	0.14	<0.05	2.47	0.138	0.11	1.2	39
F00051973		12.0	<0.002	0.02	2.21	2.5	<1	0.3	823	0.12	<0.05	0.74	0.139	0.07	0.4	45
F00051974		8.9	<0.002	0.02	2.35	2.6	<1	0.3	772	0.12	<0.05	1.15	0.130	0.05	0.5	37
F00051975		10.0	<0.002	0.04	3.34	2.5	<1	0.3	864	0.10	<0.05	1.27	0.124	0.07	0.7	37
F00051976		28.6	<0.002	0.01	2.57	2.4	<1	0.3	625	0.11	<0.05	0.87	0.132	0.14	0.6	40

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 4-MAR-2021
Account: HACMIN

Project: Highland Valley -P1M-02

CERTIFICATE OF ANALYSIS VA20285078

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	Cu-OG62
	Analyte	W	Y	Zn	Zr	Cu
	Units	ppm	ppm	ppm	ppm	%
	LOD	0.1	0.1	2	0.5	0.001
F00051966		0.1	5.8	38	5.5	
F00051967		0.1	5.2	40	6.1	
F00051968		0.5	6.0	36	6.8	
F00051969		0.2	5.5	34	6.2	
F00051970		0.1	6.3	42	6.8	
F00051971		0.1	5.5	39	6.5	
F00051972		0.2	5.1	36	10.6	
F00051973		0.3	4.1	40	6.7	
F00051974		0.2	4.3	35	6.5	
F00051975		0.3	3.9	28	6.8	
F00051976		0.2	4.1	28	7.3	

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 4-MAR-2021
Account: HACMIN

Project: Highland Valley -P1M-02

CERTIFICATE OF ANALYSIS VA20285078

CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

REEs may not be totally soluble in this method.

Applies to Method: ME-MS61

LABORATORY ADDRESSES

Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.

Applies to Method:

CRU-31	CRU-QC	Cu-OG62	LOG-21
LOG-23	ME-MS61	ME-OG62	PUL-31
PUL-QC	SPL-21	WEI-21	

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

CERTIFICATE VA20298355

Project: Highland Valley (Z2)

This report is for 258 samples of Drill Core submitted to our lab in Vancouver, BC, Canada on 16-DEC-2020.

The following have access to data associated with this certificate:

DAVID BLANN	SASSAN LIAGHAT	

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-21	Sample logging - ClientBarCode
CRU-31	Fine crushing - 70% <2mm
SPL-21	Split sample - riffle splitter
PUL-31	Pulverize up to 250g 85% <75 um
LOG-23	Pulp Login - Rcvd with Barcode
CRU-QC	Crushing QC Test
PUL-QC	Pulverizing QC Test

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-OG62	Ore Grade Elements - Four Acid	ICP-AES
Cu-OG62	Ore Grade Cu - Four Acid	
Zn-OG62	Ore Grade Zn - Four Acid	
Au-ICP21	Au 30g FA ICP-AES Finish	ICP-AES
ME-MS61	48 element four acid ICP-MS	

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:

Saa Traxler, General Manager, North Vancouver

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method / Analyte / Units / LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
F00052271		10.10	0.17	7.74	2.0	730	0.91	0.10	2.41	<0.02	15.95	4.7	7	0.47	322	1.88
F00052272		9.72	0.13	7.79	1.5	760	0.94	0.10	2.50	<0.02	17.85	4.7	7	0.43	232	1.86
F00052273		9.32	0.14	7.58	1.6	680	0.85	0.12	2.25	<0.02	19.45	4.1	11	0.44	220	1.74
F00052274		9.08	0.04	7.37	1.8	910	0.89	0.04	2.98	0.02	14.45	4.6	9	0.62	55.2	1.82
F00052275		10.84	0.01	7.94	2.1	890	0.85	0.02	2.54	<0.02	18.80	4.5	7	0.46	4.0	1.86
F00052276		9.80	0.01	7.60	1.1	1190	0.89	0.02	2.81	0.08	15.70	4.1	9	1.04	4.0	1.69
F00052277		10.04	0.03	7.55	1.5	850	0.88	0.02	3.04	0.03	15.30	4.4	9	0.76	13.5	1.79
F00052278		10.40	0.18	7.66	2.0	750	0.87	0.19	2.67	<0.02	15.55	4.8	7	0.90	352	1.91
F00052279		9.52	0.07	7.72	1.9	650	0.89	0.11	2.65	<0.02	23.7	4.0	11	0.57	135.0	1.71
F00052280		2.14	0.01	0.07	0.3	10	0.05	0.03	21.5	0.03	0.97	0.4	1	0.08	1.1	0.14
F00052281		9.32	0.05	7.26	2.4	490	0.68	0.05	3.58	<0.02	16.90	3.9	6	0.55	82.8	1.58
F00052282		8.50	0.29	7.53	1.9	400	0.69	0.15	2.71	<0.02	13.35	4.6	6	0.67	608	1.76
F00052283		9.64	0.14	7.76	1.1	480	0.90	0.09	2.46	<0.02	16.40	4.3	8	0.63	194.5	1.64
F00052284		8.64	0.02	6.34	1.1	380	0.82	0.13	3.59	0.03	14.35	3.8	9	0.85	29.3	1.72
F00052285		9.92	0.09	7.80	1.6	680	0.84	0.07	3.08	<0.02	14.30	4.6	5	0.51	158.5	1.82
F00052286		11.26	0.12	7.70	1.1	580	0.93	0.09	2.80	<0.02	15.05	4.6	7	0.54	229	1.88
F00052287		10.14	0.23	7.90	1.0	650	0.97	0.18	2.55	0.02	17.05	4.8	8	0.72	440	1.90
F00052288		9.28	0.01	6.81	2.7	540	0.99	0.02	3.31	0.03	11.25	4.1	6	1.17	6.1	1.73
F00052289		7.70	0.03	6.18	1.1	830	0.81	0.02	3.42	0.09	10.80	3.8	5	1.15	6.0	1.56
F00052290		0.06	75.5	5.86	69.6	860	0.75	5.70	1.44	0.64	14.05	1.8	352	0.98	7740	1.31
F00052291		10.50	0.20	7.76	0.8	600	0.85	0.17	3.07	0.02	14.95	4.8	6	0.96	316	1.91
F00052292		9.14	0.44	7.58	1.1	310	0.91	0.49	2.90	<0.02	15.65	5.4	7	0.72	659	1.70
F00052293		8.78	1.03	7.63	0.9	290	0.95	1.06	3.01	<0.02	17.75	5.1	5	0.79	1580	1.74
F00052294		10.20	0.21	7.45	0.6	590	0.93	0.21	2.58	<0.02	16.35	5.2	8	0.67	309	2.18
F00052295		8.34	0.07	7.11	0.9	580	0.89	0.11	3.36	0.02	12.85	4.7	7	0.81	107.5	2.27
F00052296		9.50	<0.01	6.85	1.4	400	0.95	0.05	3.51	<0.02	15.85	4.7	5	1.11	3.0	1.62
F00052297		10.10	0.06	7.67	1.3	530	0.98	0.14	3.33	<0.02	19.40	4.3	9	0.70	96.7	1.49
F00052298		9.30	0.01	6.93	2.6	370	0.98	0.08	3.23	0.02	13.50	3.3	6	1.04	19.6	1.34
F00052299		9.30	0.11	7.52	4.0	530	0.98	0.19	2.95	0.02	15.90	4.0	8	0.66	149.5	1.49
F00052300		10.22	0.03	7.46	1.9	510	1.01	0.06	2.31	<0.02	16.30	4.0	7	0.74	52.8	1.64
F00052301		7.84	0.03	7.30	1.8	760	0.93	0.03	3.51	0.03	21.5	10.3	8	0.89	57.6	2.81
F00052302		8.80	0.04	7.46	1.4	730	1.04	0.04	3.48	0.02	24.0	10.4	9	0.93	80.7	2.78
F00052303		9.16	0.03	7.70	1.4	800	0.99	0.03	3.22	<0.02	25.2	10.7	9	1.02	50.3	2.91
F00052304		8.82	0.05	8.40	1.8	1000	1.01	0.04	2.99	0.02	28.4	10.9	8	1.11	82.4	2.96
F00052305		7.84	0.02	7.57	1.7	740	0.93	0.02	3.31	<0.02	22.7	9.9	11	1.14	30.0	2.66
F00052306		8.84	0.04	7.83	1.5	780	0.97	0.04	3.22	0.02	22.9	11.1	10	1.06	78.5	3.01
F00052307		8.50	0.03	7.91	1.7	860	1.02	0.03	3.49	0.02	27.2	11.1	11	0.76	60.6	2.99
F00052308		10.22	0.05	7.83	1.2	800	1.03	0.04	3.30	0.02	27.7	11.2	14	0.82	93.6	3.00
F00052309		10.10	0.08	8.05	1.3	860	1.00	0.09	3.46	0.02	27.8	11.3	13	0.90	186.5	3.21
F00052310		8.28	0.10	7.80	1.4	880	0.96	0.07	3.04	0.03	25.4	10.9	11	0.83	182.0	3.01

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
F00052271		17.60	0.07	0.6	0.018	1.34	7.2	9.3	0.47	343	0.91	3.71	2.0	2.1	480	4.6
F00052272		17.60	0.08	0.5	0.020	1.40	7.5	8.8	0.45	369	0.80	3.63	2.1	1.9	490	4.2
F00052273		15.90	0.08	0.7	0.017	1.64	9.1	6.6	0.40	339	0.96	3.48	2.1	1.6	440	4.5
F00052274		16.50	0.09	0.4	0.017	1.54	6.5	8.8	0.41	468	0.94	3.40	1.8	2.0	480	4.7
F00052275		16.50	0.10	0.4	0.017	1.34	8.0	9.0	0.53	490	0.61	3.74	2.0	1.9	530	4.1
F00052276		16.95	0.10	0.5	0.016	1.93	7.1	9.2	0.41	455	0.81	2.99	1.8	1.8	480	3.8
F00052277		16.65	0.10	0.4	0.017	1.66	6.9	8.7	0.43	512	0.91	3.33	1.8	1.8	460	4.4
F00052278		18.30	0.10	0.5	0.031	1.25	6.9	8.6	0.46	414	1.67	3.55	2.0	1.9	520	3.8
F00052279		17.20	0.10	0.6	0.041	1.27	9.2	6.7	0.41	410	1.06	3.57	2.6	1.7	430	3.2
F00052280		0.30	0.32	<0.1	<0.005	0.03	0.5	1.5	13.40	141	0.08	0.02	0.1	0.6	<10	1.2
F00052281		14.80	0.21	0.7	0.020	0.92	7.2	7.8	0.38	367	0.66	3.22	2.1	1.6	440	3.2
F00052282		16.10	0.14	0.5	0.018	1.13	5.9	10.2	0.44	359	0.65	3.48	1.8	1.7	480	3.5
F00052283		15.40	0.14	0.5	0.023	1.18	7.8	9.7	0.48	347	0.81	3.51	1.9	1.7	440	3.5
F00052284		17.10	0.15	0.4	0.139	1.64	5.9	8.1	0.31	527	1.25	2.42	2.0	1.5	430	4.1
F00052285		17.85	0.13	0.4	0.018	0.99	6.5	9.0	0.49	394	0.55	3.52	1.8	2.0	500	3.8
F00052286		16.30	0.13	0.5	0.017	1.12	6.6	9.6	0.51	390	0.63	3.70	1.8	1.8	510	3.8
F00052287		17.75	0.13	0.4	0.016	1.28	7.4	9.5	0.48	364	0.83	3.60	1.9	1.9	510	4.3
F00052288		16.10	0.14	0.5	0.015	1.83	4.3	7.9	0.24	428	0.57	2.63	1.6	1.8	490	4.4
F00052289		15.30	0.12	0.5	0.015	2.15	4.0	6.0	0.20	470	0.56	2.43	1.5	1.8	400	6.4
F00052290		15.35	0.13	0.2	0.040	3.24	6.9	13.3	0.19	279	769	1.33	2.0	5.6	430	126.5
F00052291		16.15	0.12	0.4	0.017	1.49	6.5	11.1	0.46	376	1.00	3.29	1.6	1.9	520	3.7
F00052292		17.45	0.11	0.5	0.056	0.71	7.0	15.3	0.50	347	1.10	3.38	1.7	2.2	500	3.2
F00052293		18.10	0.10	0.5	0.059	0.51	7.9	17.0	0.48	377	0.92	3.29	1.8	1.7	470	3.5
F00052294		17.15	0.10	0.6	0.029	0.88	7.8	11.9	0.44	385	1.26	3.43	1.6	1.8	460	2.9
F00052295		17.20	0.09	0.5	0.039	1.22	6.0	13.3	0.40	509	1.44	2.88	1.5	2.4	440	2.8
F00052296		16.80	0.11	0.6	0.059	1.18	6.4	14.7	0.32	422	0.87	2.97	2.0	1.6	450	2.9
F00052297		17.60	0.11	0.7	0.051	0.86	8.5	19.7	0.41	378	1.04	3.12	2.3	1.5	450	3.5
F00052298		17.55	0.11	0.8	0.052	1.57	6.3	10.6	0.26	357	0.62	2.81	2.1	1.5	410	3.5
F00052299		17.30	0.11	0.8	0.046	1.31	7.8	13.2	0.33	305	0.96	3.11	2.1	1.4	410	4.7
F00052300		18.40	0.11	0.8	0.020	1.16	7.9	11.0	0.41	300	0.78	3.51	2.3	1.5	430	4.5
F00052301		17.90	0.13	0.8	0.031	1.65	9.0	11.0	1.02	662	0.86	2.82	2.4	8.3	630	4.0
F00052302		18.35	0.15	0.8	0.032	1.74	9.9	9.6	1.02	599	1.59	2.88	2.8	8.4	630	4.3
F00052303		18.60	0.15	0.8	0.029	1.73	10.8	11.1	1.07	485	1.10	2.90	2.8	8.9	630	4.1
F00052304		19.70	0.16	0.8	0.027	1.78	12.1	7.4	1.02	416	1.14	3.08	2.8	9.0	700	4.3
F00052305		18.00	0.13	0.8	0.027	1.67	9.5	7.0	0.85	489	1.24	3.05	2.6	8.0	640	3.8
F00052306		18.35	0.13	0.8	0.029	1.71	9.7	10.0	1.01	526	1.01	2.98	2.5	9.6	640	4.2
F00052307		18.70	0.14	0.7	0.031	1.81	11.5	9.7	1.12	595	1.11	3.05	2.7	9.9	650	4.3
F00052308		18.65	0.14	0.8	0.031	1.74	12.2	12.0	1.10	567	1.34	3.06	2.8	10.2	650	4.4
F00052309		18.80	0.14	0.8	0.035	1.78	11.8	10.0	1.17	552	1.28	3.13	2.9	9.9	690	4.3
F00052310		18.40	0.13	0.8	0.029	1.81	10.7	9.8	1.10	500	1.06	3.06	2.8	9.4	680	4.2

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
F00052271		20.1	<0.002	0.02	0.46	3.5	1	0.4	637	0.15	<0.05	1.43	0.162	0.08	0.9	46
F00052272		22.1	<0.002	0.01	0.60	3.5	<1	0.4	657	0.17	<0.05	1.40	0.160	0.08	0.7	47
F00052273		27.2	<0.002	0.01	0.54	3.1	<1	0.3	584	0.16	<0.05	1.84	0.147	0.09	0.9	42
F00052274		23.3	<0.002	0.01	0.52	3.4	<1	0.3	627	0.13	<0.05	0.91	0.158	0.09	0.6	47
F00052275		21.6	<0.002	0.01	0.45	3.7	<1	0.3	679	0.15	<0.05	1.11	0.168	0.07	0.6	50
F00052276		37.6	<0.002	0.02	0.92	3.3	<1	0.3	433	0.12	<0.05	1.29	0.152	0.15	0.6	45
F00052277		31.9	<0.002	0.01	0.88	3.4	1	0.4	506	0.13	<0.05	1.00	0.156	0.12	0.5	47
F00052278		20.8	<0.002	0.02	1.73	3.6	<1	0.4	790	0.14	<0.05	1.10	0.177	0.08	0.6	51
F00052279		21.8	<0.002	0.01	2.06	3.2	<1	0.4	594	0.23	<0.05	1.32	0.162	0.08	0.7	45
F00052280		1.1	<0.002	<0.01	0.07	0.1	1	<0.2	46.3	<0.05	<0.05	0.10	<0.005	<0.02	0.1	1
F00052281		14.5	<0.002	0.01	1.31	2.9	1	0.3	500	0.17	<0.05	1.28	0.152	0.06	0.8	41
F00052282		17.3	<0.002	0.02	1.46	3.2	1	0.3	510	0.13	<0.05	1.02	0.154	0.07	0.6	44
F00052283		21.8	<0.002	0.01	1.33	3.3	<1	0.3	630	0.14	<0.05	1.74	0.146	0.07	0.7	41
F00052284		28.7	<0.002	<0.01	2.97	2.9	<1	0.4	589	0.15	<0.05	0.69	0.148	0.12	0.5	52
F00052285		16.0	<0.002	0.01	0.50	3.6	<1	0.4	682	0.12	<0.05	1.28	0.166	0.06	0.8	48
F00052286		16.8	<0.002	0.01	0.64	3.5	<1	0.3	711	0.13	<0.05	1.17	0.167	0.07	0.7	49
F00052287		23.0	<0.002	0.02	0.89	3.5	<1	0.3	674	0.14	<0.05	1.22	0.158	0.09	0.6	48
F00052288		33.6	<0.002	0.01	0.94	2.9	<1	0.3	410	0.11	<0.05	1.00	0.150	0.15	0.7	47
F00052289		40.5	<0.002	0.01	1.35	2.5	<1	0.3	310	0.11	<0.05	0.87	0.133	0.17	0.5	41
F00052290		48.5	0.077	0.86	168.5	1.6	2	1.4	379	0.09	0.74	0.93	0.078	0.20	1.1	38
F00052291		26.2	<0.002	0.01	0.99	3.5	1	0.3	607	0.11	<0.05	0.97	0.160	0.12	0.6	48
F00052292		11.9	<0.002	0.02	1.07	3.4	<1	0.4	882	0.12	<0.05	1.35	0.153	0.06	0.7	42
F00052293		9.7	<0.002	0.04	1.49	3.4	1	0.4	909	0.13	<0.05	1.50	0.149	0.05	0.9	43
F00052294		16.0	<0.002	0.01	1.05	3.6	<1	0.4	687	0.12	<0.05	1.62	0.142	0.08	1.0	49
F00052295		21.1	<0.002	<0.01	1.04	3.0	<1	0.4	526	0.10	<0.05	1.15	0.132	0.13	0.7	57
F00052296		20.1	<0.002	<0.01	1.42	3.0	<1	0.4	566	0.16	<0.05	1.22	0.145	0.12	0.7	38
F00052297		15.5	<0.002	0.01	2.36	3.3	<1	0.4	704	0.18	<0.05	1.86	0.150	0.09	1.1	42
F00052298		30.9	<0.002	<0.01	2.13	2.7	<1	0.4	478	0.17	<0.05	2.18	0.133	0.18	1.0	40
F00052299		24.5	<0.002	0.01	1.34	3.1	<1	0.4	518	0.16	<0.05	1.52	0.136	0.12	0.9	39
F00052300		18.1	<0.002	0.01	0.83	3.4	<1	0.4	623	0.17	<0.05	1.93	0.140	0.09	1.2	41
F00052301		32.5	<0.002	0.01	0.20	7.4	<1	0.5	618	0.16	<0.05	3.45	0.259	0.14	1.6	94
F00052302		36.5	<0.002	0.01	0.21	7.7	<1	0.6	598	0.18	<0.05	3.39	0.274	0.18	1.9	95
F00052303		37.7	<0.002	<0.01	0.20	8.0	<1	0.6	633	0.18	<0.05	3.56	0.279	0.16	2.0	99
F00052304		44.5	<0.002	0.01	0.23	8.2	<1	0.6	743	0.21	<0.05	4.24	0.284	0.15	2.3	100
F00052305		38.2	<0.002	<0.01	0.33	7.5	<1	0.6	550	0.17	<0.05	3.93	0.272	0.17	1.9	94
F00052306		36.1	<0.002	0.01	0.25	8.4	<1	0.6	589	0.16	<0.05	3.07	0.292	0.16	2.0	106
F00052307		40.5	<0.002	<0.01	0.21	8.6	<1	0.6	640	0.16	<0.05	3.17	0.292	0.15	1.8	102
F00052308		40.6	<0.002	0.01	0.20	9.1	<1	0.6	620	0.16	<0.05	3.49	0.292	0.16	2.7	103
F00052309		38.4	<0.002	0.01	0.23	9.0	<1	0.6	644	0.18	<0.05	3.79	0.308	0.16	2.3	110
F00052310		36.9	<0.002	0.01	0.22	8.4	<1	0.6	631	0.17	<0.05	4.01	0.292	0.15	2.0	104

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method / Analyte / Units / LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	Cu-OG62 Cu % 0.001	Zn-OG62 Zn % 0.001	Au-ICP21 Au ppm 0.001
F00052271		0.2	4.9	23	11.2			<0.001
F00052272		0.3	6.7	25	7.2			<0.001
F00052273		0.3	6.4	25	13.1			<0.001
F00052274		0.2	4.7	32	6.8			<0.001
F00052275		0.1	6.4	42	6.6			<0.001
F00052276		0.5	4.5	39	8.2			<0.001
F00052277		0.2	5.6	40	5.7			<0.001
F00052278		0.3	5.9	25	6.6			<0.001
F00052279		0.2	9.5	22	10.9			<0.001
F00052280		0.1	0.3	4	<0.5			<0.001
F00052281		0.6	6.2	17	13.1			<0.001
F00052282		0.7	3.9	19	7.4	0.062		<0.001
F00052283		0.3	4.8	18	8.7			<0.001
F00052284		0.6	5.7	17	6.1			<0.001
F00052285		0.2	4.9	25	6.0			<0.001
F00052286		0.3	5.2	25	6.4			<0.001
F00052287		0.2	5.9	25	6.1			<0.001
F00052288		0.4	3.7	43	7.1			<0.001
F00052289		0.5	3.3	35	9.0			<0.001
F00052290		0.9	3.6	78	4.0	0.769		0.027
F00052291		0.4	4.8	28	6.2			<0.001
F00052292		0.4	5.8	22	6.5	0.066		<0.001
F00052293		0.4	6.3	28	6.9	0.152		0.001
F00052294		0.3	5.4	26	7.2			<0.001
F00052295		0.5	4.7	26	8.1			<0.001
F00052296		0.5	6.0	26	8.6			<0.001
F00052297		0.3	7.1	18	10.3			<0.001
F00052298		0.5	4.6	21	14.0			<0.001
F00052299		0.3	5.3	20	12.2			<0.001
F00052300		0.2	5.3	20	12.4			<0.001
F00052301		1.6	9.1	47	11.3			<0.001
F00052302		1.2	9.5	49	11.0			<0.001
F00052303		1.3	9.7	50	10.4			<0.001
F00052304		1.0	10.0	50	10.3			<0.001
F00052305		1.0	9.8	44	11.2			<0.001
F00052306		1.8	9.5	52	10.6			<0.001
F00052307		0.7	10.9	52	10.2			<0.001
F00052308		0.4	10.7	53	11.6			<0.001
F00052309		0.6	11.3	55	10.6			<0.001
F00052310		0.8	10.3	51	9.9			0.001

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method / Analyte / Units / LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
F00052311		4.30	0.03	7.79	2.5	780	0.89	0.02	2.58	0.02	22.6	10.5	9	1.01	41.3	2.76
F00052312		4.60	0.03	7.96	2.5	820	0.85	0.03	2.62	<0.02	22.2	10.4	10	1.05	42.8	2.78
F00052313		9.84	0.04	7.82	2.3	820	1.00	0.03	3.25	0.02	25.4	12.0	13	0.82	57.5	3.20
F00052314		9.70	0.10	7.78	1.5	870	0.83	0.10	2.95	<0.02	22.8	10.5	11	0.64	167.5	2.98
F00052315		9.10	0.06	7.66	4.0	660	0.95	0.15	3.19	<0.02	23.5	10.1	8	0.82	101.0	2.88
F00052316		9.14	0.05	7.74	1.9	790	0.87	0.05	3.21	<0.02	21.0	9.9	8	0.83	107.0	2.92
F00052317		9.24	0.04	7.94	2.3	750	1.05	0.04	3.20	0.02	25.7	10.8	11	0.82	65.2	2.95
F00052318		8.42	0.04	6.97	7.8	650	0.85	0.07	3.84	<0.02	20.2	9.7	7	0.87	44.6	2.65
F00052319		9.22	0.12	7.25	6.0	690	0.88	0.17	2.52	0.02	18.65	10.4	9	1.00	209	2.68
F00052320		1.44	0.02	0.09	0.5	10	<0.05	0.03	20.5	0.02	1.37	0.5	<1	0.09	1.7	0.14
F00052321		10.18	0.05	7.05	4.9	400	0.85	0.11	3.74	<0.02	19.00	8.9	7	1.17	82.5	2.40
F00052322		8.84	0.07	7.45	3.4	660	0.94	0.09	2.95	<0.02	18.45	10.0	7	1.31	147.0	2.84
F00052323		8.90	0.14	7.22	6.3	610	0.93	0.15	3.80	<0.02	20.1	9.8	7	1.30	286	2.71
F00052324		7.00	0.16	7.72	2.2	690	0.87	0.13	3.01	<0.02	21.0	10.0	8	0.86	335	2.88
F00052325		10.58	0.43	7.67	1.0	790	0.95	0.44	3.55	<0.02	23.7	11.0	11	0.73	884	3.07
F00052326		9.58	0.13	8.41	1.1	780	0.93	0.23	3.70	0.02	25.8	11.6	10	0.68	316	3.22
F00052327		10.78	0.04	8.23	0.6	810	0.90	0.05	3.41	<0.02	27.1	10.7	18	0.71	86.3	3.02
F00052328		10.92	0.16	7.56	1.0	750	0.98	0.11	3.14	0.03	26.3	11.8	12	0.59	265	2.90
F00052329		8.46	0.08	7.83	0.7	800	0.93	0.06	3.29	0.02	25.0	11.7	12	0.61	150.5	3.00
F00052330		0.06	73.1	5.46	64.3	800	0.74	5.67	1.33	0.59	13.80	1.7	335	0.91	7320	1.23
F00052331		8.34	0.14	7.59	1.8	680	0.92	0.06	3.39	<0.02	23.7	11.1	11	0.55	163.5	2.82
F00052332		9.62	0.08	7.75	1.3	780	0.96	0.06	3.47	0.02	23.2	11.3	10	0.65	108.5	2.96
F00052333		9.26	0.05	7.67	0.9	800	0.91	0.03	3.02	<0.02	24.6	11.3	10	0.63	84.8	2.98
F00052334		10.18	0.04	7.83	1.1	750	1.01	0.03	3.49	0.02	25.7	11.3	11	0.82	69.8	2.93
F00052335		11.66	0.06	7.98	0.9	780	0.94	0.05	3.21	0.02	25.0	11.3	14	0.74	118.0	2.97
F00052336		9.86	0.03	8.18	1.2	780	0.97	0.02	3.37	0.02	25.9	11.9	12	0.68	63.0	3.03
F00052337		9.86	0.03	7.86	1.7	810	0.91	0.02	3.11	<0.02	24.6	10.9	12	0.62	44.2	2.87
F00052338		11.02	0.02	8.02	1.0	820	0.99	0.01	3.26	<0.02	25.4	11.6	10	0.59	36.8	2.99
F00052339		10.42	0.04	8.09	1.5	840	0.93	0.04	3.23	0.02	25.0	12.1	13	0.58	107.0	2.96
F00052340		4.60	0.07	7.45	2.4	470	0.81	0.08	3.45	<0.02	25.8	10.2	8	0.87	109.0	2.80
F00052341		4.96	0.05	7.10	2.9	460	0.79	0.06	3.44	0.02	21.8	9.9	7	0.83	84.2	2.66
F00052342		9.78	0.03	7.75	1.8	680	0.93	0.02	3.08	<0.02	23.0	10.9	9	0.60	39.9	2.83
F00052343		9.88	0.07	7.93	1.4	870	0.98	0.06	3.32	<0.02	24.8	10.9	9	0.56	157.5	2.84
F00052344		11.24	0.03	7.79	1.1	840	0.94	0.02	3.27	<0.02	27.2	11.7	11	0.60	46.8	2.92
F00052345		10.00	0.23	7.75	1.4	800	0.88	0.09	3.26	0.02	24.2	11.9	11	0.62	399	3.07
F00052346		11.12	0.04	7.85	0.6	830	0.91	0.02	3.49	<0.02	22.3	11.0	9	0.57	71.8	2.84
F00052347		9.72	1.78	7.36	3.1	640	0.86	1.07	3.33	0.05	18.20	10.7	7	0.89	2560	2.72
F00052348		10.10	1.69	6.99	5.2	380	0.88	1.67	4.23	0.05	18.20	9.4	9	1.36	3170	2.90
F00052349		9.50	0.04	7.89	2.4	640	0.95	0.02	3.17	<0.02	22.9	11.5	8	0.63	53.0	2.89
F00052350		1.58	0.01	0.11	<0.2	10	0.05	0.02	21.0	0.03	1.08	0.5	1	0.10	5.7	0.15

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Ga	Ge	Hf	In	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb
	Units	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm
	LOD	0.05	0.05	0.1	0.005	0.01	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5
F00052311		18.70	0.12	0.6	0.029	1.74	9.5	8.6	0.92	397	1.12	3.06	2.7	9.2	650	3.6
F00052312		18.50	0.14	0.7	0.026	1.75	9.3	8.1	0.91	398	1.09	3.14	2.6	9.3	660	3.6
F00052313		19.15	0.14	0.7	0.030	1.76	10.4	8.2	1.15	558	1.19	3.08	2.8	10.9	690	3.8
F00052314		17.25	0.12	0.6	0.028	1.85	9.6	8.1	1.05	501	1.16	2.97	2.4	9.4	650	3.4
F00052315		18.20	0.12	0.7	0.067	1.39	9.8	7.1	0.99	442	3.23	2.99	2.6	7.6	700	3.6
F00052316		17.05	0.13	0.6	0.030	1.60	8.7	5.3	0.98	448	1.30	3.05	2.3	7.6	670	3.3
F00052317		19.10	0.15	0.8	0.033	1.57	10.9	6.6	1.01	443	1.47	3.19	2.8	8.3	740	3.7
F00052318		17.85	0.14	0.7	0.031	1.40	8.8	10.5	1.08	509	4.45	2.43	2.6	7.5	640	3.6
F00052319		17.50	0.13	0.7	0.026	1.59	7.5	10.3	0.81	364	3.59	2.69	2.5	9.7	630	3.2
F00052320		0.36	0.28	<0.1	<0.005	0.03	0.7	1.5	12.90	136	0.10	0.02	0.1	0.8	30	1.6
F00052321		18.95	0.20	0.6	0.115	1.19	8.2	9.2	0.96	477	1.96	2.64	2.3	7.7	630	2.5
F00052322		19.40	0.16	0.7	0.027	1.53	7.4	7.9	0.75	367	1.07	2.86	2.3	7.4	650	3.8
F00052323		17.70	0.15	0.7	0.029	1.37	8.3	9.0	0.68	497	2.80	2.70	2.5	8.1	640	3.2
F00052324		18.50	0.14	0.7	0.030	1.53	8.9	8.3	0.98	451	1.10	3.10	2.4	8.1	710	3.4
F00052325		17.70	0.15	0.7	0.028	1.68	10.0	11.0	1.19	593	1.06	3.04	2.6	10.0	670	3.5
F00052326		19.00	0.16	0.7	0.029	1.69	10.8	7.6	1.15	539	1.07	3.32	2.6	8.6	770	3.8
F00052327		18.75	0.15	0.7	0.029	1.68	12.1	5.4	1.12	508	1.88	3.28	2.7	8.2	680	3.7
F00052328		17.45	0.10	0.6	0.028	1.64	10.9	7.6	1.15	489	1.92	3.03	2.4	11.9	650	7.4
F00052329		19.10	0.12	0.6	0.028	1.71	10.2	8.2	1.18	512	1.22	3.09	2.3	9.0	680	3.9
F00052330		14.10	0.09	0.2	0.043	3.01	6.9	12.7	0.18	261	719	1.24	1.7	5.3	410	132.0
F00052331		16.55	0.11	0.6	0.027	1.48	9.8	10.9	0.98	478	1.98	2.86	2.4	9.0	630	3.4
F00052332		17.60	0.11	0.5	0.027	1.68	9.8	11.0	1.13	514	1.05	3.02	2.3	8.5	650	3.6
F00052333		18.85	0.10	0.7	0.031	1.74	10.2	10.9	1.11	501	0.98	3.16	2.5	8.7	690	4.0
F00052334		19.85	0.11	0.6	0.029	1.65	10.7	8.7	1.11	541	1.15	3.11	2.4	8.0	650	4.0
F00052335		18.95	0.12	0.6	0.028	1.84	10.3	9.6	1.11	511	1.45	3.16	2.4	8.3	650	4.2
F00052336		19.45	0.11	0.6	0.028	1.68	11.0	6.6	1.16	519	1.13	3.25	2.4	8.2	650	3.7
F00052337		18.65	0.13	0.6	0.028	1.77	10.1	10.3	1.11	501	1.12	3.22	2.4	7.6	660	3.7
F00052338		17.90	0.11	0.5	0.030	1.74	11.0	7.9	1.15	516	0.90	3.21	2.3	8.8	650	3.6
F00052339		17.30	0.12	0.6	0.029	1.78	10.9	11.1	1.21	540	1.11	3.20	2.3	9.7	630	3.8
F00052340		16.30	0.10	0.5	0.046	1.23	10.7	13.9	1.09	528	1.06	2.77	2.4	7.1	600	3.1
F00052341		17.65	0.10	0.6	0.041	1.23	8.9	13.1	0.98	498	0.98	2.78	2.2	6.9	590	3.2
F00052342		19.40	0.11	0.6	0.027	1.54	9.6	8.9	0.99	438	1.13	3.26	2.3	7.8	660	3.7
F00052343		19.25	0.10	0.6	0.025	1.82	10.3	10.3	1.11	496	3.57	3.17	2.4	7.8	660	3.8
F00052344		19.35	0.12	0.6	0.025	1.92	11.5	8.3	1.11	503	1.23	3.10	2.6	8.9	620	3.6
F00052345		20.5	0.10	0.6	0.129	1.76	10.0	10.4	1.06	518	133.0	3.01	2.4	8.0	640	3.7
F00052346		18.90	0.11	0.6	0.025	1.75	9.2	6.0	1.00	505	1.27	3.15	2.2	7.8	660	3.6
F00052347		18.30	0.09	0.5	0.026	1.51	7.5	9.9	0.82	436	57.0	2.84	2.1	7.6	650	3.4
F00052348		20.7	0.10	0.5	0.147	1.22	6.9	10.2	0.79	439	9.51	2.20	2.2	7.1	580	3.3
F00052349		19.55	0.10	0.5	0.026	1.33	9.3	12.2	0.98	446	2.08	3.31	2.3	7.9	650	3.1
F00052350		0.37	0.19	<0.1	<0.005	0.04	0.6	1.8	13.05	140	0.24	0.02	0.1	0.7	30	1.6

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
F00052311		43.0	<0.002	<0.01	0.38	8.7	<1	0.6	582	0.14	<0.05	2.60	0.281	0.18	1.3	99
F00052312		42.4	<0.002	<0.01	0.33	8.3	<1	0.6	600	0.15	<0.05	2.83	0.286	0.16	1.4	101
F00052313		35.4	<0.002	<0.01	0.22	9.0	1	0.6	630	0.16	<0.05	2.96	0.311	0.16	1.5	109
F00052314		35.8	<0.002	0.01	0.23	8.3	<1	0.6	618	0.14	<0.05	2.27	0.292	0.12	1.3	104
F00052315		29.5	<0.002	0.01	0.56	7.6	1	0.6	598	0.15	<0.05	3.42	0.287	0.13	1.7	99
F00052316		30.7	<0.002	0.01	0.22	7.3	<1	0.5	633	0.13	<0.05	3.01	0.278	0.13	1.7	100
F00052317		34.0	<0.002	<0.01	0.30	8.5	<1	0.6	645	0.17	<0.05	3.86	0.296	0.15	2.1	104
F00052318		26.0	<0.002	0.01	0.49	6.6	<1	0.5	661	0.15	<0.05	2.85	0.274	0.13	1.3	96
F00052319		29.7	<0.002	0.01	0.51	7.6	<1	0.5	575	0.15	<0.05	2.24	0.272	0.14	1.1	94
F00052320		1.5	<0.002	<0.01	0.19	0.2	<1	<0.2	43.3	<0.05	<0.05	0.13	<0.005	0.02	0.1	1
F00052321		31.4	<0.002	<0.01	1.26	6.4	<1	0.5	478	0.14	<0.05	3.08	0.261	0.16	1.5	98
F00052322		29.6	<0.002	0.01	0.50	6.7	<1	0.5	573	0.15	<0.05	2.37	0.261	0.14	1.3	96
F00052323		28.3	<0.002	0.01	0.70	7.1	<1	0.6	651	0.16	<0.05	2.78	0.281	0.13	1.2	97
F00052324		31.7	<0.002	0.01	0.66	7.6	<1	0.5	591	0.16	<0.05	3.04	0.279	0.15	1.5	101
F00052325		33.2	<0.002	0.03	0.26	7.8	<1	0.5	656	0.17	<0.05	2.85	0.306	0.17	1.6	103
F00052326		33.0	<0.002	0.01	0.20	8.4	<1	0.6	713	0.17	<0.05	3.83	0.298	0.13	1.8	110
F00052327		37.4	<0.002	<0.01	0.15	8.3	<1	0.6	659	0.17	<0.05	3.17	0.284	0.16	1.8	102
F00052328		37.0	<0.002	0.01	0.61	8.8	1	0.5	604	0.16	<0.05	2.59	0.282	0.12	1.5	97
F00052329		37.0	<0.002	0.01	0.22	8.9	<1	0.5	630	0.15	<0.05	2.25	0.283	0.12	1.4	99
F00052330		46.1	0.073	0.80	162.5	1.5	1	1.3	354	0.08	0.91	0.81	0.072	0.17	1.0	35
F00052331		31.2	0.003	0.01	0.46	8.9	<1	0.5	584	0.16	<0.05	2.86	0.285	0.10	1.4	97
F00052332		35.3	<0.002	0.01	0.29	8.9	1	0.5	642	0.14	<0.05	2.48	0.285	0.12	1.3	97
F00052333		36.2	<0.002	<0.01	0.25	9.3	1	0.5	611	0.16	<0.05	3.04	0.291	0.11	1.5	97
F00052334		37.8	<0.002	<0.01	0.16	9.5	<1	0.5	615	0.16	<0.05	2.77	0.272	0.12	1.3	97
F00052335		40.3	<0.002	0.01	0.18	8.4	<1	0.5	618	0.16	<0.05	3.87	0.282	0.14	1.7	98
F00052336		40.3	<0.002	<0.01	0.12	9.1	<1	0.5	651	0.16	<0.05	2.84	0.288	0.13	1.6	101
F00052337		40.0	<0.002	<0.01	0.31	9.0	1	0.5	625	0.16	<0.05	2.52	0.279	0.11	1.4	95
F00052338		40.5	<0.002	<0.01	0.15	8.9	<1	0.5	631	0.14	<0.05	2.53	0.282	0.13	1.5	98
F00052339		40.7	<0.002	<0.01	0.16	9.3	1	0.5	598	0.15	<0.05	2.84	0.292	0.13	1.5	98
F00052340		32.8	<0.002	0.01	0.80	8.5	<1	0.5	641	0.15	<0.05	3.60	0.269	0.10	1.9	92
F00052341		30.0	<0.002	0.01	0.83	8.2	1	0.5	624	0.14	<0.05	2.64	0.254	0.11	1.7	90
F00052342		32.3	<0.002	<0.01	0.69	8.7	<1	0.5	617	0.15	<0.05	2.39	0.277	0.10	1.6	95
F00052343		38.5	<0.002	0.01	0.25	8.7	<1	0.5	597	0.16	<0.05	2.72	0.276	0.14	1.5	95
F00052344		40.7	<0.002	<0.01	0.35	8.9	<1	0.5	637	0.19	<0.05	3.88	0.292	0.12	1.9	97
F00052345		37.5	0.676	0.02	0.91	8.2	<1	0.5	625	0.15	<0.05	2.64	0.276	0.12	1.4	97
F00052346		36.4	0.003	<0.01	0.09	8.1	<1	0.5	662	0.14	<0.05	2.37	0.264	0.13	1.3	93
F00052347		29.1	0.205	0.08	0.36	7.6	1	0.5	514	0.14	<0.05	2.34	0.267	0.11	1.2	90
F00052348		25.9	0.038	0.09	1.28	7.1	<1	0.5	488	0.16	<0.05	3.09	0.261	0.11	1.9	104
F00052349		25.1	<0.002	<0.01	0.24	8.6	<1	0.5	602	0.15	<0.05	2.53	0.282	0.08	1.0	95
F00052350		1.6	<0.002	<0.01	0.08	0.2	<1	<0.2	45.3	<0.05	<0.05	0.13	<0.005	0.02	0.1	1

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method Analyte Units LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	Cu-OG62 Cu % 0.001	Zn-OG62 Zn % 0.001	Au-ICP21 Au ppm 0.001
F00052311		1.6	8.2	45	9.3			<0.001
F00052312		1.7	8.1	45	9.2			<0.001
F00052313		1.6	10.8	52	10.1			<0.001
F00052314		1.6	9.3	47	8.2			<0.001
F00052315		2.8	9.6	42	9.4			0.001
F00052316		0.9	9.0	47	8.7			0.001
F00052317		1.0	10.2	45	11.1			<0.001
F00052318		3.0	8.8	45	9.5			<0.001
F00052319		2.6	7.9	42	9.4			<0.001
F00052320		0.1	0.4	4	0.8			0.001
F00052321		1.5	8.2	31	9.0			<0.001
F00052322		1.3	7.7	40	9.3			<0.001
F00052323		3.5	8.5	41	10.1			0.003
F00052324		1.2	8.8	43	9.7			<0.001
F00052325		0.8	9.5	48	9.4	0.085		0.007
F00052326		0.9	10.6	50	10.1			0.001
F00052327		0.2	10.6	46	9.4			<0.001
F00052328		0.2	10.6	47	10.2			0.003
F00052329		0.4	10.7	46	9.3			<0.001
F00052330		0.8	3.5	67	3.7	0.789		0.028
F00052331		0.7	9.9	38	9.1			0.002
F00052332		1.2	9.8	45	8.6			<0.001
F00052333		0.7	10.1	50	10.7			<0.001
F00052334		0.2	10.7	49	8.4			<0.001
F00052335		0.2	10.2	48	9.0			<0.001
F00052336		0.2	10.8	48	9.2			0.001
F00052337		0.3	10.2	45	8.3			<0.001
F00052338		0.2	10.0	46	8.2			<0.001
F00052339		0.2	10.2	49	9.2			<0.001
F00052340		1.0	10.1	39	8.1			<0.001
F00052341		1.0	9.1	38	8.8			<0.001
F00052342		0.6	9.2	41	9.3			<0.001
F00052343		16.4	10.0	41	9.0			<0.001
F00052344		0.2	10.8	40	9.8			<0.001
F00052345		0.5	10.1	37	8.8			0.006
F00052346		0.3	8.9	41	9.3			<0.001
F00052347		1.3	8.2	35	8.8	0.259		0.018
F00052348		2.5	7.4	28	9.2	0.318		0.088
F00052349		2.0	9.8	37	8.1			<0.001
F00052350		0.1	0.4	5	0.8			0.002

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method / Analyte / Units / LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
F00052351		9.56	0.33	7.61	2.6	330	0.84	0.19	3.06	<0.02	20.7	9.0	7	0.65	620	2.51
F00052352		10.34	0.04	7.81	1.9	650	0.93	0.03	3.43	0.02	22.8	11.1	7	0.72	72.6	2.84
F00052353		9.24	0.02	7.74	1.5	690	0.95	0.03	3.64	<0.02	23.0	11.3	8	0.70	28.7	2.97
F00052354		8.90	0.03	7.33	2.3	630	1.00	0.03	3.95	<0.02	21.2	11.2	10	0.76	52.3	2.89
F00052355		10.16	0.19	7.47	3.0	770	0.96	0.18	3.38	<0.02	24.4	11.8	9	0.78	356	2.80
F00052356		7.64	0.18	7.15	3.2	450	0.89	0.09	3.51	0.02	20.9	10.1	7	0.58	336	2.85
F00052357		9.74	0.03	7.81	1.7	650	1.02	0.03	3.19	<0.02	23.0	11.0	9	0.61	61.0	2.86
F00052358		10.16	0.05	7.69	1.7	650	1.01	0.04	3.52	<0.02	24.0	10.8	10	0.58	85.4	2.91
F00052359		9.82	0.03	7.80	1.7	690	0.97	0.02	3.24	<0.02	23.8	10.3	9	0.53	58.1	2.89
F00052360		9.62	0.03	7.76	1.6	600	0.86	0.02	3.12	<0.02	19.40	7.2	9	0.75	55.8	2.23
F00052361		9.22	0.11	7.22	4.0	470	0.84	0.10	2.84	<0.02	20.1	9.6	8	1.04	204	2.60
F00052362		0.06	72.5	5.68	64.0	830	0.81	5.71	1.37	0.61	13.95	1.8	336	1.01	7540	1.26
F00052363		11.70	0.09	7.51	2.8	540	1.01	0.05	3.11	<0.02	21.5	10.4	7	0.94	98.9	2.74
F00052364		10.16	0.03	7.10	2.6	450	0.93	0.06	2.72	0.02	19.55	7.4	6	1.62	47.3	2.37
F00052365		9.40	0.02	7.46	2.7	650	0.96	0.05	3.28	0.02	22.4	10.9	8	1.00	30.1	2.71
F00052366		11.26	0.41	7.90	1.5	750	0.97	0.33	2.78	0.02	23.4	10.6	9	0.84	794	2.78
F00052367		10.96	0.10	7.91	1.2	840	1.00	0.08	3.30	<0.02	25.5	11.4	10	0.75	148.0	3.01
F00052368		9.60	0.02	6.73	5.8	290	0.94	0.13	4.38	<0.02	17.95	9.0	10	0.78	34.9	2.24
F00052369		10.24	0.10	7.87	1.6	760	1.00	0.05	3.20	<0.02	25.1	11.9	14	0.79	93.4	2.88
F00052370		9.10	0.08	7.18	4.3	540	0.90	0.10	3.58	<0.02	20.4	11.7	9	0.68	171.5	3.06
F00052371		10.00	0.05	7.66	2.3	1020	1.01	0.06	2.71	0.05	23.3	11.3	7	0.79	89.4	3.23
F00052372		10.22	0.30	7.84	1.7	690	1.02	0.24	3.39	0.03	23.2	11.1	10	0.68	601	2.91
F00052373		9.94	1.01	8.04	1.6	680	0.95	0.76	3.04	0.02	22.2	11.5	10	0.75	2020	3.01
F00052374		9.02	0.05	7.23	2.0	640	0.84	0.09	2.91	<0.02	18.30	10.0	8	1.23	104.0	2.76
F00052375		0.06	74.3	5.61	57.3	830	0.76	5.40	1.38	0.62	14.10	1.8	339	0.99	7610	1.27
F00052376		9.00	0.10	7.46	2.2	670	0.89	0.08	3.05	<0.02	23.0	10.9	10	1.06	138.0	2.80
F00052377		10.90	0.03	7.83	1.3	780	1.02	0.04	3.40	<0.02	25.0	11.5	9	0.90	60.8	2.85
F00052378		9.68	0.04	7.55	0.8	760	1.08	0.03	3.55	0.02	24.5	11.5	10	0.87	56.1	2.88
F00052379		8.62	0.07	8.38	0.9	890	1.16	0.07	3.58	0.02	28.0	11.8	9	0.84	188.5	3.03
F00052380		8.50	0.11	8.10	0.8	810	1.10	0.09	3.45	<0.02	26.7	11.2	8	0.87	249	2.96
F00052381		9.56	0.05	7.34	1.4	790	0.89	0.05	3.12	<0.02	22.9	10.4	9	0.73	104.5	2.73
F00052382		10.40	0.04	7.57	1.8	820	1.01	0.04	3.23	<0.02	23.5	11.1	10	0.87	79.7	2.76
F00052383		7.36	0.06	7.62	1.2	950	1.03	0.06	3.44	<0.02	26.7	12.5	11	0.82	133.5	3.03
F00052384		10.02	0.06	7.75	0.7	910	1.06	0.05	3.15	<0.02	27.6	12.3	12	0.85	99.8	2.99
F00052385		9.60	0.90	6.43	1.0	620	0.92	0.80	0.96	0.02	15.50	1.2	9	0.91	1935	0.65
F00052386		6.58	0.77	6.02	2.3	750	0.70	0.47	1.37	0.03	13.60	1.3	6	0.95	1540	0.63
F00052387		9.88	0.19	7.76	0.9	870	0.93	0.15	3.05	<0.02	31.1	11.6	11	0.86	413	2.93
F00052388		8.94	0.09	7.60	0.6	1000	0.99	0.08	3.33	<0.02	26.8	11.6	11	0.95	207	2.95
F00052389		10.18	0.15	7.34	0.4	890	0.95	0.11	3.68	<0.02	27.0	11.5	11	0.94	298	2.82
F00052390		8.66	0.08	7.68	0.4	930	0.97	0.10	3.43	<0.02	29.2	11.6	12	0.96	184.5	2.88

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method Analyte Units LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
F00052351		18.00	0.18	0.6	0.035	1.01	8.6	9.7	0.85	356	1.97	3.13	2.4	6.1	640	2.8
F00052352		19.00	0.13	0.6	0.029	1.59	9.5	13.1	1.15	541	0.81	3.15	2.4	7.2	660	3.6
F00052353		19.15	0.12	0.6	0.030	1.65	9.3	11.9	1.19	526	1.09	3.11	2.5	8.0	680	3.5
F00052354		19.10	0.11	0.7	0.029	1.30	8.2	9.9	0.92	512	2.16	2.99	2.4	7.6	620	3.7
F00052355		17.70	0.12	0.7	0.024	1.55	9.9	8.5	0.98	481	2.45	3.04	2.3	8.7	620	3.2
F00052356		16.45	0.11	0.7	0.030	1.05	8.5	10.2	1.07	448	3.76	2.92	2.4	6.3	610	3.3
F00052357		17.25	0.10	0.5	0.027	1.49	9.7	9.9	1.06	466	1.26	3.23	2.3	8.0	630	3.4
F00052358		19.45	0.10	0.6	0.027	1.52	9.6	9.5	1.08	522	1.26	3.26	2.6	7.9	650	3.9
F00052359		19.05	0.10	0.5	0.025	1.52	10.2	9.3	1.02	487	1.04	3.25	2.4	7.4	660	3.9
F00052360		17.95	0.11	0.7	0.019	1.74	9.1	9.9	0.70	400	0.87	3.05	1.7	5.1	520	3.8
F00052361		16.10	0.09	0.6	0.023	1.50	8.5	9.8	0.83	389	1.66	2.94	2.2	7.7	610	3.1
F00052362		15.20	0.09	0.2	0.039	3.10	6.9	13.1	0.18	270	731	1.29	1.9	5.3	430	130.0
F00052363		18.90	0.10	0.5	0.025	1.52	8.8	11.4	0.85	417	2.29	2.98	2.4	6.8	620	3.9
F00052364		14.90	0.09	0.5	0.024	1.35	7.9	10.3	0.70	454	1.28	2.70	2.1	6.7	560	3.0
F00052365		18.50	0.10	0.6	0.028	1.57	9.8	10.2	0.93	487	1.41	3.10	2.3	8.1	590	3.3
F00052366		15.75	0.10	0.5	0.062	1.67	10.8	11.9	0.97	415	2.47	3.17	2.0	7.6	560	3.0
F00052367		18.65	0.11	0.6	0.030	1.71	11.4	10.0	1.10	497	1.04	3.11	2.4	8.8	640	3.4
F00052368		16.30	0.10	0.6	0.098	0.81	7.6	10.1	0.90	514	5.27	2.68	2.2	7.5	600	2.3
F00052369		18.45	0.11	0.6	0.028	1.74	11.0	7.8	0.96	446	1.29	3.05	2.4	9.3	610	3.4
F00052370		18.15	0.09	0.5	0.035	1.17	8.6	11.2	1.08	471	3.14	2.69	2.3	7.6	710	3.1
F00052371		19.20	0.10	0.7	0.031	1.54	9.4	11.0	0.82	452	1.13	3.26	2.3	6.0	780	2.8
F00052372		18.25	0.11	0.6	0.032	1.57	10.4	11.2	1.01	473	2.82	3.26	2.1	8.1	660	3.5
F00052373		18.20	0.11	0.5	0.047	1.73	9.6	11.7	0.99	478	2.60	3.22	2.0	7.6	690	3.2
F00052374		17.10	0.09	0.5	0.023	1.71	7.8	8.4	0.88	397	0.92	3.11	1.9	6.3	690	2.3
F00052375		14.60	0.09	0.2	0.042	3.08	6.9	13.3	0.18	271	742	1.28	1.9	5.6	430	122.0
F00052376		17.55	0.10	0.5	0.029	1.74	9.4	14.0	1.00	445	1.35	3.00	2.2	8.7	610	2.9
F00052377		18.55	0.11	0.5	0.026	1.75	10.8	7.8	0.99	462	0.99	3.06	2.2	7.9	620	3.4
F00052378		19.30	0.10	0.6	0.027	1.65	10.3	9.3	0.96	545	1.02	3.10	2.4	8.8	640	3.6
F00052379		19.60	0.12	0.6	0.026	1.72	12.1	9.2	1.05	514	0.90	3.21	2.4	8.7	710	3.8
F00052380		19.60	0.11	0.6	0.028	1.72	10.8	8.6	0.95	518	0.86	3.12	2.5	8.2	700	3.7
F00052381		17.50	0.10	0.6	0.030	1.74	9.5	8.5	0.93	459	1.30	2.91	2.3	7.8	630	3.1
F00052382		18.75	0.11	0.5	0.026	1.81	9.6	9.0	0.91	477	1.15	2.86	2.2	9.0	620	3.3
F00052383		19.20	0.12	0.6	0.031	1.82	11.0	9.9	1.06	509	0.81	2.95	2.5	10.9	650	3.5
F00052384		19.50	0.12	0.6	0.031	1.85	11.4	9.7	1.08	486	1.18	3.01	2.5	10.6	630	3.5
F00052385		12.05	0.11	1.8	<0.005	4.38	8.3	3.6	0.12	101	1.82	2.10	2.0	1.2	60	4.9
F00052386		11.15	0.12	1.6	0.010	4.81	6.6	4.6	0.12	184	3.44	1.75	1.6	1.8	90	4.6
F00052387		16.75	0.11	0.5	0.031	1.87	13.0	8.3	1.02	465	1.15	2.94	2.6	9.7	630	3.5
F00052388		19.35	0.11	0.5	0.029	1.82	11.1	8.7	1.07	502	1.08	2.97	2.5	9.2	620	3.6
F00052389		18.40	0.12	0.6	0.029	1.81	11.1	8.5	1.07	505	1.19	2.82	2.4	9.3	610	3.4
F00052390		19.00	0.13	0.6	0.044	1.79	11.9	7.9	1.08	475	8.31	3.05	2.5	8.9	630	3.4

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method Analyte Units LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
F00052351		22.2	0.003	0.02	0.81	7.6	<1	0.5	478	0.17	<0.05	3.04	0.270	0.09	1.6	89
F00052352		31.3	<0.002	<0.01	0.28	8.0	1	0.5	699	0.17	<0.05	3.08	0.274	0.10	1.6	94
F00052353		29.6	<0.002	<0.01	0.34	9.2	<1	0.5	694	0.17	<0.05	3.26	0.292	0.11	1.9	100
F00052354		23.4	<0.002	<0.01	0.41	9.1	<1	0.5	658	0.18	<0.05	2.64	0.281	0.10	1.5	96
F00052355		30.9	<0.002	0.01	0.31	8.2	<1	0.5	616	0.17	<0.05	2.95	0.280	0.10	1.8	95
F00052356		20.4	0.003	0.01	0.86	7.2	<1	0.5	541	0.18	<0.05	2.20	0.267	0.09	1.3	90
F00052357		33.6	<0.002	<0.01	0.26	8.2	<1	0.5	634	0.17	<0.05	2.68	0.271	0.11	1.5	94
F00052358		30.0	<0.002	<0.01	0.49	8.5	<1	0.5	675	0.19	<0.05	2.71	0.284	0.11	1.4	98
F00052359		29.6	<0.002	<0.01	0.32	8.6	<1	0.5	685	0.16	<0.05	2.58	0.276	0.10	1.4	96
F00052360		42.0	<0.002	<0.01	0.69	5.4	<1	0.4	578	0.12	<0.05	2.81	0.201	0.12	1.2	72
F00052361		37.6	<0.002	0.01	0.70	7.9	<1	0.5	523	0.15	<0.05	2.18	0.263	0.12	1.2	89
F00052362		50.6	0.071	0.82	157.5	1.6	2	1.4	365	0.09	0.71	0.92	0.076	0.20	1.0	37
F00052363		31.2	<0.002	0.01	0.58	7.2	<1	0.5	635	0.16	<0.05	2.31	0.253	0.11	1.2	90
F00052364		30.5	<0.002	<0.01	0.30	6.2	<1	0.4	324	0.14	<0.05	2.12	0.250	0.12	1.1	84
F00052365		31.0	<0.002	<0.01	0.28	7.9	<1	0.5	528	0.14	<0.05	2.66	0.259	0.12	1.3	88
F00052366		38.9	<0.002	0.03	0.91	7.5	1	0.4	608	0.12	<0.05	3.06	0.237	0.14	1.5	83
F00052367		36.7	<0.002	0.01	0.32	8.3	<1	0.5	638	0.15	<0.05	3.68	0.274	0.12	1.5	96
F00052368		15.5	<0.002	<0.01	1.47	6.0	<1	0.5	520	0.13	<0.05	2.36	0.261	0.08	1.6	95
F00052369		38.5	<0.002	0.01	0.22	8.0	<1	0.5	609	0.15	<0.05	3.50	0.268	0.14	1.6	89
F00052370		22.1	<0.002	0.01	0.35	7.4	<1	0.5	445	0.14	<0.05	2.19	0.294	0.10	1.3	101
F00052371		33.8	<0.002	0.01	0.20	8.5	<1	0.5	556	0.16	<0.05	1.87	0.303	0.13	1.1	102
F00052372		35.4	0.011	0.02	0.51	8.0	1	0.5	633	0.13	<0.05	2.90	0.267	0.12	1.6	93
F00052373		39.0	0.011	0.06	0.66	7.9	<1	0.4	651	0.12	0.15	2.53	0.263	0.13	1.3	94
F00052374		43.3	<0.002	0.01	0.79	7.1	<1	0.4	433	0.12	<0.05	2.28	0.262	0.18	1.2	92
F00052375		49.5	0.072	0.80	165.0	1.5	1	1.4	364	0.08	0.81	1.00	0.075	0.21	1.0	36
F00052376		39.9	<0.002	0.01	0.70	8.0	<1	0.5	498	0.14	<0.05	2.45	0.268	0.15	1.1	91
F00052377		43.0	<0.002	<0.01	0.35	8.1	<1	0.4	594	0.13	<0.05	2.20	0.270	0.15	1.2	96
F00052378		33.6	<0.002	<0.01	0.11	8.2	<1	0.4	656	0.15	<0.05	2.09	0.279	0.14	1.3	96
F00052379		41.7	<0.002	0.01	0.10	9.3	<1	0.5	696	0.13	<0.05	3.03	0.286	0.14	1.4	99
F00052380		36.4	<0.002	0.01	0.11	8.3	<1	0.5	670	0.15	<0.05	2.67	0.280	0.14	1.2	97
F00052381		35.8	0.002	0.01	0.16	7.6	<1	0.5	557	0.14	<0.05	2.07	0.276	0.15	1.1	94
F00052382		41.4	<0.002	0.01	0.10	8.1	<1	0.5	599	0.13	<0.05	2.14	0.275	0.16	1.2	95
F00052383		38.1	<0.002	0.01	0.12	8.9	1	0.5	629	0.15	<0.05	2.36	0.290	0.14	1.2	98
F00052384		44.9	0.010	<0.01	0.14	8.8	<1	0.5	608	0.15	<0.05	2.73	0.288	0.15	1.5	100
F00052385		110.5	0.021	0.06	0.14	1.0	<1	<0.2	222	0.22	0.09	16.00	0.053	0.27	3.3	13
F00052386		117.0	0.093	0.05	0.18	1.4	1	<0.2	233	0.15	0.05	14.95	0.066	0.33	2.5	18
F00052387		49.0	0.005	0.01	0.15	9.0	<1	0.5	605	0.17	<0.05	2.45	0.291	0.15	1.4	98
F00052388		43.1	0.003	0.01	0.10	8.5	<1	0.5	611	0.16	<0.05	2.34	0.291	0.17	1.4	97
F00052389		40.4	0.002	0.01	0.09	8.6	<1	0.5	599	0.16	<0.05	2.05	0.283	0.15	1.5	94
F00052390		45.5	0.063	0.01	0.19	8.8	<1	0.5	602	0.16	<0.05	2.43	0.287	0.16	1.4	98

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method / Analyte / Units / LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	Cu-OG62 Cu % 0.001	Zn-OG62 Zn % 0.001	Au-ICP21 Au ppm 0.001
F00052351		1.6	8.2	27	8.4	0.065		0.011
F00052352		1.2	9.8	46	8.2			<0.001
F00052353		1.5	10.3	45	9.2			<0.001
F00052354		1.8	9.8	44	12.8			<0.001
F00052355		1.2	10.6	42	11.4			0.002
F00052356		3.9	8.5	37	10.0			0.005
F00052357		1.5	9.5	39	8.2			0.001
F00052358		0.8	10.0	43	8.7			<0.001
F00052359		0.6	9.4	43	8.0			<0.001
F00052360		0.9	7.1	34	14.3			<0.001
F00052361		1.9	8.6	35	8.5			0.002
F00052362		0.9	3.7	66	4.3	0.776		0.032
F00052363		3.8	8.5	32	7.7			0.003
F00052364		3.8	8.3	30	8.0			<0.001
F00052365		1.1	8.9	34	9.7			0.001
F00052366		0.6	8.5	28	7.2	0.085		0.016
F00052367		0.9	10.0	36	9.6			0.002
F00052368		6.4	7.5	26	8.3			<0.001
F00052369		2.2	9.5	40	7.9			0.002
F00052370		1.2	8.8	41	7.9			0.006
F00052371		0.6	9.9	39	13.4			0.002
F00052372		0.5	9.7	35	7.8	0.061		0.014
F00052373		1.0	9.2	37	7.2	0.207		0.045
F00052374		1.3	8.0	35	7.8			0.002
F00052375		0.9	3.7	73	3.5	0.777		0.031
F00052376		1.3	9.3	37	7.4			0.001
F00052377		0.8	10.7	40	7.9			<0.001
F00052378		0.6	10.4	48	8.4			<0.001
F00052379		0.8	10.3	48	8.1			0.001
F00052380		0.8	10.1	46	7.7			0.002
F00052381		0.6	9.3	40	8.3			0.001
F00052382		0.7	9.8	40	7.7			<0.001
F00052383		0.9	10.7	47	8.3			<0.001
F00052384		0.6	11.5	45	9.1			<0.001
F00052385		0.3	4.7	7	38.6	0.195		0.019
F00052386		0.4	6.7	6	31.5	0.158		0.030
F00052387		0.6	11.7	43	7.9			0.004
F00052388		0.3	10.9	46	7.2			0.002
F00052389		0.5	12.5	43	7.8			0.005
F00052390		0.3	11.8	40	8.4			0.001

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
F00052391		10.28	0.06	7.70	0.6	950	1.01	0.06	3.34	0.02	30.9	11.4	11	0.98	100.5	2.85
F00052392		6.52	0.03	7.40	0.8	840	0.92	0.03	3.00	<0.02	27.0	11.4	10	0.91	63.3	2.76
F00052393		10.28	0.06	7.71	0.6	920	0.95	0.06	3.18	<0.02	28.3	11.3	12	0.86	124.5	2.89
F00052394		8.44	0.03	7.64	1.4	740	0.94	0.04	3.32	<0.02	29.9	11.4	10	0.99	52.1	2.76
F00052395		9.54	0.06	7.34	1.1	750	0.94	0.06	3.70	0.02	30.0	11.7	11	1.10	104.0	2.77
F00052396		9.74	0.13	7.49	1.2	710	0.96	0.11	3.20	0.02	26.2	10.9	9	0.87	256	2.73
F00052397		8.14	0.15	8.10	1.2	1180	0.97	0.13	3.21	<0.02	29.7	12.5	14	0.64	301	3.21
F00052398		9.34	0.64	7.43	1.1	950	0.91	0.57	2.63	0.02	26.5	11.0	10	0.70	1290	2.75
F00052399		11.68	0.19	7.50	1.0	1030	0.94	0.44	2.95	<0.02	30.3	12.5	9	0.59	416	3.21
F00052400		1.34	0.04	0.10	0.6	10	0.07	0.04	21.5	0.04	1.21	0.5	1	0.10	3.2	0.15
F00052401		8.86	0.50	7.55	1.5	790	0.93	0.76	2.55	0.04	23.5	10.7	8	0.76	1335	2.96
F00052402		9.40	0.12	7.42	3.1	670	0.99	0.14	2.38	<0.02	19.50	8.0	7	1.22	235	2.25
F00052403		9.30	0.05	7.44	1.3	740	0.95	0.05	3.84	<0.02	24.8	9.0	7	0.72	80.0	2.61
F00052404		9.20	0.04	7.36	1.3	390	0.96	0.05	3.15	<0.02	22.2	8.5	7	0.60	60.3	2.44
F00052405		9.62	0.04	7.63	1.0	470	0.97	0.04	3.48	<0.02	23.6	8.6	7	0.66	86.3	2.48
F00052406		10.64	0.18	7.55	1.5	630	1.01	0.17	3.33	<0.02	24.0	8.8	11	0.68	322	2.61
F00052407		10.76	0.01	7.79	1.3	890	0.99	0.01	3.10	0.02	31.4	9.2	8	0.77	12.8	2.69
F00052408		10.36	0.23	7.54	1.6	950	1.02	0.21	3.15	0.05	25.0	9.6	10	0.66	425	2.70
F00052409		11.22	0.13	7.70	2.5	850	0.98	0.13	3.33	0.03	21.8	9.7	8	0.70	260	2.81
F00052410		0.06	76.1	5.64	66.6	850	0.80	5.59	1.38	0.65	13.55	1.9	346	1.04	7630	1.26
F00052411		9.38	0.16	7.33	3.3	670	0.87	0.12	3.09	0.02	21.6	8.8	7	0.88	199.5	2.47
F00052412		9.96	0.09	7.33	1.5	830	0.96	0.09	3.14	<0.02	23.0	9.5	10	0.85	154.0	2.54
F00052413		9.42	0.35	7.43	1.4	930	0.91	0.45	3.54	<0.02	24.7	9.8	11	0.76	710	2.73
F00052414		10.50	0.26	7.81	1.5	980	0.88	0.29	2.84	<0.02	26.5	8.9	10	0.79	545	2.70
F00052415		10.20	0.41	7.52	1.3	830	0.88	0.35	3.44	0.04	24.4	8.7	9	0.72	822	2.59
F00052416		9.50	0.23	7.44	1.3	800	0.94	0.22	3.27	<0.02	22.8	8.9	9	0.81	414	2.67
F00052417		5.30	0.28	6.87	1.2	850	0.88	0.41	2.92	<0.02	21.7	7.0	7	1.04	532	2.16
F00052418		4.58	0.21	7.09	1.1	880	0.84	0.23	2.91	<0.02	20.5	7.0	9	0.79	380	2.14
F00052419		6.06	0.36	7.63	1.1	1110	0.94	0.48	3.04	0.02	41.3	8.8	11	0.76	697	2.57
F00052420		10.52	0.12	7.65	2.0	890	0.91	0.10	3.38	0.02	26.4	8.9	9	0.95	206	2.73
F00052421		10.50	0.14	7.27	2.3	790	0.97	0.26	3.04	0.02	29.7	9.8	12	0.55	282	2.67
F00052422		10.52	0.45	7.72	2.5	880	0.87	0.54	2.91	0.05	21.9	9.3	9	0.98	853	2.63
F00052423		9.02	0.10	7.84	2.0	800	0.99	0.08	3.46	0.02	25.2	10.0	9	0.85	174.5	2.70
F00052424		10.38	0.04	7.90	1.4	730	0.95	0.04	3.38	<0.02	26.5	9.9	8	0.76	74.7	2.74
F00052425		10.40	0.59	8.02	1.5	660	0.97	0.66	3.54	0.02	26.6	10.3	10	0.91	1100	2.93
F00052426		10.70	0.20	7.99	1.1	730	0.98	0.28	3.62	<0.02	22.3	10.2	9	0.67	406	2.91
F00052427		8.16	0.26	7.89	1.4	810	0.88	0.32	3.47	0.02	22.9	10.2	8	0.77	474	2.82
F00052428		5.54	0.15	7.69	1.5	800	0.95	0.21	2.98	<0.02	26.2	9.2	10	0.76	295	2.63
F00052429		9.28	2.99	7.53	1.6	870	0.87	3.88	3.30	0.11	22.5	9.6	11	1.11	5840	2.81
F00052430		0.16	26.6	5.88	75.7	830	0.55	25.4	4.10	163.5	14.80	59.3	106	1.81	6340	11.55

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: HAPPY CREEK MINERALS LTD.
460–789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10–MAR–2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method / Analyte / Units / LOD	ME–MS61 Ga ppm 0.05	ME–MS61 Ge ppm 0.05	ME–MS61 Hf ppm 0.1	ME–MS61 In ppm 0.005	ME–MS61 K % 0.01	ME–MS61 La ppm 0.5	ME–MS61 Li ppm 0.2	ME–MS61 Mg % 0.01	ME–MS61 Mn ppm 5	ME–MS61 Mo ppm 0.05	ME–MS61 Na % 0.01	ME–MS61 Nb ppm 0.1	ME–MS61 Ni ppm 0.2	ME–MS61 P ppm 10	ME–MS61 Pb ppm 0.5
F00052391		17.00	0.12	0.6	0.029	1.77	12.9	7.8	1.06	488	1.11	3.03	2.5	9.0	620	3.7
F00052392		18.05	0.12	0.5	0.026	1.72	11.0	9.1	1.01	437	1.07	2.91	2.4	8.7	600	3.5
F00052393		17.55	0.11	0.5	0.026	1.87	11.5	8.4	1.09	489	1.13	3.08	2.5	9.1	610	3.4
F00052394		16.70	0.12	0.5	0.030	1.76	12.8	8.4	0.92	503	0.95	2.87	2.3	8.7	620	3.4
F00052395		16.10	0.10	0.5	0.028	1.89	11.8	8.4	0.97	510	1.25	2.67	2.4	9.8	570	3.2
F00052396		16.50	0.12	0.6	0.028	1.76	11.2	9.5	1.00	444	1.52	3.00	2.3	8.2	610	3.0
F00052397		18.35	0.13	0.6	0.030	1.79	13.1	9.4	1.32	518	1.06	3.20	2.4	11.2	680	3.3
F00052398		17.25	0.11	0.5	0.025	1.96	11.2	10.4	1.09	414	1.88	2.99	2.4	8.9	600	3.1
F00052399		17.90	0.11	0.6	0.032	1.71	12.2	9.7	1.24	485	2.96	2.87	2.6	8.7	700	3.3
F00052400		0.38	0.18	<0.1	<0.005	0.03	0.6	1.8	13.20	140	0.12	0.02	0.1	0.8	20	1.8
F00052401		17.05	0.16	0.6	0.027	1.44	9.6	11.1	0.98	356	1.31	2.98	2.4	8.8	610	3.5
F00052402		17.10	0.18	0.5	0.023	1.70	7.8	7.0	0.42	286	1.34	2.84	2.2	7.1	600	2.4
F00052403		17.15	0.17	0.5	0.024	1.55	10.0	10.3	0.82	511	0.97	3.14	2.4	6.9	650	3.5
F00052404		17.05	0.16	0.6	0.047	0.88	8.8	10.9	0.97	380	1.51	3.49	2.5	7.3	640	2.9
F00052405		17.55	0.16	0.6	0.052	0.96	9.8	11.0	1.01	396	1.42	3.39	2.7	7.5	660	2.9
F00052406		17.85	0.18	0.6	0.061	1.29	10.0	11.0	1.01	401	3.44	3.28	2.6	7.1	630	3.0
F00052407		17.85	0.19	0.6	0.033	1.55	13.9	11.3	1.05	427	2.25	3.12	2.7	7.2	650	4.2
F00052408		18.10	0.16	0.6	0.025	1.59	10.2	9.6	0.99	433	1.57	3.17	2.6	7.3	650	3.6
F00052409		18.50	0.17	0.8	0.023	1.55	8.8	11.0	0.95	435	1.20	3.17	2.3	6.9	680	4.2
F00052410		15.85	0.16	0.3	0.040	3.00	6.4	13.6	0.18	274	760	1.27	2.0	5.8	420	123.5
F00052411		17.75	0.18	0.7	0.025	1.54	8.6	11.8	0.72	391	1.68	2.67	2.4	6.7	620	3.6
F00052412		17.70	0.20	0.6	0.027	1.69	9.1	7.9	0.81	411	1.26	3.05	2.6	8.5	620	3.3
F00052413		17.40	0.18	0.6	0.027	1.79	9.6	9.0	0.96	476	9.55	3.10	2.8	9.2	610	3.5
F00052414		16.85	0.20	0.5	0.026	1.99	10.7	10.6	1.01	371	1.56	3.10	2.7	7.9	620	3.5
F00052415		16.70	0.19	0.6	0.029	1.70	10.5	8.8	0.91	433	27.5	3.02	2.6	6.9	630	3.5
F00052416		17.75	0.17	0.6	0.053	1.63	9.9	8.9	0.97	411	8.33	2.96	2.4	7.0	630	3.5
F00052417		16.30	0.17	0.8	0.049	2.18	7.9	8.2	0.76	304	42.4	2.42	2.4	5.6	480	3.7
F00052418		16.00	0.18	0.7	0.024	2.31	7.1	7.8	0.73	312	2.05	2.86	2.1	5.5	490	3.6
F00052419		17.40	0.20	0.6	0.031	1.74	14.0	8.1	0.91	370	4.66	3.10	4.3	6.7	620	3.5
F00052420		17.05	0.19	0.6	0.026	1.66	9.8	10.4	1.00	419	1.50	3.11	2.8	7.2	640	3.4
F00052421		17.50	0.20	0.6	0.026	1.48	10.8	9.0	0.96	433	1.79	3.12	2.9	8.1	610	3.4
F00052422		16.75	0.20	0.5	0.031	1.66	9.1	11.5	1.01	403	5.08	3.15	2.2	7.4	640	3.3
F00052423		19.10	0.20	0.8	0.025	1.70	9.7	11.0	0.95	454	1.45	3.10	2.7	7.0	700	3.8
F00052424		18.60	0.20	0.9	0.026	1.63	9.5	9.9	0.97	438	2.30	3.18	2.8	7.2	720	3.4
F00052425		18.70	0.21	0.7	0.031	1.56	10.3	10.0	1.10	475	6.80	3.28	2.5	8.1	690	3.6
F00052426		18.15	0.18	0.6	0.028	1.59	9.3	8.1	1.10	489	3.82	3.31	2.3	8.1	720	3.6
F00052427		18.30	0.18	0.6	0.026	1.67	9.5	8.6	1.08	475	1.46	3.22	2.4	8.2	690	3.6
F00052428		17.35	0.21	0.5	0.022	1.69	10.4	8.6	1.02	403	1.60	3.11	2.4	7.8	630	3.4
F00052429		18.15	0.20	0.5	0.084	1.88	9.1	11.1	1.05	410	11.15	3.04	2.3	8.5	660	3.4
F00052430		15.40	0.19	0.7	1.370	0.69	6.4	18.4	2.51	967	16.30	1.43	3.0	56.8	600	7370

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method Analyte Units LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
F00052391		48.9	<0.002	<0.01	0.12	8.8	<1	0.5	593	0.16	<0.05	2.46	0.279	0.16	1.4	95
F00052392		42.9	<0.002	<0.01	0.13	8.3	<1	0.5	592	0.16	<0.05	2.39	0.271	0.14	1.6	91
F00052393		46.0	<0.002	<0.01	0.13	8.1	<1	0.5	597	0.16	<0.05	2.54	0.290	0.15	1.5	96
F00052394		48.6	0.002	<0.01	0.36	8.2	<1	0.4	566	0.15	<0.05	2.24	0.263	0.15	1.8	91
F00052395		50.1	0.005	<0.01	0.50	8.1	<1	0.5	528	0.16	<0.05	2.12	0.263	0.17	1.6	90
F00052396		45.0	0.017	0.01	0.45	8.9	<1	0.5	527	0.16	<0.05	2.08	0.269	0.15	1.5	91
F00052397		44.5	0.003	0.01	0.24	10.7	<1	0.5	601	0.16	<0.05	2.15	0.302	0.16	1.3	109
F00052398		45.4	0.008	0.04	0.37	8.1	<1	0.5	559	0.16	<0.05	1.93	0.274	0.16	1.2	89
F00052399		37.8	0.022	0.01	0.38	9.3	1	0.5	579	0.18	<0.05	1.86	0.307	0.13	1.4	104
F00052400		1.5	<0.002	<0.01	0.12	0.2	1	<0.2	45.6	<0.05	<0.05	0.12	<0.005	<0.02	<0.1	2
F00052401		32.6	0.012	0.05	0.54	7.5	1	0.6	569	0.17	<0.05	1.88	0.247	0.13	1.4	92
F00052402		45.6	0.004	0.01	0.74	6.8	<1	0.6	495	0.15	<0.05	1.82	0.238	0.16	1.2	88
F00052403		32.0	0.002	<0.01	0.47	6.9	1	0.6	636	0.17	<0.05	2.21	0.240	0.13	1.5	88
F00052404		20.7	0.003	<0.01	0.73	6.7	<1	0.6	619	0.18	<0.05	2.72	0.242	0.10	1.7	88
F00052405		24.3	0.006	0.01	0.72	7.0	<1	0.6	721	0.18	<0.05	2.51	0.260	0.11	1.4	90
F00052406		35.1	0.021	0.01	0.54	7.3	1	0.7	637	0.17	<0.05	2.29	0.250	0.14	1.3	91
F00052407		39.0	0.005	<0.01	0.24	7.5	<1	0.6	605	0.18	<0.05	2.83	0.250	0.14	1.5	93
F00052408		35.6	0.002	0.01	0.24	7.5	1	0.6	647	0.17	<0.05	3.39	0.255	0.15	1.6	91
F00052409		34.4	0.002	0.01	0.36	7.2	1	0.6	714	0.15	<0.05	3.26	0.250	0.15	1.9	91
F00052410		50.1	0.074	0.79	163.5	1.6	1	1.7	368	0.09	0.74	0.90	0.073	0.21	1.0	38
F00052411		37.7	0.002	0.01	0.61	6.4	1	0.6	702	0.17	<0.05	3.57	0.232	0.15	1.5	84
F00052412		40.6	0.003	0.01	0.27	7.4	1	0.6	604	0.18	<0.05	2.29	0.250	0.16	1.4	91
F00052413		39.6	0.094	0.02	0.22	7.6	1	0.6	628	0.20	<0.05	2.00	0.259	0.17	1.2	94
F00052414		47.7	0.006	0.02	0.27	7.4	1	0.6	655	0.20	<0.05	2.66	0.254	0.18	1.3	93
F00052415		39.5	0.236	0.03	0.28	7.0	1	0.6	652	0.17	<0.05	2.83	0.251	0.15	1.6	89
F00052416		36.5	0.081	0.02	0.29	7.1	1	0.6	655	0.15	<0.05	3.81	0.242	0.14	1.8	92
F00052417		48.1	0.313	0.02	0.38	5.6	<1	0.5	528	0.22	<0.05	5.06	0.184	0.18	2.4	75
F00052418		50.0	0.010	0.01	0.22	5.5	1	0.5	581	0.19	<0.05	4.27	0.180	0.19	2.0	71
F00052419		41.9	0.027	0.02	0.21	6.6	1	0.8	670	0.37	<0.05	3.86	0.282	0.16	1.6	88
F00052420		34.1	0.004	0.01	0.27	7.0	1	0.6	678	0.19	0.05	2.56	0.264	0.13	1.7	93
F00052421		31.9	0.006	0.01	0.41	7.2	1	0.7	647	0.21	0.08	2.51	0.268	0.13	2.0	91
F00052422		46.7	0.071	0.03	1.36	7.4	<1	0.6	600	0.12	0.15	2.58	0.258	0.17	1.6	87
F00052423		36.4	0.002	0.01	0.26	7.1	1	0.6	729	0.20	<0.05	1.66	0.248	0.14	1.3	91
F00052424		35.4	0.005	<0.01	0.18	7.3	<1	0.6	755	0.23	<0.05	1.59	0.255	0.15	1.0	94
F00052425		36.8	0.016	0.03	0.29	8.2	<1	0.7	707	0.18	0.32	2.02	0.260	0.14	1.1	100
F00052426		33.0	0.004	0.01	0.23	8.0	1	0.6	726	0.14	0.07	2.26	0.274	0.13	1.2	100
F00052427		35.7	0.003	0.02	0.17	7.8	1	0.6	697	0.14	0.09	1.96	0.264	0.13	1.1	98
F00052428		40.4	0.006	0.01	0.23	6.9	1	0.6	646	0.17	0.11	2.06	0.253	0.14	1.1	91
F00052429		47.9	0.076	0.17	0.61	7.5	1	0.6	605	0.15	1.34	1.86	0.259	0.20	1.3	99
F00052430		22.3	0.011	7.56	40.2	24.1	28	12.2	182.0	0.20	0.05	0.87	0.428	2.72	1.4	173

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method Analyte Units LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	Cu-OG62 Cu % 0.001	Zn-OG62 Zn % 0.001	Au-ICP21 Au ppm 0.001
F00052391		0.2	12.0	45	7.9			<0.001
F00052392		0.4	10.6	43	7.4			<0.001
F00052393		0.3	10.9	44	6.9			<0.001
F00052394		0.7	12.4	39	7.0			<0.001
F00052395		0.6	12.5	43	6.5			0.001
F00052396		0.7	11.6	36	7.7			0.004
F00052397		0.6	12.6	43	8.1			0.007
F00052398		0.8	11.0	35	7.0	0.135		0.023
F00052399		0.7	12.8	39	7.9			0.007
F00052400		0.1	0.3	6	1.1			0.003
F00052401		2.0	9.2	36	7.9	0.136		0.052
F00052402		1.1	7.2	32	7.3			0.004
F00052403		1.2	10.3	38	7.8			0.002
F00052404		1.1	8.7	26	8.5			<0.001
F00052405		0.8	9.5	26	7.8			<0.001
F00052406		0.5	9.7	27	8.0			0.004
F00052407		0.7	10.8	36	8.0			0.001
F00052408		0.5	10.6	38	9.8			0.007
F00052409		0.4	9.7	38	24.0			0.004
F00052410		1.0	3.8	72	5.4	0.772		0.029
F00052411		0.7	9.3	40	17.8			0.004
F00052412		0.4	9.7	38	8.9			0.005
F00052413		0.7	10.7	37	7.8	0.066		0.009
F00052414		0.9	10.6	32	7.3	0.054		0.010
F00052415		0.7	9.5	35	8.0	0.084		0.014
F00052416		0.6	8.4	35	8.4			0.005
F00052417		0.6	9.2	25	14.3	0.055		0.013
F00052418		0.5	8.9	24	14.0			0.010
F00052419		0.3	15.7	32	9.0	0.070		0.008
F00052420		0.5	10.8	36	8.0			0.003
F00052421		0.4	12.2	39	8.7			0.007
F00052422		0.7	9.6	34	8.3	0.083		0.020
F00052423		0.6	10.5	44	25.0			0.002
F00052424		0.4	10.9	43	26.9			0.002
F00052425		0.4	11.1	41	15.4	0.121		0.070
F00052426		0.3	9.5	42	8.7			0.006
F00052427		1.1	9.6	43	8.3			0.008
F00052428		0.4	10.1	34	7.3			0.006
F00052429		0.6	9.6	28	7.3	0.568		0.146
F00052430		27.5	18.6	>10000	18.2	0.600	3.15	0.055

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method	WEI-21	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Recvd Wt.	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe
	Units	kg	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%
	LOD	0.02	0.01	0.01	0.2	10	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01
F00052431		5.78	4.64	7.36	1.8	1010	0.86	6.59	3.11	0.16	20.3	9.0	8	0.79	8600	2.60
F00052432		7.86	0.10	7.66	1.0	860	0.89	0.13	3.35	0.03	23.9	9.6	9	0.73	170.5	2.76
F00052433		6.02	0.42	7.62	1.6	940	0.87	0.66	3.37	0.03	24.2	9.8	13	0.75	948	2.86
F00052434		7.96	2.46	7.11	1.5	890	0.80	3.61	2.97	0.07	21.6	8.8	10	1.25	5130	2.60
F00052435		10.66	0.41	7.70	1.6	600	0.89	0.58	3.02	0.03	21.0	9.6	8	1.32	797	2.65
F00052436		9.52	0.11	7.52	1.9	660	0.91	0.14	3.07	0.02	19.80	8.8	8	1.07	217	2.77
F00052437		8.88	0.15	7.78	1.4	700	1.04	0.31	3.28	0.03	19.80	8.1	9	1.30	262	2.75
F00052438		11.90	0.10	8.02	3.5	670	0.99	0.10	3.38	0.04	17.35	7.6	10	0.97	211	2.35
F00052439		9.14	0.59	7.84	1.1	620	0.96	0.86	3.18	0.04	23.7	8.5	9	1.00	1130	2.59
F00052440		0.78	0.02	0.11	0.2	10	0.06	0.01	21.5	0.05	1.07	0.4	1	0.10	3.1	0.16
F00052441		8.98	0.07	8.20	1.4	650	1.00	0.16	3.49	0.04	22.0	8.7	8	1.39	150.0	2.83
F00052442		10.38	0.03	8.27	1.6	690	0.92	0.02	3.38	<0.02	22.0	9.7	9	0.92	51.0	3.00
F00052443		10.34	0.03	8.24	0.6	810	0.93	0.01	3.52	0.02	23.0	9.0	10	0.70	45.6	2.94
F00052444		11.08	0.67	7.73	1.3	510	0.91	0.79	3.39	0.02	19.45	9.2	8	1.17	1180	2.80
F00052445		11.20	0.09	8.37	1.3	800	1.01	0.10	3.32	0.02	23.1	9.1	7	0.77	152.5	2.82
F00052446		10.20	0.02	7.54	1.6	710	0.82	0.01	3.18	<0.02	20.5	8.8	9	0.71	50.3	2.72
F00052447		12.28	0.10	8.10	2.2	810	0.94	0.11	3.00	<0.02	23.6	9.1	8	0.88	175.5	2.79
F00052448		7.64	0.65	7.81	2.3	690	0.95	1.16	3.24	0.03	20.1	9.4	10	1.13	1320	2.83
F00052449		10.96	0.25	7.69	1.5	620	0.95	0.43	3.50	<0.02	22.9	9.2	10	0.66	462	2.76
F00052450		9.64	0.02	7.90	1.2	690	0.92	0.02	3.73	<0.02	21.3	9.5	8	0.68	31.0	2.82
F00052451		5.26	0.01	7.94	0.7	890	0.93	<0.01	3.52	<0.02	24.3	8.9	9	0.59	12.0	2.89
F00052452		5.60	0.01	8.16	1.0	950	0.94	<0.01	3.35	<0.02	27.5	9.0	8	0.63	18.7	2.91
F00052453		10.04	0.02	7.78	1.6	700	0.90	0.01	3.54	<0.02	27.4	10.8	9	0.64	37.7	3.66
F00052454		10.56	0.13	8.15	1.7	1060	0.83	0.13	3.90	0.02	37.6	15.2	8	0.84	276	5.29
F00052455		9.82	0.04	7.64	2.4	810	0.86	0.03	3.86	<0.02	29.9	14.3	7	1.08	58.6	4.91
F00052456		9.30	0.01	7.67	1.7	620	0.93	<0.01	3.29	0.02	20.9	9.2	8	0.71	5.7	2.90
F00052457		10.26	0.04	8.05	1.0	790	0.90	0.08	3.24	<0.02	22.0	9.4	7	0.87	72.7	2.95
F00052458		9.98	0.02	8.01	1.2	720	0.99	0.02	3.44	<0.02	21.7	9.6	8	0.82	36.8	2.95
F00052459		9.92	0.18	7.51	1.4	740	1.00	0.39	3.46	0.03	38.2	14.1	11	0.69	407	5.46
F00052460		1.18	0.01	0.10	0.2	10	0.06	<0.01	21.5	0.04	1.15	0.5	1	0.09	1.4	0.17
F00052461		10.32	0.03	8.35	1.0	820	1.05	0.02	3.62	<0.02	22.7	9.7	7	0.73	45.0	2.92
F00052462		9.76	0.10	7.97	1.2	760	0.95	0.14	3.57	<0.02	20.2	9.3	8	0.77	202	2.89
F00052463		9.90	0.04	7.70	1.9	620	0.88	0.08	3.81	<0.02	21.4	9.3	7	1.00	46.1	2.65
F00052464		8.44	0.06	7.55	1.8	530	0.99	0.20	3.62	<0.02	21.7	10.7	10	1.01	94.1	2.88
F00052465		13.32	2.32	7.83	1.7	580	0.92	4.91	3.57	0.06	30.5	11.8	7	0.86	4760	4.17
F00052466		6.04	0.86	7.90	1.7	710	0.88	1.21	2.96	0.03	21.1	9.1	9	0.80	1250	2.65
F00052467		6.62	2.52	7.79	1.7	690	0.92	4.30	3.09	0.04	18.65	8.9	7	1.05	3490	2.59
F00052468		8.74	0.26	7.96	2.3	720	0.89	0.44	3.06	0.02	24.9	10.0	10	0.84	441	2.86
F00052469		11.60	0.77	7.82	1.7	680	0.94	1.80	3.06	0.02	22.1	9.7	9	0.88	1620	2.79
F00052470		0.16	28.3	5.71	76.3	120	0.54	25.5	3.89	157.0	14.30	58.7	103	1.84	6190	11.10

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
F00052431		17.60	0.16	0.5	0.088	1.82	8.4	10.2	0.97	381	17.60	3.15	2.2	7.5	630	6.2
F00052432		17.55	0.19	0.6	0.028	1.78	9.6	8.2	1.06	432	2.24	3.13	2.4	8.4	650	4.4
F00052433		17.20	0.19	0.5	0.028	1.87	9.3	8.8	1.12	469	4.87	3.14	2.5	8.9	680	3.8
F00052434		18.40	0.18	0.5	0.143	1.99	8.1	11.1	0.93	382	10.85	2.83	2.3	8.0	610	3.6
F00052435		18.00	0.19	0.5	0.036	1.60	8.5	11.7	1.02	407	3.12	3.13	2.1	7.8	670	3.7
F00052436		15.70	0.09	0.6	0.043	1.56	6.5	11.7	0.94	401	4.54	3.27	2.1	7.6	680	4.6
F00052437		16.90	0.14	0.5	0.114	1.85	6.9	9.8	0.82	387	4.32	3.13	1.8	7.4	660	3.9
F00052438		16.35	0.14	0.5	0.024	1.72	5.8	10.5	0.84	406	1.54	3.53	1.6	6.4	590	4.6
F00052439		16.25	0.16	0.6	0.041	1.61	8.2	12.3	1.04	446	14.10	3.29	1.9	7.3	670	4.7
F00052440		0.33	0.11	<0.1	<0.005	0.04	0.6	1.9	13.40	142	0.06	0.02	0.1	<0.2	10	2.7
F00052441		16.50	0.16	0.5	0.029	1.76	7.8	13.8	1.09	455	1.73	3.20	1.7	7.8	680	5.0
F00052442		17.10	0.14	0.6	0.031	1.53	8.1	12.9	1.23	491	1.23	3.42	2.1	8.2	690	3.5
F00052443		16.60	0.17	0.6	0.027	1.53	8.4	8.9	1.18	501	1.37	3.40	2.1	7.8	710	3.4
F00052444		16.90	0.15	0.6	0.045	1.49	6.9	13.3	1.17	460	81.6	3.13	1.9	7.6	690	3.0
F00052445		17.05	0.19	0.5	0.031	1.64	8.7	9.4	1.10	455	2.86	3.43	2.0	7.9	680	3.4
F00052446		15.75	0.15	0.5	0.023	1.48	7.2	9.9	1.06	445	1.21	3.21	2.0	7.5	640	3.2
F00052447		16.60	0.21	0.7	0.029	1.72	8.4	11.6	1.11	444	15.50	3.39	2.2	8.3	640	3.3
F00052448		17.55	0.16	0.5	0.101	1.63	7.2	11.2	0.98	385	27.0	3.24	2.1	8.9	680	3.1
F00052449		17.65	0.16	0.5	0.109	1.19	8.0	12.6	1.15	374	124.0	3.22	2.1	9.1	700	2.6
F00052450		17.70	0.17	0.5	0.052	1.38	7.6	10.6	1.16	450	3.24	3.28	2.2	8.4	680	3.0
F00052451		16.10	0.18	0.6	0.031	1.51	8.2	8.6	1.09	447	1.42	3.30	2.2	7.5	790	3.2
F00052452		16.35	0.23	0.6	0.032	1.50	9.9	9.4	1.12	431	1.37	3.35	2.3	7.5	890	3.2
F00052453		16.95	0.19	0.7	0.036	1.45	9.1	10.7	1.28	589	2.54	3.34	2.7	8.0	830	2.9
F00052454		18.35	0.20	0.9	0.049	2.14	13.8	13.3	1.80	852	1.15	3.03	4.1	10.0	1160	3.3
F00052455		17.85	0.19	0.9	0.055	1.78	10.0	14.2	1.79	828	0.83	2.78	3.3	9.0	1050	3.5
F00052456		16.55	0.17	0.6	0.026	1.34	7.1	12.2	1.16	450	1.27	3.52	2.2	7.6	680	3.1
F00052457		17.30	0.17	0.6	0.032	1.53	7.7	10.4	1.13	436	1.65	3.44	2.1	8.0	680	3.2
F00052458		16.95	0.17	0.6	0.030	1.48	7.6	10.0	1.18	486	1.19	3.42	2.2	8.2	700	3.2
F00052459		17.70	0.17	0.9	0.038	1.26	15.8	10.6	1.43	643	2.49	3.11	4.0	10.4	1230	3.1
F00052460		0.32	0.13	<0.1	<0.005	0.04	0.6	2.2	13.50	140	0.05	0.02	0.1	0.3	30	1.4
F00052461		17.40	0.16	0.6	0.032	1.49	7.9	9.4	1.11	478	2.44	3.57	2.1	8.0	720	3.1
F00052462		16.45	0.18	0.6	0.027	1.54	6.9	9.6	1.11	460	5.84	3.38	2.0	8.0	690	3.9
F00052463		17.10	0.14	0.6	0.025	1.24	9.0	11.2	1.11	475	1.71	3.20	2.0	7.3	670	3.4
F00052464		18.30	0.13	0.6	0.052	1.37	8.2	13.0	1.25	515	4.15	3.33	2.1	8.2	760	2.8
F00052465		17.85	0.16	0.7	0.105	1.42	12.9	15.4	1.36	602	47.5	3.19	2.9	7.4	1080	3.3
F00052466		17.30	0.15	0.6	0.027	1.64	8.8	10.5	1.02	390	5.54	3.19	2.1	9.2	650	3.0
F00052467		17.75	0.15	0.6	0.027	1.62	7.7	10.9	0.87	368	51.6	3.28	2.0	7.0	660	3.0
F00052468		18.15	0.16	0.6	0.037	1.60	10.5	9.7	1.11	452	4.05	3.25	2.4	7.9	680	3.4
F00052469		17.65	0.17	0.6	0.031	1.56	9.3	10.1	1.07	444	21.0	3.25	2.3	7.4	680	3.2
F00052470		15.20	0.20	0.6	1.385	0.67	6.1	19.3	2.42	932	16.35	1.37	3.0	55.6	560	6980

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V
	Units	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
	LOD	0.1	0.002	0.01	0.05	0.1	1	0.2	0.2	0.05	0.05	0.01	0.005	0.02	0.1	1
F00052431		43.5	0.092	0.25	0.75	7.0	1	0.6	603	0.14	1.60	1.76	0.248	0.17	1.3	92
F00052432		39.6	0.013	0.01	0.22	7.8	1	0.6	678	0.15	<0.05	2.18	0.268	0.15	1.1	94
F00052433		37.7	0.017	0.03	0.19	7.9	1	0.6	640	0.17	0.07	1.81	0.269	0.16	1.1	99
F00052434		60.3	0.097	0.15	0.84	7.0	1	0.6	550	0.15	0.29	1.89	0.253	0.25	1.7	101
F00052435		44.3	0.018	0.02	0.70	7.5	<1	0.5	576	0.13	0.06	1.97	0.247	0.16	1.3	92
F00052436		31.1	0.008	0.01	0.75	6.6	1	0.6	575	0.13	<0.05	1.78	0.277	0.12	1.0	94
F00052437		40.8	0.020	0.01	1.09	6.7	1	0.6	622	0.11	<0.05	1.53	0.264	0.15	1.2	102
F00052438		35.2	<0.002	0.01	0.79	5.4	<1	0.4	626	0.10	<0.05	2.15	0.225	0.15	1.0	79
F00052439		40.7	0.109	0.03	0.83	7.0	1	0.5	592	0.12	0.07	2.25	0.253	0.13	1.1	87
F00052440		1.5	<0.002	<0.01	0.08	0.2	1	<0.2	45.8	<0.05	<0.05	0.11	<0.005	<0.02	0.1	2
F00052441		45.5	0.005	0.01	0.63	6.8	1	0.5	628	0.11	<0.05	1.94	0.265	0.15	1.1	95
F00052442		32.6	0.003	<0.01	0.25	7.4	1	0.6	745	0.13	<0.05	2.03	0.299	0.11	1.1	100
F00052443		32.6	0.003	<0.01	0.13	7.3	<1	0.6	734	0.13	<0.05	1.99	0.291	0.12	1.3	98
F00052444		33.6	0.636	0.04	0.31	6.7	<1	0.6	646	0.13	0.30	1.68	0.262	0.14	1.1	94
F00052445		39.5	0.017	0.01	0.16	7.1	1	0.5	716	0.12	0.06	2.28	0.287	0.14	1.4	95
F00052446		29.0	0.003	<0.01	0.10	6.9	1	0.5	626	0.12	<0.05	1.72	0.271	0.13	1.1	93
F00052447		39.1	0.117	0.01	0.22	7.3	<1	0.6	641	0.13	<0.05	2.00	0.281	0.12	1.2	92
F00052448		44.8	0.136	0.04	0.82	7.1	1	0.6	655	0.12	0.33	1.75	0.283	0.17	1.3	104
F00052449		31.4	0.498	0.02	0.76	7.1	1	0.6	712	0.14	0.18	1.71	0.293	0.14	1.2	105
F00052450		28.2	0.014	<0.01	0.20	7.0	1	0.5	734	0.12	<0.05	1.60	0.280	0.12	1.0	98
F00052451		28.5	0.008	<0.01	0.12	6.7	<1	0.6	703	0.14	<0.05	1.74	0.284	0.12	0.9	97
F00052452		35.7	0.005	<0.01	0.11	6.9	1	0.5	704	0.14	<0.05	1.93	0.295	0.13	1.1	98
F00052453		30.3	0.020	<0.01	0.19	8.2	1	0.7	652	0.18	<0.05	1.96	0.350	0.13	1.1	119
F00052454		41.4	0.005	0.01	0.17	11.2	1	1.0	667	0.30	<0.05	1.80	0.494	0.15	1.2	175
F00052455		37.2	0.004	<0.01	0.46	11.3	1	0.9	761	0.24	<0.05	1.89	0.456	0.16	1.3	157
F00052456		26.7	0.003	<0.01	0.20	6.7	1	0.6	654	0.14	<0.05	1.78	0.289	0.12	1.0	97
F00052457		29.3	0.002	<0.01	0.09	7.0	<1	0.5	745	0.14	<0.05	1.95	0.287	0.12	1.1	98
F00052458		27.6	0.006	<0.01	0.12	7.2	<1	0.5	728	0.15	<0.05	1.77	0.292	0.11	1.1	100
F00052459		28.4	0.015	0.01	0.15	10.6	1	1.0	634	0.26	0.18	3.26	0.484	0.10	1.7	186
F00052460		1.4	<0.002	<0.01	0.08	0.2	1	<0.2	45.4	<0.05	<0.05	0.14	<0.005	<0.02	0.1	2
F00052461		26.6	0.012	<0.01	0.11	7.2	<1	0.6	766	0.12	<0.05	2.08	0.293	0.10	1.2	97
F00052462		27.0	0.013	0.01	0.18	6.8	1	0.6	759	0.12	0.09	1.96	0.285	0.12	1.1	96
F00052463		27.5	0.008	0.01	0.29	7.4	1	0.6	681	0.13	<0.05	2.25	0.265	0.12	1.3	90
F00052464		30.1	0.014	<0.01	0.74	8.0	1	0.7	654	0.14	0.15	2.11	0.285	0.14	1.2	99
F00052465		31.8	0.370	0.14	1.17	10.4	1	0.9	601	0.20	2.86	1.95	0.407	0.13	1.5	141
F00052466		35.4	0.078	0.04	0.23	6.8	1	0.6	678	0.14	0.72	2.31	0.266	0.14	1.5	88
F00052467		33.8	0.253	0.14	0.24	6.5	1	0.6	680	0.14	1.85	2.06	0.262	0.15	1.3	86
F00052468		35.2	0.053	0.02	0.26	7.9	1	0.7	690	0.16	0.22	2.69	0.289	0.14	1.9	96
F00052469		32.1	0.428	0.06	0.21	7.4	1	0.6	691	0.15	0.26	2.17	0.274	0.14	1.5	93
F00052470		21.3	0.011	7.63	40.0	23.6	28	12.4	168.5	0.19	0.06	0.86	0.442	2.70	1.5	162

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method Analyte Units LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	Cu-OG62 Cu % 0.001	Zn-OG62 Zn % 0.001	Au-ICP21 Au ppm 0.001
F00052431		0.5	8.4	40	7.1	0.858		0.383
F00052432		0.5	10.0	40	8.0			0.003
F00052433		0.5	10.4	40	7.5	0.097		0.008
F00052434		0.6	9.4	27	7.2	0.494		0.140
F00052435		0.8	8.6	37	7.6	0.082		0.029
F00052436		0.9	7.2	37	6.9			0.005
F00052437		0.8	7.4	36	6.6			0.006
F00052438		0.3	6.1	39	7.7			0.009
F00052439		0.6	7.8	40	7.6	0.113		0.042
F00052440		0.1	0.3	10	0.7			0.002
F00052441		0.4	7.5	53	6.8			0.007
F00052442		0.3	8.3	43	7.6			<0.001
F00052443		0.3	8.3	43	7.2			<0.001
F00052444		0.3	7.4	38	7.2	0.119		0.010
F00052445		0.2	8.2	39	7.0			0.002
F00052446		0.3	7.6	39	7.0			<0.001
F00052447		0.3	8.4	40	9.4			0.002
F00052448		1.0	7.4	33	6.9	0.126		0.039
F00052449		1.0	8.1	26	6.9			0.008
F00052450		0.4	8.0	35	7.2			<0.001
F00052451		0.3	8.2	36	7.1			<0.001
F00052452		0.3	9.0	36	7.4			<0.001
F00052453		0.3	9.8	52	9.4			<0.001
F00052454		0.7	17.0	82	11.7			0.009
F00052455		0.5	12.9	74	12.7			<0.001
F00052456		0.3	7.6	34	7.6			<0.001
F00052457		0.3	8.0	39	7.6			<0.001
F00052458		0.4	8.0	41	7.3			<0.001
F00052459		0.5	16.0	57	12.2			0.006
F00052460		0.1	0.4	5	0.7			0.003
F00052461		0.2	7.8	41	7.5			<0.001
F00052462		0.4	7.5	39	7.7			0.002
F00052463		0.6	8.5	37	7.7			<0.001
F00052464		0.7	8.9	36	8.7			0.002
F00052465		1.8	12.6	48	10.4	0.445		0.215
F00052466		2.8	7.9	32	8.4	0.125		0.033
F00052467		6.7	7.5	30	8.0	0.343		0.165
F00052468		0.4	10.0	40	9.0			0.005
F00052469		0.5	8.8	38	8.4	0.161		0.006
F00052470		26.5	19.0	>10000	14.9	0.605	3.20	0.054

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method / Analyte / Units / LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
F00052471		9.18	0.02	7.29	1.1	610	0.92	0.05	3.34	0.06	20.3	9.5	8	1.11	19.6	2.80
F00052472		9.72	0.01	8.12	0.9	730	0.96	0.04	3.06	0.02	23.0	9.5	10	0.93	19.4	2.83
F00052473		10.40	0.03	7.94	1.1	820	0.99	0.06	3.26	<0.02	27.3	10.2	10	1.02	48.4	2.91
F00052474		10.10	0.17	8.09	2.5	710	0.98	0.62	3.54	0.02	24.7	10.0	9	0.90	640	2.85
F00052475		10.32	0.02	7.91	1.5	760	0.97	0.05	3.27	0.02	24.7	10.1	13	0.94	30.4	2.98
F00052476		10.18	0.04	7.95	1.5	680	0.97	0.06	3.02	0.02	29.5	9.6	11	1.15	74.6	2.74
F00052477		10.46	0.05	8.07	2.0	760	1.03	0.05	3.33	<0.02	25.7	10.3	12	1.30	80.7	3.05
F00052478		6.76	0.03	8.00	1.7	670	0.98	0.04	3.04	0.02	23.5	9.8	8	1.01	54.3	2.78
F00052479		13.66	0.02	8.17	2.0	690	0.93	0.04	3.50	<0.02	23.9	9.6	9	1.65	54.7	2.82
F00052480		9.90	0.09	7.53	2.4	670	0.96	0.09	3.46	0.07	22.3	9.6	9	1.32	152.5	2.75
F00052481		9.54	0.02	7.92	1.9	640	0.94	0.04	3.11	0.02	23.2	9.7	9	1.46	45.9	2.78
F00052482		10.14	0.03	7.83	1.1	700	0.90	0.04	3.18	<0.02	22.5	9.6	9	1.03	47.6	2.77
F00052483		9.58	0.04	7.76	2.0	660	1.08	0.06	2.77	<0.02	21.1	9.7	8	1.72	47.3	2.72
F00052484		10.94	0.02	7.74	2.5	600	1.03	0.05	2.55	0.02	21.3	9.7	8	2.04	27.8	2.72
F00052485		4.82	<0.01	7.69	1.6	700	1.03	0.04	3.58	<0.02	22.1	9.6	8	1.04	12.2	2.77
F00052486		4.96	0.01	8.22	1.3	720	1.06	0.03	3.54	<0.02	21.5	9.3	8	1.02	11.9	2.89
F00052487		8.92	0.01	7.99	1.4	740	1.03	0.03	3.20	0.02	22.3	10.0	8	1.01	11.1	2.81
F00052488		11.68	0.01	8.05	1.6	760	1.04	0.03	3.35	<0.02	20.0	10.0	8	1.37	15.5	2.88
F00052489		9.86	0.01	8.17	2.8	770	0.98	0.03	3.19	<0.02	20.8	9.6	9	1.35	14.1	2.78
F00052490		1.24	0.02	0.15	0.2	20	0.08	0.09	20.3	0.03	1.64	0.6	1	0.11	1.5	0.16
F00052491		10.46	0.01	8.08	1.7	730	1.00	0.03	3.22	<0.02	21.0	9.3	8	1.32	7.2	2.86
F00052492		10.50	0.01	7.76	1.8	770	0.97	0.03	3.34	<0.02	21.3	9.5	8	0.91	7.5	2.76
F00052493		9.72	0.02	7.84	1.2	860	0.95	0.03	4.04	0.02	23.0	9.8	8	1.07	21.1	2.80
F00052494		9.70	<0.01	7.90	1.3	800	0.93	0.03	3.46	<0.02	25.1	10.2	8	0.92	11.8	2.93
F00052495		10.30	<0.01	8.22	1.3	800	1.06	0.05	3.67	0.02	25.8	10.1	9	0.72	6.9	3.21
F00052496		10.86	0.01	7.84	1.5	890	0.97	0.03	3.31	<0.02	23.5	9.7	10	0.83	10.8	2.81
F00052497		10.56	0.03	7.73	1.7	720	1.09	0.06	3.47	<0.02	24.9	10.5	11	1.21	54.4	2.99
F00052498		9.14	0.01	7.37	8.3	530	0.96	0.02	3.46	<0.02	19.55	11.4	10	2.27	3.4	2.80
F00052499		9.84	0.02	6.58	14.9	510	0.76	0.05	4.95	<0.02	19.50	9.2	7	1.83	12.9	2.37
F00052500		10.46	0.01	7.77	2.7	540	0.97	0.08	3.61	<0.02	22.4	9.2	8	1.56	9.7	2.62
F00052501		0.16	26.8	5.86	78.7	110	0.57	26.9	4.05	165.0	15.00	59.7	108	1.94	6350	11.40
F00052502		8.04	0.01	7.62	1.5	750	0.97	0.10	3.22	0.09	21.8	9.2	8	1.31	6.3	2.66
F00052503		10.86	0.02	7.61	1.7	460	0.94	0.23	4.17	0.02	25.0	9.5	9	2.08	29.0	2.80
F00052504		9.14	0.07	7.75	1.9	810	1.02	0.13	3.19	<0.02	28.5	10.6	10	1.50	126.5	2.86
F00052505		10.62	0.02	8.07	1.7	890	1.11	0.04	3.37	0.02	25.3	10.4	10	1.27	34.7	2.98
F00052506		5.26	0.02	7.23	1.4	780	0.94	0.04	2.96	<0.02	19.75	9.6	9	1.21	29.7	2.57
F00052507		9.08	0.01	7.79	1.5	940	0.97	0.04	3.31	0.02	25.2	11.1	12	1.26	19.2	2.96
F00052508		8.64	0.01	7.33	5.8	920	0.79	0.05	2.93	<0.02	21.9	10.2	10	1.45	12.6	2.65
F00052509		9.08	0.01	7.80	5.9	800	0.84	0.04	1.94	0.02	23.2	9.2	8	2.70	3.4	2.49
F00052510		10.18	0.01	7.90	3.5	670	0.97	0.03	2.78	<0.02	26.6	9.5	8	2.07	6.6	2.68

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method Analyte Units LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
F00052471		17.30	0.14	0.6	0.037	1.38	8.2	11.7	0.96	441	3.07	3.05	2.3	7.5	680	5.4
F00052472		17.80	0.15	0.6	0.027	1.65	9.9	9.8	1.04	447	7.90	3.27	2.2	7.3	670	3.7
F00052473		18.70	0.20	0.7	0.032	1.54	11.8	8.5	1.00	452	2.97	3.16	2.7	7.8	680	3.7
F00052474		18.70	0.19	0.6	0.038	1.62	10.6	8.9	0.98	464	11.00	3.21	2.5	7.8	670	3.7
F00052475		17.70	0.18	0.6	0.036	1.70	9.9	9.4	1.12	487	3.04	3.25	2.5	8.1	680	3.5
F00052476		17.90	0.22	0.6	0.025	1.57	11.6	9.0	0.98	434	7.04	3.15	2.6	7.8	600	3.5
F00052477		18.35	0.18	0.7	0.030	1.59	10.7	10.1	1.10	527	1.50	3.25	2.5	7.9	720	4.0
F00052478		18.00	0.20	0.6	0.029	1.56	10.2	9.9	1.00	487	0.95	3.18	2.2	7.4	660	3.7
F00052479		18.00	0.19	0.6	0.027	1.55	9.7	9.1	0.95	474	1.29	3.05	2.4	7.3	680	4.0
F00052480		17.80	0.18	0.6	0.031	1.58	9.2	9.8	0.82	451	2.05	3.02	2.4	7.4	650	5.7
F00052481		18.25	0.21	0.6	0.029	1.64	10.0	10.2	0.90	448	1.38	3.08	2.3	7.5	640	4.0
F00052482		17.50	0.18	0.6	0.025	1.61	9.5	9.8	0.91	461	1.62	3.10	2.3	7.4	650	3.8
F00052483		19.05	0.18	0.6	0.028	1.53	9.1	9.6	0.97	324	5.41	2.96	2.3	7.7	670	3.5
F00052484		18.35	0.21	0.7	0.029	1.81	9.2	9.1	0.93	353	9.98	2.59	2.3	7.4	670	4.0
F00052485		18.00	0.21	0.7	0.037	1.62	9.0	10.2	1.03	503	1.04	3.15	2.3	7.4	690	3.3
F00052486		17.45	0.20	0.6	0.028	1.64	8.6	10.4	1.07	507	1.03	3.31	2.2	7.1	720	3.2
F00052487		18.30	0.21	0.6	0.030	1.59	9.3	11.9	1.14	468	1.07	3.25	2.2	7.5	700	3.3
F00052488		18.05	0.21	0.6	0.028	1.59	8.5	9.8	1.09	476	1.59	3.16	2.1	7.5	690	3.3
F00052489		17.85	0.23	0.6	0.026	1.71	8.6	10.5	0.97	415	1.64	3.26	2.2	7.5	710	3.3
F00052490		0.48	0.20	<0.1	<0.005	0.05	0.9	2.0	12.65	142	0.08	0.03	0.1	0.6	30	1.7
F00052491		17.85	0.21	0.6	0.035	1.55	8.8	10.0	1.04	426	1.18	3.17	2.2	7.3	710	3.4
F00052492		17.75	0.21	0.6	0.029	1.61	8.8	9.1	1.07	474	0.96	3.30	2.1	7.3	660	3.6
F00052493		17.90	0.22	0.6	0.028	1.55	9.7	8.3	1.06	534	0.99	3.14	2.2	7.3	690	3.6
F00052494		18.05	0.21	0.7	0.033	1.38	10.3	8.6	1.10	503	0.99	3.22	2.6	7.6	720	3.3
F00052495		18.75	0.20	0.8	0.032	1.37	10.9	9.3	1.15	527	1.01	3.27	2.7	6.7	780	3.6
F00052496		17.95	0.22	0.7	0.032	1.42	10.1	8.2	1.05	451	1.57	3.25	2.3	7.8	700	3.2
F00052497		18.65	0.19	0.7	0.032	1.42	9.9	8.9	1.01	489	1.39	3.15	2.6	8.5	690	3.6
F00052498		20.1	0.14	0.7	0.030	1.48	7.6	8.3	0.53	298	4.60	3.18	2.4	9.9	640	3.7
F00052499		18.95	0.12	0.6	0.043	1.23	7.8	19.6	0.40	539	11.00	2.13	2.5	7.9	660	4.0
F00052500		21.8	0.16	0.7	0.146	1.27	9.3	12.2	0.79	358	2.98	3.33	2.5	7.7	690	3.2
F00052501		16.70	0.16	0.6	1.415	0.70	6.6	19.7	2.50	964	17.40	1.40	3.3	57.6	600	7220
F00052502		20.2	0.10	0.7	0.086	1.34	8.7	14.3	0.96	323	3.45	3.01	2.6	7.9	650	6.2
F00052503		22.2	0.12	0.6	0.191	1.06	10.9	15.4	0.93	412	5.30	2.70	2.4	8.0	640	3.5
F00052504		19.35	0.14	0.7	0.030	1.64	10.8	11.9	1.09	468	1.31	3.11	3.1	8.4	650	4.2
F00052505		19.60	0.12	0.8	0.034	1.78	10.3	9.8	1.18	448	1.32	3.17	2.7	8.7	710	3.9
F00052506		17.75	0.12	0.6	0.030	1.68	8.2	9.7	1.01	380	1.32	2.88	2.2	8.2	600	3.6
F00052507		19.50	0.13	0.8	0.047	1.93	9.9	10.7	1.15	474	5.77	3.15	2.7	10.3	640	4.1
F00052508		18.75	0.12	0.7	0.065	2.24	8.9	12.2	1.09	405	89.3	2.77	2.3	9.9	630	3.4
F00052509		20.5	0.12	0.6	0.042	1.99	10.1	12.0	0.93	277	5.98	3.41	2.4	7.7	680	3.7
F00052510		19.40	0.12	0.7	0.036	1.54	11.2	15.8	0.97	361	4.40	3.31	2.7	8.0	660	4.1

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method / Analyte / Units / LOD	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V
	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Units	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
	LOD	0.1	0.002	0.01	0.05	0.1	1	0.2	0.2	0.05	0.05	0.01	0.005	0.02	0.1	1
F00052471		26.3	0.029	0.01	0.23	7.6	<1	0.6	619	0.14	<0.05	2.22	0.272	0.13	1.6	94
F00052472		37.2	0.071	<0.01	0.22	7.3	<1	0.6	700	0.13	<0.05	2.32	0.276	0.14	1.8	92
F00052473		35.7	0.027	<0.01	0.14	8.4	1	0.7	688	0.16	<0.05	2.77	0.285	0.14	2.3	96
F00052474		37.9	0.078	0.02	0.24	8.0	1	0.6	726	0.15	0.10	2.48	0.282	0.14	1.6	95
F00052475		35.9	0.021	<0.01	0.25	8.0	<1	0.6	654	0.16	<0.05	2.19	0.284	0.15	1.8	97
F00052476		39.9	0.074	<0.01	0.20	7.2	<1	0.6	645	0.18	<0.05	2.66	0.270	0.13	2.1	90
F00052477		34.0	0.004	<0.01	0.21	8.5	<1	0.6	690	0.14	<0.05	2.41	0.294	0.14	2.0	102
F00052478		35.4	0.003	<0.01	0.23	7.6	<1	0.6	672	0.12	<0.05	2.54	0.267	0.14	1.5	90
F00052479		33.4	0.004	<0.01	0.19	7.6	<1	0.6	663	0.14	<0.05	2.31	0.275	0.12	1.9	95
F00052480		32.7	0.004	0.01	0.21	7.8	<1	0.6	649	0.14	<0.05	2.30	0.271	0.13	1.8	94
F00052481		38.0	0.002	<0.01	0.26	7.6	<1	0.6	614	0.13	<0.05	2.64	0.268	0.14	1.3	91
F00052482		32.9	0.003	<0.01	0.20	7.3	1	0.6	642	0.14	<0.05	2.64	0.269	0.13	1.3	90
F00052483		32.8	0.012	<0.01	0.21	7.7	<1	0.6	630	0.12	<0.05	2.44	0.276	0.13	1.9	92
F00052484		42.5	0.138	<0.01	0.79	7.6	1	0.6	568	0.13	<0.05	2.42	0.269	0.16	1.9	92
F00052485		33.9	0.003	<0.01	0.37	7.8	<1	0.6	678	0.13	<0.05	2.33	0.283	0.15	2.1	94
F00052486		35.0	0.004	<0.01	0.30	7.3	<1	0.6	720	0.13	<0.05	2.26	0.294	0.15	1.9	96
F00052487		37.4	0.002	<0.01	0.34	7.7	<1	0.7	692	0.12	<0.05	2.11	0.281	0.14	1.6	93
F00052488		35.9	0.002	<0.01	0.18	7.5	1	0.6	700	0.11	<0.05	2.11	0.287	0.13	1.5	95
F00052489		41.2	0.003	<0.01	0.23	7.3	1	0.7	629	0.12	<0.05	2.22	0.281	0.17	1.6	94
F00052490		2.1	<0.002	<0.01	0.10	0.2	1	<0.2	46.3	<0.05	<0.05	0.33	0.005	0.02	0.1	1
F00052491		33.9	0.005	<0.01	0.22	7.7	<1	0.6	725	0.12	<0.05	2.36	0.285	0.14	1.6	96
F00052492		31.4	0.002	<0.01	0.24	7.6	1	0.6	713	0.12	<0.05	2.34	0.278	0.14	1.3	91
F00052493		36.0	0.003	<0.01	0.15	7.5	<1	0.6	695	0.12	<0.05	2.37	0.276	0.13	1.4	93
F00052494		31.4	0.004	<0.01	0.17	7.9	<1	0.7	689	0.17	<0.05	2.39	0.298	0.13	1.5	97
F00052495		34.0	0.003	<0.01	0.31	8.1	<1	0.7	712	0.18	<0.05	2.70	0.302	0.13	1.4	102
F00052496		28.6	0.010	<0.01	0.19	8.0	1	0.6	709	0.13	<0.05	2.88	0.284	0.12	1.8	94
F00052497		25.5	0.003	<0.01	0.17	8.6	<1	0.7	680	0.16	<0.05	2.64	0.287	0.10	1.7	100
F00052498		44.3	<0.002	<0.01	0.52	7.9	1	0.6	392	0.15	<0.05	2.08	0.272	0.19	1.6	96
F00052499		25.5	0.012	<0.01	1.05	6.5	<1	0.6	588	0.16	<0.05	2.72	0.272	0.14	1.2	92
F00052500		38.4	0.009	<0.01	1.09	8.4	1	0.7	537	0.16	<0.05	2.89	0.276	0.18	2.3	106
F00052501		22.6	0.011	7.83	41.6	22.6	28	12.5	173.0	0.20	0.06	0.92	0.454	2.94	1.5	169
F00052502		32.8	0.014	0.01	1.03	7.3	<1	0.5	685	0.16	<0.05	3.08	0.278	0.16	1.9	97
F00052503		37.1	0.024	<0.01	1.93	8.2	<1	0.6	673	0.14	<0.05	2.89	0.269	0.15	2.4	116
F00052504		37.0	0.004	<0.01	0.25	7.8	<1	0.6	630	0.22	<0.05	2.84	0.292	0.16	2.0	99
F00052505		37.9	0.004	<0.01	0.22	8.6	<1	0.6	656	0.17	<0.05	3.56	0.284	0.14	2.1	103
F00052506		37.9	0.003	<0.01	0.26	7.2	<1	0.5	583	0.12	<0.05	3.13	0.265	0.16	1.8	88
F00052507		43.9	0.028	<0.01	0.27	8.8	<1	0.6	607	0.17	<0.05	5.79	0.297	0.18	2.4	104
F00052508		50.7	0.419	0.01	0.65	8.1	1	0.6	571	0.15	<0.05	4.85	0.282	0.19	2.2	101
F00052509		51.1	0.011	0.01	0.68	7.9	<1	0.6	420	0.15	<0.05	7.17	0.289	0.19	2.1	92
F00052510		39.2	0.017	<0.01	0.66	7.7	<1	0.6	529	0.25	<0.05	11.30	0.301	0.15	2.6	96

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method Analyte Units LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	Cu-OG62 Cu % 0.001	Zn-OG62 Zn % 0.001	Au-ICP21 Au ppm 0.001
F00052471		0.7	8.3	50	9.2			<0.001
F00052472		0.3	8.6	41	9.1			<0.001
F00052473		0.2	10.8	43	9.7			<0.001
F00052474		0.3	9.5	40	9.1	0.064		0.007
F00052475		0.3	10.3	42	9.0			<0.001
F00052476		0.2	11.2	40	8.4			<0.001
F00052477		0.2	11.0	51	9.4			<0.001
F00052478		0.2	9.3	45	8.9			<0.001
F00052479		0.5	8.9	48	8.9			<0.001
F00052480		0.5	8.5	55	8.9			0.001
F00052481		0.3	8.4	49	9.0			<0.001
F00052482		0.2	8.4	45	9.0			<0.001
F00052483		0.4	6.9	37	8.7			<0.001
F00052484		0.6	8.0	40	9.5			0.001
F00052485		0.5	9.7	38	9.2			<0.001
F00052486		0.6	8.7	39	8.7			<0.001
F00052487		0.4	8.7	38	8.7			<0.001
F00052488		1.7	8.0	42	8.7			0.001
F00052489		0.6	8.1	36	8.7			<0.001
F00052490		0.1	0.5	5	1.7			0.002
F00052491		0.7	8.6	37	9.1			<0.001
F00052492		0.3	8.7	38	8.6			<0.001
F00052493		0.3	9.0	44	8.3			<0.001
F00052494		0.3	10.5	41	9.7			<0.001
F00052495		0.2	10.8	42	11.5			<0.001
F00052496		0.3	10.0	37	9.7			<0.001
F00052497		0.3	11.4	42	10.0			<0.001
F00052498		0.7	9.0	33	10.7			<0.001
F00052499		0.7	8.0	32	9.1			<0.001
F00052500		0.8	9.4	25	9.7			<0.001
F00052501		26.8	18.8	>10000	15.6	0.598	3.16	0.052
F00052502		0.9	9.0	39	9.8			<0.001
F00052503		0.7	10.1	23	8.6			<0.001
F00052504		0.4	12.0	42	10.1			<0.001
F00052505		0.5	10.7	39	10.4			<0.001
F00052506		0.5	8.5	31	8.9			<0.001
F00052507		0.5	10.9	39	11.8			<0.001
F00052508		1.1	9.2	30	10.5			<0.001
F00052509		1.0	7.6	27	9.4			
F00052510		1.5	9.8	29	9.5			

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
F00052511		10.24	0.20	7.92	6.0	750	0.94	0.32	3.08	0.03	24.5	10.8	10	2.66	328	2.96
F00052512		10.10	<0.01	7.32	8.5	480	1.02	0.04	3.26	0.02	18.35	9.8	7	3.37	3.7	2.82
F00052513		9.88	0.01	7.76	5.0	770	0.92	0.03	3.12	0.05	19.80	12.2	11	1.86	9.2	3.11
F00052514		10.26	0.01	8.03	4.3	500	0.87	0.02	3.06	<0.02	23.3	10.5	8	1.48	4.5	2.87
F00052515		9.98	<0.01	8.02	2.6	650	0.90	0.02	3.07	<0.02	22.5	9.7	16	1.26	5.8	2.80
F00052516		9.62	0.01	7.99	3.8	790	1.05	0.01	3.59	<0.02	28.6	11.1	14	0.90	7.1	3.07
F00052517		0.74	0.08	7.50	6.9	760	0.91	0.05	3.35	0.12	24.3	14.7	53	1.44	49.3	4.00
F00052518		9.62	0.01	7.92	2.5	1050	1.09	0.01	3.16	<0.02	29.7	11.6	13	0.89	4.3	3.10
F00052519		10.94	<0.01	7.98	1.3	700	1.10	0.01	2.94	<0.02	22.6	9.5	13	0.84	8.2	2.90
F00052520		10.28	0.01	8.06	2.1	1000	1.09	0.01	3.01	<0.02	26.7	10.1	10	1.06	9.0	2.91
F00052521		9.52	0.04	8.13	2.2	800	0.98	0.08	3.28	<0.02	30.5	12.0	9	1.33	73.3	4.17
F00052522		9.06	0.09	7.97	2.3	830	0.88	0.13	3.11	<0.02	29.3	10.0	10	1.48	173.5	2.76
F00052523		9.80	0.10	6.82	4.3	1850	0.80	0.14	3.77	<0.02	20.6	9.7	9	2.15	195.0	2.76
F00052524		10.46	0.01	7.33	5.1	1130	0.85	0.02	2.62	<0.02	25.2	8.1	9	2.29	10.5	2.32
F00052525		9.82	0.01	7.18	3.8	1070	0.85	0.04	2.88	<0.02	25.3	9.6	9	2.88	13.5	2.53
F00052526		10.62	0.02	7.75	2.5	1130	0.99	0.02	3.21	<0.02	22.8	10.3	9	1.94	12.3	2.67
F00052527		9.50	<0.01	7.95	2.1	570	1.06	0.01	2.65	<0.02	24.8	8.6	9	1.69	2.6	2.56
F00052528		9.66	0.01	7.66	2.7	940	1.05	0.02	2.69	0.03	31.1	9.9	10	1.63	13.8	2.66

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
F00052511		18.95	0.15	0.7	0.033	1.95	10.3	17.6	0.68	376	3.23	2.96	2.7	10.4	630	4.5
F00052512		19.15	0.10	0.6	0.032	1.75	7.4	25.1	0.82	435	3.96	1.97	2.1	8.4	660	3.4
F00052513		19.60	0.12	0.6	0.030	1.69	8.6	17.2	1.05	467	1.41	3.21	2.1	9.9	630	5.6
F00052514		19.50	0.13	0.6	0.058	1.30	10.1	16.5	1.00	393	1.41	3.48	2.3	8.8	660	3.5
F00052515		18.50	0.14	0.6	0.025	1.59	9.5	16.4	1.06	425	1.89	3.57	2.4	8.6	640	3.2
F00052516		19.40	0.14	0.7	0.031	1.21	12.2	10.6	1.04	458	2.27	3.33	2.9	10.4	740	3.7
F00052517		16.85	0.12	1.6	0.041	1.65	11.0	13.0	1.25	678	0.99	2.81	4.9	23.6	990	6.0
F00052518		19.90	0.15	0.7	0.034	1.32	12.3	11.3	1.17	449	1.80	3.37	3.0	10.7	700	3.6
F00052519		18.95	0.12	0.7	0.022	1.57	9.2	9.8	1.01	402	2.11	3.38	2.5	7.8	630	3.5
F00052520		20.1	0.15	0.6	0.023	1.59	10.9	11.7	1.00	424	2.03	3.38	2.9	8.0	640	3.9
F00052521		20.0	0.15	0.9	0.033	1.83	12.8	13.2	1.12	540	3.27	3.18	3.4	7.2	870	3.9
F00052522		18.90	0.14	0.7	0.026	1.46	12.1	10.6	0.80	397	2.12	3.25	3.0	8.3	630	4.0
F00052523		18.90	0.12	0.5	0.022	1.09	8.3	11.9	0.60	429	9.05	2.96	2.4	7.0	1030	3.6
F00052524		17.75	0.13	0.6	0.024	1.79	10.7	12.7	0.75	323	18.95	2.86	2.4	6.6	510	3.8
F00052525		17.85	0.16	0.6	0.025	1.67	9.6	13.4	0.85	381	2.62	2.97	2.7	7.4	560	4.0
F00052526		19.50	0.14	0.6	0.041	1.59	9.3	15.4	0.84	396	6.69	3.27	2.4	7.8	650	3.6
F00052527		19.45	0.13	0.6	0.028	1.37	9.6	14.9	1.03	401	1.55	3.83	2.7	6.5	650	3.8
F00052528		19.55	0.17	0.6	0.033	1.76	12.3	14.3	1.07	417	9.82	3.34	3.2	8.0	600	4.1

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
F00052511		51.6	0.003	0.01	0.96	8.9	<1	0.6	544	0.30	0.16	5.05	0.303	0.19	1.8	105
F00052512		43.3	0.002	<0.01	0.99	7.2	<1	0.5	696	0.10	<0.05	1.87	0.259	0.19	1.0	95
F00052513		37.6	0.002	<0.01	0.53	9.0	<1	0.5	537	0.10	<0.05	1.90	0.276	0.15	1.1	101
F00052514		34.1	0.005	<0.01	0.77	8.8	<1	0.6	417	0.13	<0.05	2.31	0.276	0.15	1.7	103
F00052515		36.3	0.002	<0.01	0.35	7.7	<1	0.5	524	0.13	<0.05	2.00	0.264	0.14	1.2	95
F00052516		31.2	0.002	<0.01	0.24	9.9	<1	0.7	622	0.16	<0.05	2.61	0.311	0.13	1.5	109
F00052517		39.0	<0.002	0.01	1.35	13.8	<1	0.8	520	0.31	<0.05	2.41	0.399	0.23	1.0	142
F00052518		36.2	0.008	0.01	0.28	9.5	<1	0.7	619	0.18	<0.05	2.53	0.314	0.16	1.6	106
F00052519		37.2	0.007	<0.01	0.17	7.6	<1	0.6	579	0.15	<0.05	2.05	0.281	0.17	1.4	96
F00052520		40.4	0.008	<0.01	0.16	8.4	<1	0.6	579	0.19	<0.05	2.27	0.276	0.17	1.4	94
F00052521		43.9	0.039	<0.01	0.22	9.5	<1	0.8	631	0.22	<0.05	2.92	0.369	0.17	1.9	137
F00052522		37.5	0.007	0.01	0.21	8.2	<1	0.6	544	0.19	<0.05	3.01	0.303	0.13	1.6	97
F00052523		27.0	0.037	0.04	0.27	6.6	<1	0.6	510	0.13	<0.05	1.70	0.281	0.13	1.2	100
F00052524		44.0	0.066	0.01	0.38	6.5	<1	0.5	521	0.17	<0.05	2.53	0.244	0.16	1.2	81
F00052525		37.1	0.003	<0.01	0.37	7.0	1	0.6	527	0.20	<0.05	2.58	0.263	0.16	1.1	85
F00052526		35.0	0.026	0.01	0.32	7.9	<1	0.5	547	0.14	<0.05	2.55	0.275	0.16	1.3	89
F00052527		35.7	0.004	<0.01	0.34	7.5	<1	0.5	487	0.20	<0.05	2.22	0.257	0.17	1.2	85
F00052528		39.7	0.041	<0.01	0.27	8.7	1	0.6	543	0.25	<0.05	3.07	0.282	0.17	1.4	91

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS VA20298355

Sample Description	Method / Analyte / Units / LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	Cu-OG62 Cu % 0.001	Zn-OG62 Zn % 0.001	Au-ICP21 Au ppm 0.001
F00052511		1.5	9.6	41	9.4			
F00052512		2.5	8.2	33	8.5			
F00052513		0.9	8.9	48	7.9			
F00052514		0.7	9.2	36	8.7			
F00052515		0.3	8.9	34	8.3			
F00052516		0.4	11.5	34	9.4			
F00052517		0.5	14.5	66	56.6			
F00052518		0.3	12.1	32	9.5			
F00052519		0.2	9.3	30	9.1			
F00052520		0.3	10.6	32	9.4			
F00052521		0.5	12.5	42	11.4			
F00052522		0.8	10.8	34	7.9			
F00052523		0.7	7.9	31	7.3			
F00052524		2.2	8.9	28	10.0			
F00052525		1.5	10.5	33	7.6			
F00052526		0.6	10.4	31	8.6			
F00052527		0.4	10.5	27	8.3			
F00052528		0.8	12.2	36	8.1			

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 10-MAR-2021
Account: HACMIN

Project: Highland Valley (Z2)

CERTIFICATE OF ANALYSIS   VA20298355

CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

REEs may not be totally soluble in this method.

Applies to Method: ME-MS61

LABORATORY ADDRESSES

Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.

Applies to Method:

Au-ICP21	CRU-31	CRU-QC	Cu-OG62
LOG-21	LOG-23	ME-MS61	ME-OG62
PUL-31	PUL-QC	SPL-21	WEI-21
Zn-OG62			

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 1-MAR-2021
Account: HACMIN

CERTIFICATE VA21009577

Project: Highland Valley P1M-Z1

This report is for 141 samples of Drill Core submitted to our lab in Vancouver, BC, Canada on 3-DEC-2020.

The following have access to data associated with this certificate:

DAVID BLANN	SASSAN LIAGHAT	

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-21	Sample logging - ClientBarCode
CRU-31	Fine crushing - 70% <2mm
SPL-21	Split sample - riffle splitter
PUL-31	Pulverize up to 250g 85% <75 um
LOG-23	Pulp Login - Rcvd with Barcode
CRU-QC	Crushing QC Test
PUL-QC	Pulverizing QC Test

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-OG62	Ore Grade Elements - Four Acid	ICP-AES
Cu-OG62	Ore Grade Cu - Four Acid	
ME-MS61	48 element four acid ICP-MS	

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:
Saa Traxler, General Manager, North Vancouver

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 1-MAR-2021
Account: HACMIN

Project: Highland Valley P1M-Z1

CERTIFICATE OF ANALYSIS VA21009577

Sample Description	Method / Analyte / Units / LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
F00051977		5.42	0.01	7.44	1.4	570	0.73	0.02	2.79	<0.02	14.10	3.2	11	0.39	2.3	1.58
F00051978		5.36	0.04	7.52	1.2	640	0.93	0.03	2.88	0.02	13.20	3.3	12	0.46	6.5	1.41
F00051979		5.08	0.08	5.70	0.9	890	0.98	0.04	3.84	0.02	8.83	3.2	10	1.22	28.6	1.30
F00051980		1.10	0.01	0.05	<0.2	10	<0.05	0.01	35.4	<0.02	0.22	1.1	1	<0.05	2.4	0.04
F00051981		5.02	0.02	7.25	0.6	800	0.75	0.02	2.91	<0.02	11.80	2.7	15	0.81	17.6	1.33
F00051982		5.52	0.04	7.45	0.5	1000	0.73	0.02	2.67	<0.02	14.60	3.4	11	0.59	31.6	1.61
F00051983		6.20	0.05	7.44	0.9	910	0.84	0.03	2.78	0.02	16.25	4.1	12	0.45	29.8	1.96
F00051984		4.76	0.02	7.74	1.2	940	0.85	0.02	2.51	<0.02	16.55	3.5	10	0.35	9.3	1.62
F00051985		7.28	0.01	7.35	0.9	650	0.84	0.02	2.68	0.02	16.00	3.7	14	0.46	5.5	1.62
F00051986		3.96	0.02	7.50	1.0	930	0.85	0.02	2.40	<0.02	15.10	3.3	10	0.40	7.2	1.57
F00051987		4.78	0.02	7.54	1.3	950	0.85	0.02	2.30	<0.02	16.55	3.4	10	0.50	8.5	1.58
F00051988		4.98	0.02	7.24	1.0	860	0.81	0.01	2.58	<0.02	13.90	3.3	9	0.48	10.3	1.60
F00051989		4.58	0.02	7.69	0.7	850	0.84	0.02	2.54	<0.02	15.40	3.5	9	0.57	6.4	1.62
F00051990		6.66	0.01	7.48	1.0	1110	0.80	0.02	2.34	<0.02	14.50	3.3	9	0.57	6.3	1.61
F00051991		Not Recvd														
F00051992		Not Recvd														
F00051993		Not Recvd														
F00051994		Not Recvd														
F00051995		Not Recvd														
F00051996		Not Recvd														
F00051997		Not Recvd														
F00051998		Not Recvd														
F00051999		Not Recvd														
F00052000		Not Recvd														
F00052001		9.18	0.10	7.26	0.3	1190	0.94	0.03	3.37	0.04	11.90	4.3	16	1.28	124.5	1.92
F00052002		7.30	0.02	6.80	0.9	1150	0.89	0.01	3.30	0.03	12.30	4.2	10	1.20	24.6	1.78
F00052003		7.14	0.15	6.46	0.5	2150	0.87	0.03	3.82	0.04	11.05	4.8	8	1.85	184.5	1.89
F00052004		7.22	0.18	6.85	0.5	840	0.92	0.12	2.79	0.06	10.05	4.4	15	1.14	185.0	1.80
F00052005		6.98	0.05	7.56	0.7	1160	0.92	0.04	2.32	0.05	13.85	4.8	14	1.02	53.2	1.86
F00052006		7.28	0.08	7.57	1.0	720	0.99	0.03	2.38	0.05	10.35	4.9	11	1.27	53.5	1.83
F00052007		7.58	0.05	6.13	1.0	1380	1.01	0.04	3.75	0.10	7.87	4.7	14	1.69	38.1	1.70
F00052008		9.56	0.03	6.33	0.5	1060	0.91	0.02	3.79	0.08	10.90	4.1	15	1.58	22.6	1.92
F00052009		8.24	0.10	6.52	0.8	950	1.04	0.08	3.57	0.11	8.84	4.6	13	1.47	98.8	1.76
F00052010		9.00	0.02	6.90	0.7	1080	1.06	0.02	2.68	0.04	9.11	3.1	16	1.37	12.5	1.23
F00052011		10.14	0.05	7.52	0.7	840	0.94	0.02	2.10	<0.02	10.55	2.2	10	0.83	57.4	1.01
F00052012		7.72	0.06	6.98	0.6	800	0.95	0.03	2.41	0.03	10.10	2.5	19	1.01	56.4	1.14
F00052013		7.82	0.07	7.24	0.8	1030	1.07	0.05	2.90	0.06	12.75	4.9	17	1.54	70.0	1.65
F00052014		7.64	0.02	7.25	0.9	850	1.01	0.02	2.89	0.04	11.40	3.8	11	1.14	15.1	1.42
F00052015		8.48	0.02	7.13	0.9	800	0.96	0.01	2.71	0.02	12.85	4.4	12	1.17	10.2	1.70
F00052016		8.02	0.31	5.90	1.0	930	0.90	0.09	3.90	0.06	8.34	3.6	13	1.61	309	1.42

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 1-MAR-2021
Account: HACMIN

Project: Highland Valley P1M-Z1

CERTIFICATE OF ANALYSIS VA21009577

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
F00051977		16.85	0.08	0.4	0.014	0.90	6.5	9.1	0.32	427	0.76	3.56	1.7	2.0	460	4.3
F00051978		17.50	0.09	0.5	0.014	0.97	5.7	15.3	0.34	382	0.98	3.42	1.4	1.8	370	3.8
F00051979		19.10	0.10	0.5	0.017	1.97	3.7	16.4	0.20	559	3.53	1.63	1.3	1.6	370	2.9
F00051980		0.21	0.19	<0.1	<0.005	0.01	<0.5	0.4	1.70	21	0.11	0.01	<0.1	0.4	30	<0.5
F00051981		16.15	0.18	0.5	0.013	1.52	5.4	7.1	0.27	584	1.33	2.99	1.3	1.5	380	2.8
F00051982		17.45	0.14	0.4	0.014	1.40	6.7	6.4	0.33	530	1.13	3.30	1.7	1.9	440	3.8
F00051983		18.75	0.12	0.6	0.017	1.60	7.7	7.9	0.45	585	0.82	3.45	2.1	2.0	510	4.8
F00051984		18.40	0.14	0.5	0.014	1.41	8.0	7.4	0.36	481	0.78	3.52	1.8	1.9	490	4.6
F00051985		17.60	0.12	0.5	0.015	1.08	7.7	10.0	0.38	454	0.96	3.47	1.8	1.9	470	3.9
F00051986		17.25	0.12	0.5	0.012	1.43	6.9	9.9	0.36	463	0.69	3.51	1.7	1.6	460	4.0
F00051987		15.85	0.12	0.4	0.014	1.45	7.8	9.6	0.38	486	0.89	3.51	1.9	1.6	480	4.2
F00051988		16.15	0.11	0.3	0.012	1.22	5.9	13.3	0.35	471	0.73	3.37	1.7	1.7	450	3.9
F00051989		16.95	0.12	0.4	0.015	1.35	6.9	29.0	0.38	482	0.72	3.51	1.8	1.8	470	3.8
F00051990		16.55	0.11	0.4	0.013	1.60	7.6	12.2	0.36	474	0.68	3.47	1.7	1.7	460	4.4
F00051991																
F00051992																
F00051993																
F00051994																
F00051995																
F00051996																
F00051997																
F00051998																
F00051999																
F00052000																
F00052001		17.35	0.14	0.6	0.033	2.60	5.0	9.1	0.38	935	1.23	1.78	1.6	2.7	520	4.6
F00052002		16.65	0.12	0.6	0.017	2.42	4.8	9.4	0.34	803	0.90	1.98	1.7	3.4	500	5.0
F00052003		18.05	0.14	0.5	0.037	3.00	4.5	8.5	0.35	1220	0.69	1.24	1.4	2.5	500	4.0
F00052004		18.80	0.12	0.6	0.031	2.70	4.4	6.1	0.30	929	4.61	1.73	1.4	2.6	490	4.5
F00052005		18.00	0.13	0.6	0.021	1.84	6.8	8.8	0.43	632	1.67	2.98	1.5	2.9	540	4.4
F00052006		18.60	0.10	0.6	0.032	2.25	5.1	9.7	0.45	676	12.65	2.59	1.2	4.7	500	6.5
F00052007		18.55	0.10	0.6	0.020	3.13	3.6	9.3	0.26	921	9.40	0.99	1.5	2.9	450	6.7
F00052008		18.20	0.11	0.7	0.034	3.39	4.7	7.9	0.28	1150	1.28	0.84	1.6	3.1	700	5.9
F00052009		18.35	0.11	0.7	0.018	2.59	4.2	9.3	0.35	860	32.2	1.88	1.5	2.7	470	6.0
F00052010		17.70	0.09	0.9	0.017	2.08	4.6	10.4	0.26	481	2.31	2.39	1.5	2.3	290	8.4
F00052011		17.50	0.10	0.7	0.012	1.50	5.4	9.0	0.24	376	0.76	3.68	1.4	1.8	230	5.1
F00052012		17.00	0.09	0.9	0.016	1.86	5.7	8.7	0.25	496	1.38	2.86	1.5	2.1	250	4.2
F00052013		19.05	0.11	1.0	0.027	2.22	5.9	13.0	0.39	648	1.28	2.62	2.4	3.1	320	6.3
F00052014		18.75	0.08	0.8	0.021	1.87	5.6	10.0	0.31	546	0.85	3.06	2.0	2.5	300	5.7
F00052015		18.00	0.11	0.7	0.026	1.77	5.9	10.4	0.37	539	0.89	2.83	2.0	3.6	460	6.8
F00052016		17.45	0.08	0.6	0.031	2.88	3.7	9.0	0.21	771	1.66	1.29	1.8	2.2	410	5.5

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 1-MAR-2021
Account: HACMIN

Project: Highland Valley P1M-Z1

CERTIFICATE OF ANALYSIS VA21009577

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
F00051977		15.2	<0.002	0.01	1.00	2.7	<1	0.4	690	0.11	<0.05	1.17	0.142	0.06	0.6	42
F00051978		17.1	<0.002	0.01	2.00	2.8	<1	0.4	699	0.10	<0.05	1.00	0.123	0.07	0.6	37
F00051979		33.6	0.010	0.01	2.04	2.2	<1	0.3	383	0.09	<0.05	0.91	0.111	0.18	0.5	38
F00051980		0.3	<0.002	0.10	<0.05	0.2	1	<0.2	4230	<0.05	<0.05	0.02	<0.005	<0.02	1.2	1
F00051981		28.7	<0.002	<0.01	0.95	2.4	<1	0.3	496	0.10	<0.05	1.17	0.110	0.12	0.6	34
F00051982		26.2	0.002	0.01	0.62	2.9	<1	0.3	607	0.12	<0.05	0.96	0.142	0.09	0.6	43
F00051983		26.5	<0.002	0.01	0.40	3.9	<1	0.4	671	0.14	<0.05	1.33	0.176	0.09	0.8	53
F00051984		25.2	<0.002	0.01	0.33	3.2	<1	0.3	666	0.14	<0.05	1.22	0.146	0.09	0.8	42
F00051985		18.2	<0.002	0.01	0.79	3.0	<1	0.3	655	0.13	<0.05	1.17	0.151	0.06	0.7	42
F00051986		22.8	<0.002	0.01	0.22	2.9	<1	0.3	629	0.12	<0.05	1.26	0.142	0.08	0.7	42
F00051987		25.6	<0.002	0.02	0.25	3.0	<1	0.3	547	0.14	<0.05	1.24	0.153	0.09	0.7	43
F00051988		21.1	<0.002	0.02	0.59	2.7	<1	0.3	627	0.11	<0.05	0.98	0.141	0.07	0.6	43
F00051989		26.4	<0.002	0.02	0.34	3.0	<1	0.3	599	0.12	<0.05	1.00	0.150	0.09	0.7	44
F00051990		28.0	<0.002	0.01	0.17	3.0	<1	0.3	646	0.11	<0.05	1.30	0.146	0.10	0.7	42
F00051991																
F00051992																
F00051993																
F00051994																
F00051995																
F00051996																
F00051997																
F00051998																
F00051999																
F00052000																
F00052001		57.7	<0.002	0.02	1.16	3.6	1	0.4	290	0.10	<0.05	1.22	0.159	0.24	0.6	52
F00052002		46.0	0.002	0.02	1.28	3.3	<1	0.4	273	0.13	<0.05	0.96	0.167	0.22	0.6	53
F00052003		67.7	<0.002	0.05	1.44	3.5	<1	0.4	206	0.09	<0.05	1.01	0.151	0.31	0.8	51
F00052004		57.7	<0.002	0.02	1.33	3.4	1	0.3	227	0.08	<0.05	1.37	0.156	0.25	0.8	51
F00052005		41.9	<0.002	0.03	0.83	3.9	<1	0.3	462	0.08	<0.05	1.69	0.166	0.15	0.9	53
F00052006		46.2	<0.002	0.01	1.31	3.7	<1	0.4	426	0.07	<0.05	1.48	0.159	0.22	0.7	49
F00052007		52.7	0.004	0.03	2.33	2.8	<1	0.4	171.0	0.08	<0.05	1.10	0.145	0.34	0.9	46
F00052008		65.7	<0.002	0.01	1.99	3.3	<1	0.4	149.0	0.10	<0.05	0.85	0.166	0.40	0.6	58
F00052009		42.3	0.005	0.02	1.72	3.0	1	0.4	251	0.09	<0.05	1.47	0.149	0.29	0.8	47
F00052010		38.2	0.002	0.02	1.79	2.3	<1	0.3	316	0.10	<0.05	1.67	0.104	0.21	0.7	30
F00052011		25.7	0.002	0.01	0.66	2.0	<1	0.3	529	0.10	<0.05	1.80	0.083	0.12	0.8	22
F00052012		35.2	0.002	0.01	0.93	2.1	<1	0.3	353	0.10	<0.05	2.04	0.092	0.18	0.8	26
F00052013		37.9	0.004	0.02	2.08	3.2	1	0.5	288	0.15	<0.05	1.59	0.169	0.21	0.7	43
F00052014		32.3	<0.002	0.01	1.27	2.7	<1	0.4	385	0.15	<0.05	1.96	0.133	0.19	0.9	35
F00052015		32.7	<0.002	0.01	1.02	3.4	<1	0.4	428	0.14	<0.05	1.28	0.157	0.17	0.8	46
F00052016		47.6	0.003	0.03	2.38	2.6	1	0.4	216	0.12	<0.05	0.99	0.147	0.26	0.9	43

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 1-MAR-2021
Account: HACMIN

Project: Highland Valley P1M-Z1

CERTIFICATE OF ANALYSIS VA21009577

Sample Description	Method / Analyte / Units / LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	Cu-OG62 Cu % 0.001
F00051977		0.2	4.2	38	5.9	
F00051978		0.3	4.0	43	8.1	
F00051979		0.4	3.0	30	7.3	
F00051980		<0.1	0.3	4	<0.5	
F00051981		0.1	3.8	31	7.2	
F00051982		0.2	4.8	38	5.8	
F00051983		0.1	6.1	53	8.2	
F00051984		0.1	5.3	42	7.7	
F00051985		0.1	5.2	51	6.3	
F00051986		0.1	4.9	43	5.9	
F00051987		0.1	5.2	45	5.1	
F00051988		0.1	4.3	42	4.6	
F00051989		0.1	4.8	42	5.3	
F00051990		0.1	4.3	42	5.7	
F00051991						
F00051992						
F00051993						
F00051994						
F00051995						
F00051996						
F00051997						
F00051998						
F00051999						
F00052000						
F00052001		0.4	4.0	45	9.5	
F00052002		0.5	4.7	44	7.5	
F00052003		0.7	4.1	46	8.3	
F00052004		0.6	3.6	52	8.4	
F00052005		0.5	4.4	51	8.9	
F00052006		0.5	3.5	56	9.3	
F00052007		1.0	3.0	57	9.8	
F00052008		0.9	3.9	48	12.1	
F00052009		0.7	3.4	52	11.0	
F00052010		0.3	3.0	37	15.1	
F00052011		0.1	3.4	27	12.7	
F00052012		0.2	3.1	30	16.3	
F00052013		0.4	4.4	54	16.1	
F00052014		0.2	3.9	41	13.4	
F00052015		0.3	4.5	44	11.0	
F00052016		1.3	3.6	37	9.2	

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 1-MAR-2021
Account: HACMIN

Project: Highland Valley P1M-Z1

CERTIFICATE OF ANALYSIS VA21009577

Sample Description	Method / Analyte / Units / LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
F00052017		9.84	0.04	7.52	0.8	1030	1.10	0.03	2.41	0.04	16.40	4.0	10	1.31	29.5	1.62
F00052018		8.94	0.01	6.09	1.4	1270	0.95	0.01	3.31	0.04	10.50	4.5	10	1.35	9.9	1.64
F00052019		0.08	72.3	5.65	63.2	830	0.78	5.82	1.41	0.72	13.05	1.9	359	1.05	7500	1.27
F00052020		8.52	0.10	7.06	1.4	840	1.00	0.05	2.79	0.04	12.15	4.3	15	1.51	35.4	1.74
F00052021		8.94	0.04	7.73	1.2	1080	0.94	0.02	2.58	0.02	16.45	4.6	11	0.96	30.6	1.79
F00052022		8.24	0.02	7.20	0.9	790	0.91	0.02	2.95	0.04	12.30	4.6	14	1.33	6.9	1.79
F00052023		10.72	0.01	7.61	1.0	930	0.91	0.01	2.85	0.02	13.05	5.1	13	1.01	4.4	1.90
F00052024		8.08	0.02	7.69	1.0	980	1.02	0.02	2.62	<0.02	14.05	4.8	12	1.11	24.8	1.87
F00052025		7.96	0.25	6.07	0.6	1340	0.84	0.06	3.72	0.07	9.86	4.5	11	1.44	292	1.83
F00052026		7.10	0.06	6.79	0.7	890	0.91	0.02	3.14	0.05	9.91	4.4	14	1.50	51.8	1.76
F00052027		10.18	0.01	5.49	1.3	7040	0.84	0.02	5.64	0.11	11.30	4.1	14	1.51	3.4	1.55
F00052028		8.28	0.05	6.26	2.5	880	0.94	0.03	3.64	0.07	10.25	4.4	11	1.64	55.2	1.60
F00052029		3.48	0.01	6.86	1.3	1090	1.00	0.01	3.15	0.08	11.55	4.3	13	1.86	6.2	1.71
F00052030		4.08	<0.01	6.91	1.6	1810	1.15	0.02	3.36	0.09	11.75	4.7	13	1.90	4.4	1.86
F00052031		9.80	0.02	5.81	1.4	1130	1.09	0.02	4.06	0.10	9.28	4.8	14	1.70	4.7	1.70
F00052032		7.60	0.04	5.96	1.0	590	1.01	0.04	3.71	0.09	8.09	4.3	12	1.74	37.1	1.65
F00052033		7.16	0.03	7.12	0.9	800	0.86	0.01	2.76	0.02	14.65	4.5	13	1.21	29.1	1.72
F00052034		9.04	0.02	6.56	0.8	740	0.89	0.01	2.86	0.03	11.70	3.9	11	1.33	16.5	1.56
F00052035		7.60	0.01	6.21	1.0	4990	0.91	0.01	3.41	0.04	8.41	4.2	11	1.47	9.2	1.55
F00052036		7.42	0.01	7.71	0.8	1340	0.93	0.01	2.51	<0.02	14.45	4.8	12	0.84	5.9	1.86
F00052037		8.74	0.01	5.71	0.8	1180	0.83	0.01	4.90	0.06	10.55	4.0	10	1.06	14.2	1.66
F00052038		7.00	0.02	7.69	0.8	990	0.96	0.02	2.59	0.03	12.50	5.0	10	1.14	20.3	1.93
F00052039		8.44	0.02	6.97	1.0	890	0.93	0.02	3.23	0.07	10.70	4.9	13	1.12	14.4	1.87
F00052040		0.84	<0.01	0.06	<0.2	10	<0.05	<0.01	36.7	<0.02	0.25	0.4	2	<0.05	0.8	0.04
F00052041		9.32	1.09	6.70	1.7	920	0.90	0.21	3.22	0.05	11.20	4.5	13	1.12	1170	1.76
F00052042		6.52	0.54	6.87	2.2	750	0.88	0.13	1.90	0.04	11.20	1.5	6	0.77	562	0.83
F00052043		7.40	0.02	7.24	2.5	1080	0.97	0.02	1.92	0.02	14.70	2.5	10	0.90	7.7	1.27
F00052044		5.30	0.02	7.21	1.8	820	1.02	0.03	2.62	0.02	16.60	3.6	5	1.09	7.0	1.67
F00052045		8.96	0.02	6.47	2.5	910	0.88	0.02	2.37	0.05	11.65	3.6	11	1.27	6.0	1.35
F00052046		8.82	0.01	7.36	3.3	1080	1.00	0.02	2.49	0.03	14.15	5.0	11	1.43	11.3	1.74
F00052047		9.22	0.02	7.16	2.8	860	0.98	0.01	1.69	0.02	13.25	2.0	10	0.78	16.1	0.88
F00052048		6.22	0.01	7.02	1.3	660	0.88	0.02	1.69	0.04	11.20	1.5	12	0.87	12.8	0.77
F00052049		9.12	0.02	6.49	1.9	1170	0.96	0.03	2.68	0.04	12.60	3.5	13	1.24	4.5	1.47
F00052050		0.06	71.3	5.52	65.6	810	0.75	5.32	1.39	0.66	13.60	1.7	345	1.00	7500	1.24
F00052051		8.84	0.11	7.07	1.4	920	0.93	0.03	2.31	0.03	14.25	3.9	14	1.06	72.8	1.78
F00052052		8.46	0.14	7.07	1.1	3410	0.94	0.04	3.42	0.05	13.50	4.2	11	1.40	132.0	1.71
F00052053		7.32	0.06	6.55	3.3	510	1.03	0.02	2.90	0.05	11.15	3.7	11	1.17	53.0	1.39
F00052054		8.80	0.02	7.50	2.4	640	1.02	0.01	1.99	<0.02	16.80	4.3	12	0.86	8.3	1.45
F00052055		8.26	0.04	6.89	3.2	770	0.84	0.03	2.27	0.02	14.90	3.0	11	0.91	11.1	1.26
F00052056		7.80	0.02	7.15	2.4	630	0.91	0.02	2.33	0.03	14.30	3.7	11	0.99	12.5	1.49

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 1-MAR-2021
Account: HACMIN

Project: Highland Valley P1M-Z1

CERTIFICATE OF ANALYSIS VA21009577

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
F00052017		19.40	0.11	0.6	0.026	1.94	6.9	11.5	0.34	478	3.98	2.93	2.3	2.3	430	5.4
F00052018		17.25	0.08	0.7	0.023	1.85	4.8	11.9	0.65	759	0.94	2.36	1.9	2.3	370	4.6
F00052019		16.70	0.12	0.3	0.046	3.05	6.5	13.8	0.19	275	753	1.29	2.0	6.0	420	123.0
F00052020		18.40	0.08	0.7	0.028	2.18	5.1	11.3	0.30	572	2.05	2.34	2.1	2.8	460	6.7
F00052021		18.60	0.10	0.6	0.024	1.73	7.2	12.2	0.45	548	0.97	3.31	2.1	2.5	460	5.4
F00052022		18.35	0.12	0.6	0.028	2.03	5.6	12.8	0.39	634	1.24	2.57	1.8	3.2	470	5.7
F00052023		18.40	0.08	0.7	0.023	1.62	6.0	13.6	0.48	592	0.96	3.27	1.8	3.0	480	5.0
F00052024		19.10	0.08	0.7	0.023	1.50	6.5	13.9	0.46	548	1.15	3.45	1.9	2.8	500	5.3
F00052025		16.95	0.10	0.6	0.031	2.72	4.1	10.1	0.36	1150	1.12	1.42	1.6	3.0	440	3.8
F00052026		17.90	0.10	0.6	0.035	2.58	4.3	8.1	0.34	795	1.23	1.79	1.7	2.5	470	4.7
F00052027		15.50	0.10	0.5	0.019	2.72	5.2	12.5	0.24	1340	1.16	0.72	1.7	2.1	390	6.5
F00052028		18.35	0.10	0.6	0.029	2.83	4.0	11.3	0.27	932	1.00	1.48	2.1	2.4	460	4.2
F00052029		17.90	0.10	0.6	0.022	2.76	4.7	8.0	0.28	648	1.07	1.62	2.0	3.7	450	4.5
F00052030		18.70	0.11	0.6	0.023	2.77	4.8	8.0	0.31	717	1.03	1.68	2.0	2.9	480	5.3
F00052031		17.70	0.12	0.6	0.025	2.98	3.7	14.9	0.22	853	1.29	0.83	2.0	2.6	440	6.5
F00052032		18.20	0.11	0.6	0.022	2.85	3.2	11.9	0.20	767	15.05	1.16	1.8	3.8	440	5.4
F00052033		18.15	0.11	0.6	0.022	1.82	6.1	9.2	0.36	563	1.55	2.80	2.0	2.8	450	4.6
F00052034		17.20	0.08	0.6	0.021	1.93	4.9	11.1	0.32	562	1.01	2.42	1.9	2.4	420	4.0
F00052035		17.00	0.11	0.6	0.026	2.39	3.7	11.7	0.24	630	0.87	1.73	1.7	2.2	420	4.3
F00052036		19.05	0.10	0.7	0.023	1.57	6.5	12.5	0.48	476	0.85	3.36	1.8	2.6	500	4.8
F00052037		16.85	0.08	0.5	0.024	2.00	4.6	8.8	0.28	933	1.18	2.38	1.8	2.1	440	5.9
F00052038		18.50	0.10	0.5	0.024	1.72	5.6	10.3	0.41	444	1.63	3.08	1.8	2.7	500	5.1
F00052039		18.40	0.10	0.6	0.024	1.95	4.6	7.7	0.34	643	1.38	2.87	1.8	2.9	490	6.4
F00052040		0.16	0.05	<0.1	0.008	0.01	<0.5	0.5	1.69	25	0.13	0.01	<0.1	<0.2	30	<0.5
F00052041		17.45	0.11	0.6	0.026	2.22	4.8	7.1	0.29	870	1.15	2.34	1.9	2.4	480	5.2
F00052042		15.35	0.08	1.0	0.010	1.91	5.9	8.9	0.21	372	0.90	2.83	1.6	1.4	130	5.6
F00052043		16.45	0.08	1.0	0.014	2.03	7.4	6.8	0.20	307	1.35	3.25	1.9	1.7	330	5.2
F00052044		16.60	0.10	0.8	0.020	1.78	6.9	12.8	0.45	653	0.87	2.53	2.3	1.7	390	5.5
F00052045		15.55	0.09	0.9	0.014	2.17	5.3	17.4	0.39	511	1.03	1.57	1.7	1.9	250	4.9
F00052046		17.85	0.09	0.8	0.023	1.89	6.1	10.3	0.51	580	2.28	2.94	2.3	2.6	320	6.2
F00052047		15.85	0.10	1.0	0.009	2.03	8.1	7.1	0.31	304	0.84	3.03	1.5	1.4	150	4.8
F00052048		15.80	0.10	1.1	0.007	1.82	6.6	6.9	0.16	249	0.91	3.06	1.3	1.3	120	4.5
F00052049		16.05	0.09	1.0	0.017	2.34	5.8	9.1	0.34	530	1.21	2.11	2.1	1.9	350	7.1
F00052050		15.00	0.08	0.2	0.043	2.94	6.1	13.4	0.18	267	738	1.25	1.8	5.4	420	119.0
F00052051		16.15	0.09	0.8	0.020	2.08	6.3	7.5	0.33	595	1.54	2.68	1.8	2.2	450	4.1
F00052052		18.05	0.10	0.7	0.035	2.91	5.5	7.8	0.32	981	1.12	1.84	2.0	3.2	470	4.1
F00052053		16.25	0.10	0.9	0.019	2.11	5.0	9.7	0.25	557	1.13	2.32	1.9	2.0	320	3.9
F00052054		17.35	0.08	0.9	0.020	1.64	9.1	11.0	0.42	530	0.98	3.58	2.3	2.6	250	4.9
F00052055		15.55	0.09	0.9	0.015	1.58	7.1	10.9	0.43	480	1.00	3.12	1.5	1.8	280	5.0
F00052056		16.70	0.10	0.8	0.015	1.75	6.5	7.4	0.34	459	0.95	3.06	1.8	1.9	390	4.2

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 1-MAR-2021
Account: HACMIN

Project: Highland Valley P1M-Z1

CERTIFICATE OF ANALYSIS VA21009577

Sample Description	Method Analyte Units LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
F00052017		36.4	<0.002	0.02	1.34	3.3	<1	0.4	486	0.17	<0.05	1.48	0.153	0.19	0.9	42
F00052018		30.0	0.003	0.03	1.58	2.8	<1	0.4	383	0.14	<0.05	1.12	0.132	0.18	0.7	37
F00052019		46.5	0.072	0.83	167.5	1.6	2	1.8	367	0.08	0.73	0.92	0.078	0.24	1.0	37
F00052020		37.3	<0.002	0.02	2.15	3.5	1	0.5	406	0.15	<0.05	1.28	0.162	0.24	0.8	49
F00052021		29.3	0.003	0.01	0.78	3.9	<1	0.5	583	0.15	<0.05	1.71	0.161	0.16	1.0	48
F00052022		36.7	<0.002	0.01	1.38	3.6	<1	0.4	431	0.13	<0.05	1.35	0.163	0.21	0.9	49
F00052023		30.3	<0.002	0.01	0.83	3.9	<1	0.4	561	0.12	<0.05	1.60	0.174	0.14	0.9	51
F00052024		27.2	<0.002	0.02	1.05	4.0	1	0.5	617	0.14	<0.05	1.63	0.172	0.15	0.9	52
F00052025		49.6	<0.002	0.03	1.62	2.9	<1	0.4	263	0.11	<0.05	1.08	0.142	0.33	0.7	47
F00052026		47.1	<0.002	0.01	1.66	3.3	1	0.4	264	0.13	<0.05	1.17	0.158	0.27	0.7	49
F00052027		43.9	<0.002	0.20	3.06	2.6	<1	0.4	482	0.12	<0.05	0.84	0.141	0.29	0.8	41
F00052028		46.7	<0.002	0.02	2.60	3.0	1	0.5	236	0.16	<0.05	0.75	0.161	0.30	0.6	48
F00052029		48.6	0.002	0.03	2.05	3.3	1	0.5	240	0.14	<0.05	1.01	0.162	0.31	0.7	51
F00052030		46.8	<0.002	0.04	1.88	3.3	<1	0.4	285	0.15	<0.05	1.11	0.170	0.30	0.7	51
F00052031		49.1	<0.002	0.03	3.67	2.8	1	0.4	230	0.14	<0.05	0.95	0.161	0.31	0.7	49
F00052032		44.6	0.004	0.01	2.54	2.8	1	0.4	257	0.13	<0.05	0.84	0.160	0.32	0.6	49
F00052033		34.0	0.003	0.01	1.03	3.4	<1	0.5	497	0.17	<0.05	1.42	0.162	0.16	0.7	48
F00052034		33.9	<0.002	0.01	1.55	3.0	<1	0.4	459	0.15	<0.05	1.18	0.150	0.19	0.7	45
F00052035		40.5	<0.002	0.12	2.18	2.9	<1	0.4	397	0.11	<0.05	0.92	0.149	0.27	0.7	45
F00052036		26.1	0.002	0.01	0.49	3.8	<1	0.4	702	0.13	<0.05	1.42	0.167	0.15	0.8	50
F00052037		31.7	0.004	0.02	1.27	2.8	<1	0.4	480	0.13	<0.05	1.06	0.153	0.20	0.7	47
F00052038		30.7	<0.002	0.01	0.84	3.8	<1	0.4	593	0.12	<0.05	1.43	0.168	0.17	0.8	52
F00052039		31.3	0.002	0.01	1.32	3.4	<1	0.4	442	0.13	<0.05	1.22	0.170	0.17	0.7	52
F00052040		0.3	<0.002	0.08	<0.05	0.2	1	<0.2	4280	<0.05	<0.05	0.02	<0.005	0.02	1.4	<1
F00052041		41.9	<0.002	0.05	1.15	3.3	<1	0.5	420	0.13	<0.05	1.56	0.160	0.21	1.2	48
F00052042		38.5	0.003	0.02	0.62	1.5	1	0.2	335	0.11	<0.05	2.21	0.070	0.15	1.7	15
F00052043		32.6	<0.002	0.01	0.64	2.7	1	0.4	416	0.13	<0.05	1.99	0.119	0.14	1.1	34
F00052044		25.0	<0.002	0.01	0.66	3.3	<1	0.4	515	0.17	<0.05	1.65	0.156	0.11	1.3	44
F00052045		40.8	<0.002	0.02	1.67	2.3	<1	0.3	313	0.12	<0.05	1.62	0.126	0.18	0.7	32
F00052046		32.4	<0.002	0.01	0.76	3.8	1	0.4	474	0.14	<0.05	1.73	0.193	0.13	1.0	46
F00052047		41.7	<0.002	0.01	0.52	1.6	1	0.2	324	0.10	<0.05	2.39	0.078	0.14	0.8	17
F00052048		39.5	<0.002	0.01	0.77	1.2	<1	0.2	277	0.08	<0.05	2.08	0.067	0.16	0.9	14
F00052049		47.5	<0.002	0.02	1.29	2.7	<1	0.4	273	0.14	<0.05	2.29	0.134	0.22	1.0	38
F00052050		47.9	0.067	0.82	164.5	1.5	1	1.7	359	0.08	0.73	0.91	0.074	0.21	0.9	36
F00052051		43.9	<0.002	0.02	1.00	3.2	<1	0.4	401	0.12	<0.05	1.74	0.152	0.19	1.0	49
F00052052		62.8	<0.002	0.08	1.31	3.4	1	0.4	390	0.14	<0.05	1.35	0.176	0.30	0.8	49
F00052053		41.9	0.002	0.01	1.35	2.7	1	0.3	410	0.12	<0.05	1.42	0.140	0.20	0.9	37
F00052054		34.4	<0.002	0.01	1.19	3.5	<1	0.4	454	0.15	<0.05	2.35	0.159	0.15	1.2	37
F00052055		33.8	<0.002	0.01	0.98	2.3	1	0.3	449	0.10	<0.05	1.72	0.100	0.12	0.7	28
F00052056		37.4	<0.002	0.01	0.78	3.3	<1	0.4	469	0.12	<0.05	1.88	0.144	0.15	1.1	40

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 1-MAR-2021
Account: HACMIN

Project: Highland Valley P1M-Z1

CERTIFICATE OF ANALYSIS VA21009577

Sample Description	Method / Analyte / Units / LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	Cu-OG62 Cu % 0.001
F00052017		0.5	6.0	40	10.4	
F00052018		0.5	4.0	41	10.2	
F00052019		1.0	3.9	71	4.5	0.763
F00052020		0.8	4.5	44	10.2	
F00052021		0.2	5.8	46	8.9	
F00052022		0.4	4.7	49	9.2	
F00052023		0.1	4.9	48	9.4	
F00052024		0.4	5.2	46	9.8	
F00052025		0.4	4.0	39	8.4	
F00052026		0.6	3.8	44	9.2	
F00052027		0.8	4.5	38	8.3	
F00052028		0.9	4.2	41	8.8	
F00052029		0.8	4.5	53	9.4	
F00052030		0.6	4.7	51	9.1	
F00052031		0.9	4.1	47	8.8	
F00052032		1.2	3.5	50	9.1	
F00052033		0.2	5.8	41	9.1	
F00052034		0.4	4.5	37	8.9	
F00052035		0.6	3.5	37	8.9	
F00052036		0.1	5.1	48	10.1	
F00052037		0.3	3.9	40	7.7	
F00052038		0.2	4.4	47	8.3	
F00052039		0.5	4.3	53	8.4	
F00052040		<0.1	0.3	2	<0.5	
F00052041		0.4	4.5	37	8.2	0.113
F00052042		0.3	2.7	21	19.4	0.057
F00052043		0.3	3.8	33	18.3	
F00052044		0.4	5.6	51	12.6	
F00052045		0.3	3.5	40	15.7	
F00052046		0.3	4.6	50	13.9	
F00052047		0.1	2.9	24	19.9	
F00052048		0.2	2.3	24	23.6	
F00052049		0.4	4.1	40	16.6	
F00052050		1.0	3.7	69	3.6	0.753
F00052051		0.3	4.0	44	13.7	
F00052052		0.7	4.2	39	11.6	
F00052053		0.4	3.2	37	15.9	
F00052054		0.2	4.4	45	15.8	
F00052055		0.2	3.9	36	18.8	
F00052056		0.3	4.3	43	15.4	

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 1-MAR-2021
Account: HACMIN

Project: Highland Valley P1M-Z1

CERTIFICATE OF ANALYSIS VA21009577

Sample Description	Method / Analyte / Units / LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
F00052057		8.72	0.03	7.33	1.6	900	0.80	0.02	2.16	0.02	16.10	3.9	10	0.75	19.9	1.65
F00052058		7.72	0.09	7.28	1.5	640	0.89	0.03	2.54	0.03	11.65	4.0	14	0.98	105.0	1.66
F00052059		4.66	0.22	6.31	1.6	590	0.82	0.06	3.08	0.04	12.05	3.7	11	1.16	248	1.51
F00052060		4.46	0.11	6.39	1.8	610	0.89	0.04	3.10	0.04	12.85	3.8	10	1.14	160.0	1.52
F00052061		8.78	0.24	6.18	1.7	2340	0.83	0.17	3.34	0.08	10.25	4.0	8	1.25	300	1.64
F00052062		8.82	0.03	7.73	2.3	520	0.91	0.03	2.52	0.04	17.30	4.2	8	1.05	46.7	1.81
F00052063		8.00	0.02	7.55	2.0	760	0.79	0.02	2.77	0.06	15.60	4.4	8	1.02	8.9	1.83
F00052064		10.10	0.19	6.46	1.5	5860	0.73	0.05	3.00	0.08	11.75	3.9	8	1.33	220	1.68
F00052065		6.74	0.08	7.24	1.1	810	0.80	0.03	2.82	0.06	13.55	4.3	8	0.96	78.6	1.71
F00052066		8.86	0.31	7.35	2.6	1540	0.78	0.12	2.84	0.11	13.50	4.4	10	1.02	346	1.76
F00052067		7.48	0.02	7.98	2.1	880	0.87	0.02	2.25	0.02	17.00	4.3	11	0.84	16.9	1.86
F00052068		8.08	0.02	6.30	1.3	720	0.68	0.02	3.61	0.06	11.05	4.2	10	1.14	13.7	1.68
F00052069		7.62	0.02	6.61	1.0	1920	0.71	0.01	3.61	0.06	10.90	4.6	12	1.27	22.6	1.80
F00052070		1.40	0.01	0.10	0.2	20	<0.05	0.01	35.8	<0.02	0.33	0.6	1	<0.05	1.6	0.06
F00052071		9.00	0.18	6.70	0.6	1080	0.67	0.04	3.69	0.07	13.05	4.1	11	1.70	220	1.97
F00052072		7.86	0.14	6.89	0.9	1760	0.75	0.03	3.86	0.06	12.40	4.4	10	1.48	155.5	1.84
F00052073		9.90	0.06	7.36	0.8	790	0.72	0.02	2.97	0.03	12.65	4.3	12	1.07	72.1	1.83
F00052074		8.62	0.02	7.65	1.0	590	0.77	0.02	2.60	0.02	14.65	4.5	12	0.95	16.8	1.87
F00052075		8.92	0.02	7.32	1.3	470	0.85	0.01	2.67	0.05	13.80	4.2	12	1.29	16.7	1.72
F00052076		8.46	0.03	6.70	1.1	520	0.76	0.02	3.29	0.08	11.90	4.5	12	1.35	31.3	1.85
F00052077		10.72	0.02	7.39	1.6	970	0.84	0.01	2.41	0.03	14.25	4.2	9	0.80	15.8	1.72
F00052078		9.20	0.02	7.31	1.1	700	0.76	0.01	2.20	0.02	14.65	3.9	12	0.84	5.2	1.74
F00052079		7.58	0.02	6.93	1.0	790	0.65	0.01	2.36	0.03	13.70	3.9	11	0.90	3.5	1.70
F00052080		0.06	75.1	5.44	69.9	800	0.70	5.30	1.36	0.66	12.95	1.7	334	0.97	7790	1.23
F00052081		8.88	0.04	6.74	0.7	600	0.72	0.01	2.87	0.04	11.55	3.9	13	1.25	4.2	1.61
F00052082		9.20	0.04	6.60	0.8	870	0.78	0.02	3.38	0.06	9.71	4.0	9	1.58	19.3	1.70
F00052083		10.64	0.05	7.23	1.0	600	0.87	0.03	2.69	0.04	13.50	4.2	10	1.35	50.8	1.81
F00052084		9.48	0.12	6.87	1.1	590	0.89	0.05	1.97	0.02	14.00	2.8	10	0.87	116.0	1.22
F00052085		8.38	0.29	6.62	0.8	1090	0.78	0.06	3.05	0.06	12.15	4.5	9	0.93	376	1.81
F00052086		10.22	0.01	7.06	1.2	920	0.80	0.02	2.34	<0.02	15.05	4.0	10	0.59	6.0	1.67
F00052087		9.04	0.02	7.04	1.7	730	0.89	0.02	2.39	0.03	15.25	4.1	10	0.70	6.0	1.67
F00052088		9.24	0.03	7.35	1.5	700	0.94	0.03	2.81	0.05	14.45	4.6	11	0.76	19.1	1.83
F00052089		4.68	0.04	7.47	1.3	780	0.84	0.03	2.32	0.03	15.40	4.4	13	0.82	28.8	1.84
F00052090		4.20	0.05	7.53	1.4	700	0.91	0.04	2.27	0.02	15.75	4.2	13	0.81	31.1	1.79
F00052091		10.12	0.26	7.26	1.0	1280	0.94	0.08	2.84	0.02	13.20	4.3	11	0.87	307	1.83
F00052092		8.98	0.14	7.04	1.0	740	0.90	0.05	2.90	0.09	12.50	3.9	7	1.71	160.5	1.75
F00052093		9.26	0.03	7.27	1.7	770	0.87	0.03	2.47	0.03	12.95	4.3	10	0.83	28.0	1.76
F00052094		9.16	0.02	7.41	0.9	720	0.82	0.02	2.85	0.03	13.00	4.3	14	0.70	7.8	1.76
F00052095		8.18	0.02	7.02	1.4	490	0.88	0.02	2.88	0.06	12.75	4.5	10	1.01	11.8	1.76
F00052096		8.94	0.04	7.33	0.9	1030	0.84	0.02	2.57	0.03	13.60	4.2	9	1.05	57.4	1.76

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 1-MAR-2021
Account: HACMIN

Project: Highland Valley P1M-Z1

CERTIFICATE OF ANALYSIS VA21009577

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
F00052057		16.55	0.10	0.7	0.014	1.49	7.0	12.8	0.44	494	0.75	3.41	1.7	2.0	440	4.8
F00052058		16.60	0.09	0.7	0.015	1.80	5.2	7.1	0.32	613	1.14	2.88	1.5	2.2	430	5.4
F00052059		15.45	0.09	0.6	0.021	2.28	4.7	7.8	0.29	790	1.13	1.98	1.7	1.9	390	4.2
F00052060		15.60	0.09	0.7	0.021	2.27	5.2	7.7	0.30	822	1.11	2.04	1.8	1.8	410	4.4
F00052061		15.95	0.09	0.6	0.016	2.05	4.0	13.8	0.35	779	0.99	1.72	1.7	1.9	430	5.5
F00052062		17.25	0.09	0.6	0.019	1.66	6.6	11.0	0.33	497	0.82	2.91	2.0	2.2	510	4.9
F00052063		17.45	0.08	0.5	0.016	1.81	5.9	10.8	0.39	581	0.80	2.90	1.8	2.8	510	6.2
F00052064		16.20	0.09	0.5	0.024	2.47	4.5	10.6	0.32	755	0.77	1.72	1.6	1.9	470	6.7
F00052065		16.40	0.10	0.5	0.018	1.82	5.4	8.8	0.37	593	0.76	2.69	1.9	2.1	480	4.8
F00052066		16.50	0.08	0.5	0.015	1.75	5.3	12.6	0.42	670	0.88	2.66	1.7	2.1	500	4.9
F00052067		17.45	0.07	0.5	0.016	1.28	7.3	13.2	0.52	495	0.72	3.63	1.8	2.2	530	4.7
F00052068		16.00	0.07	0.4	0.022	2.19	4.3	9.0	0.35	716	0.78	1.93	1.5	2.6	460	4.7
F00052069		15.75	0.08	0.4	0.021	2.98	4.4	9.6	0.40	683	0.90	1.04	1.4	2.2	450	3.5
F00052070		0.28	0.12	<0.1	<0.005	0.02	<0.5	0.7	1.62	23	0.13	0.02	0.1	0.3	40	<0.5
F00052071		15.80	0.15	0.4	0.087	3.62	4.9	8.3	0.37	1070	1.03	0.54	1.3	2.1	470	3.3
F00052072		16.05	0.14	0.4	0.021	2.77	4.8	10.2	0.44	779	0.84	1.56	1.5	2.0	470	3.6
F00052073		16.45	0.11	0.5	0.020	2.00	5.0	8.8	0.43	570	0.94	2.76	1.6	2.2	500	3.9
F00052074		16.80	0.11	0.5	0.020	1.49	5.8	9.5	0.49	494	0.88	3.34	1.7	2.3	500	4.1
F00052075		16.60	0.11	0.5	0.014	2.37	5.1	8.2	0.37	458	0.90	2.37	1.7	2.1	480	4.6
F00052076		16.20	0.08	0.5	0.019	1.96	4.7	10.3	0.42	661	0.97	2.45	1.5	2.4	480	5.2
F00052077		16.45	0.12	0.5	0.016	1.23	5.9	10.5	0.53	474	0.66	3.37	1.5	2.1	480	4.6
F00052078		16.25	0.14	0.5	0.016	1.31	5.8	7.6	0.46	418	0.86	3.36	1.5	2.5	470	5.0
F00052079		16.00	0.09	0.5	0.016	1.48	5.2	7.9	0.42	458	0.81	2.97	1.6	2.2	470	4.4
F00052080		15.25	0.11	0.2	0.041	2.89	5.5	11.7	0.18	264	740	1.24	1.8	5.8	410	123.5
F00052081		16.40	0.11	0.4	0.015	2.05	4.5	8.9	0.32	504	1.29	2.28	1.6	2.2	440	4.4
F00052082		16.50	0.13	0.4	0.019	2.45	3.9	9.1	0.33	656	0.95	1.87	1.4	2.1	490	4.7
F00052083		16.50	0.10	0.7	0.021	2.12	5.3	8.9	0.42	590	0.85	2.38	1.8	2.2	490	4.7
F00052084		15.40	0.13	0.7	0.013	1.49	5.6	7.9	0.36	369	0.90	3.17	1.6	1.6	320	4.5
F00052085		16.55	0.12	0.6	0.020	1.74	4.8	10.7	0.42	619	0.70	2.75	1.7	2.2	470	4.0
F00052086		16.20	0.11	0.6	0.014	1.40	6.1	9.2	0.45	443	0.78	3.29	1.8	2.1	490	4.0
F00052087		16.50	0.13	0.5	0.018	1.36	6.3	9.6	0.47	465	0.84	3.12	1.8	5.4	470	4.5
F00052088		17.40	0.11	0.7	0.017	1.60	6.0	11.0	0.46	563	0.87	3.16	1.8	2.4	490	6.1
F00052089		17.55	0.11	0.6	0.019	1.64	7.2	9.3	0.48	468	1.00	3.23	1.8	2.4	510	4.0
F00052090		17.30	0.11	0.6	0.019	1.67	7.0	9.3	0.47	447	1.02	3.22	1.8	2.3	500	4.2
F00052091		17.20	0.13	0.6	0.021	1.58	5.5	10.7	0.45	529	0.86	3.00	1.7	2.2	490	4.5
F00052092		16.80	0.10	0.5	0.024	2.54	4.9	8.7	0.40	623	0.65	1.95	1.6	2.1	490	4.1
F00052093		16.85	0.12	0.4	0.017	1.73	5.2	9.2	0.41	498	0.73	3.00	1.5	2.2	480	4.6
F00052094		17.40	0.13	0.5	0.015	1.55	5.2	9.8	0.40	499	1.00	3.34	1.6	3.2	510	4.6
F00052095		17.20	0.13	0.6	0.019	1.92	4.9	8.9	0.35	520	0.72	2.74	1.8	2.2	480	4.9
F00052096		16.75	0.11	0.5	0.019	1.62	5.6	10.4	0.45	492	0.71	3.00	1.5	2.2	510	4.2

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 1-MAR-2021
Account: HACMIN

Project: Highland Valley P1M-Z1

CERTIFICATE OF ANALYSIS VA21009577

Sample Description	Method Analyte Units LOD	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
F00052057		27.9	<0.002	0.01	0.64	3.5	1	0.4	675	0.12	<0.05	1.67	0.154	0.11	1.1	45
F00052058		39.3	<0.002	0.01	0.88	3.3	<1	0.4	446	0.10	<0.05	1.56	0.155	0.17	1.0	46
F00052059		49.3	0.002	0.01	1.05	2.7	<1	0.4	324	0.13	<0.05	1.01	0.132	0.23	0.7	41
F00052060		49.6	<0.002	0.01	1.06	2.8	1	0.4	334	0.14	<0.05	1.27	0.140	0.22	0.7	41
F00052061		35.2	<0.002	0.06	1.50	2.9	1	0.3	350	0.11	<0.05	0.99	0.155	0.20	0.6	47
F00052062		32.5	<0.002	0.01	1.16	3.7	1	0.4	556	0.16	<0.05	1.10	0.165	0.16	0.7	51
F00052063		34.3	<0.002	0.01	1.33	3.6	1	0.4	540	0.13	<0.05	1.01	0.166	0.18	0.7	51
F00052064		50.6	<0.002	0.14	1.62	3.1	1	0.4	382	0.11	<0.05	0.80	0.147	0.26	0.5	48
F00052065		36.1	<0.002	0.02	1.18	3.3	1	0.4	450	0.12	<0.05	0.97	0.165	0.16	0.5	48
F00052066		33.0	<0.002	0.02	1.56	3.4	<1	0.4	593	0.12	<0.05	1.08	0.167	0.16	0.6	49
F00052067		23.8	<0.002	0.01	0.98	3.8	1	0.4	815	0.12	<0.05	1.07	0.169	0.10	0.7	52
F00052068		40.2	<0.002	0.01	1.05	2.9	1	0.3	376	0.10	<0.05	0.66	0.147	0.20	0.3	47
F00052069		57.4	<0.002	0.04	1.26	3.0	1	0.3	236	0.10	<0.05	0.84	0.149	0.27	0.4	46
F00052070		0.4	<0.002	0.10	<0.05	0.2	1	<0.2	4420	<0.05	<0.05	0.02	0.005	<0.02	1.2	1
F00052071		86.6	<0.002	0.02	1.25	2.9	<1	0.3	172.5	0.10	<0.05	0.93	0.141	0.37	0.4	47
F00052072		50.6	<0.002	0.04	0.99	3.2	1	0.3	295	0.09	<0.05	0.99	0.155	0.23	0.5	48
F00052073		34.4	<0.002	0.01	0.74	3.4	<1	0.4	411	0.10	<0.05	0.96	0.159	0.15	0.4	49
F00052074		25.0	<0.002	0.01	0.55	3.6	<1	0.4	570	0.12	<0.05	1.09	0.166	0.11	0.5	50
F00052075		48.9	<0.002	0.01	1.28	3.3	1	0.3	341	0.12	<0.05	0.88	0.158	0.22	0.4	48
F00052076		36.1	<0.002	0.01	1.37	3.2	1	0.4	479	0.10	<0.05	0.94	0.161	0.19	0.4	49
F00052077		22.5	<0.002	0.01	0.96	3.5	<1	0.4	803	0.10	<0.05	1.15	0.160	0.10	0.5	48
F00052078		25.6	<0.002	0.01	0.92	3.1	<1	0.3	702	0.10	<0.05	1.21	0.152	0.13	0.5	48
F00052079		28.7	<0.002	<0.01	1.02	3.1	<1	0.4	553	0.11	<0.05	1.06	0.149	0.16	0.5	46
F00052080		47.6	0.072	0.82	166.5	1.5	1	1.7	352	0.08	0.69	0.75	0.072	0.21	0.8	36
F00052081		40.7	<0.002	0.01	1.61	2.7	<1	0.3	356	0.10	<0.05	0.89	0.144	0.20	0.4	44
F00052082		46.9	<0.002	0.01	1.56	2.9	1	0.3	322	0.08	<0.05	0.72	0.154	0.23	0.4	48
F00052083		45.3	<0.002	0.01	1.14	3.1	<1	0.4	497	0.14	<0.05	1.36	0.155	0.21	0.7	49
F00052084		32.3	<0.002	0.01	0.68	2.1	<1	0.3	591	0.13	<0.05	1.41	0.108	0.15	0.7	32
F00052085		33.0	<0.002	0.01	0.83	3.1	<1	0.3	474	0.12	<0.05	0.89	0.156	0.15	0.6	48
F00052086		26.0	<0.002	<0.01	0.43	3.1	<1	0.4	661	0.13	<0.05	1.26	0.163	0.10	0.7	48
F00052087		29.9	<0.002	<0.01	0.61	3.2	<1	0.3	652	0.13	<0.05	1.30	0.151	0.14	0.7	46
F00052088		31.7	<0.002	<0.01	0.81	3.4	<1	0.4	638	0.13	<0.05	1.32	0.162	0.14	0.7	49
F00052089		35.3	<0.002	<0.01	0.58	3.6	1	0.3	659	0.13	<0.05	1.99	0.158	0.15	0.8	49
F00052090		37.4	<0.002	<0.01	0.62	3.4	1	0.4	654	0.13	<0.05	1.77	0.157	0.14	0.8	48
F00052091		30.4	<0.002	0.01	0.59	3.4	1	0.4	726	0.12	<0.05	1.22	0.157	0.13	0.6	49
F00052092		53.9	<0.002	0.01	1.12	3.1	<1	0.4	411	0.11	<0.05	0.87	0.156	0.25	0.5	48
F00052093		36.5	<0.002	<0.01	0.79	3.3	<1	0.3	552	0.09	<0.05	0.86	0.152	0.16	0.5	48
F00052094		29.9	<0.002	<0.01	0.85	3.3	1	0.4	657	0.10	<0.05	0.89	0.165	0.15	0.6	49
F00052095		39.4	<0.002	<0.01	1.12	3.2	1	0.4	509	0.13	<0.05	0.89	0.160	0.18	0.6	48
F00052096		33.4	<0.002	<0.01	0.64	3.5	<1	0.4	571	0.09	<0.05	0.87	0.159	0.14	0.5	49

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 1-MAR-2021
Account: HACMIN

Project: Highland Valley P1M-Z1

CERTIFICATE OF ANALYSIS VA21009577

Sample Description	Method / Analyte / Units / LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	Cu-OG62 Cu % 0.001
F00052057		0.2	4.8	44	11.4	
F00052058		0.4	3.6	40	10.1	
F00052059		0.4	4.0	30	9.2	
F00052060		0.4	4.3	30	10.7	
F00052061		0.9	3.9	46	9.1	
F00052062		0.6	5.7	44	8.8	
F00052063		0.4	5.4	46	7.6	
F00052064		0.5	4.3	43	6.8	
F00052065		0.4	4.6	41	6.6	
F00052066		0.8	4.5	47	7.2	
F00052067		0.4	5.3	45	7.7	
F00052068		0.4	4.2	44	6.1	
F00052069		0.7	4.0	52	6.9	
F00052070		0.1	0.4	2	0.5	
F00052071		0.8	4.5	40	6.3	
F00052072		0.6	4.4	44	6.2	
F00052073		0.3	4.4	41	6.8	
F00052074		0.2	4.8	44	6.9	
F00052075		0.4	4.7	47	6.1	
F00052076		0.5	4.4	52	7.2	
F00052077		0.3	4.8	43	7.0	
F00052078		0.3	4.8	45	7.8	
F00052079		0.2	4.6	42	7.2	
F00052080		0.9	3.4	71	3.5	0.759
F00052081		0.3	4.0	40	6.6	
F00052082		0.4	3.5	46	6.8	
F00052083		0.4	4.7	53	9.4	
F00052084		0.2	4.5	33	9.5	
F00052085		0.4	4.3	46	8.2	
F00052086		0.1	5.0	44	7.9	
F00052087		0.2	4.8	43	7.6	
F00052088		0.3	4.8	50	8.8	
F00052089		0.2	4.8	46	8.8	
F00052090		0.2	5.0	44	9.0	
F00052091		0.2	4.5	46	7.9	
F00052092		0.9	4.0	51	8.0	
F00052093		0.3	4.2	46	6.7	
F00052094		0.2	4.5	45	8.0	
F00052095		0.5	4.3	50	7.5	
F00052096		0.2	4.6	45	7.7	

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 1-MAR-2021
Account: HACMIN

Project: Highland Valley P1M-Z1

CERTIFICATE OF ANALYSIS VA21009577

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
F00052097		9.62	0.01	7.40	2.6	750	0.81	0.01	2.50	0.02	13.70	4.2	9	0.65	6.9	1.75
F00052098		9.42	0.03	7.57	1.5	650	0.88	0.01	2.60	0.02	13.50	4.4	13	0.98	18.9	1.79
F00052099		7.42	0.04	7.06	1.0	990	0.83	0.02	2.57	0.03	11.65	4.4	9	0.92	45.9	1.77
F00052100		1.48	0.01	0.08	0.6	10	<0.05	0.03	20.2	0.03	0.98	0.5	1	0.09	1.5	0.14
F00052101		8.08	0.02	7.53	1.6	570	0.84	0.02	2.44	0.02	13.40	4.3	11	0.79	8.0	1.82
F00052102		8.66	0.02	7.27	1.2	800	0.76	0.01	2.71	0.03	12.15	4.2	9	0.74	11.3	1.79
F00052103		8.54	0.02	6.38	1.7	600	0.68	0.02	3.69	0.05	11.50	4.2	10	0.61	16.1	1.74
F00052104		8.94	0.02	6.36	1.9	490	0.77	0.01	2.95	0.04	9.63	4.0	10	0.93	8.2	1.65
F00052105		8.66	0.04	6.34	1.2	480	0.73	0.02	3.24	0.06	10.70	4.0	7	1.16	31.2	1.59
F00052106		9.02	0.02	7.26	0.8	430	0.92	0.02	2.46	0.05	14.05	4.0	11	1.06	12.7	1.68
F00052107		8.60	0.04	7.27	1.2	500	0.87	0.03	2.91	0.05	16.05	7.7	16	1.02	33.4	2.36
F00052108		8.38	0.30	7.04	1.2	1320	0.77	0.05	3.38	0.04	12.65	9.0	17	0.99	475	2.71
F00052109		9.80	0.16	6.89	1.2	430	0.96	0.03	2.41	0.03	13.90	3.2	8	0.91	231	1.37
F00052110		1.58	0.02	0.07	0.5	10	<0.05	0.02	20.0	0.02	0.80	0.4	1	0.08	1.5	0.13
F00052111		7.16	0.04	6.91	1.2	440	0.92	0.02	2.42	0.03	14.20	3.4	11	1.06	31.2	1.51
F00052112		7.40	0.04	6.47	1.7	560	0.91	0.03	2.78	0.04	12.65	4.1	10	1.19	40.3	1.68
F00052113		8.20	0.37	6.60	1.6	750	0.77	0.07	2.63	0.05	10.90	4.1	10	1.06	471	1.59
F00052114		8.74	0.21	7.34	1.5	830	0.71	0.04	2.36	<0.02	13.20	5.1	8	0.68	333	1.88
F00052115		8.02	0.04	7.48	1.9	490	0.69	0.02	2.17	<0.02	14.35	4.5	9	0.72	50.0	1.76
F00052116		8.96	0.13	7.81	1.3	600	0.77	0.02	2.48	0.02	16.35	4.8	15	0.70	199.5	1.93
F00052117		8.38	0.26	6.45	0.9	760	0.75	0.05	3.38	0.06	11.75	4.4	11	1.09	331	1.82

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 1-MAR-2021
Account: HACMIN

Project: Highland Valley P1M-Z1

CERTIFICATE OF ANALYSIS VA21009577

Sample Description	Method Analyte Units LOD	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
F00052097		16.65	0.13	0.4	0.015	1.30	5.6	11.3	0.52	489	0.72	3.43	1.4	2.2	490	4.4
F00052098		17.45	0.13	0.5	0.014	1.52	5.5	11.9	0.51	513	0.90	3.32	1.5	2.7	500	4.5
F00052099		17.05	0.13	0.5	0.017	1.92	4.7	9.0	0.38	512	0.67	2.74	1.5	2.8	510	4.8
F00052100		0.34	0.32	<0.1	<0.005	0.03	0.5	1.5	12.70	136	0.07	0.02	0.1	1.4	10	1.1
F00052101		17.15	0.26	0.5	0.017	1.74	5.4	10.9	0.44	495	0.80	3.26	1.6	2.6	510	4.1
F00052102		16.80	0.23	0.5	0.019	1.61	4.8	10.4	0.41	530	0.66	3.27	1.5	2.4	500	3.8
F00052103		16.60	0.25	0.6	0.016	1.12	4.3	10.3	0.34	665	0.65	3.40	1.8	3.1	490	3.7
F00052104		16.90	0.22	0.5	0.017	1.93	3.7	8.2	0.17	441	0.79	2.45	1.5	2.2	460	4.3
F00052105		16.25	0.20	0.5	0.021	1.87	4.2	8.2	0.25	645	0.55	2.45	1.6	2.5	450	4.7
F00052106		17.20	0.20	0.6	0.012	2.13	5.8	8.3	0.38	497	0.80	2.64	1.9	2.1	460	4.6
F00052107		17.10	0.20	1.0	0.023	1.54	6.2	14.9	0.82	581	0.76	2.96	2.3	7.1	550	5.0
F00052108		16.95	0.20	0.9	0.044	1.84	4.9	18.4	0.96	855	13.35	2.11	1.9	8.8	580	3.6
F00052109		16.00	0.17	0.7	0.012	1.62	5.5	8.4	0.30	470	0.80	2.65	1.9	1.6	330	4.1
F00052110		0.31	0.32	<0.1	<0.005	0.03	<0.5	1.3	12.80	126	0.05	0.01	0.1	0.3	20	0.9
F00052111		16.60	0.26	0.6	0.014	1.83	5.4	8.0	0.27	448	0.93	2.54	1.9	2.5	420	4.9
F00052112		16.60	0.21	0.7	0.017	1.67	5.0	10.0	0.26	526	0.80	2.35	2.1	2.1	450	5.2
F00052113		16.30	0.26	0.6	0.013	2.41	4.3	9.3	0.22	555	1.22	1.73	1.7	2.1	410	4.3
F00052114		16.80	0.15	0.5	0.018	1.48	5.2	8.8	0.40	528	1.38	3.25	1.6	3.1	500	4.8
F00052115		16.40	0.14	0.5	0.019	1.20	5.9	10.7	0.53	618	1.06	3.73	1.6	3.0	540	4.4
F00052116		17.45	0.12	0.5	0.019	1.20	7.2	9.0	0.55	579	4.47	3.68	1.7	2.6	520	4.0
F00052117		16.15	0.13	0.5	0.028	2.55	4.3	7.1	0.35	763	1.09	1.72	1.5	2.1	490	4.1

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 1-MAR-2021
Account: HACMIN

Project: Highland Valley P1M-Z1

CERTIFICATE OF ANALYSIS VA21009577

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V
	Units	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
	LOD	0.1	0.002	0.01	0.05	0.1	1	0.2	0.2	0.05	0.05	0.01	0.005	0.02	0.1	1
F00052097		23.5	<0.002	<0.01	0.41	3.5	<1	0.4	769	0.09	<0.05	0.93	0.163	0.10	0.6	49
F00052098		28.3	<0.002	<0.01	0.51	3.5	1	0.4	745	0.10	<0.05	0.91	0.163	0.13	0.5	50
F00052099		41.5	<0.002	<0.01	0.92	3.3	1	0.4	531	0.10	<0.05	0.78	0.158	0.21	0.5	49
F00052100		1.2	<0.002	<0.01	0.05	0.1	1	0.2	43.3	<0.05	<0.05	0.09	<0.005	<0.02	<0.1	<1
F00052101		34.7	<0.002	<0.01	0.75	3.4	1	0.4	582	0.10	<0.05	0.86	0.164	0.14	0.6	49
F00052102		30.4	<0.002	<0.01	0.57	3.2	1	0.4	588	0.09	<0.05	0.83	0.157	0.14	0.5	49
F00052103		15.4	<0.002	0.01	0.44	3.2	<1	0.4	717	0.12	<0.05	0.77	0.176	0.09	0.5	53
F00052104		38.9	<0.002	<0.01	1.22	2.8	1	0.4	455	0.11	<0.05	0.60	0.150	0.20	0.4	49
F00052105		37.5	<0.002	0.02	1.02	2.8	<1	0.4	450	0.10	<0.05	0.87	0.151	0.20	0.6	47
F00052106		48.4	<0.002	<0.01	1.14	3.1	<1	0.4	337	0.13	<0.05	1.77	0.152	0.21	0.7	46
F00052107		29.1	<0.002	0.01	0.84	5.2	1	0.4	590	0.17	<0.05	1.78	0.218	0.15	0.9	66
F00052108		33.4	0.028	0.03	0.80	5.8	1	0.4	650	0.12	<0.05	1.01	0.233	0.18	0.5	75
F00052109		34.9	<0.002	0.01	0.84	2.3	1	0.3	408	0.15	<0.05	1.71	0.118	0.15	0.8	34
F00052110		0.9	<0.002	<0.01	0.05	0.1	1	<0.2	42.1	<0.05	<0.05	0.10	<0.005	<0.02	<0.1	<1
F00052111		37.6	<0.002	0.01	0.95	2.5	1	0.3	433	0.16	<0.05	1.24	0.135	0.17	0.8	41
F00052112		30.2	<0.002	0.01	1.00	2.8	<1	0.4	479	0.16	<0.05	1.55	0.149	0.16	0.9	44
F00052113		51.0	<0.002	0.02	1.21	2.6	<1	0.3	301	0.13	<0.05	0.97	0.132	0.25	0.6	41
F00052114		27.0	<0.002	0.02	0.83	3.5	<1	0.4	631	0.11	<0.05	0.79	0.163	0.12	0.5	49
F00052115		23.9	<0.002	0.01	1.06	3.7	1	0.4	770	0.11	<0.05	1.05	0.164	0.09	0.6	49
F00052116		25.2	<0.002	0.01	0.76	3.8	1	0.4	669	0.11	<0.05	1.13	0.167	0.11	0.6	51
F00052117		49.6	<0.002	0.02	0.98	2.8	1	0.3	287	0.10	<0.05	0.91	0.145	0.23	0.4	46

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

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 1-MAR-2021
Account: HACMIN

Project: Highland Valley P1M-Z1

CERTIFICATE OF ANALYSIS VA21009577

Sample Description	Method / Analyte / Units / LOD	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	Cu-OG62 Cu % 0.001
F00052097		0.2	4.7	43	6.8	
F00052098		0.2	4.7	48	7.0	
F00052099		0.4	4.1	54	7.3	
F00052100		0.1	0.3	4	0.5	
F00052101		0.3	4.4	48	8.1	
F00052102		0.2	4.2	45	6.8	
F00052103		0.1	4.6	41	10.5	
F00052104		0.4	3.5	47	7.2	
F00052105		0.7	4.0	47	7.7	
F00052106		0.5	4.3	47	8.7	
F00052107		0.4	7.5	52	22.7	
F00052108		0.6	6.0	47	24.0	
F00052109		0.4	4.7	34	10.4	
F00052110		0.1	0.2	4	<0.5	
F00052111		0.7	4.9	41	8.6	
F00052112		0.5	4.5	44	9.4	
F00052113		0.8	3.6	39	9.0	
F00052114		0.5	4.4	38	6.3	
F00052115		1.0	4.7	37	6.3	
F00052116		0.7	5.3	38	6.5	
F00052117		0.8	4.2	40	6.9	

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: HAPPY CREEK MINERALS LTD.
460-789 WEST PENDER STREET
VANCOUVER BC V6C 1H2

Finalized Date: 1-MAR-2021
Account: HACMIN

Project: Highland Valley P1M-Z1

CERTIFICATE OF ANALYSIS VA21009577

CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

REEs may not be totally soluble in this method.

Applies to Method: ME-MS61

LABORATORY ADDRESSES

Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.

Applies to Method:

CRU-31	CRU-QC	Cu-OG62	LOG-21
LOG-23	ME-MS61	ME-OG62	PUL-31
PUL-QC	SPL-21	WEI-21	