Technical Report
on the 2019 Induced Polarization Survey
of the
Yreka Mineral Claims

Statement of Work Event Numbers: 5748840 and 5756139
(Geological, Geochemical), 5770446 (Geophysical)
Period: **June 26, 2019 to November 15, 2019**
Permit Number: Mx-8-292

Location:
Northern Vancouver Island,
Nanaimo Mining Division

NTS 92 L/5E
Latitude: 50° 27’ 30” N, Longitude: 127° 34’ 00” W
NAD 83

Field Project Period:
June - November, 2019

Owner and Operator:
Karmamount Mineral Exploration Ltd
1703 West 5th Avenue, Vancouver, BC, V6J 1P1

Author:
Hardolph Wasteneys, Ph.D., P.Geo.
Campbell River, BC

January 15, 2020

ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TITLE OF REPORT: Technical Report on the 2019 Induced Polarization Survey on the Yreka Mineral Claims, Vancouver Island, BC

TOTAL COST: 82000

AUTHOR(S): Hardolph Wasteneys
SIGNATURE(S):

PROFESSIONAL PROVINCE OF Dr. H. A. WASTENEYS #32102 BRITISH COLUMBIA GEOSCIENTIST

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): Mx-8-292
STATEMENT OF WORK EVENT NUMBER(S)/DATE(S): 5748840/ July 23, 2019; 5756139, Sept, 27, 2019; 5770446/ Jan. 13, 2020.

YEAR OF WORK: 2019

PROPERTY NAME: Yreka

CLAIM NAME(S) (on which work was done): 943990, 954784, 1010698, 1011334, 1011538, 1011539, 1011540, 101206, 1012960, 1013518, 1026664, 102904, 1061432, 1070164.

COMMODITIES SOUGHT: Copper, Silver, Gold, Molybdenum

MINERAL INVENTORY MINFILE NUMBER(S),IF KNOWN: 092L-052; 092L-105; 092L-336; 092L-236

MINING DIVISION: Alberni Mining Division
NTS / BCGS 92L/5
LATITUDE: 50° 27’ 30"
LONGITUDE: 127° 34’ 00" (at centre of work)
UTM Zone: 9 EASTING: 5590250 NORTHING: 601600

OWNER(S): Karmamount Mineral Exploration Inc.

MAILING ADDRESS: 1703 West 5th Avenue, Vancouver, BC V6J 1P1

OPERATOR(S) Karmamount Mineral Exploration Inc.

MAILING ADDRESS: 1703 West 5th Avenue, Vancouver, BC V6J 1P1

REPORT KEYWORDS: Yreka, Port Alice, Bonanza group, LeMare Volcanics, Quatsino Limestone, Parsons Bay Formation, Clyde workings, skarn, crystal tuffs

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:
Baldys 1999, 25797; Eden & Li 2016, 36110; Hicks , 1999, 26040; Bradshaw, 1993, 22804; Ball 1980, 07981; Crossley 1972, 4425; Wasteneys, 2018a, 2018b

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	1:1000 100 ha	943990, 954784, 1010698, 1011334, 1011538, 1011539, 1011540, 1011541 1012506, 1013518, 1061432, 1070164.	10000
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Magnetic			
Electromagnetic			
Induced Polarization	12.9 km	943990, 954784, 1010698, 1011334, 1011538, 1011539, 1011540, 1011541 1012506, 1013518, 1061432, 1070164.	65000
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for …)			
Soil			
Silt	14	1061432, 1070164 1011540	5000
Rock			
Other			
PROSPECTING (scale/area)			
PREPATORY / PHYSICAL			
Line/grid (km)			
Topo/Photogrammetric (scale, area)			
Legal Surveys (scale, area)			
Road, local access (km)/trail	1 km	943990, 1061432	2000
Trench (number/metres)			
Underground development (metres)			
Other			
		TOTAL COST	**82000**

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Frontispiece

Large alpine firs in the north arm of the Canyon Creek valley, east side of Comstock Ridge, west of the old Yreka Mine

Abstract

The Yreka claim group on northern Vancouver Island near Port Alice includes the historic past producing Yreka mine. Yreka is a copper skarn deposit that produced about 150,00 tonnes intermittently between 1905 and 1967. It lies within calcareous sediments of the Parsons Bay Formation which is within the Lower Jurassic to Upper Triassic Bonanza Group. The skarn is tratigraphically overlain by the LeMare Lake Volcanics, which are the extrusive equivalents of the Jurassic Island Intrusive Suite. The deposit is located on the east slopes of Comstock Mountain above Neroutsos Inlet and accessed by active logging roads. Although the skarn is expected to be related to igneous intrusions the nearest plutonic rocks, apart from a series of dioritic dykes, are in the Jurassic Klootchlimmis Pluton which outcrops on the west slopes of Comstock Mountain 5 km to the west.

Exploration work by Karmamount from 2016 to the present has shown tha the Klootchlimmis pluton includes two separate calc-alkaline plutonic suites on the basis of REE and HFSE geochemistry. Moss mat samples from the western slopes show anomalous concentrations of Mo in a branch creek within the Le Mare Lake volcanics. Connections between the Klootchlimmis and the Yreka skarn are being explored for porphyry type deposits. In 2019 Karmamount ran two reconnaissance IP lines totalling 12.9 km across parts of the Klootchlimmis and over the Yreka skarn. The most significant result is a chargeability anomaly that is continuous from the Yreka skarn into overlying LeMare Lake group volcanics up for over 800 meters to the west. Reconnaissance mapping in the anomalous area has found silica pyrite altered volcanic and possibly plutonic rocks. Proposed exploration work for 2020 includes detailed examination of a 2 by 1 km area on the Yreka slope using geological mapping and lithogeochemistry to the assess the potential for porphyry copper systems. Other IP anomalies were observed in the Klootchlimmis pluton on the west side of Comstock Ridge.

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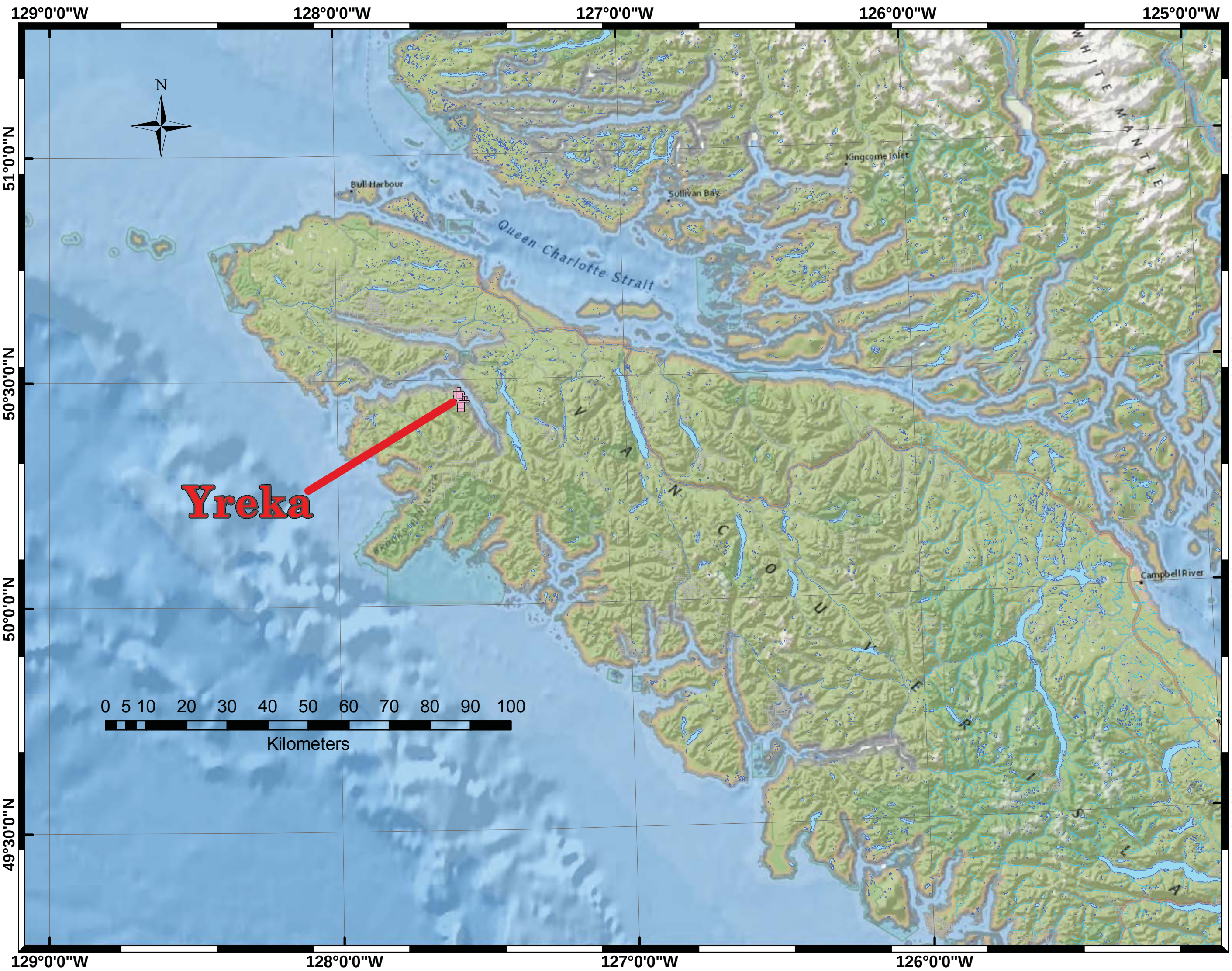

Figure 1: The Yreka claim group on northwestern Vancouver Island.
The claims are on the western slope of Neroutsos Inlet, which is a south branch of Quatsino Sound.

Introduction

The Yreka mineral claims cover an area around a copper skarn mineral deposit from which about 150,000 tonnes of copper-gold-silver mineralization was mined by Noranda in the 1960s. The property is located south of Quatsino Sound on the west side of Neroutsos Inlet of northern Vancouver Island near Port Alice. The property has high potential for concealed skarn and possibly stockwork porphyry mineralization within the host stratigraphic sequence, which dips moderately to the west in an undeformed homoclinal sequence capped by the Le Mare Lake Volcanics of the Bonanza Group.

Property Description and Location

The Yreka Property is located on northern Vancouver Island (Fig. 1) on the mountainous west slope of Neroutsos Sound and west of the old logging town of Port Alice, British Columbia. The property is centred at Latitude: 50° 27’ 30” N, Longitude: 127° 34’ 00” W NAD 83 datum, UTM Zone 9, 601600 E, 5590250 N, in the NTS map sheet 92 L/5 , BCGS Map 092L043 in the Nanaimo Mining Divisions (Figure 3). It consists of 18 variously named cell claims listed in Figure 3 issued between January 2012 and July 2018 and currently all with Good To Dates of

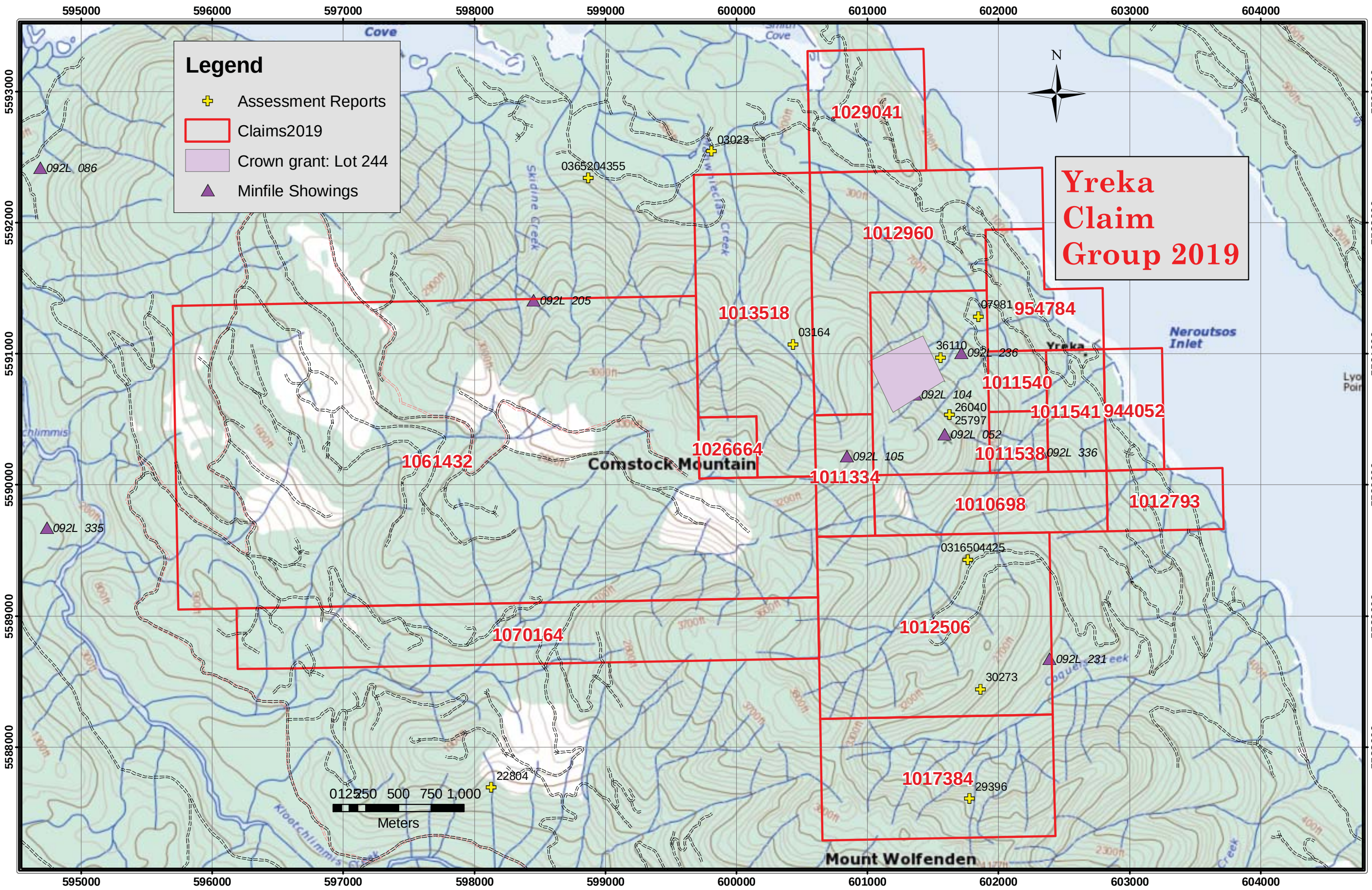

Figure 2: Yreka Claim Group Map
Yreka claims and tenure numbers are show in red. Crown Grants, assessment reports, and Minfile showings indicted by symbols in legend. Map base is Toporama series with elevations and contours in feet.

Tenure #	Claim Name #	Issue Date	Good to Date	Client #	Owner	Hectares
943990		20120129210654	20220530	258348	KARMAMOUNT MINERAL EXPLORATION INC.	82.3
944052		20120130100228	20220530	258348	KARMAMOUNT MINERAL EXPLORATION INC.	41.1
954784		20120302100126	20220530	258348	KARMAMOUNT MINERAL EXPLORATION INC.	61.7
1010698	CLYDE	20120703174653	20220530	258348	KARMAMOUNT MINERAL EXPLORATION INC.	82.3
1011334	CLIMAX	20120720100229	20220530	258348	KARMAMOUNT MINERAL EXPLORATION INC.	41.1
1011538	BLUEGROUSE	20120531100219	20220530	258348	KARMAMOUNT MINERAL EXPLORATION INC.	20.6
1011539	YREKA	20120531100219	20220530	258348	KARMAMOUNT MINERAL EXPLORATION INC.	41.1
1011540	TUSCADORA	20120703101642	20220530	258348	KARMAMOUNT MINERAL EXPLORATION INC.	20.6
1011541	RGS 3180 ppm CU	20120703101642	20220530	258348	KARMAMOUNT MINERAL EXPLORATION INC.	41.1
1012506	COPPER CANYON	20120902102501	20220530	258348	KARMAMOUNT MINERAL EXPLORATION INC.	246.9
1012793	Y KNOT	20120912100106	20220530	258348	KARMAMOUNT MINERAL EXPLORATION INC.	41.2
1012960	ANVIL	20120918100117	20220530	258348	KARMAMOUNT MINERAL EXPLORATION INC.	185.1
1013518	MAHWIECLAS PORPHYR	20121003151431	20220530	258348	KARMAMOUNT MINERAL EXPLORATION INC.	185.1
1017384	FEKK3	20130301123806	20220530	258348	KARMAMOUNT MINERAL EXPLORATION INC.	164.7
1026664	FEKK5	20140313081558	20220530	258348	KARMAMOUNT MINERAL EXPLORATION INC.	20.6
1029041	FEKK8	20140616123901	20220530	258348	KARMAMOUNT MINERAL EXPLORATION INC.	82.3
1061432	COMSTOCK RIDGE	20180626174143	20220530	215130	WASTENEYS, HARDOLPH ALEXANDER	1008.1
1070164	COMSTOCKCREEK	20190807235340	20220530	215130	WASTENEYS, HARDOLPH ALEXANDER	205.8

Table 1: Mineral Cell Claims in the Yreka Claim Group
Claims are held by Karmamount and Hardolph Wasteneys (agent for Karmamount) forming the Yreka Property; Claim Name, Tenure numbers, Issue dates, current Good to Dates and area in hectares are shown.

May 30, 2022. The total area of the tenures is 2366 hectares. A single Crown Granted claim remains in active unreverted status shown in Figure 2.

Access, Climate, Local Resources, and Physiography

The main access to the Yreka property is via the Vancouver Island Highway system to Port Alice and thence via logging roads controlled by Western Forest Products based out of a division in Port McNeill. Driving time to the property from Campbell River in 2018 was about 3.5 hours. From Port Alice access is via Marine Drive south around the inlet and then north to Marine Drive "zero" at a log loading terminal where log rafts are assembled. Marine Drive is coextensive with Teeta Main from which Yreka 500 leads to the property. The logging road network along the west shore of Neroutsos Inlet branches from the Yreka 500 main line that runs parallel to the shore north to Kultus Cove on the south shore of Quatsino Sound. Alternate access is via logging roads from Mahatta River on Quatsino Sound and water accessible from Coal Harbour. Personnel from LeMare Logging commonly travel by a short boat ride to Mahatta River rather than by the long winding Highway 30 from Highway 19 to Port Alice. From Mahatta River the Klootchlimmis Valley is traversed by the K500 logging road which connects on a 604 meter altitude pass to the Teeta 500 road which descends by switchbacks to Teeta Main. Branch roads from the K500 main access logging areas on the west side of the ridge near the Yreka deposit and were used for exploration of the western part of the property extended by the Comstock Ridge and Comstock Creek claims. From the highest point of these roads a traverse was completed into the upper slopes above the old Yreka mine (Figure 2).

Yreka is located on the eastern flanks of the 12 km long ridge that runs NW from Teeta Creek to Kultus Cove with 1300 m peaks at Mount Wolfenden and Comstock Mountain (Figure 3). The ridge is steep sided with slopes up to 40 degrees and intermittent cliffs. However, a few intervals at the northern extent and on the backside of Comstock Mountain have steep easterly and much shallower westerly aspects possibly reflecting the moderate westerly dip of cliff-forming sedimentary and volcanic strata. Creeks in the Yreka property are all steep with canyon-like forms in many places inhibiting access.

The lower slopes above Neroutsos Inlet along the Yreka 500 mainline have been mechanically logged typically by feller-bunchers and in steeper parts, for example just south of the Yreka mine, using spar pole systems. Logging debris greatly inhibits traverses especially in the steeper terrane and in particular along creeks where logging debris combined with natural deadfall across the creek has created nearly impassable mazes of large trunks and brush.

The area is heavily forested within the Coastal Hemlock Zone and most of it is old growth hemlock and fir trees. Annual precipitation is up to a few meters mainly as rain. Winters are mild, but snowfall accumulation can be several meters above 600 meters altitude.

Property History

The area of the Yreka claim group has a history of exploration, development and production dating back to the late 18th century. The first claims were recorded in 1898 and by 1903 a few thousand tonnes of copper silver ore was shipped from the Clyde workings, which lie just south of the main Yreka orebody. This mining operation, like others that followed utilized an aerial tramway to transport ore from adits, at 700 meters altitude, into the steep face of the ridge running between Mount Wolfenden and Comstock Mountain down to Neroutsos Inlet, at sea level. However, production ceased until 1917 when high copper prices during the First World War provided incentive to ship another 900 tonnes, although from new facilities.

Noranda Exploration Company Ltd. took over the property in 1952 and initiated the first diamond drilling programs on the property, which eventually led to the discovery of the main Yreka deposit. Underground development and drilling continued through 1956 with over 40 thousand feet of core and 6 thousand feet of drifting. Between 1958 and 1964 the property was dormant, but was reactivated by Minoca Mines in 1965 based on reserves of about 150,000 tonnes of 3.7% copper and 41 g/t silver plus some additional indicated resources. Production over the period from 1965 to 1967 was 133,000 tonnes grading 2.9% C, 32.8 g/t Ag and 0.36 g/t Au mainly from the "A" zone, a lens measuring 15 by 49 and 60 meters high.

Thereafter, although significant exploration programmes were conducted both locally around the deposit and peripherally on new showings involving EM and magnetic geophysical surveys, geochemistry and geological mapping no further production was recorded. A series of option arrangements occurred from 1970 with Green Eagle Mines and ISO Explorations Ltd.

Much of the exploration work was focused on defining the limits of the skarn horizon that hosted the Yreka deposit. In 1971 and 1972, 1844 feet of diamond drilling tested copper silver showings near the Yreka deposit at the Comstock-Edison and North Arm Creek prospects. Work ceased until 1979 when Uke Resources drilled 300 feet in 3 holes on the Tuscarora prospect. In 1988 Teck Exploration expanded the exploration area using regional stream silt surveys that showed anomalous gold and zinc southwest of Mt Wolfenden leading to detailed anomalous zones on the northeastern slopes of that mountain along the same slope as Yreka.   In 1998 Talltree Resources initiated a reassessment of the resource potential of the area mainly by prospecting, rock assaying and soil sampling.

Since the late 90s no significant development work or exploration work has been completed on the property. The main block of present mineral tenures were acquired by Eden Investment on December 13, 2012 and transferred to Karmamount Mineral Exploration Ltd on March 16, 2015. The Comstock Ridge claim 1061432, was staked by the author to cover the western aspect of the ridge above Yreka to explore for magmatic connections to the Kloochlimmis Pluton and this was extended to the south with the most recently staked Comstock Creek claim 1070164. Karmamount completed a couple of evaluation programs in the period from 2012 to 2018 (Eden and Li, 2016, and Wasteneys, 2018a, b). By the summer of 2016, Western Forest Products, which holds a TFL in the area, had completed several new logging roads along the lower parts of the claim group towards Quatsino Sound that have provided new exposures of rocks within the host stratigraphic section. Newer roads were also provided access to the Comstock Ridge and Comstock Creek claims in the west and logging has been completed.

The 2016 Exploration Program

Previous work in 2015 by Karmamount on the Yreka claims involved soil sampling south of the old Yreka and Clyde portals and rock sampling along the Y400 logging road ((Eden and Li, 2016). New logging roads branching from Yreka Main have exposed significant outcrops on Banter and Pender Points at the north end of the claims that are along strike with the stratigraphic section underlying the property. Other branch roads north of the Yreka deposit also exposed new outcrops that were examined in 2016.

Two property visits were completed by the author in 2016: The first involved geological mapping on the new logging roads at the north end of the property over a two day period on July 27th and 28th. This work has not changed the existing geological contacts or unit designations on maps of Nixon et al. (2007), although several dykes were mapped. A second 2016 visit was made over 3 days on September 5th to 7th to more closely examine stratigraphic units exposed on the Y400 road on the recommendation of Graham Nixon (pers. comm. 2016). This later work was done accompanied by Tyler Ruks, a geologist from Seven Devil's Exploration, in a

Figure 3: Forest on the eastern slopes of Comstock Ridge along upper Canyon Creek
Hemlock forest at the margin of logging slashes accessed by Y400 road. A traverse in September 2016 took 5 hours to complete a 1 km circuit through this logging slash and debris choked creek bed.

collaborative effort on the geology of the area. Accommodation was provided in the Seven Devil's camp on the Teeta Main road. The highlight of the work took place in wet weather on September 7th, 2016, when a one kilometer return traverse was completed from the Y400 road to the major junction in Canyon Creek about one kilometer south of the old Yreka mine (Figure 6). The objective was to evaluate reported showings of porphyry style mineralization in upper Canyon Creek, but terrane obstacles and dense regrowth of logging slash caused extremely slow progress and prevented extending the traverse to examine the North Arm showings upstream from the creek junction in the time available. Large tree trunks, up to 4 feet in diameter, blocked the southern branch creek bed in places causing jams of debris while the northern creek branch was nearly impassable with mesh of interwoven tree tops either from blow downs or dropped in the logging operations. However, some well exposed outcrop was mapped in the creek bed including felsic dykes.

The 2018 Exploration Program

Work in 2018 focused on mapping areas above the Yreka deposit on the steep eastern slopes of Comstock Mountain and on the less extreme slopes on the west side of Comstock Ridge covered by claim 1061432 (Figure 5). Work consisted of several days of mapping and sampling along a network of logging roads and one traverse through a pass in Comstock Ridge to access the area above the old Yreka Mine as displayed in Figure 5. The crew consisted of the writer and one assistant who was skilled in mountaineering in light of possibilities of difficult terrain on the eastern slopes of Comstock Ridge. Considerable travel time was saved by camping along the inactive logging roads. Most roads were in passable condition for a 4 wheel drive Subaru except

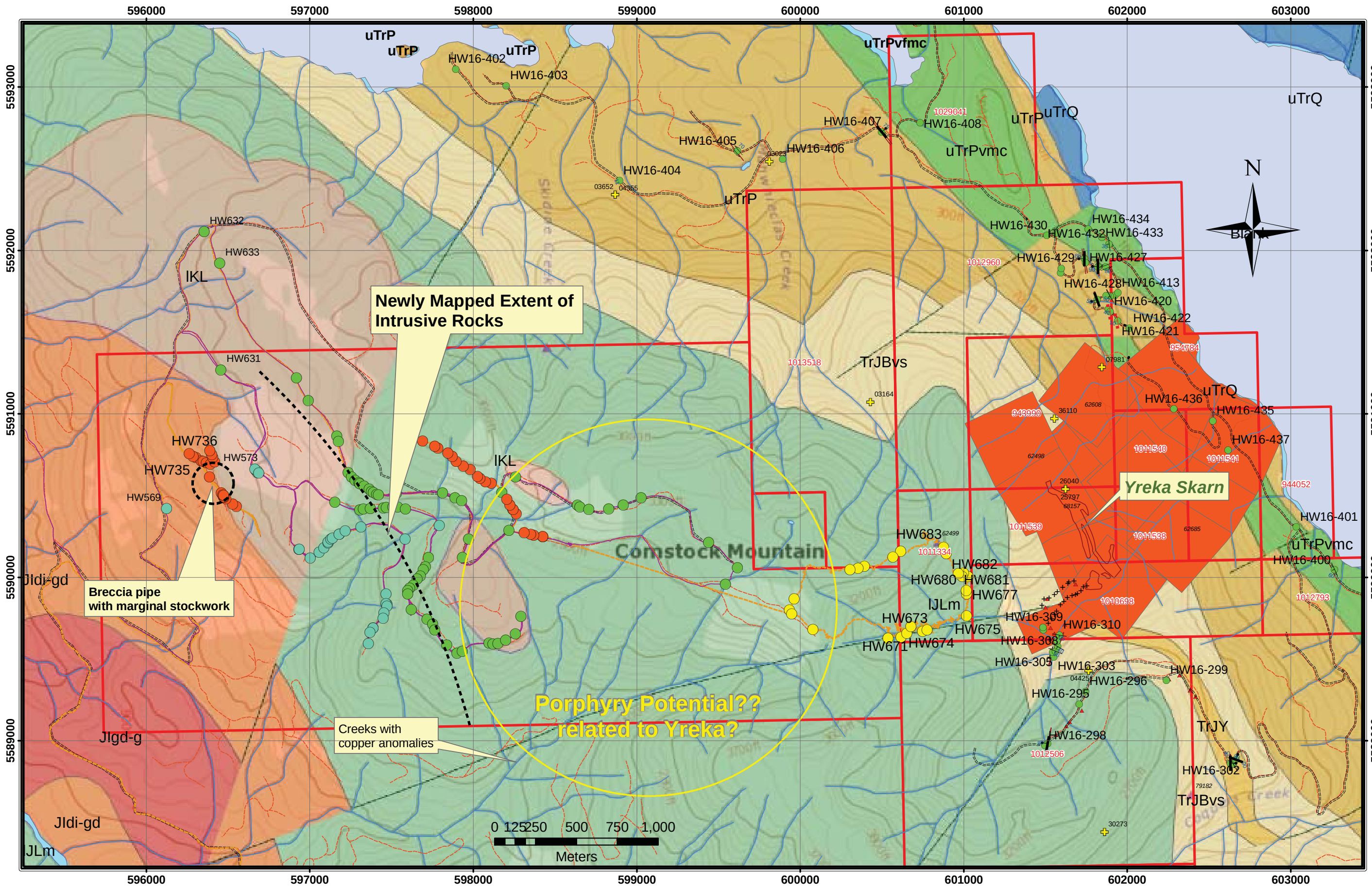

Figure 4: Geological Map showing the geology stations from previous work in 2018 and 2016 and speculative theories.
The 2018 stations are large red, green, yellow and blue dots each colour representing a different field day. Station from the 2016 program are indicated by green dots and labelled HW16-xxx.

Figure 5: Upper Canyon Creek
Outcrops are common along the upper reaches of the creek and many samples of rusty silicified volcanics were found in the creek bed in 2018. The new work in 2019 confirmed the occurrences and was one target of the IP geophysical survey.

for a few washouts and deeper cross-ditches. One traverse entered the upper reaches of Canyon Creek and descended to with 600 meters of the old workings (Figure 6). Surprisingly, the terrain was not as steep as expected and the bush remains in old growth forest with little undergrowth.

The objective of the 2018 work was to explore geological connections between the Yreka skarn deposits and the Kloochlimmis Pluton which is exposed in the Mahatta River Valley about 5 kilometers to the west. No significant intrusive bodies have been identified in proximity to the Yreka skarn deposits on the eastern slopes of Comstock Ridge to which the genesis of the skarns could be attributed. Figure 4 shows the Mahatta River Map of Nixon et al. (2007) without revision, and 2016 and 2018 traverse stations and speculative notes on the interpretation of the greater extent of intrusive unit of the Klootchlimmis Pluton. At a couple of locations breccias were recognized in plutonic rocks that may have implications for porphyry mineralization potential. The geology of the western slopes is described below in 'Geology of the Yreka Property'.

Present Work: 2019

The 2019 exploration program proceeded from recommendations in the 2018 program report (Wasteneys, 2018b), namely to explore the main creeks of the western slopes in claims 1061432 and 1070164 using moss mats and to complete reconnaissance IP surveys across the Comstock Ridge. The intent of the new work is to explore possible links between known skarn mineralization at the Yreka Mine and potential porphyry type stockworks proximal to Yreka skarn orebodies and on the margin of the Kloochlimmis pluton on the western side of the claim group.

Two exploration programs were carried out by the author and an assistant in July and September 2019 followed by a contract geophysical program conducted by Scott Geophysics Ltd in late September and early October, 2019. Field work in July included geological mapping along several kilometers of logging roads in the Comstock Ridge and Comstock Creek claims as well as the collection of 14 moss mat samples from road accessible parts of the same claims. The geological work was augmented by the use in the field of a portable XRF unit (Niton XL3t) to determine mainly Zr and Ti contents of granitoid rocks in order to help classify them according to the high and low Zr monzogranite and quartz monzonite suites defined by the 2018 lithogeochemistry study. The field work in September by the author and assistant was to reexamine some of the rock outcrops and to establish target areas and routes for the IP survey. The geophysical, geological and geochemical programs are documented below.

Costs incurred by the 2019 work amounted to $82,000 and were filed on the claims to bring the current Good To Dates to May 30, 2022 in three SOWs, events 5748840 on July 23, 2019, 5756139, on September 27, 2019 and 5770442, on January 13, 2020.

Regional Geology

Vancouver Island is a significant transect across the southern part of the Mid-Paleozoic to Early Mesozoic Wrangellian tectonostratigraphic terrane that extends northward though the Queen Charlotte Island into southern Alaska. On Vancouver Island Wrangellia is intruded to the east by rocks of the Coast Plutonic Complex and tectonically sliced to the west by the Pacific Rim Terrane and the Westcoast Crystalline Complex (Wheeler and McFeely, 1991). The Wrangellian terrane on Vancouver Island is essentially composed of two oceanic volcanic arcs separated by voluminous flood basalts that formed an oceanic plateau. The earliest arc, forming the basement of the island geology is exposed in several fault bounded tectonic uplifts in the central part of the island, most notably around Buttle Lake where the prolific massive sulphide deposits of Myra Falls are located in felsic volcanics of the Devonian to Early Permian Sicker and Buttle Lake Groups. The basement uplifts are engulfed by the voluminous flood basalts of the Karmutsen Formation, the lower part of the Vancouver Group, that dominates the alpine skyline of much of the central Vancouver Island. A return to volcanic arc magmatism came in the Triassic with the onset of the Bonanza Group that deposited a series of increasingly volcanic dominated strata on the Quatsino Formation limestones that capped the Karmutsen Formation flood basalt plateau. The Bonanza Group is mainly composed of the basal Parson Bay Formation and the Bonanza Volcanics. The Parson Bay Formation is mixed carbonate-clastic-volcanic succession with a significant island-arc volcanic and volcaniclastic affinity that separates it conformably from the earlier limestone strata of the Quatsino Formation and premonitory to Bonanza Group volcanic arc volcanism culminating in the volcanic dominated LeMare Lake Volcanics. Coeval granitoid intrusions of the Island Plutonic Suite cut volcanic strata of the Karmutsen Formation as well as those of the Bonanza Group and result in both porphyry copper deposits and, where intruding limestones, significant skarn deposits of magnetite and at Yreka, copper sulphides.

The Bonanza Arc rocks were eroded following a major Jurassic contractional event and covered unconformably by clastic sedimentary rocks of the terrigeneous Nanaimo Group that include coal bearing conglomerates in places along the eastern side of Vancouver Island. The history of faulting on northern Vancouver Island is complex and dominated by Cretaceous transpression and Tertiary extension. The present crustal architecture exhibits a dominant northwesterly-trending structural grain manifested by the distribution of major lithostratigraphic units and granitoid plutons (Figure 6). Numerous fault-bounded blocks of homoclinal, Early Mesozoic strata such as that around Yreka on the east shore of Neroutsos Inlet, generally dip to the south west and west whereas Jura-Cretaceous clastic strata are preserved as disparate fault bounded remnants of formerly more extensive Cretaceous basins on the north side of Quatsino Sound, to the north of Yreka (Nixon and Orr, 2007).

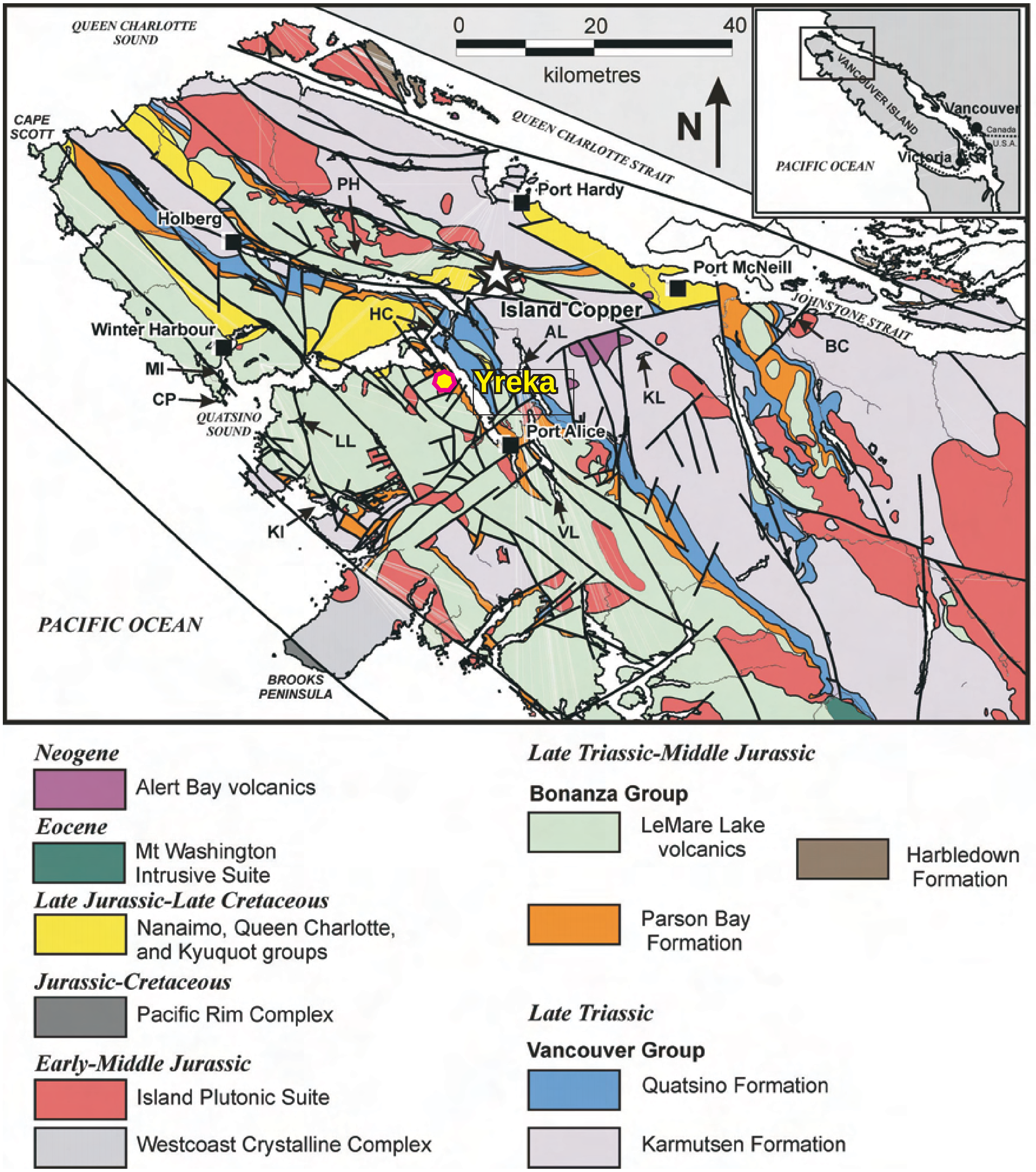

Figure 6: Regional Geology of northern Vancouver Island (from Nixon & Orr, 2007, after Massey et al. 2005)

Yreka is indicated by yellow polygon and label along a northwesterly trending belt of Quatsino Parson Bay and Le Mare Lake Formations that form homoclinal blocks copping the edge of Karmutsen basalts.

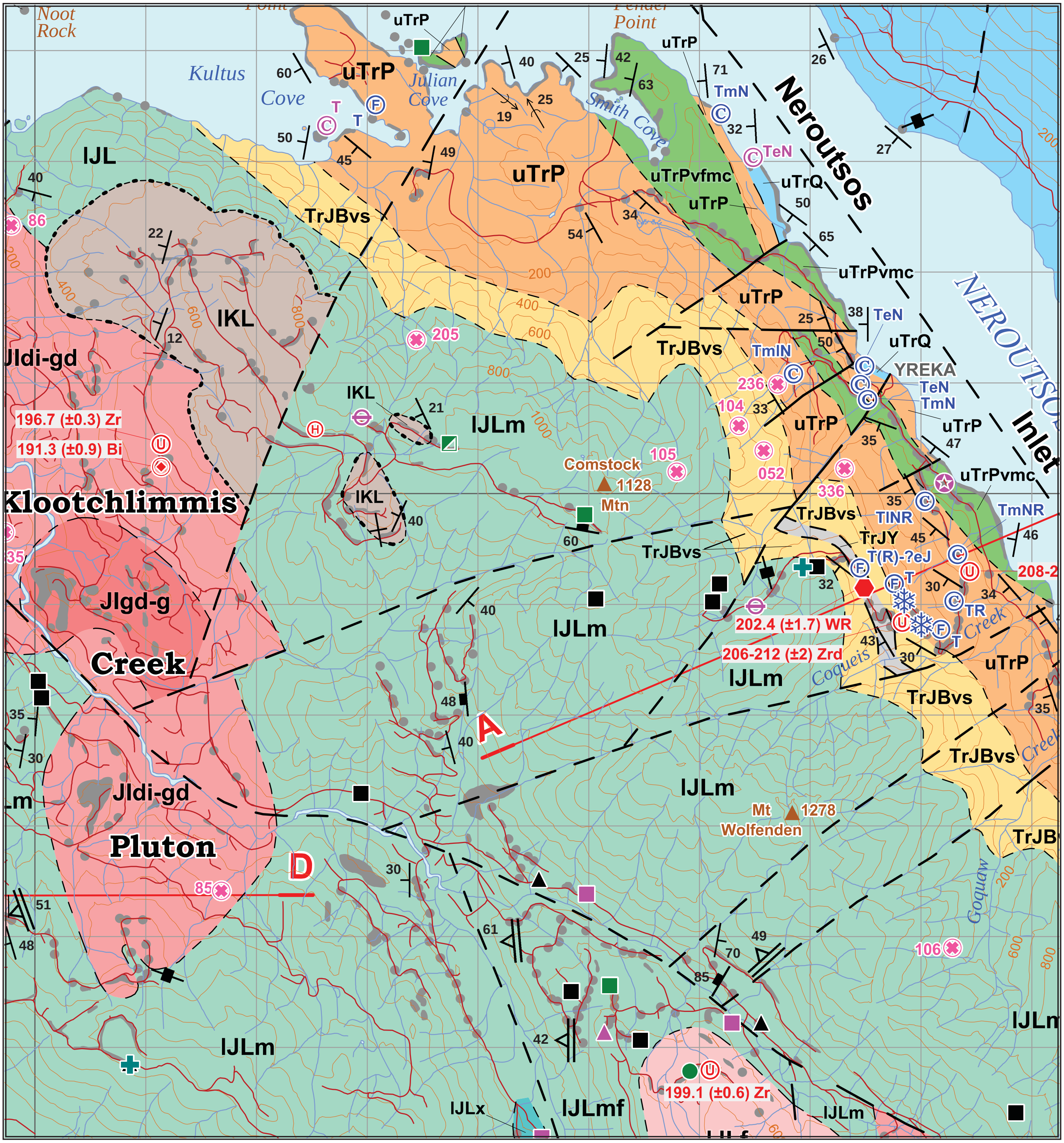

Figure 7: Part of Map GM2011-3 of Nixon et al. (2011) showing the Yreka district geology. Location of cross section in Figure 10 is shown at red line A-B. Symbols: back and green squares; basalts unaltered and altered; blue circles with letter fill: C = conodont date, U = U-Pb zircon date, F = macrofossil. Pink circles with pink X; Minfile localities with code number

LOWER CRETACEOUS

Upper Valanginian to Barremian

LONGARM FORMATION EQUIVALENTS

IKL — Greenish to brownish grey, thinly bedded to massive sandstone, siltstone, mudstone, pebble conglomerate and minor coal; locally fossiliferous

UPPER TRIASSIC TO LOWER JURASSIC

BONANZA GROUP

Lower Jurassic (Hettangian to Upper Sinemurian)

LE MARE LAKE VOLCANIC UNIT

IJL — Undifferentiated basaltic to rhyolitic flows and pyroclastic rocks (mainly subaerial); includes ash-flow and rare airfall tuff and reworked equivalents, minor pillow lava, pillow breccia, hyaloclastite and rare pyroclastic surge deposits, locally intercalated with marine to non-marine volcanic conglomerate, sandstone, siltstone, mudstone, impure limestone and debris-flow deposits

IJLm — Dark grey-green, basaltic to andesitic flows with minor intercalated volcaniclastic and sedimentary lithotypes similar to unit IJLvs; locally includes minor pillow lava/breccia; may include minor rhyolitic flows and pyroclastic rocks

VOLCANICLASTIC-SEDIMENTARY UNIT

TrJBvs — Interbedded volcaniclastic and sedimentary strata (predominantly submarine): buff to grey-green, thin to very thickly bedded, calcareous to non-calcareous, volcanic breccia, lithic and feldspathic wacke, siltstone and limestone, locally coralline; lithic-crystal tuff, lapilli tuff and reworked equivalents; and minor vitric tuff, pebbly sandstone, siltstone, and volcaniclastic debris-flow deposits; may include black carbonaceous shale, mudstone, siltstone and limestone (locally coralline) equivalent to unit TrJY

TrJY — Yreka shale-limestone unit: black carbonaceous or graphitic shale passing upward into black to medium grey, thin to medium-bedded, variably carbonaceous, silty limestone with shale partings, concretionary limestone, mudstone and siltstone; locally fossiliferous; may be included in unit TrJBvs where not mapped separately (or pass laterally into coarser-grained clastic deposits)

Upper Triassic (Carnian to Rhaetian)

PARSON BAY FORMATION

uTrP — Medium grey to black, thinly laminated to medium bedded, impure limestone, calcareous to non-calcareous mudstone, siltstone and shale intercalated with variable proportions of grey-green lithic feldspathic/tuffaceous wacke, minor crystal-lithic tuff and reworked equivalents, volcaniclastic breccia and debris-flow deposits, and rare vitric tuff, pebbly sandstone and conglomerate; shale locally yields abundant thin-shelled bivalves (Halobia sp., Monotis sp.); limestone locally contains rare algal structures; may include coralline limestone (Sutton limestone equivalent in part; see below) near the top of the succession

uTrPvmc — Dark grey-green, basaltic tuff-breccia, lapilli tuff and reworked equivalents; aphanitic to coarsely clinopyroxene-plagioclase±olivine-phyric; may include minor limestone, wacke, siltstone and mudstone

uTrPvfmc — Dark grey-green tuff-breccia, crystal-lithic lapilli tuff and lesser basaltic flows; aphanitic to coarsely clinopyroxene-plagioclase±olivine-phyric; may include minor limestone, wacke, siltstone and mudstone

UPPER TRIASSIC

VANCOUVER GROUP

Upper Triassic (Carnian to Lower Norian)

QUATSINO FORMATION

uTrQ — Medium to pale grey, thinly bedded to massive micritic limestone and locally bioclastic limestone; minor silica replacement and chert nodules; rare laminated interbeds, oolitic layers and algal structures; locally fossiliferous; unit is very thin (<40m) on the west coast of northern Vancouver Island

Upper Triassic (Carnian; possibly Middle Triassic (Ladinian) at the base)

KARMUTSEN FORMATION

Upper Karmutsen Formation: Flow Member

uTruKf — Dark grey-green, aphanitic to plagioclase-phyric and minor plagioclase-megacrystic basalt flows, commonly amygdaloidal and locally exhibiting laminar flow features (vesicle trains) and pipe vesicles; may include minor pillow lava and hyaloclastite

Figure 8: Geological Units on cross section A-B
Unit descriptions are from GM2011-3 Map by Nixon et al. (2011)

Geology of the Yreka Property

The eastern slopes of the Comstock- Wolfenden Ridge from the shores of Neroutsos Inlet to the ridge crest is underlain by a homoclinal sequence (Figure 6) consisting in ascending order of the Quatsino Limestone, Parson Bay Formation and LeMare Lake volcanics. The base of the sequence is presumably laid on Karmutsen Formation that is not exposed within the inlet, but forms much of the outcrop on Vancouver Island and is the major unit in the Vancouver Group. The Quatsino Formation Limestone caps the Karmutsen Formation that forms the major volume of the Vancouver Group. It underlies much of the east side of Neroutsos Inlet and outcrops in

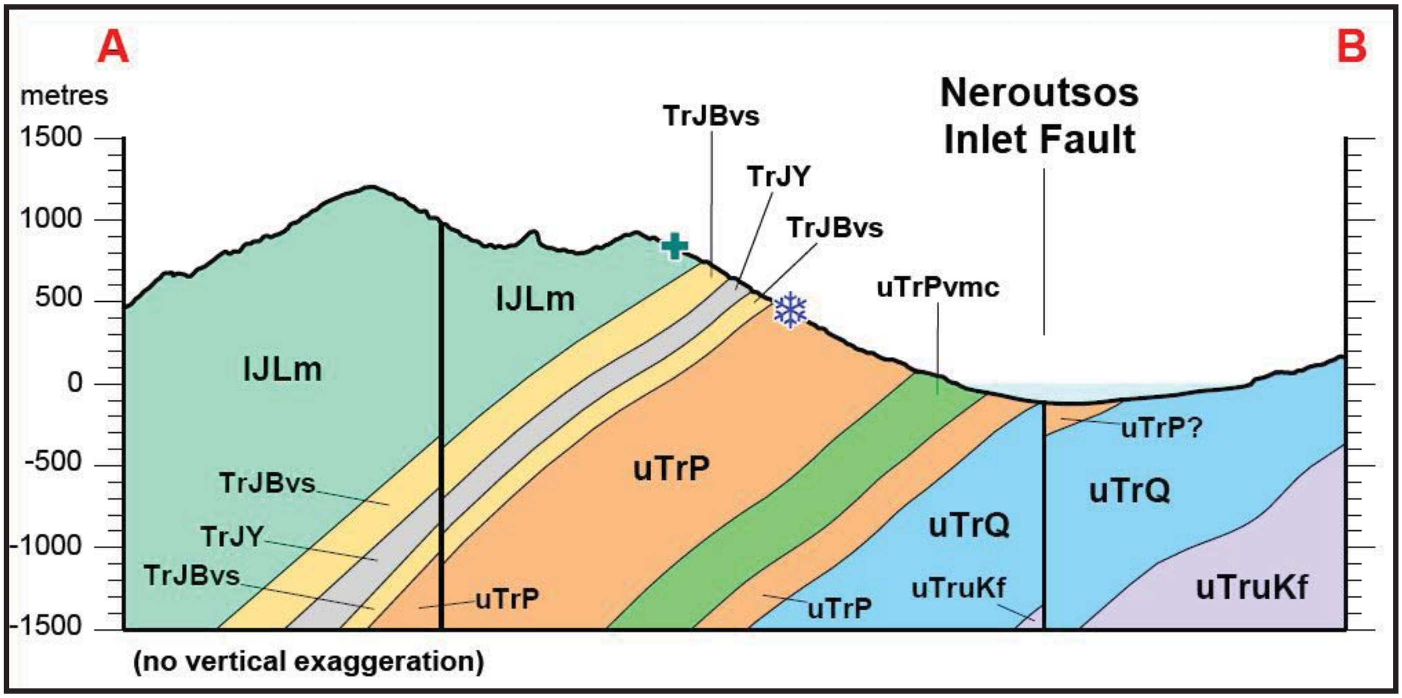

Figure 9: Cross section through homoclinal sequence at Yreka from Map GM2011 (Nixon et al., 2011)

the Yreka area in a few fault bounded blocks along the coast. Unconformably overlying the Vancouver Group, the Bonanza Group consists in the Parson Bay Formation sedimentary rocks, the Volcaniclastic-Sedimentary Unit and the LeMare Lake Formation volcanics. The Parson Bay Formation occupies about half of the slope up to the Wolfenden - Comstock ridge crest. It is subdivided into volcanic- and limestone-dominant units. The Volcaniclastic-Sedimentary Unit and LeMare Lake Formation volcanics complete the section to the crest of the ridge and hosts the skarn deposits at Yreka. The LeMare Lake volcanics range in composition from felsic to mafic with pyroclastic and coherent flow dominated units.

Quatsino Formation (uTrQ)

The Upper Triassic, Carnian to lower Norian Quatsino Formation was mapped by Nixon et al. (2011) at two restricted shoreline locations in the Yreka area. Quatsino Formation is the upper-most formation in the Vancouver Group, which largely consists of the voluminous basalt flows and volcaniclastics of the Upper Triassic Karmutsen Formation. The Quatsino caps the flood basalts of the Karmutsen oceanic flood basalt plateau that itself is built on island arc volcanics of the Permian Sicker Group, now exposed mainly in structural uplifts at the south end of Buttle Lake and near Port Alberni. The Quatsino is described by Nixon et al, as a medium to pale grey, thinly bedded to massive micritic and locally bioclastic limestone with minor silica replacement and chert nodules. It has rare laminated interbeds, oolitic layers and algal structures and is locally fossiliferous. Its restricted occurrence in the area corresponds to its lack of thickness (<40m) on the west coast of northern Vancouver Island.

Bonanza Group: Parson Bay Formation (uTrP)

The main unit of the Parson Bay Formation uTrP was mapped by Nixon et al. (2011) in a near continuous band along the coast of Neroutsos Inlet from Kultus Cove south. It is subdivided into two additional volcanic dominated units, uTrPvfmc and uTrPvmc that form a series of fault delimited blocks within the main formation from Smith Cove south to the coast a few kms south of Yreka. The main Parson Bay Formation described by Nixon et al. (2011) consists of medium grey to black, thinly laminated to medium bedded, impure limestone, calcareous to non-calcareous mudstone, siltstone and shale intercalated with variable proportions of grey-green lithic feldspathic/tuffaceous wacke, minor crystal-lithic tuff and reworked

Figure 10: Road cuts in logging areas within Parson Bay Formation along Neroutsos Inlet.
Dark weathering limestones and calcareous crystal tuffs are poorly bedded through much of the section that dips into the foreground.

equivalents, volcaniclastic breccia and debris-flow deposits, and rare vitric tuff, pebbly sandstone and conglomerate. Shale units locally yield abundant thin-shelled bivalves (Halobia sp., Monotis sp.), and limestone locally contains rare algal structures; may include coralline limestone described as the Sutton limestone equivalent, near the top of the succession.

Work by the author in 2016 in the Kultus Cove block showed the Parson Bay Fm to be a mix of grey massive limestone and gritty limestone with zones of dark green calcareous crystal tuffs that weather brick red. All are cut by E-W calcite veins. To the east along the road the formation consists of non-calcareous sediments with rusty tuffaceous zones, dark grey, finely fractured massive limestone interbedded with calcareous volcanic grit and limestone conglomerate. White weathering hornblende feldspar porphyritic felsic dykes cut the limestone steeply at 160 degree strike locally.

In an adjacent fault block of the upper Parson Bay Formation, work in 2016 mapped calcareous tuffs, commonly massive bedded with some beds up to 10 m thick and grading upward to agglomerates with rounded porphyritic clasts. In places limestone occurs as a host to dark grey calcareous crystal tuffs and crystal-lithic breccias with vesicular lapilli, but the units surveyed are predominantly of volcanic origin within a 20 hectare area traversed by new logging roads. Felsic dykes up to several meters wide and striking N-S. Pyrite alteration of horblende is notable along with thin veins of pyrite observed in the region of the dykes cutting the tuffs.

Parson Bay Formation volcanic units (uTrPvfmc and uTrPvmc)

The mapped volcanic dominated sections within the Parson Bay Formation includes units uTrPvfmc and uTrPvmc and are described by Nixon et al. (2011) as follows: uTrPvfmc is a dark grey-green tuff-breccia, crystal-lithic lapilli tuff and lesser basaltic flows that are aphanitic to coarsely clinopyroxene-plagioclase±olivine-phyric. The unit may include minor limestone, wacke, siltstone and mudstone. The unit uTrPvmc consists of dark grey-green, basaltic

Figure 11: Moderately west dipping conglomerates in the Parson Bay Formation. Clasts are porphyritic volcanics. Rock weathers brown as in the photo, but is dark green on fresh surfaces. The exposure is along a logging road on the east side of the property.

Figure 12: Dyke intruding Parson Bay Formation
A light coloured felsic dyke 3 meters wide is at center of photo

tuff-breccia, lapilli tuff and reworked equivalents that is aphanitic to coarsely clinopyroxene-plagioclase±olivine-phyric and may include minor limestone, wacke, siltstone and mudstone.

Mapping in 2016 within two fault blocks of this unit, one near Smith Cove, which also includes occurrences of subunit uTrPvfmc on some small islands in the cove. This sub unit (uTrPfvmc) is described as "dark grey-green basaltic flows and lesser volcaniclastic breccia and lapilli tuff; aphanitic to coarsely clinopyroxene-plagioclase±olivine-phyric,", which differs from the uTrPvfmc unit in predominance of flows over tuffs.

In the Smith Cove penninsula the unit uTrPvmc varies from from predominantly dark grey gritty limestone to lithic and crystal lithic tuffs. Epidote alteration and pyrite and chalcopyrite mineralization are common, but sporadic forming veinlets and disseminations. The epidote generally indicates the presence of altered plagioclase feldspar crystals in volcanics in this case tuffs and helps differentiate the calcareous tuffs from gritty limestones.

The southern block of uTrPvmc all consist in crystal-lithic lapilli tuffs that are generally calcareous and display sporadic epidote and chlorite alteration. Generally, 2016 observations corroborate the designation and description of the units on the GM2011 map of Nixon et al. (2011)

South of Yreka, uTrPvmc consists of grey weathering, well bedded siltstone to sandstone, but varying over 30 meters to the north to amygdaloidal feldspar-phyric intermediate flows.

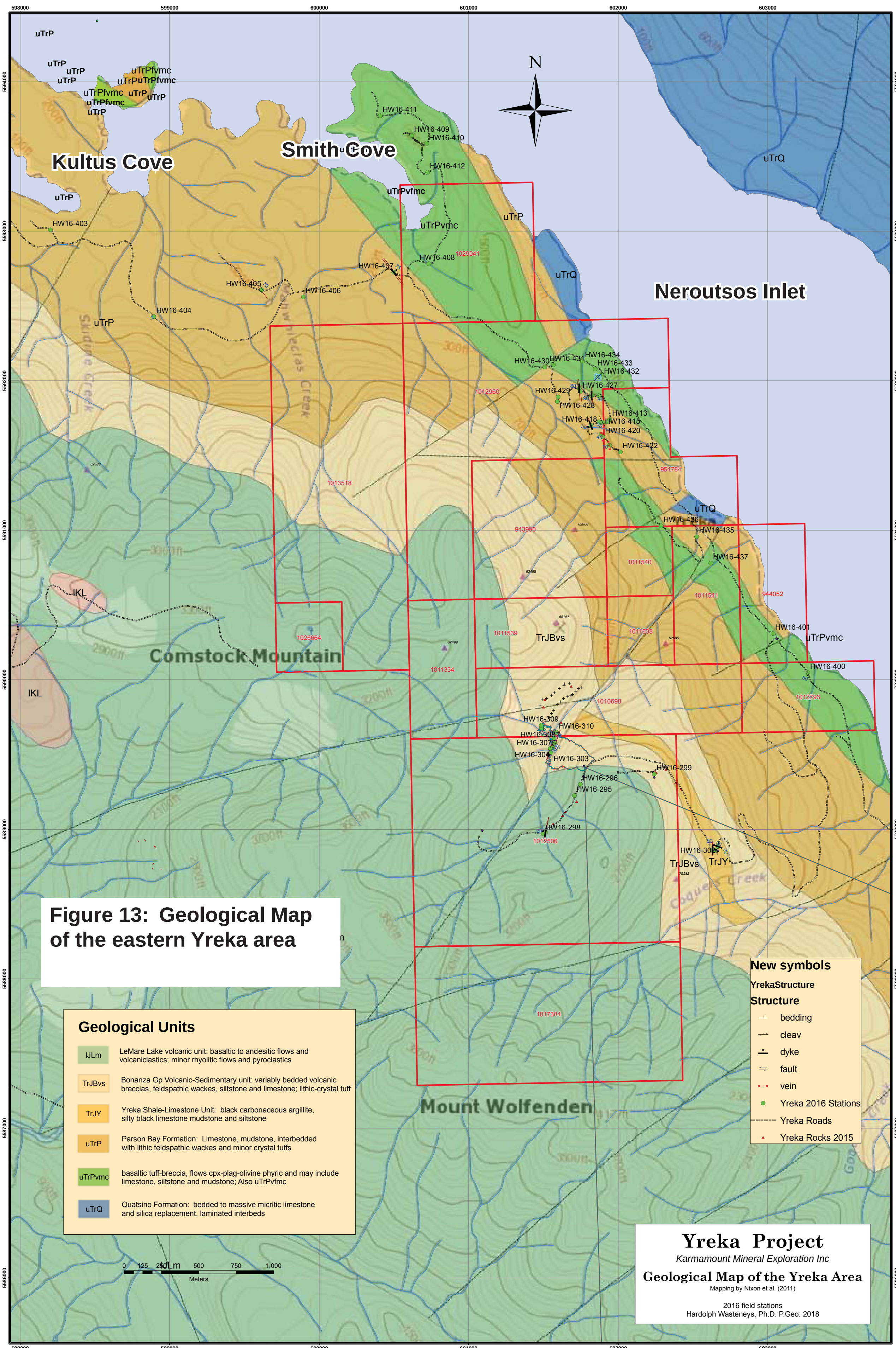

Figure 13: Geological Map of the eastern Yreka area

Bonanza Group: Volcaniclastic-Sedimentary Unit (TrJBvs)

The Parson Bay Formation is stratigraphically overlain by the Volcaniclastic -Sedimentary Unit of which exposures are found along the Y400 logging branch road that winds about 600 meters upwards into the valley south of the old Yreka workings (Figure 15). The main unit is described by Nixon et al. (2011) as “Interbedded volcaniclastic and sedimentary strata (predominantly submarine): buff to grey-green, thin to very thickly bedded, calcareous to non-calcareous, volcanic breccia, lithic and feldspathic wacke, siltstone and limestone, locally coralline; lithic-crystal tuff, lapilli tuff and reworked equivalents; and minor vitric tuff, pebbly sandstone, siltstone, and volcaniclastic debris-flow deposits; may include black carbonaceous shale, mudstone, siltstone and limestone (locally coralline) equivalent to unit TrJY “. The off road traverse started along the Y400 Road and descended into the creek through densely overgrown logging slash. The creek bed had good outcrops, but progress was impeded by heavy deadfall of old growth trees that dammed the creek bed at intervals. Large porphyritic felsic

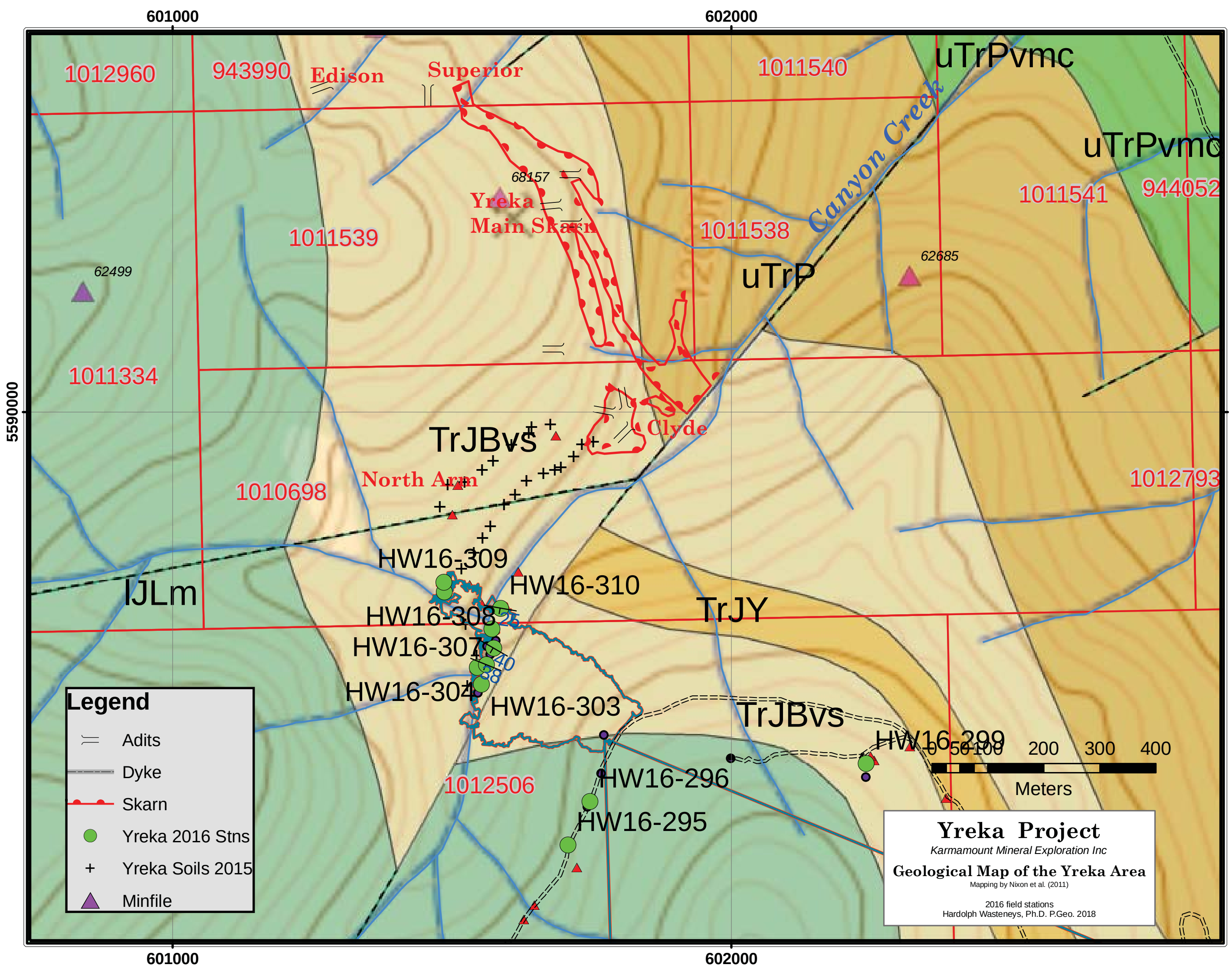

Figure 14: Geology of the Yreka Mine area.
Red line with half circles encloses surface area of mapped skarn assemblages in the main skarn area surrounding the Yreka sulphide lens. Adits from old working indicate other areas of mineralization. New map stations are shown in green circles. Geological Units are explained in text and legend of map in Figure 8 and Appendix B (full size).

dykes occupied much of the base of the creek and formed some of its steep banks. In 2016 two dykes of about 3 meters width were mapped for over 200 meters along the creek. Both displayed altered to pyrite-replaced acicular hornblende phenocrysts, feldspar phenocrysts in a light coloured matrix. Host rocks to the dykes were finely bedded orange to yellow weathering tuffs with moderate north and west dips. Sulphide impregnations were observed in the tuffs in places appearing bleached or varying to a white cherty tuff.

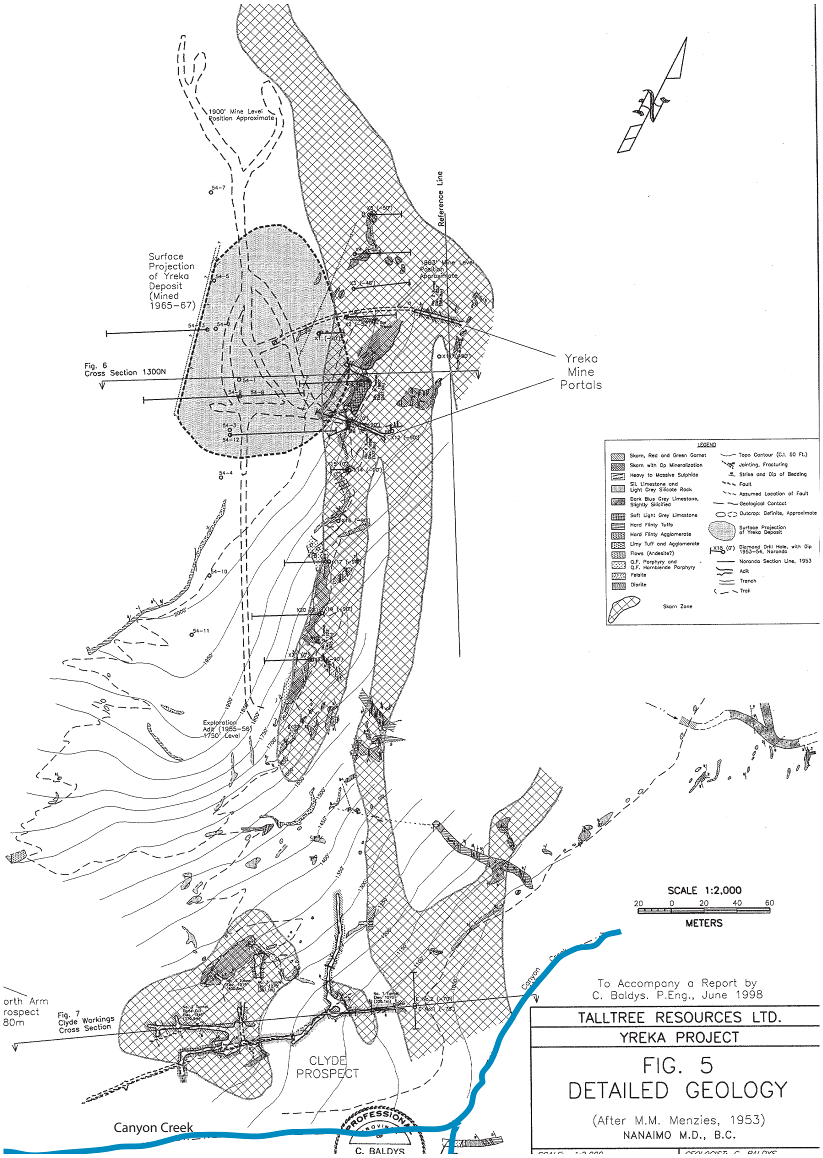

Figure 15: Historical Geological map of the Yreka Mine and Clyde Workings area. Map is from Baldys (1998) after sections and plans in internal Noranda reports by Menzies (1953). The map shows the surface extent of the skarn horizon (diagonal hatched area) north of Canyon Creek and the vertical projection to surface of the mine developments and skarn sulphide mineralization. The traverse of September 7, 2016 reached the southern edge of the skarn zones at the junction of the west and south reaches of the creek (Figure 14). Sections through the Clyde and Yreka zones show the skarn dipping west within the stratigraphic units.

South of the creek junction between the main Canyon Creek and it North Arm an outcrop was described as a black, variably deformed argillite with pyritic veinlets and locally rusty weathering. The unit may correspond to the TrJY - Yreka shale-Limestone unit observed along the Y400 road, and presumed to terminate against a fault farther downstream in the creek. Possibly this could be the continuation of the unit in the adjacent fault block.

The subunit TrJY named the Yreka shale-limestone unit, consists of black carbonaceous or graphitic shale passing upward into black to medium grey, thin to medium-bedded, variably carbonaceous, silty limestone with shale partings, concretionary limestone, mudstone and siltstone; locally fossiliferous. This unit occurs along Y400 within the larger Volcaniclastic-Sedimentary unit and was examined by te writer in 2016 (Wasteneys, 2017a). There it is described as a black slate to black argillite in contact with amygdaloidal basalt with sulphides concentrated at the contact. Dykes of feldspar porphyry cut the Yreka shale-limestone unit at these outcrops.

Bonanza Group: LeMare Lake Volcanic Unit (lJLm)

Above the volcaniclastic-sedimentary unit is the volcanic dominated Le Mare Lake volcanics. This unit is described by Nixon et al. (2011) as dark grey-green, basaltic to andesitic flows with minor intercalated volcaniclastic and sedimentary lithotypes and locally includes minor pillow lava/breccia, minor rhyolitic flows and pyroclastic rocks. Within the mapped areas stations from the 2016 work were located along the Y400 road near its upper end in the NE trending valley south of Yreka and describe along a 500 meter stretch of the road feldspar porphyritic volcanic flows and volcaniclastics cut by phyllosilicate-altered quartz-feldspar porphyritic felsic dykes in which hornblende mafic phenocrysts are replaced by epidote and pyrite and the feldspars are altered. A nearby fault zone is mineralized with black sphalerite and pyrite-quartz in a white clay gouge.

The 2018 work by the author (Wasteneys, 2019a) examined extensive areas of Le Mare Lake Formation in road cuts on the western slopes of Comstock Ridge within the eponymous new mineral claim. The objective was to explore the contacts of the Kloochlimmis Pluton with the Le Mare Lake Volcanics for breccias, dykes, alteration effects, and mineralization.

Klootchlimmis Pluton and other Intrusive Rocks

Dykes constitute the main intrusive rocks evident in the eastern part of the claims explored in 2016 and were mapped at about a dozen stations shown on the geological map (Figure 8). Dykes dominantly have near north-south strikes (azimuths range from 190 to 160) and steep dips. It is not clear if the dykes pre or post-date the fault blocks mapped on GM2011 since they were not traced from one block into another. Dykes in the south reach of Canyon Creek appear to form a swarm and parallel fault structures mapped at the southern end of Y400.

Figure 16: Pink feldspars in monzonite
The rock is located near the eastern contact of the Klootchlimmis pluton sampled in 2018 in an area of volcanic inclusions stoped from the overlying Le Mare Lake volcanics..

Large plutonic bodies of the Kloochlimmis Creek Pluton outcrop on the western slopes of Comstock Ridge to an elevation of about 750 meters, which is about 1 km east of the previously mapped extent of the pluton shown on the maps of Nixon et al. (2007). Higher up the sloptes in the Mahatta Valley, dykes, probably from the pluton, cut LeMare Lake volcanics.

The Klootchlimmis Creek Pluton is divided into two main phases (within the map area): a biotite hornblende phyric diorite that contains accessory sphene and magnetite, and a granitic to granodioritic phase that has variable proportions of conspicuously pink orthoclase feldspar (Fig. 16). Grain size variation from fine to coarse was observed over narrow intervals indicating multiple intrusive events and of finer grain. The contact zone between the Le Mare Lake

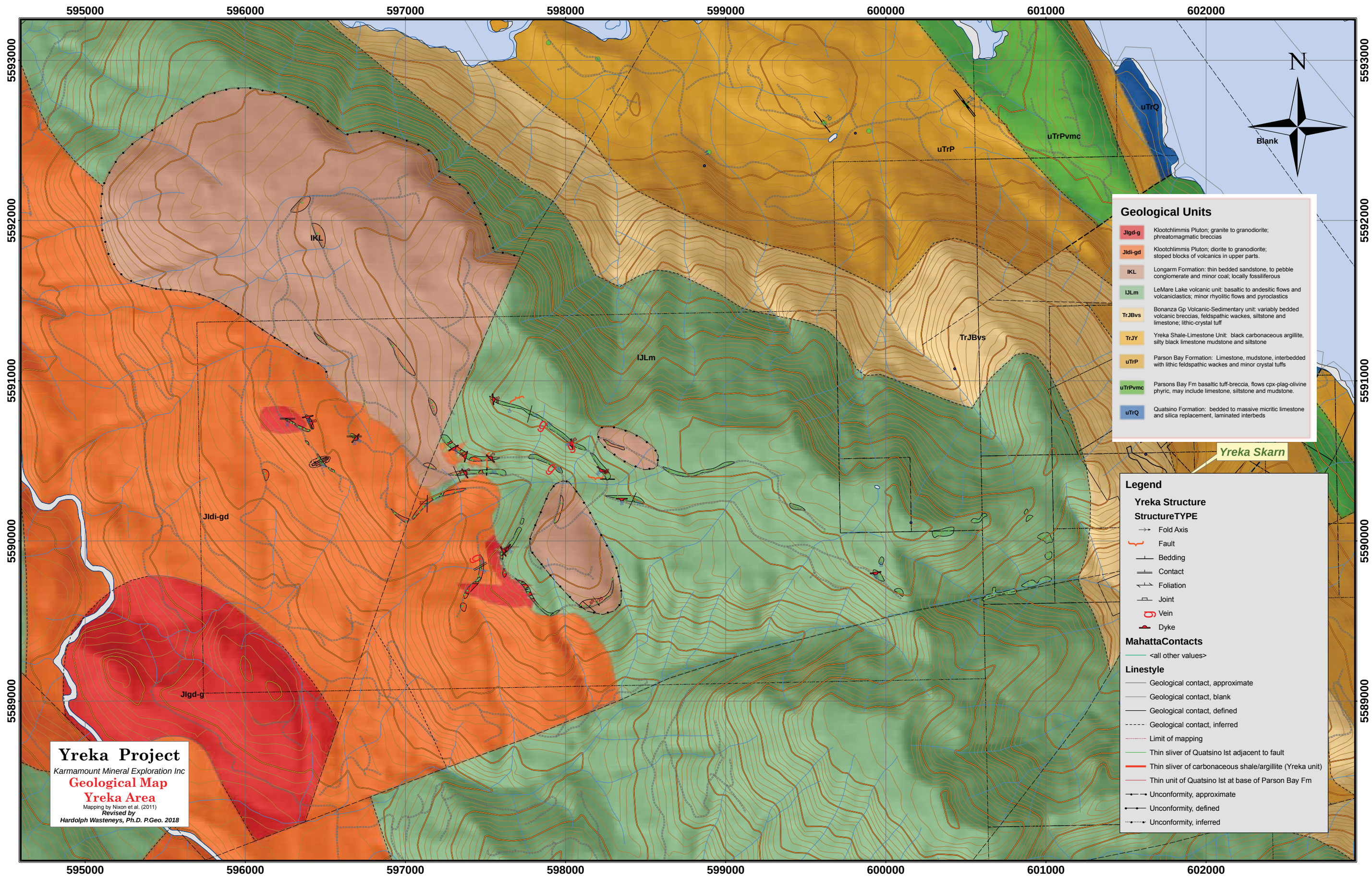

Figure 17: Geological Map of the Yreka Property 2018
Mapping utilized the network of logging roads in the new Comstock Ridge claim to revise the contact of the Klootchlimmis pluton eastward. Breccia bodies, skarns, and stoped block of volcanics characterize the intrusive contact zone of the pluton under the Le Mare Lake Volcanics. Numerous granitoid dykes intrude the volcanics away from the exposed contact The IKL unit is the Longarm Formation a Cretaceous facies of the Nanaimo Group which underlies much of the Strait of Georgia, lies unconformably on the Le Mare Lake Group and the Kloochlimmis Pluton..

volcanics and the Klootchlimmis Pluton is characterized by extensive dyking into the volcanics and by stoping of volcanic blocks into larger masses of the pluton. Some contact zone alteration was also observed in the form of apparently silicified volcanics with a rhyolitic appearance. Skarn assemblages were also observed near the contact in stoped blocks of mafic volcanics and consisting of garnet, epidote, calcite, and pyrite.

Lithogeochemistry of the Klootchlimmis Pluton

A lithogeochemical study of 14 rocks from the Klootchlimmis pluton and associated volcanics was reported in Wasteneys (2019) and is summarized below. Fourteen granitoid rocks were analysed from various parts of the upper pluton and from dykes into the Le Mare Lake volcanics twelve of which are shown in map Figure 19. The other two are from the altered rocks in the eastern slope of Comstock ridge above the Yreka deposit. The compositions for the granitoid rocks are summarized in a Total Alkali Silica diagram of Middlemost (1994) in Figure 20. The results of the analysis revealed two separate plutonic suite within the Klootchlimmis Pluton separated on the basis of distinct Zr-TiO_2 fractionation trends (Figure 21) and patterns of enrichment and depletion of LILE, REEs and HFSEs (Figure 22). Compositional data, rock descriptions and detailed lithogeochemical analysis are documented in Wasteneys (2019).

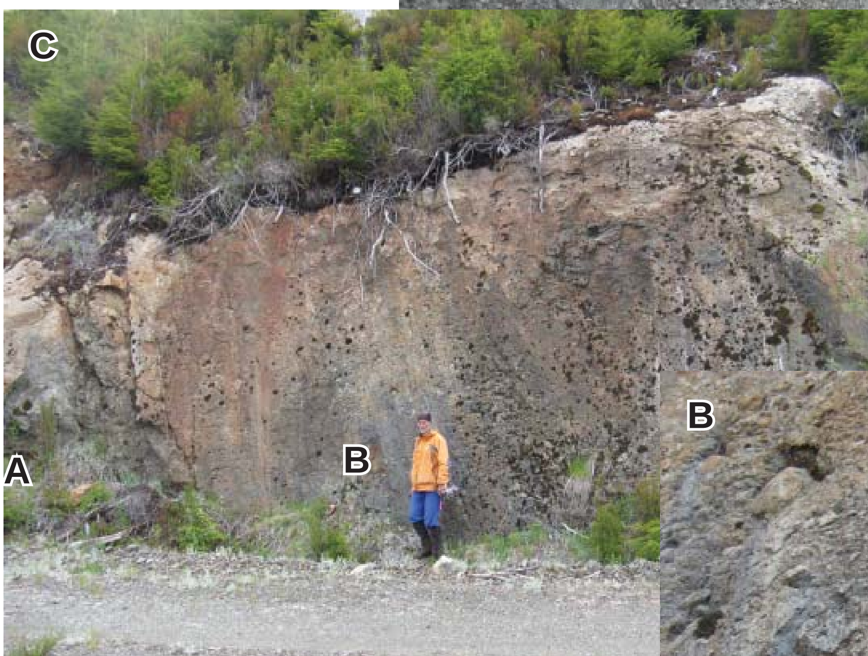

Figure 18: Breccias in the Klootchlimmis pluton

A. Magmatic breccia below the fault veneer shown in B. The breccia grades to coherent rock over a few meters into the surface. Pencil for scale.

l**B.** Normal fault veneer creates an apparent streaming of underlying magmatic breccia fragments. Rock hammer for scale.

C. Breccia exposed in a normal fault smoothed by glaciation. Photo B is located next to geologist in orange jacket. Photo A is at the left edge of the picture.

By their major element composition the plutonic rocks of the Klootchlimmis pluton, and the probably related dykes intruding the adjacent Le Mare Lake volcanics, generally show an alkaline granitoid range from monzogabbros to quartz monzonites on Figure 20. However, the Zr-TiO_2 diagram highlights 3 rocks with unusually high Zr and low Ti compared to the other rocks and this relationship is confirmed in REE plots which show a separate range of compositions for many HFS and REE elements. This indicates a separate origin or parental magma for the high Zr-low Ti rocks.

More generally, the Klootchlimmis suites are typical of calc-alkaline arc rocks as is the sharp depletion at Europium for some samples indicative of removal of quadravalent Eu by plagioclase crystallization. The most evolved rocks, the granite and quartz monzonite, have the highest REE concentrations and the sharpest Eu anomaly. The lowest REE concentrations are in monzodiorites, which also have relatively low LREE:HREE ratios plotting as nearly flat lines, but generally, all the samples have positive LREE:HREE normalized ratios typical of calc-alkaline fractionation.

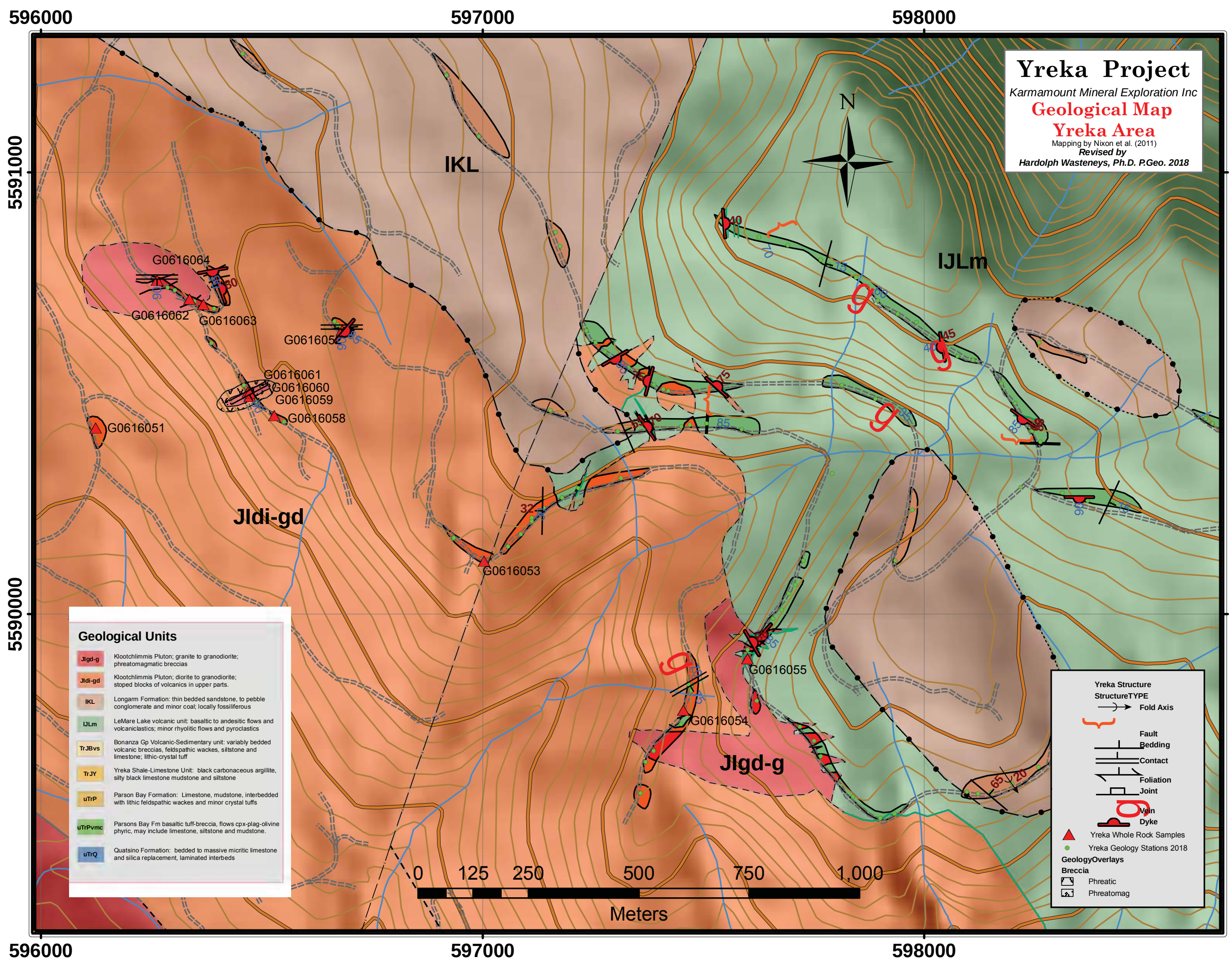

Figure 19: Klootchlimmis Pluton contact zone (2018 rock sample sites).
In the upper left of the map are two areas of breccias, the more northerly one involves a possible granitic stock coring a zone of phreatic breccias in diorite. Three hundred meters south is a breccia dyke or pipe of probably diorite composition with marginal phreatic breccias. Geology stations and geochemical samples from the previous work in 2018 are marked.

The quartz monzonites (pink field) show strong depletions in the HFSEs Sr, P and Ti, relative to the monzodioritic suite. The single granite sample (not shown here) has a similar trend to the quartz monzonites, but additionally is depleted in the LILEs Cs, Ba, Rb and K.

Meanwhile the quartz monzonites (or granodiorite-granites) appear to be derived from a Zr-Nb enriched, Sr, Ti, P and LILE depleted source or by different degrees of partial melting and assimilation than the monzodioritic series. Plagioclase fractionation is indicated suggesting high level magma chambers for the source of the quartz monzonite-granite rocks. The difference in chemistry between the suites may reflect a change in tectonic environment as result of increased rates of convergence and resultant tectonic thickening or changes in the geometry of subduction.

The lithogeochemical composition of the Klootchlimmis Pluton ranges from monzogabbros to granites defined by high total alkaline concentrations of Na_2O and K_2O. However, the ratio of $K_2O : Na_2O$ varies widely suggesting that hydrothermal alteration may locally have depleted or enriched the alkalis. Petrological systematics revealed by High Field Strength Elements

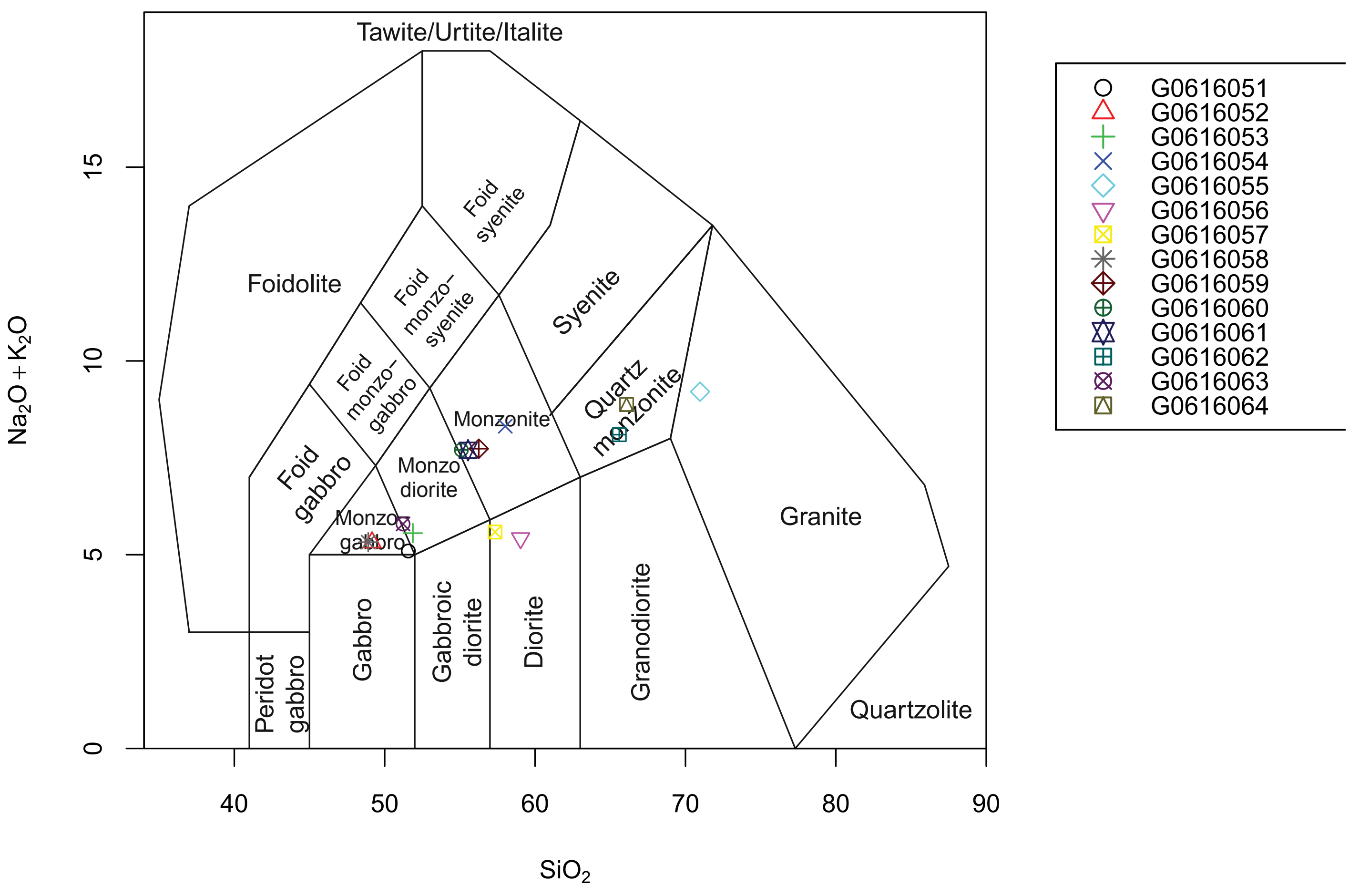

Figure 20: Total alkali silica plot for Yreka granitoids (Middlemost, 1994)
Sample numbers are keyed to symbols plotted in the diagram and on map Figure 20.

(HFSE) and REEs indicate that the igneous compositional range cannot be produced by a single fractionation trend and instead represent two distinct calc-alkaline suites. The more voluminous and probably earliest consanguinous suite is represented by monzogabbros, monzodiorites, and monzonites which were derived by low degrees of partial melting of a Ti-P enriched peridotitic mantle wedge. The more felsic rocks were probably derived after a period of uplift and crustal thickening from high level magmas chambers undergoing plagioclase fractionation.

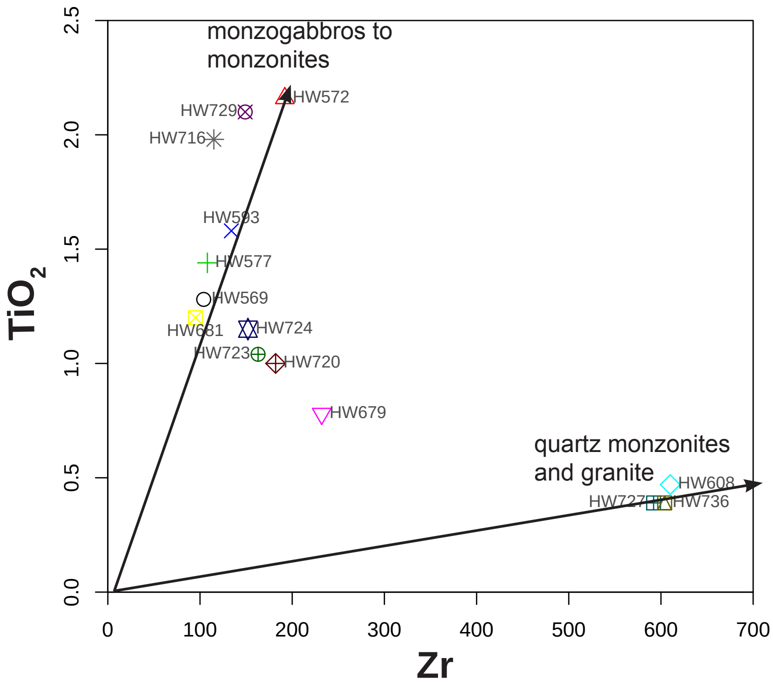

Figure 21: Binary variations of HFSEs: Klootchlimmis pluton
The Zr vs TiO_2 diagram shows separate grouping of a granite and quartz monzonites (HW608, HW727 and HW736) from all the other rocks. Igneous trends are expected to show linear arrays from the origin in Zr - TiO_2 compositions. Separate trends are indicated by the arrowed lines. A highly silicified rock HW679 plots away from both trend lines on the diagram.

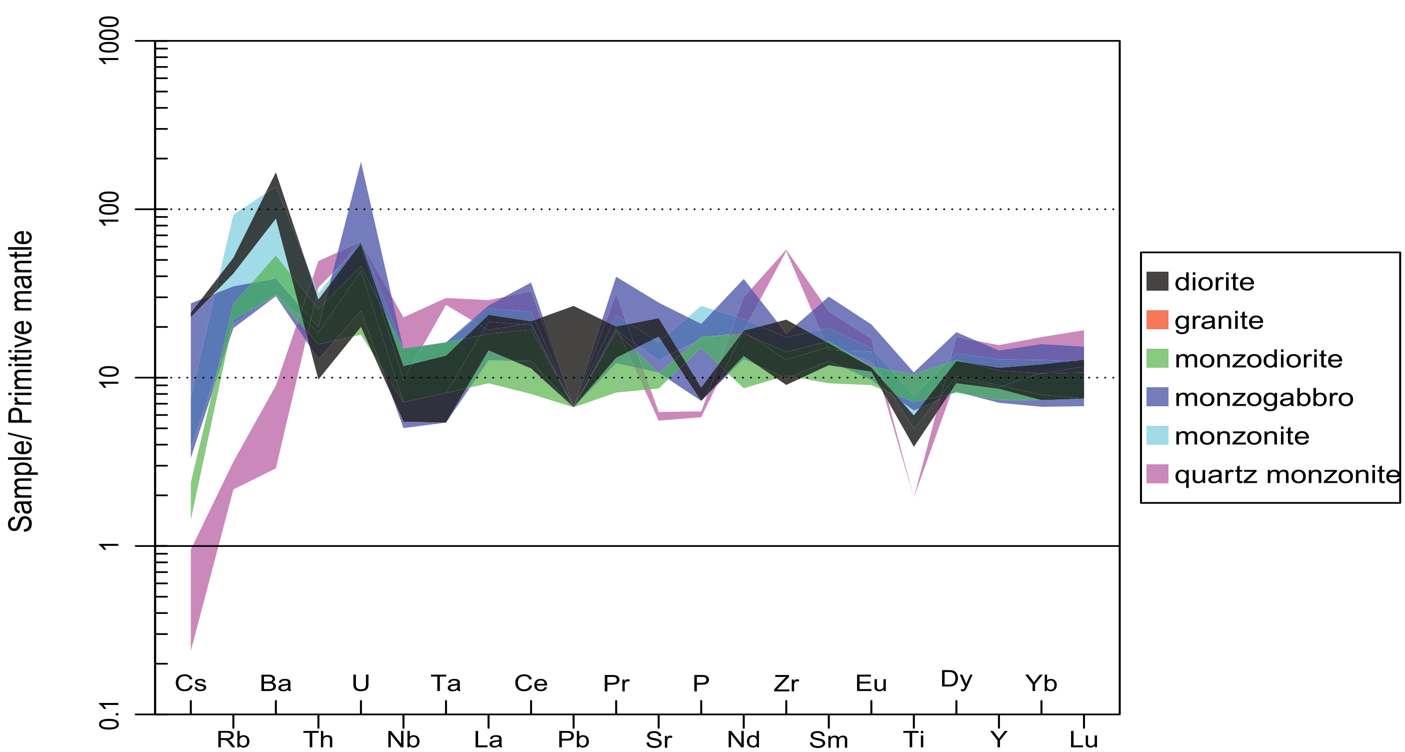

Figure 22: Spider Plot Primitive Mantle normalization of Klootchlimmis pluton granitoids
Normalizing element compositions for primitive mantle from McDonough and Sun (1995).
The classification of the rocks shown in the legend is by the total Alkali Silica diagram in Figure 20.

2019 Geophysical Exploration

IP Survey Specifications

The survey utilized the “Pole-Dipole” method of IP surveying in which all combinations of potential voltages between pairs of 6 potential voltage receivers in an array spaced at 100 meter intervals are measured as current is pulsed through a current electrode that is moved on the area. The surveying was carried out using the “pole-dipole” method of survey utilizing a pre-laid receiver array remaining stationary, the current C1 is moved along the survey lines at a spacing of “a” (the dipole) apart, while the second current electrode, C2, is kept constant at “infinity”. In this survey the infinite electrode was placed in line with the survey array and moved forward in stages as the line curved in order to remain approximately collinear. The distance, “na” between C1 and the nearest potential electrode generally controls the depth to be explored by the particular separation, “n”, traverse. On this survey a 100 meter dipole separation was utilized and the 1st to 6th separations. A total of approximately 12.9 km of line was surveyed on two curved lines running roughly west to east across Comstock Ridge. The current electrode was placed west of the receiving potential electrodes on both lines. The infinite electrode was placed in line with the array and to the west.

The electrical system IP survey was conducted using a pulse type system, consisting of a GDD® GRx8-32 receiver, a GDD TxII 5.0 kW transmitter, and a Honda 5 kW motor generator. The transmitter pulses DC current in two 2 second cycles of current on, then off, then reversed polarity with a maximum of 5 kW relative to ground. The receiver measures the current (I) in amperes flowing through the current electrodes, C1 and C2, the primary voltages (V) between any two potential electrodes, P1 through P5, through each current phase and the apparent chargeability (Ma).

Apparent chargeability readings consist of twenty consecutive 50 millisecond readings (totalling 1000 milliseconds) and a 200 millisecond delay. Chargeability readings on the diagrams in Figures 32 and 33 are from the interval 690 to 1050 ms after shutoff, also termed the Mx receive window. Apparent resistivity (Ohm-meters) is proportional to the ratio of the primary voltage and the measured current and is dependent on the geometry of the electrode array. Chargeability and resistivity are functions of the actual chargeability and resistivity of the rocks.

Data Presentation

The data were presented as individual pseudo section plots of apparent resistivity and apparent chargeability shown in Figures 23 and 24. The data were also subjected to a 2D inversion using a 2-D finite element method in the Geotomo RES2DINV Algorithm and presented as model sections of inverted Chargeability and Resistivity in Figures 26 and 28 and were generated in “Surfer” by Brad Scott (Scott Geophysics Ltd). The inverted data incorporate topographic data, actual GPS station positions and other properties using a model that is iteratively processed to converge on the actual data. The results removed the effect of directional bias in dip of features on the pseudo sections that results from the direction and position of the current electrode west of the potential electrode array resulting in the apparent west dip of features in the pseudo sections in Figures 23 and 24. The near surface properties of the inverted sections are also displayed in a map view superimposed on geology to aid in geological interpretation and shown in Figures 25 and 27.

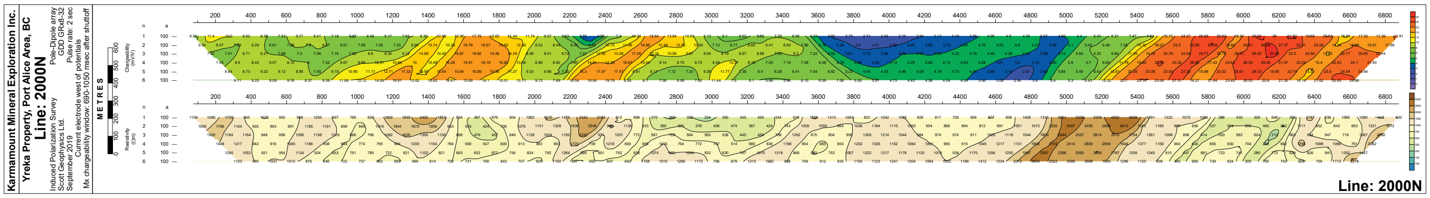

Figure 23: IP Pseudo sections for Line 2000 N
The upper section is chargeability and the lower resistivity

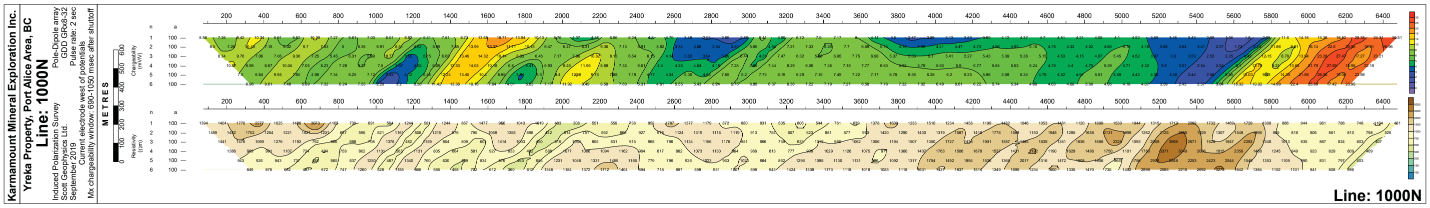

Figure 24: IP Pseudo sections for Line 1000 N
The upper section is chargeability and the lower resistivity

IP Data Interpretation

Several anomalous geophysical signatures are identified on Figures 25 through 28. The features were principally defined by high chargeability responses shown in the inverted chargeability section Figure 26 and subject to interpretation by evaluating the corresponding resistivity signal in Figure 28. The geology of the anomalous sites is revealed by plotting the lines on maps in Figures 25 and 27. Using the survey parameters of a=100 meters and 1 to 6 separations the modeled IP responses are expected to show values to about 300 meters depth along the lines.

The western end of both lines runs across granitoid rocks of the Klootchlimmis Pluton. The lines then pass into volcanics of the LeMare Lake Formation mixed with dykes either from the pluton or volcanic feeders. The lines then cross the crest of Comstock Mountain at the summit on line 2000N and in a col at the head of deeply incised streams on line 1000 N. On the eastern side of the ridge the lines continue in volcanics to an indeterminate contact with Parsons Bay Formation sediments, Line 2000 N ends just downslope of the surface outline of the Yreka skarn deposit and line 1000 N ends just upslope of it about 500 meters to the south.

The inverted data results (Figure 26) show anomalies dipping steeply west into the slope at the eastern end of the lines (hereafter referred to as the Yreka slope) roughly oriented along the westerly dip of strata of the LeMare Lake Volcanics and the Parson Bay Formation. The anomalies are marked on Figures 25 to 28 between points C and D on line 2000 N and between point F and G on line 1000 N. Steeply dipping, north trending dykes were also mapped in the area on the Yreka slope and these may contribute to the apparent orientation of chargeable bodies. Most notably, the western edge of both chargeability anomalies at C and F on the Yreka slope appear to be aligned north south parallel to the strike of strata, dykes and perhaps even the Yreka skarn body suggesting some continuity of chargeable rocks up-slope for about 1000 meters. As well the continuity of the anomalies along both lines which are separated by only about 500 meters suggests that the chargeable body may be continuous at least between the two lines and probably for some considerable distance beyond.

The corresponding inverted resistivity signals between C and D and F and G are displayed on Figure 28. Up-slope of points C and F are high resistivity responses predictably

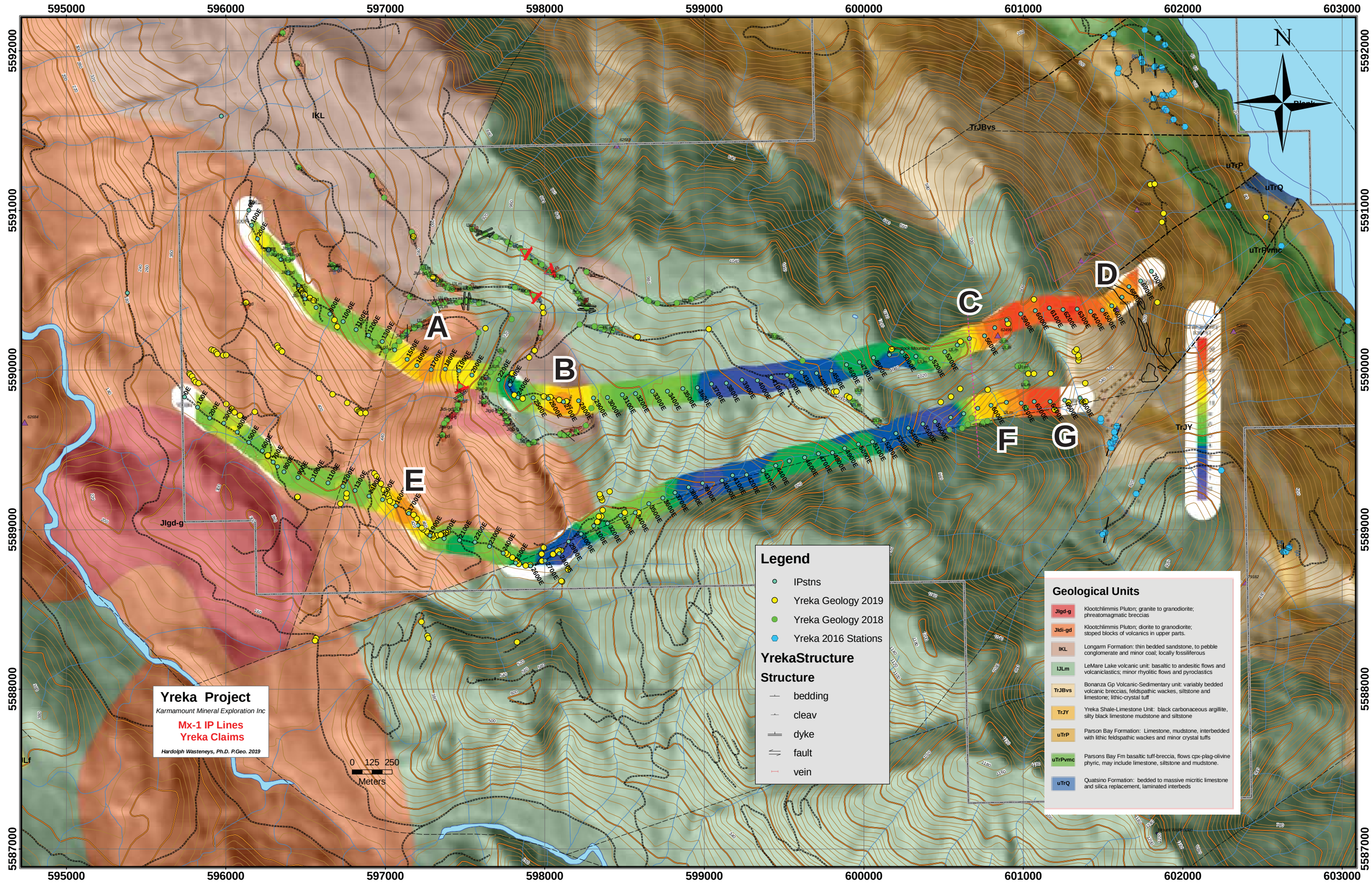

Figure 25: Map of the IP Chargeability near surface.
The colour scheme along the IP lines represents the n=1 separation of the array shown on the pseudosections in Figures 23 and 24. IP Stations are labelled in meters from the start of each line for reference to the pseudo-sections and the inversion section in Figure 26. Chargeability anomalies identified in the inverted section Figure 26 are located by letter labels A to G. Anomalies A and E are in granitoids and plausibly connected as is the section from C and D to F and G, which are in volcanics. Site B appears solitary and may be restricted to sedimentary strata in unit IKL.

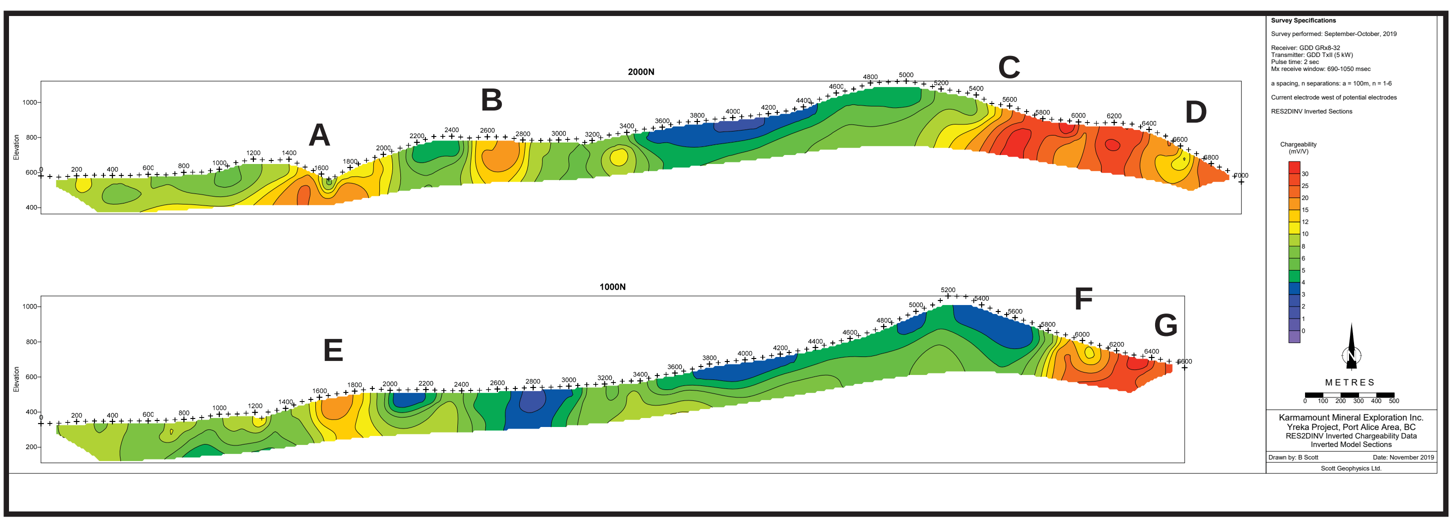

Figure 26: IP 2D Inverted Chargeability on Lines 1000 N and 2000 N
Anomalous features on the two lines are labelled A to F. The same features are located on the map Figure 25 and corresponding resistivity map (Figure 27) and section (Figure 28). Strong, high chargeability anomalies potentially indicative of mineralization are evident at sites A and E, possibly at B, and in the interval between C and D and F to G.

corresponding to massive flows in mafic volcanic rocks of the LeMare Lake volcanics at the top of the slope. Below point D (Line 2000 N) resistivity increases to the end of the line, which may accurately represent a change to unmineralized limestone strata in the Parsons Bay Formation compared to expected high conductivity in the Yreka skarn at point 6700N. The high chargeability zone C-D shows a range of moderate resistivity values with the most conductive ranging from 150 to 300 ohm-meters in the zone between 5850 and 6050 E and the remainder ranging no higher than 1500 Ohm-meters A similar range is modeled in the F-G interval of line 1000 N, with a zone of higher conductivity modeled by 150 to 300 Ohm-meter values at a few hundred meters depth.

The few outcrops that were observed within the C-D - F-G zone include silicified volcanics and feldspar porphyries with mafic phenocrysts replaced by pyrite, locally stockwork fracturing with pyrite or pyrrhotite, and some red and white banded cherty argillites or skarns at the end of line 1000N. The observed disseminated and stockwork pyrite and pyrrhotite may explain the chargeability anomaly, while the moderate resistivities are compatible with the altered rocks and disseminated sulphides.

In strong contrast to the high chargeability and moderate resistivity on the Yreka slope, the section of both lines draping over Comstock Ridge shows very low chargeability and high resistivity in the inverted sections in Figures 26 and 28. This IP response corresponds well with the properties of the underlying rocks shown in the map on Figure 25 which are dominantly LeMare Lake volcanics of basaltic composition, commonly amygdaloidal and massive flows intruded by a few unaltered dioritic dykes.

Along the western part of the two lines there are 3 significant chargeability anomalies marked at points A and B on Line 2000 N and E on Line 1000 N. The anomaly at A appears between 1400 and 2000 E across a steep ravine. The corresponding inverted resistivity response on the Figure 28 section is a moderate to low resistivity zone bordered by high resistivity west of 1400 E and east of 2000 E. Local outcrops on a road above the north side of the ravine include a gypsum-veined altered dioritic rocks and some pyritic replacement of mafic minerals. It is not yet clear if these characteristics of the rocks are responsible for the IP response or if they are alteration peripheral to more intense mineralization in the ravine.

The anomaly at E on the southern line is a near surface high chargeability zone between 1550 and 1850 E. The inverted resistivity profile shows moderate values between about 500 and 1000 Ohm-meters. The geology is dominated by gabbroic rocks with minor disseminated pyrite and zones of closely spaced chloritic slips. There is no indication of continuity between the anomalies at A and F based on the known geology.

Anomaly B is a near surface chargeability zone on the line between 2550 and 2850 E. The corresponding Resistivity is very low and appears to conform to a shallow band from about 2550 to 3200 E. The center of the chargeability anomaly lies within outcrops of an outlier of lower Cretaceous Longarm Formation (unit lKL) consisting of deformed dark siltstones, laminated limestones and hematitic conglomerates and grits. The high conductivity response and chargeability may reflect graphitic content of these rocks or perhaps a zone at the underlying unconformity. Elsewhere the unconformity surface was observed to be deeply weathered into the granitoid rocks of the Klootchlimmis pluton.

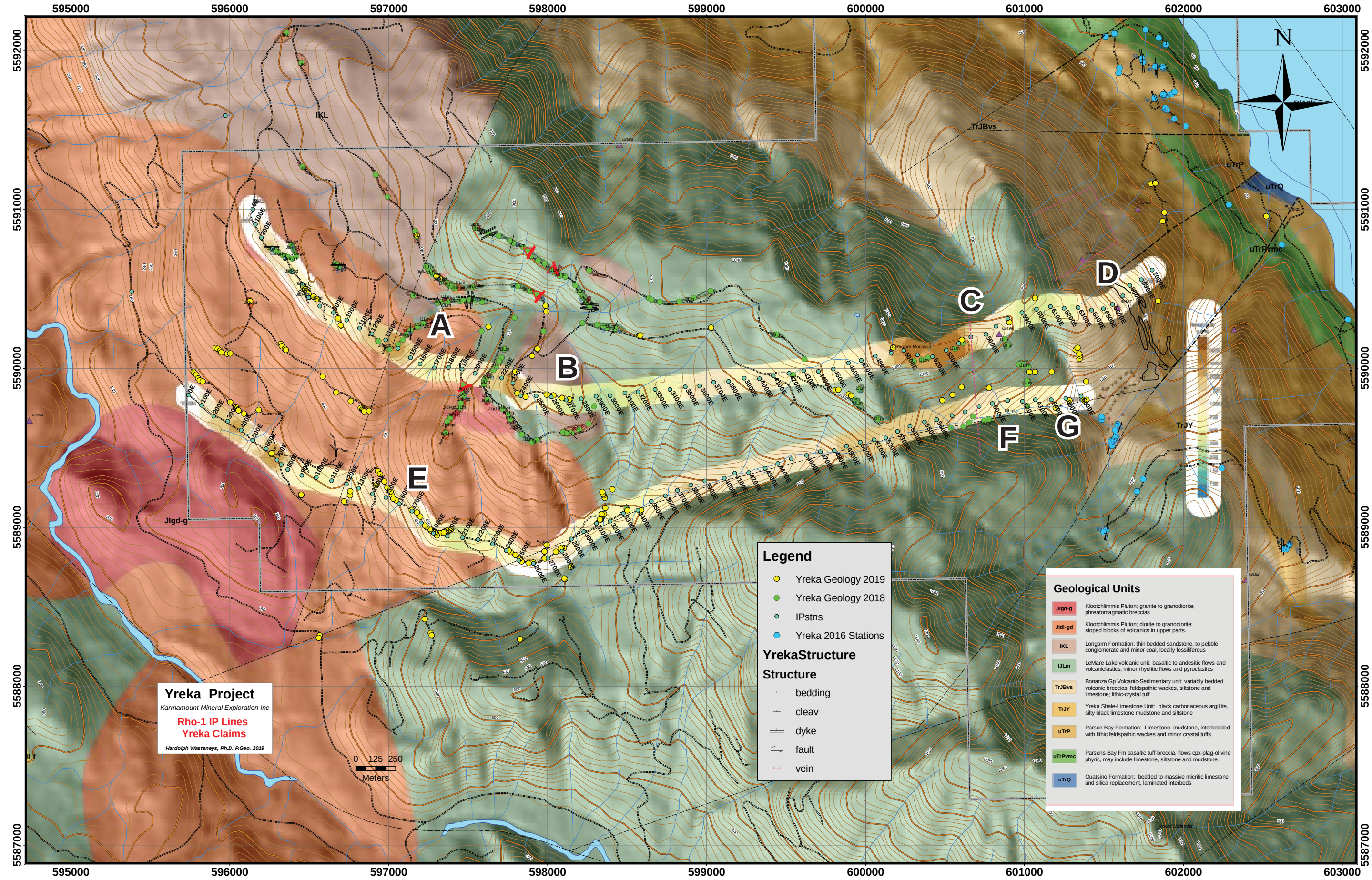

Figure 27: Map view of IP Resistivity near surface.
Anomalous chargeability features identified in the inverted chargeability section Figure 26 and located on a map view of the chargeability line (Figure 25) are shown here for further interpretation of the geophysical responses. Feature B is shown to be correlated with deformed sedimentary rocks of the Longarm Formation, which are possibly highly conductive. Other anomalies are within granitoid rocks or volcanics, which have moderate resistivities.

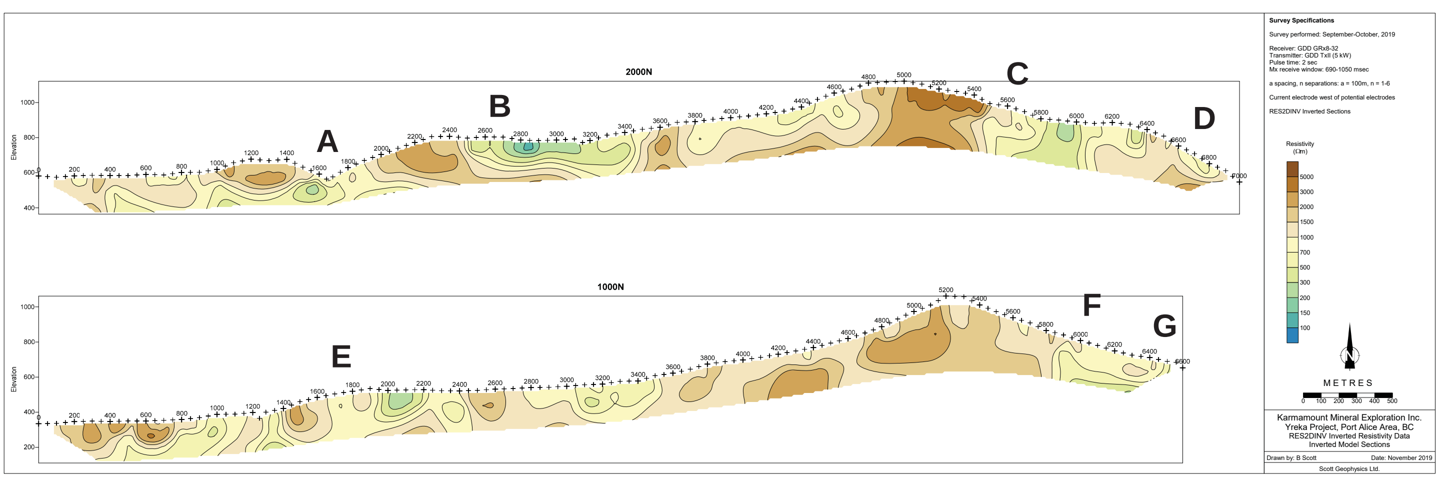

Figure 28: IP 2D inverted resistivity sections.
Labels show the position of chargeability anomalies defined on Figure 26.
A shows a mixed moderate to low resistivity that continues to feature E where it is moderate in resistivity. Feature B shows low resistivity possibly indicating that the high chargeability is in conductive strata such as black shales in unit IKL. Feature C, D and F to G show complex resistivity but mainly in the moderate range suggesting a continuous block of fractured mineralized strata cut by intrusive bodies.

2019 Geochemistry

Survey description

Previous work in the western part of the Yreka property indicated anomalous copper contents in streams on the west side of Comstock Ridge (Bradshaw, 1993). Geological mapping in 2018 extended the boundary of the Klootchlimmis Pluton to the east and prompted a reexamination of the copper anomalies in that area. Accordingly a total of 14 moss mat samples were collected, 13 of which were from streams on the west side of the divide. The 14th sample was collected from a predictably anomalous stream on the slope below the Yreka deposit as an orientation sample.

Silt was generally absent in most of the creeks in the area all of which have high flow gradients. Moss mats offer the main exploration geochemical alternative to silts, but even so moss mats were not always readily available. Typically moss mats are collected from the active stream channel where it is evident that they are at least periodically water covered. Moss mats trap silt even in high gradient streams, but to variable degrees depending on age. Many mats on the Yreka area were rather lean in silt and it was not certain that sufficient -80 mesh silt was available in the amount of moss that would fill a 1 litre Hubco bag.

Accordingly, the sampling method was slightly modified at most sites where moss mats were found to be thin with little silt and commonly above the active channel of late July 2019 despite generally moist weather. At the time the active channel was generally high energy and devoid of any trace of silt other than in very small pockets between boulders where coarse sand predominated. To achieve sufficient silt for analysis several mats were collected at a site and rinsed in a large plastic rock sample bag to liberate silt from the moss fabric until enough silt was obtained to nearly fill a ca. 1 liter sized Hubco bag the fabric of which served as a filter for removing the water as the silt was decanted from the plastic bag. At a few locations where the moss mats had ample silt in the moss fabric or under the mat the whole mat was stuffed into the same size Hubco bag. This was the case at the Yreka orientation sample site. Subsequently, all analyzed samples reported a sufficient mass of silt in the -80 mesh fractions to complete the analysis. However, it is unclear if modified procedure misrepresented the stream geochemistry of the leaner moss mat sites.

Analytical Procedures

The samples were shipped to ALS Limited in North Vancouver for analysis by ultra Trace Aqua Regia ICP-MS or ALS code ME-MS41. Sample weights ranged from 0.42 to 1.74 kg of silt separated from the moss. The actual amount of -80 mesh was not reported, but all samples contained sufficient amounts for analysis. No separate gold analysis was conducted and the method notes “ME-MS41: Gold determinations by this method are semi-quantitative due to the small sample weight used (0.5g).”

Analytical Results

Data for the 14 samples consists of analyses for 51 elements tabulated with coordinates in Table 5 Appendix C, Analytical Certificates are in Table 6 and detection limits stated by ALS in Table 4 in Appendix C.

The main elements of economic interest are Cu, Ag, Au, Mo, Zn, and Pb. while pathfinder elements may include Bi, W, Te, Tl. An orientation sample from a stream flowing through mineralized skarn below the Yreka deposit shows very high concentrations of several elements including Au 7.35 ppm, Ag 2.3 ppm, and Cu 604 that were an order of magnitude higher than the highest in the range of the other samples. In the 13 samples from the western slope the highest of these three elements was Au 0.09 ppm, Ag 0.90 ppm and Cu 43.3 ppm. The concentration of Au in the Yreka sample likely reflects a nugget effect in the moss mat since the Yreka deposit itself was not considered a gold rich skarn with reported grades of about 0.036 g/t from the 1960s production. The main economic elements at Yreka are Cu and Ag. Overall, the only element with a noticeable anomalous response in the 13 samples from the western drainages was Mo, which ranged from 0.6 to 48.4 ppm. Three samples from two adjacent branches of a main stream all appear anomalous with values of 11.7, 11.3 and 48.4 ppm (Figure 31). The highest value was in the upper reach of one of the stream where argillite lenses interleaved with fractured and pyrite veined volcanics formed the creek bed. The Mo concentration in the Yreka sample was only 1.2 ppm. To aid in identifying other elements associated with this anomaly the data was normalized by division by the value from the Yreka stream and the ratios colour coded by conditional formatting in a spreadsheet. This facilitated rapid identification of variability in the data for each element and comparison to the Yreka sample. The strongest correlations were with lithium with ratios from 7 to 16 for the same 3 samples although all of the western samples

Station	Ag	Au	Cu	Pb	Zn	Mo	Bi	Te	W	As_	Sb	Tl	Cd	B	Ba	Be	Ce	Co	Cr	Ni	Cs
HW19-618	0.06	0.0014	0.08	0.45	0.30	1.36	0.03	0.04	0.05	0.21	0.49	0.09	0.10	2.00	0.38	1.46	1.97	0.86	0.20	0.33	0.24
HW19-627	0.01	0.0014	0.06	0.17	0.30	0.48	0.02	0.01	0.03	0.09	0.19	0.06	0.06	2.00	0.25	1.54	2.18	0.82	0.20	0.35	0.29
HW19-628	0.01	0.0014	0.06	0.15	0.28	0.39	0.02	0.01	0.04	0.06	0.14	0.06	0.05	2.00	0.25	1.46	1.86	0.79	0.19	0.33	0.19
HW19-631	0.06	0.0014	0.07	0.49	0.38	11.41	0.03	0.08	0.06	0.23	0.43	0.44	0.10	1.00	0.50	1.83	2.41	0.82	0.27	0.44	0.44
HW19-634	0.39	0.0124	0.05	2.18	0.58	41.37	0.03	0.05	0.24	0.41	1.55	1.26	0.27	2.00	0.38	1.95	2.29	0.51	0.20	0.25	0.68
HW19-636	0.03	0.0014	0.06	0.35	0.31	9.96	0.04	0.05	0.05	0.21	0.31	0.41	0.06	1.00	0.63	1.90	2.36	0.76	0.24	0.36	0.41
HW19-647	0.04	0.0014	0.07	0.32	0.39	5.36	0.03	0.04	0.06	0.19	0.33	0.18	0.13	2.00	0.38	1.66	1.94	0.86	0.26	0.47	0.29
HW19-648	0.03	0.0014	0.06	0.32	0.38	5.23	0.03	0.03	0.05	0.16	0.29	0.21	0.13	2.00	0.38	1.56	1.83	0.79	0.27	0.43	0.30
HW19-727	0.32	0.0014	0.07	0.46	0.40	2.15	0.03	0.04	0.04	0.71	0.73	0.24	0.10	1.00	0.75	1.63	2.11	1.14	0.26	0.54	0.41
HW19-743	0.03	0.0014	0.05	0.41	0.34	0.55	0.04	0.04	0.03	0.24	0.63	0.15	0.09	1.00	1.00	3.68	3.52	1.09	0.20	0.26	0.38
HW19-744	0.05	0.0014	0.07	0.32	0.33	1.72	0.03	0.04	0.07	0.28	0.56	0.09	0.08	1.00	0.38	1.46	1.88	1.02	0.24	0.39	0.25
HW19-745	0.04	0.0014	0.06	1.48	0.67	3.17	0.02	0.01	0.06	0.13	0.34	0.06	0.36	8.00	0.25	1.07	1.64	0.64	0.33	0.31	0.18

Station	Ga	Ge	Hf	Hg	In_	La	Li	Mn	Nb	P	Rb	Re	Sc	Se	Sn	Sr	Ta	Th	U	V	Y	Zr	Al	Ca	Fe	K	Mg	Na	Ti	S
HW19-618	1.0	2.25	3.80	0.80	0.45	1.56	2.09	0.88	1.02	1.20	0.10	1.00	1.48	0.12	1.38	0.21	1.00	1.50	0.44	1.52	1.71	4.92	0.56	0.48	1.16	0.15	0.66	0.14	1.58	0.45
HW19-627	1.4	2.00	4.60	0.80	0.57	1.48	1.72	1.19	1.24	1.28	0.11	0.67	1.97	0.35	1.38	0.18	1.00	0.75	0.30	1.73	2.08	5.77	0.67	0.46	1.38	0.12	0.89	0.21	2.32	0.15
HW19-628	1.3	2.63	6.00	0.60	0.51	1.32	1.55	0.98	0.59	1.25	0.08	0.67	1.99	0.12	1.00	0.16	1.00	1.00	0.29	1.85	2.01	7.85	0.62	0.46	1.38	0.09	0.91	0.21	2.52	0.10
HW19-631	1.2	2.13	1.40	0.80	0.67	1.66	7.07	1.11	0.94	0.95	0.16	1.67	1.91	0.24	0.88	0.21	1.00	1.25	0.48	1.93	1.56	2.69	0.76	0.33	1.35	0.21	1.30	0.14	1.17	2.95
HW19-634	1.0	2.13	1.00	2.00	0.76	2.04	16.33	1.34	0.63	0.64	0.39	4.00	2.25	0.65	1.13	0.24	1.00	1.25	0.65	3.76	2.42	1.85	0.61	0.42	1.05	0.48	1.96	0.14	0.72	1.20
HW19-636	1.1	1.88	1.80	0.80	0.58	1.68	6.75	1.09	1.11	0.98	0.14	2.00	1.55	0.53	0.88	0.21	1.00	1.50	0.49	1.83	1.41	2.31	0.75	0.30	1.23	0.18	1.22	0.14	1.07	1.15
HW19-647	1.2	2.63	4.60	0.60	0.56	1.40	3.61	1.02	0.83	1.05	0.10	1.33	1.90	0.29	1.00	0.19	1.00	1.00	0.38	2.09	1.75	6.23	0.67	0.44	1.42	0.12	1.11	0.21	2.12	1.65
HW19-648	1.3	2.50	4.60	0.20	0.53	1.32	3.83	1.02	0.70	1.05	0.10	1.33	1.90	0.12	1.00	0.18	1.00	1.00	0.36	1.99	1.71	6.15	0.70	0.43	1.36	0.12	1.20	0.21	2.03	0.95
HW19-727	1.4	1.50	1.20	1.40	0.61	1.22	2.68	1.71	0.74	0.94	0.12	0.67	2.00	0.24	0.88	0.21	1.00	0.75	0.31	1.69	1.41	1.77	0.84	0.30	1.37	0.15	0.90	0.14	1.37	0.35
HW19-743	1.2	0.88	0.40	1.60	0.58	2.60	2.25	2.28	1.00	1.15	0.23	0.33	0.97	0.65	0.88	0.18	1.00	0.50	0.31	1.02	1.82	0.19	0.81	0.14	1.09	0.21	0.43	0.07	0.49	0.20
HW19-744	1.2	1.88	2.60	0.80	0.43	1.48	2.59	0.84	0.72	1.13	0.10	0.67	1.48	0.35	0.63	0.21	1.00	1.25	0.35	1.71	1.49	2.92	0.64	0.42	1.39	0.15	0.77	0.14	1.43	0.80
HW19-745	1.0	2.38	3.20	0.80	0.40	1.38	1.70	0.74	0.65	1.25	0.08	0.67	1.10	0.18	0.75	0.21	1.00	1.50	0.62	2.27	1.45	4.15	0.47	0.69	1.24	0.12	0.66	0.14	1.40	0.35

Figure 29: Colour coded spreadsheet for identification of anomalous values in the 13 west slope samples.

Values were normalized for each element by dividing by the concentration of the element in the Yreka sample. Red indicates high ratios; dark green low ratios. High degrees of colour variation indicate possible anomalies such as that for Mo, the dark red square bordered by orange. Columns showing uniform colour indicate a lack of anomalous behaviour in the element within the sample set.

were higher in concentration than the Yreka sample. Other elements elevated in the anomalous molybdenum sites include Li, Sb, Tl, Re, Zn, Pb and Ag. These concentrations are listed at the sites on Figure 32. The remainder of the analytes show little variation, although they may be significantly lower or higher in concentration than the Yreka sample indicated by uniform colours in the columns on the chart Figure 29.

The locations of all samples are shown in map Figure 30 and symbolized in map Figure 31 for Mo.

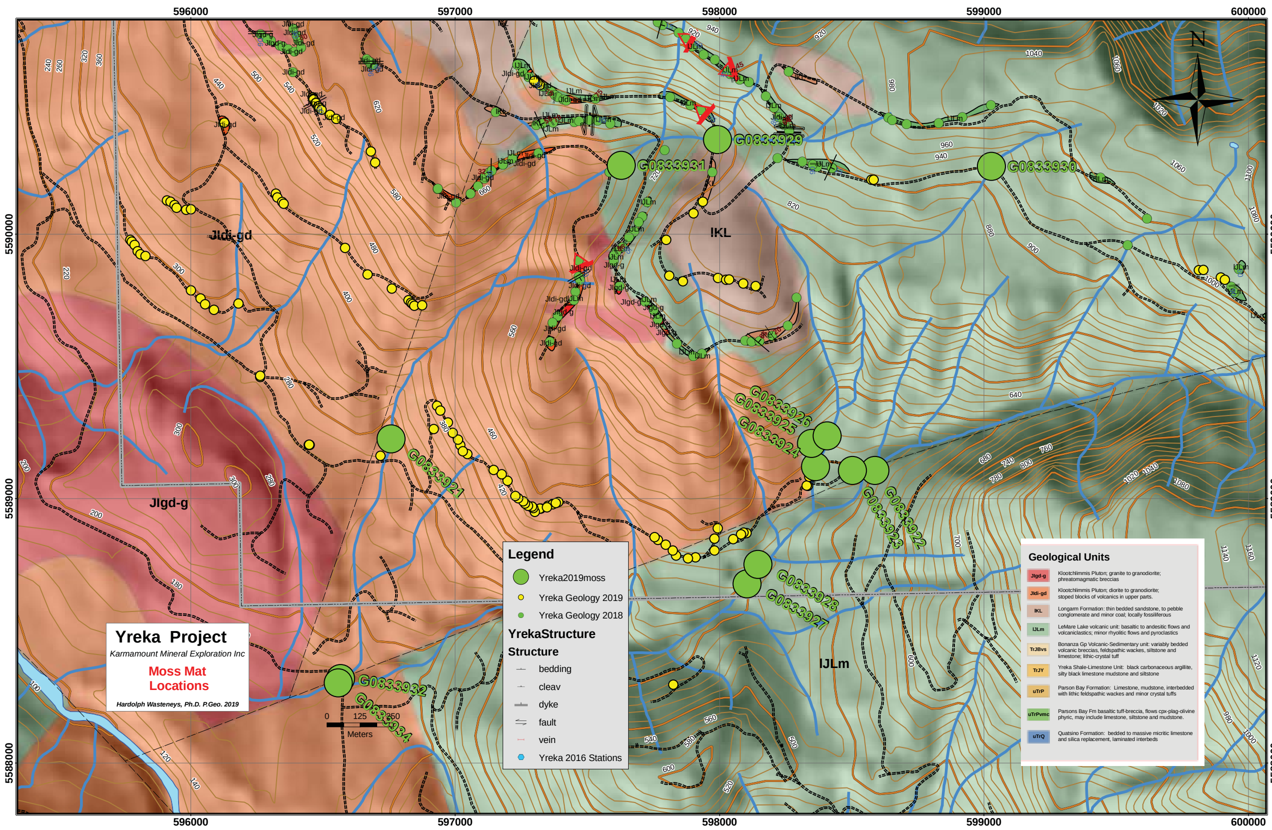

Figure 30: Moss Mat Sample locations on the western slope
Sample numbers and locations in bright green. Small yellow circles are 2019 field stations, Small green ciclres and structural symbols are from the 2018 field work.

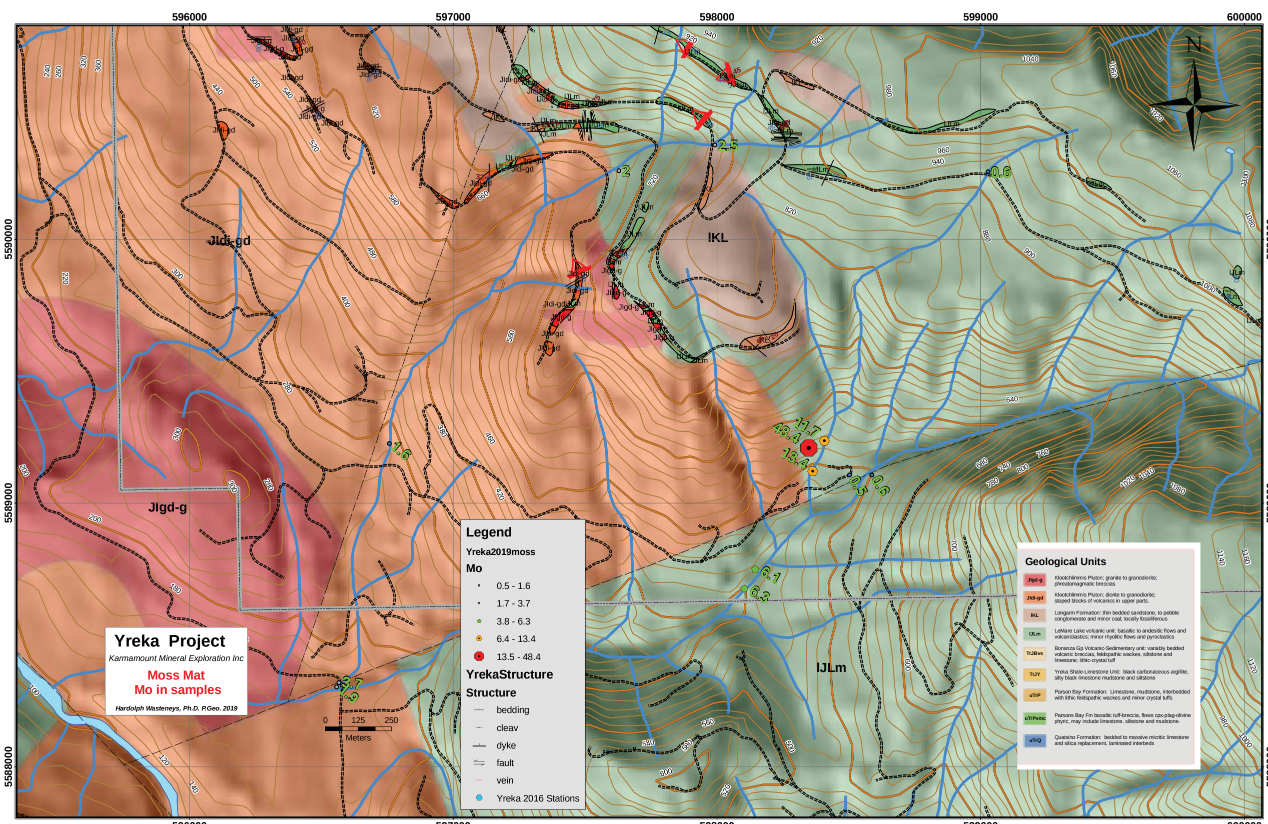

Figure 31: Mo concentration in Mat Samples.
Mo concentrations in ppm. Only one multi-sample anomaly was observed in the sample set other than the orientation sample below the Yreka skarn deposit.

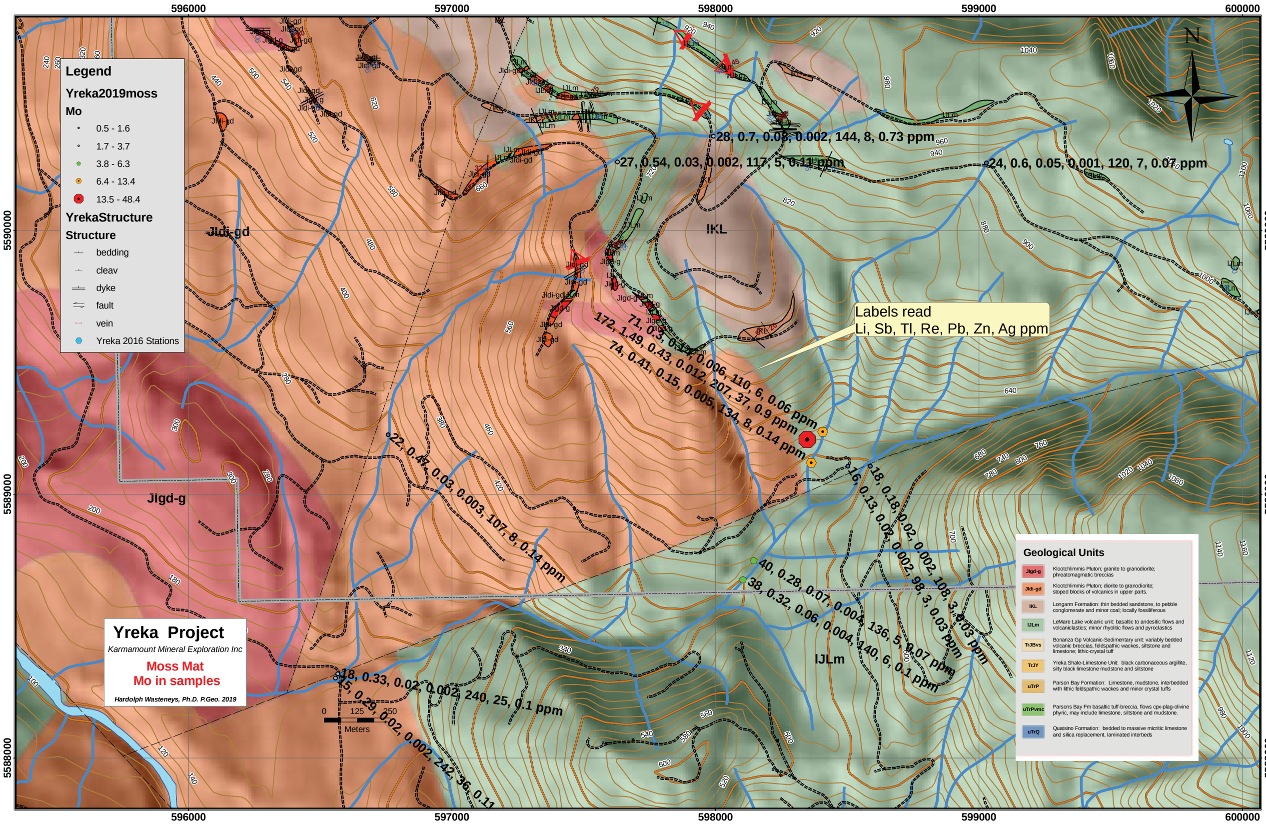

Figure 32: Anomalous elements associated with Mo concentration in Mat Samples.
All concentrations in ppm. Only one multi-sample anomaly was observed..

Geological Mapping

Several new roads were traversed in 2019 and some sites from 2018 revisited for more detailed examination. As well a new traverse was completed from the west side Comstock Ridge in to the upper reaches of Canyon Creek and the spur ridge above the Yreka skarn. The area is somewhat inaccessible from the east side because of an arduous several hundred meter climb through logging slashes and overgrown trails to reach the area. From the west, deactivated logging roads come within a few hundred meters of the ridge near the summit and a col at the head of a major stream on Comstock Mountain. From the ridge, accessing the area above Yreka requires a descent of about 600 meters either along steep stream banks or along the spur ridge. This was accomplished one day from a high camp on Comstock Mountain. The lowest point in the north arm of Canyon Creek reached was at the edge of logging slashes mixed with land slips which had regrown into difficult near impenetrable bush, but a few hundred meters above Yreka. From the the lowest point reached in the creek the return traverse followed a relatively gentle ridge to the summit of Comstock.

Silicified, pyritic porphyritic rocks were observed in the Canyon Creek ravine at several locations in addition to those observed in 2018. At the lowest point reached, laminated skarn-altered argillites were observed corresponding to the Parsons Bay Formation on BCGS map GM2011-3 (Nixon et al., 2011). Disseminated pyrite and pyrrhotite were notable in both of the lithologies and probably account for the strong chargeability responses in the two IP survey lines uphill from the Yreka deposit.

Geological observations on the western slopes were mainly within the Klootchlimmis pluton along a lower series of logging roads than traversed in 2018. The main lithology observed was coarse hornblende diorite to gabbro varying to monzonite with pink alkali feldspars.

A breccia complex found in 2018 (Figure 18) was reexamined critically and reinterpreted. It was found that the rock face previously interpreted as a phreato-magmatic breccia was actually a form of igneous breccia covered by a thick veneer of fault gouge that gave the impression of streaming around pebbles in a phreatomagmatic breccia. The gouge was about 5 mm thick and was deflected around larger fragments in the underlying breccia, which was at the margin of a medium grained hornblende diorite. Above the fault contact, which was only observed along strike of the rock face, is a fine grained leucocratic diorite that has been stockwork fractured possibly as a result of fault motion, but perhaps also as a result of hydrothermal decompression. The breccia below the fault resembles a coarse volcanic breccia, but grades into a coherent non-brecciated phaneritic rock a few meters below the fault surface. The breccia fragments are subrounded to angular medium grained hornblende diorite surrounded by finer grained diorite without much evidence of rock flour or mechanical gouge. The IP line closest to the breccia did not show a high chargeability response despite observed fractured controlled sulphides, indicating that the breccia is of narrow extent associated with a fault zone.

Along the new traverses on the lower roads gabbros and hornblende diorites were the most common lithologies observed. The most common lithology was biotite and hornblende phyric gabbros to diorites with accessory magnetite. Biotite appears as a primary mineral. Pink feldspars are evident in some more leucocratic varieties that are probably monzonitic and in one new outcrop appear as dykes cutting the more mafic phases. Minor alteration was observed mainly shown by coarse pyrite, but along one of the IP lines at a chargeability anomaly, gypsum veinlets were observed in 2018. At another chargeability anomaly on the southern line minor chloritic slips were observed cutting the gabbros.

No clear evidence was found of the second magma series determined in the lithogeochmical study of 2018. Instead of whole rock lithogeochemistry. a handheld XRF (Niton XL3t) was used to determine, at least qualitatively, several rock forming elements in the rocks. These included Fe, Ti, Zr, Ca, K, Sr, Zr, Hf, Mn, Cr, V, and S. The objective was attempt to classify the intrusive rocks in the two suite identified by the lithogeochemical analysis of rock collected in 2018 within the Klootchlimmis pluton. Zr and Ti were the main distinguishing elements and in practice Zr proved to be the most consistently useful element for analysis with the XRF. Other major rock forming elements such as Ca and Fe displayed a lot of variability that was difficult to reconcile with the actual compositions without analyzing the rock by whole rock geochemistry. This probably was a consequence of the relatively small area of the analyzer beam relative to the coarse phaneritic nature of the intrusive rocks. Individual analyses of the same rock show variability reflecting different proportions of mafic silicates and feldspars under the beam. Analyses downloaded from the XRF unit are tabulated in Appendix B Table 4.

XRF readings are recorded in Table 4 of Appendix B correlated with geology stations. Gnerally, no significant mappable pattern was discernible in the data and it remains to reanalyse whole rock samples from the 2018 work to clarify their utility. At one location high Zr readings, above 300 ppm, were notable in a fine grained diorite with unclear contacts with surrounding gabbros and diorites. Elsewhere, high Zr readings were found in sucrose-textured feldspar porphyritic dykes of probable granitic or quartz monzonitic composition representing the second magma series. Titanium readings were not as consistent, but many in the high Zr group were relatively low. Other elements determined by the pXRF were not consistent enough to be diagnostic.

Units of the Cretaceous Longarm Formation were confirmed within the map area. One location was along the northern IP line at a significant chargeability anomaly. Outcrops consisted of coarse hematitic grits interbedded with laminated grey and black siltstones.

Although the Longarm Formation was unconformably deposited on the LeMare Lake group volcanics and the Klootchlimmis pluton, deformation has affected the Longarm resulting in northerly trending folding with one measured fold axis trending 325 and plunging north at 20 degrees. The IP chargeability anomaly "B" on line 2000N (Figures 25 to 28) occurs in the middle of the area covered by the formation and therefore may be caused by minerals within the rocks such as hematite in the grits or graphite in the siltstones. The corresponding resistivity is low indicating a relatively conductive body in this case possibly the observed shales or graphitic siltstones.

Recommendations

The IP survey has revealed unexpected anomalies on the western slope of Comstock Ridge that are worthy of additional ground exploration. The two anomalies within the Klootchlimmis pluton both have moderate resistivity responses, which is in the usual range for stockwork mineralization. No significant alteration has been noted around the area of the anomalies except for gypsum veining, which is found in some porphyry system peripheral to mineralization.

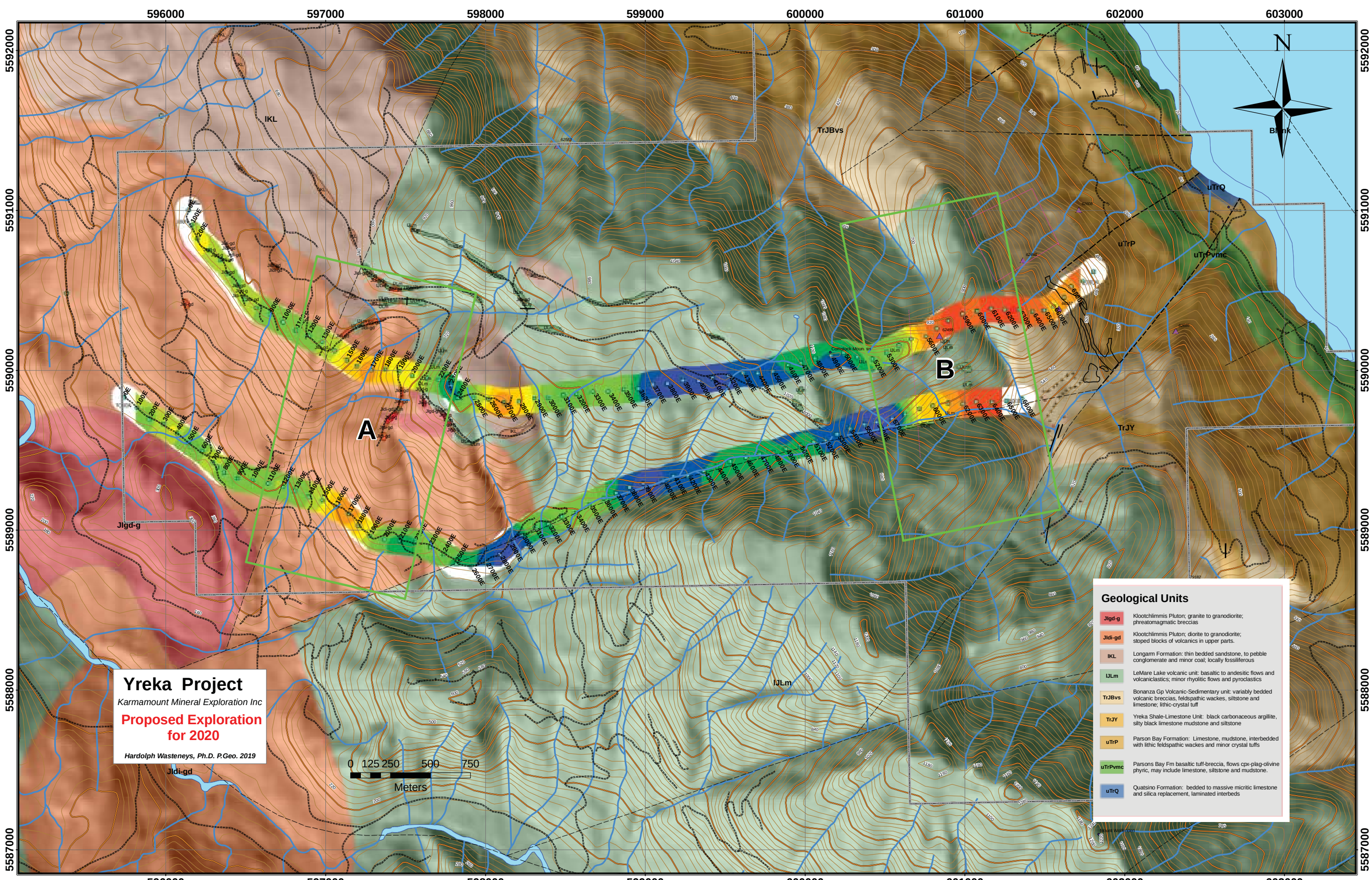

Figure 33: Proposed ground exploration areas for the 2020 field season
Area B is the priority on the strength of the IP anomaly and the observed presence of strongly altered rocks distal to the Yreka skarn in LeMare Lake Volcanics.
The northern part of Area A is in a steep ravine, but is generally readily accessible from logging roads.

Ground exploration should be focused on two aspects with a 2 square km area designated area "A" on Figure 33: 1. Stream geochemistry using moss mats in the streams through the IP anomalies and 2. Detailed lithogeochemistry to sort out mappable unit of the two magma series differentiated in 2018 in the area of the anomalies to determine if either is associated with mineralization. Current mapping in 2019 augmented by pXRF did not confirm any distinctly mappable units representing the two magma series partly because of the broad overlap of rock forming element compositions except for Zr.

On the Yreka slope an anomalous IP response was expected proximal to the skarn horizons. Unexpectedly, however, a strong chargeability anomaly continued up-slope above the skarns for over 800 meters into the LeMare Lake Volcanics where many occurrences of strongly silicified, pyritically altered volcanics and possibly dioritic intrusives were observed this year and in 2018. Although the immediate area of the Yreka deposit, such as between 6300 E and 7000 E on line 2000N, can be expected to have been thoroughly explored, the farther parts of the same IP anomaly between 6300 E and 5600 E do not appear to have much recorded exploration. The same chargeability response is apparent on line 1000 N suggesting continuity across the slope in the LeMare Lake volcanics. Access to the area was improved during the 2019 season to aid the IP survey and it looks feasible to explore a 2 km by 1 km strip centred across the western edge of the anomalous IP designated area "B" on Figure 33. The southern end of the area can be reached from the Y400 road system while the center and north can be reached by trails reopened below Yreka.

The area should be thoroughly prospected and geological mapped augmented by whole rock lithogeochemistry to determine alteration intensity. Soil geochemistry along two 2 km lines should be completed along contours although mineralized targets may be too deep to be observed in soils. The portable XRF would require more correlation work with whole rock geochemistry to determine a useful suite of elements to aid in alteration mapping.

More detailed geophysical surveys might be contemplated such as deeper IP lines run in a grid across the 2 square km area. Arrays using 100 meter dipoles and 1 to 10 separations would sense deeper and the data could be subjected to 3-d inversions if 1.5 km lines were spaced at 400 meters. A magnetic survey should also be conducted over the proposed exploration area with sufficient detail to identify areas of magnetite destructive alteration.

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Yreka2019

Exploration Work type	Comment	Days	Rate	Subtotal*	Totals
Personnel (Name)* / Position	**Field Days (list actual days)**	**Days**	**Rate**	**Subtotal***	
Hardolph Wasteneys / Chief Geo	July 20-27; Sept 4-7, 2019	13	$800.00	$10,400.00	
Peter Ravensbergen /assistant	July 20-27; Sept 4-7, 2019	12	$420.00	$5,040.00	
				$0.00	
Scott Geophysics				$0.00	
Gord Stewart/ crew chief	Sept19, Oct3	2	$525.00	$1,050.00	
Esteban Zaragoza / technician	Sept19, Oct3	2	$525.00	$1,050.00	
Gord Stewart/ crew chief	Sept20-Oct 2	13	$1,000.00	$13,000.00	
Esteban Zaragoza / technician	Sept20-Oct 2	13	$750.00	$9,750.00	
Jan Hansen /crew	Sept 19- Oct 2	2	$250.00	$500.00	
Matt Kozenko/crew	Sept 19, Oct 3	2	$250.00	$500.00	
Isaac Swift-Scott/crew	Sept 19, Sept 29	2	$250.00	$500.00	
Brad Scott/crew	Sept 25, Oct 1, 3	2	$250.00	$500.00	
Jan Hansen	Sept 20- Oct 2	12	$350.00	$4,200.00	
Matt Kozenko	Sept 20- Oct 2	13	$350.00	$4,550.00	
Isaac Swift-Scott	Sept 20- Sept 28	9	$350.00	$3,150.00	
Brad Scott	Sept 26- Oct 2	6	$350.00	$2,100.00	
			$0.00	$0.00	
				$56,290.00	**$56,290.00**
Office Studies	**List Personnel (note - Office only, do not include field days**				
Literature search			$0.00	$0.00	
Database compilation	Hardolph Wasteneys	1.0	$800.00	$800.00	
Computer modelling			$0.00	$0.00	
General research			$0.00	$0.00	
Report preparation	Hardolph Wasteneys	7.0	$800.00	$5,600.00	
				$6,400.00	**$6,400.00**
Ground Exploration Surveys	**Area in Hectares/List Personnel**				
Geological mapping	100/ Hardolph Wasteneys				
Regional		*note: expenditures here*			
Reconnaissance		*should be captured in Personnel*			
Trenches	Define by length and width			$0.00	**$0.00**
Ground geophysics	**Line Kilometres / Enter total amount invoiced list personnel**				
IP	Scott Geophysics contract 1945I01 (details in personnel and other categories)	12.9 km	$54,494.95		
Scott Geophysics	Contract and line fee			$1,782.00	
Geophysical interpretation	12.9 km 2-D IP Inversion (Scott)		$1,290.00	$1,290.00	
Other (specify)					
				$3,072.00	**$3,072.00**
Geochemical Surveying	**Number of Samples**	**No.**	**Rate**	**Subtotal**	
Stream sediment		13	$41.13	$534.69	
Rock	*laboratory costs*		$0.00	$0.00	
Whole rock			$0.00	$0.00	
Petrology			$0.00	$0.00	
Other (specify)			$0.00	$0.00	
				$534.69	**$534.69**
Transportation		**No.**	**Rate**	**Subtotal**	
truck rental	Scott Geophysics 1945I01	15	$160.00	$2,400.00	
truck rental	Scott Geophysics 1945I01	15	$160.00	$2,400.00	
kilometers	Wasteneys vehicle 2 trips to Yreka	2,284	$0.55	$1,256.20	
fuel	Wasteneys		$324.00	$324.00	
Other					
				$6,380.20	**$6,380.20**
Accommodation & Food	**Rates per day**				
Hotel	For Scott crew	2	$1,824.80	$3,649.60	
Scott Geophysics (meals)	Scott crew meals and groceries		$5,772.95	$5,772.95	
Camp	Wasteneys gear expenses			$212.00	
Meals	Wasteneys (camp groceries)			$395.00	
				$10,029.55	**$10,029.55**
Miscellaneous					
Telephone			$0.00	$0.00	
Other (Specify)	Radios and InReach fees			$95.00	
				$95.00	**$95.00**
Equipment Rentals					
Field Gear (Specify)	chain saw		$120.00	$120.00	
				$120.00	**$120.00**
TOTAL Expenditures					**$82,921.44**

Table 2: Abbreviations
Measurement Units, Element Abbreviations and Acronyms used in this report.:

Measurement Units:

C	Celsius
cm	centimeter
g/t	g/t
ha	hectares
Hz	Hertz
km	kilometer
kg	kilogram
m	meter
mm	millimeter
Ma	Million years ago
Mt	Million tonnes
ppb	parts per billion
ppm	parts per million
t	tonnes
wt%	weight percent

Element Abbreviations:

Ag	Silver
As	Arsenic
Au	Gold
Cd	Cadmium
Ce	Cerium
Cu	Copper
Eu	Europium
La	Lanthanum
Mo	Molybdenum
Mn	Manganese
Pb	Lead
Pd	Palladium
Pt	Platinum
Sb	Antimony
Yb	Ytterbium
Zn	Zinc

Minerals:

bn	bornite
cc	chalcocite
cpy	chalcopyrite
po	pyrrhotite
py	pyrite
sp	sphalerite

Geological Terms

Fm	Formation
Gp	Group
SW	southwest
NW	northwest

Acronyms:

AAS	Atomic Absorption Spectroscopy
ARIS	British Columbia Assessment Report Index System
BCGSB	B.C. Geological Survey Branch
EM	Electromagnetic
MEMPR	Ministry of Energy Mines and Petroleum Resources
FA	Fire Assay
GIS	Geographic Information System
GPS	Geographic Positioning System
Mag	Magnetometer
N-MORB	Normal Mid-Ocean Ridge Basalt
NTS	National Topographic Series
QA	Quality Assurance
QC	Quality Control
REE	Rare Earth Element
RGS	Regional Geochemistry Survey
TMI	Total Magnetic Intensity
UTM	Universal Transverse Mercator

Station	Northing	Easting	Altitude	Sample	Rock	Description	XRF#s
HW19-722	5600194	171373	710			light brown dykes fingering into black friable tuff; feldspar phyric andesite	
HW19-723	5599909	171495	738			black vfg sediment or VC cut by pale brown fg andesitic dyke complex	
HW19-724	5599919	171486	741			10 m west same OC location; black fg basalt cut by brown fg dykes	#243
HW19-725	5599923	171479	742			larger mass of leucocratic diorite fine grained 5% mafic in discrete mag	#249 Zr 154
HW19-726	5599927	171475	742			cpy in veinlet in medium grained equigranular hb diorite	#245 Zr 207
HW19-727	5599649	172149	763	G0833929		stream Moss Mat v-shaped ravine steep below culvert 5 m high bridge and log cribs	
HW19-728	5599686	172146	766			msv fg basalt within qtz veinlets	
HW19-729	5599420	172074	817			tight packed grit rounded fragments at top of long grade w deep swale Longreach Fm	
HW19-730	5599379	172036	817			along spur road grit overlain by vfg grey siltstone to sandstone	
HW19-731	5599287	171924	802			pebble conglomerate Longreach Fm overlain by fg grey green sandstone	
HW19-732	5599150	171925	796			white amygdules to 8 mm white wx feldspar laths in aphanitic basalt dyke cutting aphanitic basalt w angular qtz veins	
HW19-733	5599125	171975	791		rock sample	small oc ridge altered rock w basalt rafts trace cpy in veins	#246, 247, 248 Cu 1629
HW19-734	5599126	172108	793			coarse IKL grit interbedded w fine grained sandstone b240/23	
HW19-735	5599117	172139	795			deeply wxd clay finely laminated ochre yellow and black siltstone b 185/85 IKL	
HW19-736	5599118	172150	795			IKL b 347/25 sandstone and siltstone	
HW19-737	5599098	172202	794			corse massive grit to conglomerate black rusty wx	
HW19-738	5599085	172248	794			coarse IKL grit hematitic roadbed 5 mm pebbles end of spur	
HW19-739	5599009	173926	983			feldspar porphyry	#250 Zr 61
HW19-740	5599009	173943	986			red-maroon wx amygdaloidal basalt	#251 Zr 147
HW19-741	5598975	174006	999			very nice amygdaloidal basalt chlorite radiating into amygdules with calcite core	#252 Zr 77
HW19-742	5598965	174021	1000			large roadside oc msv basalt few calcite veins	
HW19-743	5599464	173175	914	G0833930		20 m down deep ravine V-shaped thick sandy colluvium on both banks MOSS MAT	
HW19-744	5599582	171778	638	G0833931		Moss Mat	moss mat
HW19-745	5597730	170561	168			roadside oc pink granite to granodiorite with pnk feldspars	#253; #254
HW19-746	5597714	170552	169	G0833934		at old road crossing washout moss on waterfall outcrop thick bedded sandstone grey green and black siltstone-argillite	moss mat direct sample
HW19-747	5597779	171228	311				
HW19-748	5597689	171258	321				
HW19-749	5597672	171264	322				
HW19-750	5597605	171816	406				
HW19-751	5600145	176011	262			Yreka old road; rusty orange wx rock at shallow dipping skarn structure	

Table 3: Table of Geological Observations in the Yreka area for 2019
Northing and Easting are in UTM Zone 9 NAD 83.

Station	Northing	Easting	Altitude	Sample	Rock	Description	XRF#s
HW19-752	5599957	176079	303			pile of old logs on road end	
HW19-753	5599905	176065	313				
HW19-616	5598893	170351	149			Rd junction	
HW19-617	5598596	170821	200			2 m stream above road OC in creek aligned fault zone brecciated fault F 030 orange wx	
HW19-618	5598619	170825	222			creek at 10 m waterfall moss mat from clumps of moss on outcrop rock hd diorite heavily fractured altered and veined with feldspathic fill	
HW19-619	5598559	170781	236			pit on road side near bridge; shear zone parallel to creek 032/46 rusty dk ornage wx coarse grained biotite granodiorite	
HW19-620	5598643	170990	313			magnetite greenish altered plagioclase large interstitial pyrite grains tonalite? Biotite mag or diorite	
HW19-621	5598156	171801	417			granodiorite pink feldspars med grained dyke xenolith of basalt contact zone	Zr 299; Sr 662, Fe 34.8 Cr 75, Ti 1589 K28.1
HW19-622	5598168	171790	417			pink dykelets in dk grey amygdaloidal basalt	
HW19-623	5598136	171830	419			up road: breccia of basalt fragments in pink granite angular	
HW19-624	5598092	171865	429			big OC at curve: feldspar porphyry 4 mm equant feldspars in aphanitic black matrix	Fe 73.3K Cr 151 Ti 6001 Ca 56.7 visible cpy/py diss
HW19-625	5598111	171855	431			dk volcanics fg cut by pink granite dykes feldspar porphyry 10 m to the south	
HW19-626	5598079	171938	438			feldspar porphyry dyke 250/73	
HW19-627	5598353	172642	484	G0833922		thick collapsing till banks no silt in creek; moss from logs and woody debris	washed sample from moss into 12 by 20 plastic bag
HW19-628	5598359	172557	496	G0833923		Moss mat from boulder in active stream no steep banks good thick silt under moss washed in bag	then into Hubco washed sample from moss into 12 by 20 plastic bag
HW19-629	5598314	172384	467			Camp	
HW19-630	5598348	172408	463			tributary creek 1.5 m blocks of Cretaceous Longreach Formation conglomerate in creek small blocks of LeMare Lake volcanics	
HW19-631	5598385	172419	477	G0833924		edge of slash: moss mat G0833924 channel 4 m wide good flow moss dry from boulders in center of creek	
HW19-632	5598449	172421	505			OC in small steep tributary; pyritic matrix gritty calcite qtz veins few m up strean msv in volc or VC	
HW19-633	5598466	172416	524			OC at base of 4 m drop: argillite no sharp contact in grey green andesite above calcite veins in argillite grey green volcanicvs laced w pyrite veinets bleached on fresh surface	
HW19-634	5598474	172411	534	G0833925		Moss Mat: on grey green wx volc/VC w thick black argillite lenses	
HW19-635	5598487	172408	539			10 m upstream from 634: black argillite w calcite veins disrupted bedding appears continuos above b359/40 W contact w lens of clastic rock	
HW19-636	5598498	172472	526	G0833926		very steep sided canyon large trib creek: MOSS MAT from rocks and logs in grey bxd volc	Zr136; Fe20.1 Cr 111 Ti 2891; Ca 4510; K 1285
HW19-637	5598155	172138	449			roadcut 100 m long: mafic volc w epidote veing varible blocky fxing glassy palagonized glass calcite veined	

Station	Northing	Easting	Altitude	Sample	Rock	Description	XRF#s
HW19-638	5598157	172127	449			large plag crystals to 1 cm by 2 mm in dykes cutting section of brittle and soft altered basalt; magnetite in black soft palagonized basalt	
HW19-639	5598152	172117	448			feldpsar porphyritic basalt: trachytic glomeropophyritic magnetic cut by veins w epidote and calcite-hem; plag phyric basalt continues	
HW19-640	5598136	172086	446			grey msv basalt w abundant fxs; rock crumbles locally scattered plag phenos generally magnetic altered plag crystals pale green locally zones of pyrite cubes	
HW19-641	5598099	172012	441			long OC opf same fxd soft altered basalt; not porphyritic pervasively magnetic	
HW19-642	5598143	172016	454			at spur junction massive dk grey basalt w chloritic amygdules and mervasive magnetism and calcit alteration an thin veining	
HW19-643	5598143	172016	454			massive vfg plag phyric ? Cut by sill 1 m thick of pale grey andesite all weakly magnetic in contract to 642	
HW19-644	5598181	172031	465			same black fxd basalt but more coherent breaks along fresh clean curved fxs vfg non-clac weak mag	
HW19-645	5598078	171910	437			litic breccia anglular cm size frags of coherent lava in recessive matrix	
HW19-646	5597960	172129	393			pink granite dyke sharp contact w aphanitic volcanics	
HW19-647	5597963	172125	393	G0833927		hemlock-and fir forest rinse into bag some thick sandy sed	
HW19-648	5598034	172172	434	G0833928		MOSS MAT from island midstream washed moss 50 m upstream from G0833927	
HW19-649	5598318	171397	443		rock	July 30 hb diorite w bright pnk feldspars 30% hb forms dyke intruding fxd contact 038/90	XRF#165
HW19-650	5598325	171417	444			cg gabbro or hb gabbro same texture s 649 but wxs more deeply and no streaks of pink feldspar	
HW19-651	5598323	171416	446			to east of hb diorite: breccia of polyhedral hb diorite blocks and pebble sized fragments in lean matrix ? Colluvium?	
HW19-652	5598330	171438	447			deeply argillically wxd altered pale grey to creamy white aplite dyke ? Colluvium	XRF#164
HW19-653	5598310	171370	449			west of 652 other side of coherent diorite finely brecciated diorite in situ fxing ? Colluvium	167
HW19-654	5598310	171366	447			round dioirite clast in polyhedral matrix photo; highly friable	
HW19-655	5598300	171346	448			fg diorite w stockwork fxs adjacent to bx pipe? Like 722	XRF #168: Zr 487
HW19-656	5598314	171341	449			pyrite altered fg diorite intensively fx but not bxd in borrow pit filled w woody debris	
HW19-657	5598321	171337	449			chlorite altn pervasive dk grn and pale mineral fg coherent int rock black chlorite on fx surfaces	169: Zr 496
HW19-658	5598325	171322	441			pyrite on fxs in fg grey diorite planar fx set 280/80 abundant pyrite 160/35 and 178/75	170: Zr 269: 171: Zr 294
HW19-659	5598334	171311	440			orange wx fault gabbro on left/ bx right adjacent to colluvium.	
HW19-660	5598343	171305	438			fresh hb diorite gabbro transitional to 659 etc mg scattered chlorite altered mafics gabbro texture	172: Ti 2834
HW19-661	5598357	171287	434			solid gabbro diorite m-f gr moderate mag susc discrete mag grains pyrite diss pervasively as 0.5 mm grains	173:00:00
HW19-662	5598365	171277	432			cg hb gabbro diss pyrite cut by chloritized black bx 30 cm wide friable rock w no platy minerals	174: Sr1441 ; #175 black crap; Sr 1246

Station	Northing	Easting	Altitude	Sample	Rock	Description	XRF#s
HW19-663	5598426	171252	423			py-chlalt diorite or gabbro non-mag	#176: Zr 128
HW19-664	5598538	171109	391			DYKE pnk k-spar monzonite; inclusions of fg int-mafic diorite contact 025/15 gabbro below	#179: Zr 132
HW19-665	5598574	171084	383			chl-alt pervasive black slips on fx surface gabbro	#181: Zr 178
HW19-666	5598596	171078	379			continues from 665 but cg hb w stubby and biotite primary trace py hb diorite-monzonite	#182: Sr 1227: #183: Sr 1431
HW19-667	5598624	171060	375			pink feldpsars in patches leucocratic monzonite dyke cutting diorite continues down road as intermittent 5 to 10 m dykes	#184: Zr 161
HW19-668	5598664	171045	370			cg hb bi diorite w some pink feldspars interstitial to mafics few % pyrite and epidote	#185 Zr 140
HW19-669	5598730	171009	365			vcg bi-hb monzodiorite discrete grains of pyrite	#188
HW19-670	5598326	171427	450			at black clay seam in colluvium or dyke?	XRF #163 Zr 39; RF 166
HW19-671	5598314	171393	449				
HW19-672	5598452	171233	415			gabbro	#165; #177 Zr 264
HW19-673	5598471	171203	411			dk hb diorite variable to cg-mg 2 - 3 mm	#178: Sr 1248
HW19-674	5598551	171092	386			mg gabbro/diorite	#180: Zr 52
HW19-675	5598711	171020	368			gabbro/diorite cg 2 - 3 mm strong mag	#187
HW19-676	5598621	170517	259			July 31, 2019 20 m wide quarry on low road: grey wx black chl slips on joints, fg gabbros/diorite w diss pyrite chl alt of mafics; mod mag varies to more leucocratic diorite	XRF# 191, 192; Zr 230
HW19-677	5598622	170513	269			north wall of pit; black aphanitic contact w diorite 048/90; skarny reaction zone	#189, #190
HW19-678	5598622	170515	272			4 m wide band of streaky alteration pale green and pink at contact w diorite and black aphanitic rock	#193
HW19-679	5599451	169902	289			med gr diorite or tonalite salt and pepper grey cut by brown coloured fg phase 3 m wide alternating back to diorite	#194; 195
HW19-680	5599444	169907	289			mg bi-hb dk grey gabbro - diorite	#196
HW19-681	5599430	169917	290			mg grey hb diorite hb black	#197
HW19-682	5599405	169927	291			m-cg dk grey 15% mafics hb diorite - tonalite	#198
HW19-683	5599393	169936	292			f-mg hb diorite med grey	#199, 200
HW19-684	5599385	169954	293			m-fg hb diorite med grey w melt pods of pinkinsh felds w hb phenos	#201 mg diorite: #202 melt pods
HW19-685	5599241	170116	289			feldspars	
HW19-686	5599207	170149	290			mg hb diorite w cg hb melt pids w coarse epidote	#204
HW19-687	5599185	170165	292			cg hb diorite cut by leucocratic veins 075/85	#205 and 206
HW19-688	5599160	170196	296			mg hb diorite	#207
HW19-689	5599177	170291	297			diorite chopped up by gypsum veins v 250/65 and 020/80	#208; 209
HW19-690	5599588	170053	366			new spur road mg hb diorite med grey	#210
HW19-691	5599582	170065	364			leucocratic hb diorite m-fg 10% mafics	#211
HW19-692	5599568	170079	364			5% mafics grey pinkish tonalite	#212
HW19-693	5599558	170087	365			leucocratic hb diorite <5% mafics fg white wx	#213
HW19-694	5599546	170122	367			fg leuco diorite 10% mafics	#214
HW19-695	5599547	170141	368			fg leucocratic 15% mafic mad mag susc	#215
HW19-696	5599580	170466	413			overgrown spur road w alders; m-cg gabbro diorite pink feldspathic veins 15% mafics	
HW19-697	5599565	170470	413			same OC as 696 gradation to more leucocratic w pinkish feldspars	
HW19-698	5599547	170487	413			oc cont: cg leucocratic hb diorite hb alt to chl small mag crystals	

Station	Northing	Easting	Altitude	Sample	Rock	Description	XRF#s
HW19-699	5599540	170492	412			cg diorite-monzonite pink-maroon feldspar mafics-chlorite mag and pyrite	
HW19-700	5599354	170711	416			altered pinkish feldspar porphyry small oc pinkish domains may be k-spar	
HW19-701	5599248	170788	440			light rusty wx diorite; mafics converted to chlorite; pale grey indistinct grains mag discrete domains/grains	
HW19-702	5599186	170874	457		rock	pale grey sucrose texture feldpspar porphyry	#223 Zr 324
HW19-703	5599137	170934	472			grey fg diorite rusty wx pyritic	
HW19-704	5599127	170943	474			fg grey pervasive mag diorite very fine chlorite fxs w bleached aureoles	
HW19-705	5599122	170948	479			cg hb diorite equigranular 2-3 mm stubby hb ; no contact observed with 704	
HW19-706	5599114	170954	481			leucocratic white hb poikilitic or fine clusters w feldspars	#224 Zr 120
HW19-707	5599114	170983	486			at top of spur above creek dk grey rusty wx zero mag large oc (to east back into diorite w mag)	#225 Zr 155
HW19-708	5599864	170293	425			light; cg hb diorite/gabbro w 30 cm round leucocratic hb tonalite xenoliths; in turn cg hb diorite cut by light pinkish hb tonalite;	#217 xenolith; #218 dark phase: 219 light phase; #220 light phase: 221 dark phase: 222 light phase Zr 242
HW19-709	5599933	170634	555			dark phase 15 m from 708 cg monzonite	
HW19-710	5599932	170635	555			return to breccia pipe from 2018: angular breccia of grit cm and decimeter polyhedral fragments of leucocratic hb diorite in vfg dark recessive material; contact halfway up oc w grey aphanitic internally bxed volc	#226 Zr 57 matrix; #227 Zr43; #228 Zr ND
HW19-711	5599927	170637	556			fxd leucocratic hb diorite no separation grades up and to north into phreatic breccia	
HW19-712	5599925	170636	556			higly separated matrix rich breccia monolithic leuocodiorite grades into fxd diorite	
HW19-713	5599910	170644	556			in bx body streamed phreatic breccia polylithic chlorite and dk green fragments streaming is actually fault plane smearing l212-61	
HW19-714	5599911	170645	556			contact: Fault between breccia dn below fine grained fractured pyritic rock above 140/60	#229; #230
HW19-715	5599897	170653	557			fg hb diorite brecciated varies from coherent to jigsaw puzzle separation matrix poor large frags	#231
HW19-716	5599890	170656	558			rounded frags pebbles in bx diorite	
HW19-717	5599883	170664	560			massive coherent medium grey hb diorite no fxing of fragment formation	
HW19-718	5599862	170694	567			hb diorite mg abundant py; NO pervasive fxing	#234 Zr 132
HW19-719	5599844	170717	571			massive coherent hb diorite	#235
HW19-720	5599711	170837	576			end of road rusty highly fxd vfg leucocratic diorite /tonalite rusty shallow dipping fxs	#236 Zr 188; #237 Zr 162
HW19-721	5599668	170850	578			cg hb diorite gabbro diorite stubby hb interstitial to plag all subequant	#238 Zr 84
HW19-929	5598890	174589	881			September 5, 2019; On trav down E ridge massive fg basalt magnetic in old growth forest	
HW19-930	5598919	174657	872			coloured	
HW19-931	5598963	174717	860			below cliffs up to 100 m high blocky vertical basalt	
HW19-932	5598945	174891	785			steep creek basalt and quartz phyric felsic porphyry chunks	
HW19-933	5599023	175152	760			outcrop on spur steep rusty basalt w oyrite diss along fxs	

Station	Northing	Easting	Altitude	Sample	Rock	Description	XRF#s
HW19-934	5599021	175187	754			vfg basalt rusty wx fine diss py on fxs cont from 933	
HW19-935	5599013	175292	723			sharp bluffs w cleft against main slope	
HW19-936	5598785	175300	579		rock	rudty wx oc main creek fx set 014/80 white wx angular fgs silicified tuff green lenticular domains pyrite in fxs amoeboid replacement texture bleached white porcelaneous	
HW19-937	5598823	175389	553			slide 20 years old in gravel and boulders runs up to riudge 30 m wide opne view across to lgging slash along Y400	
HW19-938	5598819	175479	541		rock	banded rock fg silicious b 145/22 white and red bands w pyrite in fxs runs up creek forming east sliope of ravine skarn banding white and pale green	
HW19-939	5598821	175496	553			old cabin site recent trail cutting	
HW19-940	5598936	175503	633			anchor station of logging highline	
HW19-941	5599080	175473	693			silicified pyritized porphyry; bleached white w completely replaced phenocrysts pyrite rusty wx	
HW19-942	5599101	175476	708			rsuty wx hb porphyritic diorite	
HW19-943	5599113	175473	721			silicified	
HW19-944	5599138	175454	737		rock	pyritically altered volcanic or diorite rusty wx	
HW19-945	5599151	175467	746			well exposed fresh oc of hb porphyritic diorite rusty fxs and hb corroded on surface; qtz veinlets cm alteration selvages oriented 349/77	
HW19-946	5599486	175225	884			pyrite repl of phenocrysts in dk grey mg basalt; large twinned plag phenos; square mafics rep by pyrite wx surface clean plag phyric text w 2 cm ellipsoids altered inclusions of granodiorite	
HW19-947	5599346	175050	889			feldspar porphyritic basalt vfg silicified	
HW19-948	5599260	174745	1019			above 50 m cliff on ridge overlooking Quatsino Sound [photo]	
HW19-949	5599246	174308	1118			meadows on top of Comstock	
HW19-950	5599451	172717	883			CAMP site	
HW19-camp	5599451	172726	0				
HW19-CAMP JULY2019	5598316	172380	457				
HW19-Placemark 1	5598898	170351	0				
HW19-Yreka road	5599882	176718	0				
HW19-camp	5598348	172392	0				
HW19-Tramline	5599404	175995	0				
HW19-Placemark 4	5600145	176038	0				

Reading No	SAMPLE	Zr	Ti	Fe	Ca	K	Sr	Mn	Cr	V	S	Cu
145	HW19-593	126	3190	26482	39003	20285	1796	525	138	234	5000	100
146	HW19-571	34	7732	70176	58109	10515	1486	1327	173	314	5000	100
147	HW19-727	323	1487	45465	10808	1571	585	200	75	30	5000	100
148	HW19-727	409	2610	83402	22454	400	486	200	40	30	5000	100
152	HW19-621	299	1589	34790	11937	28052	662	646	76	150	5000	100
154	HW19-624	34	6001	73309	56691	16760	2034	1064	151	338	5000	100
155	HW19-625	110	7662	84339	25766	32451	1214	874	40	375	5000	100
156	HW19-626	436	1062	18358	4283	34791	220	200	78	150	5000	100
157	HW19-636	135	2891	20055	4510	1285	543	820	112	314	5000	100
158	HW19-636	34	200	2000	2000	500	100	200	40	30	5000	100
160	HW19-634	45	2683	39418	159906	7409	1288	1235	40	30	5000	100
161	HW19-634	65	5446	69134	36023	11516	1513	1107	40	325	5000	100
162	HW19-618	100	2486	20302	4326	400	157	574	40	30	5000	100
163	HW19-670	39	1760	45283	10552	3363	157	3557	40	390	5000	100
164	HW19-652	34	638	7696	98122	400	675	1264	40	250	5000	100
165	HW19-649	34	1632	67620	51350	10422	761	1302	112	263	5000	100
166	HW19-671	34	4982	134536	17681	3534	386	1376	40	323	5000	100
167	HW19-653	34	2780	81131	17193	3420	1170	1252	40	286	5000	100
168	HW19-655	488	1263	40336	3051	14961	561	614	70	158	5000	100
169	HW19-657	497	1204	26677	6211	400	424	200	64	30	5000	100
170	HW19-658	269	1287	32294	6091	9776	882	200	69	129	20758	100
171	HW19-658	294	2445	123562	5956	1429	481	794	40	30	85801	100
172	HW19-660	34	2834	78634	50554	8591	1303	1462	40	318	5000	100
173	HW19-661	34	5306	71948	44746	6339	1520	1696	40	30	5000	100
174	HW19-662	34	1640	64241	63426	5809	1441	1431	40	350	5000	100
175	HW19-662	34	1096	96461	30321	2265	1246	1444	40	30	5000	100
176	HW19-663	129	4625	84421	25202	7226	989	1717	40	30	5000	100
177	HW19-672	265	4835	53588	21947	12084	1445	1472	40	227	5000	100
178	HW19-673	34	3190	62853	56526	3916	1248	1205	123	255	5000	100
179	HW19-664	132	2201	28389	14959	22041	729	639	107	210	5000	100
180	HW19-674	53	1572	30960	14182	9422	1622	916	40	162	5000	100
181	HW19-665	179	1724	42098	16508	13013	941	827	70	153	5000	100
182	HW19-666	34	4812	60936	60685	4777	1227	1183	212	330	5000	100
183	HW19-666	34	3114	73982	32749	4531	1431	1080	40	256	5000	100
184	HW19-662	162	3191	30888	20443	25224	681	200	78	211	5000	100
185	HW19-668	140	3510	41612	27349	20925	1780	617	40	294	5000	100
186	HW19-675	34	4145	71955	59362	5549	1718	961	40	447	5000	100
187	HW19-669	34	3027	58960	51898	6792	1456	911	121	212	5000	100
188	HW19-669	34	2722	78249	41851	8701	1703	1080	40	184	5000	100
189	HW19-677	193	14706	85746	41435	400	879	1283	40	30	5000	100
190	HW19-677	223	4732	95556	19997	2842	1102	2376	40	30	5000	100
191	HW19-677	110	5437	64954	34788	8633	1429	639	40	304	17223	100
192	HW19-677	231	5225	103140	18331	9219	1171	200	40	335	31412	100
193	HW19-677	60	2001	21656	116038	1678	878	2492	40	147	5000	100
194	HW19-679	110	2799	43356	42301	12278	2237	200	40	287	5000	100
195	HW19-679	84	2405	21367	12793	854	683	200	73	162	5000	100
196	HW19-680	84	1545	50081	45230	6821	2025	625	143	202	5000	100

Table 4: Portable XRF readings on rocks at Geology stations
Elements selected for the list a mainly rock forming that were predominantly above detection limit elements except for Cu and S. Readings of 34 for Z, 200 for Ti, 2000 for Fe, 2000 for Ca, 400 for K, 200 for Mn, 40 for Cr, 30 for V, 100 for Cu and 5000 for S indicate below detection limit for that element..

Reading No	SAMPLE	Zr	Ti	Fe	Ca	K	Sr	Mn	Cr	V	S	Cu
200	HW19-683	34	1027	45384	46223	1477	626	895	40	197	5000	100
201	HW19-684	56	2037	45070	63530	8432	2060	836	146	182	5000	100
202	HW19-684	91	203	5701	61405	5580	1049	200	94	63	5000	100
203	HW19-685	69	4868	51876	36709	9145	2080	1148	40	232	5000	100
204	HW19-686	34	2633	36101	48241	12526	1952	1008	121	149	5000	100
205	HW19-687	34	2707	26394	68107	10221	2333	710	178	140	5000	100
206	HW19-687	34	278	11254	231051	400	754	399	40	30	5000	100
207	HW19-688	34	2749	66515	46414	8628	2253	1217	97	301	5000	100
208	HW19-689	34	210	4757	75040	1795	1585	200	69	67	5000	100
209	HW19-689	63	3187	55406	37186	12194	4135	860	40	269	5000	100
210	HW19-690	124	4069	50427	37194	11757	1836	1004	204	300	5000	100
211	HW19-691	79	2850	30640	12103	1939	499	200	80	222	5000	100
212	HW19-692	104	2112	27107	11969	1586	436	200	73	123	5000	100
213	HW19-693	74	1700	26971	11785	3042	621	200	79	157	5000	100
214	HW19-694	61	3013	32206	16115	3165	602	200	96	165	5000	100
215	HW19-695	152	3041	34988	14489	2630	513	398	89	173	5000	100
217	HW19-708	34	271	28524	104900	2806	1380	200	40	88	5000	100
218	HW19-708	100	2706	79192	48400	3383	1316	1531	40	30	5000	100
219	HW19-708	228	30907	19712	59668	400	459	791	101	560	5000	100
220	HW19-708	125	1164	15151	179330	400	459	2991	40	30	5000	100
221	HW19-708	34	2310	57928	52329	7110	1969	1203	118	258	5000	100
222	HW19-708	242	2873	20063	12243	2859	715	200	76	125	5000	100
223	HW19-702	324	5702	28452	27974	12758	330	452	40	30	5000	100
224	HW19-706	120	393	11533	158029	3655	890	200	64	30	5000	100
225	HW19-707	155	1363	48544	15468	11627	892	755	40	166	5000	100
226	HW19-710	57	1544	59022	17298	2911	795	200	40	135	5000	100
227	HW19-710	43	1642	14218	13590	2969	956	200	84	30	5000	100
228	HW19-710	34	3156	27505	30018	2166	376	655	76	165	5000	100
229	HW19-714	47	3127	91498	54582	400	1192	1317	40	458	5000	100
230	HW19-714	65	3018	27299	38692	1391	536	808	40	171	5000	100
231	HW19-715	34	3919	83469	39398	10896	1358	810	40	310	5000	100
234	HW19-718	132	3328	63957	139192	2814	698	777	40	276	5000	100
235	HW19-719	34	4853	69716	43932	6349	890	904	40	354	5000	100
236	HW19-720	188	1814	21328	12623	7680	708	435	82	109	10397	100
237	HW19-720	162	2089	28611	10839	8627	773	640	85	117	5000	100
238	HW19-721	84	13974	70100	41666	7597	1785	1768	225	357	5000	100
239	HW19-722	34	1811	81215	42006	5592	9310	1865	40	30	5000	100
240	HW19-722	34	1509	163973	8134	400	477	3977	40	357	5000	100
241	HW19-723	243	1124	22236	5661	32866	462	200	89	184	5000	100
242	HW19-723	48	2762	126270	12077	400	838	6005	40	287	5000	100
243	HW19-724	44	3327	99061	24889	5790	1013	1192	40	334	5000	100
244	HW19-724	279	1917	36776	8339	29729	412	460	40	205	5000	100
245	HW19-726	207	967	36301	7448	1013	170	447	69	96	5000	8930
246	HW19-733	90	1748	19356	2000	500	253	1197	40	30	5000	308
247	HW19-733	123	1829	35132	2000	500	183	875	40	30	5000	327
248	HW19-733	111	3640	27181	2000	500	149	3172	40	30	5000	1639
249	HW19-725	154	1486	19429	6578	18580	468	200	86	147	5000	100
250	HW19-739	61	1772	35211	6205	5566	1438	492	40	124	5000	100
251	HW19-740	147	6444	71726	2098	12268	264	14048	40	267	5000	100
252	HW19-741	77	5333	99193	114853	400	208	2364	40	30	5000	100

Reading No	SAMPLE	Zr	Ti	Fe	Ca	K	Sr	Mn	Cr	V	S	Cu
253	HW19-744	34	564	5538	30864	50509	741	200	93	208	5000	100
254	HW19-744	34	3154	50715	33174	8120	1471	678	104	298	5000	100
264	HW19-657	508	1118	32698	13558	5350	307	200	93	30	5000	100
268	HW19-750	362	1062	34811	82723	18178	353	2219	40	139	28585	100
269	HW19-750	301	3581	61472	24304	7124	573	1756	40	220	5000	100
270	HW19-657	363	2172	45773	11019	9762	861	200	78	152	61615	100
271	HW18-727	356	1149	35205	8919	400	492	200	76	30	5000	100
272	HW18-571	44	3908	65440	54495	8035	1200	1275	137	273	5000	100
273	HW18-593	224	1364	25723	37950	28488	1580	650	141	223	5000	100
259	HW19-749	34	2538	60186	19721	7435	2739	1112	40	166	5000	100

Aqua Regia With ICP-MS Finish

Method selection can be key to achieving exploration success. Sample type, target commodity, and pathfinder elements should all be considered when selecting the most appropriate method for your project.

Aqua regia is an excellent exploration tool for various deposit types that involve gold, silver and base metals hosted in sulphide and carbonate minerals.

CODE	ANALYTES & RANGES (ppm)								PRICE PER SAMPLE
	Ag	0.01-100	Cs	0.05-500	Mo	0.05-10,000	Sr	0.2-10,000	
	Al	0.01-25%	Cu	0.2-10,000	Na	0.01%-10%	Ta	0.01-500	
	As	0.1-10,000	Fe	0.01%-50%	Nb	0.05-500	Te	0.01-500	
	Au*	0.02-25	Ga	0.05-10,000	Ni	0.2-10,000	Th	0.2-10,000	
	B	10-10,000	Ge	0.05-500	P	10-10,000	Ti	0.005%-10%	
	Ba	10-10,000	Hf	0.02-500	Pb	0.2-10,000	Tl	0.02-10,000	
ME-MS41™ **0.5g sample**	Be	0.05-1,000	Hg	0.01-10,000	Rb	0.1-10,000	U	0.05-10,000	**$30.05**
	Bi	0.01-10,000	In	0.005-500	Re	0.001-50	V	1-10,000	
	Ca	0.01%-25%	K	0.01%-10%	S	0.01%-10%	W	0.05-10,000	
	Cd	0.01-1,000	La	0.2-10,000	Sb	0.05-10,000	Y	0.05-500	
	Ce	0.02-500	Li	0.1-10,000	Sc	0.1-10,000	Zn	2-10,000	
	Co	0.1-10,000	Mg	0.01%-25%	Se	0.2-1,000	Zr	0.5-500	
	Cr	1-10,000	Mn	5-50,000	Sn	0.2-500			

* Gold determinations by this method are semi-quantitative due to the small sample weight used. For Au with multi-element using a 25g or 50g charge please use AuME-TL43™ or AuME-TL44™.

Table 5: Analytical ranges for ME-MS41 Aqua Regia with ICP-MS finish from the ALS Schedule of analytical procedures.

This method was used for the analysis of the 14 moss mat sample from Yreka

Station Sample	Northing Easting ALT	Description	Ag	Au	Cu	Pb	Zn
HW19-618 G0833921	5598619 170825 221	creek at 10 m waterfall moss mat from clumps of moss on outcrop rock hd diorite heavily fractured altered and veined with feldspathic fill	0.14	0.01	49.3	7.7	107
HW19-627 G0833922	5598352 172641 484	thick collapsing till banks no silt in creek; moss from logs and woody debris	0.03	0.01	37.9	2.9	108
HW19-628 G0833923	5598358 172556 495	Moss mat from boulder in active stream no steep banks good thick silt under moss washed in bag	0.03	0.01	34.2	2.5	98
HW19-631 G0833924	5598384 172419 477	edge of slash: moss mat G0833924 channel 4 m wide good flow moss dry from boulders in center of creek	0.14	0.01	39.8	8.3	134
HW19-634 G0833925	5598473 172411 534	Moss Mat: on grey green wx volc/VC w thick black argillite lenses	0.90	0.09	31.8	37.2	207
HW19-636 G0833926	5598497 172472 526	very steep sided canyon large trib creek: MOSS MAT from rocks and logs in grey bxd volc	0.06	0.01	34.8	5.9	110
HW19-647 G0833927	5597963 172124 393	MOSS MAT in 10 m wide creek w good flow hemlock- and fir forest rinse into bag some thick sandy sed	0.10	0.01	41.7	5.5	140
HW19-648 G0833928	5598033 172172 433	MOSS MAT from island midstream washed moss 50 m upstream from G0833927	0.07	0.01	39.1	5.4	136
HW19-727 G0833929	5599649 172149 762	stream Moss Mat v-shaped ravine steep below culvert 5 m high bridge and log cribs	0.73	0.01	41.7	7.8	144
HW19-743 G0833930	5599464 173174 913	20 m down deep ravine V-shaped thick sandy colluvium on both banks MOSS MAT	0.07	0.01	29.3	7.0	120
HW19-744 G0833931	5599581 171777 638	Moss Mat	0.11	0.01	43.3	5.4	117
HW19-745 G0833932	5597729 170561 168	roadside oc pink granite to granodiorite with pnk feldspars	0.10	0.01	37.9	25.3	240
HW19-746 G0833934	5597714 170552 168	at old road crossing washout moss on waterfall outcrop thick bedded sandstone grey green and black siltstone-argillite	0.11	0.01	33.3	36.4	242
HW19-753 G0833935	5599904 176065	at base of waterfall over rusty weathering tuffs	2.31	7.25	604.0	17.1	356

Table 6: Moss Mat Sample Descriptions and Chemistry

Station Sample	Mo	Bi	Te	W	As	Sb	Tl	Cd	Co	Cr	Ni	Cs	Li	Mn	Rb
HW19-618 G0833921	1.59	0.05	0.03	0.10	28.0	0.47	0.03	0.21	26.0	20	22.7	0.40	21.9	950	2.2
HW19-627 G0833922	0.56	0.04	0.01	0.07	11.9	0.18	0.02	0.12	24.9	20	23.8	0.47	18.1	1290	2.4
HW19-628 G0833923	0.46	0.03	0.01	0.08	7.9	0.13	0.02	0.10	23.8	19	22.7	0.31	16.3	1060	1.6
HW19-631 G0833924	13.4	0.06	0.06	0.13	31.3	0.41	0.15	0.21	24.7	27	29.8	0.72	74.2	1200	3.5
HW19-634 G0833925	48.4	0.05	0.04	0.49	55.6	1.49	0.43	0.59	15.3	20	17.4	1.11	172	1450	8.4
HW19-636 G0833926	11.7	0.07	0.04	0.10	27.8	0.30	0.14	0.14	22.9	24	24.6	0.68	70.9	1180	3.0
HW19-647 G0833927	6.27	0.05	0.03	0.13	25.7	0.32	0.06	0.29	25.9	26	32.4	0.47	37.9	1100	2.2
HW19-648 G0833928	6.12	0.05	0.02	0.10	21.9	0.28	0.07	0.27	23.9	27	29.3	0.49	40.2	1100	2.2
HW19-727 G0833929	2.52	0.05	0.03	0.09	95.7	0.70	0.08	0.21	34.4	26	37.1	0.68	28.1	1850	2.6
HW19-743 G0833930	0.64	0.07	0.03	0.06	32.0	0.60	0.05	0.19	33.0	20	18	0.62	23.6	2460	5.0
HW19-744 G0833931	2.01	0.06	0.03	0.14	37.5	0.54	0.03	0.18	30.9	24	27	0.41	27.2	911	2.1
HW19-745 G0833932	3.71	0.04	0.01	0.12	17.3	0.33	0.02	0.78	19.3	33	21.5	0.30	17.8	800	1.8
HW19-746 G0833934	1.94	0.05	0.01	0.12	19.8	0.29	0.02	0.77	18.0	42	21.5	0.28	15	761	1.5
HW19-753 G0833935	1.17	1.91	0.75	2.07	135.0	0.96	0.34	2.16	30.2	99	68.4	1.64	10.5	1080	21.3

Station Sample	Se	Sr	U	V	Al	Ca	Fe	K	Mg	Na	Ti	S
HW19-618 G0833921	0.2	36.2	0.34	131	2.12	0.96	5.4	0.05	1.23	0.02	0.23	0.09
HW19-627 G0833922	0.6	30.1	0.23	149	2.55	0.92	6.44	0.04	1.67	0.03	0.34	0.03
HW19-628 G0833923	0.2	27.4	0.22	159	2.36	0.91	6.42	0.03	1.71	0.03	0.37	0.02
HW19-631 G0833924	0.4	36.6	0.37	166	2.87	0.66	6.29	0.07	2.44	0.02	0.17	0.59
HW19-634 G0833925	1.1	40.5	0.5	323	2.29	0.83	4.88	0.16	3.67	0.02	0.11	0.24
HW19-636 G0833926	0.9	35.2	0.38	157	2.84	0.60	5.75	0.06	2.29	0.02	0.16	0.23
HW19-647 G0833927	0.5	32.2	0.29	180	2.54	0.88	6.63	0.04	2.08	0.03	0.31	0.33
HW19-648 G0833928	0.2	30.4	0.28	171	2.64	0.86	6.35	0.04	2.24	0.03	0.30	0.19
HW19-727 G0833929	0.4	36.5	0.24	145	3.18	0.59	6.4	0.05	1.68	0.02	0.20	0.07
HW19-743 G0833930	1.1	30.8	0.24	88	3.07	0.28	5.09	0.07	0.81	0.01	0.07	0.04
HW19-744 G0833931	0.6	35.5	0.27	147	2.42	0.83	6.46	0.05	1.44	0.02	0.21	0.16
HW19-745 G0833932	0.3	35.6	0.48	195	1.79	1.38	5.77	0.04	1.23	0.02	0.20	0.07
HW19-746 G0833934	0.5	35.7	0.46	257	1.62	1.54	6.68	0.03	1.12	0.02	0.20	0.12
HW19-753 G0833935	1.7	171.5	0.77	86	3.78	2.00	4.66	0.33	1.87	0.14	0.15	0.20

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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PO BOX 2160
CAMPBELL RIVER BC V9W 5C5

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CERTIFICATE TR19202442

Project: Yreka

This report is for 14 Sediment samples submitted to our lab in Terrace, BC, Canada on 15-AUG-2019.

The following have access to data associated with this certificate:

HARDOLPH WASTENEYS

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
DISP-01	Disposal of all sample fractions
LOG-22	Sample login - Rcd w/o BarCode
SCR-41	Screen to -180um and save both

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION
ME-MS41	Ultra Trace Aqua Regia 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:

Colin Ramshaw, Vancouver Laboratory Manager

ALS Canada Ltd.
2103 Dollarton Hwy
North Vancouver BC V7H 0A7
Phone: +1 (604) 984 0221 Fax: +1 (604) 984 0218
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Sample Description	Method	WEI-21	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41
	Analyte	Recvd Wt.	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs
	Units	kg	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
	LOD	0.02	0.01	0.01	0.1	0.02	10	10	0.05	0.01	0.01	0.01	0.02	0.1	1	0.05
G0833921		0.52	0.14	2.12	28.0	<0.02	10	30	0.60	0.05	0.96	0.21	20.3	26.0	20	0.40
G0833922		0.42	0.03	2.55	11.9	<0.02	10	20	0.63	0.04	0.92	0.12	22.5	24.9	20	0.47
G0833923		1.54	0.03	2.36	7.9	<0.02	10	20	0.60	0.03	0.91	0.10	19.20	23.8	19	0.31
G0833924		1.14	0.14	2.87	31.3	<0.02	<10	40	0.75	0.06	0.66	0.21	24.8	24.7	27	0.72
G0833925		0.62	0.90	2.29	55.6	0.09	10	30	0.80	0.05	0.83	0.59	23.6	15.3	20	1.11
G0833926		0.88	0.06	2.84	27.8	<0.02	<10	50	0.78	0.07	0.60	0.14	24.3	22.9	24	0.68
G0833927		1.14	0.10	2.54	25.7	<0.02	10	30	0.68	0.05	0.88	0.29	20.0	25.9	26	0.47
G0833928		1.12	0.07	2.64	21.9	<0.02	10	30	0.64	0.05	0.86	0.27	18.90	23.9	27	0.49
G0833929		1.10	0.73	3.18	95.7	<0.02	<10	60	0.67	0.05	0.59	0.21	21.7	34.4	26	0.68
G0833930		0.52	0.07	3.07	32.0	<0.02	<10	80	1.51	0.07	0.28	0.19	36.3	33.0	20	0.62
G0833931		1.00	0.11	2.42	37.5	<0.02	<10	30	0.60	0.06	0.83	0.18	19.35	30.9	24	0.41
G0833932		1.20	0.10	1.79	17.3	<0.02	40	20	0.44	0.04	1.38	0.78	16.85	19.3	33	0.30
G0833933		1.74	0.11	1.62	19.8	<0.02	60	20	0.36	0.05	1.54	0.77	15.65	18.0	42	0.28
G0833934		0.50	2.31	3.78	135.0	7.25	<10	80	0.41	1.91	2.00	2.16	10.30	30.2	99	1.64

Table 7: Certificates of Geochemical Analysis for Moss Mats

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2103 Dollarton Hwy
North Vancouver BC V7H 0A7
Phone: +1 (604) 984 0221 Fax: +1 (604) 984 0218
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Project: Yreka

CERTIFICATE OF ANALYSIS TR19202442

Sample Description	Method	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41
	Analyte	Cu	Fe	Ga	Ge	Hf	Hg	In	K	La	Li	Mg	Mn	Mo	Na	Nb
	Units	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm
	LOD	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
G0833921		49.3	5.40	8.20	0.18	0.19	0.04	0.042	0.05	7.8	21.9	1.23	950	1.59	0.02	0.55
G0833922		37.9	6.44	10.60	0.16	0.23	0.04	0.053	0.04	7.4	18.1	1.67	1290	0.56	0.03	0.67
G0833923		34.2	6.42	10.50	0.21	0.30	0.03	0.047	0.03	6.6	16.3	1.71	1060	0.46	0.03	0.32
G0833924		39.8	6.29	9.34	0.17	0.07	0.04	0.062	0.07	8.3	74.2	2.44	1200	13.35	0.02	0.51
G0833925		31.8	4.88	7.80	0.17	0.05	0.10	0.071	0.16	10.2	171.5	3.67	1450	48.4	0.02	0.34
G0833926		34.8	5.75	8.91	0.15	0.09	0.04	0.054	0.06	8.4	70.9	2.29	1180	11.65	0.02	0.60
G0833927		41.7	6.63	9.64	0.21	0.23	0.03	0.052	0.04	7.0	37.9	2.08	1100	6.27	0.03	0.45
G0833928		39.1	6.35	9.94	0.20	0.23	0.01	0.049	0.04	6.6	40.2	2.24	1100	6.12	0.03	0.38
G0833929		41.7	6.40	10.60	0.12	0.06	0.07	0.057	0.05	6.1	28.1	1.68	1850	2.52	0.02	0.40
G0833930		29.3	5.09	9.10	0.07	0.02	0.08	0.054	0.07	13.0	23.6	0.81	2460	0.64	0.01	0.54
G0833931		43.3	6.46	9.18	0.15	0.13	0.04	0.040	0.05	7.4	27.2	1.44	911	2.01	0.02	0.39
G0833932		37.9	5.77	7.92	0.19	0.16	0.04	0.037	0.04	6.9	17.8	1.23	800	3.71	0.02	0.35
G0833933		33.3	6.68	7.61	0.18	0.13	0.05	0.028	0.03	6.4	15.0	1.12	761	1.94	0.02	0.25
G0833934		604	4.66	7.82	0.08	0.05	0.05	0.093	0.33	5.0	10.5	1.87	1080	1.17	0.14	0.54

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ALS Canada Ltd.
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North Vancouver BC V7H 0A7
Phone: +1 (604) 984 0221 Fax: +1 (604) 984 0218
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Sample Description	Method	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41
	Analyte	Ni	P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti
	Units	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
	LOD	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
G0833921		22.7	960	7.7	2.2	0.003	0.09	0.47	10.2	0.2	1.1	36.2	<0.01	0.03	0.6	0.229
G0833922		23.8	1020	2.9	2.4	0.002	0.03	0.18	13.6	0.6	1.1	30.1	<0.01	0.01	0.3	0.337
G0833923		22.7	1000	2.5	1.6	0.002	0.02	0.13	13.7	0.2	0.8	27.4	<0.01	0.01	0.4	0.366
G0833924		29.8	760	8.3	3.5	0.005	0.59	0.41	13.2	0.4	0.7	36.6	<0.01	0.06	0.5	0.169
G0833925		17.4	510	37.2	8.4	0.012	0.24	1.49	15.5	1.1	0.9	40.5	<0.01	0.04	0.5	0.105
G0833926		24.6	780	5.9	3.0	0.006	0.23	0.30	10.7	0.9	0.7	35.2	<0.01	0.04	0.6	0.155
G0833927		32.4	840	5.5	2.2	0.004	0.33	0.32	13.1	0.5	0.8	32.2	<0.01	0.03	0.4	0.308
G0833928		29.3	840	5.4	2.2	0.004	0.19	0.28	13.1	0.2	0.8	30.4	<0.01	0.02	0.4	0.295
G0833929		37.1	750	7.8	2.6	0.002	0.07	0.70	13.8	0.4	0.7	36.5	<0.01	0.03	0.3	0.198
G0833930		18.0	920	7.0	5.0	0.001	0.04	0.60	6.7	1.1	0.7	30.8	<0.01	0.03	0.2	0.071
G0833931		27.0	900	5.4	2.1	0.002	0.16	0.54	10.2	0.6	0.5	35.5	<0.01	0.03	0.5	0.208
G0833932		21.5	1000	25.3	1.8	0.002	0.07	0.33	7.6	0.3	0.6	35.6	<0.01	0.01	0.6	0.203
G0833933		21.5	980	36.4	1.5	0.002	0.12	0.29	6.3	0.5	0.6	35.7	<0.01	0.01	0.6	0.203
G0833934		68.4	800	17.1	21.3	0.003	0.20	0.96	6.9	1.7	0.8	171.5	<0.01	0.75	0.4	0.145

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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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To: WASTENEYS, HARDOLPH
PO BOX 2160
CAMPBELL RIVER BC V9W 5C5

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CERTIFICATE OF ANALYSIS TR19202442

Sample Description	Method	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41
	Analyte	Tl	U	V	W	Y	Zn	Zr
	Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	LOD	0.02	0.05	1	0.05	0.05	2	0.5
G0833921		0.03	0.34	131	0.10	17.50	107	6.4
G0833922		0.02	0.23	149	0.07	21.3	108	7.5
G0833923		0.02	0.22	159	0.08	20.6	98	10.2
G0833924		0.15	0.37	166	0.13	16.00	134	3.5
G0833925		0.43	0.50	323	0.49	24.8	207	2.4
G0833926		0.14	0.38	157	0.10	14.45	110	3.0
G0833927		0.06	0.29	180	0.13	17.95	140	8.1
G0833928		0.07	0.28	171	0.10	17.55	136	8.0
G0833929		0.08	0.24	145	0.09	14.45	144	2.3
G0833930		0.05	0.24	88	0.06	18.65	120	<0.5
G0833931		0.03	0.27	147	0.14	15.25	117	3.8
G0833932		0.02	0.48	195	0.12	14.90	240	5.4
G0833933		0.02	0.46	257	0.12	13.65	242	5.6
G0833934		0.34	0.77	86	2.07	10.25	356	1.3

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2103 Dollarton Hwy
North Vancouver BC V7H 0A7
Phone: +1 (604) 984 0221 Fax: +1 (604) 984 0218
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PO BOX 2160
CAMPBELL RIVER BC V9W 5C5

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CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

Gold determinations by this method are semi-quantitative due to the small sample weight used (0.5g).

Applies to Method: ME-MS41

LABORATORY ADDRESSES

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

Applies to Method: DISP-01 LOG-22 ME-MS41 SCR-41 WEI-21

SCOTT GEOPHYSICS LTD.
4013 West 14th Avenue
Vancouver, B.C., V6R 2X3

Tel 604 682 4465
Fax 604 228 0254

Geophysical Survey Progress Report – IP/GPS Surveys SGL Project 1945

Karamount Mineral Exploration Inc, Yreka Property, Port Alice Area, BC

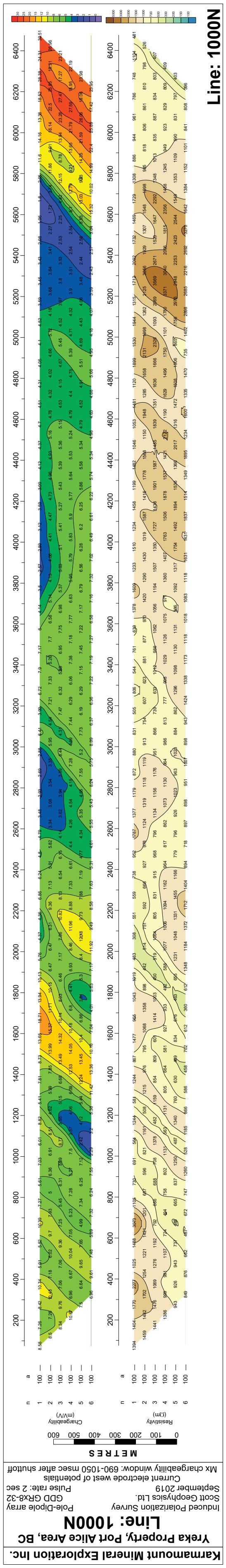
Date	Lines surveyed and comments	progress/dump number
Sept 19	Travel to Port Alice	travel
Sept 20	set up on grid; IP: 2000N 0E-1200E p-d array a=10/n=1-6	1200m IP01
Sept 21	IP: 2000N 1200E-1600E very thick bush – very steep ravine – several breaks in wires	400m IP02
Sept 22	IP: 2000N 1600E-1900E very thick bush – most of the day line cutting	300m IP03
Sept 23	IP: 2000N 1900E-4300E	2400m IP04
Sept 24	flat tires from sharp rocks on drive in – to Port McNeil to repair/replace	
	IP: 2000N 4300E-5100E	800m IP05
Sept 25	IP: 2000N 5100E-6200E very steep – slow going	1200m IP06
	Brad travel to Port Alice to assist with line cutting	
Sept 26	IP: 2000N 6200E-7000E very, very steep – slow going	800m IP07
	Brad to Port McNeil to replace tires on Nissan (rock cuts)	
Sept 27	IP: 1000N 0E-1400E	1400m IP08
Sept 28	IP: 1000N 1400E-3300E very thick bush	1900m IP09
Sept 29	moved setup and cut line – Isaac demob to Nanaimo	move setup/ line cutting
Sept 30	IP: 1000N 3300E-5600E	2300m IP10
Oct 1	IP: 1000N 5600E-6600E	1000m IP11
Oct 2	Jan demob, Brad – office day, Gord, Esteban, and Matt wrap up and take down	take down
Oct 3	demob (Brad, Gord, Esteban, Matt)	travel

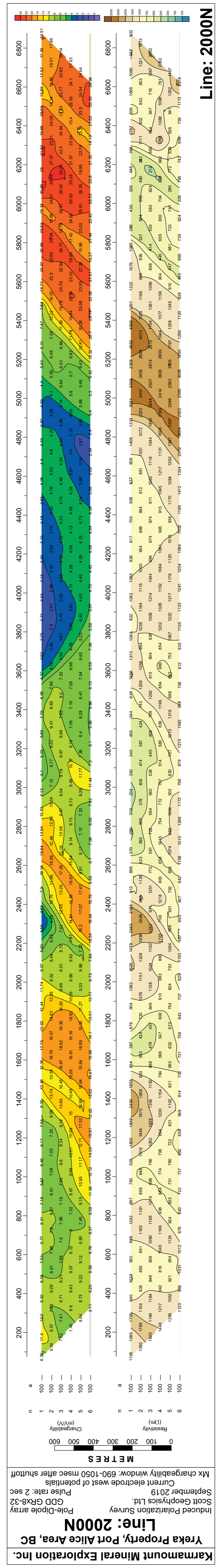
IP/GPS survey: 12.9 km p-d array a=100m/n-1-6

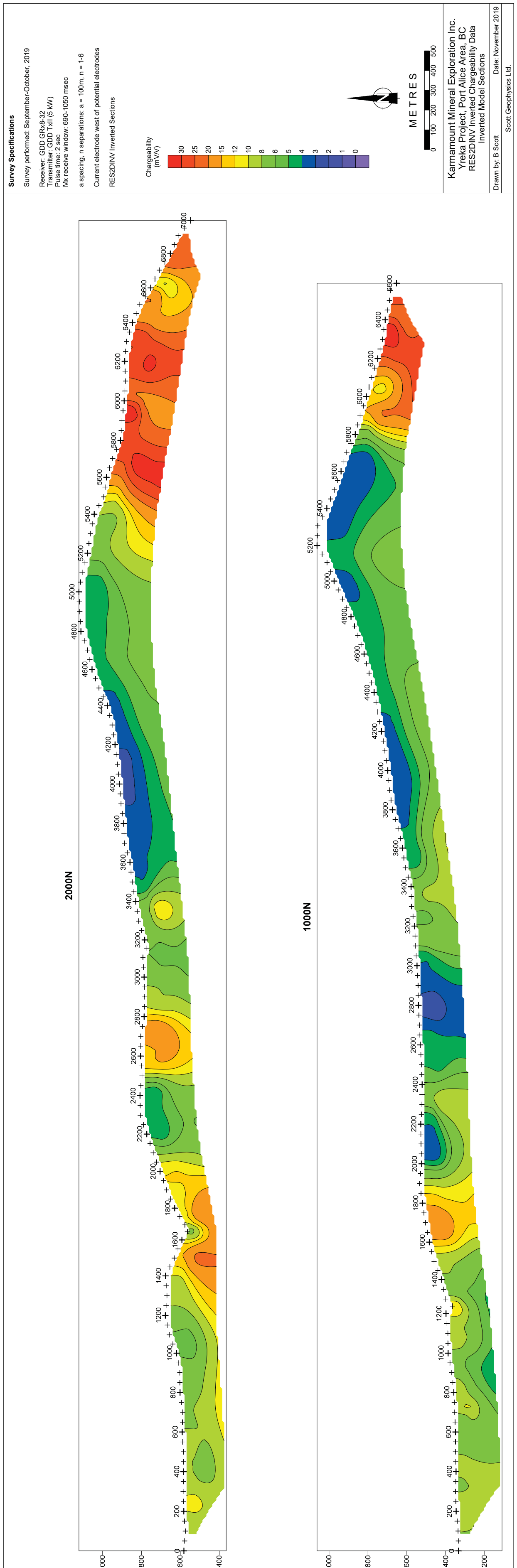
Scott Geophysics personnel: Gord Stewart, Esteban Zaragoza, Brad Scott (Sept 24-Oct 1),
Jan Hansen (Sept 19-Oct 2), Matt Kozenko, Isaac Swift Scott (Sept 19-29)

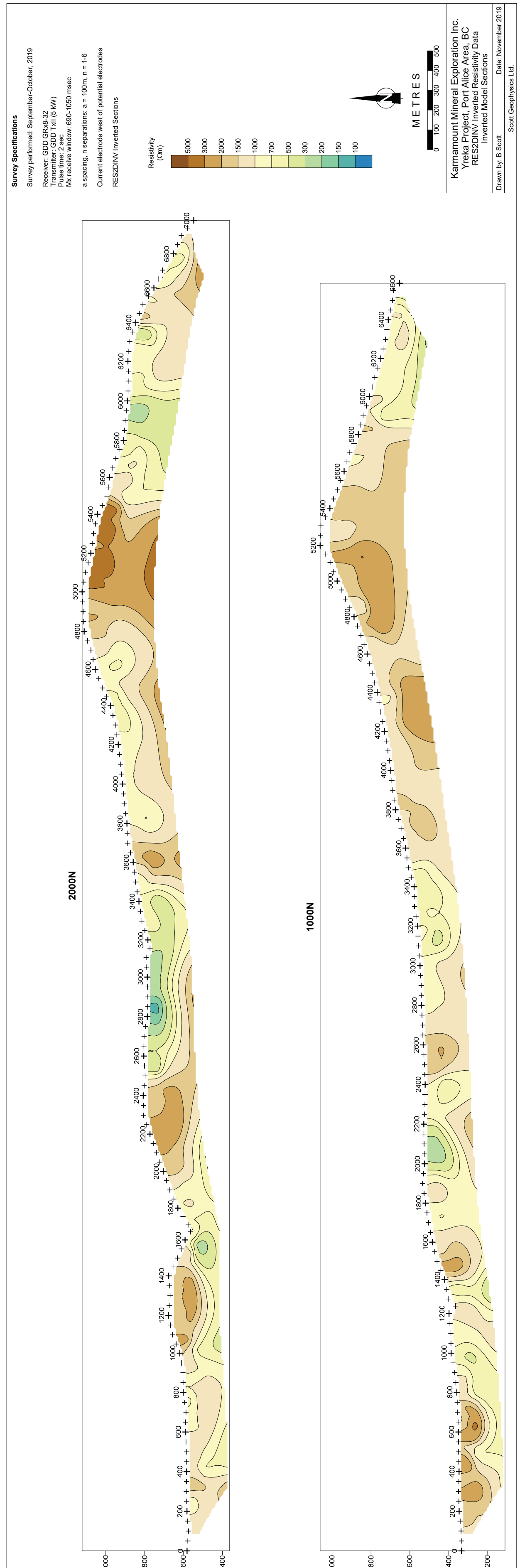
Signed: ____________________________

Date: October 10, 2019


Line: 1000N
Karmamount Mineral Exploration Inc.
Yreka Property, Port Alice Area, BC
Line: 1000N
Induced Polarization Survey
Scott Geophysics Ltd.
September 2019
Pole-Dipole array
GDD GRx8-32
Pulse rate: 2 sec
Current electrode west of potentials
Mx chargeability window: 690-1050 msec after shutoff
METRES
Chargeability (mV/V)
Resistivity (Ω.m)


Line: 2000N
Karmamount Mineral Exploration Inc.
Yreka Property, Port Alice Area, BC
Line: 2000N
Induced Polarization Survey
Scott Geophysics Ltd.
September 2019
Pole-Dipole array
GDD GRx8-32
Pulse rate: 2 sec
Current electrode west of potentials
Mx chargeability window: 690-1050 msec after shutoff
METRES
Chargeability (mV/V)
Resistivity (Ω.m)


Survey Specifications
Survey performed: September-October, 2019
Receiver: GDD GRx8-32
Transmitter: GDD TxII (5 kW)
Pulse time: 2 sec
Mx receive window: 690-1050 msec
a spacing, n separations: a = 100m, n = 1-6
Current electrode west of potential electrodes
RES2DINV Inverted Sections
Chargeability (mV/V)
METRES
Karmamount Mineral Exploration Inc.
Yreka Project, Port Alice Area, BC
RES2DINV Inverted Chargeability Data
Inverted Model Sections
Drawn by: B Scott
Date: November 2019
Scott Geophysics Ltd.
2000N
1000N
Elevation


Survey Specifications
Survey performed: September-October, 2019
Receiver: GDD GRx8-32
Transmitter: GDD TxII (5 kW)
Pulse time: 2 sec
Mx receive window: 690-1050 msec
a spacing, n separations: a = 100m, n = 1-6
Current electrode west of potential electrodes
RES2DINV Inverted Sections
Resistivity (Ωm)
METRES
Karmamount Mineral Exploration Inc.
Yreka Project, Port Alice Area, BC
RES2DINV Inverted Resistivity Data
Inverted Model Sections
Drawn by: B Scott
Date: November 2019
Scott Geophysics Ltd.
2000N
1000N
Elevation

Appendix D: Statement of Qualifications

Hardolph Wasteneys Ph.D., P.Geo.

I, Hardolph Wasteneys, Ph.D, P.Geo. resident at Strathcona Park Lodge, Campbell River BC, do hereby certify that:

I am a self employed Professional Geoscientist and have worked primarily in mineral exploration, mining, geological and U-Pb geochronological research, and geological education since 1976.

I am a registered member of the Association of Professional Engineers and Geoscientists of British Columbia.

I graduated with the degree of Bachelor of Science in Geological Engineering, Mineral Resources option from the Faculty of Applied Science, Queen's University, Kingston in 1979.

I graduated with the degree of Doctor of Philosophy (Geological Sciences) from Queen's University, Kingston in 1990 in the field of economic geology with research specialized in the study of epithermal ore deposits of southern Peru under the supervision of Prof. Alan H. Clark.

I conducted U-Pb geochronological research at the Jack Satterley Geochronology Laboratory in the Royal Ontario Museum directed by Dr. T. E. Krogh from 1990 to 1997 and completed numerous studies on the timing of ore deposition and regional metamorphism in collaboration with university and government survey geologists and resulting in several publications in peer reviewed international journals.

I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be a "Qualified Person" for the purposes of NI 43-101.

I am familiar with the Yreka property held by Karmamount Mineral Exploration Inc having completed geological mapping on the property in August and September, 2016.

signed at Upper Campbell Lake,

January 15, 2020

Hardolph Wasteneys, PhD, PGeo.

PROFESSIONAL
PROVINCE OF
Dr. H. A. WASTENEYS
#32102
BRITISH COLUMBIA
GEOSCIENTIST