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Assessment Report  
40082**



**ASSESSMENT REPORT TITLE PAGE AND SUMMARY**

**TITLE OF REPORT: Assessment Report Geological, Geochemical and Geophysical Report on the RDP Property,**

**TOTAL COST: \$77,503.16**

**AUTHOR(S): Gerald G. Carlson, Alejandra Flores**

**SIGNATURE(S):**

A handwritten signature in blue ink, appearing to read "Alejandra Flores".

Alejandra Flores

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**YEAR OF WORK: 2021**

**PROPERTY NAME: RDP**

**CLAIM NAME(S) (on which work was done): 1073568, 1073569, 1073751  
1073575 and 1073624, 1082106, 1082158, 1082424 and 1082674**

**COMMODITIES SOUGHT: Cu, Au**

**MINERAL INVENTORY MINFILE NUMBER(S),IF KNOWN: 094D065, 094D077, 094D078, 094D  
083 and 094D 207**

**MINING DIVISION: Omineca**

**NTS / BCGS:**

**LATITUDE: 56° 30' 45" N**

**LONGITUDE: 126° 46' 45" W**

**UTM, NAD 83 Zone 9N: 636,800 mE, 6,265,000 mN**

**OWNER(S): Pacific Ridge Exploration Ltd.**

**1100 – 1111 Melville Street**

**Vancouver, British Columbia, V6E 3V6**

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

**Ridge Exploration Ltd. 1100-1111 Melville Street,**

**Vancouver BC, V6E 3V6**

**REPORT KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude. Do not use abbreviations or codes): RDP, porphyry, copper, molybdenum, feldspar porphyry, chalcopyrite, pyrite, quartz-sericite-pyrite alteration, silicification, potassic alteration, biotite**

**REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:**

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			\$18,375.00
Remote Sensing			\$3,257.93
GEOPHYSICAL (line-kilometres)			
GEOCHEMICAL (number of samples analysed for ...)			
Soil			
Silt			
Rock			\$1,795.79
Other			
DRILLING (total metres, number of holes, size, storage location)			
RELATED TECHNICAL			
Sampling / Assaying			
PROSPECTING (scale/area)			
PREPATORY / PHYSICAL			
Office Studies			\$21,350.00
Transportation			\$29,749.68
Accommodation and Food			\$2,544.20
Miscellaneous			\$195.89
Equipment Rentals			\$234.67
Other			
		<b>TOTAL COST</b>	\$77,503.16



**Assessment Report**  
**GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL REPORT**  
**on the**  
**RDP PROJECT**

**Omineca Mining Division, British Columbia, Canada**

Latitude / Longitude: 56° 30' 45" N, 126° 46' 45" W  
UTM, NAD 83 Zone 9N: 636,800 mE, 6,265,000 mN

NTS 094D/7 and 094D/10

Minfiles: 094D065, 094D077, 094D078, 094D 083 and 094D 207

Work Completed on claim record numbers, 1065814, 1073568, 1073569, 1073751  
1073575, 1073582, 1073624, 1082106, 1082424 and 1082674

Operator:

Pacific Ridge Exploration Ltd.  
1100 – 1111 Melville Street  
Vancouver, British Columbia, V6E 3V6

Owner:

Pacific Ridge Exploration Ltd.  
1100 – 1111 Melville Street  
Vancouver, British Columbia, V6E 3V6

For Work Performed between May 15 and October 31, 2021

by

Gerald G. Carlson, Ph.D., P.Eng.  
and  
Alejandra Flores, B.Sc., GIT

March 11, 2022

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## SUMMARY

The RDP mineral property (the “Property”) is located roughly 190 km north of Smithers, British Columbia, and 60 km south of Kemess Mines (Figure 1). The Property comprises ten mineral claims covering 5,622.64 hectares. This report describes a program of data compilation, a Sentinel-2 and radiometric interpretation and a field program of mapping and rock and silt sampling carried during the 2021 field season.

The RDP Property is accessible only by helicopter. Within the property, access is by a combination of helicopter and hiking. For the current program, accommodations were provided at Pacific Ridge Exploration Ltd.’s Kliyul project exploration camp, 40 km to the east.

The RDP property is underlain by the Stikine terrane, which includes three main arc assemblages comprising volcanic, intrusive, and sedimentary rocks of the Paleozoic Asitka, Triassic Takla, and Jurassic Hazelton groups. These magmatic arcs formed adjacent to the western margin of ancestral North America prior to their accretion in the Middle Jurassic. Deformation, uplift, and successor basin deposition of Middle Jurassic to Cretaceous Bowser Lake and Sustut groups mantle most of the older rocks of central and northeastern Stikine terrane (Logan and Schwab, 2022).

The RDP property covers three main known showing areas: Day, Porcupine (Birch) and Roy, along with two lesser Minfiles, Grizzly-Ork and Raven

The Day occurrence was discovered in 1972 by Wesfrob Mines. In the early 70’s, Wesfrob completed surface exploration followed by drilling. No further work was carried out until the 1990’s when Skeena Resources acquired the ground, completed additional surface exploration and drilled 8 holes. In 1996, Madrona Mining acquired an option on the ground and completed an aeromagnetic survey.

The Roy occurrence was discovered in 1973 by McIntyre Porcupine Mines Ltd. and Esso Minerals Ltd., who carried out mapping, trenching, and sampling. No further work was carried out until 1980 when Golden Rule Resources completed additional prospecting, mapping, soil/silt/rock geochemical program (Wilson, 1985). In 1989, Ritz Resources recognized the porphyry potential at Roy and completed a trenching program that encountered 0.121% Cu and 0.55 g/t Au over 62 m

In 2010, a large property including the Day, Porcupine and Roy showings was staked by Equitas Resources who completed a 992 line-km airborne magnetic survey and a follow-up prospecting and rock and soil geochemical sampling program. In 2012, Equitas completed a single drill hole at the Roy showing that encountered 0.11% Cu and 0.64 gpt Au over 122.95 m.

In 2021, Pacific Ridge Exploration Ltd. (“Pacific Ridge”) optioned the RDP property, including the Roy, Day, and Porcupine showings, from prospector Bernie Kreft. In April and May of that year, all the available historical data, from several sources, was compiled into a digital database. Fathom Geophysical Consultants was contracted to carry out a combined Sentinel-2 satellite and radiometric interpretation over the property, identifying the signatures of alteration-related

mineral species. The 2021 field program included 27.5 person-days of field work supported from the Kliyul camp, 40 km to the east. The program involved preliminary mapping and prospecting with the collection of 39 rock samples; 26 from Roy, 8 from Porcupine, 4 from Day and 1 from a ridgeline gossan located north of Porcupine. In addition, 8 stream sediment silt samples were collected upstream from an anomalous RGS sample.

The satellite and radiometric interpretation identified the signatures of alteration minerals, including iron oxides, clay and potassium enrichment. These signatures occur not only at the Day, Roy and Porcupine showings, but also at several other locations within the Property. Mapping confirmed the presence of porphyry-style alteration and mineralization at Day and Roy, and possibly also at Porcupine, which may represent the upper portions of a porphyry mineralized system. A U-Pb radiometric age determination from a sample from the Roy occurrence, of  $202.0 \pm 1.6$  Ma confirms the Late Triassic to Early Jurassic (ca. 220 to 195 Ma) prospectivity of the intrusion.

A two stage, non-contingent field program is recommended for the property. The first phase would entail approximately two weeks for a four-person field crew. The work would involve detailed mapping of the Roy, Day and Porcupine occurrences as well as re-logging historical drill core stored at the Roy occurrence. The objective of this program would be to define drill sites. The crew will also carry out reconnaissance mapping and prospecting, in the drainage upstream from the Porcupine occurrence and in the vicinity of the alteration signatures defined by the Fathom Geophysics study. This will be followed by a second phase core drilling program of 1,000 to 1,500 m to test the Day and Roy occurrences. This will be followed by a core drilling program of 1,000 to 1,500 m to test the Day and Roy occurrences.

# INTRODUCTION

The RDP mineral property (the “Property”) is located roughly 190 km north of Smithers, British Columbia, and 60 km south of Kemess Mines (Figure 1). The Property comprises ten mineral claims covering 5,622.64 hectares. The claims are under option to Pacific Ridge.

This report describes a program of data compilation, Sentinel-2 and radiometric interpretation and field mapping and rock and silt sampling carried out during the 2021 field season. Expenditures for the 2021 program amounted to \$77,503.16.

## PROPERTY LOCATION, DESCRIPTION AND OWNERSHIP

### Location

The RDP Property (the Property) is located in north-central British Columbia, within the Omineca Mining Division at 56° 30' 45” N latitude, 126° 46' 45” W longitude (UTM, NAD 83 Zone 9N: 636,800 mE, 6,265,000 mN) in NTS map sheets NTS 094D/7 and 094D/10. The Property is located roughly 190 km north of Smithers, and 390 km northeast of Prince George. It is located 60 km south of Kemess Mine site and 240 km northwest of the Mt. Milligan mine (Figure 1). The Property is 40 km due east of Pacific Ridge’s Kliyul property.

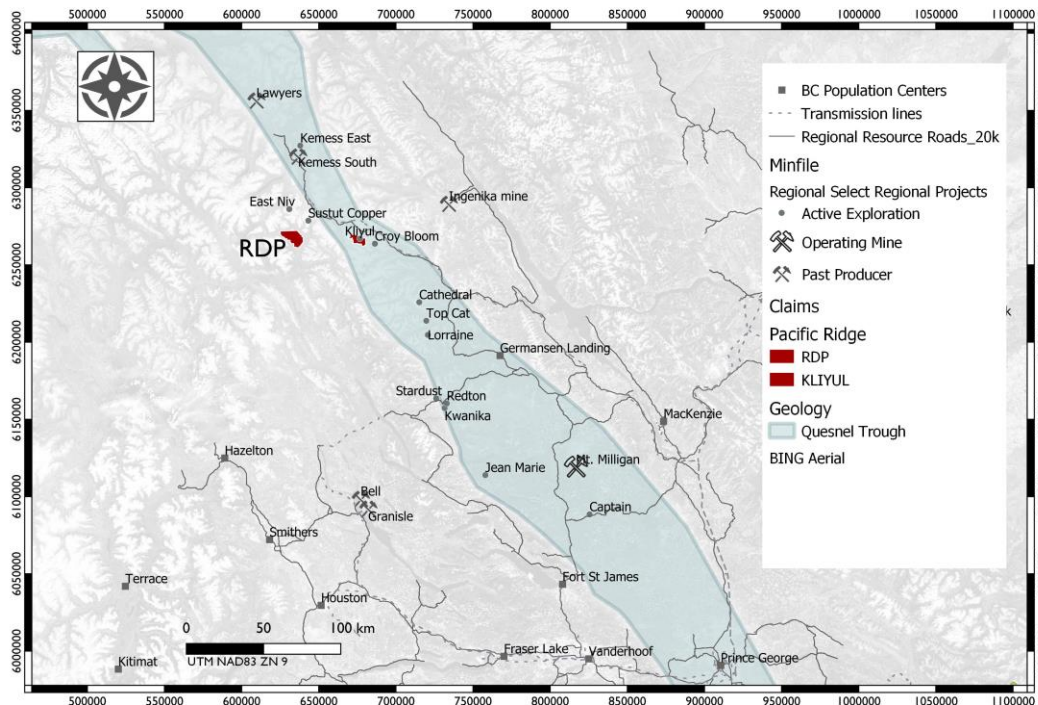


Figure 1. RDP Property location map.

**Table 1. RDP Property claim list.**

<b>Claim No.</b>	<b>Name</b>	<b>Owner</b>	<b>Good to Date</b>	<b>Area (ha)</b>
1065814	ROY	Pacific Ridge Exploration Ltd.	October 30, 2024	178.48
1073568	DAY COPPER	Pacific Ridge Exploration Ltd.	October 30, 2024	35.72
1073569		Pacific Ridge Exploration Ltd.	October 30, 2024	35.71
1073571	DAY	Pacific Ridge Exploration Ltd.	October 30, 2024	250.01
1073575	DAY 2	Pacific Ridge Exploration Ltd.	October 30, 2024	35.72
1073582	CORBIN	Pacific Ridge Exploration Ltd.	October 30, 2024	17.86
1073624	PORKY DAY	Pacific Ridge Exploration Ltd.	October 30, 2024	339.21
1082106	ROY PERIM	Pacific Ridge Exploration Ltd.	October 30, 2024	1,178.26
1082424	GGC	Pacific Ridge Exploration Ltd.	October 30, 2024	1,785.20
1082674	CATCH	Pacific Ridge Exploration Ltd.	October 30, 2024	1,766.47
			<b>Total</b>	<b>5,622.64</b>

## **Description**

The RDP property consists of 10 contiguous mineral tenures covering an area of 5,622.64 ha. (See Table 1 and Figure 2), located in the Omineca Mining Division.

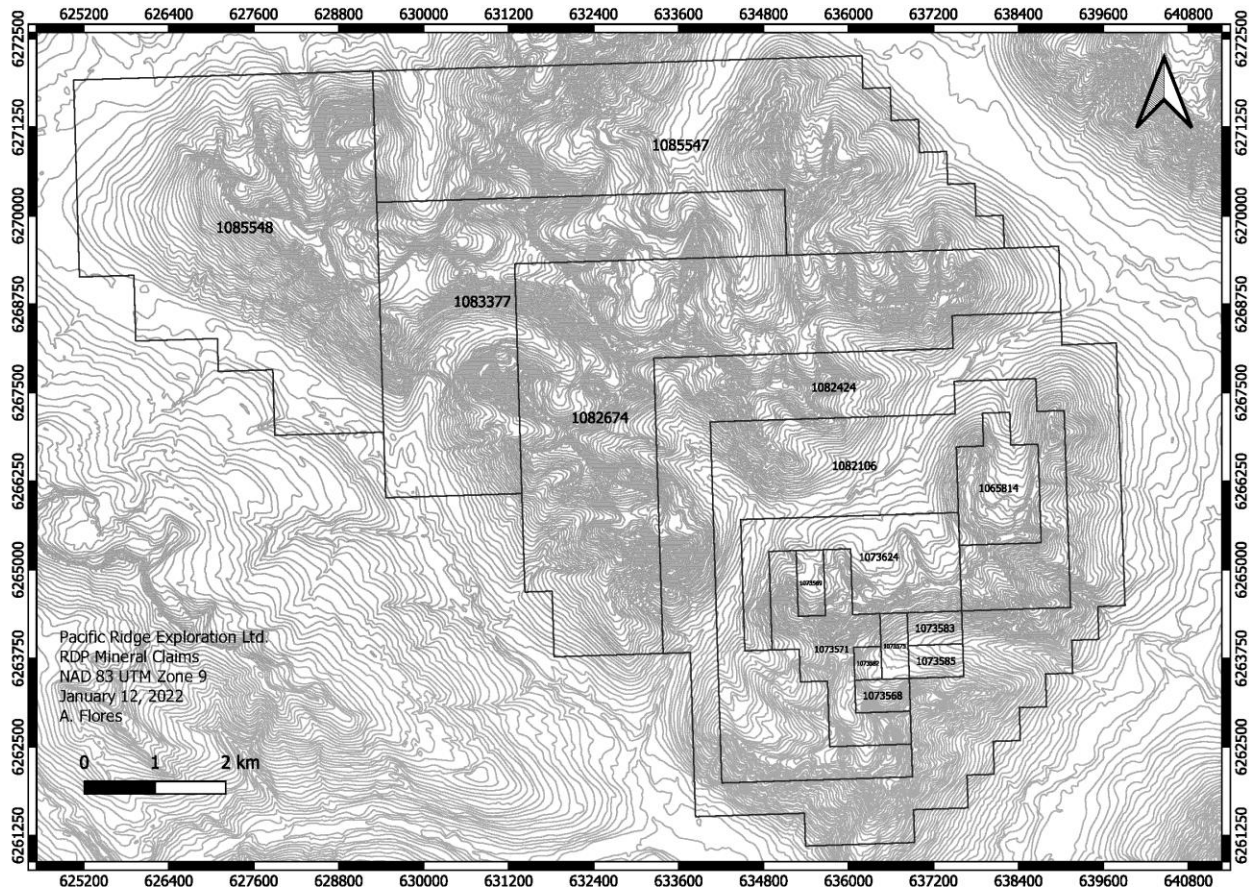
Pacific Ridge has submitted an application for a 5-year Notice of Work for the Property.

## **Ownership**

The claims are under option to Pacific Ridge Exploration Ltd. (Pacific Ridge). Pacific Ridge can earn a 100% interest in the claims by making payments of \$25,000, issuing 1,200,000 shares and completing \$800,000 in exploration by December 31, 2023. The claims have been transferred to Pacific Ridge for administrative purposes. The beneficial owner is Bernie Kreft of Whitehorse.

## **Access**

The Property is accessible only by helicopter. Within the property, access is by a combination of helicopter and hiking. Accommodations are available in Smithers, or seasonally in one of the fishing lodges or industrial camps in the region. For the 2021 program, field personnel stayed at Pacific Ridge's Kliyul camp, approximately 40 km to the east, and accessed the property by contract helicopter from that site. Exploration support, gear and groceries were mobilized from Johanson Lake, a staging area located off the Kemess mine access road. Johanson Lake is approximately 7 hours by road north of Prince George; from Prince George to Mackenzie on



**Figure 2. RDP property Claim Map.**

paved roads, 183 km, and from Mackenzie to Johanson Lake on good quality gravel roads, approximately 300 km.

## Infrastructure

The district municipality of Mackenzie is the most proximal road accessible community. It is in the Fraser-Fort George Regional District of central British Columbia and is about 250 km southeast of RDP. Mackenzie has an approximate population of 4,500 and was founded on the forestry industry; mainly logging, lumber, and market pulp. More recently it has benefited from the nearby Mount Milligan copper-gold mine. As such, Mackenzie represents a potential source of labour, heavy equipment, bulk fuel, and local contractors. It offers access to the CN rail line, and power via the high-voltage power line following the Omineca Resource Access Road connecting the Kemess mine to the British Columbia Hydro grid (Lui and Roberts, 2014). Fort St. James is the next closest road accessible community with a population of similar size around 4,500 and provides similar services to Mackenzie.

Other proximal communities of note are Prince George and Smithers, which are essential sources for groceries, equipment, parts, personnel, and contractors. For emergency purposes Smithers is a shorter geographical distance from the Kliyul property than either Mackenzie or Prince George.

Prince George is located at the confluence of the Nechako and Fraser rivers. It was founded on the fur trade and forestry industry and is now a large regional centre with a population around 70,000. It has access to a well-developed network of highways and is a junction for Canadian National Railways.

Smithers started as a railroad community, but soon became an outpost for the fur trade and missionaries and formed an access route for gold miners heading north. It currently has an urban population of about 6,000, with about 20,000 living in surrounding rural communities. It is located halfway between Prince Rupert and Prince George, just off the Yellowhead Highway (Route 16).

## **Climate and Physiography**

The Property is in alpine to sub-alpine terrain between elevations of 2,100 m on mountain peaks and 900 m above sea level within the Sustut River valley. Much of the property occurs above tree line (1,440 m) where alpine shrubs, grasses, moss, and lichens transition upwards to barren rock, snow, and talus. The terrain is generally steep with glacially carved valleys, broad and U-shaped. Lower slopes are covered mainly by balsam, shrubs, and some spruce. Further into the valleys, the vegetation is mainly balsam, lodgepole pine, some spruce, with birch, and shrubs.

Within the region of the Property, annual temperatures range from greater than 25°C to less than -20°C with averages of 10°C in July and -20°C in January. Temperature ranges typical of mountainous regions are severe. July temperatures may exceed 30°C and January temperatures may reach -50°C. Annual rainfall is about 2 m with much of this falling as snow, primarily during winter months.

## **EXPLORATION HISTORY**

The RDP property covers three main showing areas: Day, Porcupine and Roy, as well as two lesser Minfile occurrences: Grizzly-Ork and Raven.

### **Day and Porcupine Occurrences**

The Day occurrence was discovered in 1972 by Wesfrob Mines following the discovery of Sustut Copper by Falconbridge. In 1973, Wesfrob carried out geochemical and geophysical surveys on the property (Brown and Gyr, 1973) Wesfrob also drilled two holes totaling 30.48 m in 1972 (GEM, 1972) and one inclined diamond drill hole, totaling 238.96 m, in 1973 (GEM, 1973) and, both of unknown results.

In 1974, Wesfrob Mines Ltd. conducted an eight-hole, 1,382 m diamond drill program on the company's Day mineral claims (Harper and Brown, 1974a; GEM, 1974; Aussant, 1991) at the main Day showing. Best results included 0.67% Cu over 58.8 m in hole D-74-1, 0.22% Cu over 12.2 m in hole D-74-5, 0.495% Cu over 6.1 m in hole D-74-6 and 0.12% Cu over 6.1 m in hole D-74-7. Gold values are not reported. Apparently core from this drilling was stored at Falconbridge's Sustut property to the north.

In 1990 and 1991, Skeena Resources Ltd. staked the Cisco 1 to 7 claims over the Day, and Porcupine showings. In 1990-91, Skeena entered a joint venture with Beauchamps Exploration Ltd. and hired Taiga Exploration Consultants to carry out a photogeological interpretation, silt sampling, reconnaissance and grid soil sampling, grid magnetic and VLF-EM surveys, orientation IP surveys, prospecting, trenching, and lithogeochemical sampling.

In 1992, 8 holes for 842 m were drilled at Day and Porcupine. Drilling at the Day showing returned a significant intercept of 0.54% Cu and 0.022 oz/ton Au over 57 m from DDH 92-1 and 0.36% Cu over 8 m from DDH 92-7 (Aussant, 1997).

In 1996, Madrona Mining Ltd. acquired an option to earn 50% interest from Skeena and Beauchamps in the Cisco property. Madrona contracted Aerodat Inc. to conduct airborne magnetic and EM geophysical surveys over the Cisco 1-6 claims (Aussant, 1997; Woolham, 1997). Taiga Exploration Consultants were contracted to investigate the geophysical anomalies. In 1996, Taiga collected several soil and rock samples, although no significant findings were reported.

## **Roy Occurrence**

The Roy Cu-Au porphyry showing was discovered in 1973 by McIntyre Porcupine Mines Ltd. and Esso Minerals Ltd., who carried out mapping, trenching, and sampling (MacLeod, 1973; Hartley, 1986). Numerous copper and zinc occurrences and soil anomalies were discovered.

No further work was carried out until 1980 when Golden Rule Resources Ltd. staked the Sus claims over the Roy showing. They carried out airborne VLF-EM and magnetic geophysical surveys, prospecting, geological mapping, soil, rock, and stream sediment sampling in 1981 (Fox, 1982). In 1984, Golden Rule completed additional prospecting, mapping, soil/silt/rock geochemical program (Wilson, 1985).

In 1985, Suncor Inc. optioned the property from Golden Rule and completed geological mapping, VLF-EM and magnetometer ground geophysical surveys, and soil geochemical surveys (Wilson, 1985). In 1989, Suncor's option was assigned to Ritz Resources Ltd. who conducted a 2-day program of geological mapping, soil sampling, and rock chip sampling (Fox, 1991). At this time, the exploration focus shifted from a narrow Cu-Au bearing shear zone to the surrounding porphyry-style mineralization. The 1990 program was partially designed to test porphyry-style stringer stockwork systems and shear zones in the Roy showing area through trenching. Trenching in 1991 encountered 0.121% Cu and 0.55 g/t Au over 62 m within an 80 m trench.

The property was subsequently allowed to lapse and, in 1995, was staked as the Red Claims by John Mirko. The property was then optioned to Exito Minerals who staked additional ground and conducted mapping, grid surveying, prospecting, rock and soil sampling, and an IP survey. Part of the rock sampling confirmed anomalous trench results obtained by Fox (1991). Exito conducted a drill program during the 1997 field season, the results of which are undocumented.

In 2010, a large property including the Day, Porcupine and Roy showings was staked by Equitas Resources Corp. In 2011, Equitas completed a 992 line-km airborne magnetic survey and a follow-up prospecting and rock and soil geochemical sampling program (Hoffman and Kluczny, 2011). In 2012, Equitas completed a single drill hole at the Roy showing that returned 0.11% Cu and 0.64 gpt Au over 122.95 m.

## **REGIONAL GEOLOGY**

The Property is in the northwest trending Stikine Terrane of the Western Canadian Cordillera, near its contact with Quesnel Terrane. The intervening oceanic Cache Creek Terrane is missing at this latitude. The island arc rocks of these terranes that comprise the Intermontane belt are known to host most of Canadian Cordillera porphyry deposits (McMillan, 1991, Logan and Mihalynuk, 2014). The Stikinia Terrane consists of Devonian to Jurassic arc-related volcanic and sedimentary strata and coeval, comagmatic plutonic suites (McMillan et al., 1995).

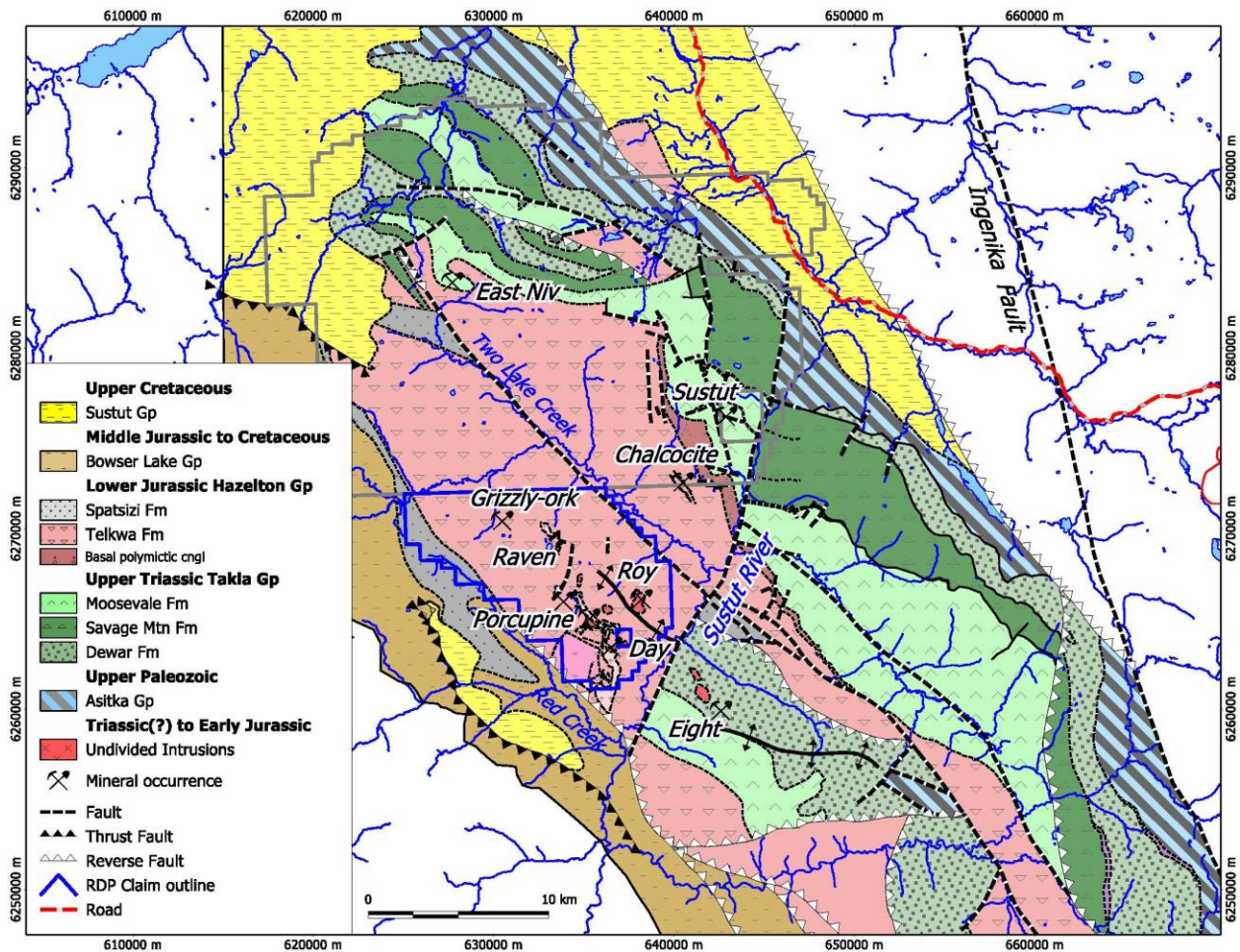
In the region around the Property, northwest trending belts of lower Permian Asitka Group and unconformable bound Mesozoic successions characterize the structural grain of this part of Stikinia. They young to the southwest and are often metamorphosed to zeolite facies (Harper, 1977; Wilton and Sinclair, 1988). They consist of the late Triassic Takla Group, the lower to middle Jurassic Hazelton Group, and overlapping basinal strata of the middle Jurassic to late Cretaceous Bowser Lake Group and middle to upper Cretaceous Sustut Group. Late Triassic and lower Jurassic intrusive rocks are common in the area and range in composition from felsic to mafic.

The oldest rocks are the lower Permian Asitka Group which are exposed northeast of the property at Moosevale Creek. The Asitka Group is a volcanosedimentary package consisting of cherty mudstone, shale, limestone, and felsic to mafic volcanics (Monger, 1977; Legun et al, 2001). Disconformably and unconformably overlying the Asitka Group is the Takla Group, another volcanosedimentary package composed of pelitic sedimentary rocks, minor limestone, and basaltic and andesitic volcanic rocks with a prevalence of augite porphyry.

Hazelton Group calc-alkaline arc volcanics and related sediments disconformably overlying the Takla Group and underlie most of the Property. The Hazelton Group is a volcanosedimentary package that consists of more than 4,000 m of rhyolitic, dacitic, and andesitic flows and pyroclastics with lesser clastic sedimentary rocks (Tipper and Richards, 1976; Dostal et al, 1998). Hazelton Group rocks comprise much of this part of the Stikine Terrane that hosts the overlapping Bowser Lake and Sustut groups sedimentary units.

The Bowser Basin is bound by the Skeena Arch to the south, a positive feature throughout the Jurassic (Carter, 1981), and the Stikine Arch to the north. The Sustut Basin developed during the Cretaceous in the foreland to the Skeena Fold Belt, now located near the eastern margin of the Bowser Basin.

The Bowser Lake Group sediments include most of the middle Jurassic to Cretaceous fill of the Bowser Basin and comprise shale, siltstone, sandstone, and conglomerate with minor andesitic volcanics (Tipper and Richards, 1976). Unconformably and disconformably overlying the Bowser Lake, Hazelton, and Takla group rocks are the fluvial mudstones, siltstones, sandstones, conglomerates, and volcanic tuffs of the Sustut Group (Evenchick, 1991).



**Figure 3. RDP Property Regional Geology.**

Bowser Lake and Sustut rocks are exposed immediately southwest of the property. Quaternary sediments may fill the valleys.

Regionally, intrusive igneous rocks occur in a northwest-trending belt. The intrusives are dominantly upper Triassic to lower Jurassic, between 215 to 175 Ma, with some upper Cretaceous to lower Tertiary volcanics. Intrusive rocks on the Property include a north-trending belt of upper Triassic mafic intrusives of the Menard Complex along with lower Jurassic felsic to intermediate intrusives of the Black Lake Intrusive Suite. A northwest-trending belt of lower

Jurassic intrusives, which are visible on airborne gravity and magnetic maps, are also exposed in the area. These intrusives include the informal Day suite monzodiorite and dacite porphyries, the Fir gabbro, and the Gyr rhyolite porphyry (Legun et al, 2001). The Day Suite intrusives are believed to host most of the mineralization on the Property and have been dated to 186 Ma (K-Ar, cooling ages). The age corresponds to an important metallogenic period linked to the alkaline class porphyry deposits at Lorraine and Mt. Milligan in Quesnel Terrane (Ney and Hollister, 1976; Legun, 2001).

The Property lies near the northeast limit of the Skeena Fold and Thrust Belt. Local northwest-trending, northeast-directed thrust faults, and northeast-trending, steeply dipping, normal faults within the area are likely related to late Jurassic to late Cretaceous deformation of the Skeena Belt.

Seraphim and Hollister (1976) note that six of the largest known porphyry deposits in the Canadian Cordillera are located within a few miles of, and to the northeast, of major northwest-trending fault zones, and that other groups of deposits appear to be related to separate north and northeast-trending zones. Three major northwest-trending fault systems are present in this part of Stikinia.

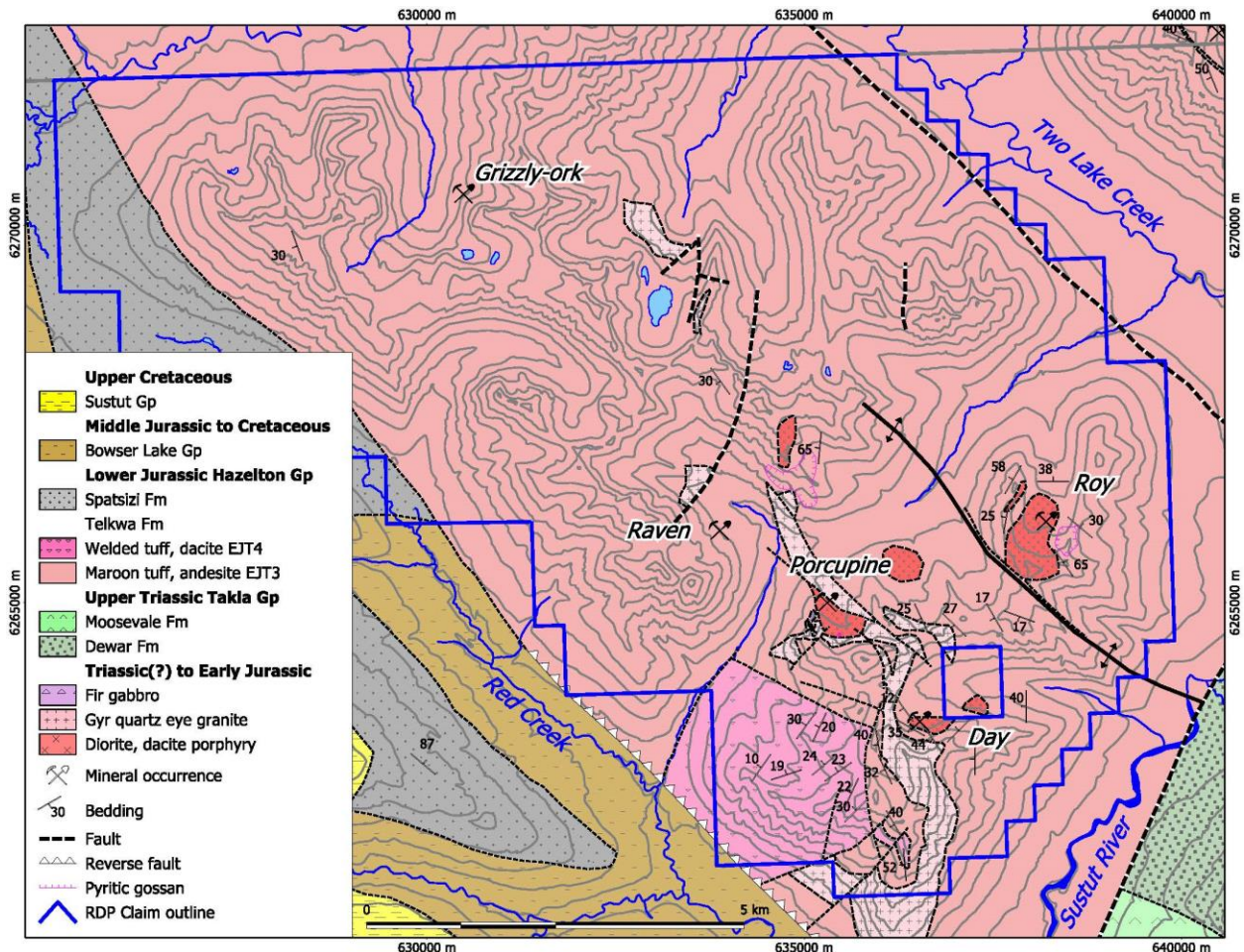
This system is the most easterly fault in the belt of porphyry deposits and is likely correlated with the Two Lake Creek fault, which trends northwest and lies directly northeast of the property in the Two Lake Creek Valley (Monger, 1977; Seraphim et al, 1976). The Day Property stratigraphy is dissected and probably imbricated by regional scale northwest-trending fault structures that follow Two Lake Creek and Red Creek valleys. The northeast trending Sustut River Fault lies directly southeast of the property. This structure juxtaposes a southwest dipping homoclinal panel of Hazelton Group volcanic rocks at the RDP against a northwest plunging anticline of Takla Group volcanic rocks exposed southeast of the Sustut River. This anticline may represent a component of compression through a left step on a dextral strike slip portion of the Cold Fish Fault. Evenchick (1991) suggests that the Cold Fish Fault may have developed before the Sustut basin was deposited (pre-Cretaceous) and that it was probably reactivated in the late Cretaceous suites.

## **PROPERTY GEOLOGY**

Due to the large amount of exposed outcrop and many years of economic interest in the area, there is a wide array of data available for the area of the Property.

The basal unit of the Hazelton Group, the Telkwa Formation, underlies the Property in a large fault-block bound by the Two Lake Creek Fault, Red Creek Fault, and Sustut River Fault. Telkwa Formation rocks consist of polymictic conglomerate, feldspar porphyry breccia with sandstone, mudstone and tuff interlayers, red and lapilli tuffs with andesite flows, andesitic to dacitic flows with welded tuffs and sediments, and undifferentiated andesitic to dacitic volcanics (Legun et al, 2001). These rocks are intruded by lower Jurassic felsic to intermediate stocks, plugs, sills, and dykes.

More detailed descriptions of the Telkwa volcano-sedimentary package are given by Church (1983). Church's stratigraphic divisions consist of the Two Lake Creek Member, the West Bound Ignimbrite, the Red Creek Member, and the Tarn Pond Member. The Two Lake Creek Member is comprised of tuffs and tuffaceous deposits, volcanic conglomerate, breccias, and andesitic flows. The West Boundary Ignimbrite is a rhyodacite with Gyr Porphyry as a possible source. The Red Creek Member is comprised of andesite and dacite with minor bands of tuffaceous mudstone, tuff, and basalt. The Tarn Pond Member is comprised of feldspathic andesite flows and breccias with correlating dykes.



**Figure 4. RDP Property Geology.**

Detailed descriptions of the intrusives are provided by Church (1983) and Legun (2001). The Day Suite is described as a series of plugs, sills, and stocks of porphyritic dacite/monzodiorite, and is believed to host the Day (Au-Cu-Mo-Zn), Roy (Au-Cu-Zn), Cisco- Porcupine (Cu-Zn-Pb), and Birch (Cu-Zn-Pb) showings. K/Ar dating of the Day stock at the Day showing gave an age of  $186 \pm 11$  Ma (Church, 1983). The Gyr Peak Porphyry, a rhyolite quartz-eye porphyry, can be traced as dykes, sills, and small stocks. The Fir Gabbro consists of a small plug of augite, chlorite, and magnetite hosting a fine plagioclase lath matrix.

The Property and surrounding area is extensively block faulted (Hartley, 1986). Telkwa strata appear to dip predominantly southwest to northwest. Many lithological contacts are bound by

northwest-trending faults and, to a lesser extent, north to northeast-trending faults. The porphyry around the Day showing is folded and faulted, probably by steep dipping normal faults (Church, 1983; Aussant, 1991). Aeromagnetic data collected by Woolham (1997) over the Day and Cisco-Porcupine areas has revealed extensive faulting and suggests several underlying intrusives (Aussant, 1997).

## **MINFILE Occurrences**

### **Day – 094D 065**

Day is a porphyry Cu-Au occurrence that includes pyrite, magnetite, chalcopyrite, minor molybdenite, and traces of bornite that occur as disseminations and fracture fillings in diorite and adjacent altered volcanoclastic rocks. The sulphides are pervasive in and around vuggy quartz-calcite veins and vein stockworks.

### **Roy – 094D078**

Mineralization on the Roy showing consists of a quartz-magnetite-chalcopyrite stringer stockwork within a syenomonzonite to monzonite host. The mineralization is described by Fox (1991) as: “quartz-stringer stockwork constitutes approximately 5% - 10% of the total rock volume, with magnetite comprising about 10% to 20% of the stringer volume and chalcopyrite comprising about 5% - 10% of the volume. The overall abundance of chalcopyrite is about 0.5% to 1% of the total rock volume with some samples containing as much as 4% or 5% chalcopyrite. The quartz stringers range from 0.1 to 5 mm width, do not exhibit potassic alteration envelopes, and have relatively clean walls with only minor recrystallization and silicification of the syenomonzonite host adjacent to the stringers.”

### **Porcupine – 094D 077 (Birch)**

The Porcupine occurrence is a large gossanous area discovered in 1972, with indications of both volcanogenic massive sulphide (VMS) and porphyry style mineralization. The initial focus was the VMS target. Stratabound mineralization consisting of pyrite, pyrrhotite, sphalerite, chalcopyrite with local lenses of magnetite; and is hosted within dacitic to rhyolitic volcanics. Alteration includes intense silicification, weak chloritization and partial argillic alteration. Aussant (1997) describes very high-grade boulder samples (up to 17.2% Cu with 0.01 g/t Au in sample ZR-91-149, and 7.98 g/t Au with 0.19% Cu in KF-92-69). More recent exploration has focused on the porphyry potential at Porcupine.

### **Grizzly-Ork – 094D 083**

Little is known about this occurrence. The setting is like the nearby Porcupine showing. The showing is hosted in Lower Jurassic Telkwa Formation tuffs and agglomerates, which are intruded by porphyry dykes. The mineralization consists of disseminated bornite and chalcopyrite in the volcanic rocks.

## **Raven – 094D 207 (Cisco 5)**

The Raven occurrence is located northeast of Red Creek, approximately 8.5 kilometres northwest of the creek's junction with the Sustut River. The showing lies within a large fault block of Lower Jurassic Telkwa Formation volcanics. Small, Early Jurassic leucocratic porphyry plugs intrude the volcanics. Locally, a gossanous dacite hosts up to 10 per cent disseminated pyrite with occasional pyrite stringers, quartz veinlets and magnetite bands. In 1997, two grab samples assayed 2.09 and 1.02 grams per tonne gold with 0.05 and 0.09 per cent copper (McCrea, 2011).

## **2021 EXPLORATION PROGRAM**

### **Program Summary**

In 2021, Pacific Ridge Exploration Ltd. ("Pacific Ridge") optioned the RDP property, including the Roy, Day, and Porcupine showings, from prospector Bernie Kreft. In April and May of that year, all the available historical data, from several sources, was compiled into a digital database. Fathom Geophysical Consultants was contracted to carry out an Sentinel-2 satellite and radiometric interpretation over the Property, identifying alteration-related mineral species.

The field program included 27.5 person-days of field work supported from Pacific Ridge's Kliyul camp, 40 km to the east. The program involved preliminary mapping and prospecting with the collection of 39 rock samples; 26 from Roy, 8 from Porcupine, 4 from Day and 1 from a ridgeline gossan located north of Porcupine. In addition, 8 stream sediment silt samples were collected upstream an the anomalous RGS sample.

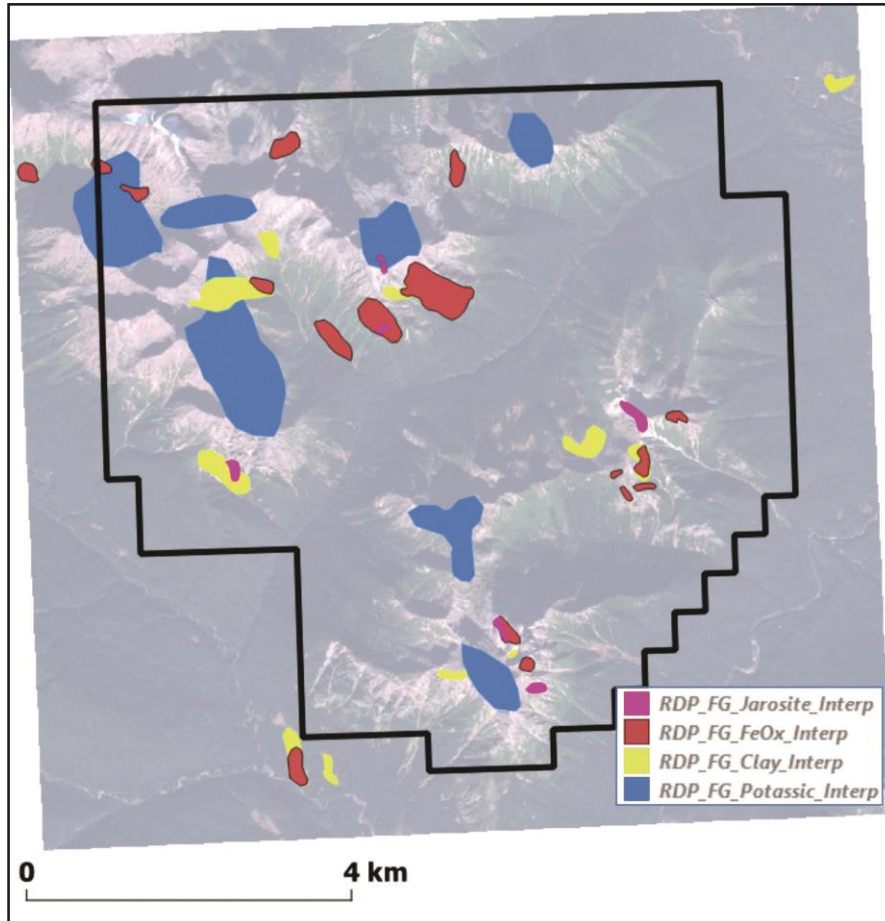
The data compilation was carried out by Pacific Ridge while the Sentinel-2 and radiometric interpretation was completed by Fathom Geophysics. Field work was completed by personnel from Pacific Ridge, JLo Geological Consultants and Equity Exploration Consultants. Analytical work was completed by ALS Canada Limited of North Vancouver, BC.

### **Data Compilation**

In addition to public sources of information, including the BC Geological Survey Assessment Reports and Property files, results from Madrona Mining's aeromagnetic survey were acquired from Mike Marchand and a large private database, including geochemical results and core logs, were acquired from Dahrouge Geological Consultants. All this data was compiled into a single database and property geological, geochemical, and geophysical maps were created in QGIS. This compiled database was used to guide the 2021 field program.

## Sentinel-2 and Radiometric Interpretation

Fathom Geophysics completed a Sentinel-2 satellite and radiometric interpretation over the property (Core and Konecke, 2021; Appendix I). The spectral imagery from Sentinel-2 was acquired from the European Space Agency's Copernicus Open Access Hub while the radiometric data was from the Geoscience BC Search III survey.



**Figure 5. Alteration polygons interpreted based on Sentinel-2 and radiometric data.**

Polygons were created for potassic, clay, iron-oxide, and jarosite alteration. The data are difficult to interpret due to the influence of shadow and vegetation. The potassic alteration polygons are based entirely on the radiometric data while the other polygons are based on the Sentinel-2 data. The Sentinel-2 data have limited spectral resolution that make it impossible to distinguish between different clay minerals. The clay interpretation polygons could contain range of alteration types including argillic, advanced argillic, and phyllic alteration.

The interpreted alteration polygons are shown in Figure 5. The Sentinel-2 data are most effective for mapping goethite. The jarosite and clay polygons have a lot of uncertainty and require field checking. The strongest K-alteration appears to be in the northwest of the property. The other K-

alteration polygons appear to be caused more by Th depletion than by K enrichment. The complete report by Fathom is included as Appendix I to this report.

## **Geological Mapping and Sampling**

Five days of geological mapping and sampling were carried out by Danette Schwab and Jim Logan at the RDP property in August and September 2021. Sampling and mapping were carried out in the immediate areas surrounding the Roy, Day, and Porcupine mineral showings to characterise the style and tenor of mineralization and to evaluate the potential for discovery of additional porphyry Cu-Au-Ag mineralization. The following descriptions are condensed from Logan and Schwab (2022), a complete copy of which is included with this report as Appendix II.

### **Roy Showing**

The Roy showing is exposed on a 300 m x 200 m bench situated at the headwaters of a north flowing tributary that flows into Two Lake Creek. Mineralization and alteration at Roy are centered on a north trending 1 x 0.5 km stock of fine- grained plagioclase and sparse hornblende porphyritic quartz monzodiorite. In the core of the intrusion (exposed in trenching), the monzodiorite is weakly potassic altered (secondary orthoclase, quartz-magnetite banded cm vein stockworks ± chalcopyrite>>pyrite). Retrograde patchy epidote, chlorite ± quartz, pyrite, and calcite overprint the early potassic alteration in the trenches. Drilling at this zone in 2011 encountered 0.11% Cu and 0.64 gpt Au over 122.95 m.

West of and above the trenching, in the cirque wall and along the ridge top, the monzodiorite is faulted and cut by brittle stockwork zones of calcite-quartz-chlorite ± pink zeolite (heulandite?). East of the trenching on the bench and extending up onto the ridge is an oxidized hornfelsed pyrite, chlorite, quartz, and calcite alteration zone developed at the contact between the intrusion and the Telkwa volcanoclastic rocks. Inaccessible shear zones in the cliff face are coated with malachite stain.

### **Day Showing**

The main showing consists of a 100 m x 150 m rusty weathering, malachite stained, outcrop protruding from a boulder talus slope at the headwaters of Harper Creek. The outcrop is a chlorite altered, sheeted and stockwork quartz-magnetite veined hornblende diorite porphyry that is mineralized with up to several percent chalcopyrite>>pyrite. Stockwork veining includes early banded magnetite-quartz, grey to white quartz only and late coarse white calcite. Chalcopyrite occurs as disseminated blebs within the intrusion and together with magnetite or alone as vein-fillings or massive blow-outs. Less often it occurs with pyrite which is never abundant.

Drilling in 1974 on the Day showing encountered 58.8 meters of mineralization in the diorite grading 00.67% Cu. Other drill holes collared further east in overburden failed to intersect any significant sulphides and cut weakly altered volcanic stratigraphy peripheral to the diorite. Subsequent drilling in 1992 showed that the Day diorite comprises multiple phases of diorite, diorite porphyry, monzonite and tonalite composition, extending northeasterly under cover at

least 700 m, and containing disseminated and fracture-controlled chalcopyrite, magnetite, bornite, and pyrite mineralization over multiple intervals 10-15 m thick.

Diorite porphyry outcrops 300 m east along the base of steep cliffs forming the southern wall of the basin. The diorite is assumed to be part of the Day intrusion but is weakly chlorite altered and only rarely contains traces of chalcopyrite and/or malachite on fractures.

### **Porcupine Showing**

The Porcupine occurrence was originally interpreted to comprise volcanogenic massive sulphide (VMS) stratiform gold-copper mineralization, which extended north-westerly for 3 kilometres along strike. Re-logging of the 1992 core by Equitas Resource Corp. show all the holes intersected diorite comprising pervasive silicified bleached zones, cut by stockwork quartz veining and fine grained disseminated and fracture-controlled pyrite, chalcopyrite, bornite, enargite(?), minor sphalerite and other unidentified sulfides (Hoffman and Kluczny, 2011).

Mineralization at Porcupine comprises silicified zones of massive to semi-massive concordant sulphide lenses hosted by dacitic to rhyolitic coherent and clastic volcanic rocks and sulphide-rich quartz stockwork and veins hosted in a hornblende plagioclase porphyry plug that underlies the cirque. Mineralization consists of pyrite, pyrrhotite, sphalerite, chalcopyrite and, locally, lenses of magnetite. The host volcanic and intrusive rocks have been intensely quartz-sericite-pyrite (QSP) altered, variably silicified, chloritized and locally argillic altered.

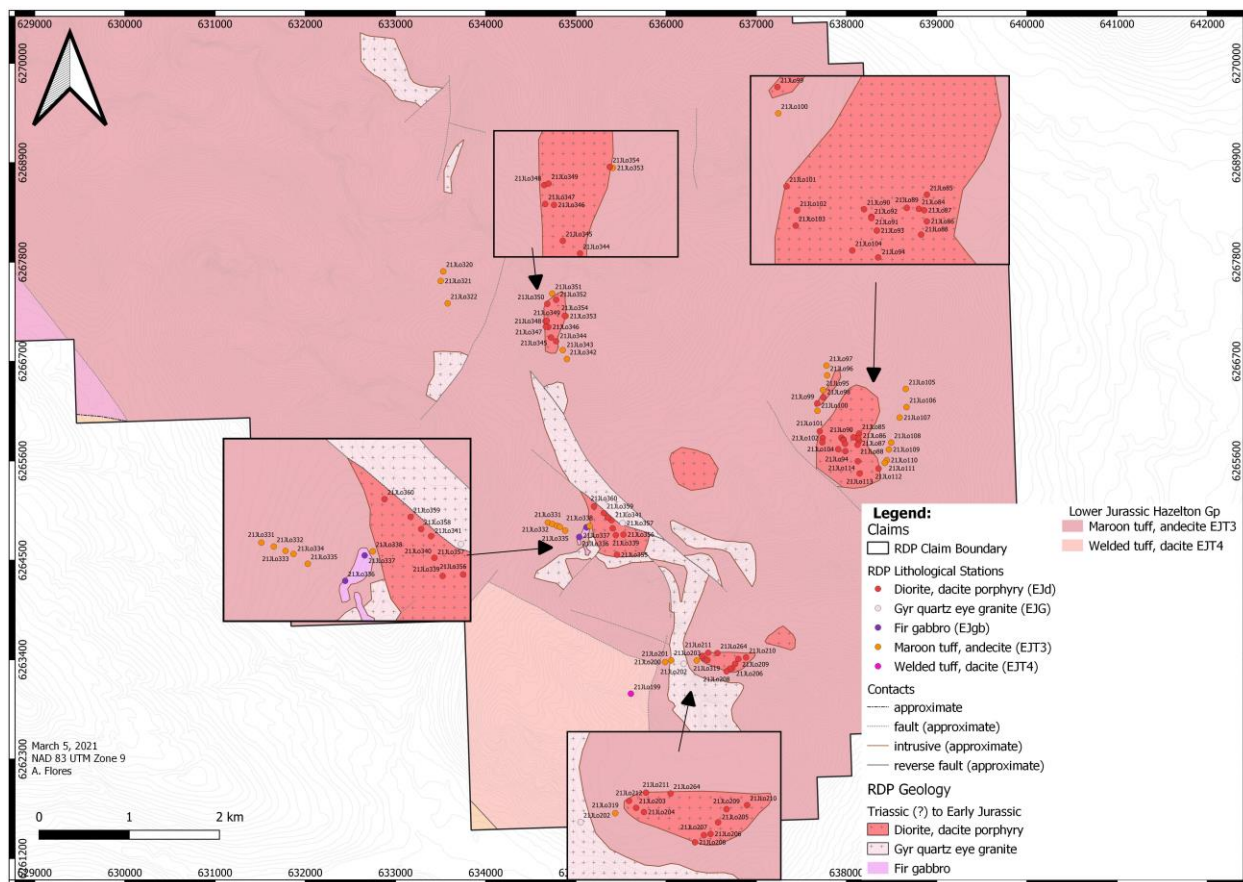


Figure 6. Geological Stations from 2021 RDP Field Season

## Geochronology

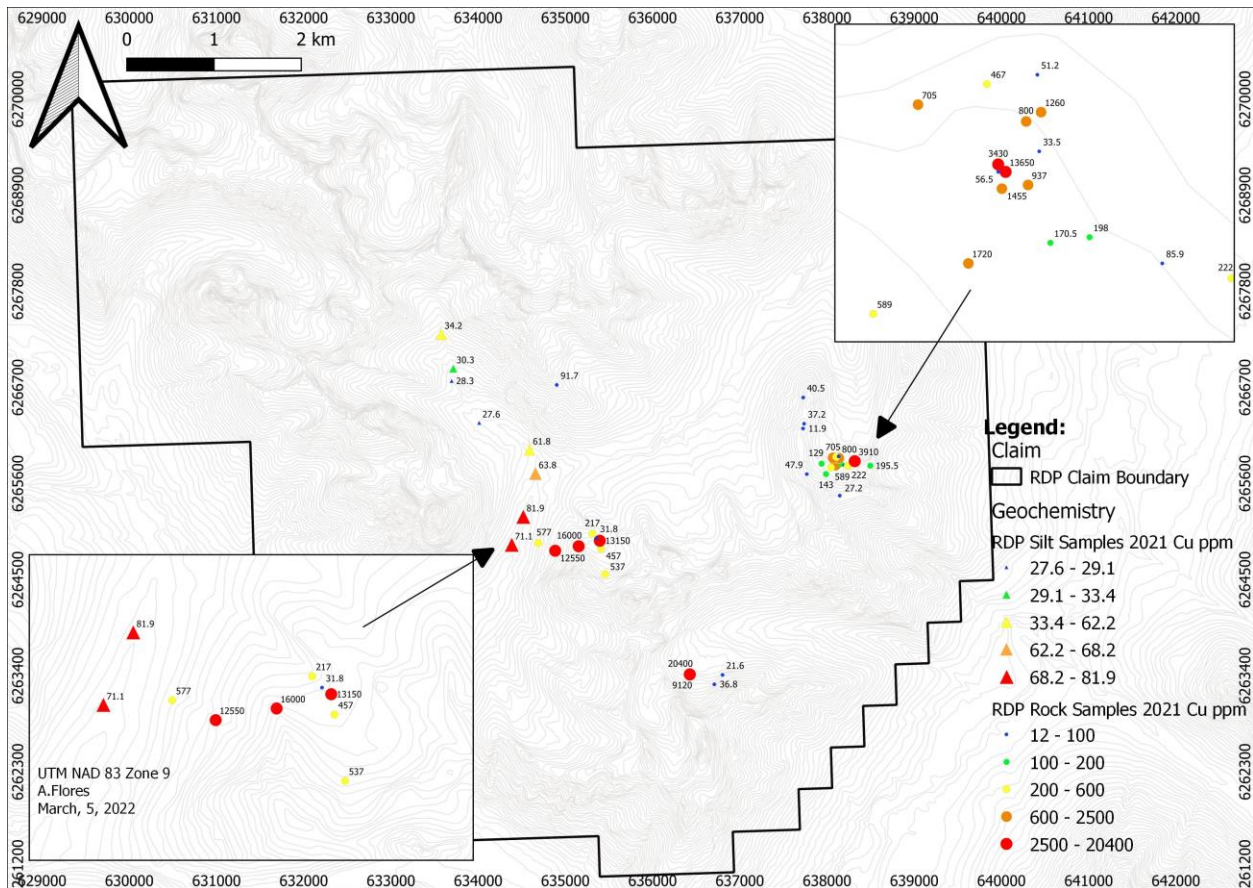
Porphyry Cu-Au±Mo metallogeny of Stikine terrane is closely related to its magmatic history and Mesozoic plutonic suites. Historic intrusive dates from RDP include a sample of fresh diorite from the Day showing that returned a hornblende K-Ar age of  $184 \pm 11$  Ma (Church, 1975), subsequently modified and reported by Gabrielse et al. (1980) as  $193 \pm 22$  Ma. These dates are cooling ages and do not necessarily correspond to mineralization. To evaluate the porphyry potential of the intrusions on the claims more precise U-Pb, zircon dating is required to establish the crystallization age.

A sample of diorite from the Roy showing was collected and submitted for U-Pb zircon dating by Laser Ablation ICP-MS at the Pacific Centre for Isotopic and Geochemical Research, Department of Earth, Ocean and Atmospheric Sciences, The University of British Columbia. Lee (2021) reported the age spread for the individual spots from the Roy sample as high but an overall age of  $202.0 \pm 1.6$  Ma was viable from the results. Stikine porphyry mineralization is associated with Late Triassic to Early Jurassic (ca. 220 to 195 Ma) as well as Late Cretaceous and Eocene intrusions but in the northeast intrusions with ages between 202 and 197 Ma are the

most prospective in the region (i.e., Kemess). For a more in-depth discussion see Logan and Schwab (2022, Appendix II).

## Rock Geochemistry

During field mapping 39 rock samples were collected from the Roy (n=26), Day (n=4), Porcupine (n=8) and a gossan (n=1) located north of Porcupine (See Figure 9 for sample locations and Appendix III for sample details). The samples were mainly grab samples of mineralized, altered, and fresh rock that were collected to create a geochemical database to test fertility indices of the intrusions and alteration vectoring parameters at the three showings. The rock samples were shipped to ALS Canada Ltd. in Vancouver and analyzed for gold by fire assay with an AAS finish and 48 elements by ICP-MS 4-acid digestion. Results are presented in table form in Logan and Schwab (2022, Table 1) and sample locations are shown in Figures 7 and 8. Sample locations are shown in Figure 9. Analytical certificates are included in Appendix III.

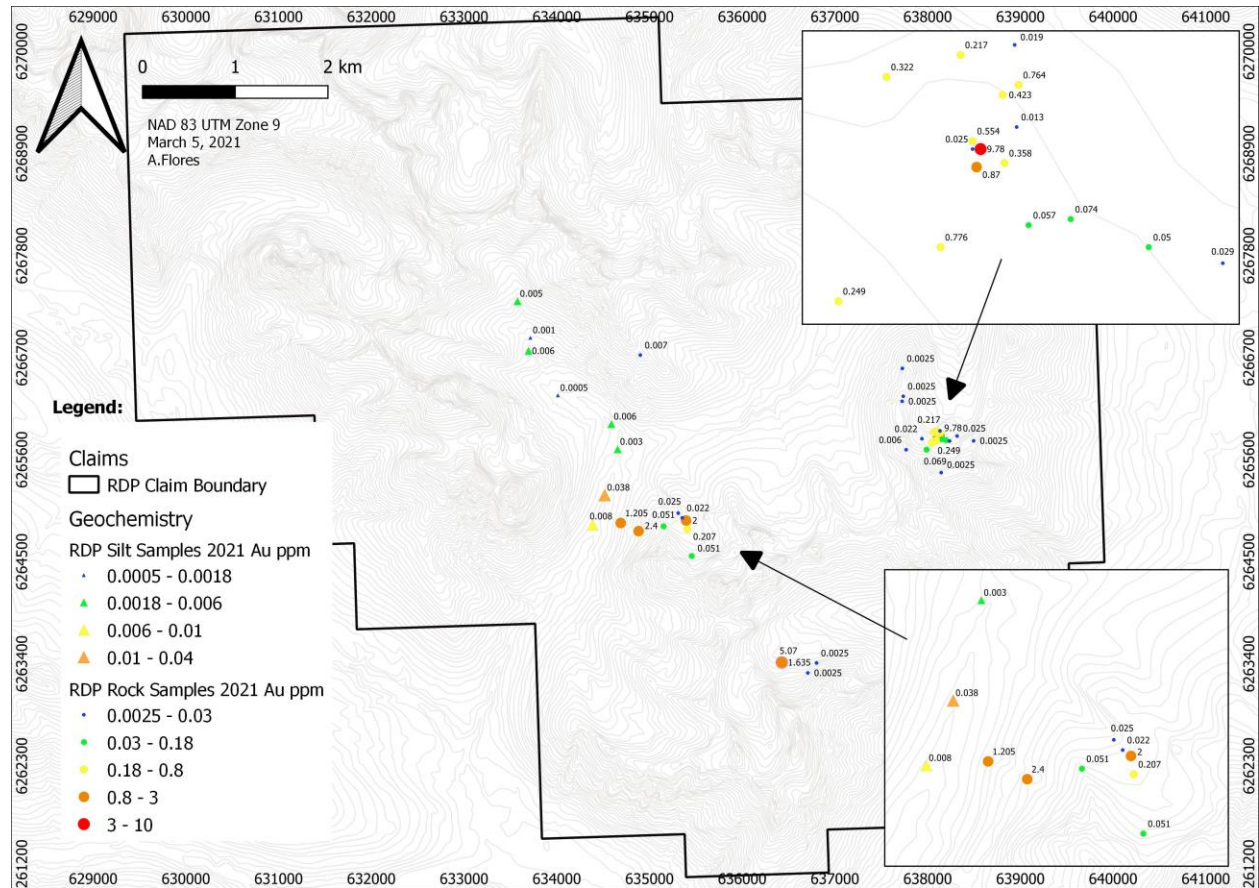


**Figure 7. Rock and Silt Samples Showing Cu (ppm) Assay Values**

**Table 2. Rock Sample Summary (see Appendix III for details.)**

Sample ID	Station ID	Easting*	Northing*	Eleva.	Type	Prospect	Sampler	Lithology	Cu(ppm)	Au(ppm)
B264857		638112	6265862	1655	ROCK	ROY	DLS		3,430.0	0.554
B264858		638116	6265858	1655	ROCK	ROY	DLS		13,650.0	9.780
B264859		638114	6265849	1655	ROCK	ROY	DLS	DIO	1,455.0	0.870
B264860	21JLo85	638112	6265858		ROCK	ROY	JLo	TUFF	56.5	0.025
B264861		638128	6265851	1655	ROCK	ROY	DLS	DIO	937.0	0.358
B264862		638134	6265869	1653	ROCK	ROY	DLS	DIO	33.5	0.013
B264863	21JLo86	638140	6265820		ROCK	ROY	JLo	TUFF	170.5	0.057
B264864		638127	6265885	1649	ROCK	ROY	DLS		800.0	0.423
B264865		638096	6265809	1650	ROCK	ROY	DLS		1,720.0	0.776
B264866		638045	6265782	1685	ROCK	ROY	DLS		589.0	0.249
B264867		637938	6265826	1666	ROCK	ROY	DLS		129.0	0.022
B264868	21JLo94	637989	6265708		ROCK	ROY	JLo	VOLC	143.0	0.069
B264869	21JLo108	638496	6265803		ROCK	ROY	JLo	DIO	195.5	0.003
B264870	21JLo113	638146	6265461		ROCK	ROY	JLo	DIO	27.2	0.003
D722960	21JLo203	636426	6263414		ROCK		JLo	DIO	20,400.0	5.070
D722961	21JLo203	636426	6263414		ROCK		JLo	DIO	9,120.0	1.635
D722962	21JLo207	636708	6263301		ROCK		JLo	DIO	36.8	0.003
D722963	21JLo209	636802	6263409		ROCK		JLo	FPO	21.6	0.003
D722964	21JLo331	634690	6264917		ROCK		JLo	DIO	577.0	1.205
D722965	21JLo335	634883	6264830		ROCK		JLo	VOLC	12,550.0	2.400
D722966	21JLo338	635152	6264881		ROCK		JLo	GABR	16,000.0	0.051
D722967	21JLo340	635408	6264854		ROCK		JLo	DIO	457.0	0.207
D722968	21JLo341	635394	6264944		ROCK		JLo	DIO	13,150.0	2.000
D722969	21JLo342	634901	6266728		ROCK		JLo	VOLC	91.7	0.007
D722970	21JLo355	635455	6264561		ROCK		JLo	DIO	537.0	0.051
D722971	21JLo358	635353	6264973		ROCK		JLo	DIO	31.8	0.022
D722972	21JLo359	635310	6265024		ROCK		JLo	DIO	217.0	0.025
D722981		638069	6265894		ROCK	ROY	DLS	DIO	705.0	0.322
D722982		638106	6265905		ROCK	ROY	DLS	DIO	467.0	0.217
D722983		638133	6265910		ROCK	ROY	DLS	DIO	51.2	0.019
D772951		637737	6266284	1714	ROCK	ROY	DLS	SST	37.2	0.003
D772952		637725	6266229	1726	ROCK	ROY	DLS		11.9	0.003
D772953		637727	6266584	1771	ROCK	ROY	DLS	DIO	40.5	0.003
D772954		637768	6265707	1751	ROCK	ROY	DLS	DIO	47.9	0.006
D772955	DS-21-12	638161	6265823	1649	ROCK	ROY	DLS	DIO	198.0	0.074
D772956	DS-21-13	638200	6265809	1642	ROCK	ROY	DLS	DIO	85.9	0.050
D772957	DS-21-14	638237	6265801	1638	ROCK	ROY	DLS	DIO	222.0	0.029
D772958		638318	6265855	1629	TALUS	ROY	DLS	VOLC	3,910.0	0.025
D772959		638135	6265890	1630	ROCK	ROY	DLS	DIO	1,260.0	0.764
Sampler	DLS	Danette Schwab		Lithology	DIO	Diorite				
	JLo	Jim Logan			TUFF	Tuff				
					VOLC	Volcanic				
					GABR	Gabbro				
					FPO	Feldspar Porphyry				
					SST	Sandstone				
* NAD83, Zone 9										

Correlation coefficients for samples collected from Roy are 0.95 for Cu: Au, 0.96 for Cu: Ag, and 0.97 for Au: Ag indicating a strong codependence between these three metals, as expected for a proximal porphyry Cu-Au style of mineralization. The values for other pathfinder elements i.e., As, Bi, Cd, Mo, Pb, Sb, Zn were typically < 0.5 except for 0.67 for Sb: Ag. Correlation coefficients of 1 and 0.99 are indicated for Cu, Fe, Au, Ag, Bi, and Mo from the Day samples, but this might be an artifact of the limited data set (n=4). The highest correlation coefficient pairs from the Porcupine are 0.97 for Au: Mo and Ag: Pb, 0.96 for Au: Sb and Pb: Cd. The values for Cu: Au and Cu: Ag are 0.42 and 0.84, lower and quite different from the mineralized samples at Roy.

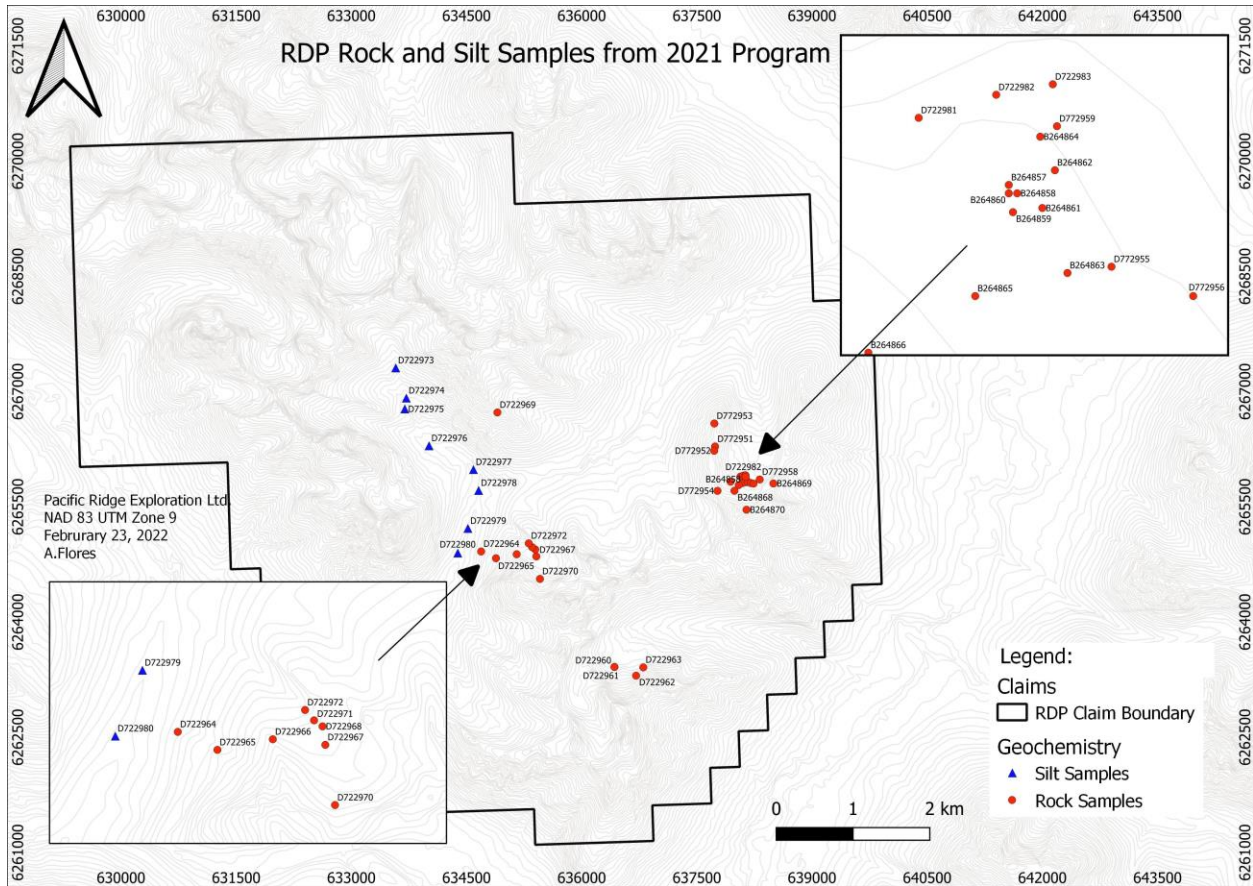


**Figure 8. Rock and Silt Samples Showing Au (ppm) Assay Values**

## Stream Sediment Geochemistry

Reconnaissance stream sediment silt sampling (n=8) was undertaken upstream from the anomalous RGS sample 94D963415 (Au 46 ppb, Cu 100 ppm, Pb 19 ppm, Zn 230 ppm, As 26 ppm). The creek was narrow, fast, and difficult to sample material in the upper reaches, but it was assumed that if there was alteration/mineralization in the upper drainage basin some evidence would be present even in these samples. The two samples closest to the anomalous RGS sample (329 and 330) show relative enrichments in Ag, Au, As, Bi, Cu and Mo when

compared to the upstream samples and confirm the anomalous values in the historic sample. Results are shown in Figure 6 and Table 2 in Logan and Schwab (2022), and sample locations are shown in Figure 9, below. Analytical certificates are included in Appendix III.



**Figure 9. Rock and Silt Sample Location Map.**

**Table 3. Silt Sample Locations.**

Sample ID	Station ID	Easting*	Northing*	Sample Type	Sampler
D722973	21JLo323	633577	6267307	SILT	Jlo
D722974	21JLo324	633715	6266914	SILT	Jlo
D722975	21JLo325	633695	6266773	SILT	Jlo
D722976	21JLo326	634011	6266293	SILT	Jlo
D722977	21JLo327	634589	6265983	SILT	Jlo
D722978	21JLo328	634656	6265712	SILT	Jlo
D722979	21JLo329	634517	6265217	SILT	Jlo
D722980	21JLo330	634385	6264897	SILT	Jlo
	* NAD83, Zone 9				

## CONCLUSIONS

The RDP property, located in north-central BC roughly 190 km north of Smithers, has the potential to host a significant copper-gold porphyry deposit. It is underlain by the Stikine terrane, which includes three main arc assemblages comprising volcanic, intrusive, and sedimentary rocks of the Paleozoic Asitka, Triassic Takla, and Jurassic Hazelton groups. The Property covers three main showing areas: Day, Porcupine (Birch) and Roy. The Day occurrence was discovered in 1972 by Wesfrob Mines. Historical drilling at Day in 1974 encountered 0.67% Cu over 58.8 m, 0.22% Cu over 12.2 m, 0.495% Cu over 6.1 m and 0.12% Cu over 6.1 m in. Gold values are not reported. Trenching in 1989 encountered 0.121% Cu and 0.55 g/t Au over 62 m. In 1992, drilling returned a best interval of 0.54% Cu and 0.022 oz/ton Au over 57 m. At the Roy occurrence, a single drill hole encountered 0.11% Cu and 0.64 gpt Au over 122.95 m.

In 2021, Pacific Ridge optioned the Property and compiled all the available historical exploration data into a GIS. Fathom Geophysical Consultants was contracted to carry out a combined Sentinel-2 satellite and radiometric interpretation over the property. A subsequent field program included 27.5 person-days of field work supported from Pacific Ridge's Kliyul camp, 40 km to the east. The program involved preliminary mapping and rock sampling with the collection of 39 rock samples; 26 from Roy, 8 from Porcupine, 4 from Day and 1 from a ridgeline gossan located north of Porcupine. In addition, 8 stream sediment silt samples were collected upstream an the anomalous RGS sample.

Historical trenching and drilling at the Day and Roy occurrences has demonstrated the potential for the discovery of significant copper-gold porphyry mineralization on the Property. The satellite and radiometric interpretation identified the signatures of alteration minerals, including iron oxides, clay and potassium enrichment. These signatures occur not only at the Day, Roy and Porcupine showings, but also at several other locations within the Property. Mapping confirmed the presence of porphyry-style alteration and mineralization at Day and Roy, and possibly also at Porcupine, which may represent the upper portions of a porphyry mineralized system. A U-Pb radiometric age determination from a sample from the Roy occurrence, of  $202.0 \pm 1.6$  Ma confirms the Late Triassic to Early Jurassic (ca. 220 to 195 Ma) prospectivity of the intrusion.

## RECOMMENDATIONS

A two stage, non-contingent field program is recommended for the property. The first phase would entail approximately two weeks for a four-person field crew. The work would involve detailed mapping of the Roy, Day and Porcupine occurrences as well as re-logging historical drill core stored at the Roy occurrence. The objective of this program would be to define drill sites. The crew will also carry out reconnaissance mapping and prospecting, in the drainage upstream from the Porcupine occurrence and in the vicinity of the alteration signatures defined by the Fathom Geophysics study. This will be followed by a second phase core drilling program of 1,000 to 1,500 m to test the Day and Roy occurrences.

**Table 4. Statement of Expenditures.**

<b>Exploration Work type</b>	<b>Comment</b>	<b>Days</b>			<b>Totals</b>
<b>Personnel (Name)* / Position</b>	<b>Field Days (list actual days)</b>	<b>Days</b>	<b>Rate</b>	<b>Subtotal*</b>	
Gerry Carlson, Senior Geologist		1	\$1,200.00	\$1,200.00	
Danette Schwab, Senior Geologist	Aug. 12th, August 13th, September 6th	4	\$625.00	\$2,500.00	
Jasmine Clancy, Project Geologist	apportioned (Aug 12-Sep 6th)	3.5	\$750.00	\$2,625.00	
Laure Matiakh, Project Geologist	August 13th	1	\$750.00	\$750.00	
Cole Noyes, Geologist	apportioned (Aug 12th – Sep 6th)	1	\$650.00	\$650.00	
Jim Logan, Consultant	Aug. 12, 13, 20, 25, 31, Sep 1st, 2nd	9	\$750.00	\$6,750.00	
Jacy Zerb, Exploration Assistant	Aug. 20, 25, 31, Sep 1st, 2nd	5	\$450.00	\$2,250.00	
Justin Muir, Camp Manager	apportioned (Aug 12th – Sep 6th)	1	\$500.00	\$500.00	
Margaret Pearson, Safety Consultant	apportioned (Aug 12th – Sep 6th)	1	\$500.00	\$500.00	
Wil'dahl'ax Forest Products Ltd.	apportioned (Aug 12th – Sep 6th)	1	\$650.00	\$650.00	
				\$18,375.00	<b>\$18,375.00</b>
<b>Office Studies</b>	<b>List Personnel (note - Office only, do not include field days)</b>				
Database compilation, report preparation	Alejandra Flores	20	\$300.00	\$6,000.00	
Database compilation, computer modelling	Danette Schwab	6	\$625.00	\$3,750.00	
Database compilation	Jim Logan	4	\$750.00	\$3,000.00	
Report preparation	Alejandra Flores	7	\$300.00	\$2,100.00	
Interpretation, report preparation	Danette Schwab	2	\$625.00	\$1,250.00	
Interpretation, report preparation	Jim Logan	7	\$750.00	\$5,250.00	
Other (specify)			\$0.00	\$0.00	
				\$21,350.00	<b>\$21,350.00</b>
<b>Geophysics/Remote Sensing</b>		<b>No.</b>	<b>Rate</b>	<b>Subtotal</b>	
Aster analysis	Fathom Geophysics			\$3,257.93	
				\$3,257.93	<b>\$3,257.93</b>
<b>Geochemical Analysis</b>		<b>No.</b>	<b>Rate</b>	<b>Subtotal</b>	
Chemical Analyses	ALS Canada Ltd.			\$1,795.79	
				\$1,795.79	<b>\$1,795.79</b>
<b>Transportation</b>		<b>No.</b>	<b>Rate</b>	<b>Subtotal</b>	

Airfare	G. Carlson			\$534.25	
Airfare	D. Schwab			\$816.25	
Airfare	Corporate Traveller Bridgeview			\$1,494.96	
Ground Transportation	G. Carlson			\$83.75	
Truck Rental	Driving Force	9.00	\$69.24	\$623.16	
Travel Expenses	J. Logan			\$945.04	
Travel meals	Expense report			\$131.60	
Taxis and Airporters	Expense report			\$66.39	
Helicopter Charters	Canadian Helicopters Ltd.			\$16,005.00	
Helicopter Charters	Interior Helicopters Ltd.			\$4,712.50	
Automotive Fuel	Chu Cho Industries Limited Partnership			\$281.00	
Diesel	Gary Young Agencies Ltd			\$145.00	
Jet A	Northwest Fuels Ltd.			\$3,126.78	
Fuel security	Abraham Creek Holdings Ltd			\$784.00	
				\$29,749.68	<b>\$29,749.68</b>
<b>Accommodation &amp; Food</b>	<b>Rates per day</b>				
Accommodation	Corporate Traveller Bridgeview			\$277.39	
Field Camp Rental (person days)	Equity Exploration	28	\$50.00	\$1,400.00	
Camp Food	Shoppers Foods Wholesale			\$866.81	
				\$2,544.20	<b>\$2,544.20</b>
<b>Miscellaneous</b>					
Courier	Purolator Inc.			\$72.56	
Materials and Supplies	IRL Supplies Ltd.			\$123.33	
				\$195.89	<b>\$195.89</b>
<b>Equipment Rentals</b>					
Generator Rental	Equity Exploration	1	\$50.00	\$50.00	
Generator Rental	N.C. Rentals Inc.	1	\$100.00	\$100.00	
Internet Charges	Tower Communications Ltd.	1	\$25.00	\$25.00	
Satellite Phone Rental	Tower Communications Ltd.	9	\$6.63	\$59.67	
				\$234.67	<b>\$234.67</b>
<b>TOTAL Expenditures</b>					<b>\$77,503.16</b>

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## CERTIFICATE OF QUALIFICATIONS

I, Gerald G. Carlson, hereby certify that:

1. I am a consulting mineral exploration geologist and Executive Chairman of Pacific Ridge Exploration Ltd., 11th Floor – 1111 Melville St., Vancouver, B.C. V6E 3V6.
2. I am a graduate of the University of Toronto, with a degree in Geological Engineering (B.A.Sc., 1969). I have advanced degrees in Economic Geology from Michigan Technological University (M.Sc., 1974) and Dartmouth College (Ph.D., 1978). I have been involved in geological mapping, mineral exploration, and the management of mineral exploration companies continuously since 1969, except between 1972 and 1978 when I was in graduate studies.
3. I am a member in good standing of Engineers and Geoscientists British Columbia, Registration No. 12513 and of Engineers Yukon, Registration No. 0198.
4. I am a co-author of this assessment report on the RDP property.
5. The report is based on a literature review, on private company reports and on the 2021 surface exploration program.
6. I am a Director and Officer of Pacific Ridge Exploration Ltd. and I own shares in the company.
7. I was personally involved in the planning, execution and interpretation of the exploration program discussed in this report.

Dated at Vancouver, B.C. this 11<sup>th</sup> day of March 2022,



Gerald G. Carlson, Ph.D., P. Eng.

I, Alejandra Flores Flores, hereby certify that:

1. I am a geologist and Exploration Geologist of Pacific Ridge Exploration Ltd., 11th Floor – 1111 Melville St., Vancouver, B.C. V6E 3V6.
2. I am a graduate of the University of British Columbia with a degree in Geological Sciences (B.Sc., 2019). I have been involved in geological mapping, mineral exploration, and the management of mineral exploration programs continuously since 2019, except between 2020 and 2021 when I worked at an engineering consultant company.
3. I am a member in good standing of Engineers and Geoscientists British Columbia, Registration No. 221046
4. I am a co-author of this assessment report on the RDP property.
5. The report is based on a literature review, on private company reports and on the 2021 surface exploration program.
6. I was personally involved in the planning, execution and interpretation of the exploration program discussed in this report.

Dated at Vancouver, B.C. this 11<sup>th</sup> day of March 2022,

A rectangular box containing a handwritten signature in black ink that reads "Alejandra Flores".

Alejandra Flores Flores, GIT

## Appendix I

Geologic Mapping of the Roy, Day and Porcupine zones in the south part  
of the RDP property

2022

Geologic mapping of the Roy, Day,  
and Porcupine zones in the south  
part of the RDP property



James Logan

Danette Schwab

2/19/2022

## SUMMARY

- Oldest rocks in the area mapped are reddish-grey ash fall and ash flow tuff, volcanic breccia and conglomerate, and minor interbedded basalt and rhyolite. They are interpreted to be Telkwa Formation, the basal unit of the Lower Jurassic Hazelton Group.
- A series of Late Triassic(?) to Early Jurassic intermediate to felsic hornblende-plagioclase porphyritic dacite and quartz monzodiorite plugs, and granite sills intrude the Telkwa volcanic rocks within a 10km long northwest trending corridor that straddles Sustut River.
- The intrusions are variably altered by silicic, propylitic, pyritic and iron carbonate alteration and have associated Cu ± Au mineralization south of the Sustut River at the Eight and north of the Sustut River on the RDP claims at the Roy, Day, and Porcupine showings.
- The RDP claims are situated near the termination of the northeast-directed regional contractional fold and thrust structures of the Skeena Fold Belt. The folded and thrust stacked Telkwa Formation rocks trend northwest and have been block faulted along northwest- and northeast- trending regional structures in the Two Lake Creek, Red Creek and Sustut Rivers.
- The Roy, Day, and Porcupine have brittle hydrothermal vein stockwork porphyry Cu-Au-Ag mineralization and discrete element assemblages that reflect the spatial relationship to their host intrusion.
- At Roy, Cu-Au, quartz-magnetite vein stockwork mineralization occupies a west-northwest structural panel in the core of a weak potassic altered porphyritic hornblende quartz monzodiorite plug.
- At Day, Cu-Au, quartz-magnetite vein stockwork mineralization occupies a relatively smaller and more pervasive potassic altered zone that has been overprinted/retrograded to chlorite and oxidized to an assemblage of hematite, carbonate, and malachite.
- At Porcupine, Cu-Au is accompanied by abundant pyrite ± pyrrhotite, base metal and pathfinder elements that suggests a position above or peripheral to a causative intrusion and/or porphyry center. Sulphide abundance and assemblages together with reported clay alteration is suggestive of an intermediate to low sulphidation system.
- A well-defined magnetic anomaly is associated with the quartz monzodiorite stocks which host the mineralized stockwork at Roy and Day. Other isolated airborne magnetic anomalies constitute priority exploration targets.

**Cover photo:** View to the west across the Roy zone showing Equitas Exploration Corp. 2011-01 drill platform. Trenching in foreground exposes west-northwest trending steeply dipping Cu-Au-Ag mineralization.

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TABLE 1: Rock Geochemistry results Roy, Day, and Porcupine showings

TABLE 2: Silt Geochemistry result for drainage basin north of Porcupine

## APPENDIX 1: Geochemical Analyses

## Introduction

This report summarizes the results of five days of geological mapping and sampling carried out by Danette Schwab and the author on the RDP property between August and September 2021.

The project involved sampling and mapping the immediate areas surrounding the Roy, Day, and Porcupine mineral showings to characterise the style and tenor of mineralization and to evaluate the potential for discovery of additional porphyry Cu-Au-Ag mineralization. A total of 39 rock samples were collected; 26 from Roy, 8 from Porcupine, 4 from Day and 1 from a ridgeline gossan located north of Porcupine. In addition, 8 stream sediment silt samples were collected upstream from the anomalous RGS sample 94D963415 (Au 46 ppb, Cu 100 ppm, Pb 19 ppm, Zn 230 ppm, As 26 ppm). Geoscience BC Report 2018-4 identified this area within the upper 98 percentile of porphyry Cu prospective drainage basins identified using weighted sums model and levelled by dominant lithology (Arne et al., 2018).

The RDP property is underlain by coherent and clastic volcanic and sedimentary rocks of the Lower Jurassic Hazelton Group and diorite/monzodiorite porphyries of the Late Triassic to Early Jurassic Black Lake Suite (ca. 205 Ma). The exploration targets on the RDP property are economic concentrations of copper and gold mineralization related to quartz monzodiorite Day suite intrusions that outcrop as small stocks and sills across the property. The stocks contain relatively higher concentrations of magnetite than the volcanic and sedimentary country rock, producing magnetic anomalies on the total magnetic intensity maps (Hoffman and Kluczny, 2011) worthy of exploration follow-up.

## Regional Geology

The RDP property is underlain by the Stikine terrane, which includes three main arc assemblages comprising volcanic, intrusive, and sedimentary rocks of the Paleozoic Asitka, Triassic Takla, and Jurassic Hazelton groups. These magmatic arcs formed adjacent to the western margin of ancestral North America prior to their accretion in the Middle Jurassic. Deformation, uplift, and successor basin deposition of Middle Jurassic to Cretaceous Bowser Lake and Sustut groups mantle most of the older rocks of central and northeastern Stikine terrane.

The structural grain of Stikine is defined by northwest trending imbricated and block faulted stratigraphy that generally young's southwestward from the Ingenika and Moosevale faults towards the claims (Fig. 1). The oldest Stikine rocks are a volcano-sedimentary package that includes rhyolites and limestone as well as mafic volcanics, shale and chert (Diakow, 1998), that outcrop in a 1-3 km wide belt extending from Sustut Lake 35 km northwest to the Niven River. Unconformably overlying the Early Permian limestones and chert are Upper Triassic sediments, volcanic breccias and flows of the Takla Group. The Takla Group consists of three formations; the lowest is the Dewar Formation, composed of argillite and volcanic sandstone that is the distal equivalent of basic pyroxene and plagioclase phyric flows and coarse volcanoclastic rocks of the Savage Mountain Formation. These formations are overlain by basic to intermediate reddish volcanoclastics of the Moosevale Formation. The Dewar and Savage Mountain formations are upper Carnian to lower Norian and the Moosevale formation is restricted to the lower Norian. They are unconformably overlain by polymictic volcanic conglomerates of Lower Jurassic Telkwa Formation, the basal unit of the Hazelton Group (Richards, 1976b; Monger and Church, 1979). The Hazelton Group consists of the Telkwa Formation, which in McConnell Creek consists of the Bear and Sikanni facies, and siliceous siltstone, calcareous shale, and mudstone of the overlying Middle Jurassic Spatsizi Formation. The majority of the RDP claims are underlain by Telkwa Formation rocks. Unconformably overlying the Hazelton Group are Middle Jurassic to Lower Cretaceous Bowser Lake marine and Upper Cretaceous non marine Sustut Group sedimentary rocks (Fig. 1).

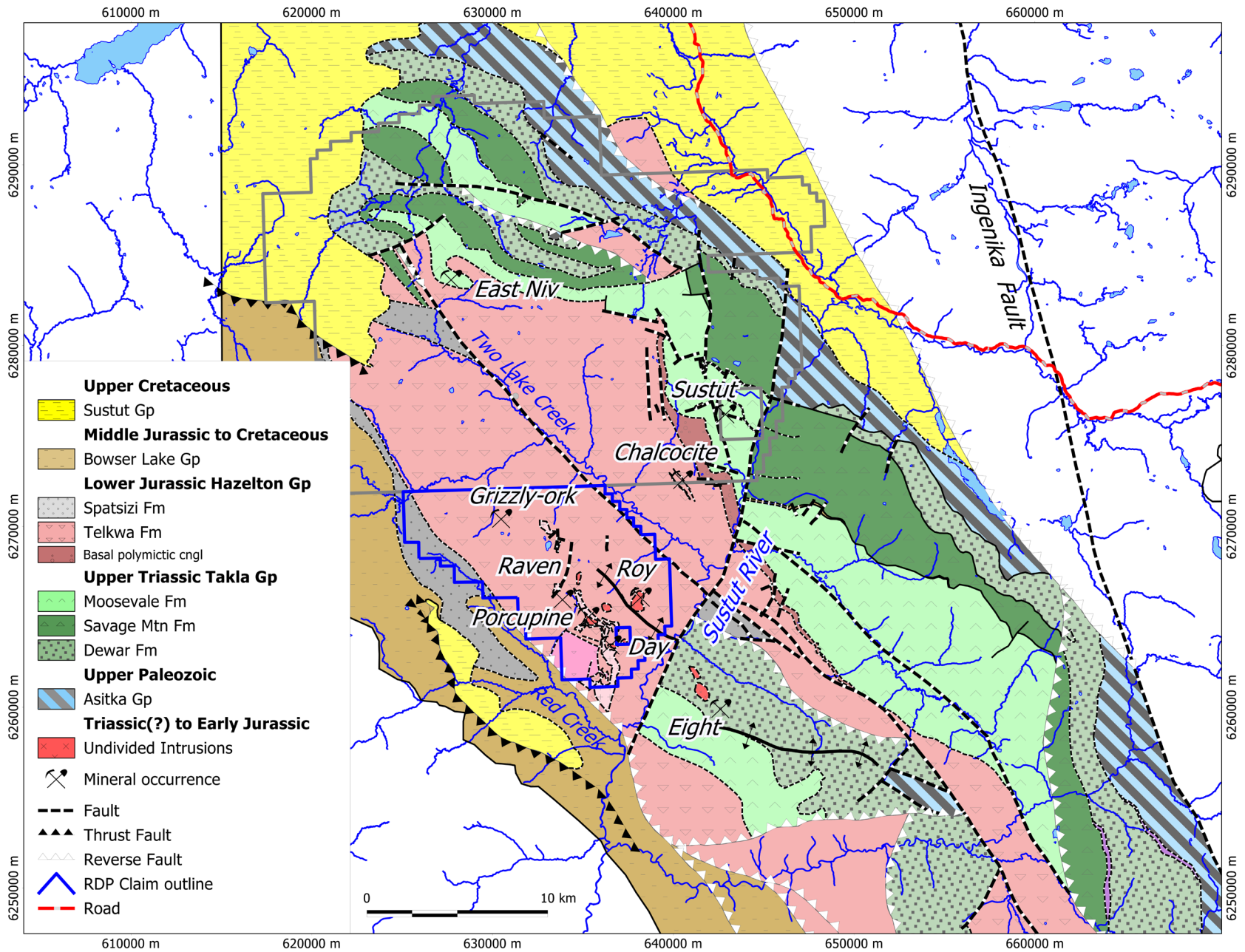


Fig 1. Regional Geology after Richards (1976a); Monger and Church, 1979); Legun (20021b); Evenchick et al. (2007).

The Bowser Lake and Sustut clastic successions, and underlying Hazelton, Takla and Asitka rocks were deformed by contractional northeast directed fold and thrust structures of the Cretaceous Skeena fold belt. The “thin-skinned” nature of craton-verging Intermontane belt deformation is interpreted to have resulted from motion along a lower-crust detachment that extended eastward from the active plate margin in the Coast belt rising into the middle crust in the Omineca and then upper crust in the Rocky Mountain fold and thrust belt (Evenchick et al., 2007a). It folded and thrust thickened the Stikinia basement and accommodated substantial crustal shortening >44% in the thinly layered Bowser Lake and Sustut groups sedimentary units (Evenchick, 1991). Subsequent regional deformation during Cretaceous and Tertiary transpression is related to oblique subduction and resulted in the development of prominent dextral strike-slip fault systems that dismember and transposed Quesnel and Stikine terranes (i.e., Finlay, Ingenika and Pinchi faults).

Metamorphism of the Takla and Hazelton group rocks are regional zeolite (prehnite-pumpellyite) facies grade.

## Regional Mineralization

The Fin, Pine and Kemess South and North porphyry Cu-Au±Mo deposits are located approximately 50 km north of the RDP property. Mineralization in the Toodoggone district is hosted in Asitka, Takla, and Hazelton Group volcano-sedimentary rocks and related to Late Triassic (ca. 221 Ma) to Early Jurassic (ca. 197-194 Ma) felsic to intermediate Black Lake suite plutonism (Diakow, 2001; Duuring et al., 2009). The largest porphyry Cu-Au-Ag±Mo systems i.e., Kemess however, formed between 202-197 Ma. A similar regional geological setting is present at Northwest Copper Corp’s East Niv property located 20 km north of RDP. Porphyry style Cu-Au-Ag±Mo mineralization at the Main and KC showing at East Niv occurs in potassic (K-spar, biotite-magnetite), and quartz-carbonate-epidote altered monzodiorite (ca. 220 Ma) intruding Takla Group volcano-sedimentary rocks beneath the regional Triassic-Jurassic unconformity that separates Takla and Hazelton group rocks.

## Property Geology

### Lithology

The RDP property is underlain by massive to well-bedded maroon volcanic and volcanoclastic rocks of the Lower Jurassic Telkwa Formation, the basal unit of the Hazelton Group (Richards, 1975a & b; Monger and Church, 1979; Church, 1983). Regional 1:50,000 scale mapping and compilation by Legun (2001a & b) divided the Telkwa Formation rocks in the area between Sustut Copper and the Day porphyry into four main subdivisions: a basal polymictic conglomerate containing chert and limestone clasts of the Asitka Group (EJT<sub>1</sub>), a pale feldspar porphyry breccia interbedded with red tuffaceous sediments, rubbly lava and crystal tuff (EJT<sub>2</sub>), subaerial, red lapilli tuff, massive greenish and reddish andesite with interflow sediments (EJT<sub>3</sub>), and a well layered unit of subaerial andesite to dacite flows, welded tuffs and fine sediments (EJT<sub>4</sub>). The RDP property is underlain by EJT<sub>3</sub> and EJT<sub>4</sub> units (Fig. 2). The most recent mapping and 1:125,000 scale regional compilation of the McConnell Creek area by Evenchick et al. (2007b) shows the claims area between Two Lake Creek and Red Creek to be underlain by an undivided Lower Jurassic Telkwa Formation comprising calc-alkaline basalt, andesite, dacite and rhyolite flow, breccia, tuff, volcanic debris-flow conglomerate and volcanic-derived sandstone and siltstone.

On the south side of Two Lake Creek fault, in the eastern part of the claims massive greenish grey andesitic volcanics of EJT<sub>3</sub> dominate. Plotting major oxide data from Church (1983) classifies the volcanic rocks as high K calc-alkaline andesite. These are overlain by well bedded tuffs and subaerial flows that host the Roy diorite and are well exposed in Harper Creek (Legun, 2001a). The upper sequence (EJT<sub>4</sub>) includes welded tuffs, columnar jointed tuffs, lapilli tuff, rubbly subaerial breccia, and highly vesicular flows which underlie the slopes above Red Creek (Fig. 2).

The geology southeast of the Sustut River is underlain by a northwest trending, faulted anticline of Upper Triassic Moosevale Formation volcanoclastic rocks cored by siltstone and sandstone of the basal Takla, Dewar Formation

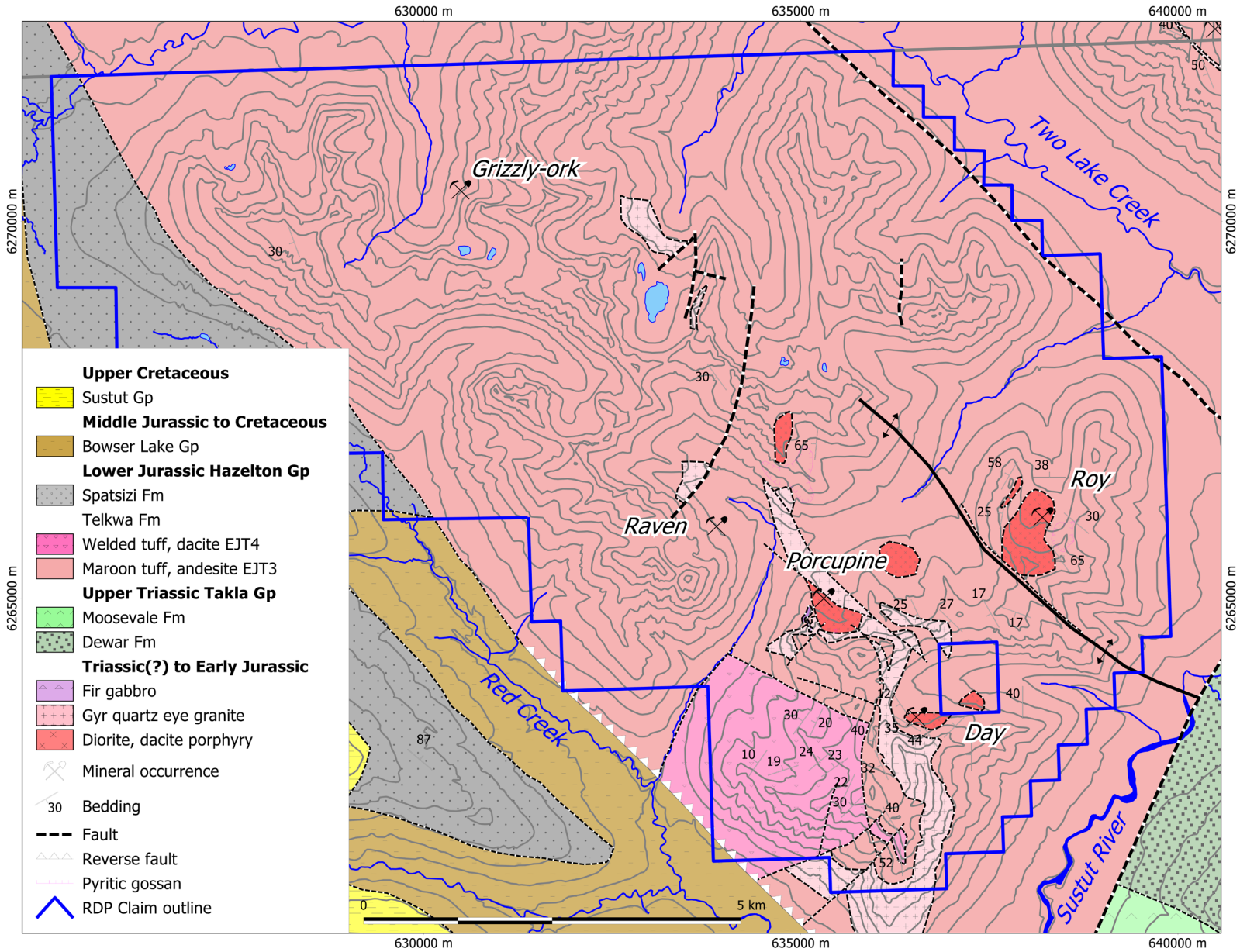


Fig. 2. Property Geology, compiled after Legun (2001a & b), Evenchick et al. (2007) and current work in areas around Roy, Day, and Porcupine.

and further southeast Paleozoic chert and siltstone of the Asitka Group (Richards, 1975a & b; Fig. 1). Overlying the Takla Group rocks are Telkwa Formation volcanic rocks that can be traced northwestward onto the RDP property. However, the Upper Triassic Takla Group rocks do not and are apparently truncated or down dropped by the Sustut River Fault.

## Intrusive Rocks

An intermediate to felsic suite of Late Triassic (?) to Early Jurassic intrusive rocks defines a 10 x 4 km northwest trending corridor that straddles the Sustut River north of Red Creek. The intrusions are small plugs and sills that include the informal Day suite monzodiorite and dacite porphyries, the Fir gabbro, and the Gyr rhyolite porphyry (Church, 1983; Legun, 2001a & b). Regionally they are grouped with the Early Jurassic Black Lake intrusive suite (Evenchick et al., 2007b) a metallogenic important suite in the Toodoggone district. The intrusions are variably altered by silicic, propylitic, pyritic and iron carbonate alteration and have associated Cu ± Au mineralization south of the Sustut River at the Eight (Kuo and Greig, 1973) and north of the Sustut River on the RDP claims at the Roy, Day, and Porcupine showings (Fox, 1991; Church, 1983; Aussant, 1991; Hoffman and Kluczny, 2011).

At the southeast end of the belt isolated hornblende feldspar porphyry diorite dikes and plugs intrude Upper Triassic sedimentary rocks of the Dewar Formation (Kuo and Greig, 1973). A similar, hornblende feldspar porphyry sill intrudes Telkwa Formation maroon air-fall tephra interlayered with well sorted basalt and maroon volcanoclastic rocks the north of Porcupine. The porphyry is unaltered, but a substantial goethite gossan has developed in the faulted footwall volcanoclastic rocks to the sill.

The Day, Roy, and Porcupine diorite to quartz monzodiorite plugs occupy the middle of the northwest trending corridor and intrude Early Jurassic Telkwa Formation rocks. The diorites contain magnetite and have average magnetic susceptibility readings of between 20.0 and 25.0 x10<sup>-3</sup> SI Units. The Day quartz monzodiorite consists of about 40% plagioclase and 8% hornblende phenocrysts within a fine-grained felsic matrix. It is described as intruding its own mantling pile of volcanics and dated at 184 ± 11 Ma by K/Ar on hornblende (Church, 1983). Diorite exposed in trenching at the Roy showing is a weakly trachytic fine-grained plagioclase - hornblende porphyry consisting of ~2 and 4mm tabular white plagioclase (2 populations, larger and smaller phenocrysts) to 35% and 2-4mm tabular black/brown hornblende to 20%. Diorite at Porcupine is fine grained, equigranular, hornblende-bearing and strongly altered by massive replacements of silica, chlorite, pyrite, and sericite.

The Gyr Peak quartz and feldspar porphyry rhyolite consists of a series of light grey to pink, massive dikes, sills and plugs that can be traced for 11km north of the junction of Red Creek and the Sustut River (Church, 1983). Chemical analysis of the rock gives a rhyolite or monzogranite composition. The Gyr Peak porphyry has been suggested to be the source of the West Boundary ignimbrite (Church, 1983) or unit EJT<sub>4</sub> of Legun (2001a & b). It has not been dated.

The Fir gabbro cuts the Gyr Peak porphyry west of the Porcupine. It is a mafic, equigranular pyroxene gabbro comprised of 70% plagioclase, 14% pyroxene, 10% chlorite, 5% magnetite, and 1% apatite (Church, 1983). The gabbro contains primary magnetite and has an average magnetic susceptibility reading of 30.0 x10<sup>-3</sup> SI Units.

## Structure

The northwest trending structural grain of Stikine Terrane reflects the amalgamation and accretion of outboard arc and oceanic terranes onto ancestral North America beginning in the Early Middle Jurassic with folding and thrust imbrication of Cache Creek westward onto Stikinia. Subsequent "thin-skinned" NE-directed contractional deformation in the Cretaceous variably affected the "basement" (Asitka, Takla, and Hazelton groups) and "cover" (Bowser Lake and Sustut groups) rocks of Stikinia.

The RDP claims are situated near the termination of the northeast-directed regional contractional fold and thrust structures of the Skeena Fold Belt. The fold belt terminates on the northeast in a frontal triangular zone within

Sustut Basin stratigraphy approximately 100 km northwest. The claims occupy an erosional window below the Sustut Basin in the Hazelton and Takla (?) groups.

The Telkwa Formation rocks are faulted along orthogonal northwest- and northeast- trending regional structures in the Red Creek, Two Lake Creek, and Sustut Rivers respectively (Fig. 3). The northwest and northeast(?) structures likely reflect Mesozoic or older structures reactivated in the late Cretaceous and Tertiary.

The Red Creek Fault is a northwest-trending, east-dipping reverse fault that juxtaposes Lower Jurassic Hazelton Group volcanic, sedimentary, and intrusive rocks westward onto northeast-directed thrust imbricated sedimentary and volcanic rocks of the Middle to Upper Jurassic Bowser Lake Group and Upper Cretaceous to Eocene sedimentary rocks of the Sustut Group (Evenchick et al., 2007b). Two Lake Creek Fault is another northwest-trending structure, it follows the east boundary of the claims. Maroon to red lapilli tuff and massive green and red andesite interbedded with sedimentary rocks (unit EJT<sub>3</sub> of Legun, 2001a & b) occur north and south of the fault. Sense of motion or displacement are unknown, but it follows an abrupt northwest trending magnetic discontinuity on the residual magnetic intensity reduced to pole data (CGG Canada Services Ltd., 2018).

The Sustut River Fault strikes northeast, crosscuts the regional northwest structural trend at a high angle and displaces stratigraphic contacts and folded structures that suggest a latest apparent dextral strike-slip sense of motion (Fig. 3).

Bedding in the Telkwa Formation dips and faces towards the west and southwestward in the Day and Porcupine areas. However, at the Roy bedding dips and faces eastward. Bedding dips change abruptly across the north-northwest faulted contact of the Roy diorite. The opposing dips and facing directions define the Roy anticline. Projecting the Roy anticline southeastward and linking it to the Pat Creek anticline suggests right lateral displacement along the Sustut River Fault.

An older system of east-west shear zones is exposed in trenches at the Roy that corresponds to and has localized quartz-magnetite stockworks and Cu-Ag-Ag mineralization. VLF "filtered" surveys recognize these east-west shears and may control gold and some copper mineralization (McDougall, 1996).

## Mineral Occurrences

The RDP property contains 5 BC Minfile showings that have deposit model classifications that include alkalic porphyry Cu-Au (n=3), volcanic red-bed Cu (n=1), and Kuroko VMS (n=1). The Roy, Day and Porcupine are the main mineral showings that comprise the RDP property (Fig. 2).

### Roy 94D 078

The Roy showing is exposed on a 300m x 200m bench situated at the headwaters of a north flowing tributary that flows into Two Lake Creek. It was originally known as the Cirque showing (MacLeod, 1973), and interpreted to be a dioritic hosted random stockwork of quartz veinlets mineralized with magnetite, and minor chalcopyrite. Subsequent trenching, mapping, and sampling in the basin (MacLeod, 1973), recognized that the copper and gold mineralization was primarily confined to a westerly trending corridor. Fox (1991) tested the porphyry-style stringer stockwork system *versus* shear zone control for mineralization through a program of trenching. He defined stockwork Cu-Au mineralization to a 62m x 115m (still open in both directions) zone with a best weighted average of 0.121% Cu and 0.5 g/t Au over a width of 62 m. Shallow diamond drilling programs have been completed (collars and drill core is stored on the claims), but results are incomplete or are unavailable except for a 280.4 m vertical hole drilled in 2011 by Equitas Resources Corp. A medium grained, quartz monzodiorite to porphyritic diorite intrusive was intersected from surface to 164 m depth. Composite 2 m assay results from the 164 m interval returned 0.1% Cu and 0.59 g/t Au (Equitas Resources Corp., 2012).

Mineralization and alteration at Roy are centered on a north trending 1 x 0.5 km stock of fine- grained plagioclase and sparse hornblende porphyritic quartz monzodiorite. In the core of the intrusion (exposed in trenching), the

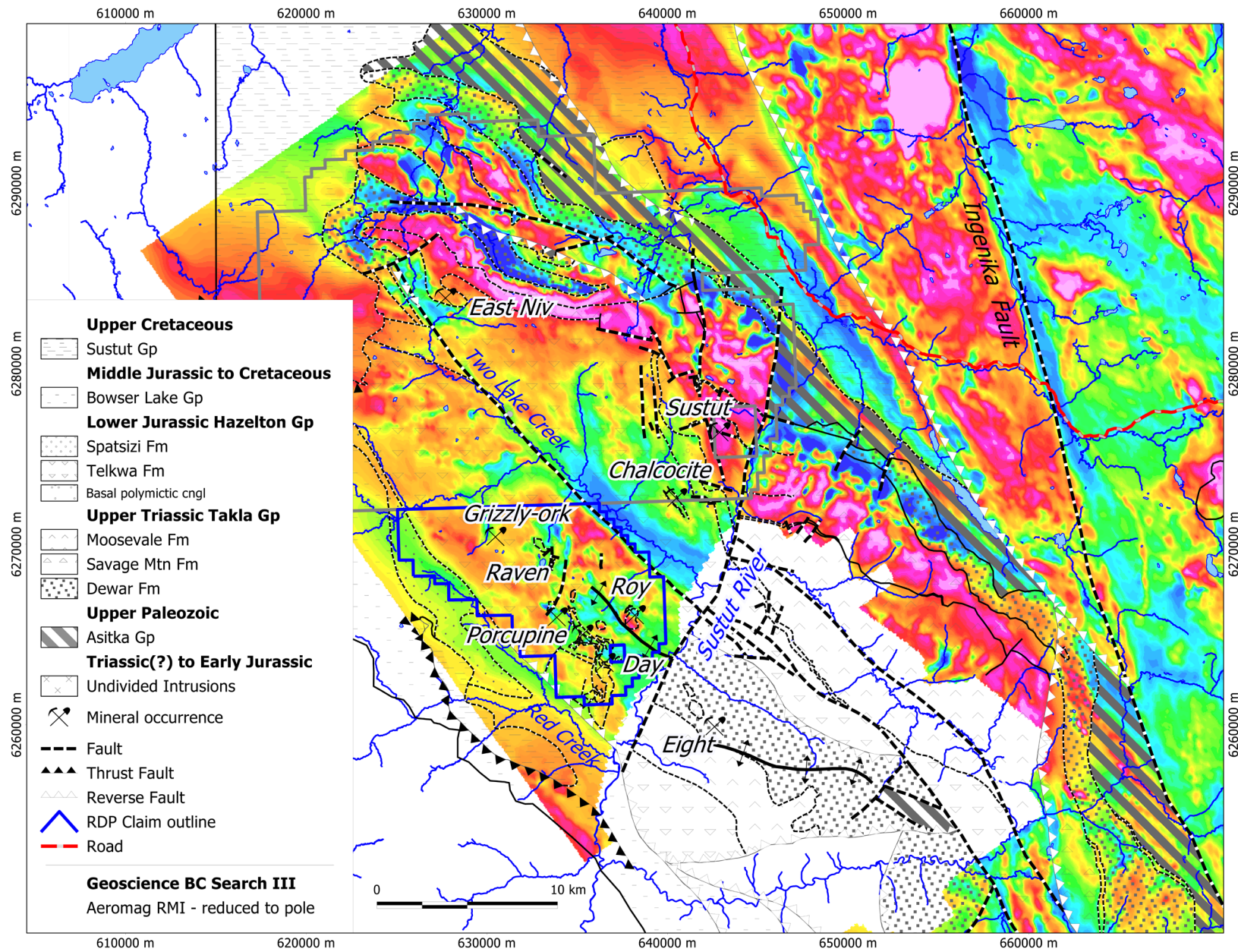


Fig. 3. Regional Geology after Richards (1976a); Monger and Church, 1979); Legun (20021b); Evenchick et al. (2007) shown with residual magnetic intensity reduced to pole data (CGG Canada Services Ltd., 2018).

monzodiorite is weakly potassic altered (secondary orthoclase, quartz-magnetite banded cm vein stockworks ± chalcopyrite>>pyrite). Retrograde patchy epidote, chlorite ± quartz, pyrite, and calcite overprint the early potassic alteration in the trenches (Fig. 4a & b).

West and above the trenching, in the cirque wall and along the ridge top the monzodiorite is faulted and cut by brittle stockwork zones of calcite-quartz-chlorite ± pink zeolite (heulandite?). A sample (D722954) collected from this area returned low Cu and Au values but elevated As, Pb, ± Ag values suggestive of a peripheral trace element assemblage (Halley et al., 2015). In addition, a rock sample collected from a zone of sericite-chlorite altered volcanoclastic sandstone (D722952), 550m northwest of Roy drillhole EQ11-0, returned elevated Sn and Tl, and could be the result of vertical distribution above a porphyry system. East of the trenching on the bench and extending up onto the ridge is an oxidized hornfelsed pyrite, chlorite, quartz, and calcite alteration zone developed at the contact between the intrusion and the Telkwa volcanoclastic rocks. Inaccessible shear zones in the cliff face are coated with malachite stain. A hornfelsed pyritic rock sample (B264869) collected from the ridge returned elevated Mn, Co, ± Fe, and Cu. A chlorite-sericite-quartz altered talus sample (D722958) collected from the base of this cliff face returned 0.38% Cu and 0.025 g/t Au. The sample hosted 2% chalcopyrite veining and was coated with malachite.

### Day showing 94D 065

The main showing consists of a 100 x 150m rusty weathering, malachite stained, outcrop protruding from a boulder talus slope at the headwaters of Harper Creek. It is centered on UTM Zone 9 co-ordinates of 636450E 6263430N. The outcrop is a chlorite altered, sheeted and stockwork quartz-magnetite veined hornblende diorite porphyry that is mineralized with up to several percent chalcopyrite>>pyrite. Stockwork veining includes early banded magnetite-quartz, grey to white quartz only and late coarse white calcite. Chalcopyrite occurs as disseminated blebs within the intrusion and together with magnetite or alone as vein-fillings or massive blow-outs. Less often it occurs with pyrite which is never abundant (Fig. 4 c, d & e).

Previous exploration work defined a northeast striking anomalous gold in soil anomaly that extends down stream from the showing outcrop approximately 1,000m. Drilling in 1974 on the Day showing comprised an eight-hole 1382m diamond drill program (Harper and Brown, 1974; Aussant, 1991). Drill holes 1, 2, 4, and 8 tested the main showing. Results included 60 meters of mineralization in the diorite grading more than 1.5% Cu (Church, 1983; Aussant, 1991). Other drill holes collared further east in overburden failed to intersect any significant sulphides and cut weakly altered volcanic stratigraphy peripheral to the diorite. Diamond drilling in 1992 consisted of 8 holes, totaling 842 m (Aussant, 1997). Holes 92-1, -2, -7, and -8 were drilled at the Day. Holes 92-3, -4, -5, and -6 were drilled at the Porcupine. The drill core is stored at the camp site below the Roy showing. Re-logs of the 1992 core indicate that the Day diorite comprises multiple phases of diorite, diorite porphyry, monzonite and tonalite composition. It extends northeasterly under cover at least 700m, and contains disseminated and fracture-controlled chalcopyrite, magnetite, bornite, and pyrite mineralization over multiple intervals 10-15m thick (Hoffman and Kluczny, 2011).

Diorite porphyry outcrops 300m east along the base of steep cliffs forming the southern wall of the basin. The diorite is assumed to be part of the Day intrusion but is weakly chlorite altered and only rarely contains traces of chalcopyrite and/or malachite on fractures. It is cut by coarse-grained, barren white calcite veins. The southern contact with the maroon Telkwa volcanoclastic is sharp, no obvious chilled margin, crosscutting relationships or evidence for faulting. Both units are overprinted by a late white calcite veining event. Best interpretation from the contact relationship would be a temporal(?) Jurassic sill.

Rock geochemical sampling include 2 from the main quartz-magnetite stockwork mineralized zone and 2 from approximately 300 and 375 m further east. All 4 sampled the diorite porphyry intrusion. The eastern samples (D722962 and D722963) consisted of weak, chlorite altered, pyritic diorite cut by white calcite veinlets and returned below detection Au and low values for the remaining elements (Table 1). The quartz-magnetite stockwork mineralized samples (D722960 and 961) returned anomalous Cu-Au-Ag values and elevated Bi, Mo, and Pb values (Table1).

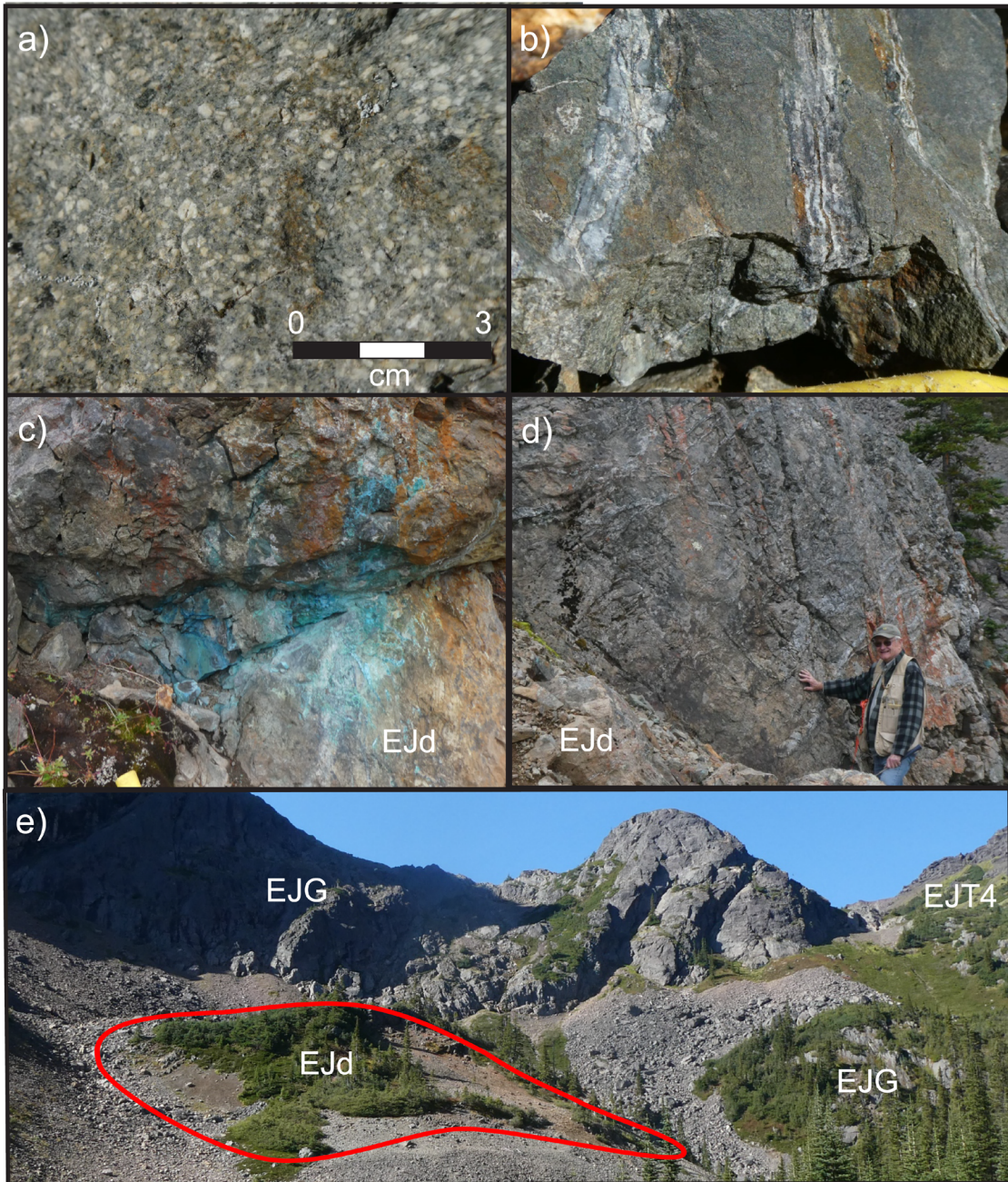


Fig. 4a) Representative hand sample of plagioclase hornblende porphyry monzodiorite from Roy trench (638115E 6265858N), b) Grab sample of banded quartz-magnetite-chalcopyrite mineralization from trench 1 at 638078E 6265861N, c) Oxidized, limonite and malachite coated chlorite retrograded quartz monzodiorite at Day showing, d) Cliff face cross cut by multiple vein stockworks of quartz, banded quartz-magnetite, chalcopyrite and late white calcite (636397E 62634430), e) geological setting and areal extent (red area ~150m across) of the altered/mineralized Day monzodiorite (looking west from 6636552E 6263500N).

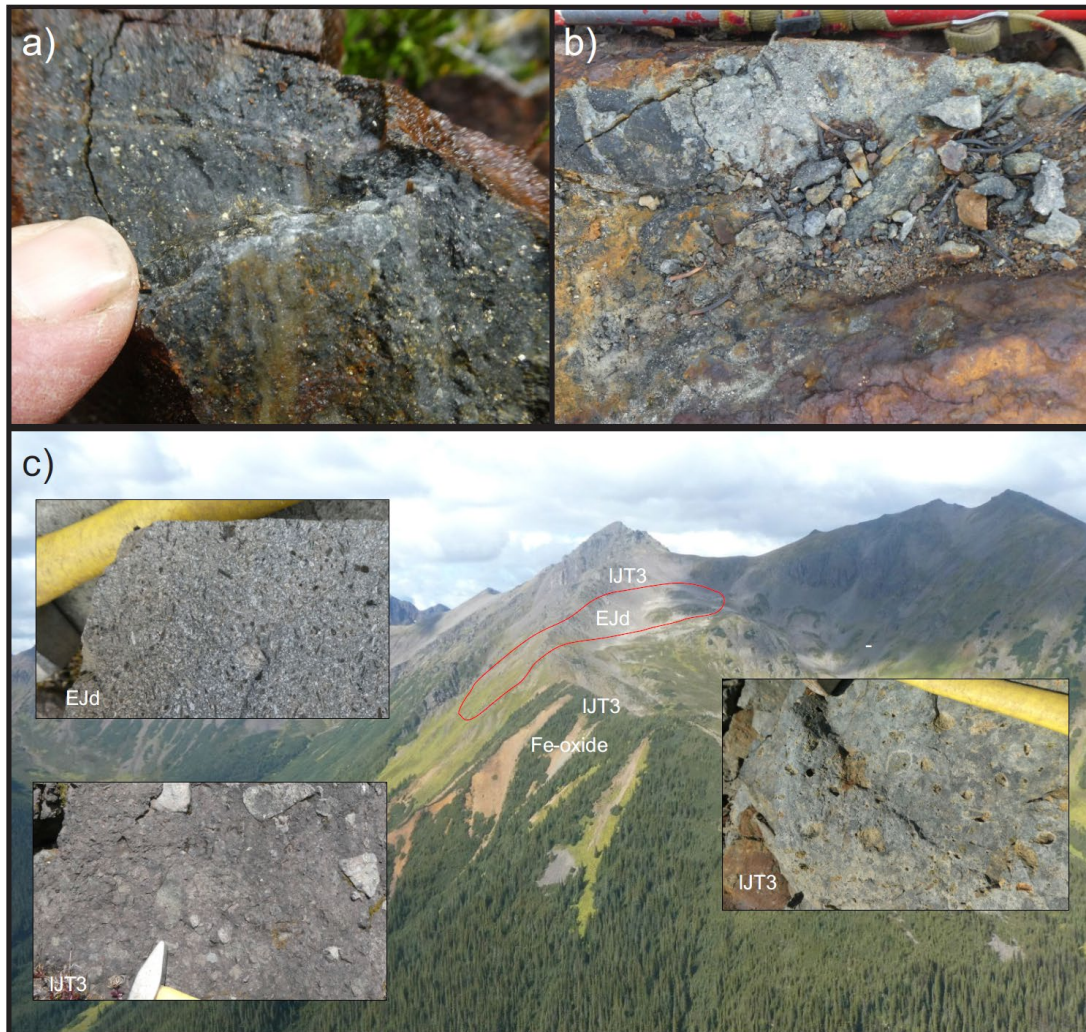


Fig. 5a) Grab sample of 1-4mm banded quartz-magnetite and center line sulfide veining in a silicified chlorite pyritized fine-grained diorite exposed in creek (635408E 6264854N), b) grab sample from rock exposed in Trench 1, comprises pervasive silicification and strong pyrite mineralization, occasionally discrete white quartz veins mineralized with blebby chalcopyrite (635394E 6264944N), c) Gossan exposed 1.5 km north of Porcupine, developed in footwall to plagioclase hornblende porphyry sill (EJd) intrudes Telkwa Formation maroon air-fall tephra interlayered with well sorted basalt and maroon volcaniclastic rocks (IJT3), viewed north.

### Birch (Porcupine) 94D 077

The Porcupine occurrence was originally interpreted to comprise volcanogenic massive sulphide (VMS) stratiform gold-copper mineralization, which extended north-westerly for 3 kilometres along strike (Northern Miner, October 7, 1991). Past exploration on the claims included trenching and diamond drilling of 3 shallow holes to test the dacite/rhyolite hosted massive sulphide deposit model (Aussant, 1991; Aussant, 1997). Drilling intersected silicified, pyritic felsic tuffs, volcanic breccia, and coherent andesitic units with weakly mineralized intervals of Cu but nothing like the high-grade auriferous float boulders containing disseminated, banded massive pyrite, pyrrhotite, chalcopyrite and sphalerite discovered in 1991. Holes 92-3, -4, -5, and -6 are stored at the camp site

below the Roy showing. Re-logs of the 1992 core by Equitas Resource Corp. show all the holes intersected diorite comprising pervasive silicified bleached zones, cut by stockwork quartz veining and fine grained disseminated and fracture-controlled pyrite, chalcopyrite, bornite, enargite(?), minor sphalerite and other unidentified sulphides (Krysa and Krueger, 2011). Clay(?) alteration and late calcite veining overprints the diorite. The best results from the 1992 Porcupine drilling include a 9.6m interval of 0.13% Cu, 0.31 g/t Au, and 6.1 g/t Ag in D-92-3 (MINFILE BC, 2022).

Mineralization at Porcupine comprises silicified zones of massive to semi-massive concordant sulphide lenses hosted by dacitic to rhyolitic coherent and clastic volcanic rocks and sulphide-rich quartz stockwork and veins hosted in a hornblende plagioclase porphyry plug that underlies the cirque (Fig. 5a & b). Mineralization consists of pyrite, pyrrhotite, sphalerite, chalcopyrite and, locally, lenses of magnetite. The host volcanic and intrusive rocks have been intensely quartz-sericite-pyrite (QSP) altered, variably silicified, chloritized and locally argillic altered.

Sulphide-rich quartz veins and lenses of massive sulphide strike north-easterly and north-westerly. Southwest directed historic drilling was designed to test the northwest trending volcanic/sill contacts but would not be ideal to intersect northeast trending mineralization exposed in the creeks below the main showing.

## Geochemistry

### Rocks

During field mapping 39 rock samples were collected from the Roy (n=26), Day (n=4), Porcupine (n=8) and a gossan (n=1) located north of Porcupine (Fig. 5 c). The samples were mainly grab samples of mineralized, altered, and fresh rock that were collected to create a geochemical database to test fertility indices of the intrusions and alteration vectoring parameters at the three showings. The rock samples were shipped to ALS Canada Ltd. in Vancouver and analysed for gold by fire assay with an AAS finish and 48 elements by ICP-MS 4-acid digestion. Total analytical results are appended.

Table 1 presents the analytical results for a subset of porphyry copper gold deposit pathfinder elements from the Roy, Day, and Porcupine showings. Elevated values are highlighted. Sample locations are shown on Fig. 6.

Correlation coefficients for samples collected from Roy are 0.95 for Cu: Au, 0.96 for Cu: Ag, and 0.97 for Au: Ag indicating a strong codependence between these three metals, as expected for a proximal porphyry Cu-Au style of mineralization. The values for other pathfinder elements i.e., As, Bi, Cd, Mo, Pb, Sb, Zn were typically < 0.5 except for 0.67 for Sb: Ag.

Correlation coefficients of 1 and 0.99 are indicated for Cu, Fe, Au, Ag, Bi, and Mo from the Day samples, but this might be an artifact of the limited data set (n=4).

The highest correlation coefficient pairs from the Porcupine are 0.97 for Au: Mo and Ag: Pb, 0.96 for Au: Sb and Pb: Cd. The values for Cu: Au and Cu: Ag are 0.42 and 0.84, lower and quite different from the mineralized samples at Roy.

### Stream Silts

Reconnaissance stream sediment silt sampling (n=8) was undertaken upstream from the anomalous RGS sample 94D963415 (Au 46 ppb, Cu 100 ppm, Pb 19 ppm, Zn 230 ppm, As 26 ppm). Geoscience BC Report 2018-4 identified this area within the upper 98 percentile of porphyry Cu prospective drainage basins identified using weighted sums model and levelled by dominant lithology (Arne et al., 2018). Results are appended.

Higher values were anticipated for the silt samples, especially progressing down stream towards the Porcupine. The creek was narrow, fast, and difficult to sample material in the upper reaches (samples 21JLO323, 324, 325, and 326), but it was assumed that if there was alteration/mineralization in the upper drainage basin some evidence would be present even in these samples. The last two samples (329 and 330) show relative enrichments in Ag, Au,

TABLE 1: Assay and 4-acid ICP-MS Analyses of rock samples collected during 2021 fieldwork. Select elements shown are grouped according to showings, Roy, Day, and Porcupine. Anomalous values highlighted in yellow. Complete element analysis appended.

SMPL_ID	STNUM	UTME	UTMN	AREA	LITH	Au ppm	Ag ppm	As ppm	Bi ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm
B264857		638112	6265862	ROY		0.55	0.65	7	0.05	3430	4.17	4.3	0.54	108
B264858		638116	6265858	ROY		9.78	11.6	21.6	0.11	13650	4.71	16.8	5.85	99
B264859		638114	6265849	ROY	DIO	0.87	0.53	4.1	0.03	1455	3.52	2.7	0.97	170
B264860	21JLo85	638112	6265858	ROY	TUFF	0.03	0.02	1.9	0.01	56.5	1.63	1.7	0.47	107
B264861		638128	6265851	ROY	DIO	0.36	0.51	6.2	0.02	937	1.27	5.3	1.76	173
B264862		638134	6265869	ROY	DIO	0.01	0.02	2.4	0.01	33.5	1.67	1.3	0.45	103
B264863	21JLo86	638140	6265820	ROY	TUFF	0.06	0.05	3.4	0.01	170.5	1.85	1.7	0.73	83
B264864		638127	6265885	ROY		0.42	0.42	4.4	0.02	800	1.81	3.8	0.78	155
B264865		638096	6265809	ROY		0.78	0.37	2.1	0.02	1720	1.15	1.6	0.57	98
B264866		638045	6265782	ROY		0.25	0.25	4	0.01	589	0.87	1.9	0.74	106
B264867		637938	6265826	ROY		0.02	0.05	3.3	0.01	129	1.35	2.3	1.08	83
B264868	21JLo94	637989	6265708	ROY	VOLC	0.07	0.08	1.9	0.02	143	2.48	3.1	0.5	136
B264869	21JLo108	638496	6265803	ROY	VLCL	b.d.	0.56	4.5	0.05	195.5	0.81	2.8	1.8	95
B264870	21JLo113	638146	6265461	ROY	DIO	b.d.	0.02	3.8	0.06	27.2	0.71	2	1.35	183
D722981		638069	6265894	ROY	DIO	0.32	0.25	5.5	0.03	705	2.71	1.8	0.95	101
D722982		638106	6265905	ROY	DIO	0.22	0.22	8.5	0.03	467	1.05	4	1.64	149
D722983		638133	6265910	ROY	DIO	0.02	0.03	1.6	0.01	51.2	1.21	1.8	0.42	101
D722951		637737	6266284	ROY	SST	b.d.	0.05	4.3	0.03	37.2	0.63	2.6	4.85	136
D722952		637725	6266229	ROY		b.d.	0.06	3.8	0.25	11.9	0.22	2.7	1	39
D722953		637727	6266584	ROY	DIO	b.d.	0.06	3.1	0.01	40.5	0.44	2.5	0.73	105
D722954		637768	6265707	ROY	DIO	0.01	1.31	288	0.03	47.9	3.36	45	3.88	184
D722955	DS-21-12	638161	6265823	ROY	DIO	0.07	0.07	3.8	0.02	198	1.43	25.2	0.37	93
D722956	DS-21-13	638200	6265809	ROY	DIO	0.05	0.06	2	0.01	85.9	1.97	2.2	0.52	85
D722957	DS-21-14	638237	6265801	ROY	DIO	0.03	0.09	2.1	0.02	222	6.06	2.5	1.08	63
D722958		638318	6265855	ROY	VOLC	0.03	2.12	1.8	0.04	3910	1.21	18.6	0.42	321
D722959		638135	6265890	ROY	DIO	0.76	0.77	4.6	0.04	1260	5.47	3.2	0.8	192
D722960	21JLo203	636426	6263414	DAY	DIO	5.07	6.8	1.6	0.79	20400	5.29	42.2	0.91	195
D722961	21JLo203	636426	6263414	DAY	DIO	1.64	2.33	2.9	0.33	9120	3.92	5.5	1.49	130
D722962	21JLo207	636708	6263301	DAY	DIO	b.d.	0.02	2.1	0.01	36.8	0.2	2.7	1.06	118
D722963	21JLo209	636802	6263409	DAY	FPO	b.d.	0.19	17.9	0.1	21.6	1.04	7.9	2.75	171
D722964	21JLo331	634690	6264917	PORC	DIO	1.21	22.4	409	15.9	577	22.3	55.3	15.9	37
D722965	21JLo335	634883	6264830	PORC	VOLC	2.4	18.4	260	4.95	12550	44.5	44.1	23.3	389
D722966	21JLo338	635152	6264881	PORC	GABR	0.05	61.7	179.5	0.27	16000	8.71	189	7.97	1190
D722967	21JLo340	635408	6264854	PORC	DIO	0.21	0.79	86.2	1.32	457	9.81	26.3	3.39	54
D722968	21JLo341	635394	6264944	PORC	DIO	2	100	551	19.1	13150	17.9	97.3	32	251
D722969	21JLo342	634901	6266728	GOSS	VOLC	0.01	0.79	7.5	0.14	91.7	0.45	7.3	1.67	80
D722970	21JLo355	635455	6264561	PORC	DIO	0.05	1	12.8	0.04	537	7.36	8.6	3.08	163
D722971	21JLo358	635353	6264973	PORC	DIO	0.02	0.56	6.2	0.12	31.8	6.45	40.1	0.77	19
D722972	21JLo359	635310	6265024	PORC	DIO	0.03	0.23	36.7	0.13	217	11.4	10.8	1.36	115

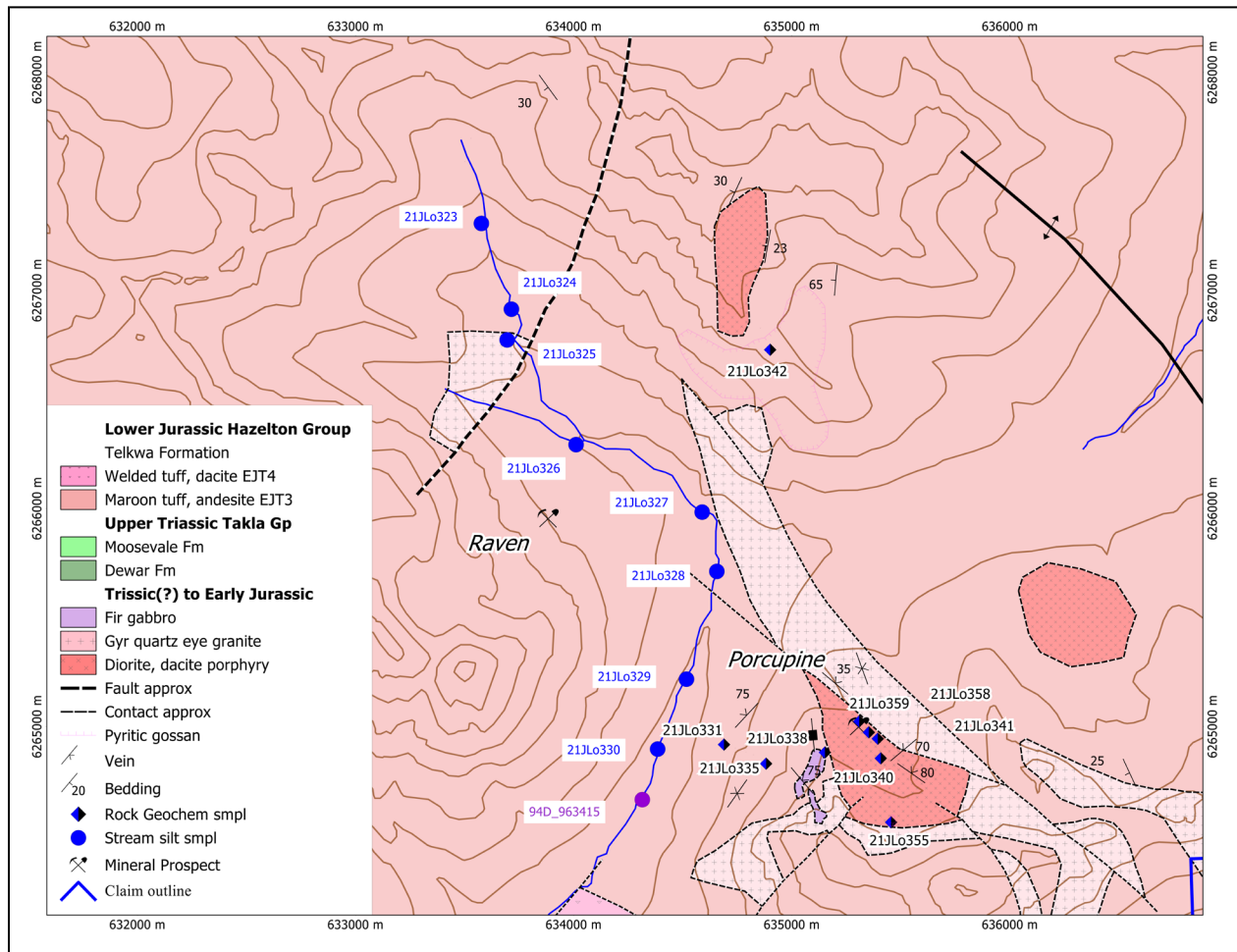


Fig. 6. RDP property geology showing rock and stream silt sample locations for the Porcupine area.

As, Bi, Cu and Mo when compared to the upstream samples and confirm the anomalous values in the historic sample for Au, Ag, Cu, and As collected down slope from the Porcupine showing (Fig. 6; Table 2).

TABLE 2: Assay and 4-acid ICP-MS Analyses of silt samples collected during 2021 fieldwork. Sample 94D963415 from RGS data ((Arne et al., 2018). Select elements shown, anomalous values highlighted in yellow. Complete element analysis appended.

Sample	UTME	UTMN	Au	Ag	As	Bi	Cu	Mo	Pb	Sb	Zn
21JLo323	633577	6267307	0.005	0.07	4.3	0.06	34.2	0.38	5.8	0.7	91
21JLo324	633715	6266914	0.001	0.03	3.5	0.05	30.3	0.34	5.2	0.8	86
21JLo325	633695	6266773	0.006	0.12	10.7	0.03	28.3	0.28	8.1	4.59	154
21JLo326	634011	6266293	-0.001	0.11	15.7	0.04	27.6	0.28	11.4	6.6	284
21JLo327	634589	6265983	0.006	0.13	13.3	0.1	61.8	0.72	10	1.69	245
21JLo328	634656	6265712	0.003	0.13	13.3	0.09	63.8	0.75	10.2	2.45	267
21JLo329	634517	6265217	0.038	0.26	21	0.15	81.9	1.43	15.2	1.35	227
21JLo330	634385	6264897	0.008	0.41	20	0.14	71.1	1.12	13.8	3.28	244
94D963415	634319	6264663	0.46	0.304	26.3	0.26	100.6	1.44	19.3	0.49	229

## Geochronology

Porphyry Cu-Au±Mo metallogeny of Stikine terrane is closely related to its magmatic history and Mesozoic plutonic suites. Historic intrusive dates from RDP include a sample of fresh diorite from the Day showing that returned a hornblende K-Ar age of  $184 \pm 11$  Ma (Church, 1975). This date was converted(?) using new decay constants and reported by Gabrielse et al. (1980) as  $193 \pm 22$  Ma. These dates are cooling ages and do not necessarily correspond to mineralization. In addition, the mineralization could be restricted to an older diorite phase i.e., a Late Triassic intrusion inlier within the Telkwa. To evaluate the porphyry potential of the intrusions on the claims more precise U-Pb, zircon dating is required to establish the crystallization age.

Samples of the intrusions from the Day and Roy showings were collected and submitted for U-Pb zircon dating by Laser Ablation ICP-MS at the Pacific Centre for Isotopic and Geochemical Research, Department of Earth, Ocean and Atmospheric Sciences, The University of British Columbia. Only sample D722921 from the Roy mineral showing contained sufficient zircons for analysis. Results are appended.

Lee (2021) reported the age spread for the individual spots from the Roy sample as high but an overall age of  $202.0 \pm 1.6$  Ma was viable from the results and that the trace element compositions produced nice fractionation curves and values suggesting high potential for porphyry fertility. Interpreting the widespread age interval (215-185 Ma) in context with the regional geology suggests to the author that the data could encompass 2 discrete age populations rather than one overall age. In the histogram below there is one xenocrystic Late Triassic core (237 Ma), a population centered on ~205 Ma and another population at ~195-197 Ma. If we assume an overall age of ca. 202 Ma, like Lee (2021), then we must attribute all the <200 Ma reported ages (n=26; 42% of data) to Pb loss from a Late Triassic ca. 205 crystallization age. This assumption of course has ramifications as to whether the intrusion has a Late Triassic and/or Early Jurassic crystallization age. Stikine porphyry mineralization is associated with Late Triassic to Early Jurassic (ca. 220 to 195 Ma) as well as Late Cretaceous and Eocene intrusions but in the northeast intrusions with ages between 202 and 197 Ma are the most prospective in the region (i.e., Kemess).

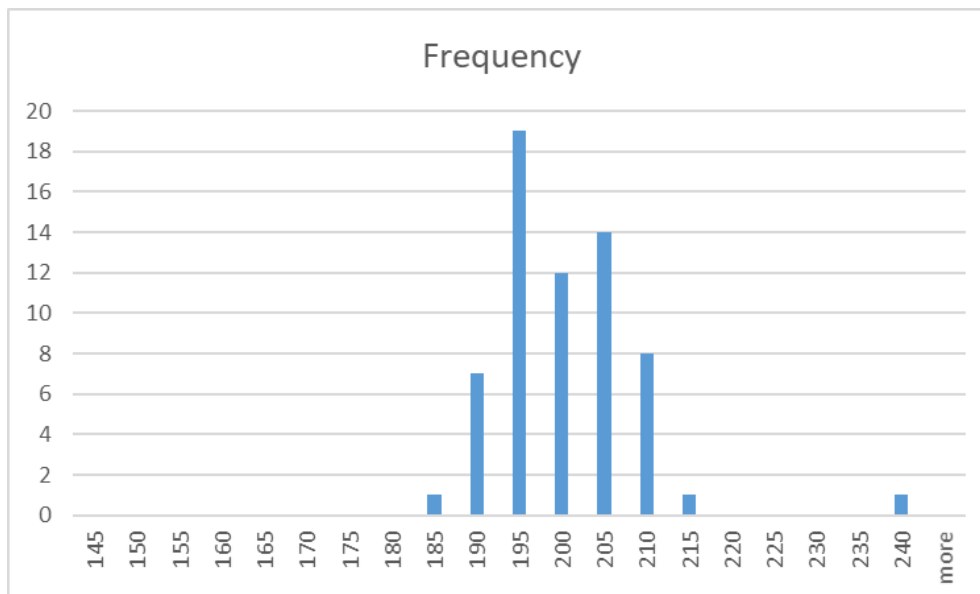


Fig. 7. Frequency plot of  $^{206}\text{Pb}/^{238}\text{U}$  Laser Ablation ICP-MS zircon ages from the Roy quartz monzodiorite porphyry. Data from Lee (2021).

The fertility plots are also interesting. The Ti in zircon temperatures vs. Hf sit high but still within the near eutectic 750-600°C solidus range for hydrous granite, that is prospective. As for the Eu/EuN\* vs. Hf plot the fertile intrusions at Highland valley plot above 0.35 but the mine phase mineralized intrusions at Gibraltar plot below 0.35 (Bouzari et al., 2020), so being above or below 0.35 might not be diagnostic.

## Conclusions

The three showings have brittle hydrothermal vein stockwork mineralization and discrete elemental assemblages that are spatially related to small intrusions of quartz monzodiorite to diorite compositions. Elemental assemblage abundances suggest different vertical levels and peripheral distances from porphyry Cu-Au-Ag mineralized centres (Halley et al., 2015). The Roy and Day showings are hosted in similar looking fine to medium grained porphyritic hornblende plagioclase diorite that contains a low sulphidation assemblage of chalcopyrite with magnetite, weak potassic alteration and vein and disseminated mineralization. At Porcupine mineralization extends over a wider area in intermediate to felsic volcanic rocks that are intruded by hornblende plagioclase porphyry diorite, Gyr porphyry monzogranite sill and younger Fir gabbro. The abundance of pyrite ± pyrrhotite, and the presence of elevated base metal and pathfinder elements in the volcanics, diorite and quartz veins at Porcupine suggests a position above or peripheral to a causative intrusion and/or porphyry center. Sulphide abundance and assemblages together with reported clay alteration is suggestive of an intermediate to low sulphidation system, however clay mineralogy should be undertaken to confirm the style of mineralization.

Regionally the Savage Mountain and Moosevale formations (+/- intrusives) of the Takla Group are strongly magnetic and can be traced SE-ward from East Niv to the Sustut Copper prospect where they are displaced southwestward along a structure in the Sustut River and then continue southeastward into the Ingenika Fault. The regional magnetic signature of the Telkwa volcanics that underlie the RDP claims is more subdued. Possibly the Hazelton rocks are thick and mask any underlying Triassic basement structures (i.e., could be thrust stacked as part of Skeena F&T Belt). Even to the north where the new claims have been added the elevated mag is subtle and coincides with higher elevation. Southeast of the Sustut River Upper Triassic Takla Group have been mapped but this is within the Upper Sustut/Thumb Park so geophysics were not flown (cannot even see if they track onto the claims and/or terminate against the Sustut River Fault in the river.

A well-defined magnetic anomaly is associated with the quartz monzodiorite stocks which host the mineralized stockwork at Roy and Day. Other isolated airborne magnetic anomalies as well as several Cu and Au-in-soils and Au-in-stream silt anomalies constitute priority exploration targets.

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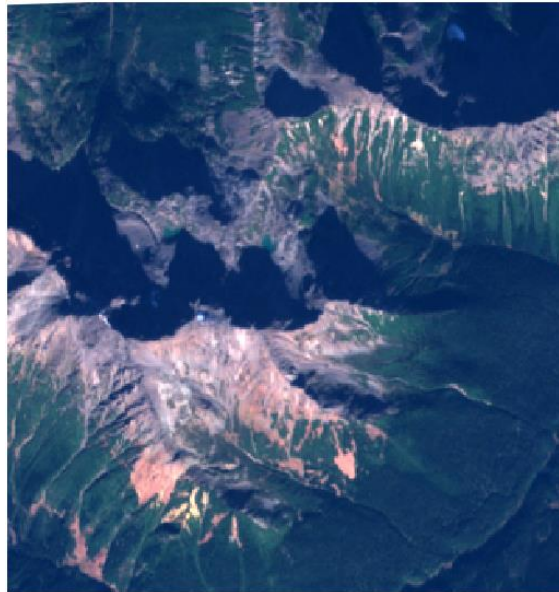
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## Appendix II

Sentinel-2 and Radiometric Processing and Interpretation, RDP, British  
Columbia

**Sentinel-2 processing and interpretation, RDP,  
British Columbia  
July 2021  
Pacific Ridge Exploration Ltd**



**by Dan Core † and Brian Konecke  
Fathom Geophysics**

**†Corresponding author:  
dan@fathomgeophysics.com**

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## Project Location and Description of Data

This report describes processing and interpretation of Sentinel-2 and radiometric data over the RDP project area in British Columbia (Figure 1). The Sentinel-2 data processed for this project are level 1C visible-near infrared (VNIR) and shortwave infrared (SWIR) data. The band resolution and wavelengths for the Sentinel-2 sensors are shown in Table 1. Bands 1, 9 and 10 have not been included in the processing because they are strongly affected by atmospheric absorption.

Sentinel-2 data were downloaded from the European Space Agencies Copernicus Open Access Hub (<https://scihub.copernicus.eu>). The downloaded data have values indicating the top-of-atmosphere (TOA) reflectance and did not require any rescaling. Dark object removal was applied to correct for atmospheric scattering.

All scenes available for July, August, and September were reviewed. Ultimately two scenes were downloaded for testing: 20200731 and 20180930. The 20200731 scene had more snow but a better sun angle and fewer shadows. Even though the 20180930 scene had more shadows, it appeared to do a better job highlighting alteration and was used for all of the processing.

Figure 2 shows the true color image for the Sentinel-2 data. This work includes generation of mineral indexes and spectral correlation maps to highlight differences in lithology and possible hydrothermal alteration zones.

The radiometric data for this work were collected as part of the Search III survey by Geoscience BC. The grids that we used were those provided by the contractor that flew the Search III data and appear to have been generated using bidirectional line gridding. If the data appear to be useful, better grids could be produced by starting with the database and gridding using isotropic minimum curvature gridding.

All products are in WGS84 Zone 9N coordinates.

## Pre-processing

The area has significant vegetation, snow/ice and shadow. All of these can affect the processing results by generating false positives and false negatives. Snow/ice, dark shadows, and thick vegetation were removed from the data.

Lighter shadows were left in the data as was thinner vegetation because some anomalies can be seen in areas that are less affected. However, care should be taken when interpreting the data in the areas with vegetation and/or shadow.

## Processing Summary

There are many ways that multi-spectral data can be processed to highlight alteration phases. We have applied mineral indexes and spectral correlation maps (SCMs) to the data. Mineral indexes are band ratios that highlight the major features in a spectrum while SCMs are Pearson correlation coefficients calculated using the spectrum at a given pixel and a measured reference spectrum for a particular mineral.

Both methods can produce false positives and false negatives. We mitigate this by creating mineral maps that show coincident highs in both the mineral maps and SCMs.

Some of the indexes and SCMs calculated for this work are affected by the presence of vegetation. Figure 3 shows the normalized difference vegetation index (NDVI) and the clay index showing that there is a significant correlation between the two datasets. Similar effects are seen in the kaolinite spectral correlation map (SCM).

To mitigate this issue, the clay index and the kaolinite SCM were decorrelated with the NDVI by histogram equalizing the affected index and the NDVI and calculating the between the histogram equalized grids. The resulting difference grid is then rescaled to have values from 0 to 1.

Figure 4 shows the result of the decorrelation process applied to the clay index. The processing appears to do a good job of removing the vegetation signal while preserving the highs in areas with outcropping rocks or partial vegetation cover. This methodology should be able to highlight anomalies in the indexes in areas with low to moderate amounts of vegetation. Areas with complete vegetation coverage should not contain any anomalies.

Additional details of the processing steps are described in the following sections.

### *Indexes*

The indexes that we use are band ratios and can be used to highlight areas with the potential to host different mineral phases. The indexes that we use for Sentinel-2 data are shown in Table 2. Most of the Sentinel-2 mineral indexes are modified versions of published Landsat indexes. The IFD index is modified from Mielke et al (2014).

## Processing Summary (Continued)

Figure 5 shows representative images of some of the mineral indexes. Because of the relatively poor spectral resolution of satellite-based multispectral data, these indexes often highlight multiple minerals. For example, the kaolinite index highlights a suite of similar minerals, including alunite, dickite, and montmorillonite. The goethite index highlights any ferric iron-rich phase.

Satellite-based multispectral systems also have considerably less spatial resolution than hyperspectral systems. This means that most pixels will contain a mixture of minerals. Due to the non-linear mixing of VNIR & SWIR wavelengths, some minerals are visible at lower percentages than others in a mixture. Goethite is visible at very low percentages, but minerals like kaolinite require a higher percentage for their spectral features to be visible.

The indexes highlight major features in the spectrum of certain minerals. Some minerals share the major features being highlighted, making it useful to look at the entire spectrum to determine if the desired minerals are being highlighted. For this we calculate spectral correlation maps.

### *Spectral Correlation Mapping*

Spectral correlation mapping involves calculating the Pearson correlation coefficient between the spectrum of an end member phase and the measured spectrum at each pixel in the dataset. The results range from -1 to 1, with a value of 1 indicating that the vectors have a perfect positive correlation, and a value of -1 indicating that the vectors have a perfect negative correlation. A value of 0 would indicate no correlation.

This has advantages over the index-based method because it compares the whole spectrum rather than just a particular absorption feature.

However, it is worth noting that the spectra for many silicate and sulfate minerals are similar in general terms. This means that many pixels will have relatively high SCM values. Therefore, relatively high thresholds need to be applied to SCM results in order to avoid false positives. Mixtures of minerals can also cause issues for spectral correlation mapping. A mixture of goethite or jarosite and kaolinite can lead to a reduction in the spectral correlation map for both minerals.

The end member spectra that were used for the SCM were extracted from the USGS SpecLib database (Kokaly et al., 2017) and then sampled to the Sentinel-2 sensor bands.

## Processing Summary (Continued)

SCM grids were created for the following minerals:

- Sentinel-2 SWIR/VNIR: kaolinite, jarosite and goethite

Representative images of the SCMs are shown in Figure 6.

### *Radiometrics*

The radiometric data from the Search III dataset consist of grids of K, U, and Th abundance. The grids were corrected to remove negative values. Then ratios and an alteration index called Kd were calculated.

The ratios are calculated by simply dividing one element by another. Kd is calculated as follows:

- Calculate a predicted K value assuming that K and Th are correlated
- The predicted K value is determined on a local scale indicated by the number in the filename; the larger the number, the larger the local scale
- Calculate the ratio of the measured K value to the predicted K value; positive number indicate K enrichment while negative numbers indicate K depletion

Figure 8 shows representative images of the radiometric processing results. Areas with coincident K and Th highs are likely to be felsic intrusive rocks. K alteration is highlighted by looking for areas with high K where Th is not enriched. These areas can be seen in the K/Th ratio or the Kd products. The Kd products are less noisy and are a reflection of local enrichment above background.

## Interpretation

Polygons were created for potassic, clay, iron-oxide, and jarosite alteration (Figure 9). The potassic alteration polygons are based entirely on the radiometric data while the other polygons are based on the Sentinel-2 data.

The Sentinel-2 data have limited spectral resolution that make it impossible to distinguish between different clay minerals. The clay interpretation polygons could contain range of alteration types including argillic, advanced argillic, and phyllic alteration.

## Interpretation (Continued)

The data are difficult to interpret due to the influence of shadow and vegetation. The indexes and SCMs are also not particularly well correlated. These issues lead to relatively low confidence in the interpreted alteration polygons. These polygons should be field checked to determine if the interpretation is reasonable.

If alteration is mapped that was missed by this analysis, re-processing of the data could be completed to highlight areas similar to those with mapped alteration.

## File Formats and Imaging

The grids for this work were delivered in ERS format. All grids are single band to maximize compatibility with GIS software packages. Multiband grids can be provided if necessary.

Images have been delivered in GeoTIFF format with MapInfo TAB registration files. Accompanying PNG files show the values that correspond to the colors. Two color stretches are used in this work: histogram equalized and linear stretch. Histogram equalization makes equal numbers of pixels of all colors. Linear stretches vary color linearly from a minimum value to a maximum value.

Indexes have the mineral name in the file. Spectral correlation maps have SCM followed by the mineral name in the filename. Ternary images have RGB or CMY followed by the list of components in the same order as the color system designation.

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## List of acronyms and abbreviations

Goeth	goethite (appears in file names of delivered images)
HEq,heq	histogram-equalized image (appears in file names of delivered images)
Idx	mineal index (appears in file names of delivered images)
IFD	iron feature depth (appears in file names of delivered images)
Jaro	Jaoriste (appears in file names of delivered images)
Lin, lin, lin2	linear-stretch image (appears in file names of delivered images)
NDVI	normalized difference vegetation index (appears in file names of delivered images)
S2	Sentinel-2
SCM	spectral correlation map
SWIR	shortwave infrared
UTM	universal transverse Mercator
VNIR	visible and near infrared

**Table 1A – Band definitions for the Sentinel-2 sensor**

Sentinel-2 bands	Central Wavelength (µm)	Resolution (m)	Bandwidth (nm)	Minimum wavelength (µm)	Maximum wavelength (µm)
Band 1 - Coastal aerosol	0.443	60	20	0.433	0.453
Band 2 - Blue	0.49	10	65	0.4575	0.5225
Band 3 - Green	0.56	10	35	0.5425	0.5775
Band 4 - Red	0.665	10	30	0.65	0.68
Band 5 - Vegetation red edge	0.705	20	15	0.6975	0.7125
Band 6 - Vegetation red edge	0.74	20	15	0.7325	0.7475
Band 7 - Vegetation red edge	0.783	20	20	0.773	0.793
Band 8 - NIR	0.842	10	115	0.7845	0.8995
Band 8A - Narrow NIR	0.865	20	20	0.855	0.875
Band 9 - Water vapor	0.945	60	20	0.935	0.955
Band 10 - SWIR cirrus	1.375	60	20	1.365	1.385
Band 11 - SWIR 1	1.61	20	90	1.565	1.655
Band 12 - SWIR 2	2.19	20	180	2.1	2.28

**Table 2A – Band ratios used for Sentinel-2 data**

Sentinel-2 Indexes	Formula
Albedo	$0.726*B3-0.322*B3^2-0.015*B8+0.581*B8^2$
Clay	$(B11-B12)/(B11+B12)$
Fe3FeTot	$(B6/B5)/(B6/B5+B3/B4+B7/B5)$
Goethite	$(B4-B2)/(B4+B2)$
Goethite RG	$(B4-B3)/(B4+B3)$
IFD	$B8^*/B8A$
Magnetite BG	$(B2-B3)/(B2+B3)$
NDVI	$(B8-B4)/(B8+B4)$
NDWI	$(B3-B8)/(B3+B8)$

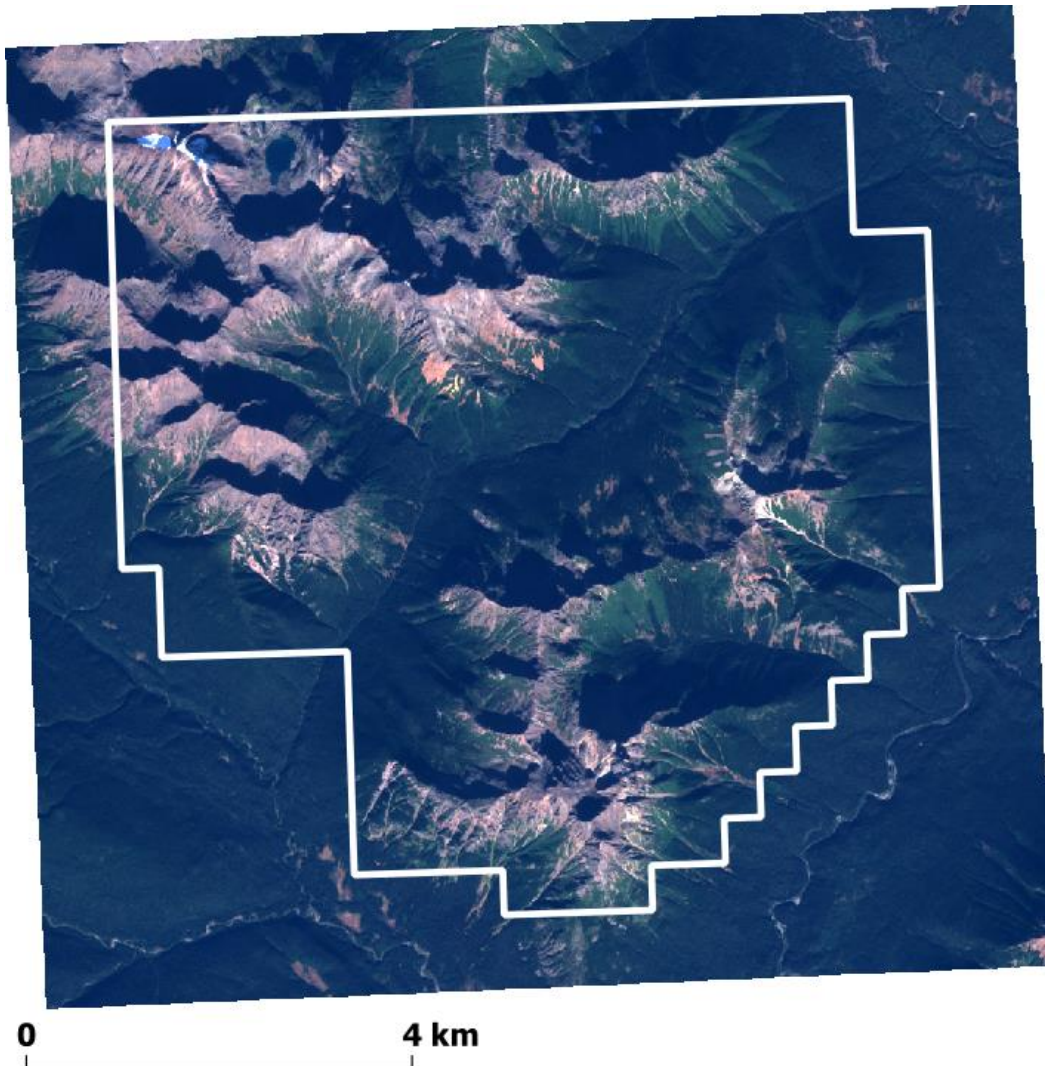
B8\* = linear interpolation of bands 6 and 11 to the band 8A location

## Project area map



**Figure 1:** Image showing the location of the RDP project area in central BC.

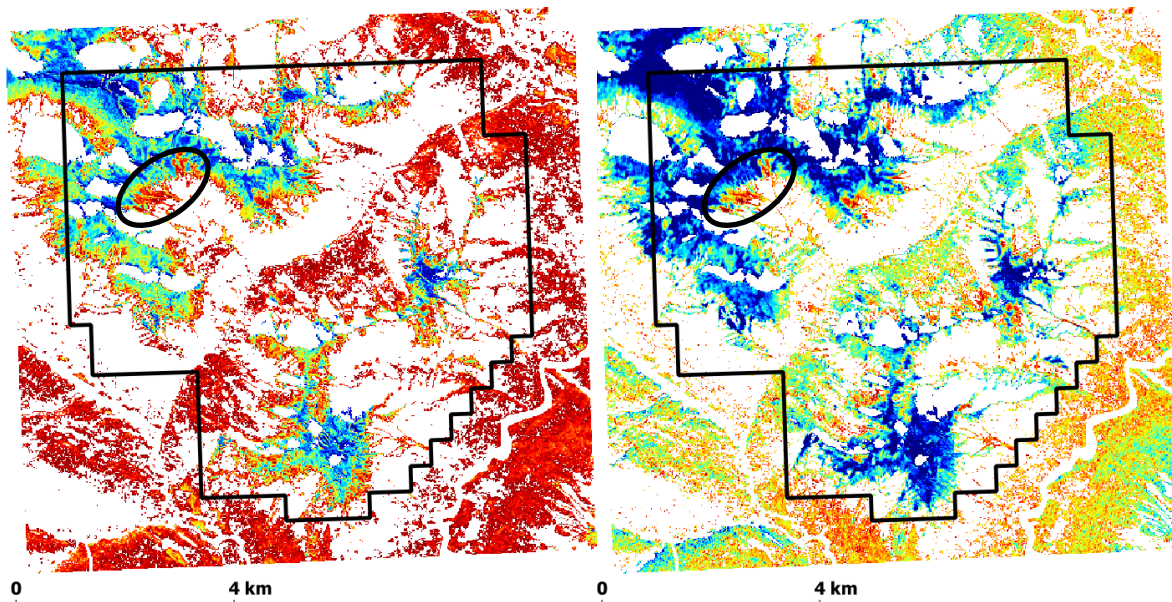
## True color image



### RDP\_S2\_True\_Color

**Figure 2:** True color image of the Sentinel-2 data using linear stretches of bands 4, 3 and 2. The image shows significant shadows and vegetation. Small amounts of snow and ice are present in the northwest corner of the tenement area.

## Affects of vegetation on processing

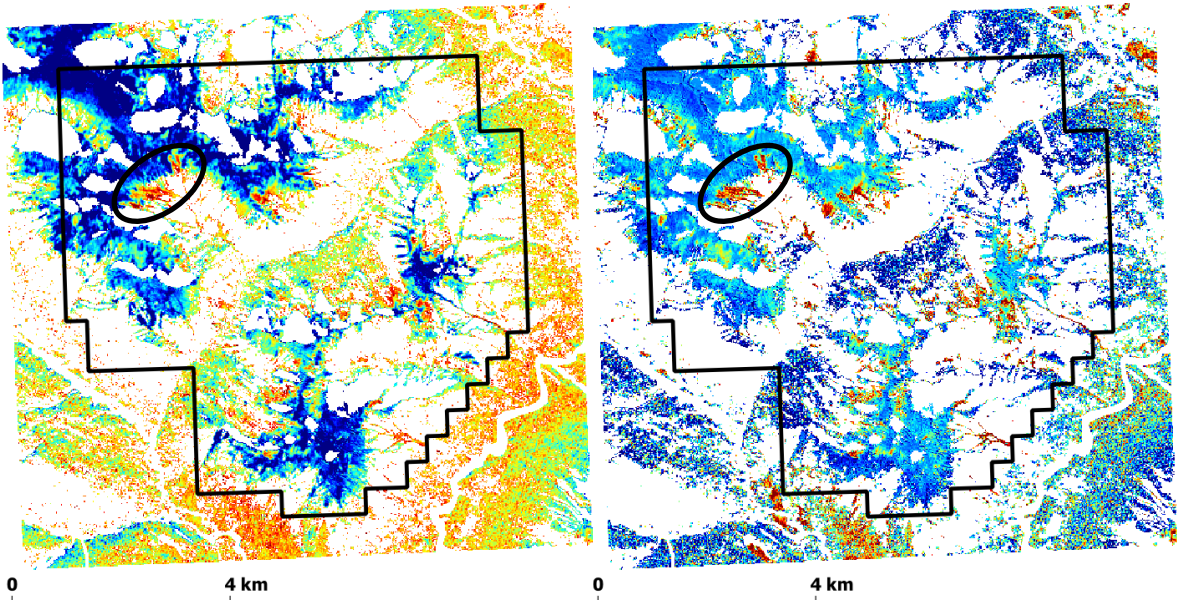


RDP\_S2\_lin-NDVI

RDP\_S2\_lin-Clay

**Figure 3 LEFT:** Normalized difference vegetation index for the project AOI. **Figure 4 RIGHT:** Clay index for the project AOI. Significant correlation between the NDVI and clay indexes is present. Vegetation un-mixing was completed to locate areas where the clay index has values that are higher than would be expected based on the NDVI values in a given area. One such area is shown inside the black oval. Areas like this are more likely to contain a mix of vegetation and alteration signals rather than just vegetation. The anomalies generated by this processing need to be field checked. It is possible that the difference in NDVI is caused by differences in the species of vegetation rather than vegetation density. Issues like this could cause false positives in the vegetation un-mixing.

## Vegetation un-mixing

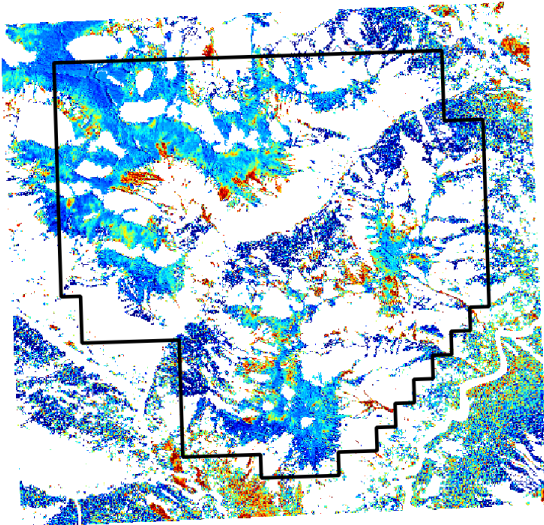


RDP\_S2\_lin-Clay

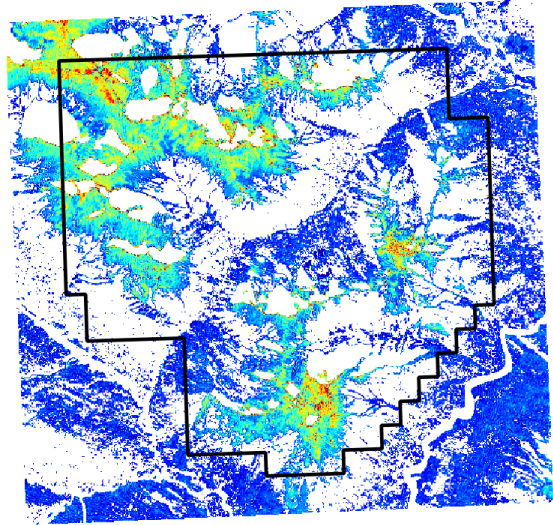
RDP\_S2\_lin-ClayNoVeg

**Figure 4 LEFT:** Clay index for the AOI before vegetation un-mixing. **Figure 5 RIGHT:** Clay index for the AOI after vegetation un-mixing. The vegetation un-mixing removes most of the vegetation signal from the clay index leaving behind areas that are high where there is no vegetation or areas where vegetation is present and the clay index is higher than would be expected for an anomaly produced by vegetation. The high levels of vegetation and poor sun angle in the area add uncertainty to this processing. The anomalies should be field checked.

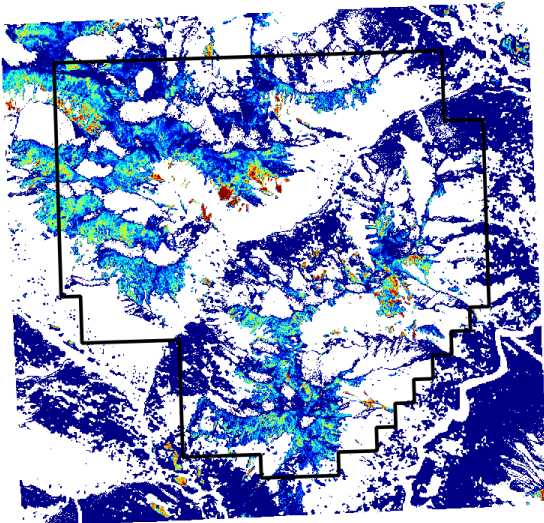
## Sentinel-2 index images – Examples



RDP\_S2\_lin-ClayNoVeg



RDP\_S2\_Lin-IFD



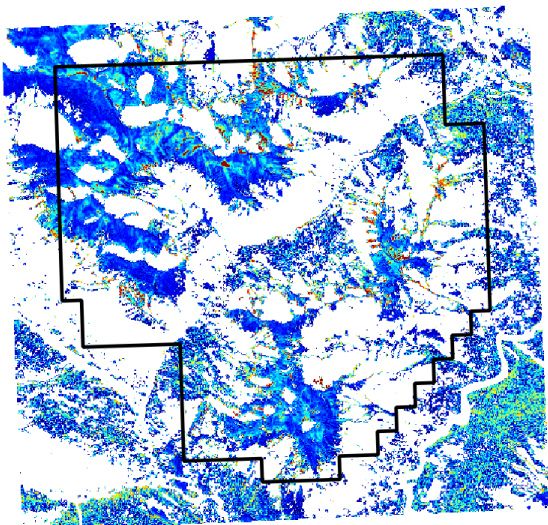
RDP\_S2\_Lin-Goethite

**Figure 5:** Images showing examples of Sentinel-2 mineral indexes.

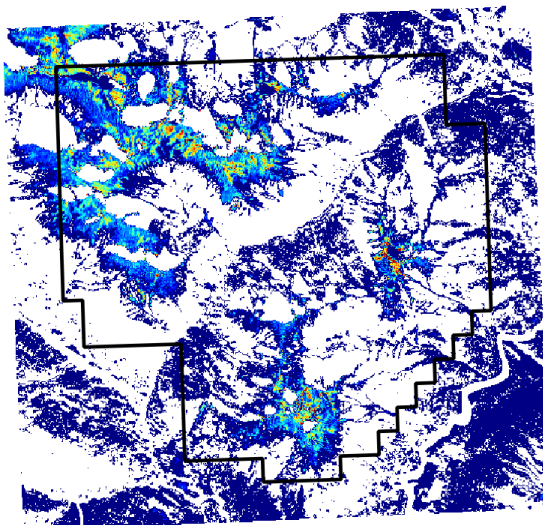
**TOP LEFT:** Clay index with vegetation signal removed that highlights an absorption feature on band 12 of the Sentinel-2 data. The index should highlight areas with apparent phyllic, argillic, or advanced argillic alteration.

**TOP RIGHT:** Iron feature depth (IFD) image highlighting areas with possible jarosite. **BOTTOM:** Goethite index highlights areas with a strong red color indicating fine-grained iron oxide or hydroxide minerals.

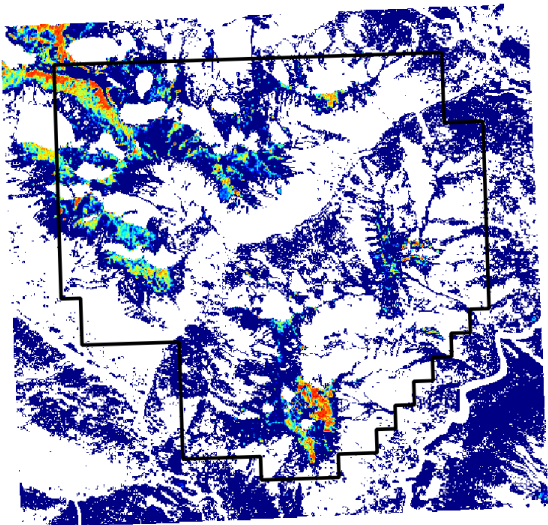
## Sentinel-2 spectral correlation map images – Examples



RDP\_S2\_Lin-SCMKaoliniteNoVeg



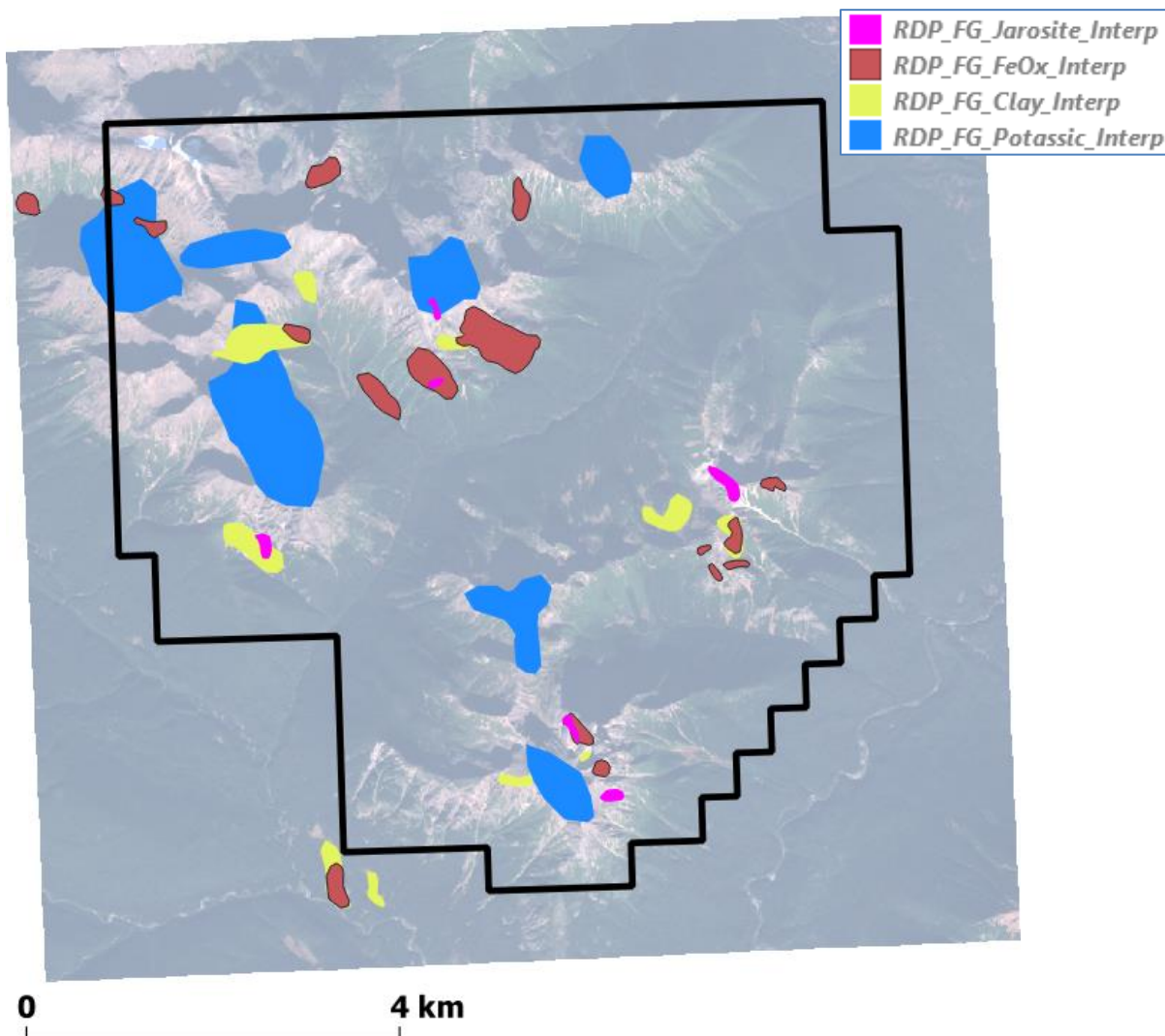
RDP\_S2\_Lin-SCMJarosite



RDP\_S2\_Lin\_V2-SCMGoethite

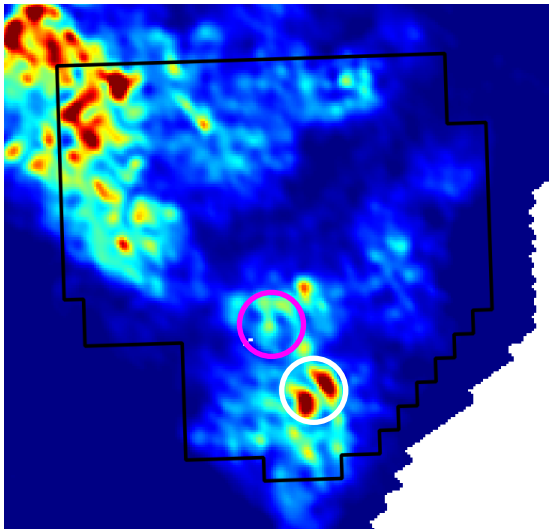
**Figure 6:** Images showing examples of Sentinel-2 spectral correlation maps. **TOP LEFT:** The kaolinite SCM with vegetation removed highlights possible argillic alteration and should be used with the clay index. Typically the clay index and kaolinite SCM have significant correlation. That was not the case in this area. **TOP RIGHT:** The jarosite SCM is typically well correlated with the IFD. Such a correlation only happens in a couple of small areas in this dataset. **BOTTOM:** The goethite SCM is generally high in the areas with exposed rocks in these areas. The image has had a color stretch applied to highlight only the highest highs. While these are not well correlated with the goethite index highs, the areas with goethite index highs have high goethite SCM values in absolute terms.

## Interpretation

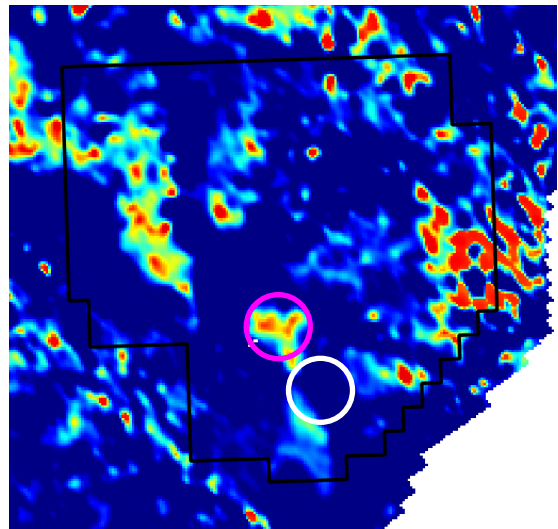


**Figure 8:** Alteration polygons interpreted based on the Sentinel-2 and radiometric data. The polygons are colored as indicated in the legend in the upper right. The Sentinel-2 data are most effective for mapping goethite. The jarosite and clay polygons have a lot of uncertainty and require field checking. The strongest K-alteration appears to be in the northwest of the property. The other polygons appear to be caused more the Th depletion than by K enrichment.

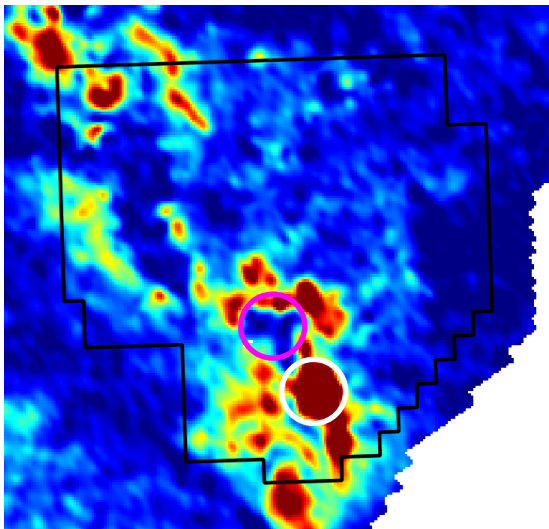
## Radiometrics images – Examples



RDP\_Search\_III\_50m\_Lin-K



Search\_III\_50m\_Lin-Kd\_Gauss20



RDP\_Search\_III\_50m\_Lin-Th

**Figure 7:** Subset of the radiometric dataset showing examples of the element and alteration index images. The magenta oval highlights a possible potassic alteration zone while the white oval highlights a possible felsic intrusion. **TOP LEFT:** The K radiometric grid should have high values over felsic intrusions as well as potassic alteration. **TOP RIGHT:** Kd-Gauss shows areas that have K enriched relative to Th. Highs with a corresponding high in K are interpreted as potassic alteration. **BOTTOM:** The Th radiometric grid highlights northwest-trending features that could be felsic intrusions.

## Appendix III

### Rock Sample Details

Station Id	Easting	Northing	Lithology	Description
21JLo84	638115.2	6265858.6	EJd	Trench 4. Adjacent to drill hole. Broken greenish grey wthrng fine grained plagioclase - hornblende porphyritic diorite. 2-4mm tabular white plagioclase (2 populations, larger and smaller) 35%. 2-4mm tabular black/brown hornblende 30%, weakly trachytic w
21JLo85	638140.4	6265902.4	EJd	Broken greenish grey wthrng fine grained plagioclase - hornblende porphyritic diorite. 1-3mm tabular white plagioclase (2 populations, larger and smaller) 35%. 1-3mm tabular black hornblende 30%, weakly trachytic within a pale green chloritic matrix 35%
21JLo86	638140.2	6265819.6	EJd	Broken greenish grey wthrng fine grained plagioclase - hornblende porphyritic diorite. 2-4mm tabular white plagioclase (2 populations, larger and smaller) 35%. 2-4mm tabular black hornblende 30%, weakly trachytic within a pale pinkish green chloritic mat
21JLo87	638131.9	6265854.2	EJd	Trench 7, fractured greenish grey wthrng fine grained plagioclase - hornblende porphyritic diorite. 2-4mm tabular white plagioclase (2 populations, larger and smaller) 35%. 2-4mm tabular black-brownish hornblende 30%, weakly trachytic within a pale pink
21JLo88	638122.3	6265778.7	EJd	Massive, blocky fractured, pinkish wht wthrng, jointed w/ epidote, qtz, calcite coatings, same plagioclase hornblende porphyritic diorite as described for trenches.
21JLo89	638078	6265861.5	EJd	Trench 8? Greenish grey wthrng, frcted plag-hnbl diorite porphyry, cut by banded qtz+magnetite veins and enveloping zones of chlorite alteration. Easterly structural control to stockwork but the alteration/mineralization stockwork extends for length of t
21JLo90	637944.9	6265857.3	EJd	Massive, pinkish purple wthrng, irregularly frcted.fine grained equigranular hnbl diorite. Cut by banded quartz-magnetite vein stockworks, sharp walls w/ no alteration envelopes. Magnetite Center-line Åçâ,-ËœBÃçâ,-â,,ç veins cross cut anastomosing wht qtz Åçâ,-ËœAÃçâ,-â,,ç
21JLo91	637967.9	6265834.2	EJd	DDH97-1 & DDH97-2
21JLo92	637967.9	6265829.9	EJd	DDH97-3
21JLo93	637984.8	6265791.1	EJd	Irregularly brecciated, chlorite + epidote coating fractures. Sparse qtz stockworks +/- py, albite +chl+/-epidote veinlets, hematite on fractures.
21JLo94	637988.8	6265708	EJd	Massive, blocky jnted, pale greenish grey wthrng. Medium grained equigranular hnbl monzodiorite. Sparse diss cubic pyrite, pervasive chlorite alteration.

21JLo95	637740.6	6266384.8	EJT3	Thin bedded, pale green-buff wthrng crystal lithic tuffaceous sandstone, alternating with cm thick cherty tuffaceous layers. Inter layered w/ coarse greenish pink lapilli to block sized rounded intermediate breccia
21JLo96	637785.9	6266547.1	EJT3	Irregularly fractured, pale purple-green wthrng intermediate volcanoclastic, green rnded lapilli to block clasts, in purple xstl lithic groundmass
21JLo97	637779	6266655	EJT3	Pale pinkish green, xstl-lithic matrix supported polymictic volcanic conglomerate. Mottled purple green matrix/ angular to rounded hnbl-plag porphyritic andesite. Large grey clast of plagioclase-hnbl diorite(?) looks very similar to the host to mineralization
21JLo98	637743.8	6266303	EJd	Massive, irregularly fractured, moderate chl+epidote alteration, fine grained porphyritic diorite. 2-4mm acicular hornblende, (20%), 1-3 wht tabular plagioclase (40%), matrix of plag+K-spar+qtz. Trace magnetite grains. Alteration: Epidote veinlets
21JLo99	637675.8	6266236.4	EJd	Massive, well jointed, pinkish green wthrng diorite. moderate chl+epidote alteration, fine grained porphyritic diorite. 2-4mm acicular hornblende, (20%), 1-3 wht tabular plagioclase (40%), matrix of plag+K-spar+qtz. Alteration: ateria has a dark green ch
21JLo100	637678.3	6266154.8	EJT3	Irregularly fractured, pale khaki wthrng,plag xstl lithic matrix supported rounded lapilli sized volcanoclastic/volcanic conglomerate. Alteration: chlorite, weak epidote coating frctures
21JLo101	637703.9	6265928.5	EJd	Massive, greenish-yellow grey wthrng, blocky, medium grained plagioclase-hornblende porphyritic diorite.frctures weakly veined w/ chlorite, patchy epidote, hematite calcite.
21JLo102	637736.6	6265853.4	EJd	Same massive diorite intrusion at edge of bleached gross an zone west of trenches. Cut by mm-cm wide qtz-hematite+calcite, qtz-magnetite, some with K-spar envelopes, strongly fractured healed w/ calcite and pink zeolite, late fault zone with low temp alt
21JLo103	637732.7	6265806.5	EJd	Irregularly fractured, brittle fault zone cutting hnbl-plag porphyry diorite. Numerous stockworks of wht calcite veinlets.also couple of discrete rusty wthrng pyritic vein sets trending southwesterly 55/90.
21JLo104	637908.4	6265729.5	EJd	Massive, irregularly frcted chlorite +/-epidote overprinted hnbl-plag diorite porphyry.
21JLo105	638657.6	6266396.5	EJT3	Pale green + purple, rubble outcrop, plag, xstl lithic maroon ash matrix supported monomictic + polymictic volcanic breccia. White calcite veins, fractures coatings.

21JLo106	638665.7	6266195.4	EJT3	Massive, well jnted, deeply wthered, mottled green and purple, plagioclase xstl -lithicmatrix supported lapilli volcanic conglomerate. Interbedded w/ crse lithic sandstone, chaotic unsorted to moderately well graded. oxidized
21JLo107	638590.3	6266080	EJT3	Massive, thick bedded, well jointed, purple-maroon xstl-lithic-ash siltstone matrix-supported polymictic volcanic conglomerate
21JLo108	638496.3	6265803	EJT3	Massive, blocky jnted, greenish-grey+rusty wthrng, green-maroon mottled plag xstl-lithic sand sized matrix supported rounded lapilli sized clasts. Reworked volcaniclastic. Hornfelses, crse blebs of pyrite distributed throughout.
21JLo109	638470.7	6265726.6	EJT3	Massive, irregularly fractured brownish-green wthrng silty matrix-supported polymictic rounded cm clasts chaotic, unsorted debris depositvolcanic clastic rx,
21JLo110	638447.1	6265608.8	EJT3	Massive, cream wthrng, blocky jointed, dense fine grained xstl-lithic tuff. Medium green w/ mm-sized angular polymictic clasts. possibly welded?
21JLo111	638425	6265578.2	EJT3	Massive, creamy white wthrng, thick blocky jointed, welded xstl tuff and/or diorite sill?
21JLo112	638355.9	6265515.7	EJd	Massive, blocky jointed grey wthrng, patchy rusty zones, hnbl plag porphyritic diorite
21JLo113	638146.2	6265461.1	EJd	Maroon wthrng, irregularly fractured plag- hnbl porphyry diorite, alteration, epidote, chlorite, hematite+/- qtz veins.
21JLo114	638126.3	6265596.4	EJd	Diorite
21JLo199	635610.3	6263023.7	EJT4	Thickly bedded, maroon, grey and purple wthrng, polymictic xstl-lithic-ash tuff maroon aphyric rounded clasts, weak welded fabric visible. Interbedded, maroon+green xstl-lithic welded tuffs flat lying, strike not measurable
21JLo200	635989.6	6263374.2	EJT3	Massive, thick bedded, poorly sorted polymictic maroon, xstl-ash matrix, supported volcanic conglomerate. Fractured, oxidized possibly calcite+/- zeolites no propylitic assemblages
21JLo201	636058.6	6263392.4	EJT3	Massive, rounded glacial scoured, wht wthrng, fine grained - aphanitic, flatted pinkish amygdaloidal, looks felsic, rhyolite or dacite. Chilled margin. Pinkish wthrng, porphyritic K-spar phenocrysts, rounded vitreous qtz eyes within a fine grained felsic m
21JLo202	636196.2	6263355	EJG	Massive, pink wthrng, blocky jnted granite/rhyolite. Fine grained siliceous matrix with pink tabular 2-3mm K-spar phenocrysts (20%), vitreous rounded qtz eyes 3-5mm (20%), wht equant 2-6mm plagioclase phenocryst (5-10%). Trace +/- fine grained mafic xstl

21JLo203	636426.4	6263414.1	EJd	Massive, blocky jnted, grey wthrng, patchy rusty zones, fine grained diorite. Stkwrk veined w/ sheet qtz veins, magnetite only veins, diss + sulphide veinlets of cpy>py in groundmass of diorite. Cpy 1-1.5%, py 0.5-1%. In the qtz veins cpy>py as well
21JLo204	636458.9	6263396.6	EJd	Blocky jointed grey wthrng chloritic Ed diorite.cut by calcite veinlets
21JLo205	636766.6	6263353.9	EJd	Massive grey wthrng, blocky jointed, medium grained, igneous equigranular diorite, bleached to a pale grey. Disseminated py 0.4%. Plagioclase xstls 2-4mm, no discernible mafic minerals
21JLo206	636735.4	6263305.9	EJd	Massive, diorite in contact w/ 1/2 meter wht carbonate layer,
21JLo207	636707.7	6263300.9	EJd	Massive,greenish grey wthrng, blocky jointed, diorite, equigranular to weakly porphyritic, wht tabular 2-4mm plag xstls(25-30%), no mafics, pale greenish matrix, weak chl + calcite alteration
21JLo208	636670.7	6263271.2	EJd	Cntc between diorite and maroon, poorly sorted chaotic ash matrix supported lapilli- block tuff Cntc trends 105/70
21JLo209	636801.6	6263408.6	EJd	Massive, grey greenish wthrng, locally rusty, medium grained equigranular to porphyritic plagioclase>> hornblende. Disseminated pyrite, trace chlorite, minor calcite veins, and coarse wht calcite blow-outs.
21JLo210	636887.1	6263425.4	EJd	Massive, blocky jointed, grey wht wthrng, medium grained, equigranular to weakly porphyritic. Plag phenos (3-4mm, 25%), hornblende xstls (2-4mm, 10%), matrix of plag, K-spar-qtz diorite. Weak chlorite alteration of mafics, no obvious veining or frct coat
21JLo211	636467.5	6263477	EJd	Talus coming off the altered qtz stkwrk intruded diorite outcrop up hill. Rubble is pink wthrng, thickly coated by malachite, sheeted magnetite-qtz veins, crosscut by later veins
21JLo212	636397.2	6263443	EJd	Massive, diorite cut by stkwrk qtz+/- magnetite veins 60/30 sheeted veins, 330/70 coarse wht calcite vein 12cm wide
21JLo264	636569.5	6263473.7	EJd	DDH x 2 45@175
21JLo319	636340	6263392	EJT3	Subcrop, maroon/purple wthrng, xstl-lithic matrix supported polymictic volcanic conglomerate. Telkwa fm
21JLo320	633529.4	6267698	EJT3	Massive, well jointed, pinkish wht wthrng, polymictic xstl-lithic matrix supported welded dacite tuffaceous volcaniclastic. Angular maroon, purple, pink, wht, cm clasts, in a felsic matrix, laminated clasts, rhyolite flow banded clasts
21JLo321	633501.4	6267591.6	EJT3	Massive, purple wthrng, fine grained xstl-lithic tuffaceous sandstone., graded xstls layers

21JLo322	633578.7	6267344.1	EJT3	Massive, purple wthrng, fine grained xstl-lithic tuffaceous sandstone., graded xstls layers
21JLo331	634689.5	6264917.3	EJT3	Massive, irregularly fractured, rusty wthrng, medium grained, equigranular bleached plag porphyry diorite. Diss magnetite, and pyrite (1%), bleached cut by 1.5m wide massive sulphide zone. Stockworks of pyrite in sericite-qtz altered felsic volcanic
21JLo332	634741.2	6264901.1	EJT3	Massive, brecciated rhyolite/ QSP altered intermediate - felsic volcanic, dark grey matrix to angular+ rounded cm clasts of volc, diss pyrite (1-2%)
21JLo333	634790.1	6264882.8	EJT3	Massive, variably fractured, dacite lapilli tuffaceous horizons evident in the QSP bleached altered rx, diss +/- vein py, first appearance of chl + epidote.
21JLo334	634823.4	6264870.4	EJT3	OTC ends in creek
21JLo335	634882.5	6264829.6	EJT3	Massive, green -rusty wthrng, fn grained volcaniclastic, chlorite+/-qtz veinlets
21JLo336	635037.8	6264758.6	EJgb	Well jointed, cut by spaced mm wide albite+/- qtz veinlets. Gabbro, medium grained equigranular pyroxene + biotite + plagioclase diss magmatic magnetite
21JLo337	635118.7	6264864.3	EJgb	Massive, grey brown wthrng, weakly gneissic, cut by whitish green albite sheeted veinlets. Equigranular medium grained px-bio gabbro, magnetic
21JLo338	635152.3	6264881.2	EJT3	Massive, rusty weathering malachite stained contact zone within gabbro. Altered country rock volcanics
21JLo339	635442.6	6264778.9	EJd	Blocky jointed, weak rusty frctures, pale green wthrng fine grained weakly porphyritic plag diorite. Frctures coated w/ chlorite +/- epidote plag xstls 1-3mm, 25%, hnbl and/ or pyroxene mafics 1-3mm, 10%.
21JLo340	635408.2	6264854	EJd	Rusty wthrng, irregularly frcted, greenish grey silicified-chlorite-p6rite altered diorite porphyry. Qtz veins 1-4mm ghost margins + centre line sulphide veins
21JLo341	635394.5	6264944.1	EJd	At trench P1, strong pyrite+silica veining, occasional wht qtz veins w/ cpyCpy 1-2%, in banded, qtz vein mineralized w/ 2-3% pyrite
21JLo342	634901.1	6266727.8	EJT3	Massive, irregularly fractured, rusty wthrng, andesitic greenish grey xstl-lithic. Matrix supported fragmental, rounded lapilli clasts in an unsorted ash matrix, variably pyritic, moderately QSP altered, py veinlets, diss pyrite (1-2%), bleached wht- gre
21JLo343	634855.6	6266827	EJT3	Massive, well jointed, thick bedded green grey wthrng, polymictic rounded block to lapilli volcanic clasts, clasts replaced by epidote, weak magnetic signature.

21JLo344	634780.6	6266924.6	EJd	Massive, irregularly fractured + jointed, greenish grey wthrng, weak chlorite+ wht calcite veinlets. Hornblende phyric fine grained andesite/diorite.
21JLo345	634724.4	6266965.6	EJd	Massive, irregularly fractured, grey wthrng, hornblende (5-7mm, 10%) aligned, looks like a welded andesite, rare rounded clasts/zenoliths, weak chlorite-calcite altered, epidote on joints. Hornblende- plagioclase porphyritic diorite, plag, 2-3mm wht equa
21JLo346	634695.8	6267082.4	EJd	Massive, blocky jointed, fine grained, porphyritic hornblende-plagioclase diorite. Magnetic, local calcite filled vesicules. Coated w/ pinkish red zeolite
21JLo347	634667.2	6267085.3	EJd	Massive, maroon/purple wthrng, plag xstl lithic matrix supported rounded to angular felsic + intermediate plag phyric, aphyric, dacite, clasts. Looks unaltered, sharp contact"
21JLo348	634663.8	6267146.7	EJd	Contact
21JLo349	634677.8	6267151.6	EJd	White wthrng, well jnted coarse hornblende-plagioclase porphyritic diorite. greenish blk hnbl (5-10mm, 20%), white stubby to lath xstls of plag (3-8mm, 30%), grey fine grained matrix of plag-k-spar+/-qtz., magmatic magnetite.
21JLo350	634682.9	6267338.8	EJd	Massive, finer grained hnbl-plag porphyry diorite
21JLo351	634737.5	6267452.5	EJT3	Massive, to thick chaotic bedded maroon-purple xstl-lithic sand matrix supported rounded lapilli volcanic fragments. Intermediate comp. andesitic, plag+/- hnbl phyric, dacite/rhyolite, volcanic clasts. Occasional fine graded sandstone siltstone horizons.
21JLo352	634781.3	6267383.7	EJd	Massive, well jointed, greenish grey wthrng, hnbl-plag diorite porphyry, fine-medium grained, weak chlorite alteration
21JLo353	634887.7	6267202.8	EJT3	Thick bedded, maroon-grey wthrng, volcanic conglomerate, pebble sized rounded clasts in matrix + clast supported beds. Contact with intrusion sharp, intrusion is epidote altered along jnts, cngl unaltered
21JLo354	634877.4	6267205.9	EJd	Contact relationship is very sharp , little alteration across boundary, hnbl-plag po intrudes as a sill with incorporation of small inclusion of intrusion in the sediment.
21JLo355	635455.5	6264560.9	EJd	Massive, irregularly fractured, pyritized, rusty wthrng, fine grained, equigranular diorite. Brecciated crackle vein stockworks traces K-spar, albite, chlorite. Gossamer Alteration is pyrite, chlorite-sericite overprinted by pyrite
21JLo356	635527.7	6264785.2	EJd	Trench, rubble fractured chl-ser-py altered, hornblende diorite porphyry. Patches of QSP alteration, rare qtz+chl py veins., generally disseminated pyrite altern

21JLo357	635518.8	6264911.5	EJG	Massive, rounded orangey pink wthrng outcrops feldspar, qtz porphyritic granite.
21JLo358	635353.4	6264973.4	EJd	In creek, irregularly fractured, rusty weathering, QSP overprint to possible diorite. Magnetite-qtz veins, but predominantly qtz-pyrite., patchy malachite Variable zones of alteration focussed in creek, diorite rusty fractured QSP, more massive chlorite-calcite
21JLo359	635309.6	6265023.7	EJd	Diorite. Variable zones of alteration focussed in creek, diorite rusty fractured QSP, more massive chlorite-calcite altered diorite has patchy malachite +calcite stockworks Rare sulphide Center line qtz veinlets w/ py>cpy
21JLo360	635201.1	6265097.6	EJd	Blocky fractured, rusty wthrng, coarse grained diorite or possibly plagioclase porphyry dike, QSP altered, coarse xstl aggregates + veinlets of pyrite

## Appendix IV

### Analytical Certificates



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: EQUITY EXPLORATION CONSULTANTS LTD.  
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 VANCOUVER BC V6C 1S4

Page: 1  
 Total # Pages: 2 (A - D)  
 Plus Appendix Pages  
 Finalized Date: 10-DEC-2021  
 Account: EIA

**CERTIFICATE KL21293345**

Project: PEX21-01(RDP)  
 P.O. No.: RDP2021-001  
 This report is for 36 samples of Rock submitted to our lab in Kamloops, BC, Canada on 13-SEP-2021.  
 The following have access to data associated with this certificate:

JASMINE CLANCY	JIM LOGAN	DANETTE SCHWAB
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SAMPLE PREPARATION	
ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-21	Sample logging - ClientBarCode
CRU-QC	Crushing QC Test
PUL-QC	Pulverizing QC Test
CRU-31	Fine crushing - 70% <2mm
SPL-22Y	Split Sample - Boyd Rotary Splitter
PUL-32	Pulverize 1000g to 85% < 75 um
BAG-01	Bulk Master for Storage

ANALYTICAL PROCEDURES		
ALS CODE	DESCRIPTION	INSTRUMENT
Au-AA23	Au 30g FA-AA finish	AAS
ME-MS61	48 element four acid ICP-MS	
ME-OG62	Ore Grade Elements - Four Acid	ICP-AES
Cu-OG62	Ore Grade Cu - Four Acid	

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

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 Account: EIA

Project: PEX21-01(RDP)

**CERTIFICATE OF ANALYSIS KL21293345**

Sample Description	Method Analyte Units LOD	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
		Recvd Wt. kg	Au ppm	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm
		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
B264857		0.58	0.554	0.65	8.69	7.0	800	0.87	0.05	1.28	0.08	21.3	23.0	8	4.16	3430
B264858		0.73	9.78	11.60	2.86	21.6	190	0.24	0.11	1.85	0.25	7.39	31.4	17	1.26	>10000
B264859		0.64	0.870	0.53	7.91	4.1	1750	0.84	0.03	1.16	0.09	22.6	15.6	13	0.68	1455
B264860		1.23	0.025	0.02	9.00	1.9	1610	1.05	0.01	2.03	<0.02	24.9	13.2	5	0.71	56.5
B264861		0.82	0.358	0.51	8.71	6.2	1190	1.12	0.02	3.31	0.17	24.2	18.0	26	0.41	937
B264862		1.12	0.013	0.02	8.73	2.4	1380	1.18	0.01	1.63	<0.02	25.1	12.2	4	1.27	33.5
B264863		0.98	0.057	0.05	8.88	3.4	1660	1.07	0.01	2.12	0.03	24.8	12.4	5	0.90	170.5
B264864		0.95	0.423	0.42	8.43	4.4	1270	1.08	0.02	2.03	0.10	23.1	15.2	6	0.47	800
B264865		1.17	0.776	0.37	8.82	2.1	1550	0.63	0.02	1.94	0.12	20.8	13.6	5	1.49	1720
B264866		1.20	0.249	0.25	8.37	4.0	1520	0.79	0.01	1.52	0.03	21.8	14.7	5	0.36	589
B264867		0.98	0.022	0.05	7.73	3.3	1610	0.70	0.01	1.51	0.06	13.90	8.5	8	0.32	129.0
B264868		1.64	0.069	0.08	7.89	1.9	1540	0.93	0.02	2.34	0.09	14.95	11.5	9	0.89	143.0
B264869		0.76	<0.005	0.56	8.58	4.5	210	0.74	0.05	3.89	0.06	17.65	29.9	65	0.15	195.5
B264870		1.21	<0.005	0.02	8.75	3.8	1610	1.04	0.06	3.01	0.02	24.0	10.3	3	1.29	27.2
D722951		0.83	<0.005	0.05	8.62	4.3	1270	0.96	0.03	4.31	0.03	17.70	11.8	7	3.79	37.2
D722952		0.57	<0.005	0.06	8.91	3.8	620	1.27	0.25	0.98	<0.02	33.4	7.5	6	2.34	11.9
D722953		0.70	<0.005	0.06	8.11	3.1	2520	0.79	<0.01	3.97	0.15	20.0	12.7	3	1.70	40.5
D722954		0.62	0.006	1.31	9.02	288	1500	0.89	0.03	2.31	2.23	22.4	12.0	4	1.12	47.9
D722955		0.97	0.074	0.07	8.96	3.8	1230	1.21	0.02	2.71	1.25	24.9	14.0	5	0.36	198.0
D722956		0.73	0.050	0.06	9.16	2.0	1950	0.75	0.01	1.51	0.02	26.5	9.7	4	0.87	85.9
D722957		1.02	0.029	0.09	7.57	2.1	1330	0.64	0.02	5.16	0.02	19.30	10.1	3	0.51	222
D722958		0.84	0.025	2.12	8.43	1.8	550	0.65	0.04	4.38	1.97	14.10	10.0	70	0.16	3910
D722959		0.52	0.764	0.77	8.88	4.6	2010	0.81	0.04	1.04	0.21	23.1	15.6	4	0.75	1260
D722960		0.60	5.07	6.80	9.23	1.6	740	0.70	0.79	0.81	0.16	14.90	15.0	3	1.55	>10000
D722961		1.10	1.635	2.33	7.06	2.9	850	0.60	0.33	1.08	0.08	10.05	8.3	12	2.03	9120
D722962		1.11	<0.005	0.02	8.27	2.1	260	0.85	0.01	3.39	<0.02	15.65	7.5	4	4.90	36.8
D722963		0.73	<0.005	0.19	9.11	17.9	2000	0.94	0.10	1.12	1.13	23.2	7.8	4	1.98	21.6
D722964		1.66	1.205	22.4	1.89	409	120	0.24	15.90	0.83	0.26	6.34	9.2	14	0.64	577
D722965		0.67	2.40	18.35	0.63	260	30	0.19	4.95	0.15	4.40	1.69	33.1	30	0.21	>10000
D722966		2.11	0.051	61.7	7.83	179.5	1530	0.89	0.27	1.90	20.9	15.80	23.6	30	2.11	>10000
D722967		1.42	0.207	0.79	6.62	86.2	480	0.51	1.32	0.12	0.12	3.86	1.8	10	2.29	457
D722968		1.73	2.000	>100	2.72	551	160	0.38	19.10	0.04	6.22	4.01	3.2	19	0.95	>10000
D722969		1.06	0.007	0.79	9.70	7.5	660	0.87	0.14	1.33	0.18	26.6	19.8	4	2.37	91.7
D722970		1.07	0.051	1.00	8.15	12.8	2510	0.74	0.04	3.92	0.53	24.6	4.6	10	0.82	537
D722971		1.22	0.022	0.56	4.54	6.2	280	0.29	0.12	2.70	0.08	6.11	2.5	30	1.39	31.8
D722972		1.28	0.025	0.23	8.49	36.7	1410	0.68	0.13	3.25	0.18	18.60	4.6	4	1.49	217



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

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**CERTIFICATE OF ANALYSIS KL21293345**

Sample Description	Method Analyte Units LOD	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	
		Fe %	Ga ppm	Ge ppm	Hf ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P ppm
B264857		4.65	16.65	0.21	1.6	0.124	2.64	9.2	22.4	0.99	806	4.17	3.03	5.6	3.4	880
B264858		7.52	10.35	0.08	0.4	0.575	0.81	4.0	25.9	0.39	993	4.71	0.19	1.9	4.3	190
B264859		5.74	16.15	0.15	1.5	0.101	2.89	12.0	17.5	1.17	1710	3.52	3.14	4.6	2.1	830
B264860		4.66	17.60	0.29	2.0	0.044	3.24	11.7	22.8	1.33	1700	1.63	3.81	5.8	1.8	1020
B264861		5.46	19.35	0.22	1.8	0.072	2.19	10.5	19.0	1.16	1500	1.27	3.90	6.2	11.4	1150
B264862		4.40	18.20	0.22	1.9	0.050	2.60	11.2	20.9	1.21	1340	1.67	3.99	6.0	3.5	930
B264863		4.64	17.30	0.22	1.9	0.040	2.89	12.2	12.3	1.16	1750	1.85	4.21	5.5	1.7	990
B264864		5.54	17.60	0.28	1.7	0.093	2.77	11.0	14.8	1.10	1520	1.81	3.50	4.9	1.8	930
B264865		4.42	16.30	0.24	1.8	0.052	2.25	9.4	21.1	1.03	1330	1.15	4.67	5.4	2.5	960
B264866		4.39	15.35	0.25	2.0	0.046	2.24	10.1	22.1	1.35	1660	0.87	4.35	5.6	2.2	980
B264867		5.65	15.70	0.24	1.2	0.032	2.35	6.1	11.5	0.71	1620	1.35	3.63	3.7	2.2	690
B264868		5.72	16.55	0.22	1.5	0.052	3.29	6.7	11.8	0.85	2160	2.48	3.38	4.7	1.8	860
B264869		7.04	20.3	0.20	1.3	0.125	0.52	8.0	24.3	3.04	3800	0.81	3.92	4.6	38.7	1060
B264870		4.74	18.50	0.25	2.2	0.068	2.52	11.0	27.4	1.31	2280	0.71	4.10	5.9	2.0	1040
D722951		6.41	18.60	0.22	1.4	0.084	2.50	7.9	24.8	1.42	1720	0.63	3.35	3.2	7.6	1110
D722952		5.55	21.8	0.23	2.7	0.032	1.76	15.0	24.3	1.15	578	0.22	3.98	5.0	2.6	1570
D722953		4.07	15.95	0.24	1.8	0.036	4.57	9.4	19.5	0.78	1460	0.44	2.72	5.0	1.6	910
D722954		5.50	17.05	0.25	1.9	0.045	2.67	10.5	15.8	0.97	1400	3.36	3.24	5.4	1.6	1000
D722955		4.68	19.00	0.26	1.7	0.046	2.62	11.9	14.4	1.32	1480	1.43	4.18	5.5	4.7	990
D722956		4.53	15.35	0.10	1.8	0.049	3.16	13.9	24.4	1.13	1380	1.97	4.22	4.8	2.6	980
D722957		3.01	11.75	0.12	1.4	0.042	1.83	9.4	13.9	0.56	1060	6.06	4.55	3.8	1.6	800
D722958		4.04	15.80	0.10	1.3	0.308	1.45	5.2	36.5	2.28	1540	1.21	4.22	4.2	29.6	1070
D722959		6.17	16.10	0.10	1.6	0.147	3.68	11.2	16.1	0.89	1370	5.47	3.65	4.7	2.0	900
D722960		10.40	24.5	0.14	0.9	0.067	2.42	5.2	24.4	1.62	2290	5.29	3.77	2.4	1.8	770
D722961		6.83	16.45	0.10	0.6	0.039	2.75	4.6	15.5	0.63	1310	3.92	2.54	1.8	1.6	580
D722962		3.63	16.25	0.07	1.4	0.033	2.01	7.0	21.0	1.12	1560	0.20	2.77	3.5	1.9	810
D722963		4.05	17.10	0.10	1.3	0.026	2.18	11.4	27.5	1.24	1040	1.04	4.09	3.7	1.9	860
D722964		17.65	4.51	0.11	0.3	0.745	0.77	2.9	24.5	0.09	184	22.3	0.04	0.6	3.8	120
D722965		10.50	1.31	0.05	<0.1	1.555	0.22	1.0	54.8	0.02	129	44.5	0.02	0.2	8.0	610
D722966		5.84	14.75	0.07	1.2	0.061	4.06	7.3	39.4	1.25	2250	8.71	1.44	2.6	10.2	540
D722967		9.01	17.75	0.07	0.6	0.184	2.77	1.8	40.1	0.89	1360	9.81	0.13	2.5	1.1	410
D722968		10.85	7.71	0.07	0.4	2.44	1.22	1.7	28.0	0.13	122	17.90	0.02	1.1	1.3	110
D722969		5.04	17.55	0.07	1.7	0.078	1.29	13.2	16.0	1.27	1550	0.45	4.23	4.7	2.5	1200
D722970		5.77	17.00	0.08	1.5	0.182	3.46	11.2	17.0	1.15	2000	7.36	3.06	3.9	3.2	840
D722971		2.70	9.40	0.05	0.4	0.016	1.34	2.9	8.2	0.33	642	6.45	1.11	1.6	1.1	240
D722972		3.68	15.70	0.08	1.2	0.076	2.67	9.8	16.8	1.13	1360	11.40	3.00	3.5	1.3	780



ALS Canada Ltd.  
 2103 Dollarton Hwy  
 North Vancouver BC V7H 0A7  
 Phone: +1 604 984 0221 Fax: +1 604 984 0218  
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**CERTIFICATE OF ANALYSIS KL21293345**

Sample Description	Method Analyte Units LOD	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	
		Pb ppm	Rb ppm	Re ppm	S %	Sb ppm	Sc ppm	Se ppm	Sn ppm	Sr ppm	Ta ppm	Te ppm	Th ppm	Ti %	Tl ppm	U ppm
B264857		4.3	87.4	0.114	0.14	0.54	9.2	2	0.9	267	0.33	<0.05	2.95	0.261	0.45	1.2
B264858		16.8	26.5	0.011	1.45	5.85	3.3	8	2.3	35.1	0.09	0.25	0.86	0.098	0.30	0.4
B264859		2.7	55.5	0.006	0.05	0.97	8.6	2	0.8	341	0.28	<0.05	2.72	0.240	0.34	1.3
B264860		1.7	74.4	0.005	0.01	0.47	9.8	1	0.6	502	0.35	<0.05	2.92	0.288	0.39	1.7
B264861		5.3	34.5	0.003	0.06	1.76	12.5	1	0.7	493	0.35	<0.05	2.39	0.342	0.25	1.3
B264862		1.3	65.5	0.012	0.01	0.45	10.3	1	0.9	384	0.37	<0.05	2.92	0.278	0.37	1.4
B264863		1.7	55.6	0.017	0.02	0.73	9.6	1	0.6	361	0.34	<0.05	3.04	0.275	0.33	1.6
B264864		3.8	50.3	0.004	0.04	0.78	9.2	1	0.8	210	0.30	<0.05	2.85	0.261	0.31	1.4
B264865		1.6	51.3	0.008	0.08	0.57	9.3	2	0.7	202	0.32	<0.05	2.83	0.273	0.34	1.4
B264866		1.9	42.2	0.004	0.06	0.74	9.8	2	0.7	307	0.36	<0.05	2.99	0.283	0.29	1.6
B264867		2.3	40.3	0.002	0.01	1.08	7.2	1	0.6	408	0.25	<0.05	2.29	0.230	0.30	0.7
B264868		3.1	58.1	0.007	0.01	0.50	8.5	1	0.7	304	0.30	<0.05	2.33	0.249	0.39	1.1
B264869		2.8	7.5	<0.002	0.42	1.80	24.9	2	1.1	612	0.27	<0.05	1.02	0.518	0.11	0.8
B264870		2.0	48.8	<0.002	0.01	1.35	9.7	1	0.7	470	0.36	<0.05	2.71	0.296	0.44	1.6
D722951		2.6	49.8	<0.002	<0.01	4.85	29.4	1	0.8	400	0.17	<0.05	1.29	0.515	0.54	0.7
D722952		2.7	68.2	<0.002	2.98	1.00	14.9	3	1.8	389	0.27	0.10	2.93	0.499	0.75	1.4
D722953		2.5	99.1	<0.002	0.01	0.73	9.2	1	0.5	404	0.33	<0.05	2.30	0.265	0.68	1.4
D722954		45.0	61.6	<0.002	0.33	3.88	10.2	1	0.6	286	0.33	0.32	2.92	0.291	0.65	2.1
D722955		25.2	46.7	0.008	0.02	0.37	10.1	1	0.7	252	0.35	<0.05	2.91	0.279	0.32	1.5
D722956		2.2	65.7	0.017	0.02	0.52	9.8	1	0.8	330	0.31	<0.05	2.93	0.290	0.39	1.5
D722957		2.5	30.3	0.076	0.21	1.08	7.3	1	0.8	341	0.25	<0.05	1.99	0.225	0.29	1.2
D722958		18.6	29.0	0.011	0.24	0.42	25.3	1	1.8	220	0.24	<0.05	1.02	0.536	0.26	0.7
D722959		3.2	69.5	0.088	0.06	0.80	8.6	1	1.1	319	0.29	0.23	2.62	0.277	0.60	1.3
D722960		42.2	37.5	0.007	1.76	0.91	9.4	30	0.8	205	0.19	2.03	1.51	0.256	0.49	0.5
D722961		5.5	44.0	0.003	0.58	1.49	6.6	10	0.5	172.5	0.13	0.65	1.20	0.184	0.52	0.3
D722962		2.7	54.6	<0.002	0.02	1.06	8.2	<1	0.5	286	0.21	<0.05	1.57	0.220	0.72	1.0
D722963		7.9	55.1	<0.002	0.89	2.75	9.3	1	0.7	487	0.22	0.12	2.12	0.231	0.44	1.3
D722964		55.3	24.1	0.212	>10.0	15.85	2.7	14	2.2	12.1	<0.05	22.7	0.31	0.039	0.51	0.4
D722965		44.1	6.6	0.049	>10.0	23.3	0.3	4	1.1	13.5	<0.05	4.76	0.16	0.006	0.69	0.6
D722966		188.5	111.0	0.036	1.57	7.97	13.2	4	0.6	109.5	0.16	0.06	1.69	0.237	1.20	1.0
D722967		26.3	84.2	0.052	2.82	3.39	3.8	1	0.8	17.3	0.15	0.29	1.34	0.120	0.74	0.6
D722968		97.3	42.9	0.037	>10.0	32.0	1.8	8	1.2	6.2	0.06	60.7	0.58	0.055	0.53	0.5
D722969		7.3	42.0	<0.002	2.30	1.67	11.6	2	0.5	537	0.27	0.72	2.72	0.347	0.45	1.6
D722970		8.6	53.9	0.049	0.33	3.08	10.1	1	1.3	414	0.21	0.12	1.74	0.274	0.41	1.0
D722971		40.1	41.1	0.013	2.01	0.77	2.1	1	0.4	42.6	0.09	0.47	0.72	0.080	0.35	0.3
D722972		10.8	58.0	0.010	1.40	1.36	5.2	3	1.4	243	0.21	0.29	1.76	0.164	0.51	1.1



ALS Canada Ltd.  
 2103 Dollarton Hwy  
 North Vancouver BC V7H 0A7  
 Phone: +1 604 984 0221 Fax: +1 604 984 0218  
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**CERTIFICATE OF ANALYSIS KL21293345**

Sample Description	Method Analyte Units LOD	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	Cu-OG62
		V ppm 1	W ppm 0.1	Y ppm 0.1	Zn ppm 2	Zr ppm 0.5	Cu % 0.001
B264857		108	0.4	15.7	108	47.5	
B264858		87	0.3	3.3	99	15.2	1.365
B264859		135	0.6	14.2	170	55.0	
B264860		139	0.5	15.8	107	74.5	
B264861		171	0.5	18.4	173	61.7	
B264862		110	0.4	17.0	103	58.3	
B264863		138	0.4	15.9	83	69.0	
B264864		138	0.5	14.8	155	61.5	
B264865		133	0.4	12.7	98	64.2	
B264866		117	0.4	14.6	106	68.7	
B264867		110	0.2	12.8	83	35.9	
B264868		130	0.3	12.9	136	56.2	
B264869		242	0.5	18.4	95	42.0	
B264870		147	0.6	15.9	183	84.1	
D722951		308	0.6	22.9	136	43.7	
D722952		181	0.3	20.5	39	97.2	
D722953		134	0.5	13.5	105	61.9	
D722954		146	1.3	13.9	184	67.3	
D722955		151	0.4	16.2	93	59.5	
D722956		139	0.4	15.2	85	66.0	
D722957		87	0.5	10.9	63	52.7	
D722958		265	0.3	17.7	321	42.6	
D722959		149	0.5	14.1	192	59.0	
D722960		198	0.7	10.8	195	31.7	2.04
D722961		144	0.7	6.4	130	20.9	
D722962		103	0.3	7.3	118	46.7	
D722963		107	0.2	9.8	171	42.4	
D722964		33	25.6	5.6	37	6.9	
D722965		7	1.1	3.2	389	1.3	1.255
D722966		130	2.5	10.3	1190	42.5	1.600
D722967		132	2.4	3.6	54	21.9	
D722968		31	6.6	6.3	251	11.9	1.315
D722969		176	0.3	14.2	80	63.9	
D722970		143	1.7	12.8	163	54.4	
D722971		96	0.7	4.1	19	15.7	
D722972		71	1.4	7.2	115	40.5	



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Project: PEX21-01(RDP)

**CERTIFICATE OF ANALYSIS KL21293345**

### CERTIFICATE COMMENTS

#### ANALYTICAL COMMENTS

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

#### LABORATORY ADDRESSES

Applies to Method: Processed at ALS Kamloops located at 2953 Shuswap Drive, Kamloops, BC, Canada.  
BAG-01 CRU-31 CRU-QC LOG-21  
PUL-32 PUL-QC SPL-22Y WEI-21

Applies to Method: Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.  
Au-AA23 Cu-OG62 ME-MS61 ME-OG62



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**CERTIFICATE KL21284223**

P.O. No.: PEX2021-RDP004  
 This report is for 3 samples of Rock submitted to our lab in Kamloops, BC, Canada on 6-OCT-2021.  
 The following have access to data associated with this certificate:

JASMINE CLANCY	JIM LOGAN	DANETTE SCHWAB
----------------	-----------	----------------

SAMPLE PREPARATION	
ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-21	Sample logging - ClientBarCode
CRU-31	Fine crushing - 70% <2mm
SPL-22Y	Split Sample - Boyd Rotary Splitter
PUL-32	Pulverize 1000g to 85% < 75 um
CRU-QC	Crushing QC Test
PUL-QC	Pulverizing QC Test
BAG-01	Bulk Master for Storage

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



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**CERTIFICATE OF ANALYSIS KL21284223**

Sample Description	Method Analyte Units LOD	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	
		Recvd Wt. kg	Au ppm	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm
		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
D722981		1.06	0.322	0.25	8.71	5.5	1670	0.79	0.03	1.61	0.08	24.5	12.7	7	0.48	705
D722982		1.92	0.217	0.22	8.89	8.5	1370	0.81	0.03	2.50	0.09	30.8	15.7	5	0.33	467
D722983		1.88	0.019	0.03	8.72	1.6	1510	0.93	0.01	1.76	0.02	22.4	11.3	4	0.67	51.2



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CERTIFICATE OF ANALYSIS KL21284223

Sample Description	Method Analyte Units LOD	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	
		Fe %	Ga ppm	Ge ppm	Hf ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P ppm
		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
D722981		5.27	18.00	0.07	1.6	0.044	2.97	12.5	12.9	1.02	2060	2.71	3.85	4.7	2.2	870
D722982		4.75	18.45	0.10	2.0	0.066	2.62	13.2	19.5	1.23	1760	1.05	3.64	5.7	2.1	1010
D722983		4.31	17.25	0.08	2.0	0.036	3.18	10.4	20.3	1.11	1470	1.21	3.75	5.3	2.1	990

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



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CERTIFICATE OF ANALYSIS KL21284223

Sample Description	Method Analyte Units LOD	ME-MS61 Pb ppm 0.5	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 Tl % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1
D722981		1.8	57.6	0.004	0.04	0.95	9.7	1	0.6	320	0.29	<0.05	2.62	0.253	0.30	1.1
D722982		4.0	51.7	0.008	0.06	1.64	10.8	1	0.7	318	0.34	<0.05	2.74	0.283	0.31	1.4
D722983		1.8	73.4	0.006	0.01	0.42	10.3	1	0.6	481	0.34	<0.05	2.60	0.273	0.33	1.5



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CERTIFICATE OF ANALYSIS KL21284223

Sample Description	Method Analyte Units LOD	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		V ppm 1	W ppm 0.1	Y ppm 0.1	Zn ppm 2	Zr ppm 0.5
D722981		130	0.5	14.4	101	57.1
D722982		136	0.5	20.7	149	68.1
D722983		131	0.5	14.8	101	70.8



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CERTIFICATE OF ANALYSIS KL21284223

CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

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

LABORATORY ADDRESSES

Applies to Method: Processed at ALS Kamloops located at 2953 Shuswap Drive, Kamloops, BC, Canada.  
BAG-01 CRU-31 CRU-QC LOG-21  
PUL-32 PUL-QC SPL-22Y WEI-21

Applies to Method: Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.  
Au-AA23 ME-MS61



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**CERTIFICATE KL21284126**

Project: PEX21-02  
 P.O. No.: RDP2021-S001  
 This report is for 8 samples of Sediment submitted to our lab in Kamloops, BC, Canada on 6-OCT-2021.  
 The following have access to data associated with this certificate:

JASMINE CLANCY	JIM LOGAN	DANETTE SCHWAB
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SAMPLE PREPARATION	
ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-21	Sample logging - ClientBarCode
SCR-41	Screen to -180um and save both
DRY-22	Drying - Maximum Temp 60C

ANALYTICAL PROCEDURES		
ALS CODE	DESCRIPTION	INSTRUMENT
AuME-TL43	25g Trace Au + Multi Element PKG	

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  
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Project: PEX21-02

**CERTIFICATE OF ANALYSIS KL21284126**

Sample Description	Method Analyte Units LOD	WEI-21	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43
		Recvd Wt. kg	Au ppm	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm
		0.02	0.001	0.01	0.01	0.1	10	10	0.05	0.01	0.01	0.01	0.02	0.1	1	0.05
D722973		0.14	0.005	0.07	2.75	4.3	<10	130	0.47	0.06	1.11	0.11	17.90	21.1	9	1.92
D722974		0.34	0.001	0.03	2.46	3.5	<10	110	0.48	0.05	0.78	0.09	17.95	21.8	7	1.24
D722975		0.24	0.006	0.12	2.55	10.7	10	70	0.58	0.03	1.09	0.12	14.95	23.7	15	1.99
D722976		0.24	<0.001	0.11	2.46	15.7	10	240	0.68	0.04	0.93	0.14	16.20	25.1	16	1.66
D722977		0.25	0.006	0.13	2.24	13.3	10	180	0.67	0.10	0.82	0.65	18.65	22.6	12	1.28
D722978		0.30	0.003	0.13	2.34	13.3	10	190	0.62	0.09	0.85	0.63	18.30	23.6	11	1.27
D722979		0.31	0.038	0.26	1.96	21.0	<10	150	0.66	0.15	0.67	0.65	18.45	20.2	13	1.02
D722980		0.24	0.008	0.41	1.93	20.0	<10	130	0.54	0.14	0.67	0.72	16.65	19.0	11	1.34

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



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**CERTIFICATE OF ANALYSIS KL21284126**

Sample Description	Method Analyte Units LOD	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	
		Cu	Fe	Ga	Ge	Hf	Hg	In	K	La	Li	Mg	Mn	Mo	Na	Nb
		ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm
		0.2	0.01	0.05	0.05	0.02	0.01	0.005	0.01	0.2	0.1	0.01	5	0.05	0.01	0.05
D722973		34.2	5.80	9.17	0.30	0.12	0.03	0.025	0.08	8.0	29.0	1.95	1260	0.38	0.03	0.75
D722974		30.3	5.56	8.50	0.17	0.16	0.01	0.028	0.05	8.3	29.1	2.00	1150	0.34	0.02	0.10
D722975		28.3	5.84	10.60	0.31	0.07	0.05	0.047	0.05	7.5	39.8	2.31	2360	0.28	0.01	0.92
D722976		27.6	6.44	10.95	0.47	0.29	0.03	0.065	0.08	7.5	42.9	2.68	3650	0.28	0.01	0.71
D722977		61.8	5.60	8.86	0.14	0.13	0.03	0.039	0.07	9.1	34.1	2.06	2190	0.72	0.01	0.19
D722978		63.8	5.60	9.28	0.15	0.16	0.03	0.043	0.07	8.7	35.6	2.15	2390	0.75	0.02	0.15
D722979		81.9	6.31	7.71	0.14	0.12	0.04	0.038	0.06	9.7	27.6	1.72	1900	1.43	0.01	0.20
D722980		71.1	5.25	7.68	0.17	0.11	0.03	0.032	0.06	7.4	27.2	1.70	1890	1.12	0.01	0.37

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



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**CERTIFICATE OF ANALYSIS KL21284126**

Sample Description	Method Analyte Units LOD	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	
		Ni	P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti
		ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
		0.2	10	0.2	0.1	0.001	0.01	0.05	0.1	0.2	0.2	0.2	0.01	0.01	0.2	0.005
D722973		11.6	700	5.8	5.5	<0.001	<0.01	0.70	10.7	0.4	1.0	70.4	<0.01	<0.01	1.1	0.313
D722974		10.4	660	5.2	3.4	<0.001	<0.01	0.80	9.9	0.3	0.6	53.6	<0.01	0.04	1.1	0.219
D722975		16.6	790	8.1	4.9	<0.001	0.02	4.59	11.5	1.1	0.5	38.7	<0.01	<0.01	0.6	0.272
D722976		16.8	730	11.4	6.2	0.001	<0.01	6.60	13.8	1.2	0.6	26.8	<0.01	<0.01	1.0	0.329
D722977		12.8	810	10.0	4.9	<0.001	0.02	1.69	10.8	0.6	0.5	38.3	<0.01	0.05	1.0	0.183
D722978		12.8	800	10.2	5.1	0.001	0.02	2.45	11.0	0.8	0.5	38.7	<0.01	0.06	1.0	0.193
D722979		12.1	830	15.2	4.0	0.002	0.04	1.35	9.2	0.6	0.5	32.7	<0.01	0.15	1.1	0.173
D722980		11.7	740	13.8	4.9	0.001	0.03	3.28	8.4	0.4	0.5	29.4	<0.01	0.14	1.0	0.182



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**CERTIFICATE OF ANALYSIS KL21284126**

Sample Description	Method Analyte Units LOD	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43	AuME-TL43
		Tl	U	V	W	Y	Zn	Zr
		ppm	ppm	ppm	ppm	ppm	ppm	ppm
		0.02	0.05	1	0.05	0.05	2	0.5
D722973		0.03	0.81	170	0.35	9.81	91	5.7
D722974		0.02	0.66	148	0.18	9.70	86	6.8
D722975		0.02	1.14	199	0.69	12.70	154	3.4
D722976		0.03	0.95	225	1.03	11.35	284	12.8
D722977		0.03	1.06	160	0.34	12.45	245	4.6
D722978		0.04	0.87	161	0.34	11.95	267	5.8
D722979		0.04	1.10	178	0.38	12.50	227	4.6
D722980		0.03	0.93	149	0.48	9.50	244	4.1



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CERTIFICATE OF ANALYSIS KL21284126

### CERTIFICATE COMMENTS

#### LABORATORY ADDRESSES

Applies to Method:	Processed at ALS Kamloops located at 2953 Shuswap Drive, Kamloops, BC, Canada. DRY-22	LOG-21	SCR-41	WEI-21
Applies to Method:	Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada. AuME-TL43			